

## **Development of Digital Twin for Supply Chain**

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A Toronto-based supply chain company wants to be able to optimize their chain in the real-time manner by continuously optimizing their control strategies. This requires a learning and optimization system, The overall framework of the learning and optimization will be based on reinforcement learning, and the platform has been struggling with underpayment claims submitted by major retailer clients. The reasons for underpayment are diverse from late delivery, insufficient fulfilment, and even damaged products. Upon submission of claim the manufacturer starts investigation to disprove the claim by tracking history of customer order and follow up actions. While a significant portion of such claims can be disproved for full payment, increasing the profit, investigation of such claims is very time consuming. Therefore, the manufacturer would like to categorize the claims so that they can pay different levels of attention considering the likelihood of disapproval as well as revenue consequence. This project is to develop machine learning algorithms to classify the claims given historical data. The student needs to have good background in machine learning, optimization, and python programming.

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