

# STEP BY STEP

Gemba walks are an integral part of any manager's approach to operational excellence. But they can also prove invaluable for product and process innovation projects

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As product design consultants, we are often asked by our clients to conceive new manufacturing processes, or to improve existing ones to help create new products or product variants.

Much of this work is for clients within the traditional consumer sectors of food, beverages, home care and personal care, all of which rely on high-value manufacturing assets, which means there is usually significant inertia to avoid new capex or to change existing equipment. As a result, we are often faced with seemingly immovable barriers to innovation, with project briefs expressed in simple terms such as: "We want to create a new product to exploit this opportunity, but it must be manufacturable on our existing assets," or "We want to significantly increase line performance but with minimal further capex."

Rather than being constraints on the innovation process, these existing assets can be valuable enablers.

## Constrained innovation

Traditionally, innovation is considered to thrive best where there are minimal constraints, but even in constraint-free scenarios, many innovation tools that deliberately introduce structure, constraint and rigour to the creative process have found their way into common and effective usage. Such

structured innovation processes enhance the ability for teams with a range of technical and non-technical disciplines to make valuable contributions, and often encourage the breakdown of perceived barriers to innovation.

Where the manufacturing assets themselves are a major constraint on the innovation process, it is essential to include the factory as part of the innovation environment. And if done effectively, those constraints can be transformed into highly potent catalysts for the innovation process.

As such, the concept of 'Going to Gemba' becomes an essential step in asset-constrained innovation.

## Going to Gemba

Gemba – 'the place where value is created' – is a key component within lean manufacturing where practitioners are always advised to visit, observe and understand specific processes and systems



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in order to achieve best results and to avoid misguided and ill-advised improvement initiatives.

Within product and process innovation projects, Gemba can play an equally important role, and if manufacturing assets are a constraining factor then it is important to fully understand their capabilities and limitations before embarking on the innovation process.

Specifically, we have learned that it is valuable to:

- Properly understand existing asset performance and capabilities.
- Explore degrees of freedom and relative cost of change based on hypothetical process change scenarios.
- Understand how assets have evolved over the years, and most importantly why changes have been made.
- Establish empathy and shared vision with the engineering teams, such that they become part of the innovation team rather than being isolated from it.



### Manufacturable product concepts

One outcome of considering manufacturing assets in this manner is that new product ideas can be created that resonate both with the marketing team, addressing the identified market opportunity, and with the engineering team in the factory by demonstrating a genuine path towards product realisation. Such outcomes can differ from those presented by traditional design agencies who rightly pride themselves on creating truly innovative and compelling new product concepts that might perfectly address the identified need, but miss the practicalities of how they can be manufactured.

One recent 'asset-constrained' project related to a personal care product where our client wanted to launch a premium version of a successful, but commoditised, existing product, but needed that new product to be compatible with existing assets. To address this, a conventional product innovation project was extended to consider the capabilities of, and the degrees of freedom for modifications to existing process equipment.

### Do we know what we need to know?

It is often assumed that manufacturing assets are well understood by R&D and engineering teams. Typically, though, there is disconnect between belief and reality, which leads us to reinforce the simple principle of 'don't change what you don't understand'.

Process equipment evolves for many reasons – some valid, others less so – and adjustments made in the factory may inadvertently lead to original design intent being lost or eroded. Operators also develop their own work-arounds

to process deficiencies which is why establishing an accurate understanding of true process behaviour is an essential first step to avoid ill-informing any subsequent works.

Once again it is important to go to Gemba before starting any new product or process innovations so that the team can establish a robust understanding of baseline performance and current equipment build status.

### Mobilising the right team

To be truly effective in delivering new and commercially-valuable innovations, the project team needs to contain, or at least have access to a full range of complementary skills. Of course, the team needs its creatives – the innovation practitioners, designers and mould-breakers. But also practical engineering skills, such as process and automation engineers who can establish an understanding

motivation. But when properly assembled, motivated and managed, such a cross-discipline team can deliver astonishing – and often unexpected – results, as demonstrated on a recent project with PepsiCo.

"PepsiCo is typically reluctant to let external partners see its manufacturing equipment and processes first-hand," says Lindsay Dobson, senior R&D manager at PepsiCo. "But we have recently been involved in some projects with 42 Technology where we have brought the complete team together within the factory and used it to enable significant manufacturing process improvements on existing lines."

### Top tips for success

The issues discussed in this article are largely obvious, but so often we see well intentioned projects fail to achieve their potential. At worst this can sour



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of machine capabilities, constraints and other relevant considerations.

But such a mixed discipline team can present challenges because these diverse skillsets are often spread across different parts of the organisation with differing priorities, motivations, and budget issues making it difficult to work across department boundaries. Simple issues such as mis-aligned methods of working and differing approaches can lead to tensions between team members, especially if personal characteristics are not properly understood and accommodated within the team dynamic.

And, if equipment vendors are expected to supply the process engineering expertise then that often fails to materialise due to unrealistic expectations over expertise and

the appetite for similar initiatives in the future, leading to reduced ambition for breakthrough innovation and steady erosion of product differentiation and competitiveness.

For asset-constrained innovation projects, consider the following:

- 1** Assemble a team with all the necessary creative and practical engineering disciplines.
- 2** Allow that team to operate with common motivations.
- 3** Take measures to manage the team appropriately, rather than assuming empathy and harmony will prevail.
- 4** Go to Gemba to ensure existing assets are properly understood, not simply assumed.
- 5** Use the learning from Gemba to provide structure and focus for the innovation process rather than seeing it as an unwelcome constraint. 