



TCG DIGITAL

**Leveraging AI to Increase
and Optimize Yield in
Life Science Manufacturing**



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Executive Summary

The life science industry is rapidly growing, with new drugs and therapies being developed at an unprecedented pace. This growth is putting a strain on the manufacturing capacity of life science companies, as they struggle to keep up with the demand for their products.

One way that life science companies can improve their manufacturing capacity is by leveraging artificial intelligence (AI). AI can be used to automate tasks, improve quality control, and optimize production processes. This can lead to significant increases in yield and efficiency, which can help life science companies to meet the growing demand for their products.



This paper explores how AI can be leveraged to improve yield in life science manufacturing.





How Can AI Improve Yield in Life Science Manufacturing?

AI can be employed in life science manufacturing to enhance yield through various applications, such as:

- **Task Automation:** AI automates a number of tasks in life science manufacturing, such as data collection, analysis, and reporting, freeing up the staff to focus on more strategic tasks, like process development and quality assurance.
- **Quality control improvement:** AI improves quality control by identifying and eliminating potential sources of contamination or error. For example, AI can be used to analyze real-time data from production lines to identify potential problems before they cause a batch of product to be rejected.
- **Production process optimization:** AI can optimize production processes by identifying and implementing improvements leading to increased yield and efficiency. For example, AI can be used to optimize the use of raw materials, production timing, and production facility layout.

Benefits of AI in Life Science Manufacturing

Some of the most notable benefits of AI in life science manufacturing include:

- **Increased yield:** AI can help life science companies to increase their yield by automating tasks, improving quality control, and optimizing production processes. This can result in a noteworthy reduction in costs and a rise in profitability
- **Improved quality:** AI can help life science companies to improve the quality of their products by identifying and eliminating potential sources of contamination or error. Such a result may cause an increase in customer satisfaction and enhance the reputation of the brand.
- **Reduced time to market:** AI can help life science companies to reduce the time it takes to bring new products to market. This is because AI can be used to automate tasks, improve quality control, and optimize production processes. This can give life science companies a competitive advantage in the market.



AI in Life Science Manufacturing: Real-world Examples

Practical applications of AI in life science manufacturing:

- **GlaxoSmithKline:** GlaxoSmithKline (GSK) is a global pharmaceutical company that has been using AI to improve its manufacturing processes for several years. GSK used AI to develop a new method for manufacturing a drug that was previously difficult to produce. This new method resulted in a significant increase in yield, saving GSK millions of dollars.
- **Amgen:** Amgen, a global pharmaceutical company, used AI to develop a new method for manufacturing a drug that was previously prone to contamination. This new method resulted in a significant improvement in quality, reducing the number of product recalls.
- **Genentech:** Genentech, a biotechnology company, used AI to develop a new method for manufacturing a drug that was previously difficult to produce. This new method resulted in a significant increase in yield, saving Genentech millions of dollars.

AI in Life Science Manufacturing: Advancements and Future Possibilities

The use of AI in life science manufacturing is still in its early stages, but it has the potential to revolutionize the industry. As AI technology continues to develop, it is expected that we will witness even more innovative and effective applications of AI in this industry.

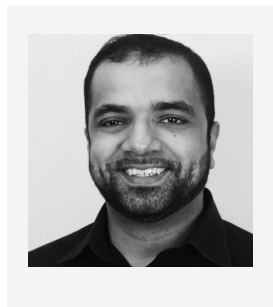
In the future, AI is likely to be used to automate even more tasks in life science manufacturing, improve quality control even further, and optimize production processes even more effectively. This will lead to even greater increases in yield and efficiency, which will help life science companies to meet the growing demand for their products.



Conclusion

AI is a powerful tool that can be used to improve the efficiency and profitability of life science manufacturing. As AI technology continues to develop, it is likely that we will see even more innovative and effective applications of AI in this industry.

About Author



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TCG Digital is the flagship data science and technology solutions company of 'The Chatterjee Group' (TCG), a multi-billion dollar conglomerate. We leverage hyper-contemporary technologies and deep domain expertise to engage enterprises with full-spectrum digital transformation initiatives in operational support systems, enterprise mobility, app development and testing, cloud and microservices, automation, security, big data, AI/ML, and advanced analytics.

In addition to our digital transformation practices, by using our end-to-end AI and advanced analytics platform, **tcg mcube**, enterprises are extracting highly actionable insights from their invaluable data assets, and achieving Velocity to Value. **tcg mcube** democratizes data science with scalability, performance, and flexibility. For more information, please visit our website at www.tcgdigital.com