

Is Management Science Applicable at the Top Level?

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Received: 17 October 2017 / Accepted: 7 November 2017 / Published online: 13 November 2017
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Abstract *This article is a succinct note on the debatable issue of the applicability of management science (MS) at the top-level decision making. In a broader perspective, management science is conceptualized as science of management. It is emphasized that a scientific and systematic approach is invariably better, and science and art of management are complementary to each other. The concept has been developed from the overall structure of the human brain, which is prone to scientific thinking. Since the management at top level is a human endeavor, the role of management science cannot be ignored. The challenge of the development of MS techniques for the top level is highlighted, which is going to be a multidisciplinary exercise.*

Keywords Management science · Mixed-method · Science of management · Top-level decision making

The traditional thinking, by and large, supports the proposition that management science is largely applicable to operational level decisions, because these problems are well-structured. But as we move up in the ladder, the structure keeps on melting and thus the concepts and conventional techniques of management science start losing relevance, and the decisions are based more on the subjective considerations like experience and intuitive judgment of managers. In this context, I would like to raise

an issue that “what do we understand by MS”?. Is it only composed of formal mathematical and computerized models, or in a broader sense can it be treated as science of management that takes into cognizance the “systems approach towards problems?” I subscribe to the latter proposition. The use of mathematical models and computer is only consequential to the situation under consideration.

Even if the problem under consideration is highly unstructured, a scientific approach may be adopted and a mental abstract model of the situation is prepared consciously or subconsciously. This abstract model may be formalized if the situation warrants and permits the same, or the analysis may be carried out through mental networks of top-level managers and experts and the outcomes are practiced through the art of management. A number of interpretive scientific methods are evolving and maturing to take care of converting ill-structured mental models into well-articulated models answering the fundamental questions—“what,” “how,” and “why” (Whetten 1989). Interpretive structural modeling (ISM) (Warfield 1974) is one such scientific method which crystallizes a mental model through pair-comparison of a set of elements (what) so as to interrelate them hierarchically (how). This has been extended as total interpretive structural modeling (TISM) to interpret the explanation of each paired relationship (why) (Sushil 2017). Such interpretive methods that give a healthy mix of qualitative and quantitative approaches, systematically and scientifically, provide a sound basis for top-level decisions such as policy formulation and clarifying strategic intent. Another mixed-method that begins with a qualitative/interpretive frame of reference and culminates into quantitative dynamic simulation is system dynamics (SD) (Forrester 1958; Senge 1990). The mental model(s) of the experts, based on experience and intuition, are portrayed as a feedback structure in the form of causal

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influence diagrams. This feedback structure is converted into a stock and flow-based simulation model that may project the policy dynamics over time and can be used for scenario building in a scientific manner.

I firmly believe that a scientific and systematic approach is usually better than a haphazard or piecemeal approach; no matter whatsoever the level of management it be. I further emphasize that (whether we agree or not) the brain of the human being is more apt to scientific approach, even if a conscious effort for that is directed or not. But if a conscious effort is there to apply the scientific approach, the functioning of the brain is more tuned and better results can be expected or achieved. Thus, it is a matter of consideration that we define the management science more broadly as the science of management. The developments in management science till date (no doubt) are directed to deal with structured or semi-structured problems. It is a challenge before the management scientists to extend and develop the techniques that can be applied to unstructured problems as well; may be conceptual, empirical or formal or an interactive mode of conceptual and formal techniques. We have to unearth a system or order in the unstructured problems which we can focus upon and try to define objectives accordingly, no matter howsoever hazy or imprecise they appear to be; as preciseness is hidden in the imprecision.

By advocating the use of management science at the top level, I am not depreciating the role of the art and styles of management that are in vogue, but I am simply furthering the application of the same in a scientific backdrop. I feel (and have also experienced) that this way the art flourishes more rapidly rather than in the total absence of science. Science and art are complementary to each other and are not competitive in spirit. The art of management provides a philosophical basis of its science and the application of the science of management fine tunes the philosophy.

The structure of the brain is also composed to capture this frame of reference. The left lobe comprises of logical and systematic thinking, the right lobe of creative and imaginative thinking, and the front lobe gives support for planning. The human brain acts as an integrated system having an appropriate mix of logic and imagination in handling any situation. Since the human brain is consisting of elements that are prone to scientific thinking it would be astonishing to assume that the scientific approach may be totally missing in any of the human endeavors. It may not be apparent or visible in many cases, but is always expected to be present in some form or the other. Since the top-level management is also a human endeavor, we simply cannot ignore the role of management science at this level.

The capabilities of human organs can always be augmented by giving them proper direction and by making proper use of them. Each and every organ of human body

should be exposed to continuous engagement in a systematic manner, or else a prolonged nonuse of any organ may result in its temporary or even permanent malfunctioning. The brain is not an exception to the same. If either of the scientific or creative parts of the brain are not put to use, the same is exposed to a decay and the hazards of the same are apparent. To motivate, encourage and foster the appropriate thinking our brain has to be given well designed exercises, which are nothing but the techniques of management science that I am envisaging here. If the thinking of a manager is supplemented by appropriate scientific techniques, his/her brain will be more scientific in approach and the mental models that he/she will prepare about the situations will be more scientific in character. Thus, a manager backed by techniques of management science is exposed to more and more development of his/her brain and consequently be more effective in handling the impending situations amalgamating scientific as well as creative approaches.

The development of the MS techniques for the top level will be a multidisciplinary exercise involving conventional management scientists, behavioral scientists, and the managers themselves. The application of mixed-methods with qualitative/interpretive inputs from the experts coupled with analytical approaches including both structured and unstructured data (big data) could prove to be more effective at the top-level decision making. This would require a mix of creative and imaginative thinking coupled with different grades of scientific analysis that may suit to both the complexity of systems involved and the people dealing with them (may be unitary, pluralistic or in conflict) (Flood and Jackson 1991). This indicates towards the relevance and applicability of appropriate scientific approach to align with the issues and problems to be handled at the top level of management. The MS as science of management applied in conjunction with its art may prove to be more effective at this level that has to balance both the dynamics and ambiguity of external as well as internal considerations. This requires a multidisciplinary discourse and development of innovative and scientific methods to cater to the evolving needs of the top-level management.

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