

# Improving the Quality of Decision Making on Shopfloor

The effectiveness of a decision will significantly improve if a decision maker considers 'all variables' impacting the decision.



In an organisational context, a manager while taking a decision needs to consider all factors (variables) that materially influence the result that he is hoping to achieve.

By Niladri Roy and Kiran Shetty

The quality of decision making impacts business results; it is an assertion which has been borne out in management literature. Most managers do understand this intuitively but very few reflect on the ways and means of improving the quality of their decisions over a period of time. This leads to sub-optimal decision making which managers are not often aware of.!

A student of mathematics will vouch for the fact that completeness of variables leads to improved solutions to any problem. In an organisational context, this would mean that a manager while taking a decision needs to consider all factors (variables) that materially influence the result that he is hoping to achieve. Simple as it may sound, it rarely happens in organisations. And even if it does, seldom does it happen systematically.

This article diagnoses and provides some pointers for managers to improve this process. The objective is to build the

case of holistic decision making by appealing to the incremental value that it would thereby create.

Let us understand the factors that lead to this sub-optimal decision making.

- 1 Precedence:** "What has worked in the past, is good for the future ....". Why should I change the way of looking at things!
- 2 \*Bounded Rationality:** When it seems tiring or energy consuming to find an alternative, decision makers settle for an option they consider optimal and in some cases best. The fact remains; every feasible solution is not the best optimal solution.
- 3 Organisational Processes:** Organisational processes (Planning, Target Setting, Rewards or Work processes)

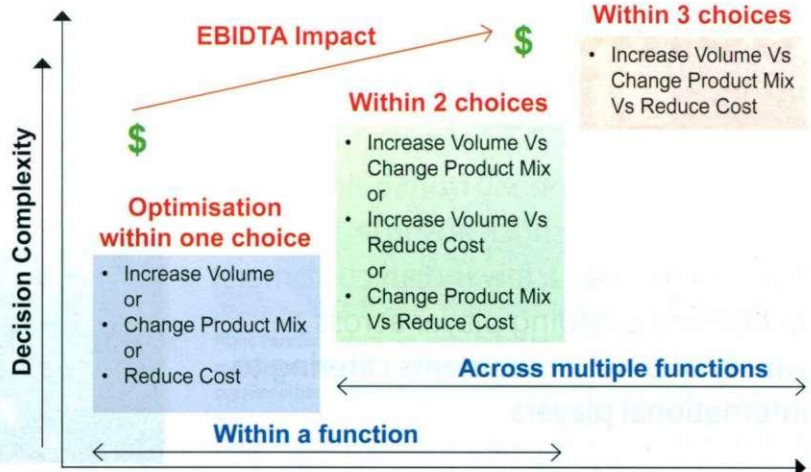
Table (A)			
<b>Cross Functional Choices</b>			
	Operations	Sales & Marketing	Procurement
<b>Functional Choices</b>	<b>(A) Volume</b>	<b>(B) Product Mix</b>	<b>(C) Input Mix</b>
	<ul style="list-style-type: none"> <li>How much to Produce?</li> <li>How much to produce from each machine/line? (Machine Mix)</li> <li>What should be the rate of production? (Speed)</li> <li>How much of time should be given for planned maintenance?</li> </ul>	<ul style="list-style-type: none"> <li>What to produce?</li> <li>How much to produce for each product?</li> <li>What should be the run length? How many changeovers?</li> <li>What should be the product sequencing?</li> </ul>	<ul style="list-style-type: none"> <li>What should be the input mix w.r.t product mix?</li> <li>What should be my RM (Raw Material) mix?</li> <li>Which RM/fuel is better? What is the impact on yield, efficiency and product quality?</li> <li>How much of RM/fuel should I procure and when? At what cost?</li> <li>How much of RM inventory should I keep?</li> </ul>

are not necessarily set up to optimise decisions for the enterprise. Most functional organisations take decisions which are functionally optimal and hope that the General Manager (P/L Leader) plays the role of an integrator. This is often a challenge because the General Manager may not be fully aware of the decision variables of each function.

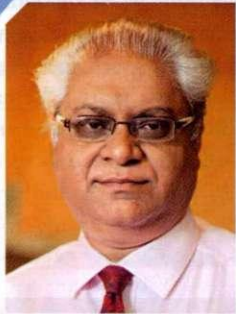
Having made a case of decision making and its implications on results, let's understand this through a simple example. Table A represents a set of functional choices that respective teams (Operations, Sales & Marketing, and Procurement) in an organisation have to make. These choices have been framed as a set of questions. Answering these questions within each functional silo will optimise functional performance.

However it is important to understand that optimising functional performance does not optimise enterprise performance. Answering the questions horizontally forces the decision maker to include multiple variables in the decision

Table (B)



making process thereby improving the quality of the decision. Table (B) illustrates paired choices. In order to maximise results a manager needs to move to the highest level (multi-variate choices; in this case a choice between Increase Volume Vs Change Product Mix vs Reduce Cost).



“ Answering the questions horizontally forces the decision maker to include multiple variables in the decision making process thereby improving the quality of the decision.”  
**Niladri Roy**

Real life situations have been simulated to arrive at this conclusion (improved results). This has been done by using various mathematical techniques; Linear Programming Models being one of them. The question that would come to the mind of a reader would be 'do I have to be a mathematics genius to get this right?'. Well, the answer to this is a resounding NO.

Managers would require to develop the following skills to make this happen:

- 1 Cognitive/ 'Hard'
  - a. Understand the difference between "Local/Functional" Optimisation to "Whole System Optimisation". - Systems Thinking.
  - b. Understand the trade-offs at the interface of the

functions (Ex-Run length vs Production Rate vs Changeover Time),

- c. Ability to shift reviews from functional to reviews of key decisions.
- 2 Affective / 'Soft'
  - a. Ability to break silos and understand the implications of cross-functional collaboration. Raise the bar of conversations of their colleagues.
  - b. Persuade and enable colleagues to bargain their functional position for overall organisational goal attainment.

The authors have observed managers across levels and functions to arrive at these conclusions. In their experience, the best managers display cognitive competencies, which they might have honed by deliberate practice. However, it is very rare to find managers with an optimal combination of the hard and the soft skills. This obviously presents a very unique challenge to Human Resources functions across organisations. In the forthcoming issues, the authors will dive deep into the techniques and solutions to address these challenges. The authors will demonstrate the effectiveness of Decision Making models for Demand Allocation/ Order to Ship and Fuel Mix Optimisation Decision.

*\* Bounded rationality is a concept proposed by Herbert A Simon as an alternative for the mathematical modeling of decision making. It is based on the premise that rationality of individuals is limited by the information they have as well as by the cognitive limitations of their minds and the finite amount of time they have to make a decision. It perceives decision making as a fully rational process of finding an optimal choice based on the information available.*

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