Measures of Success

We all know that what you measure gets done. But what if you are measuring the wrong things and doing the wrong things as a result?

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Michaela Rebbeck talks to Alex Knight about operational measures that are helping companies to maximise their profits.

Michaela Rebbeck: You regard many of the operational measures now used by organisations as a major obstacle to improving bottom-line results. Are you just being provocative?

Alex Knight: It may sound controversial but I've seen many organisations struggling to find effective ways of measuring their performance. They collect a vast amount of data and yet they are no wiser about their business. My proposition is that we actually need to look at simplicity as a way forward. We need to resist the seduction of the real time, web-enabled, all singing, all dancing dashboard of operational measures and focus on the few that give us meaningful information about the business.

MR: Yet, monitoring a multitude of performance indicators, for example by using the balanced scorecard, is a management practice advocated by many and practised by an increasing number of managers and organisations. Are they wrong?

AK: The reality is that today's pace of business means continuous change. In most organisations, leaders and managers are trying to decide where, in among all the things they could change, are the few critical places to focus their efforts. I think a measurement system is only as good as it is able to pinpoint those few key places. If it is not able to do that then what is the purpose of that measurement system? Moreover, even if they know the few critical places, managers also need to decide on the actions which will achieve the necessary change. People in organisations frequently ask how to measure success but they seldom consider how to be sure about which of the actions taken in those few critical places were actually responsible for the improvements. I am suggesting that for any system of operational measures to be of value, the system must help managers answer these questions and that the fewer measures we need to answer these questions the better. The balanced scorecard approach does not pinpoint where to focus our improvement effort and can lead to going fast nowhere.

MR: Let's be clear about your definition of operational measurements.

AK: At the basic level, organisations need to measure how much money they are making. Saying 'We made £50 million' is rather different from 'We made £50 million on an investment of £10 billion'. The first statement describes an absolute measure while the second is about a relative measure. Cash is a condition for ongoing success. From the operations perspective, we talk about throughput, value added or some sort of measure of contribution that comes from selling products or services. In this context, we also speak about the work in progress or inventory and operational expenses, i.e. the money spent on turning inventory into throughput.

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Throughput is relatively easy to measure, it is selling price minus cost of raw materials. We can also usually identify what inventory is intended to produce which customer order. Where the first little mathematical conundrum comes into the whole situation is when we ask 'How are we going to apportion operational expenses to individual products or services?' This is not a trivial question. Economists and accountants the world over have been squabbling about it for almost one hundred years and I don't think they see it as solved yet. The 'right' approach to apportioning operational expenses per product is still seen as an unresolved issue among the accounting profession.

MR: Where do you stand on this?

AK: My view is that all forms of cost allocation are flawed. Rather than chasing a mathematical phantom called product cost which is being used as the basis for operational decision making, I am proposing a different perspective on what constitutes meaningful operational measures, i.e. measures that would help us:

- identify the few key places where to focus managerial efforts
- determine what actions to take there
- monitor that these are the actions directly responsible for the improvements
- understand what the outcome will be if we leave things as they are.

The fundamental difference with my proposition is the shift in the mental model we have about measures. I believe in replacing the 'stick and carrot' mentality with commitment to a culture where measures are used to help identify key opportunities for improvement and contribute to a no-blame measurement mindset.

In a nutshell, I am suggesting that the purpose of any operational measurement is to measure the execution of our strategy by helping us answer the question 'How well are we doing compared to what we were expecting to happen?'

MR: Many organisations seem to be doing just that and end up wallpapering their boardrooms with charts and graphs that show the performance planned. This is usually the straight line. The actual performance is the line that goes up and down.

AK: What organisations need to focus on is not how but why their business performance deviates from what they expect. I am laying down a fundamental challenge. We do not need measurement systems which monitor everything minute by minute, hour by hour. The only measures organisations need to ensure the execution of their strategies are the ones that will help them determine the cause of the deviation and, better still, help them understand how much more money they will make if they change the culpable operational practices and policies. In my experience, it is the erroneous formal and informal measurements, policies and consequential behaviours which cause the distortions in the business. This is something management needs to face up to.

MR: All but few organisations are committed to a certain set of measures and, implicitly, operational policies, by the configuration of their IT systems such as SAP. How do you get around those permanent fixtures?

AK: Obviously, any proposition about different operational measures needs to fit in with the data structure organisations have in place. I believe that the two fundamental measures I am proposing – reliability and effectiveness – do. These measures were first introduced by Dr Eli Goldratt in his latest novel Necessary But Not Sufficient. I have been checking them and applying them in a number of different organisations from different sectors across the world.

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Let me briefly define those terms and then explain them in detail before I illustrate the power of this approach. Simply speaking, reliability means doing what we should be doing to execute our strategy while effectiveness means doing what we should not be doing.

Regarding reliability, organisations produce plans or schedules of activities they need to do to achieve certain business targets. And yet somehow, even though they have got dedicated people, something has distorted their actions – they should have done something and they didn't do it. As a manager, I would be really interested in things we should have done, we didn't do, we kept on not doing and the longer we left them undone the more we got stuck. Why did we do that? We had an order, we had a customer, they were going to pay us money and yet something in our system resulted in us not delivering. That's what I, as a manager, need to look into because that might tell me what caused people to behave in that way.

The effectiveness issue is about the things that we should not be doing but somehow end up doing all the same. Here, the question managers ought to be asking is 'What were the operational policies, measurements and rewarded behaviours, formal and informal, that caused us to focus our efforts on doing things earlier than needed or things that did not have to be done at all?'

MR: Spending time and effort on doing something that does not contribute to overall performance is not only unproductive but will also tie up resources and prevent the organisation from doing what actually needs to be done. Are you hinting that reliability and effectiveness, as you defined them, may be connected?

AK: The phrase 'the ways we do things around here' applies to all organisations. It is worth exploring whether these ways, practices, policies, behaviours, etc., formal or informal, force organisations to do things they should not be doing instead of the things they should be doing. In my experience to date, it's been invariably the case that doing things that they should not be doing is the major cause of them not doing things they should be doing. But let's look at reliability and effectiveness one at a time.

The first is about the things organisations should have done and did not do. Most organisations find this analysis extremely easy, it's as simple as asking 'How much did I not deliver?' It's the data organisations log as 'failed to deliver on time to spec' or as 'customer complaints' or whatever. All we need to do here is to look at how much we did not deliver in terms of pounds or dollars and for how many days. It's the value of those orders we delivered late, multiplied by the number of days of the delay.

What I am referring to is a new measurement of money multiplied by time, i.e. £days (pound days) or $days (dollar days). This is a powerful measure of the distortion in our system about how much we did not do and for how long we did not do it. The bigger the number, the bigger the signal about our system. It's important to stress once again that the purpose of the measure is to identify the causes of the problem, not to berate people.

Let's look at the other side, the things that we should not have done and did anyway. That's the kind of situation where we think to ourselves 'Why did we do things before we needed to do them?' In a manufacturing example it's quite simple, it's lots of work in progress and finished goods. You can calculate it quite quickly although it is a bit more difficult in a service industry.

MR: When we talked about 'not having done things that we should have done', not delivering on time to spec, the measurement was easy to construct because we had the necessary data – the value of the delayed order and the number of days of the delay. I am assuming that orders are delivered late because of hold ups somewhere upstream in the work in progress. We know the size of the problem but how do we actually get to know where that delayed inventory is, let alone why it is delayed?

It is the erroneous formal and informal measurements, policies and consequential behaviour which cause the distortions in the business.

AK: What we are after is what is common to both reliability and efficiency. As I have suggested, we must remember that it's nearly always the case that the things we did unnecessarily early are the cause of other things being late.

Let's go step by step through how to find out what is happening in the system. The first step is pretty straightforward. All we need to do is to calculate the $days on the under-delivered orders, i.e. the lost throughput $days. The important thing is to do these calculations first by orders and then for each product within the order because what we want to know is where we incurred the biggest loss. The total sum of all lost throughput $days is secondary, what's important is where the biggest loss occurred because that's where we will start our investigation, our search for the delayed inventory, if you like.

Here, we are basically looking for what has been hanging around and the value of what's been hanging around, multiplied by how long it's been hanging around. That is what we call inventory $days. This number will grow very suddenly if things start getting stuck somewhere in the system. It is not a number that is going to fluctuate up and down around some average. It will be a more or less constant and small number that will rise very sharply where things are getting stuck. That will mean that either something big has been hanging around or something small has been hanging around for a long time.

MR: Even if you start with the order where you have the biggest loss in terms of throughput $days, finding the main culprit, i.e. the biggest or the most delayed inventory, by calculating inventory $days throughout the system looks like a mammoth task.

AK: In a typical analysis of a number of different plants, you find that exactly the same policies are causing the distortion. In many industries, finished goods stock availability is absolutely paramount and yet it appears that however much stock the company holds they seem to be continuously at risk of key products being on back order or out of stock. Combined with a never-ending need to adjust the schedule to take account of the latest changes this often results in a vicious circle of feast and famine in the finished goods availability. Even after considerable improvement efforts frustrations remain.

An analysis often reveals that the phenomenon of wandering bottlenecks is in place due to the sub-optimisation in different departments. Within a few days of analysis one can pinpoint not just the work area but the actual practices that are responsible for the major distortions in the system.

MR: It still looks like quite a big undertaking. How often do you think organisations need to monitor their performance like this?

AK: The beauty of this approach is that it is only needed once a quarter to begin with and then once a month. The purpose is to try to quantify and identify where the biggest impact of these problems is and quantify the impact of the corrective action. If we've calculated correctly our lost throughput $days, i.e. the losses of revenue we would incur due to under-delivering on our orders, and we solved the constraint that would cause those lost throughput $days, we've already calculated the sales levels that we should gain by our solution. Obviously, if our sales go up and our operating expenses remain the same the net profit will go up significantly. The tangible benefits are considerable and I believe that at last we can claim we have a process that delivers focused ongoing improvement now and into the future.

MR: A measurement system can only take you so far. It can help you locate the trouble spot and it may even tell you what's causing it. But it will not tell you why an organisation suffers from constrained capacity or chooses to have a particular operational policy.

AK: Then we've got to get out there and ask them what's going on.

Reference

1. Goldratt, Eliyahu. (2000). "Necessary But Not Sufficient", North River Press.