



# Back in Circ

Free up assets and  
**reinvest them in**  
**the community**  
to achieve true SR

## In 50 Words Or Less

- As lean has evolved, its potential impact has broadened.
- The philosophy, which once was limited to the shop floor, has found its way into all facets of organizations.
- Resources freed by lean can be reallocated to improve society at large and, in turn, the sustainability of an organization.



# Evolution

**IN THIS TIME** of fading barriers between organizations and society at large, ASQ looked at the future of quality and how the quality profession fits into this new world. It found the quality profession is becoming increasingly important to bridge the gap between organizations and society.<sup>1</sup>

The most recent quality movement—lean—is at the forefront of changes organizations are implementing to become more competitive in the global economy. Once used exclusively with business processes, lean is being employed by organizations to solve environmental concerns and to become more socially responsible.<sup>2</sup>

As the applications for lean continue to expand, organizations must realize lean's usefulness goes beyond environmental efforts. But first, we must look at the history of lean and its evolution to understand how the future of lean fully complements social responsibility (SR).

by Chad Vincent

## From production to enterprise

The phrase “lean production” was coined in the late 1980s by John Krafcik, of the international motor vehicle program of the Massachusetts Institute of Technology (MIT)<sup>3</sup> and popularized in the book *The Machine that Changed the World*.<sup>4</sup> This was the generally accepted name of the system derived from the Toyota Production System.

Lean production, or lean manufacturing, began as a means of organizing and managing various operations of production—from suppliers to product delivery—so they require fewer personnel and less time, money and material to make products with higher quality when the customer demands them.

As manufacturers realized the benefits of lean on the shop floor, the philosophy was incorporated into business processes, indirectly impacting the manufacturing of products, including purchasing, accounting, sales, customer service, distribution and logistics.

This expanded use of lean incorporates closer relationships with suppliers and end-use customers. It requires partnering with all stakeholders outside the organization and sharing not only ownership of those processes, but also the results of continuous improvement efforts to those processes. The effort to eliminate all waste across the supply chain with the collaboration of all stakeholders became known as lean enterprise.<sup>5</sup>

## Lean to green

This expansion of the lean philosophy, or lean thinking, to other business processes began to have benefits beyond the traditional lean practitioner’s viewpoint. The rewards were being recognized by individuals in the environmental, health and safety (EH&S) functions of organizations. While lean reduced operational waste, it also reduced environmental waste.<sup>6</sup> It is called different things by different organizations, but for the purpose of this article, we will call it green manufacturing.

Conceptually, lean enterprise and green manufacturing are similar, because both pursue the elimination of waste.<sup>7</sup> Lean enterprise becomes green manufacturing when an organization adds the environment as a key stakeholder in the supply chain.

Green manufacturing expands the supply chain to consider what happens to the material and product after use. In a sense, it closes the loop from raw ma-

terials to environmental waste, whether that waste is caused by the organization’s operations or by what the end customer does with the product after use. Green manufacturing creates a focus on the preservation of life-sustaining resources (soil, air and water) and a reduction in toxic-material release.<sup>8</sup>

While lean enterprise strives for the elimination of the eight traditional wastes, green manufacturing strives for the elimination of environmental waste and reuse of resources. As a result, green manufacturing has created the eight green wastes, which are outlined, along with the eight traditional lean wastes, in Table 1.

The ideal state of green manufacturing is to use 100% renewable resources, with complete use of all materials and no byproducts—zero waste. In today’s world, much like most value streams, the ideal state is a far cry from reality. In reality, organizations must use a combination of renewable and nonrenewable resources, and reusable and nonreusable materials.

Green manufacturing focuses on the following to reduce waste:

- Minimizing the use of nonrenewable resources.
- Maximizing the value use of nonrenewable resources when they must be used.
- Maximizing the value use of renewable resources.
- Maximizing the value use of materials.
- Maximizing the reuse of scrap raw materials.
- Minimizing total byproducts.
- Maximizing byproducts that can be reused.
- Minimizing toxic byproducts or byproducts that cannot be used.
- Minimizing the use of product materials and packaging (including shipping materials).
- Maximizing the reuse of product materials and packaging after use.

Some organizations easily make the connection between being environmentally friendly and the lean philosophy and its associated tools. This green frame of mind is ingrained in the culture of the organization that is given the most credit for lean: Toyota.

## Driving the lean effort

Reviving itself from the ashes of World War II, Toyota had to maximize the use of natural resources that were not readily available in Japan. A culture of waste reduction was created as a foundation for Toyota to reduce the impact of material shortages and keep in-

## Lean wastes vs. green wastes / TABLE 1

The eight lean wastes	The eight green wastes
<ol style="list-style-type: none"> <li>1. Overprocessing: Tighter tolerances or higher grade materials than are necessary.</li> <li>2. Motion: Bending, turning, reaching and lifting.</li> <li>3. Inventory: Storing parts, pieces and documentation ahead of requirements.</li> <li>4. Transportation: Moving people, products and information.</li> <li>5. Waiting: For parts, information, instructions and equipment.</li> <li>6. Skills: Underusing capabilities and delegating tasks to those with inadequate training.</li> <li>7. Defects: Rework, scrap and incorrect documentation.</li> <li>8. Overproduction: Making more than is immediately required.</li> </ol>	<ol style="list-style-type: none"> <li>1. Water: use for production, use by employees and wastewater.</li> <li>2. Electricity: created by nonrenewable resources (gas, coal, nuclear, petroleum-based fuels) and renewable resources (wind, hydroelectric, geothermal, solar, biofuels).</li> <li>3. Gas: natural, propane, methane.</li> <li>4. Earth material: soil and earth, plants and unprocessed raw materials (salt, coal, crude oil, bauxite, lead).</li> <li>5. Emissions: smoke, water vapor, heated air, gaseous toxins, residual gases from processes.</li> <li>6. Product use: waste from product discarded after use, product packaging and containers for product shipping.</li> <li>7. Raw material: traditional waste from production scrap that is excess material discarded for no further use by the organization.</li> <li>8. Byproducts: solid waste toxins, processed materials not usable by the organization and biohazard waste.</li> </ol>

### SOURCE

Bellamy, Stewart, "8 Wastes of Lean," [www.isixsigma.com/dictionary/8\\_Wastes\\_of\\_Lean-915.htm](http://www.isixsigma.com/dictionary/8_Wastes_of_Lean-915.htm).

Note: At this time, there is no known source for the classification of green manufacturing wastes. This is a classification created by the author of this article. For benchmarking purposes, metrics can be based on volume of each waste category and normalized by total production metrics of an organization.

dustrial Japan alive during the rebuilding period of the late 1940s and early 1950s.

Toyota had no obligation to preserve Japan's resources while building automobiles. But, by limiting the company's impact on Japan's resources, it maximized the use of organizational resources to sustain the organization in the long term. By doing so, Toyota became a leader in corporate citizenship by providing jobs and supporting the local community.

Looking at the situation from the viewpoints of Toyota, its employees and the community, staying in business was socially responsible during the rebuilding of Japan. To do so, Toyota had to overcome the challenges of material shortages and workforce knowledge and skill limitations.

At that time, many types of industries that were needed for rebuilding Japan required the same resources. For survival, organizations from different industries were forced to rely on each other to accomplish a single goal and put the country first. By sharing knowledge and providing a means for the people of the local communities to be productive rather than waste valuable materials, Toyota was being socially responsible. It found ways

to survive the rebuilding period and, in 2008, became the world's largest automaker.<sup>9</sup>

While learning from the Toyota benchmark, some organizations adopted lean enterprise and green manufacturing as an environmentally conscientious and, hence, more socially responsible business strategy. Can organizations that adopt green manufacturing stop there and state they are socially responsible organizations? The answer is no. There is much more to SR than a focus on the reduction of environmental waste.

### The evolution of SR

The upcoming ISO 26000 standard and the Malcolm Baldrige National Quality Award (MBNQA) criteria define SR as more than environmental friendliness. The MBNQA criteria explain that practicing good citizenship involves leadership and the support of resources for publicly important purposes (see sidebar, "The MBNQA and SR," p. 20).<sup>10</sup> It is further understood that when organizations lend this leadership and support, it should be done within the limits of an organization's resources.

The latest working draft of ISO 26000 defines SR as: “responsibility of an organization for the impacts of its decisions and activities on society and the environment, through transparent and ethical behavior that contributes to sustainable development, health and the welfare of society; takes into account the expectations of stakeholders; is in compliance with applicable law and consistent with international norms of behavior; and is integrated throughout the organization and practiced in its relationships.”<sup>11</sup>

Despite the fact that lean enterprise is widely associated with the environmental movement, the connection to SR is much stronger. This is best demonstrated using the first of the 14 management principles described in Jeffrey Liker’s book, *The Toyota Way*: “Base your management decisions on a long-term philosophy, even at the expense of short-term financial goals.”<sup>12</sup>

Liker interprets this principle as Toyota’s focus to “generate value for the customer, society and the economy ... evaluate every function in the company in terms of its ability to achieve this.”

Organizations should create a culture with an understanding that making money is not the sole purpose of an organization. Many companies that made being

profitable their sole purpose—and initially succeeded, by the way—have either ceased to exist or have come dangerously close to collapsing.

Companies such as Enron, WorldCom and those associated with the current economic crisis are prime examples of profitability trumping SR and long-term sustainability. Without a balanced approach for all stakeholders (customers, society, employees and the overall economy) and not just shareholders, it is difficult for an organization to generate value for all parties who have a vested interest in the organization’s sustainability.

Liker further suggests that this first principle implies an organization should act with self-reliance and determine its own destiny. I would broaden Liker’s interpretation to mean that organizations should strive to be self-sustaining while providing for the local community in such a way that future generations will look back and view the organization as existing for the greater good.

### Who’s being served?

A basic lean principle is to define the value of a product or service in terms of the customer.<sup>13</sup> The true principle of lean, however, should be to focus on all stakeholders via an expanded definition of “customer.”

## THE MBNQA AND SR

An organization’s leaders should emphasize responsibility to the public, ethical behavior and good citizenship. Leaders should be role models for the organization, focusing on ethics and the protection of public health, safety and the environment. This includes an organization’s operations, as well as the life cycles of its products and services. Organizations also should emphasize resource conservation and waste reduction at the source. Planning should anticipate adverse impacts from production, distribution, transportation, use and disposal of products. Effective planning should prevent problems, provide for a forthright response if problems occur, and make available the information and support needed to maintain public awareness, safety and confidence.

For many organizations, the design stage is critical from the perspective of public responsibility. Design decisions impact production processes and, often, the content of municipal and industrial waste. Effective design strategies should anticipate growing environmental concerns and responsibilities.

Organizations should meet all local, state and federal laws, as well as regulatory requirements, and should treat these and

related requirements as opportunities for improvement beyond mere compliance. Organizations should stress ethical behavior in all stakeholder transactions and interactions. Highly ethical conduct should be a requirement of and be monitored by the organization’s governance body.

Practicing good citizenship involves leadership support—within the limits of an organization’s resources—of publicly important purposes. Such purposes might include improving education and healthcare in the community, pursuing environmental excellence, practicing resource conservation, performing community service, improving industry and business practices, and sharing nonproprietary information. Leadership as a role-model organizational citizen also entails influencing other organizations, private and public, to partner for these purposes.

Managing SR requires the organization to use appropriate measures and to have effective leaders who will assume responsibility for those measures. —C.V.

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National Institute of Standards and Technology, *Criteria for Performance Excellence*, Baldrige National Quality Program, [www.baldrige.nist.gov/Criteria.htm](http://www.baldrige.nist.gov/Criteria.htm) (case sensitive).

# Organizations **should create a culture** with an understanding that making money **is not the sole purpose.**

Organizations must create a balanced focus on everyone invested in the sustainability of the organization. Principles 9, 10 and 11 in *The Toyota Way* focus on adding value to the organization by developing your people and partners.<sup>14</sup> These principles deal with the development of people, teaching others, following a common philosophy, and challenging partners and suppliers to improve (for the complete list, see sidebar, “The 14 Principles of *The Toyota Way*,” p. 22).

Ask yourself who the aforementioned people, partners and suppliers of your organization are. Why should the definitions of these entities be limited to your workforce, customers and suppliers? Broaden the scope of these entities to define all stakeholders, including society and local communities.

Each of these entities, in one way or another, is connected to the success and failure of the organization. Through the expansion of the term “customer,” organizations can begin to define value in terms of local communities, society and the workforce. With this new frame of reference, organizations can establish more ways to become socially responsible beyond the current state of green manufacturing.

## Ethical behavior

Behaving ethically is part of being a socially responsible organization.<sup>15</sup> Internally, responses to ethical infractions are critical to a workforce’s morale, because employees have a basic need to know their voice is heard. Another way to achieve ethical behavior is through transparency of internal and external operations. Visual management (also known as visual control) plays a key role in this transparency.

Employees, suppliers, partners, customers and other stakeholders have a basic need to know the state of the business in which they are vested. The philosophy behind visual management is to make information visual, or transparent, to stimulate continuous improvement.<sup>16</sup>

Those individuals who have a vested interest in an organization will support the improvement of that

business if information is shared freely. Suppliers will be more willing to work with businesses that do not hide information from them. Employees will speak up if they know their ideas will have an impact on the business. If local communities know that a company in its early stages is in trouble, they will come to the aid of that company.

## Local support

Lean can be useful as a two-step process to support local communities. The first step is through the application of lean enterprise within the organization, resulting in the creation of additional capacity by reducing the burden on existing resources. With less-burdened resources, organizations will be able to contribute more to local communities. Those contributions may include improving education and healthcare, performing community service, improving industry and business practices, and sharing nonproprietary information.

SR emphasizes that organizations should act as role models to influence other organizations—public and private—to partner in the continuous improvement of the local community. Organizations should find ways to move beyond the walls of the company to improve the community, thus improving the quality of life of the employee.

Toyota has an open-door policy. It welcomes any and all organizations to benchmark its operations. It does so with the understanding that what makes other organizations stronger will make the local, state, national and global communities stronger, resulting in Toyota becoming more sustainable.

The second way an organization can use lean enterprise to contribute to its local community is by teaching the lean philosophy to benefit everyone. Teaching local organizations the benefits of lean enterprise and how to apply it at their own organizations will allow them to create more value through their operations and resources.

If local organizations are operating more efficiently, this makes the local community stronger and more productive. As a result, the burden of the local community on an organization is reduced, because the quality of life of the organization's employees has improved.

That policy has its roots in the Ford Motor Co.'s Service School, which was created to educate foreign students for Ford's business branches overseas and also to spread the idea of mass production methods. Henry Ford believed his company had no trade secrets, saying, "If we are doing anything which another manufacturer may find use for, then we want that manufacturer to have the benefit of what knowledge we possess. That we take as our duty."<sup>17</sup>

## THE 14 PRINCIPLES OF THE TOYOTA WAY

1. Base your management decisions on a long-term philosophy, even at the expense of short-term financial goals.
2. Create a continuous process flow to bring problems to the surface.
3. Use pull systems to avoid overproduction.
4. Level out the workload (*heijunka*). Work like the tortoise, not the hare.
5. Build a culture of stopping to fix problems, to get quality right the first time.
6. Establish standardized tasks and processes as the foundation for continuous improvement and employee empowerment.
7. Use visual control so no problems are hidden.
8. Use only reliable, thoroughly tested technology that serves your people and processes.
9. Grow leaders who thoroughly understand the work, live the philosophy and teach it to others.
10. Develop exceptional people and teams who follow your company's philosophy.
11. Respect your extended network of partners and suppliers by challenging them and helping them improve.
12. Go and see for yourself to thoroughly understand the situation (*genchi genbutsu*).
13. Make decisions slowly by consensus, thoroughly considering all options; implement decisions rapidly (*nemawashi*).
14. Become a learning organization through relentless reflection (*hansei*) and continuous improvement (*kaizen*).

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In the 1950s, Eiji Toyoda, managing director of manufacturing at Toyota and cousin of founder Kiichiro Toyoda, was sent to study the U.S. auto industry and its production methods. After reading the report, Kiichiro said, "We shall learn production techniques from the American method of mass production. But we will not copy it as it is. We shall use our own research and creativity to develop a production method that suits our own country's situation."<sup>18</sup>

Although he may not have realized it, Kiichiro Toyoda was creating the foundation of lean philosophy. Toyota's success can be credited to Ford's sense of duty to SR and sharing what he learned with others—even competitors.

### The broad side of lean

In general terms, lean as it relates to SR says an organization should strive for continuous improvement to fit the needs of society and then spread that knowledge to help others improve, regardless of the industry.

In the healthcare realm, nonhealthcare organizations must become role models and provide expertise in best-demonstrated business practices, such as lean, to improve hospitals, doctors' practices and clinics. This may include sharing improvement ideas and teaching healthcare professionals the tools and methods needed to continue the improvement journey. The partnering business can bring in healthcare professionals to participate in *kaizen* events, so they can get hands-on experience before they try to implement lean in their organizations.

In the end, this benefits the workforce by keeping it healthier through an improved local healthcare system, thereby creating long-term, loyal employees. The healthcare providers benefit beyond the improvement of operations by hearing the voice of their customers firsthand. A partnership like that takes time and commitment before knowledge can be shared openly. Organizations in this type of partnership must believe they have a larger sense of purpose beyond the product or service they provide.

The same opportunities exist in education. Business organizations can open their doors and involve the younger generation in real-life experiences, thereby creating an environment in which academic training and professional experience go hand in hand. This makes a textbook out of the working environment, where students can apply what they have learned in

theory to working situations and produce tangible results.

The EAST Initiative in Arkansas is a prime example. This program takes students at the primary school level and assigns them projects that deal with real problems in their communities. Students are given the training and tools to understand technology—including global positioning systems, 3-D design and animation tools, and information systems—and to apply them to solve problems related to education, health, government, agricultural or environmental issues.<sup>19</sup>

While having a substantial benefit to the organization, there is benefit to the students, who get a sense of pride when a project is completed and receive the education needed to be more productive when entering the workforce of tomorrow.

From a lean perspective, we are removing the waste of complete theoretical education in which graduates are not fully prepared to enter the workforce immediately without extensive training by the organization. Why should organizations need to train individuals who should be ready for real life once they graduate? Isn't that waste, too? By combining education with real experiences and tangible benefits, the future workforce will be more productive when entering the workplace, needing no additional training.

### The choice is yours

It is through the ideology of long-term sustainability that local communities embrace an organization. When a local community can depend on an organization to provide jobs, the local community becomes a partner with the organization and will be more willing to work with that business.

In contrast, some organizations use lean to reduce overhead costs by reducing their workforces. Those organizations do not fully embrace the lean philosophy from the perspective of SR that was taught by Toyota, which demands a respect for people and partners.<sup>20</sup>

While layoffs may be inevitable at times, there is a difference between organizations who plan for them and those that just do them. The socially responsible approach is to prepare the workforce for layoffs and

make plans to reduce the impact. This can include job placement programs, additional education to fill other positions that are open within the community and attrition planning to reduce the amount of layoffs, with a focus on metered replacement of retirees.

SR, like lean, is a choice. Companies that embrace the lean enterprise philosophy create additional capacity for their resources, not only to produce better results with those resources, but also to use that additional capacity and give back to society. That is the true nature of the lean enterprise organization: all stakeholders working together to continuously improve the world and make it a better place. Isn't that what being socially responsible is all about? If Toyota can change a nation, why can't we change the world? **QP**

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CHAD VINCENT is principal engineer at Baxter Healthcare Corp. in Mountain Home, AR. He earned a bachelor's degree in engineering management, specializing in quality engineering, from Missouri University of Science and Technology in Rolla, MO. Vincent is a senior member of ASQ and is an ASQ-certified quality manager, quality engineer, reliability engineer and Six Sigma Black Belt.

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