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INNOVATION

I- Introduction to Innovation

Innovation can be defined simply as a "new idea, device or method". However, innovation is often also viewed as the application of better solutions that meet new requirements, unarticulated needs, or existing market needs. This is accomplished through more-effective products, processes, services, technologies, or business models that are readily available to markets, governments and society. The term "innovation" can be defined as something original and more effective and, as a consequence, new, that "breaks into" the market or society. It is related to, but not the same as, invention, as innovation is more apt to involve the practical implementation of an invention (i.e. new/improved ability) to make a meaningful impact in the market or society, and not all innovations require an invention. Innovation is often manifested via the engineering process, when the problem being solved is of a technical or scientific nature. The opposite of innovation is exnovation.

While a novel device is often described as an innovation, in economics, management science, and other fields of practice and analysis, innovation is generally considered to be the result of a process that brings together various novel ideas in a way that they affect society. In industrial economics, innovations are created and found empirically from services to meet the growing consumer demand.

II- Definition of Innovation

A 2014 survey of literature on innovation found over 40 definitions. In an industrial survey of how the software industry defined innovation, the following definition given by Crossan and Apaydin was considered to be the most complete, which builds on the Organization for Economic Co-operation and Development (OECD) manual's definition: " Innovation is: production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. It is both a process and an outcome."

According to Kanter innovation includes original invention and creative use and defines innovation as a generation, admission and realization of new ideas, products, services and processes.

Two main dimensions of innovation were degree of novelty (patent) (i.e. whether an innovation is new to the firm, new to the market, new to the industry, or new to the world) and type of innovation (i.e. whether it is process or product-service system innovation).

III- Areas of Innovation

III-1- Innovation in Business and economics

In business and in economics, innovation can become a catalyst for growth. With rapid advancements in transportation and communications over the past few decades, the old-world concepts of factor endowments and comparative advantage which focused on an area's unique inputs are outmoded for today's global economy. Economist Joseph Schumpeter(1883-1950), who contributed greatly to the study of innovation economics, argued that industries must

incessantly revolutionize the economic structure from within, that is innovate with better or more effective processes and products, as well as market distribution, such as the connection from the craft shop to factory. He famously asserted that "creative destruction is the essential fact about capitalism". Entrepreneurs continuously look for better ways to satisfy their consumer base with improved quality, durability, service, and price which come to fruition in innovation with advanced technologies and organizational strategies.

A prime example of innovation involved the explosive boom of Silicon Valley startups out of the Stanford Industrial Park. In 1957, dissatisfied employees of Shockley Semiconductor, the company of Nobel laureate and co-inventor of the transistor William Shockley, left to form an independent firm, Fairchild Semiconductor. After several years, Fairchild developed into a formidable presence in the sector. Eventually, these founders left to start their own companies based on their own, unique, latest ideas, and then leading employees started their own firms. Over the next 20 years, this snowball process launched the momentous startup-company explosion of information-technology firms. Essentially, Silicon Valley began as 65 new enterprises born out of Shockley's eight former employees. Since then, hubs of innovation have sprung up globally with similar metonyms, including Silicon Alley encompassing New York City.

Another example involves business incubators - a phenomenon nurtured by governments around the world, close to knowledge clusters (mostly research-based) like universities or other Government Excellence Centres - which aim primarily to channel generated knowledge to applied innovation outcomes in order to stimulate regional or national economic growth.

III-2- Innovation in Organizations

In the organizational context, innovation may be linked to positive changes in efficiency, productivity, quality, competitiveness, and market share. However, recent research findings highlight the complementary role of organizational culture in enabling organizations to translate innovative activity into tangible performance improvements. Organizations can also improve profits and performance by providing work groups opportunities and resources to innovate, in addition to employee's core job tasks. Peter Drucker wrote: "Innovation is the specific function of entrepreneurship, whether in an existing business, a public service institution, or a new venture started by a lone individual in the family kitchen. It is the means by which the entrepreneur either creates new wealth-producing resources or endows existing resources with enhanced potential for creating wealth.

According to Clayton Christensen, disruptive innovation is the key to future success in business. The organization requires a proper structure in order to retain competitive advantage. It is necessary to create and nurture an environment of innovation. Executives and managers need to break away from traditional ways of thinking and use change to their advantage. It is a time of risk but even greater opportunity. The world of work is changing with the increase in the use of technology and both companies and businesses are becoming increasingly competitive. Companies will have to downsize and re-engineer their operations to remain competitive. This will affect employment as businesses will be forced to reduce the number of people employed while accomplishing the same amount of work if not more.

While disruptive innovation will typically "attack a traditional business model with a lower-cost solution and overtake incumbent firms quickly," foundational innovation is slower, and typically has the potential to create new foundations for global technology systems over the longer term. Foundational innovation tends to transform business operating models as entirely new business models emerge over many years, with gradual and steady adoption of the innovation leading to waves of technological and institutional change that gain momentum more slowly.