On inventing a new manager

By

S.P.Srivastava (Retired Police Officer)

Abstract : Management theory has not kept pace with developments of concepts in other fields especially in science. As a result, managers have gone out of tune with modern paradigm. Gerald Holton, a noted philosopher has observed that "...science has always generated an important part of our symbolic vocabulary and provided some of the metaphysical bases and philosophical orientations of our ideology", in this light, development of management theories has been analyzed in this article in the context of evolving scientific thoughts especially quantum mechanics. It has been argued that there is a need for a new management concept which does not follow traditional style in the classical sense of "control and supervision" but adopts a new style which is in tune with quantum mechanical concept and follow "cooperate and contribute" philosophy.

Improvement of quality of life and instilling sense of security, has been major endeavor of human beings since the dawn of civilization. In that process, commerce and trade developed. Initially, it was individual or a group activity, confined to a community or village and subsequently grew to larger areas depending on mode of transport, but yet, confined to the boundaries of a country. However, there were a few instances of highly adventurous and enthusiastic entrepreneurs who travelled many thousand miles, braving rough terrain and weather across the boundaries for trade, but these were exceptions. Later, especially after industrial revolution, it occupied a prominent position in the mental space, not only of individuals but of society at large. Lately, since when the world became a global village, national interest has become synonymous with economic interest, national policies and international relations are framed around it. In this process, management of organizations, manufacturing and trade played a major background role. Management theories kept on evolving along side manufacturing techniques and trade practices. Presently, we are witnessing bumpy jerks and unpredictability in the economic space, resultantly, frequency of relook at policies at all levels has increased many fold. Management scientists are still struggling hard to find an effective approach. I have argued in this article that the philosophy behind framing management principles, so far in vogue, should be shaken up, its basic premises and tenets need to be seriously questioned. Lessons have been drawn from the path travelled by scientists especially physicists, that how questioning the then existing belief have, paved the way for its evolution. A similar questioning needs to be explored by management scientists also. The mindset of management scientists should be in synchronous with modern scientific thoughts. I have concluded that it has become imperative to invent a new manager.

As we look deeply into the evolutionary history of human thoughts and its manifestations in the external world, we find that whenever a time-honored

belief has been questioned, a new worldview perspective had always evolved. It is only human nature that, in order to interpret apparently unexplainable phenomenon, a hypothesis is first manufactured to explain it. If the hypothesis remains unquestioned for long, it gradually becomes a belief. New phenomenon is explained in the context of that belief and slowly it gets firmly ingrained into the thought process and then subsequently, it is accepted as truth. In case, any observation is unexplained within the purview of premises of that belief, the observation itself is questioned rather than the premises.

During pre Copernicus and Galileo era, earth was unquestionably believed to be center of the universe, around which every planetary objects including sun revolved. Geocentric universe was conceptually accepted and to question it, was to commit a sacrilege. For a long time, till capability of human senses were just normal, observable phenomenon could be understood quite well and geo-centricity did not pose any serious problem. Copernicus tried to explore deeper. He designed tools to enhance the power of observations. The facts, which he encountered, raised genuine doubts over the belief that earth is at the center of universe but, the authority of the premises of the "geo-centricity" was so heavy that the question was abandoned to be raked up later by Galileo. Galileo designed more sophisticated telescopes and made finer observations, which gave him convincing justifications to question the belief that the universe is geo-centric. Those observations were so glaring that he had no hesitation to declare that earth is not the center of the universe, but it is the earth, which moves around sun. He was persecuted for committing sacrilege. Here, observation by Galileo was questioned rather than the premises itself. Galileo being persecuted, notwithstanding, questioning itself gave way to possibilities of new perspective in to the thought process. Ultimately, classical science emerged as a powerful tool to interpret observable phenomenon. Many path breaking discoveries were made, many a scientists contributed. Isaac Newton was one of shining stars. Kepler and later Newton gave mathematical proof that established that it is earth which moves. Believers in Christian mythology could not counter it. Universe was no more geo-centric now. Universe became heliocentric. Classical science era began. Scientists claimed that universe conducts its affairs according to physical laws. It behaves like a huge machine. If initial conditions are known, its future course can be predicted. No need to invoke God. Worldview became mechanistic and deterministic.

Though, classical science emerged as a result of questioning the belief, but slowly it got imprisoned into its own belief. Aether was one such premise, the existence of which became a strong belief at par with geo-centric belief of pre Copernican era. Though, there was no tangible experimental data to prove the existence of Aether, yet it was believed that it permeates the entire universe and surrounds all the heavenly bodies. It could explain the propagation of light wave through space (or else how could light travel) and also did not create hindrances in explaining other observable phenomenon. Existence of Aether was believed rather blindly, by all the scientists of the day. It never occurred to any scientist to give even a doubting glance.

While measuring the precise speed of light, Michelson-Morley experiment was conducted and expected a difference in speed of light between to and fro movement, which would enable them to calculated speed of light, yet more precisely. Behind this expectation was the tacit belief in the existence of Aether

through which light would travel. As the Aether would enhance the movement of light when it travels along the movement of earth and will reduce when light travels in opposite direction. It was a huge disappointment to both the scientists because no matter how much sensitivity they incorporated into their equipment, expected difference was not observed. They termed it as negative result. They still doubted the capability of their equipment.

Like earlier instance, belief in the existence of Aether was not questioned rather the mode of observation was doubted. The existence of Aether was so strongly ingrained in scientists that instead of questioning its existence, Lorentz came forward to offer explanations to justify the so called negative result obtained by Michelson-Morley. He simply explained that while moving in the direction of earth rotation, though light will move faster but very rotation will elongate the space through which light has to travel and thus faster movement will get compensated by enhanced travel distance and similarly, opposite direction, will compress the space, so, though the light will travel slowly but has to cover less distance. Both effects shall cancel out giving rise to negative result. He gave precise formula to calculate the extent of elongation and contraction. Scientists themselves became prisoner of their own belief .It was Albert Einstein who questioned the very existence of Aether. Einstein just ignored Aether and came forward with path breaking special theory of relativity. He simply accepted the Michelson Morley result and propounded the revolutionary concept that speed of light is constant. It travels with same speed in either direction. So no difference is expected. Negative result was just a correct result. It is different story that those two great scientists were no more alive to witness this.

Metaphorically, Einstein played the same role, which Galileo played some 350 years ago. Classical science emerged then, now it is special theory of relativity. Classical science shook believers; special theory bewildered very scientific community. Time and space was no more two separate entities but were interwoven. Universe is not only heliocentric but space-time continuum as well.

Classical science and special theory of relativity and many more theories are not merely concepts and philosophy, it has been proved by experiments and not only this, it has helped to improve the quality of human life as well. Besides Aether, classical science, through its theoretical interpretations of various universal phenomenon and inventing machines, hardened the premise that the cosmos is like a huge machine, completely deterministic. Knowing full initial conditions, entire future can be predicted- such was the claim. Deterministic worldview became a belief at par with “geo-centric”, and “Aether”.

Scientists continued their exploration voyage and turned towards very fundamental constituent, the atom. As they started breaking the atom to peep inside, their deterministic mindset got a shock. The fundamental particles seem no longer to obey set laws rather their behavior appeared unpredictable. The photon of which light is composed is a particle and wave both. In order to explain their behavior, Heisenberg challenging the deterministic concept introduced the principle of uncertainty, which says that it is impossible to measure two properties of a quantum object, such as its position and momentum simultaneously with infinite precision. Simply put, if you want to know where an electron is at this moment, you have to sacrifice knowledge of its velocity. Questioning determinism gave berth to a new science; quantum mechanics.

Quantum mechanics takes its name from the observation that some physical quantities exist, and can change and interact, only by discrete amounts (in a 'step-like' manner) and behave probabilistically rather than deterministically. The "steps" are so tiny that they are completely imperceptible even with a microscope, and any description must be given in terms of a wave function rather than specific particles and movements. The term "quantum" itself (plural: quanta) comes from the Latin word quantus meaning how much?, referring to a 'packet' (or amount) of energy, momentum, or any other attribute that is quantized and can only change by discrete amounts. This tiny scale is why quantum mechanics generally leads to classical mechanics in macroscopic situations: - the vast numbers of quantum effects involved in everyday observations means that discrete quantum behaviors are usually hidden by much larger statistical effects (similar to "averaging").This process of questioning and evolving new concepts is still going on and perhaps it is unending.

In the backdrop of aforementioned discussion, if we look at the evolution of management theories, we seem to be stuck up on the classical concept of determinism. For decades, rather, from the very beginning when a management theory was conceived, basic premise had been that organizational events could always be controlled. The very word “manage” is derived probably from Italian maneggiare "to handle, “especially "to control a horse”.(Merriam-Webster dictionary). Various theories which have been proposed from time to time, centered on this premise and varied only in the methodology and identification of to-be-controlled components including employees.

“Plato had portrayed science as an activity with double benefits: science as pure thought helps mind to find truth, and science as power provides tools for effective action. Gerald Holton, a noted philosopher has observed,“The main flaw in this image is that it omits a third vital aspect: science has always generated an important part of our symbolic vocabulary and provided some of the metaphysical bases and philosophical orientations of our ideology. As a consequence, the methods of arguments of science, its conceptions and its models, have permeated first the intellectual life of the time, then the tenets and usages of every day life.” [1]

At the turn of century, when Newtonian mechanics was a dominant thought, Fredrick Taylor born in 1856, thought himself as a scientist and believed that things could be managed (controlled) scientifically like a machine in order to achieve optimum output. He brought the principle of rational and logical behavior in the design of work place, laid emphasis on standardization and propounded that in order to achieve maximum efficiency in minimized time, the job must be broken down in its elemental parts, time each part and then reconfigure the elements accordingly. Workers should be rewarded or punished (a tool to control) based on their performance. He called his methodology as “scientific management”, often called “machine theory model”.

Henry Fayol in France and Lyndall Urwick in England chose a bit different approach of control. They proposed to analyze the organization in terms of its purpose and structure and then formulate rational rules of conduct in order to

[1] Ideas in Science-Edited by Oscar H.Fidell, A Readers Enrichment Series, Published by Washington

maximize efficiency. Max Weber, refined scientific theory of Taylor with his bureaucratic theory. He laid emphasis on “expertise”-rule of experts, and “discipline”-rule of officials. He identified components to be controlled; relation between workers and management (hierarchy), operations of organization (rules), area of work of workers (specialization) and conduct of officials (impersonality-rule of officials).

Transition from classical science to quantum mechanics took place when scientists shifted their attention from gross to subtle, from larger bodies to subatomic particles. Here it was found that very process of observing changed the nature of “to be observed”. Eventually, what they observed was not about that they wanted to observe on the first hand. Almost similar pattern emerged when emphasis was shifted from organization (gross) to its constituents that are individuals (subtle).

The Hawthorne Works had commissioned a study led by Elton Mayo {1924-1932} to see if workers of Western Electric Company, Chicago would become more productive in higher or lower levels of light. It was found that the workers' productivity seemed to improve when changes were made, but it slumped when the study ended. Hawthorne effect (also referred to as the observer effect) revealed that individuals modify or improve an aspect of their behavior in response to their awareness of being observed. Instead of questioning the premise of control, new components i.e. quality and integrity of social relationships (styles of leadership, quality of communication, sources of personal motivation and inter-personal relation) were included in to the list of controllable and human relation theory was propounded keeping employee at the center stage. Hierarchical model of human needs, as surmised by Abraham Maslow gave further boost around 1940 in the humanistic approach. Metaphorically, Abraham Maslow theory can be viewed at par with Quantum mechanics, as both deals with fundamental constituent element. However, belief in control was not questioned as in the case of quantum mechanics, which accepted the fact that no matter how precise you offer input, actualization of outcome can only be known probabilistically.

Maslow’s model was applied not only to employee but also to work environment by F.Herzberg , working in 1960 and included “hygiene” or “maintenance” factor into the list of controllable. Employees were even categorized like fundamental particles in quantum mechanics (electron, neutron etc.,) by Douglas McGregor and proposed Theory X and Theory Y , taking different view of human nature (X theory- people are basically lazy and try to shirk work where as Y takes opposite line that people have natural desire to work and excel) proposed methodology of control (carrot and stick approach and creating conditions for esteem and self actualization).

Gradually, individual demanded more concern and attention. In the classical bias was to study “organizations without people” and later Human Relations bias was to study “people without organization”. However, soon it was realized that people and organization affects each other and the system was “people-organization continuum”, and that total system interacts with all other parts and that the performance of the whole can only be understood in terms of the interactions of the parts.

As more and more controllable were added, it was realized that even more controllable are needed to be added to the list because in the effort to

control one , other factors got affected as if they are interconnected. Soon it was realized that organizations couldn't be regarded as closed systems that were autonomous and isolated from the outside world. Open system concept propounded by Ludwig von Bertalanffy (1951), a biologist was borrowed by management scientists and thought to include environmental factors (network of suppliers, distributors, government agencies, and competitors with which a business enterprise inter-acts) into consideration. As none of theories were able to predict behavior of individual members (same as that of subatomic particles), none of the tools of control proved effective. So, Contingency school proposed flexibility in formulating control tools. It points out that business is, a sophisticated game in which, by definition, there can not be such thing as a winning strategy. Every business situation, like any game at any stage of play, is unique. The next move in the game will always be a question of judgment and never adherence to rule. "Any theory claiming to offer universal advice of formulae for success condemns itself as fraudulent science". Contingency theory clearly acknowledged inadequacy of deterministic concept but, management scientists still hold on to the view that it is possible to develop a business management theory to overcome this complexity. "As we observe how different professionals working in different kinds of organizations and occupational communities make their case, we see we are still far from having a single 'theory' of organization development," wrote Jay R. Galbraith in Competing with Flexible Lateral Organizations. "Yet, a set of common assumptions is surfacing. We are beginning to see patterns in what works and what does not work, and we are becoming more articulate about these patterns "

A similar situation had arisen in 1927 , when Heisenberg serving as Bohr's assistant in Copenhagen, formulated the fundamental uncertainty principle as a consequence of quantum mechanics. Bohr, Heisenberg, and a few others then went on to develop what came to be known as the Copenhagen interpretation of quantum mechanics, which still provides a conceptual basis for the theory. A central element of the Copenhagen interpretation is Bohr's complementarity principle, According to complementarity, on the atomic level a physical phenomenon expresses itself differently depending on the experimental setup used to observe it. Thus, light appears sometimes as waves and sometimes as particles. For a complete explanation, both aspects, which according to classical physics are contradictory, need to be taken into account. The other towering figure of physics in the 20th century, Albert Einstein, never accepted the Copenhagen interpretation, famously declaring against its probabilistic implications that "God does not play dice."(Britannica Encyclopedia on line)
There are another set of management thinkers who are vehemently taking anti-managerial stance, Sumantra Ghosal suggested that management as strategy should be replaced by an approach to management as purpose, process and people. Richard Koch, in "Managing without management", argued that modern times have eroded the need for managers in large organizations. Gary Hamel has advocated strongly "Bureaucracy must die".
It is amply clear that there is a strong case to invent a new manager; the manager who thinks quantum mechanically and thus abandons the idea of control. Not because of lack of skill or adequate formulation but because of its inherent nature of uncontrollability.

New concepts on these lines are already emerging. Management scientists

are applying chaos theory to organizations. Chaos theory refers to an apparent lack of order in a system that nevertheless obeys particular laws or rules. Simply put, in a complex system where large number of events are taking place, though, each event is obeying definite law and their behavior is deterministic but cumulatively behavior of system is unpredictable and thus can rarely be controlled. Management thinkers are echoing the concept like “Quantum decision theory”, “Quantum leadership”, “Quantum management”, etc.
During modern times, information technology has permeated in society and has consumed almost all activities including commerce. Until recently, individuals operated machines in a manufacturing unit, but now manufacturing processes are software driven. Marketing is becoming less physical and more virtual. Even software has become a process rather than individual enterprise. Whole gamut of organizational activities that is prime concern of a management scientist is a “process” rather than an isolated enterprise.

Paul Davis has described process theology, as “Process thought is an attempt to view the world not as a collection of objects or even as a set of events, but as a process with a definite directionality". World is a community of interdependent beings like a living organism rather than a collection of cogs in a machine. The example of kicking a stone and dog would be more relevant to put the point across. When you kick a stone, it will react to the kick according to a linear chain of cause and effect. Its behavior can be calculated by applying basic laws of Newtonian mechanics. When you kick a dog the situation is quite different. Though a mechanistic interpretation was attempted to predict the behavior (Pavlov) of the dog but it could not satisfactorily account for certain observed variations. The dog will respond with structural changes according to its own nature. Resulting behavior is generally unpredictable. Living organism behaves the quantum way.

There is yet another dimension and strong belief that primary objective of any commercial venture is to maximize its gain. Balance sheet is the only criterion to judge the health of the organization. Almost every approach of management scientists has been guided by the premise that maximization is the only rational goal. As has been conceived in the system theory that all the relevant stakeholders are interwoven and are in fact part of a whole. Chaos theory has proposed a realization that even a small action on the part of one stakeholder can produce an overall large effect (“butterfly effect”- flipping of wings of a butterfly here can cause a cyclone elsewhere). Stakeholders of an organization can broadly be grouped in four classes; supplier of raw material, manufacturer, trader and consumer. Each one would strategize for maximization of its own gains. However, each one would be uncertain of other’s strategy. Resultantly, it is be unlikely that each one would be able to maximize their gains. In the process, decision of some one may cause a butterfly effect. Cyclone is very likely to occur at unpredictable places and that may be the reason why we often witness bumpy-jerks in economic space. Consider each stakeholder as a player; game theory , which can be defined as the study of how people interact and make decisions, can help to understand the dynamics. It has two basic assumptions: rationality (people take whatever actions are likely to make them more happy)

and - they know what makes them happy), and - common knowledge (we know that everyone else is trying to make himself or herself as happy as possible, potentially at our expense). These two parameters are like "canonical conjugate" of uncertainty principle; only sacrificing one can do maximization of other. Simply put, maximization of gain of some would cause loss or at least perceived loss to other, who in turn may chose another option and may cause turbulence, hitherto unforeseen. Like belief in ubiquitous "Aether" was questioned, this belief in maximization of gain needs to be questioned by management scientists.

If maximization of gain is substituted with maximization of "well being and happiness" of self and other stake holders, then two parameters ("rational" - un-happiness of others will hamper happiness of self, "well-being and happiness" of all) would be complimentary rather than conjugate and can be maximized simultaneously. It would de facto require cooperation and coordination amongst all players. Organizations can, therefore, at the best be managed with symbiotic-dynamism rather than by kicking - stone. It has to be a collective effort aiming at common goal of enhancing "well being and happiness" of all. Benevolent cooperation and friendly coordination would then be inherent to any management theory the "new manager" would adopt, where balance sheet should project "well-being and happiness" as predominantly important parameter to reflect the health of the organization, and not the mundane financial accomplishments.

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