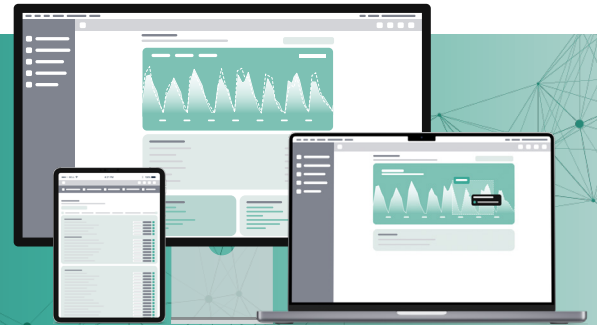# circly

Reducing more than 50% of incorrect planning of a logistics company

Executive Summary

Decreasing the CO2 footprint and increasing productivity by effectively managing resources not only improves the competitive advantage and brand image but also has a positive impact on the environment. However, many companies are stuck in old patterns and suffer losses by not managing their resources and capacities effectively.

Circly has succeeded in reducing the planning mistakes of a logistics company by more than 50%. This was achieved by designing active machine learning (ML) algorithms and using artificial intelligence (AI). Circly's modular and scalable process is universally applicable in almost any environment.

Key Points

- Partially automated analog processes of a logistics company

- Optimized resource management through ML and AI

- Reduced carbon footprint and increased productivity

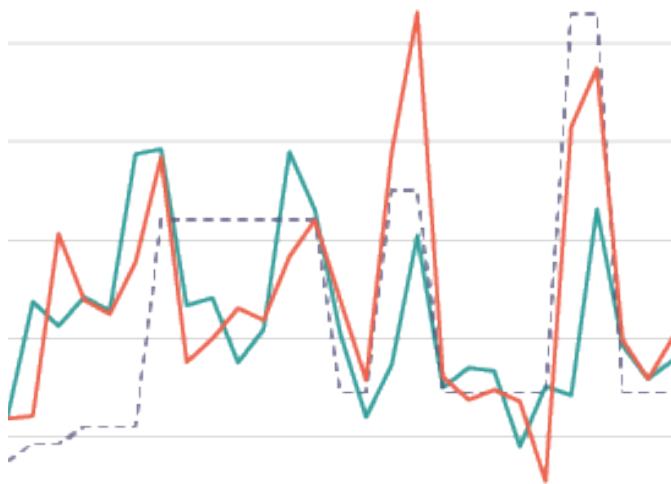- Reduced planning errors and thus financial losses

Challenge

Prior to the implementation of the Circly algorithms, the logistic company was faced with many problems including poorly planned personnel, shifts, and storage. Moreover, problems arose concerning load balancing, forecasting incoming orders, and the number of so-called ‚picks'. Subsequently, this led to financial and efficiency losses which could result in dissatisfied customers. Additionally, the decrease of effectiveness, as well as the incorrectly forecasted demand, resulted in dispensable CO2 emissions.

Circly's first steps were to familiarize itself with the logistics company and its customers. Understanding the connected processes in the background was vital to find optimization approaches. Every process, from warehouse utilization to the deployment of personnel or vehicles to forecasting of delivery demand, plays an important role in the system and influences each other. It became evident that manually checking the volume and distribution of deliveries to schedule the remaining resources for the next week was not very efficient. This problem was solved by replacing analogous operations with partially automated processes. Circly's goal is to achieve full automatization step by step. Throughout the project, Circly was challenged to implement suitable algorithms solely based on a small dataset combined with abnormal data influenced by the COVID-19 outbreak.

How does the system work?

Dynamic data recorded by the logistic company is uploaded to Circly's platform through an Excel file. The data has many different internal and external drivers influencing their course. External factors are, for example, customers' retail discounts, as delivery requirements are influenced by these. These influences are added by the software to the data in the Excel file. To get all the necessary information, Circly had to work in a B2B2B relationship (eCommerce fulfillment operation).

Other useful factors include product information, weather data, holidays, or seasonal trends. With the merged data machine learning algorithms can be continuously trained to predict future demand for delivery needs. In this way, the use of human and storage resources can be optimally mapped, efficiency increased, not only cost-intensive processes but also financial losses reduced, and CO_2 emissions decreased.

Results

- - - - - statistical planning (current methods)

——— dynamic planning (Circly's technology)

——— actual business results (actually occured)

Reduced carbon footprint

Saved resources due to optimized planning

Optimized personnel planning (improved adaptation to order volumes)

More balanced distribution of the workload (load balancing)

Reduced more than 50% of planning errors

Improved brand image

Improved supply capability and reliability

Eliminated logistical problems and overall efficiency increased

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