"Cost Accounting is Productivity's Public Enemy Number One"

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The provocative title of this paper is a quotation from best-selling author Dr Eli Goldratt.

He subsequently emphasised that he did not say "cost accountants"! He was referring to the common misuse of accounting information – something that concerns many accountants too.

By "cost accounting" we mean the practice of allocating business overhead costs to units of sales, in order to calculate a unit cost and thus a per-unit profit. Absorption Costing is the common name for this practice, which is still a common in many businesses, and is often mandated by financial accounting rules and regulations.

However financial accounting is not the same as management accounting. The latter is what managers should use to make the decisions.

Using information produced for financial accounting purposes – in particular when absorbed fixed costs are involved – can lead to wrong business decisions being taken. This is what Goldratt was referring to in the title, and is what is illustrated in the following examples.

1: Overhead Allocation

A business has three products, and an overhead of $96M. This is allocated across the three products – A, B & C – in proportion to their sales.

	A	B	C	Total Business
Sales	86	75	103	264
Cost of Sales	62	39	45	146
Overhead	31	27	37	96
Profit	-7	9	21	22

Although the business overall is making over 8% return on sales, it looks like product A is making a loss. So, the business decides to stop selling A.

	A	B	C	Total Business
Sales	0	75	103	178
Cost of Sales	0	39	45	84
Overhead	0	40	56	96
Profit	0	-4	2	-2

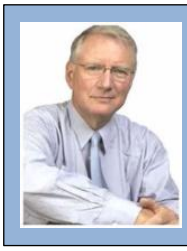
Oh dear, things have got worse. The overall business is making a loss, due it seems to product B. So, the business decides to stop selling B.

	A	B	C	Total Business
Sales	0	0	103	103
Cost of Sales	0	0	45	45
Overhead	0	0	96	96
Profit	0	0	-38	-38

OK, this is a simplified example, with no attempts to reduce the overhead in line with the smaller business, but it clearly shows how decisions made based on allocated costs can damage the overall business.

Of course, in the real world, the business may be able to replace A with a better product that could make more profit. Surely in such a case it is quite valid to allocate overheads to individual products to identify those that should be replaced by more profitable products?

Example 2 on the following page, demonstrates that here too, allocating fixed costs to products, and calculating a product profitability can lead to sub-optimum decisions.



"You can't shrink yourself to greatness"

Tom Peters. Subtitle to his bestselling book *The Circle of Innovation*

2: Which Product to sell more of? … the impact of functional measures and objectives

Consider a company that makes four products, W, X, Y and Z. Assuming it can sell all that it can make of any of these, the business needs to decide which one to make.

Basic information:

Product	Sales Price ($)	Time to make (mins labour)	Materials Used ($)
W	50	36	20
X	50	38	25
Y	55	35	25
Z	52	35	20

Which would you favour? Take a moment and work it out.

To help the decision, finance provided some additional information. Labour costs $10/hr, and the two production staff work standard 40 hour weeks. This allows you to allocate a cost to the labour used at $0.167/minute.

Product	Sales Price ($)	Time to make (mins labour)	Materials Used ($)	Total Cost	Gross Profit
W	50	36	20	26.00	24.00
X	50	38	25	31.33	18.67
Y	55	35	25	30.83	24.17
Z	52	35	20	25.83	26.17

From this data, the finance department – looking to maximise profits – favours Z. However, the sales department has an objective to maximise sales, and to achieve their objective they would favour Y. And production is measured on operating efficiencies, which means keeping the workers busy. They favour selling X, which uses most labour.

This introduces us to two key business issues.

- Functional/departmental/local performance measures can drive tensions between colleagues and do not help the organisation to make the right decisions
- Even if you get rid of the inter-department tensions, favouring the highest "profit per unit" product (Z in the above table) is not necessarily the best decision for the business!

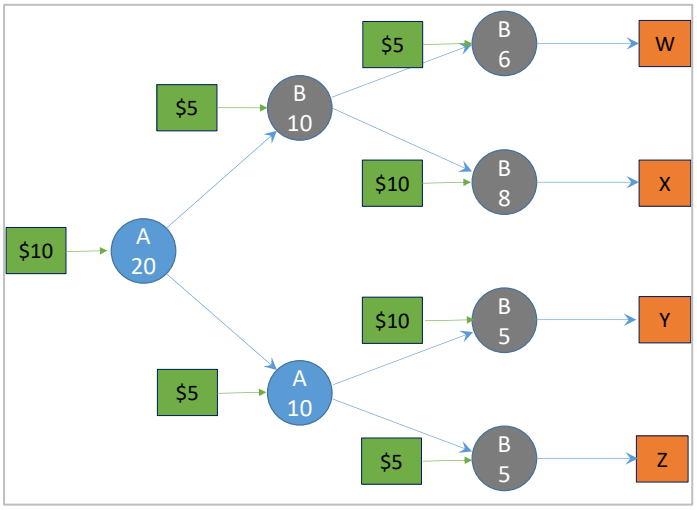
To understand the second point, we need to know more about how the products are made. There are two manufacturing machines, one operated by Mr A, the other by Mr B. All four products are processed by both Mr A and Mr B. A simplified flow diagram is shown below.

The circles are the processing steps, with the letter representing the resource, and the number the time taken per unit. The boxes are raw materials (green) on the left, and finished products (orange) on the right

Can you see what difference this information makes?

The most critical observation is that Mr A is the resource that limits the output of the factory – whatever product is made it requires more input from Mr A than Mr B.

We can now see the maximum production that can be made in a day (assuming 8 productive hours/day).



Product	Time of A used (mins)	Units/day
W	20	24
X	20	24
Y	30	16
Z	30	16

Adding this information into the table gives the following daily profit.

Product	Sales Price	Materials Cost/item	Prod/day	Sales/day	Materials Cost/day	GM/day	Labour Cost/day	Daily Profit
W	50	20	24	1200	480	720	160	560
X	50	25	24	1200	600	600	160	440
Y	55	25	16	880	400	480	160	320
Z	52	20	16	832	320	512	160	352

Allocating total labour cost to the individual products gave a totally misleading impression – that the business would make more money if it maximised production of Z.

Only through understanding the whole system, and removing functional measures from the equation, can we find the best overall solution. The business can make 60% more profit by making W compared to Z, which seemed to have the highest profit/item sold.

Preference…		Profit/day	Comparison
Accounting - Profit margin/item	Z	352	100%
Sales – High sales price	Y	320	90%
Operations – Labour Efficiency	X	440	125%
Maximising Business Profit	W	560	159%

Example based on Fry and Cox in Production and Inventory Management Journal, 2nd Quarter, 1989.