



## SOFTENGINE WHITEPAPER SERIES

# Industrial Waste in America

Did you know that Americans produce 4.5 pounds of waste per person each day? With over 330 million people living in the United States, that number is staggering! You may be questioning this since you likely do not throw away nearly 5 pounds of garbage in any given day. That is because nearly all of America's waste (97%) is produced through industrial processes (1).

The United States produces around 236 million tons of municipal solid waste every year, and while the numbers for industrial waste are not totally clear, some estimates go as high as 7.6 billion tons produced annually (2). This has significant economic impacts as well. On average, for each ton of garbage it costs \$30 to recycle, \$50 to send it to landfill, and \$75 to incinerate it (1). With manufacturers generating millions of waste annually, imagine how quickly these costs add up! Furthermore, waste has a two-fold cost to businesses, once when you purchase and process the wasted materials, and when you dispose of them. This shocking level of waste can be significantly reduced. The Environmental Protection Agency (EPA) estimates that 75% of the US waste stream is recyclable, but only 30% is recycled (2).

## Manufacturers Look to Reduce Waste

With new legislation, pressure from consumers to create sustainable manufacturing processes, and overall corporate responsibility, reducing waste is an issue that small and midsize manufacturers must address. However, according to Gartner, 35% of companies still lack formal corporate supply chain sustainability goals, while another 49% of respondents said their companies did have such goals (3). The future of sustainability is looking brighter as supply chain professionals are beginning to see the financial benefits. Most of them plan to invest in waste reduction, ethical sourcing, water-efficiency improvements, and carbon emission reduction over the next 18 months, with waste reduction and water-efficiency improvements seen to have the greatest fiscal benefits (3).

"Perhaps the biggest contribution of the new system is its powerful inventory control capabilities," added Justin Ku. "Now, everything has the correct item/serial number and the fact that meaningful batch numbers are assigned to every receipt in our system is priceless. The paperless availability of the Batch Number Transaction Report, the Summary section on the Production Order and multi-layered BOMs/PDOs has already made a huge improvement in our ability to reassess our workflow and overall production procedures. We can now access valuable, real-time information such as how many components were issued and how many goods were produced."

– Justin Ku, Administration & Operations Coordinator, Swabplus

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## Identify Areas of Waste

To reduce waste and create more sustainable manufacturing processes, you must first appropriately identify areas of waste and their causes. Running process or operational audits can help you pinpoint inefficiencies that may be leading to excess waste, as well as using technology that gives you a complete picture of your business practices. There are multiple types of waste in manufacturing, and many times waste in one area creates waste in another.

### Types of Waste:

- **Inventory waste:** Inventory waste occurs when manufacturers have too many raw ingredients, overproduce a particular product, items become outdated, or manufacturers do not have use for certain items. Inventory waste has multiple costs to manufacturers, including the cost of the items, the cost of production, and the storage costs.
- **Overproduction:** Overproduction waste occurs when manufacturers create too much of a particular product for the level of demand. This type of waste is more common with products that expire or are quickly outdated, like food, pharmaceuticals, or fast fashion.
- **Time and labor:** Overproduction, rework, and inefficient processes can all lead to wasted time and labor. This not only affects your bottom line but also has an impact on employee satisfaction and retention.
- **Defect waste:** Mistakes in production or poor-quality control can result in defective products. This creates waste and may even result in product recalls, which involve even more time, money and labor to conduct.

Once you have accurately identified areas where you create the most waste and opportunities where waste can be reduced, you can use multiple strategies to help minimize waste.

## Know Your Customer

Understanding your customers and being able to identify their greatest needs and preferences helps manufacturers produce the right number of the right products. Demand planning allows you to predict how many of each product you need to produce at what time. A system that tracks all your previous customer orders and uses data to forecast future purchases allows you to accurately schedule production and order the right number of raw materials. You can also see which products are not being purchased and decide if they are worth continuing to produce. This reduces wasted time, labor, inventory, and overproduction.

## Optimize Your Inventory Management

Efficient inventory management is essential to reduce waste. To avoid overproduction or over-ordering, you need to know exactly how much of each item you have in your warehouse at any time. This will also help prevent excess raw materials that you have to store, or that may expire in cases like food ingredients. Technology that allows you to pinpoint the exact location of each product batch, palette, and even single item allows you to organize your warehouse for easy navigation, which will save workers time when looking for raw ingredients. Automated purchase orders based on demand forecasting means you will have the optimum amount of each part and can schedule production efficiently.

## Repurpose & Recycle Waste Products

About one-third of the average dump is made up of packaging material like plastic, paper, and aluminum. Each ton of recycled paper can save 17 trees, 380 gallons of oil, three cubic yards of landfill space, 4000 kilowatts of energy, and 7000 gallons of water. This represents a 64% energy savings, a 58% water savings, and 60 pounds less of air pollution (1)! Clearly, recycling and repurposing wasted packaging material reduces waste significantly. Manufacturers can identify which materials result in the most waste when packaging is discarded, which by-products can be repurposed and how much of each is produced. This results in cost-savings and may even result in additional profits!

## Improve Your Quality Control

Defect products create waste for manufacturers on several accounts. Raw materials, time, labor, machine degradation, and potentially lost customer orders and tarnished brand reputations can all occur due to poor production. Improving your quality control processes will drastically reduce defective products, rework, and scrapped products. Technology that gives you full visibility into your supply chain and production processes helps you ensure that every product your plant produces meets the appropriate standards.

## Conclusion

The pressure for manufacturers to create more sustainable practices has been steadily increasing as issues like climate change, pollution, and resource depletion are top-of-mind for legislation and consumers. Small and midsize businesses need to implement strategies to reduce the amount of waste created throughout the production process. Furthermore, there are untapped opportunities for cost savings and revenue increases by repurposing materials and decreasing overall spending on waste.

## Sources

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