# Finance: Scorekeeper or Player?

**by Stephen Nicholas**

**Article at a glance:**

There are two ways one can view the finance function within an organisation: scorekeeper or player. Whilst scorekeeping is a necessary condition of running a business, there is a far more vital role for the finance function, if one subscribes to the view that measurements drive behaviour.

At both conscious and subconscious levels within the enterprise, the measurement framework implemented will be driving the behaviours of operations, sales and marketing functions. If the measurement framework encourages local optimisation of the division, profit centre, department or work centre, then the behaviour produced will have the effect of isolated functional silos, striving to improve their performance. This local optimisation is often at the expense of the enterprise as a whole.

Thus, the finance function cannot abdicate responsibility as player: simply by setting the rules by which the score is kept determines how the game is played.

Research suggests that a constraint approach to profit maximisation, leads to a 25% increase in operating profits with significant additional cash flow benefits[1]

In order to achieve profit maximisation, companies need to consider the scarce resources (constraints) in their business.

The finance function must drive the management and measurement of constraints in a business, in order to fully integrate Operations, Marketing and Sales in the decision making framework.

**Detailed article:**

Of the Australian companies TOCCA has researched, all have finance departments that are able to use the Constraint based model to improve their decision making framework to maximise operating profits.

Since it is the Finance function that holds the key to driving the maximisation of operating profits, it is worthwhile reviewing what any financial decision making framework must do:

1) Provide the correct judgements on the following key areas

   - Investment decisions
   - Product or service profitability
   - Evaluating profit centres
   - Make or buy decisions
   - Pricing

[1] According to research conducted by Mabin and Balderstone at Victoria University of Wellington.

2) Fully integrate Operations and Marketing & Sales.

If the framework is not fully integrated, key functions will sub-optimise at the expense of the business:

- Operations will look for local efficiencies
- Marketing & Sales will be disconnected from the capability to deliver to the operational and new product development resources the enterprise has at its disposal.

Finance departments correctly believe that in order to maximise profits they should maximise the gap between revenue and cost, given that it is this gap which describes profit. It is in the next step of thinking where finance functions, on the whole, go wrong.

Let us take just one area of Finance's responsibility mentioned above – product or service profitability. The general belief is that in order to achieve the maximum difference between revenue and cost, Finance needs to measure the cost associated with any particular instance of revenue generation. This is usually done through a process of allocating or absorbing costs linked to those activities associated with the production of the particular product or service associated with the revenue event.

We will demonstrate in this article that this approach is fundamentally flawed if profit maximisation is to be achieved.

Before doing so, it is worthwhile exploring what drives the thinking behind this approach:

i) Accounting standards – The process of valuing stock or work in process often requires absorption costing. Companies develop existing accounting systems to manage the business, often using activity based costing to achieve this end. Nowhere, however, is it mandated that a financial accounting standard should be applied to making quality decisions about managing profit maximisation of the business.
ii) Education and training – Professional bodies teach costing techniques without considering all the needs of Operations and Sales & Marketing.
iii) There is the belief that there is no alternative framework

Some companies have recognised that product or service costing (using absorption costing techniques) does not serve to make good financial judgements. Not only does it fail to provide sufficient accuracy, it also increases complexity across the organisation.

Therefore, they use contribution margin costing to support their decision making framework. However, this is still not going to necessarily drive the correct result.

Consider the following 2 examples. For both, the task of the finance department is to calculate which of the company's five products should be pushed in the market to

maximise profits. The department has correctly calculated the **Throughput** (contribution margin) of each product. [2]

**Example 1:**

Finance uses margin costing to determine how Marketing & Sales should focus on the market.

THROUGHPUT COSTING RESULTS

| Products | | P1 | P2 | P3 | P4 | P5 |
|---|---|---|---|---|---|---|
| **Sales price/unit** | | 12 | 14 | 11 | 11 | 15 |
| **Less:** | **Direct materials** | 3 | 4 | 4 | 6 | 5 |
| | **Freight** | 1 | 1 | 1 | 1 | 1 |
| **Contribution/ Throughput** | | 8 | 9 | 6 | 4 | 9 |
| **% Margin** | | 67% | 64% | 55% | 36% | 60% |
| **Ranking** | | 1 | 2 | 4 | 5 | 3 |

Based on this method finance would make the judgment that P1 should be pushed in the market to maximise profits.

However, let us consider the value of this judgment by reflecting on the fundamentals of management accounting

**Number One Rule of Management Accounting**

*"A company will profit maximise when it makes and sells the product or service with the highest contribution margin per unit of its scarce resource."*

(Horngren).

The Margin Costing method of Example 1 completely ignores the "scarce resource" component of the rule. Let us see what judgment is obtained in Example 2 when the "scarce resource" is considered.

**Example 2**:

Finance identifies the scarce resource of this particular operation to be a particular labour skill. This means that the number of hours available to produce the products is limited.

[2] Throughput in TOC is defined as the rate at which the business generates cash through sales: the sales revenue less all the truly variable costs associated with that sale. Variable costs represent expenses that would not be incurred if we do not produce or sell the product or service

To calculate the contribution per unit of scarce resource, as specified in the management accounting rule above, the contribution is divided by the time required to produce each product. (i.e. Throughput / Unit of Constraint). This particular measurement is called ***Octane***.

OCTANE RESULTS

| Products | P1 | P2 | P3 | P4 | P5 |
|---|---|---|---|---|---|
| **Contribution/ Throughput** | 8 | 9 | 6 | 4 | 9 |
| **Labour constraint (hrs/unit)** | 0.4 | 0.6 | 0.5 | 0.1 | 0.3 |
| **Throughput / unit of constraint** | 20 | 15 | 12 | 40 | 30 |
| **Ranking** | 3 | 4 | 5 | 1 | 2 |

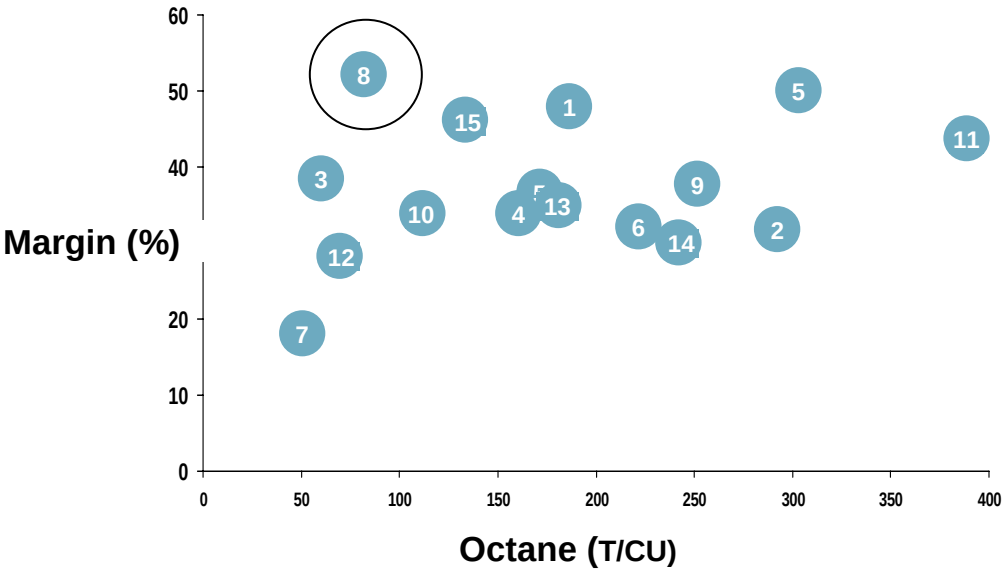
Note the difference in results between Example 1 and Example 2.

Based on these *Octane* results, Finance would surmise that in order to maximise operating profits Marketing & Sales should push P4 into the market (not P1 as the Margin Costing results suggested) as it has the highest *Octane* (Throughput / unit of constraint).

The example highlights a dilemma between a tactical and strategic operating decision. Strategically we may wish to push P1 in the market to maximise profits, but tactically P4 delivers the desired result, as it produces the biggest “bang for the buck” per unit of the constraint’s time.

Knowing where the bottleneck is also helps in the decisions surrounding allocation of investment capital. If the investment is not applied at the constraint, it will most certainly be wasted.

The following chart is a plot of margin versus octane. This particular company launched a new product number 8 without considering scarce resource. The result is a new high margin product (which was a major factor in its successful passage through NPD) but has a very low octane – that is, it consumes a lot of time at the constraint for each dollar of Throughput it contributes.




What action should the company take?

- Stop the sales department pushing product 8 in the market?
- Invest in further scarce resource?
- Have a watching brief over its competitors who are pushing a new similar product?

The answer is: none of the above. These questions are premature and Finance needs to firstly answer the following questions:

- How can we exploit (squeeze) the constraint (scarce resource)?
- What subordination (support) is required from the rest of the organisation to support the constraint?

For a number of service or product lines, it is often the market which is the sole constraint: the enterprise has more capacity than the market is willing to buy. Why is the market so limited?

- Wrong cost concepts e.g. over capitalised due to previous decision making framework. How do we bring the constraint closer to the business and deal with the monthly and seasonal fluctuations in demand?
- Misconception of market needs
- Inertia: This is what we have always done

## Constraint accounting for Operations

We have already considered Throughput (contribution) earlier in the article.

| Throughput = Sales Prices – Truly Variable Costs |
|---|

Profit is therefore defined as follows:

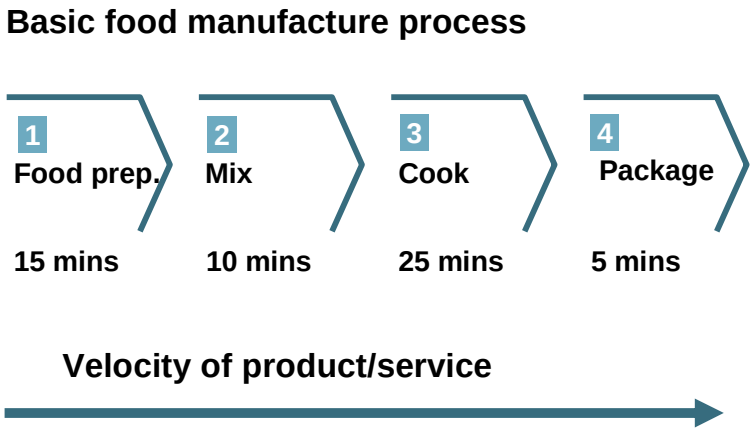
| Profit = Throughput – Operating expenses |
|---|

Where Operating Expense is defined as all the labour and overhead costs.

Let us consider the following example: a simple one product food manufacturing process.

Step 3 (cooking) is the rate determining step as it is the most time consuming, taking 25 minutes to complete. This means that each week (8 hours production a day for 5 days) the maximum amount the process can produce is 96 units.

Assuming there is sufficient market demand for the product, the velocity of the product through the process determines profitability of the system.




Therefore, to measure and manage profitability we should show the constraint in the reporting P&L and have data from the cooking department that provides key information as to why profits were not maximised. If only 50 units are produced per week, we need to understand the significant root causes that have prevented us from attaining the maximum 96 units. This is why the finance function must work with operations to ensure a signalling system provides both Finance and Operations with the data required to maximise product flow.

The P&L below shows a generic constraint earnings statement for a business with two constraints. The management of this business now has a clear understanding and focus on the behaviour required to improve profits.

**Traditional earning statement**

| | Actual $'000 |
|---|---|
| **Sales** | 12,250 |
| **Cost of sales** | (9,000) |
| **Freight** | (100) |
| **Commission** | (50) |
| **Variances** | 60 |
| **Overhead** | (560) |
| **Profit (EBITA)** | 2,600 |

Profits using standard costing does not measure true performance or focus management actions

**Constraints earning statement**

| | Actual $'000 |
|---|---|
| **Throughput**: | |
| Constraint 1: Asset | 5,500 |
| Constraint 2: Market | 2,500 |
| Operating expenses (OE) | (4,250) |
| **Performance profit** | 3,750 |
| **Reconciling items:** Absorbed cost into stock | 1,150 |
| **Profit (EBITA)** | 2,600 |

Earning statement notes will provide specific root cause issues on monthly performance

**Finding the right leverage points (constraints) provides inherent simplicity in the management of complex systems**

## Financial judgments

If we look back at the key financial judgements:

**Investment** – without knowing the constraint of an operation you may incur capital expenditure that does not improve revenue. If capital is spent on a non-constraint then there is no revenue uplift for the business case.

Too often we have witnessed management spending millions of dollars on capital projects to improve the output of a system, when in fact it is only local efficiency which improves.

**Pricing** - by understanding the constraint of a product/service line, Finance can determine the lowest and highest pricing model to ensure profits are i) not reduced and ii) apply pricing pressure. Finance requires a pricing model that is linked to operational capability.

**Profit centres** – understanding where the constraints sit across your profit centres allows the right decisions to be made in evaluating profit and cost centres. To quote W Edwards Deming: "…the object of any component is to contribute its best to the system, not to maximise its own production…some components may operate at a loss themselves in order to optimise the whole system"

## Make or Buy

A simple thinking framework can be used for even the most complex situations, which considers the result of any decision in terms of its impact on Throughput (**T**), Operating Expense (**OE**) and Investment (**I**).

If as previously defined, operating profit is T-OE, then Return on Investment (ROI) can be formulated as follows:

$$ROI = \frac{T\text{-}OE}{I}$$

Note that these measures are only ever concerned with ***cash*** entering or leaving the enterprise and thus provide a means to avoid the pitfalls of allocation costing in make or buy decision making. The primary concern of all concerned should be in increasing Throughput, controlling Operating Expense and minimising investment. Looked at this way, the question of whether or not to outsource or not (make or buy) might be answered very differently.

To quote Horngren again: "The existence of a limiting factor (constraint) fundamentally alters what is relevant information in respect of costs and revenues…"

## Results

Internationally, TOC has been used by a large number of companies ranging from General Motors and Boeing down to small family owned businesses. In a recent piece of research by two international academics[3], the results of implementing TOC were recorded after looking at the implementation of TOC in over 100 large and small companies around the globe.

- Increases in ***Revenue or Throughput*** often of a substantial magnitude, with a mean of ***68%***
- Reductions in ***Inventory levels*** of a large magnitude, with a mean of ***49%***
- Reductions in ***Lead-time*** of a substantial magnitude, with a mean of ***70%***
- Reductions in ***Cycle-time*** of a substantial magnitude, with a mean of ***65%***
- Improvements in ***Due-Date-Performance***, with a mean of ***60%***

## Conclusion

Finance departments are under increasing pressure to deliver value through the business. Most companies continue to pursue cost allocation/absorption methods which do not consider scarce resource, and therefore, by definition, cannot profit maximise. These methods generally measure activity, which is good, but then use it as a basis to allocate cost. An alternative is required that will simplify the finance function and improve results. A constraint based approach will achieve this and provide a real competitive advantage.

[3] Mabin and Balderstone, Victoria University, Wellington