

An Insight Into Innovation

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INTRODUCTION

It is felt that innovation will take us forward towards sustainability and development. The theme of innovation is in itself a vast topic of discussion and so some rudimentary ideas about innovation itself are presented in this paper.

INNOVATION AND MAN

Human being has from the dawn of civilization experimented with the varied materials that were found in his immediate environment. The first pot, the first wheel, the first cooked food, the first cave drawings - are all products of the surrounding in which he lived. The finesse the pot or the wheel or food or drawings have achieved now is a testimony to the unsatisfied and discontented spirit of the human innovator who wanted to better anything that was made.

Innovation was the step that came into being when humans tried to satisfy a need, a necessity in the most economical way as possible. Not only that, it has to be something which was not done or created so far in history. It has to be something that is to be manifested for the first time ever and what nobody thought so till that time. It is not just always associated with the basic necessity of life. It was not only the need for food, water, shelter and clothing that propelled such innovation but also man's need for entertainment and recreation. Sometimes it was just for the pleasure of new creation. If the pot and the wheel served a basic need, the drawings and sculptures gave him the pleasure he sought. Both types of innovation are essential. Great innovations are created by creative and thinking beings. According to Steiner (1995) unconventional individuals, rather than conventional science or engineering, are central to successful innovation.

It is human nature to be practically involved in a complex world and try to find ways out of problematic situation. This is also an avenue for innovation – to think of solutions that could best solve the problem. The common refrain is 'innovate or perish' in the market

environment. It carries the notion that ‘something have to be better than the previous something to create an appeal factor in the market’. The craving for newness is part of human nature. Another misunderstanding is the saying ‘survival of the fittest’. What Darwin actually meant was ‘it is not the strongest of the species that survive nor the most intelligent, but the most responsive to change’. Innovations too succeed when they are able to adapt to the changes that occur in the phenomenal world. There have been thousands of innovative things created by mankind, but few have really enhanced the lifestyle of mankind or have contributed substantially to overall development or that which can be called as breakthrough innovations. Many a times there is obsolescence of the innovation in a few years time because it might have outlived its use or be unable to cope with the fast paced changes. But there have been innovation as a breakthrough – the ones that changed the course of our lives and continue to be of benefit to us. Printing press of the last century and computers of this century are examples of breakthrough innovations. They become the moulds and models on which more products are created.

REQUISITES OF INNOVATION

It is belief that systematic and methodical and scientific approach to innovation is more fruitful than getting into practical involvement in problem situation. But can it substitute a free inquiring human spirit with creativity, patience and persistence who can look at problems from a wholistic point of view? ‘The methods and organizational structures that characterize “good” science are in direct conflict with human nature. By examining things in isolation from their natural linkages, the scientist misses the holistic view—the big picture—necessary for successful innovation’ (Steiner ,1995).

Even though there are scientific and creativity indicators that define innovation, it has to be understood that any free thinking person can innovate. It is the nature of any human being to be creative and innovative, provided he is given sufficient freedom scaffolded by accountability. Expanding the richness of human life, for all individuals, and not simply the richness of the economy in which human beings live, is one the key factor of human development according to UN’s Human development Report. It reiterates ‘The process of development – human development - should at least create an environment for people,

individually and collectively, to develop to their full potential and to have a reasonable chance of leading productive and creative lives that they value' (Jahan,2015). Generally innovative people create new things not because of some monetary benefit but because it is part of their nature. Nurturing innovative people will provide better result than the entire infrastructure put together.

INNOVATIONS BASED ON NATURE OR NATURAL THINGS.

Many times the innovations are inspired by nature –the eagle's wings with the slightly upwardly tilted edges helped engineers to modify the edges of aeroplane wings. The streamlined body of the fish inspired the plane's shape. The inspiration to create new thing arise from studying the physical structures in nature like mountains, lakes and oceans and the natural things like flowers, plants, and animals. In the natural objects there are structures within structure. There is overall structure in natural things and there are individual parts that fit into each other - like structure of ear fitting the structure of human being, structure of leaf fitting in the structure of tree and so on. 'Body parts are in constant rhythmic motion, these motions being delicately adjusted to each other so as to preserve the vitality of the whole'(Collingwood,1945).There are separate and unique purposes that each structure within a structure serves for example, ear for hearing and leaf for food preparation. You cannot command the ear to another function; you cannot command the eyes to perform a different function. They function as integrated whole not as isolated parts. Any innovation which gets inspiration from nature has to follow the principle of smooth functioning inner linkages as well as a proper functioning link to the outside environment.

Any man made structure usually try to fit the nature's structure – the narrow top of a water bottle fits the circumference of the mouth. Similar things happen when we create a hearing aid or head phone or ear phones. The innovation has to weave itself around the given structure. Any student of anthropometry - study of human body's measures and proportions – will vouch for that all things are made for men in the proportions of man's measure and entities he considers as a part of himself. A house becomes an extension of the human body. Each room, each part of the house is serving the many essential needs of the human body. That being so it is therefore difficult to bring much variation in the things created because human body proportions have remained the same. Moreover when a structure is given to an

object say the bottle for a function –storage till drinking – we hardly able to bring any more changes or difference to the structure. Pencils structure remains the same and appropriately sized pencils only feel comfortable in the hand. The bottles structure and size remains the same according to the average weight a hand can hold.

It also takes into consideration the nature of the need i.e water –should it rush, flow, trickle or sprinkle. Again looking at the nature and property of the need structures get modified. Standing erect structure of bottle gave way to pouches when techniques of sealing water tight edges were discovered.

INNOVATIONS AND SERENDIPITY

There are things discovered by accident. Like Teflon being discovered when an experiment went wrong. Serendipity too plays a major role in innovations. Only watchful and observant individual can grasp the opportunity even in mistakes.

INNOVATIONS AND EXTENSION OF INNOVATIONS

Apart from breakthrough innovations there have been innovations as extension and modification of the breakthrough –for example the four wheels and chaise of a carriage getting modified and modernized as latest model car.

INNOVATION AND NEED

Man's need and associated functions come first and suitable structure is created for that function. 'The essence of a thing is its function' (Collingwood, 1945). Protection from raging elements lead to the creation of sturdy structures of construction outliving the huts of straw and stones. In fulfilling the need it is seen that the product needs to serve a latent and actual function. Say a bottle of water –storage and dispense when required.

When we design a structure or innovate a product, few other principles that have to be taken care of 1) ease of operation, 2) durability, 3) ease of making, 4) ease of duplicating or reproducing 5) ease of procuring the suitable materials to make it and so on. For example, till plastic as a material was discovered the best fit to hold and release water was clay and mud, then iron, after sometime brass, later steel and then came glass.

Sometimes the external structure of an innovative product can change, but the functioning cannot be compromised. Every new model car launched in market is illustrative of this point.

In the phenomenal world the structure although perfect for their function deteriorate over time because of use and over use or because of disuse or misuse too.

INNOVATION OF PRODUCTS OR PROCESSES

There can be innovations related to products of use sometimes there are innovations in the processes also. Food we eat is generally cooked on stoves or hot plates, there are techniques which blow hot air on the to-be cooked food and cook them, blow nitrogen gas to prepare cold food. This is an example of innovation in the process of cooking food.

INNOVATION AND AFTERMATH

Innovation does not remain an innovation for long. Once the idea gets popular and widespread, the benefit of that innovation is utilized by public it will lose its charm. Not only that an innovation that was just launched is so expensive but when it is manufactured in large scale it becomes so cheap. For example, the first mobile costed 4000 dollars whereas now we find good mobiles in less than 20 dollars. When innovated things become redundant we need to think in terms of replacements and timely replacements with better characteristics. When innovated things become redundant because of disuse we need to think ways of strengthening the weak points of the innovation. Even redundant innovative things can be with some creative inputs become worthy of better use .When things become obsolete because of misuse we need close supervision and ways to discourage the misuse. In the following paragraphs I have prepared a check list for evaluating a innovative product that can be replicated and used by public.

CHECK LIST FOR INNOVATION

QUESTIONS	YES/ NO
Does this innovation lead to better living conditions of all human beings?	
Can it be accessed equally by all people?	

Can an average person operate it easily?	
Will it sustain the wear and tear of time?	
Will the production of the innovation match the consumption?	
Will it utilize fewer natural resources?	
Will it produce negligible waste?	
Is it safe to use and not endanger life?	

If the innovation is meeting these conditions it has to be carried forward to its completion.

CONCLUSION

Innovation keep happening as and when better understanding of the materials available on and in the world happens and these are used for man's benefit. This is the history of human race itself. But this rapid pace of development has created imbalances in the orderly world. Now the world is poised on the brink of instability. We as reasoning and thinking beings have to find an innovative way of solving the problems created by these innovations too.

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