Impacts of Data Technology

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Technology is constantly evolving and changing the processes used to manufacture and deliver food and other consumer packaged goods. Technology continues to grow and expand at an exponential rate and is paving the way for manufacturing to become more efficient, safer, and provide traceability unlike ever before. As the population continues to grow, this will help allow avenues to meet that demand in the future. Like Tyson’s motto under *Who We Are* says, “We think differently and we act boldly. At Tyson Foods, we're not only ready for tomorrow, we’re leading the way.” (Tyson Foods, 2018) It is going to take companies like Tyson to lead the way in meeting this challenge. They will have to continue being more efficient in their processes. One major way this continues to be possible is through data technology, which includes big data analyses, artificial intelligence, machine learning, RFID chips, and robotics.

Big data is one of the buzzwords recently tossed around a lot. But what exactly is Big Data? Simply put, big data is large complex data sets from multiple data sources. With advances in technology, there are massive amounts of data of different varieties available in increasing volumes and velocity, especially in the manufacturing industry. Therefore, it is a major challenge to make sense of all this data and unlock the potential that the data stores. Artificial intelligence and machine learning are now making it possible for companies to analyze all this data and help produce products more efficiently and provide more traceability. “AI and ML are now giving companies new opportunities to use the big data that they already had, as well as unleash a whole lot of new use cases with new data types,” says Glenn Gruber, senior digital strategist at [Anexinet](https://www.anexinet.com/). (Casey, 2019) By analyzing this data, companies have a better process for predicting and planning production. This provides ways to optimize different production lines by using the status of those lines to advise employees who control the process. This advice is continually improving with artificial intelligence. This data collection can also improve a company’s supply and demand by helping to predict supply, including quantity and quality.

Data technology can also provide transparency all the way from the farm to table. This is something that Tyson understands well, so much so that it is posted on Tyson's website, “We understand people want to know where their food comes from, which is why we’re committed to transparency in all we do. We believe it’s our responsibility to steward the land, animals, and resources entrusted to us and ensure we deliver the highest quality food from the farm to your table.” (Tyson Foods, 2018)

Therefore, this could provide product traceability throughout the entire supply chain. As a result, this will lead to added value and customer loyalty. For example, a customer may be willing to pay more if they know where it came from and how it was processed. Another huge added value for customers, especially in the poultry industry such as Tyson, is the “no antibiotics ever” campaign. (Tyson Foods, 2019) RFID chips are also aiding with the traceability of products throughout the supply chain. This traceability is extremely important to track food during a recall, or to trace it back to the source. Also, once the parts of an animal have been separated during processing, if any part has been condemned, the other associated parts must also be tracked down and disposed of properly. “Data technology increases predictability and artificial intelligence contributes towards the streamlined use of production lines, thus improving efficiency.” (Geijer, 2019)

Robots are becoming more and more popular in the food processing industry. The reduced availability of workers and higher costs of labor are contributing to the reasons manufacturers add automation, especially robotics. This has become even more relevant and obvious with the COVID pandemic. Food safety is a major driving force behind the increasing use of robots in addition to the rising labor costs and labor shortages. With increasing food safety requirements, robots provide less human interference in the production process which reduces the risk of contamination. “Robotisation produces major benefits for the food industry, not only from a cost perspective but also because of food safety and easing working conditions,” says Robbert van ‘t Hoff, CEO of the Dutch firm Westfort Vleesproducten. (Geijer, 2019)

As the food industry implements more automation and innovation, some believe it increases the risk of job loss, and in some cases it does, but it is also creating other job opportunities. Higher skill level jobs such as programming, analysts, and specialized maintenance personnel which opens the door for employees to learn a new skill and ultimately earn a higher wage are being created and in demand. In most cases robots are replacing jobs that are dangerous and intensive tasks that require repetitive motions or in extreme conditions such as cold storage freezers. Robotic machines can help to eliminate safety issues for the more dangerous jobs in the food industry. By using robots to cut the more difficult of the meats, they can save many work injuries. (Martin 2019) Therefore, robots are providing a safer work environment which results in fewer injuries.

In conclusion, technology and automation like Tyson is adopting and implementing are providing a more efficient process with fewer human errors and can be used to enhance workers skillsets and propel careers. Advances in technology also provide conveniences as well as creating a safer work environment for all. Therefore, technology is ultimately making a better future for both employees and employers, while providing confidence to consumers through advanced traceability.

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