



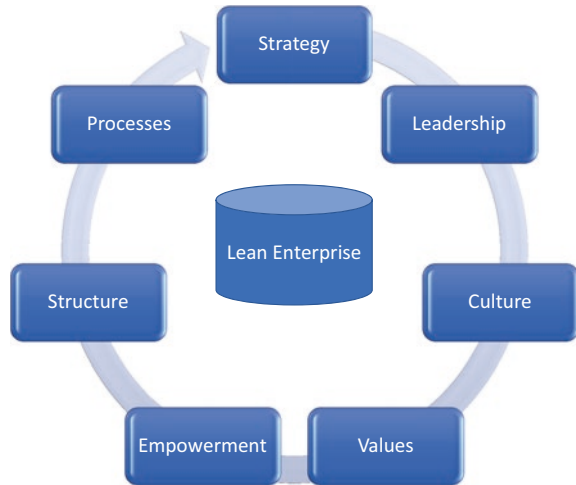
Knowing is not enough; we must apply. Wishing is not enough; we must do.

Johann Wolfgang von Goethe (1749–1832)

13.1 Human Touch in Lean Management

The human factor is one of the most important aspects in the enterprise. Even though machines and artificial intelligence are taking over some work, people are the most crucial element in achieving the company's goals (Helmold and Samara 2019). Management has to enable a human culture, in which problems in the shop floor are understood and can be addressed by employees in order to implement corrective measures (Helmold and Terry 2016). To give the best of their capability and skills, employees must be motivated to do so. Managers must be able to provide a motive or a reason for doing something or make people want to do it. It is of little use for management to prepare elaborate plans or give instructions for carrying out various activities if the people who are supposed to carry out the plans do not to do so, even though they may have to (Kalkis et al. 2019). Human resources have therefore to implement strategy and leadership culture, which centres the employees in the organization and enterprise as shown in Fig. 13.1. A lean culture must address the values of empowerment and autonomous work groups, in which employees can make and propose improvements (Ohno 1990). Clear structures and transparent processes will help to implement this lean culture inside the organization (Liker 2004).

Fig. 13.1 Lean enterprise.
(Source: Author's Source)



13.2 Failure Culture and Change Management

The culture of failure in lean management is the combination of shared values, goals, and practices that encourages learning through experimentation and errors. The goal of building this mindset of failure is to create workflows that allow employees to learn from unsuccessful endeavours and to continuously improve processes and activities. Change management is a systematic approach to dealing with the transition or transformation of an organization's goals, processes, or technologies. The purpose of change management is to implement strategies for effecting change, controlling change, and helping people to adapt to change. Change management in lean production utilizes processes, tools, and techniques to manage the people side of change to achieve the required business outcome. Change management incorporates the organizational tools that can be utilized to help individuals make successful personal transitions resulting in the adoption and realization of change. Change management can be used to manage many types of organizational change. The three most common types are:

1. Developmental change – Any organizational change that improves on previously established processes and procedures.
2. Transitional change – Change that moves an organization away from its current state to a new state in order to solve a problem, such as mergers and acquisitions and automation.
3. Transformational change – Change that radically and fundamentally alters the culture and operation of an organization. In transformational change, the end result may not be known. For example, a company may pursue entirely different products or markets.

As a conceptual business framework for people, processes, and the organization, change management increases the success of critical projects and initiatives and improves a company's ability to adapt quickly.

13.3 Communication

Lean thinking is fundamentally transforming the way organizations operate. The lean principles of continuous improvement, respect for people, and a relentless focus on delivering customer value are making teams and organizations rethink the practices that might have guided them for decades. The introduction of lean production requires in parallel a lean communication process. Communication is an important aspect of lean process in order to successfully implement lean processes or activities.

13.4 Empowerment and Bottom-Up Culture

Taking workers' opinions and proposals into account, valuing their proposals to motivate them, implementing proposals, or, should they not be applicable, explaining why. Change in management behaviour: communication, transparency, and contact with the shop floor, less information flow stagnation, and continuous management support along with greater accountability to workers.

13.5 Job Design

The job design is about the design how and where tasks are performed by employees. Most work is complex enough that it is subdivided into tasks performed at different stages, so that different people and/or departments must interact with each other to complete the work. Work design is about the coordination of these interactions creating an organization. Lean is about achieving operational excellence. Therefore, the first step towards a lean work design is to create a work design that allows individuals within the system to achieve operational excellence. The job design includes (1) the job description, (2) the physical environment in which the tasks are executed, and the (3) management which must provide the necessary framework and tools to do the job.

13.6 Shopfloor Management (SFM)

One of the most important differences between traditional manufacturing systems and lean systems centres on the behaviours and roles employees are expected to adopt. Unlike conventional hierarchical command-and-control structures, lean HR policies and practices reinforce employee empowerment. Employees from shopfloor to management are encouraged to engage in continuous improvement activities aimed at eliminating waste (suggestion schemes, quality circles) and to get involved in the proactive aspects of production (problem-solving, target-setting, decision-making). To develop employee appreciation for the manufacturing process and customer value, multi-skilling, job rotation, and cross-functional teamworking are

encouraged. Since its advent, lean has transformed the manufacturing world, demonstrating a remarkable ability to improve the quality, productivity, and lead times of manufacturing companies in many different industry sectors (Liker 2004). It currently represents, as Ohno (1990) outlined, the standard manufacturing approach of the twenty-first century with as many as 50 percent of UK-owned and 85 percent of US-owned firms applying lean techniques in at least part of their business.

13.7 Motivation as a Key Success Factor in Lean Management

The Toyota Production System or lean management has been described in many ways. It is the systematic elimination of waste. It is continuous improvement. It is striving for interruption-free processes. It is a passionate focus on serving customers. It is many things. But one aspect of lean that has not been given enough attention, in my opinion, is how lean is an organization-wide system of motivation that creates a high-performance culture (Helmold and Samara 2019). The Toyota Production System or lean management has been described in many ways. It is the systematic elimination of waste. It is continuous improvement. It is striving for interruption-free processes. It is a passionate focus on serving customers. It is many things. But one aspect of lean that has not been given enough attention, in my opinion, is how lean is an organization-wide system of motivation that creates a high-performance culture.

Too many lean implementations suffer from a focus on problem-solving skills, but a failure to attend to the system or culture of motivation. Too many rely on the “they oughtta wanna” assumption, which usually results in disappointment.

Ultimately all organization performance comes down to human behaviour, and there are always two aspects to achieving high performance: one is competence and the other is motivation. There must be competence in technical skills, and there must be competence in social skills such as teamwork and problem-solving, for example. Skills are useless unless individuals are motivated to use them. From my experience at Toyota and Honda and other high-performing organizations, there is a high degree of motivation for not only personal success but the collective success of the group – the team and the company. Many of those implementing lean would do well to focus more on creating a systematic approach to motivating all members of the organization.

13.8 Case Study: Tesla’s Lean Transformation

In the case of Tesla, the company imposes various techniques and measurement to keep track of the company’s performance, which is primarily based on productivity. For example, the company measures its manufacturing performance based on the number of cars produced a day; for the customer service division, it considers the

number of inquiries resolved, emails answered, and complaints handled. In addition, Tesla also establishes key performance indicators (KPI) to monitor its production and inventory and generally assess the success of achieving the goals within the predetermined duration. In fact, for prospective managers at Tesla Inc., familiarity and experience with applying and monitoring KPIs for a particular area are not just huge advantages but also part of job responsibilities.

Tesla's key stakeholders include its investors, directors, employees, suppliers, shareholders, partners, the government, financial institutes, and the public. Communicating performance to these entities is not limited to disclosing the company's financial reports but also informs them about the company's visions, strategies, targets, milestones, key issues, and major accomplishments.

Tesla Motors Inc. has maintained regular and efficient communication with its stakeholders. The company publishes its annual report on its website, disclosing key financial data, the company's strengths and values, potential risk factors, its products, services, network and infrastructures, and other important information (Tesla 2016). The company also communicates with its stakeholders by organizing annual meetings for its stockholders with webcasts for those who cannot attend in person, Q&A conference calls to share the company's quarterly financial results, and factory tours for those who want to have a closer look at the company's manufacturing and operations (Tesla 2016). The company also manages its own blogs and official pages on social media websites including Facebook and Twitter to keep stakeholders abreast of the company's latest developments and achievements.

In case some major crisis happens, the company also responds very promptly to keep the crisis under control. For example, when a video showing a Tesla Model S catching fire went viral on YouTube in 2013, Elon Musk, Tesla's CEO, quickly shared a post on the company's blog to explain the reasons behind the accident, regain customers' trust in Tesla's vehicles, and reaffirm the company's potentials with the investors (Russolillo and Cheng, 2013).

Tesla aims at mass producing electric cars and make them as ubiquitous as gasoline-powered cars. To do that, they have to produce affordable cars and meet the huge demand the promise of pollution-free transportation is generating in the market.

The launch of the mass market Tesla Model 3 has been dogged by production problems with the number of unfulfilled orders exceeding the ability of the company to deliver. Tesla's CEO Elon Musk has talked about been in a "production hell" – working tirelessly to get production moving at the right pace.

In the past 1 year or so, Elon Musk has transformed his idea of what is required to meet production targets. He has gone from thinking that excessive automation is the answer to his productivity challenges to recently admitting that there are areas that are best left to manual human labour. In this interview, Elon even showed more admiration for low tech "dumb robots" that use simple sensors and magnetic strips to move material to various workstations within the factory.

This transformation has taken some time to come, and – as a member of the lean community – it is gratifying to witness it.

Manual labour is better than robots especially when they are complicated as they will require specialized and expensive engineering expertise. In a factory operation that runs continuously for 24 hours, this means that these technicians will have to be available all the time in case of breakdowns. This extra layer of highly paid support labour will increase the operating costs and eat into the company's profits.

The fact that the robots are specialized for specific tasks within the factory means that there is a lot of downtime when they breakdown.

The removal of conveyors – which Musk said ended up complicating things even more – is another indication that lean manufacturing principles are taking root at Tesla.

Conveyors added a level of complexity that led to lower productivity. The conveyors – which were later removed – needed constant attention from engineers so that they do not break down. Removing things that do not add value is a major activity when doing lean manufacturing.

Another thing, conveyors tend to move material very fast. This may sound like a good thing, but it may actually be the cause a significant drop in productivity. Why is this? Conveyors that transport material faster than the speed of the line end up creating bottlenecks because of build-up of work in process. Resources are required to handle this material build-up, and this leads to more manpower being deployed – hence the low productivity.

The Tesla factory processes are arranged in a U shape. This type of layout is very efficient in the utilization of space and also gives visibility to what is happening on the line. The logic is simple – a straight line layout will require more space lengthwise. Bending the line in a U shape can save up to 50 percent of the space required by the assembly line.

Another advantage a u-shape line has over a line layout is that the input and output sections are next to each other. This makes designing of receiving and shipping bay much easier.

Set-up times for machines and processes are lower in U-shaped lines. Another advantage is that sharing of equipment for different product line becomes much easier – thereby saving capital cost on duplicate machines.

It is a good thing that Tesla is starting to use the time-tested lean manufacturing principles in its production process. They will have to continue experimenting on the best way to bring about their vision of a mass produced affordable electric car. Getting there will require a dogged determination to succeed as well as the humility to accept counsel from people who have done it better.

Above all, embracing lean manufacturing means that you have to take everyone on board and unleash the creativity of your workforce to solve problems.

Tesla should replace its top-down management style with a bottom-up approach that takes input from lower cadres so as to improve productivity, quality, and profitability.

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