Unlocking smarter, leaner manufacturing

Every production line leaks money. The challenge is finding where and fixing it. **David Griffin** recommends taking a systems approach and re-examining six hidden cost areas

Manufacturing inefficiencies become embedded and hidden in everyday operations. Credit: stock.adobe.com/Cagkan

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When FMCG manufacturers look to cut production costs, they often start in the wrong place.

Their instinct is to focus on quick fixes – using cheaper materials, reducing scrap or trimming supplier margins – but these moves rarely deliver significant or lasting savings. Worse, they can lock out bigger gains by treating areas such as supply chains, manufacturing process or business models as being 'untouchable'. Effectively eliminating some of the biggest opportunities before the work even begins.

True manufacturing cost optimisation doesn't come from trimming around the edges but from uncovering what's embedded, normalised and probably costing much more than you realise.

Silos block savings

One of the biggest problems is cost-cutting often happens in silos where designers optimise without involving manufacturing; production assumes logistics constraints; and procurement is excluded from design. But it's the early decisions made on product designs where most of the cost is typically locked in before moving into production.

Add cultural inertia, 'we've always done it this way', and narrowing the scope of what's considered to be changeable and there's usually little room left for transformational thinking.

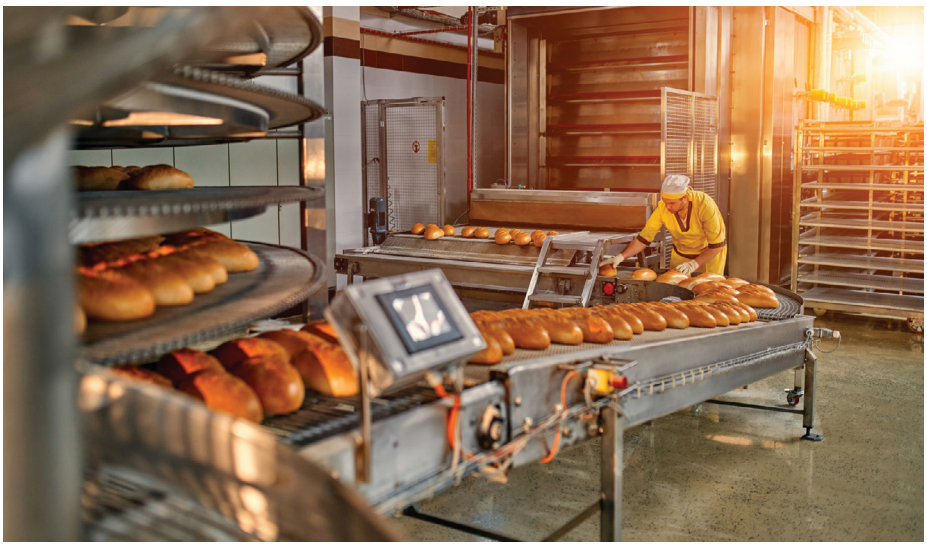
One food factory, for example, ran only short batches because their distributor in effect purchased goods from the factory gate, one shipment at a time. Small batch sizes suited logistics but they increased the impact of startup times and clean down routines between products, adding costs and reducing total output. Changing the commercial arrangement with the distributor (or having some temporary storage on site) was deemed out of scope, so the idea of longer, more efficient runs was never fully explored.

Fresh eyes, new value

Internal ops teams often know something needs to change, but they don't always have the authority or time to address it. They're too busy keeping the line running.

External consultancies are frequently brought in to help suggest potential cost savings by bringing new insights and experience from outside the sector. They can challenge assumptions, spot what others might have overlooked, and can connect design, engineering and business model thinking.

They can also act as interpreters between teams (e.g., product owners



Heat recovery systems can unlock major energy savings. Credit: stock.adobe.com/Valerii Apetroaiei

Few manufacturers reuse or recycle waste water. Credit: Marco Ossino/shutterstock.com

and engineering) who may not speak the same language. But they need to have the breadth of engineering and commercial skills, and to be given the authority to interrogate the wider opportunities for change.

In one recent project, a company's UK-based design team assumed a material thickness couldn't be changed, despite potential product benefits, because of 'manufacturing constraints'. But when we went lineside (in Italy), experienced staff told us the proposed thickness would actually be easier to work with but that 'no one ever asked'. It's these blind spots created by structural silos that often hide substantial savings.

Going beyond marginal gains

When companies ask external consultants to help they often expect them to validate their existing cost-saving ideas: such as using cheaper inputs, fine-tuning routine processes or potentially making small operational changes. The company's senior managers imagine a familiar cost curve, just slightly lower.

But the actual cost profile of a production system is rarely so tidy. In many cases, the biggest value savings don't come from marginal gains but from questioning constraints that have never been challenged before.

Long daily start-up times, machines underperforming or high levels of waste can become accepted as 'just the way the line works'. These inefficiencies are embedded in the system, they become normalised over time and typically go unchallenged until a fresh perspective brings them into focus.

Documented vs. actual practice

Internal teams assume they know how their factory runs. Yet deeper investigation and conversations with operators reveal a different story, and what's documented diverges from what actually happens on the production line.

> *"For some manufacturers, automation is seen as a silver bullet. For others, it's a sunk cost"*

Standard operating procedures rarely capture hidden tweaks and workarounds that the production team uses during line startup or to keep things running smoothly. And when these undocumented behaviours vary from operator to operator, they cannot all represent the optimal way to run the line.

Quick fixes fall short

Many cost-down programmes fail before they begin, not from poor execution, but because they ask the wrong questions.

Too often, companies look for options to switch to cheaper suppliers, to cut their energy bills or to reduce the labour content in their products. But these are narrow, very specific areas that are likely to deliver if anything only marginal gains.

To uncover ways to significantly lower manufacturing costs, it's necessary to dig deeper by interrogating the system not just the symptoms.

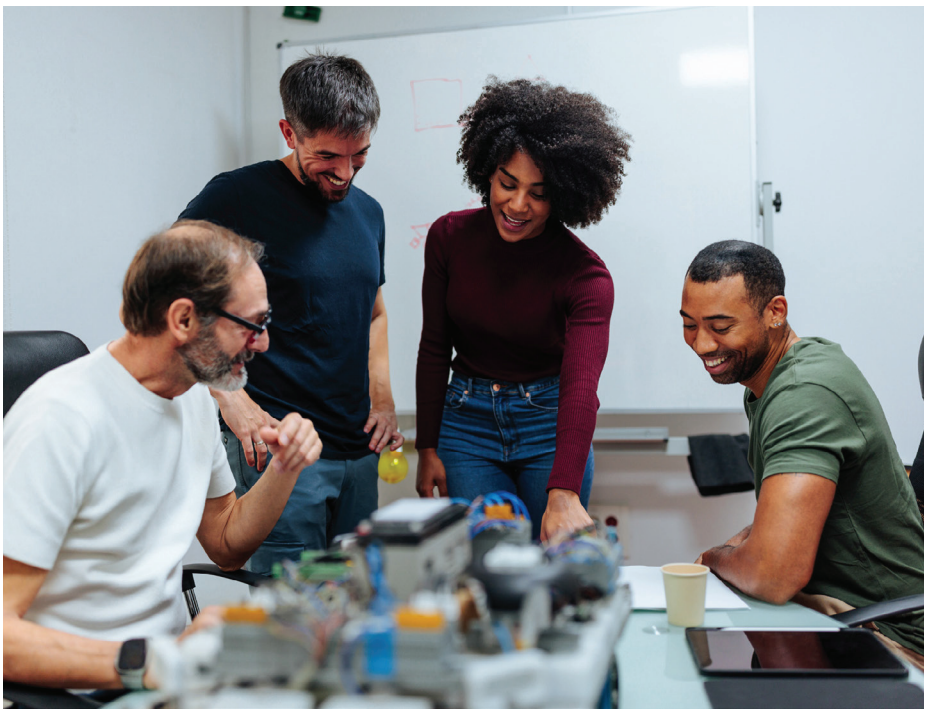
Six cost hot spots

Every production line leaks money. The challenge is finding where to lower and save production costs, and by how much, without affecting product quality. When working with FMCG brand owners, we typically find significant untapped savings across six key cost areas:

1 – Energy

In high-throughput environments, energy is a major opportunity for optimisation and is often tied up with legacy processes and equipment. For example, continuing to use steam sanitisation over more energy-efficient modern alternatives or not using oven and machinery exhaust air that could preheat other systems via heat recovery systems.

Many plants fail to reuse waste water, even though not every process requires a stream of perfectly clean input water. It's also worth considering using dried ingredients, even if they cost more because they are cheaper to transport and have longer shelf lives.



Cross functional teams can help break silos and spot savings early. Credit: stock.adobe.com/bernardbodo

Automation should enable operators to produce more, not replace them. Credit: stock.adobe.com/Quality Stock Arts

High levels of start-up waste can and should be fixed. Credit: stock.adobe.com/Parilov

2 – Labour

Automation is one of the most overhyped and misunderstood cost-saving levers in manufacturing. For some manufacturers, it's seen as a silver bullet. For others, it's a sunk cost.

When automation works it can be transformative, giving repeatability, predictability and scalability. But it can become the most expensive mistake on the shop floor when companies don't fully understand the true role of humans in a process.

One client considered replacing operators on a coat hanger assembly line with a robot, initially believing the operators were only performing a simple assembly task. After being walked through all the component inspections that the operators performed without even being asked, the client accepted that replacing the operators was not in fact financially viable.

For automation to deliver ROI it must address the actual process, not the theoretical process. The cost of lost flexibility should be factored into the assessment. It may be a smarter option to use partial automation and improved jigs, material feeding and cell layout. Think not about 'replacing' operators, but about 'enabling operators to produce more'.

3 – Design for manufacture

With new products, design for manufacture can be seen as an afterthought rather than a first principle. Rationalising product lines to use common parts and sub-assemblies from the start can reduce complexity, improve ordering efficiency and reduce WIP by allowing more late-stage customisation.

Early-stage design workshops, bringing together different disciplines from across a company, can be instrumental in aligning engineering with cost. They can help identify cost-saving opportunities and potential issues from day one, as well as encouraging more collaborative problem-solving to help avoid late-stage redesigns.

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4 – Work in progress

Manufacturers can make the mistake of releasing jobs or batches into the factory too early which leads to queuing and bottlenecks.

This approach increases the average transit time through the factory and allows more part-finished products to build up. To overcome this, it's vital to identify bottlenecks and to resolve them to streamline production flows and cut WIP.

5 – Waste reduction

It's not unusual to find high-levels of startup waste on product manufacturing lines from factors such as unoptimised temperature stabilisation or line calibration issues. Or excessive scrap as a result of equipment malfunctions, inadequate operator training or simple human errors.

In some cases, high levels of scrap are viewed as being inevitable but they are solvable and lead to significant cost savings too.

6 – Logistics

Manufacturers can find their production formats are being dictated by distribution constraints and other external factors that are not typically considered as part of a cost-reduction programme. But revisiting pack sizes, shelf-ready formats or the potential for late-stage customisation can be a quick win in unlocking hidden efficiencies and boosting manufacturing performance.

Challenge every assumption

When most manufacturers look for cost savings they usually target the biggest numbers on their spreadsheet: raw materials, component pricing, bulk costs.

The assumption being that if they can shave X percent of this or that, then they will hit their target. But that logic only trims around the edges. The biggest savings almost always lie deeper and are hidden behind 'untouchable' constraints, within inefficient working practices or are shaped by other departments and distributors.

To get more meaningful and longer-term savings, it's essential to invest in a complete end-to-end analysis to help uncover hidden cost drivers and to challenge everything linked to manufacturing. And that starts by recognising that what's written down and documented about how your production line operates may not always match reality.

ABOUT 42 TECHNOLOGY

42 Technology is a product development and engineering consultancy based near Cambridge, UK that works with and helps to create innovative new products and manufacturing processes for some of the world's best-known FMCG brands.

The company has particular expertise in helping brand owners to optimise manufacturing efficiency by reducing costs linked to waste, work in progress, and energy and raw material use.

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