

6.4: Eliminating Waste

, College of Earth and Mineral Sciences: Andy James’ “Operational Efficiency “

principles of the eight wastes. These eight types of waste should be understood and evaluated. Take time to consider your workplace. Where does it occur? Why does it occur? Is it required waste (regulatory or quality assurance step)? Answers to these questions are a minimization of waste and changes in process.

the world’s corporations, two systems of thought tend to predominate: the Toyota Production System (TPS, more broadly known as

create, hone, and, over time, optimize virtually any process or system, it is important to note that a central concern of each is the with the longer-term ramifications of overuse and waste, as well as other wide-ranging implications, *this* expression of sustainability t in intent as it is in execution: waste costs measurable amounts of money. Period. There is no nuanced interpretation, no delicate s perhaps why the application of these systems are so popular with CFOs and operations management alike.

an and Six Sigma share essentially the same definitions of waste:



two of the dominant efficiency systems in the world, let’s consider the sustainable underpinnings of the eight wastes and the types of

Type of Sustainability Aspects Related to Eight Wastes

| | Examples of Related Sustainability Aspects |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <ul style="list-style-type: none"> Especially in regard to sustainability’s efficiency imperatives, we may find that the Lean/Six Sigma waste principles as practiced today are <i>far</i> more advanced and prescriptive than any GRI report or sustainability management system when it comes to the overall consideration of <i>all</i> types of waste. Where GRI may be far more focused on the defined wastes and setting indicators, Lean/Six Sigma takes a more holistic view in opening the facility to see the less obvious, but equally erosive, wastes. Furthermore, and of key interest for our efforts in creating sustainability-driven innovation, is that the last 30 years of heavy worldwide adoption of these management systems present us with ample numbers of cognitive “hooks and anchors” from which we may build a platform. For anything from beginning a sustainability initiative internally to creating a B2B |

Examples of Related Sustainability Aspects

offering, the philosophies of sustainability may already be deeply embedded in the organization already: they call them Lean/Six Sigma.

As we will cover in coming Lessons, our goal then is not to unnecessarily create new ideas (which is difficult, and frankly, expensive), but to build on and extend the thoughts, feelings, and frames that already exist in the minds of customers.

Caterpillar's use of Six Sigma in supply chain sustainability

Caterpillar is arguably one of the foremost adherents to this efficiency thinking, applying Six Sigma at very high levels throughout not only its organization, but the organizations within its supply chain. In a sense, this push functioned as a very proactive effort on the part of Caterpillar to drive efficiency and waste reduction in its suppliers and to allow its suppliers to work together to find ways to become more efficient. A few highlights from [a Gillett, Fink, and Bevington piece in Strategic Finance](#) about Caterpillar's use of Six Sigma:

In addition to its own use of 6 Sigma, the company has taught its suppliers and dealers about the benefits of using the technique to refine the entire sales model. Caterpillar has introduced 850 suppliers worldwide to 6 Sigma, which has created more than 1,000 supplier Black Belts to help run the projects. One supplier that said it was interested in the Caterpillar 6 Sigma methodology allowed Cat to consult and transform the business. When implementing 6 Sigma, Caterpillar used facts and data to show the results the supplier could expect, so it didn't take long for the supplier to totally buy in to the methodology.

Dealers have also taken on the 6 Sigma commitment. More than 165 dealerships have produced more than 1,000 Black Belts to help with projects. Dealers find it amazing that they can share their projects with one another on a Caterpillar website that depicts best practices among the dealers. Even though each dealership is run as a separate business, 6 Sigma has helped give all of them a common feel across the world. Not only are dealerships learning about projects that need to be done in their business, but they're following the steps of the process and learning which projects to do first. Just as Caterpillar embraced the methodology, dealers have also accepted the idea of making 6 Sigma a top-down methodology that pushes the training and concept down to the workers at the lowest level.

While Caterpillar's Six Sigma push started in 2001, a full four years before it would issue even its first sustainability report, the links between the two efforts are readily evident: In both the CAT approach to Six Sigma efficiency and its sustainability efforts, the drive for waste reduction and efficiency is coming from a very directed and structured approach, one which has its roots in operations.

The intermingling between Six Sigma, operations, production, and sustainability at Caterpillar becomes even more evident when examining the [Critical Success Factors](#) ([link is external](#)) statement of its Sustainability Vision, Mission, Strategy:

Critical Success Factors

Culture. Create a culture of sustainability in all our business units and in all our daily work.

Progress: We promote our employees' awareness and understanding of sustainability. We continue to foster a corporate culture of transparency, disclosure and engagement.

Operations. Champion our sustainability principles and contribute to 2020 aspirational sustainable development goals.

Progress: The Caterpillar Production System provides the recipe for efficiency and excellence in our facilities. We actively encourage employees to conserve resources and be more efficient. Operating in a more efficient and sustainable manner will reduce impacts on people and the environment, and help us and our customers save money.

Business Opportunities. Identify and pursue business growth opportunities created by sustainable development.

Progress: We are actively embedding sustainability throughout our Caterpillar brand portfolio, our new product development process and our technologies. Our business leaders

Examples of Related Sustainability Aspects

continue to drive growth in sales of products, services and solutions that help customers meet their sustainability challenges. We utilize 6 Sigma methodologies to focus our work and drive measurable benefits.

For one of the world's foremost manufacturers, it would appear a significant portion of Six Sigma enables its sustainability goals, and vice versa. In these types of operations, operating from a place of infused, organization-wide sustainability, it can be very difficult, if not impossible, to determine where "sustainability" ends and "operations" begins.

Five words:



**Sustainability on
the plant floor.**

Eliminating Office Waste

By

Kaye Krueger

Learners review office processes to find ways to save time.

Watch this slide show and explore how waste can be found throughout the work done in the office processes. Often, Lean methods are considered only applicable in a manufacturing context. Sometimes, Lean methods are applied in a service industry when there is direct contact with customers. However, this slide show provides some examples of how waste (as identified by Lean) can be found throughout all parts of an organization.

Activity Link: <https://www.wisc-online.com/learn/career-clusters/business-management-and-administration/eng16304/eliminating-office-waste>

The Eight Wastes of Lean

By

Kaye Krueger

Learners examine ways to eliminate or minimize the wastes found in business processes. A matching exercise completes the activity.

Watch this slide show to explore the eight wastes defined in Lean. Pay close attention to the differences between value-added activities and non-value added activities. Value added activities create value for the customer/client/patient. Non-value added activities are often pure waste within the system.

Activity Link: <https://www.wisc-online.com/learn/career-clusters/stem/eng10603/the-eight-wastes-of-lean>

CC licensed content, Shared previously

- Operational Efficiency. **Authored by:** Andy James. **Provided by:** The Pennsylvania State University, College of Earth and Mineral Sciences. **Located at:** <https://www.e-education.psu.edu/ba850/node/638>. **License:** CC BY-NC-SA: Attribution-NonCommercial-ShareAlike
- Eliminating Office Waste. **Provided by:** Fox Valley Technical College and Wisconsin's Technical Colleges. **Located at:** <https://www.wisc-online.com/learn/career-clusters/business-management-and-administration/eng16304/eliminating-office-waste>. **License:** CC BY-NC: Attribution-NonCommercial
- The Eight Wastes of Lean. **Provided by:** Fox Valley Technical College and Wisconsin's Technical Colleges. **Located at:** <https://www.wisc-online.com/learn/career-clusters/stem/eng10603/the-eight-wastes-of-lean>. **License:** CC BY-NC: Attribution-NonCommercial

6.4: Eliminating Waste is shared under a [not declared](#) license and was authored, remixed, and/or curated by LibreTexts.