



## Digital Manufacturing in Switzerland

How Swiss manufacturers can advance with digital lean on shop floors in four steps

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# Four steps to advance with digital lean

While the application of lean principles within a manufacturing context has long been a focus, in recent years digital and physical technologies have made possible new accomplishments of speed, cohesion, flexibility and automation. Digital technologies and lean principles are now intersecting in what is commonly termed ‘digital lean’ – a powerful combination of timeless lean principles and constantly evolving digital technologies.

Globally, manufacturing companies have been grappling with questions such as how do digital technologies enhance lean manufacturing, what principles of lean manufacturing will continue to remain relevant, how should a company get started and what are some of the benefits of digital lean and pitfalls to be avoided. The manufacturing sector in Switzerland is no exception to this global trend. Our investigation has revealed four areas that Swiss manufacturing companies are focusing on for digital lean manufacturing, these are:

1

**Build a proper data foundation**



2

**Invest in talent and readiness**



3

**Manage the adoption**



4

**Realise the benefits**



We have discussed use cases to advance with digital lean with experts from Swiss manufacturing companies. Statements made by representatives of these companies have been anonymised.

## What is digital lean?

According to the latest Deloitte report on Digital lean manufacturing, digital lean aims to combine lean principles with digital technologies and data analytics for continuous improvement and better optimization of processes and operations. With digital lean, manufacturers can build on a lean foundation and leverage new technologies, such as machine learning and predictive maintenance, to better solve business problems and unlock greater productivity. Potential benefits of digital lean are reduced cost, improved quality, increased efficiency, more agility and better decision making.



# Build a proper data foundation



Swiss manufacturing companies emphasise the importance of leadership understanding and acceptance as a prerequisite to the implementation of digital lean manufacturing - or any other new technologies on the shop floor. Building a streamlined and fit-for-purpose digital environment is often a multi-year project, taking time to implement and requiring buy-in at the highest levels.

Companies with a decentralised and global manufacturing footprint have factories that operate mainly autonomously, and manufacture products tailored to customer needs in different geographies. These different ways of manufacturing also result in different data sets, definitions and systems. Building a proper data foundation is therefore challenging for different business units which rather opt for a step-by-step building process. There is huge potential for standardisation when building a data foundation this way, rather than trying to use a single global approach.

Differences in digital maturity across different geographies, as well as legacy systems need to be considered. With many legacy systems in different geographies, a lot of mapping of the existing system landscapes will need to happen before a consolidation or global solutions are possible. For some Swiss manufacturing companies, the first step of building a proper data foundation as a prerequisite for digital lean, is the consolidation of all data sources into single data points within the ERP. Based on having one data pool and one standard, detailed and efficient planning of orders, team members etc. become possible.

According to the Director, Business Transformation of a Swiss industrial company: 'A transformation starts by considering four dimensions – People, Process, Data and Systems.' He goes on to add that 'Establishing a solid data foundation in heavy industry implies two major challenges – people (change management and systems) and adjusting to the existing IT structure.' Changing IT landscapes and introducing new technologies requires shifts in people's mindsets and work methods. 'It is important to emphasize the benefits to the organisation, as well as to the individual. Changes should be perceived as an opportunity rather than a threat.' Implementing a digital lean strategy is an obvious choice and must include employee buy-in and adoption.

Another challenge that the Swiss industry is facing is the related costs in terms of money, time and resources, to build one global data foundation and introduce digital lean manufacturing across all entities. As a result, for many traditional manufacturers building one data foundation is not necessarily the first priority because production processes are solid and have been working well for many decades. Fortunately, many Swiss manufacturing companies also enjoy the advantage of a reputation for high quality and reliability of made-to-order products, together with an extensive manufacturing history and excellent technical support/services.



# Invest in talent and readiness



Having the right talent and skills is key to the implementation of digital lean manufacturing. For Swiss manufacturing companies getting and maintaining the right digital talent is very important and can be challenging. While some employees often have a higher digital affinity and are embracing technological change, they may lack experience. Conversely, other employees have extensive knowledge but may need to familiarise themselves with new technologies. Even though many educational initiatives and programmes are happening across business units at Swiss manufacturing companies, many shop floors still remain very much mixed/heterogenous environments with a lot of processes and systems still paper based.

However, both the human factor and digital skills are essential because new digital systems need to be taught and fed with employee knowledge. Areas of responsibility and job descriptions are also changing with digitalisation and more abstract thinking being required. According to many interviewed Swiss manufacturers, employees need to be much more tech-savvy than in the past. In Switzerland, filling 'office jobs' is not a problem, the difficulty is finding people on the shop floor with the right technology skills that can operate different machinery. The Head of Operations, of a Swiss industrial company says, 'We don't necessarily need robotics experts, but rather mechanics that can think in a three-dimensional space. The workplace is constantly changing, and more digital retraining, reskilling and education is required. There will be exciting new opportunities for employees.'

Looking forward, Swiss manufacturing companies see future factories as learning environments, more paperless and smarter. Manufacturing will increasingly happen in an interconnected, collaborative and agile way. In the context of such a digital lean environment, people with a broad set of technical/digital skills and operational knowledge will be required.





# Manage the adoption of digital lean



Ideally, a digital lean vision should form part of a broader vision that includes digitisation across the entire business. Swiss manufacturing companies need to ask themselves what the best ways are to drive the adoption of digital lean manufacturing and other new technologies on the shop floor and across different sites. Importantly, they need to consider how digital implementation works in a heterogenous environment that can still be partially paper based and not yet fully digitised.

The adoption of digital lean can be approached as a change project with a small pilot team driving the change. The pilot team is required to understand the day-to-day challenges on the shop floor that employees are facing in order to optimally support the employee team. Employees should be accompanied until they can apply digital lean by themselves. In many Swiss manufacturing companies, project engineers have an important role to play – for example, when introducing new technology. Involving the primary user of new digital tools from the start can significantly enhance adoption. General employee training is also essential and once employees are trained, old machinery and old processes need to be phased out relatively quickly so that the new ways of working can take root.



# Realise the benefits



Swiss manufacturing companies agree on the general principle that you had better introduce and practice lean before you digitise. To fully realise the benefits of digital lean you need to consolidate your data first. Companies are trying to apply the 5S of lean (sort, set in order, shine, standardize and sustain) consistently and keep their Six Sigma projects going.

Some Swiss manufacturing companies are already well positioned – for example there are already established systems in PLM (product lifecycle management), ERP (enterprise resource planning) and MES (manufacturing execution systems). However, general usage of these systems could further improve.

In some companies while lean principles and continuous improvement initiatives have been used for a long time, lean and digital have been applied in a more siloed way across businesses rather than in combination across the organisation.

In traditional industries, digital technology is used less in production processes, but there is great potential for such technologies in process or operational management, where digital lean can create more value. For example, reporting in project management that has been traditionally based on Excel software can now be more efficiently created with visual analytics software that allows real time reporting, more visibility, detection of trends etc. Analytics software has great value-add potential.

For some Swiss manufacturing companies, digital lean is already happening to a certain extent in products and services. Predictive maintenance is an important area where digital lean adds value for customers. For example, wireless IoT condition monitoring with sensors allows for optimal preventive maintenance and enables remote troubleshooting of equipment. This can result in extending maintenance intervals while at the same time reducing failure events.





# Concluding thoughts

In line with global trends manufacturing companies in Switzerland also find themselves at the intersection of digital technologies and lean principles. A key consideration will be how digital implementation works in a heterogenous environment that can still be partially paper based and not yet fully digitised.

In many cases Swiss manufacturing companies enjoy the benefits of solid production processes and a reputation for high quality products. Nevertheless, they will still need to start adopting digital lean across their businesses. In the meantime, companies should focus on getting and retaining the right digital talent i.e. a combination of the right technological skills and the ability to operate machinery on the shop floor.

According to Fabien Lussu, Partner and Energy, Resources & Industrials Leader at Deloitte, 'Digital lean provides unique ways to eliminate waste and make people, processes, and technology much more productive than it would be possible with traditional lean manufacturing alone. Swiss manufacturing companies still have a way to go, when it comes to harnessing the full potential of digital lean in equipment, inventory and maintenance effectiveness.'





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