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Articles



Profitability Percentage (%)

by **Vector Consulting Group**



A good measure for evaluation of operational productivity should avoid the two errors—false positives and false negatives. Let us check if the measure of profitability calculated as PBDIT as percent of sales meets the criteria. A growing company, improving profitability IPBDIT as percent of sales (PBDIT%)] over the years is often seen as an improvement in performance.

But can there be a case where decrease in profitability is actually an improvement – a false negative?

To understand this, let us consider a company with two products A and B, with 'A' having a gross contribution margin (i.e. throughput or T, defined as sales minus truly variable costs) of 50% and B having a throughput of 10%. Product A has high value per unit volume, while product B has low value per unit volume. So product A is for the 'classes', while product B is for the 'masses'. The company has a very high market share in product A, while in product B it was one of the many players in the fragmented market.

The financials of the company are as below:

	Sales	Throughput (or Gross Contribution)	Throughput
Sales from A	50	50%	25
Sales from B	50	10%	5
Total Sales	100		
Total throughput (or gross contribution)			30
Operating expenses			15
PBDIT			15
PBDIT %			15%

Driven by an overall ambitious five-year plan for ensuring a significant growth of the top-line, the company made a business plan of top-line growth target of 50% in the next year. The operating expenses (OE) of the company are planned at absolute value of 16 (a growth of about 7% over last year, mostly led by an increases in the compensation of the employees, as capacities were in place to manage the growth.)

However, the year did not go as planned. As the year progressed, the sales from product A were nearly stagnant, while the overall demand for product A in the market declined. The sales team did a great job in retaining the sales at the same level as in the last year, which means they gained some market share for product A. The compensating growth came from a low-throughput (low T) product B. The sales of product B went beyond all expectations—it doubled!

Profitability Percentage (%)

At the end of the year, the financials of the company is as below:

Sales		Throughput (or Gross Contribution)	Throughput
Sales from A	50	50%	25
Sales from B	100	10%	10
Total Sales	100		
Total throughput (or gross contribution)			35
Operating expenses			16
PBDIT			19
PBDIT %			12.6%

At the end of the year, the financials of the company is as below: The company management claimed to have done a great job. They had increased their top-line by 50% and showed a decent growth in absolute bottom-line as well, which is close to 26% over the last year. The shareholders received higher dividends than in the previous year. But the profitability of the company has come down. From the perspective of profitability measure, this looks like a dip in performance. But is this so?

There has been an impact on profitability due to a shift in product mix. The percentage of high-throughput (high T) product from total sales has decreased dramatically from 50% of the total sales to just 33%.

In the future, further growth is expected from product B, as the market share is low, and the market for product B is also growing. On the other hand, the market for high-value product is not growing as much. (At times, a low price point product, with low T margin, becomes a growth driver in emerging markets.)

If the growth from low T product is significantly higher than that from high T product, then in future, the percentage contribution of the high T product will reduce further, decreasing the overall profitability of the company.

Should one be concerned about this situation? If, traditionally, a company has been operating in high-profitability percentage, there occurs a paradigm shift for managers, when low T products drive the overall growth pattern of the company. The paradigm shift takes place from being a predominant 'high margin-low volume' player to becoming a predominant 'high volume-low margin' player.

Evaluating performance by comparing the past can become an issue when the company is also going through a paradigm shift in business mix. A drop in profitability can be construed as a problem when the past is compared with the present.

When the drop in profitability becomes an issue, one of the actions that such organizations take includes evaluating the product portfolio to enhance profitability. A typical method to carry out the analysis is by allocating all fixed expenses to the product. In such a situation, even a low T product may start showing a negative margin after the allocations.

Faced with a product of high volumes, and a negative margin (after allocations), it may appear that pruning the product will actually add to the bottom-line of the company. If one decides to prune the volumes of low T product to improve the profitability of the company, then it can be useful only when capacity is shared across two products and the capacity is a constraint. (The limitation in capacity can be in sales efforts or production capacity). In such a situation, it makes sense to cut back the low T product and use the limited capacity (sales or production) for high T products. This should be done till one elevates the limitation in constraint capacity (either sales efforts or production). The end result will be improved profits and profitability.

However, if the capacities and sales channels are different and neither of them is a limiting factor, then it means that growth of the low T product is not at the cost of high T product. There is a problem of lack of growth of high T product, but it has no relation to growth of low T product. The low T product cannot pay the price for lack of growth in high T product. The low T product is not the culprit for reducing the profitability. On the contrary, without the low T product, the case would be even worse.

In the example, even when the sales of high T product have not increased, the total T of the company has grown. And it has grown by 16%. At the same time, the growth of OE has been 6%. This means that from a marginal increase in OE, the company has been able to increase the money entering the system (throughput) at 16%. The company has been able to 'sweat' its assets to deliver proportionately higher throughput, and hence higher profits for the company. It has been more productive than in the previous year.

This example clearly shows that the measure of profitability can be misleading, and at times, can compel managers to take wrong decisions for a company that manufactures products of widely varying throughput margins and changing product mix and has ambitious growth plans. It suffers from the type- 2 errors –false negatives (triggering a false alarm of a problem when it is not there).

The real measure of operational productivity of a company is not PBDIT%, but the ratio of throughput/total operating expenses (T/OE). In the example, the T/OE ratio of the company has grown from 2 to 2.2 even when profitability has decreased. As long as total throughput of the company is growing much faster than growth of OE, the company is on the track of ever-improving productivity, and hence, moving toward becoming an ever-flourishing company.

Vector Consulting Group (www.vectorconsulting.in), is the largest Theory of Constraints (TOC) consulting firm in Asia. The firm has been working closely with well-known companies across industries to help them build unique operations and supply chain capabilities that can be leveraged as a competitive edge in the market. Vector now has the highest number of success stories in Theory of Constraints Consulting and has also won several national and international awards for their work.