

What do you do when you introduce sophisticated accounting systems, orders go up, customers are happy, yet your firm is about to go bankrupt? Keith Cleland explains how contribution-based activity helped a manufacturing firm to focus on the fundamentals.

The days of assessing the performance of a business on the back of an envelope have long passed and with them have gone the simple techniques for focusing on key drivers of performance that were, and still are, fundamental to positive outcomes. Twentieth Century cost and management accounting concepts, designed to aid decision-making, have created a more comprehensive and sophisticated approach to gather, tracking and reporting data. But this often causes information overkill, which prevents managers from focusing on what drives the business.

A manufacturing business I visited as a consultant in 1984 and in 2000 highlights the insidious threat posed by a lack of focus on fundamentals. This is particularly true for businesses involved in manufacturing, trades and services and in the professions.

I first visited this activity-based cost management (ABC) manufacturing plant in 1984. The proprietor, Eric, had borrowed \$30,000 to buy a steel guillotine so that he could save time by cutting steel on site rather than sending it across town. He was now having problems meeting the repayments.

A fast way of identifying key problems is to compare actual results with potential results at full capacity. Like most chief executives, Eric believed his workforce worked "flat out". He employed men who liked the country lifestyle, did not belong to a union and who worked efficiently. He knew they worked efficiently because he could see them from his window.

In the absence of a summary of equipment manufactured and sold, it was necessary to extract the list from carbon copies of pencilled invoice books. Eric was confident that he knew the time required to make each item.

After listing all the items along with the relevant hours, we came up with a total of 4,310 man-hours. With nine employees in production, total hours paid including overtime amounted to 18,000 hours. Dividing the 4,310 hours by 18,000 hours highlighted productivity at 24 per cent, or close to two hours billed output for eight hours pay per day per production employee.

Basic instincts

Eric said he would go back and look for more invoice books, but the total output for the 12 months had been accounted for.

The reality was that the employees adjusted to the amount of work before them, slowing down or speeding up according to the urgency of demand. It was not possible to assess the difference by occasional glances through the office window. When Eric had worked in the factory himself, things were more under control. But as the business grew, he was increasingly involved in administration, sales, trade shows, service calls and in research and development on new applications.

At the bank's insistence he was getting quarterly accounts from a local chartered accountant, who arrived several weeks after the quarter ended, glanced at the accounts and put them in the bottom drawer of his desk. The accounts were in traditional profit and loss format, and made no reference to man-hours billed compared with man-hours paid.

We could have spent weeks diagnosing past events without making much progress, so we decided to look ahead and develop a simple benchmark so that Eric could measure results on a day-by-day or week-by-week basis. This would help him to focus on the overall picture while absorbed in the nitty gritty.

We estimated total expenses for the year ahead at \$500,000 and added a target bottom line profit of \$130,000 to give us a target gross profit of \$630,000.

Estimated 50 per cent productivity, or four billed hours per man-day, we targeted 9,000 billable hours for the year, giving a target average gross profit contribution per billable hour of \$70, ($\$630,000 \div 9,000$ hours). We then broke down the 9,000 hours to an average of \$200 hours per week, based on a 45-week year (52 weeks less four weeks' equivalent in public holidays and one weeks sick leave).

Eric's benchmark had been simplified to billing an average contribution of \$70 an hour for 200 hours a week - or an average of \$14,000 gross profit a week for 45 weeks. His initial reaction was that he would go out of business if he charged \$70 an hour for labour since he only charged \$25 per hour at present.

I pointed out that accounts for the previous year showed a gross profit of \$470,000 and that, as this had been achieved from 4,310 hours, the average worked out at \$109 an hour. He was mystified about how he had achieved this. So we worked through an example which showed that by the time materials and factory costs had been marked up to cover distribution, marketing, administration, and finance, as well as some bottom line profit, it was quite possible to achieve this - or more.

The exercise revealed the potential of the business to make a significant profit once productivity improved. Together with the accountant, who agreed to attend monthly meetings to monitor progress, we set up a weekly and accumulative tracking sheet on which the invoiced price, cost of materials

and quoted hours could be tabulated and the results compared with the 200 hours and \$70 target contribution.

Apart from hearing that the business had begun exporting overseas, I had no further direct contact with Eric until I received an urgent call for help in January 2000.

Business had blossomed and employee numbers had grown to 35. Internal and overseas demand had boosted revenue tenfold. New workshops had been added to fabricate and assemble sophisticated robotic equipment. But Eric now owed \$500,000 - the bank wanted an immediate reduction of this debt, and suppliers had begun to stop credit. Loss for the 1999 financial year amounted to \$290,000, following a loss of \$190,000 in 1998.

Eric was seriously worried that the firm could be taken into receivership. He was unable to make decisions, suffered from migraines and developed a stomach ulcer.

Discussions with his accountant indicated that all had been going well until 1996 when a new production manager was appointed to take charge of manufacturing. This manager introduced sophisticated software which could create a bill of materials at the design stage, check costs against existing price lists and order directly from the preferred supplier.

At the same time, a new general manager with a finance background had upgraded the accounting software to make it compatible with the manufacturing software. The extensive information flow and need to cut costs meant that monthly meetings with the accountant, along with the weekly tracking sheets were discontinued.

According to the general manager, productivity was running at 65 per cent as per the time sheets. When multiplied by the 40,000 available hours in production, this indicated a possible 26,000 chargeable hours. But analysis of a random sample of recent invoices gave an average gross profit contribution per quoted hour of \$180. Dividing this into the overall gross profit of \$1,800,000 indicated 10,000 invoiced hours. Or two invoiced hours for eight hours pay per day. Echoes of 1984.

There was no comparison of the time sheet hours with quoted hours - they "were working on it". Their prime concern was production and, although they were aware that quoting could be improved, they believed that if they raised their quotes they would lose business.

Pricing ran along traditional lines of a percentage add-on to manufactured costs. Jobs with more materials and more factory input achieved higher

The response that the firm would never win a contract quoting \$225 per hour overlooked the fact that its customers enjoyed a huge competitive advantage and did not question the price

contributions than jobs with less. The comparison with a target average contribution had faded out of the picture.

Quoting was carried out by the marketing department, theoretically in conjunction with the fabrication and assembly supervisors. But the fear of losing potential customers, coupled with the need to sustain workflow, meant that prices were usually discounted.

When the job was ready to start, either drawings were not ready, or the materials were delayed or both. And once suppliers started demanding cash with order, it was impossible to order ahead of cash availability,

So, it appeared that the quoted hours were too tight and unachievable, or production was totally inefficient - or the problem was a combination of both factors. Sorting these out would take time and, with the bank about to take action, this was not an option.

Repeating the approach of 1984, we developed a benchmark for comparing prices. We projected a gross profit of \$2,250,000, inclusive of \$250,000 net profit. Taking account of production problems yet to be resolved, we assumed 10,000 billable hours, giving a target average contribution of \$225 per hour.

The response that firm would never win contract based on a quote of \$225 per hour, overlooked the fact that it was the only firm involved in robotics with a range of equipment that accounted for more than 50 per cent of the revenue and 75 per cent of the gross profit. Customers operating the equipment enjoyed a huge advantage and were making repeat orders without questioning the price.

In any case, until the production problems were sorted out, it needed an average contribution of \$225 per billable hour to survive.

It took three visits over six weeks to get the quoting and production departments to target an average contribution of \$225. Some quotes were higher on robotic equipment, some much lower, particularly on those items of equipment advertised in the price book. "How we achieved better than average" emerged as topic of conversation during tea and coffee breaks.

The benefits began to show when the fifth month turned in a net profit of \$55,000. It is a trend that has continued. Receivables are under 90 days and the bank overdraft is slowly being reduced.

At the time of writing, the bank manager has visited the plant and expressed delight at the turnaround. He will need a cash flow together with up-to-date financials to present to his regional manager at their half-yearly review of "companies at risk".

Meanwhile, a simple system of comparing timesheet hours with quoted hours gives weekly feedback on attempts to improve quoting estimates and production-line performance. Many problems are yet to be resolved: drawings are incomplete; materials still arrive behind schedule; jobs are seldom ready on time. But the impact of these and other problems have been cushioned by targeting an average contribution of \$225.

This shows that once you have planned gross profit (sales less cost of materials), and set a target productivity level, it is possible to work out an overall average gross profit contribution per unit (man-hour) of productivity. In order to distinguish it from a "cost" and to emphasise its statistical nature, I refer to it as the target-average-rate index (TARI).

TARI provides management with a link between the big picture and the nitty gritty. It also provides a vital focus on two key drivers that lie at the heart of every business activity (volume) and contribution.

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