

Creative Problem Solving

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Creative thinking is a critical element of a manager's skill sets. Most of us when confronted with a problem, very often, take a seat-of-the-pants approach and come up with makeshift solutions. The short shrift given to the decision making process is very often dictated by the number, complexity, and urgency of the decisions which the manager has to face on a day-to-day basis. Many managers shoot off decisions – secure in the knowledge that the chances of going wrong are 50-50, so what the heck!

Yet, each of us has a process which one practices unconsciously to derive solutions to one's problems – a process developed through our past experience of tackling same or similar situations. However, when we define and categorize a current problem as 'same' or 'similar' to one which we have already encountered, there is an element of a subjective understanding of the current one (limited by the information available) and its congruence with a previous one and the solution applied. Therefore, if we were to map out our personal 'problem-buster' technique, it would greatly help in arriving at a better understanding of our mind processes and belief systems.

There are however several tried and tested techniques, which are simple yet powerful tools which help not only in defining the problem (which you will agree is a process by itself), but also provide valuable insights into developing a solution.

One such method is the 2 x 2 matrix.

Essentially the method requires

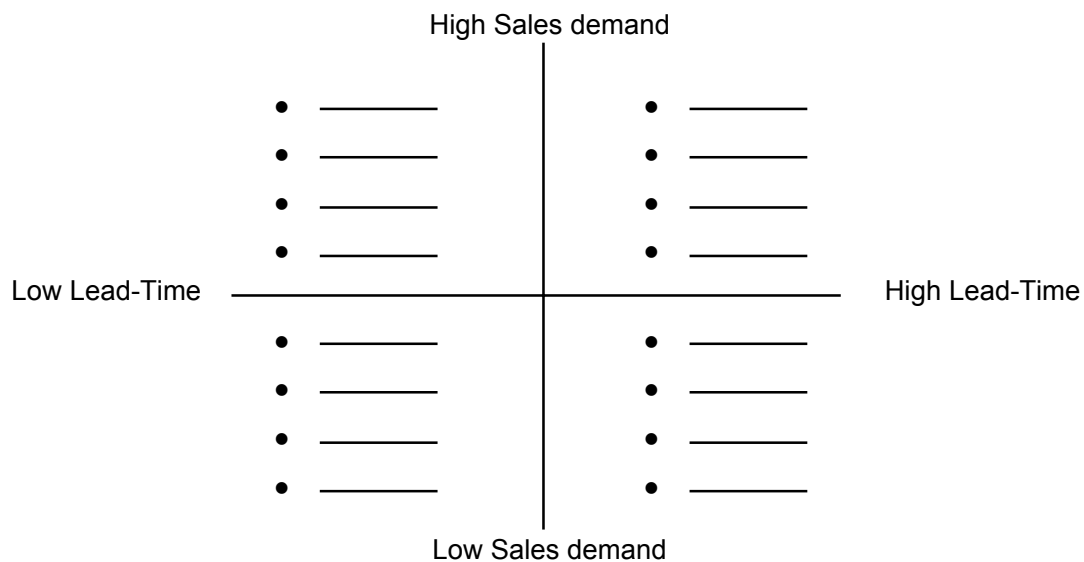
- (a) Identifying the two critical variables impacting the problem
- (b) Inserting the variables on the appropriate axis
- (c) Listing the items/points in the appropriate quadrants
- (d) Analysis of the items in each quarter

The process would be better understood if I explain how I made use of the matrix to come to grips with a production planning problem encountered in one of my assignments.

An orthopaedic devices company had a difficulty matching its production plans to meet the sales requirements – they never seemed to get it right ! More often than not, there were high inventories of slow moving items or there were infinite delays in fulfilling order of the fast moving ones. For those of you not familiar with the orthopaedic devices business and its inventory requirements – let me tell you it is a highly complex and demanding exercise. Take the case of screws – there are endless iterations in terms of size, design composition and application. Coming to the joints (like the ones in Ataljee's knees) a set would comprise anywhere between twenty five to hundred items in terms of the joint and the hardware required to put it into place. Then there are the various other tools, wires, clamps, cutters of all kinds and you end up with an inventory going up to hundreds if not thousands of items of hardware (orthopaedic instruments are akin to a carpentry set) which need to be ordered in the manufacture or fabrication of the finished items. After that comes the logistics planning and inventory, as many jobs are given out to smaller workshops.

On discussing with the production manager and his staff, and thinking through the various issues, we identified that the core of the problem lay in the insufficient understanding and inefficient tackling of two key variables – the first of which was the high lead times required to manufacture some items, many of them with high gross contributions. What was happening was, some of the items coming under the head of this variable had high input costs and therefore were ordered only on a order-received basis. The other key variable was the sales trend on which the production planning was based, here again the problem lay in improper forecasting.

Next step lay in the identification of the items in each quarter of the matrix, which was a major exercise requiring the combined effort of people from all levels and functions of the production and distribution department. The finished matrix looked like this :



An analysis of the fully constructed matrix helped us come to the following conclusions :

1. The items in the top right hand corner – the High Sales demand & High Lead-Time ones – would require top most priority. A further break-up done in terms of high-profit and low-profit items helped us further fine-tune production planning and inventory keeping
2. Items in the top left corner – the High Sales demand and Low Lead-Time ones – again broken up into high and low profit items – were the ones requiring low inventories (in terms of number of sales days)
3. Items in the lower half required rethinking of a different sort – should these products be reworked in terms of strategy or should they be scrapped ?

The 2 x 2 matrix thus helped the company derive a better understanding of the complexities of the situation, optimize inventories and take some hard decisions on the marketing and sales front.