Delivering a More Efficient Business

A Guide to Increasing Productivity

100% Effective

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Introduction

The focus of every business is to make a profit selling a product or service to a customer. Regardless of where they position themselves in the market, and what they are selling, all businesses rely on generating a margin from their customers.

But, with increasing customer expectations and international competition, in a poor economy, many businesses are increasingly finding those margins squeezed. At the same time Mark Carney, Governor of the Bank of England, has derided the UK for its poor productivity.

So what can businesses do to increase their margins and productivity?

They need to increase businesses efficiency. And before doing that, it helps to have a clear understanding of what is meant by business efficiency.

This report will outline in practical terms how businesses can determine their current levels of efficiency, and the steps they can take to increase those levels; boosting margins and productivity at the same time.

We'll seek to address how you can become a more efficient business.

> Business Efficiency:
> A level of performance that describes a process that uses the lowest amount of inputs to the greatest amount of outputs.
>
> Investopedia

What Are We Measuring?

One of the challenges with business efficiency is that it feels like a vague concept. How do you know how efficient your business is?

We know from the definition above that all businesses take an input, transform it in some way, and create an output. This uses resources; from machines to people and time.

Business efficiency is the ability to use those resources, those inputs, in order to create the highest volume of outputs possible, while maintaining the quality and service that customers expect. Measuring business efficiency, therefore, boils down to measuring the cost per saleable output.

Or, as the transaction doesn't often take place at the same time as the process, efficiency is the cost per defect-free output.

How do we measure cost?

Generally when analysing costs in a business we break them down into two categories; fixed and variable. All business expenditure will fall into one of these categories.

Fixed costs, as the name suggests, tend to be very stable over time and are not directly linked to output. So no matter how much or little a company produces, these costs will remain the same.

They are generated by the facilities we operate in (land and buildings), the equipment we use (machines and technology), the capital we employ (debts and interest) and the workforce. Investments in R&D, promotion and advertising will also tend to fall in this category, despite being more fluid.

Variable costs, on the other hand, tend to go up and down in line with output. Often called marginal costs, they take the form of materials, energy usage, logistics and some forms of labour.

While usually the workforce is not truly variable as they are paid regardless of output, some elements of labour such as overtime, additional shifts and temporary contracts are variable.

Plus, as the UK inches towards increased use

of zero-hours contracts, labour costs could become entirely variable.

However, once you are measuring these costs, how do you link them to output? If costs are fixed, how is it possible to determine how much it costs the business to produce something? While it is easy to determine how purchasing raw materials more cheaply impacts cost per output, how do you measure management and admin roles?

The solution is in the old adage – time is money. A way to determine the cost involved in each output is to substitute financial cost, for time. The longer we work on something, the more it costs, so we can indirectly measure cost under these circumstances by means of time.

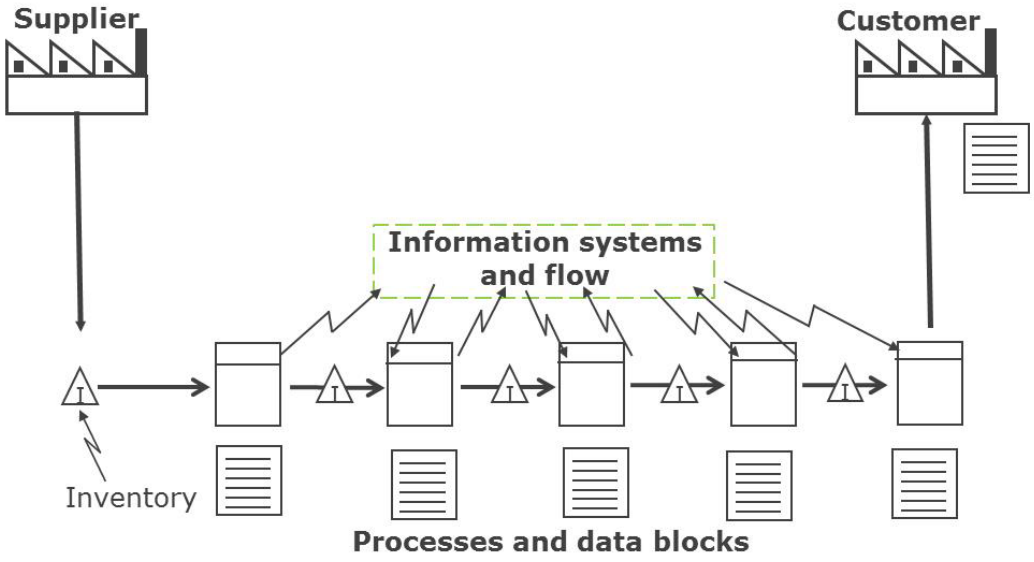
Time also has the advantage of being quantifiable to everyone. All members of the workforce will know how much time they spend on particular tasks. Everyone is aware of time passing.

By measuring the time people in the process spend on each output, businesses can understand the costs involved outside their fixed expenditure, determine how efficient the business is currently and then start looking at areas for improvement.

Understanding Value

A fact that is necessary to remember when we are determining business efficiency, is that not all time spent on a task is adding value for the customer. Time – if that is the measurement we use – can also be used on waiting, correcting errors, transport and many other things. So how do we determine how much time is spent on our current process, and the percentage of that which is adding value to the customer?

We need to visualise the process, as it is in reality, not how it should be in theory. And that involves a Value Stream Map.



Lead time and work time calculations

A Value Stream Map is a high-level view of the whole process. It starts at the supplier delivering the raw materials, and ends with the customer receiving the end product, mapping every stage of the process within.
The map highlights each stage of the transformation, including the wait time and work time, as well the documenting knowledge transfer within the business.
A Value Stream Map gives people the information they need to identify waste in their processes, and make changes to eliminate it.

What do we mean by waste?

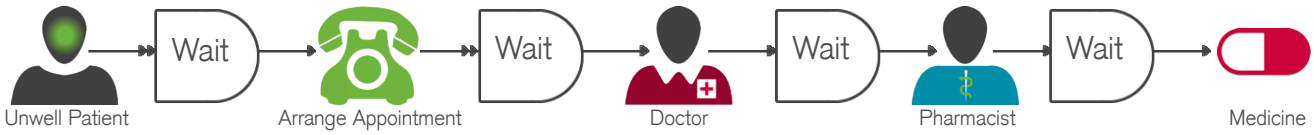
Consider this scenario: Tim wakes at 5am in the morning feeling distinctly unwell and decides he needs to visit his GP. As the surgery doesn't open until 8am, he needs to wait for three hours in order to make an appointment.

Once he gets through to reception (after some time on hold) he is able to secure an appointment to meet with his doctor at 4pm that afternoon, an additional wait of eight hours.

Following a brief period in the waiting room, Tim sees his GP and is prescribed some medication. When he leaves the surgery, he hunts down a chemist, waits in the queue and then waits for them to provide his medication.

Finally, at 5pm, Tim takes the medication he has needed since he awoke at 5am.

Tim's experience is not uncommon, and many would view him as lucky that the whole process took just 12 hours from start to finish. However, the only aspect of this whole process that added any value, that met the needs of Tim, was taking the medication. That step took just one minute.



So in a 12 hour process, only one minute is adding value. We can work out the Process Cycle Efficiency (PCE):

PCE = (Value added time/total time)*100
= (1/720)*100
= 0.14%

While value added time of just 0.14% seems like an amazingly small figure, it is not unusual. Most people will be familiar with the idea that 90% of a process is wasteful.

However, many studies have shown that it is rare for businesses to have more than 5% of lead time adding value to the business.

However, while many businesses will accept this truism, most still focus their efficiency efforts on reducing the time spent on tasks that add value, rather than tackling the large elements of wasted time; they sweat assets and invest in automation. While this approach will reduce the time the process takes, it will only be fractional.

In the example of Tim's doctor's visit above, if the VA time is reduced by 50% he would have only reduced the total lead time by 30 seconds. However, if a 50% reduction was made on the time that doesn't add value, he could save six hours!

Businesses should be working smarter, not harder, by focusing efficiency drives on the elements of a process that are not adding value; such as waiting times, correcting defects and backlogs of inventory. But how does lead time increase efficiency?
In 1987, the Boston Consulting Group identified the 1/4-2-20 Rule which states:

> “For every quartering of the time interval required to provide a service or product, the productivity of labor [sic] and of working capital can often double. These productivity gains result in as much as a 20% reduction in costs.”

Learning about lead time is, therefore, a valuable use of time. The Value Stream Map that we looked at above is a fantastic tool to help identify the total lead time, and to illustrate areas where improvements can be made.

However, as with any suggestion of business change, much of this comes down to the management of people. Management can have a significant impact on productivity, with 2007 research from McKinsey showing that for a single point improvement in management practice scores at the companies they surveyed, they saw a “the same increase in output as a 25% increase in labour force or a 65% increase in invested capital”.

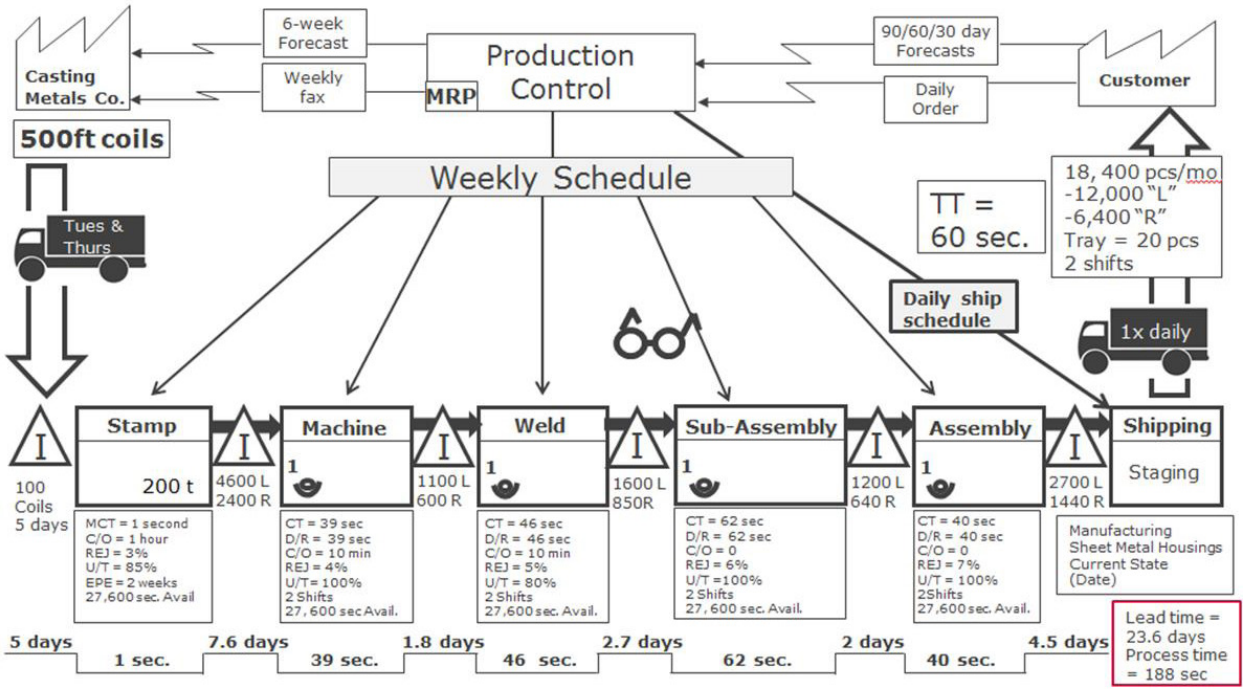
Often, long lead times are related to poor internal practice, which can be traced to how staff are managed and the internal culture of the organisation. That’s why, with any change, culture and staff motivation need to be taken into account.

Identifying Areas For Improvement

Value Stream Maps originated in manufacturing, and usually come in pairs. The first map, the Current State Map, must illustrate the process exactly as it is now. It needs to be an accurate (if not particularly flattering) visual illustration of how the whole process works from start to finish.

The second map, the Future State Map, is how you want the process to be, after you've made improvements.

VSMs can be intimidating to look at, but once you know what you're looking for they provide a wealth of information to help cut your lead time and increase business efficiency. The map below shows a company producing 18,400 pieces per month (indicated in the top right), or 920 parts a day for your average working month.



On the second step, Machine, we can see that there are 4,600 parts in process, and that the production rate is 2,400 per day. We can then work out the wait time like so:

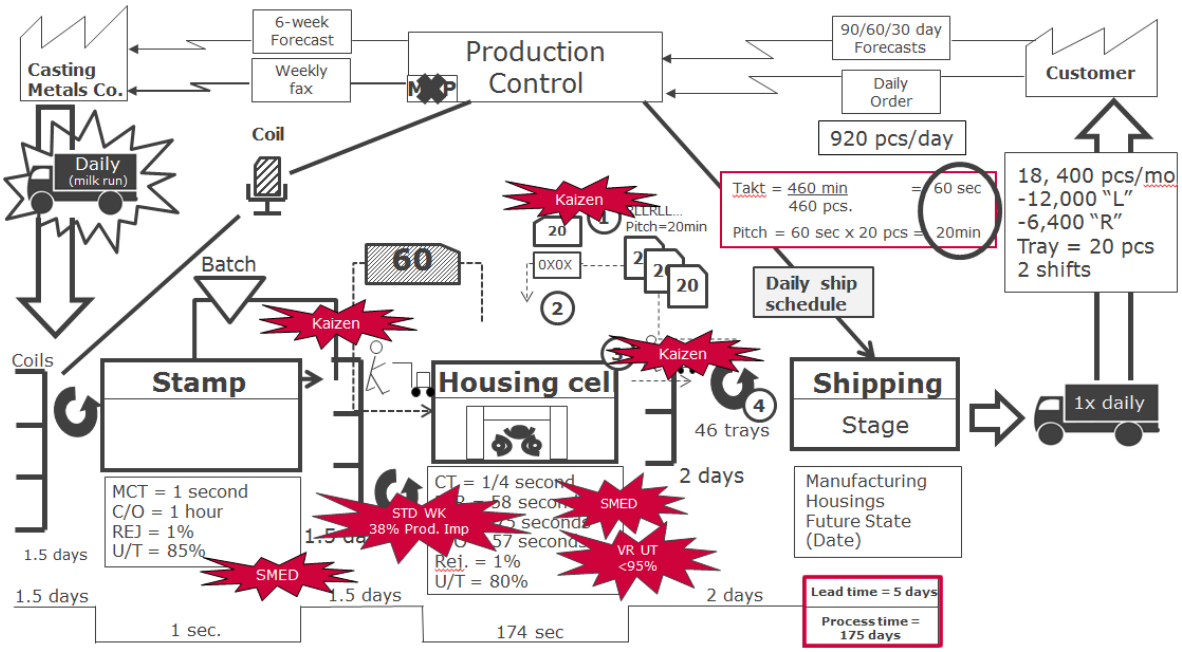
Wait Time = (4600/2400)/920
= 7.6 days

When you compare these wait times (shown along the top of the time ladder) to the process time (shown at the bottom of the time ladder) you can see the difference is significant. In the red box to the right of the time ladder we can see that the total lead time is 23.6 days, but the actual process time was just 188 seconds.

Using PCE we can see:

PCE = (Value added time/total time)*100
= (188 seconds/23.6 days)*100
= (188 seconds/2,039,040 seconds)*100
= 0.009%

Now, here's a Future State Map for the same process. You can see that the total lead time has reduced to five days, but the VA time has only reduced to 175 seconds. The PCE for this process is now 4.5%, which is a huge improvement.



While this example is a manufacturing one, the same process can be used to great effect in the service industry and even for creative processes such as design, marketing and fashion. Although some creative freedom is necessary for these roles and processes, often a more organised approach can improve productivity.

It is worth noting that the Future State Map is an idealised vision of the future which could be achieved if all areas you identify to improve get the attention you'd like. This isn't always possible, but the process of creating the Current State Map and the Future State Map give you clear areas for improvement, and a way to prioritise that change.

Routes To Change

Once a decision has been made to increase business efficiency, there are typically seven steps to identify improvements and bring them to fruition:

1. **Identify the revenue stream or value stream**
2. **Complete a Current State Map for that value stream**
3. **Mark up the Current State Map with opportunities for improvement**
4. **Create a Future State Map for the value stream**
5. **Identify projects that will help you move closer to your Future State Map**
6. **Execute those projects**
7. **Evaluate the outcomes and build on the lessons learned**

However, if the Current State Map is not an accurate reflection of the process as it is, the improvements will not be effective as they will not necessarily be addressing the key pain point and could, potentially, create issues further along the process.

Most companies get around this by hiring a consultant to work with internal staff while they complete steps two to five. These consultants ensure that each step is completed accurately and fairly, and that the business is addressing the areas with the most opportunity for improvement.

When it comes to step six, businesses without a background in continuous improvement will often look to consultancy services again; bringing in an expert in process excellence to help staff categories and complete projects.

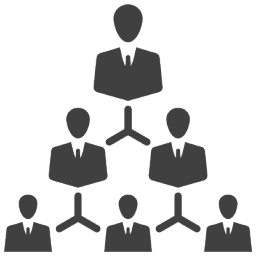
Projects typically fall into three categories:

1.Action Plans

Projects with no ambiguity about what needs to be done and how. Also known as Just Do It projects or Quick Wins, these are often the improvements that are purely relying on management support to be put in place.

2. Kaizen Events

Kaizen events or Kaizen Blitz are intense three to five day sessions used to identify a permanent solution for a problem that would normally require a DMAIC project where a solution is necessary in a very short period of time.



3. DMAIC Projects

Projects completed using the Lean Six Sigma DMAIC model due to their complexity and systemic nature and where the cause and solution are unknown.

While using a consultant to help with all seven steps is the most common approach, it is not without its challenges.

Hiring a consultant will increase the pressure to see strong returns on the projects in order to repay the investment. This pressure can, in some cases, lead to internal staff rushing the project and installing a quick fix instead of fixing the root cause.

Consultants also have a reputation, fair or not, for creating a culture of dependence; failing to give the organisation the information they need to implement change without their help or oversight. This can be very costly.

However, as internal staff rarely have the skills to complete steps two to seven, many firms feel they have little choice.
There is another option though.

Businesses can invest in training their staff and building the skills they need within their existing workforce. While the upfront cost may be higher, the returns are much better for organisations who then have a work force-based resource available to help with improvements on a continuous basis rather than relying on ad hoc consultants.

Companies are increasingly investing in Lean Six Sigma training, as it provides a robust framework and culture change to ensure continuous improvement remains a priority moving forwards. Once trained, staff can be utilised for project after project, increasing the ROI of the initial investment without increasing the capital expense.

Our own data shows that the typical Lean Six Sigma Black Belt, correctly following the Lean Six Sigma methodology, will deliver a return on investment of 7:1 on average during their first project. The same data showed a

5:1 return on investment for Lean Six Sigma Green Belt training, and a 3:1 return for Lean Six Sigma Yellow Belt training.

It's unsurprising then that more companies are training their own staff rather than relying on consultants in order to make their business more efficient.

Research by the Process Excellence Network in 2013 suggested that 48% of businesses using some kind of continuous improvement approach to increase efficiency were using Lean Six Sigma. And of the businesses they surveyed, 20% said increased efficiency was their primary measure of success.

Conclusion

Business efficiency has been made out to be a more complicated theory than it really needs to be; all it boils down to is the capacity to produce the highest volume of output (at an acceptable quality and price) from the inputs available.

Most businesses do not appear to be very efficient; with Process Cycle Efficiency rates over 5% a rarity across all industries. But this does not mean we shouldn't all be striving for better. By addressing the waste in our processes and shortening our lead times we can become more productive and more profitable, giving us a significant edge over our competitors.

Lean Six Sigma provides the ideal framework for increasing business efficiency. It requires a cultural change; increasing the internal focus on the customer, the quality and the volume of waste, rather than each individual worrying only about their own tasks. The benefit of Lean Six Sigma training is the legacy it leaves, with businesses better equipped to continue with their work increasing efficiency.

If you want more information about how you can increase efficiency at your place of work, or to find out more about Lean Six Sigma contact 100% Effective.

“100% Effective:
Quality. Support. Innovation.”