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Accelerating fibre rollouts by pre-empting order delays

Leverage AI/ML to forecast potential delays and reduce customer churn

Credits
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Order delays in conventional Fibre to the Premises (FTTP) service delivery lead to high customer churn and compensation liabilities

FTTP service delivery includes deploying high-speed fibre optic connections directly to the customer premises, which involves additional complexities and unexpected delays in fulfilling an order. Some factors contributing to the likelihood of order delays in FTTP provisioning include network availability, network infrastructure, inventory synchronization and failures, reactive plan, and build and fallout handling.

According to Forrester, "70% of customers are likely to churn if orders are delayed and proactive information about orders are missed".

Major challenges in traditional FTTP service delivery

1

Forecasting order delays

Lack of strategy to foresee the order delays resulting in additional operational work, time and effort for the service providers

2

Complex ecosystem and multiple handoffs

Siloed systems and manual handoffs leading to unexpected order delays and missed SLAs

3

Identifying the root cause of delays

Lack of mechanisms to identify the root cause of delays and decide on the best course of actions to overcome them

4

Gaining end-to-end visibility into orders

Lack of reports to gain a complete view of order delays, on-time provisioning, and failed orders

How inefficient FTTP service delivery impact service providers

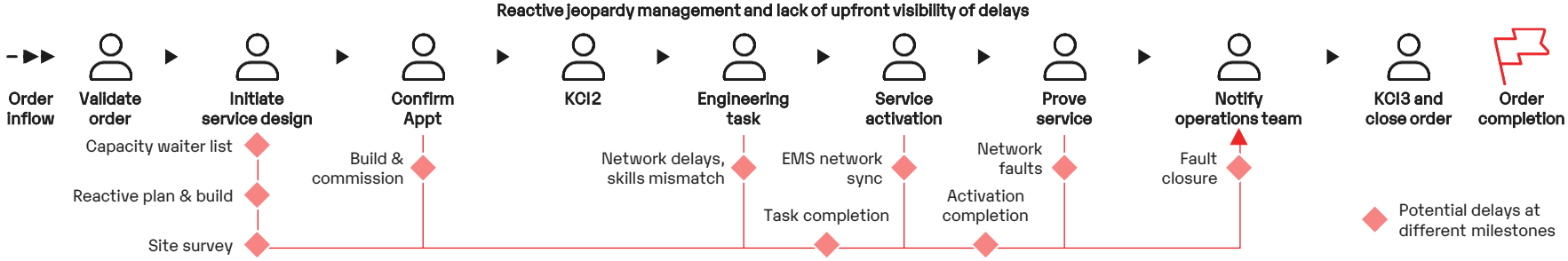
- Missed SLAs
- Reduced NPS
- Revenue loss due to customer churn
- Penalties for delayed services

To overcome these challenges, service providers in the connectedness industry should move towards an **intelligent FTTP service delivery.**

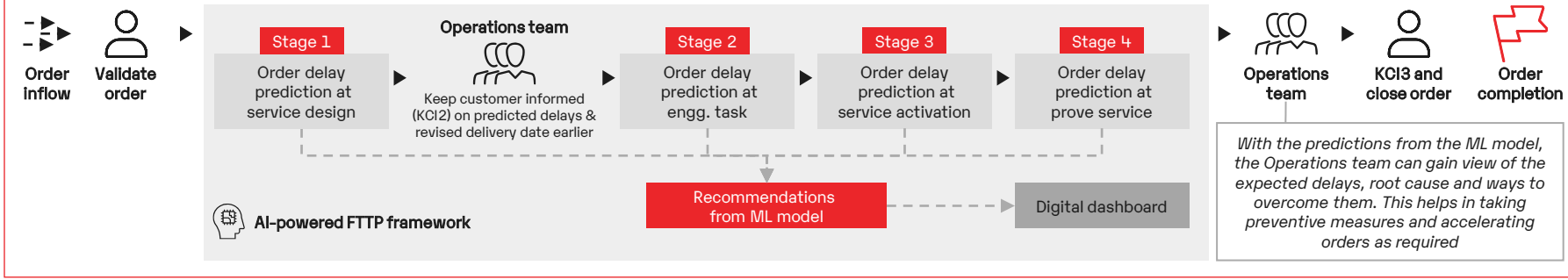
Move to AI/ML-powered FTTP service delivery

Predict order delays at an early stage and reduce customer churn by 2x

Conventional FTTP service delivery



Proposed AI-powered FTTP service delivery



This insight details on how service providers could leverage an AI-powered framework for effective service delivery and provides best practices for its effective implementation.

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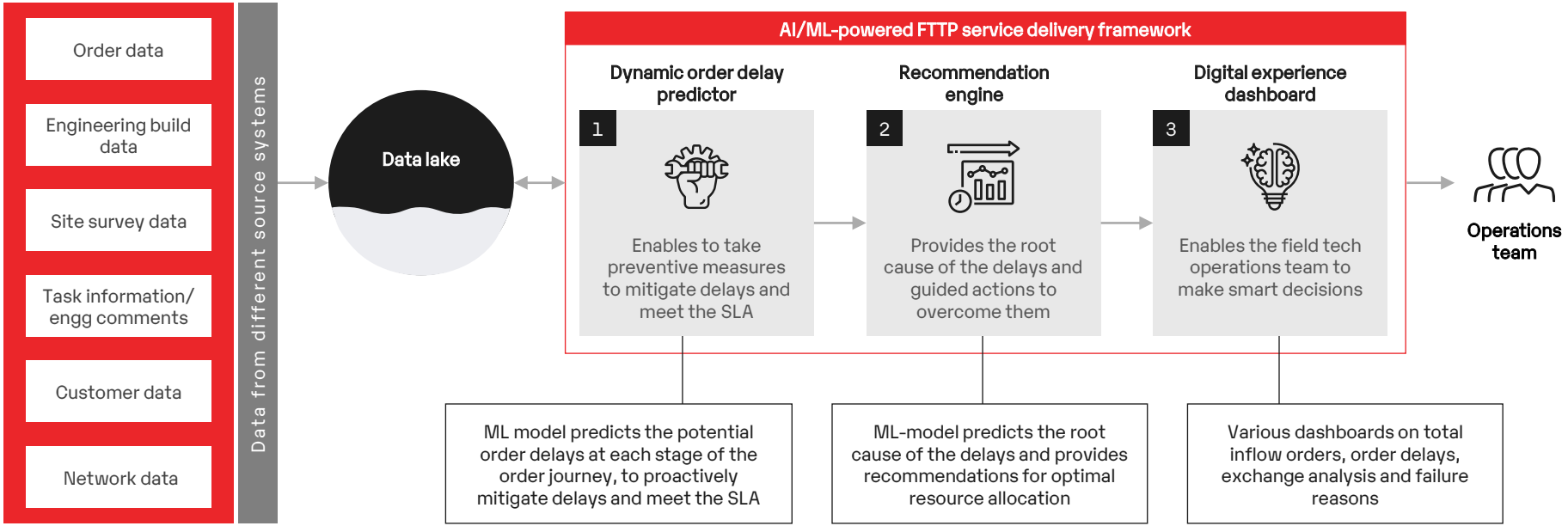
Leverage an AI-powered FTTP service delivery framework for on-time provisioning and improved customer experience



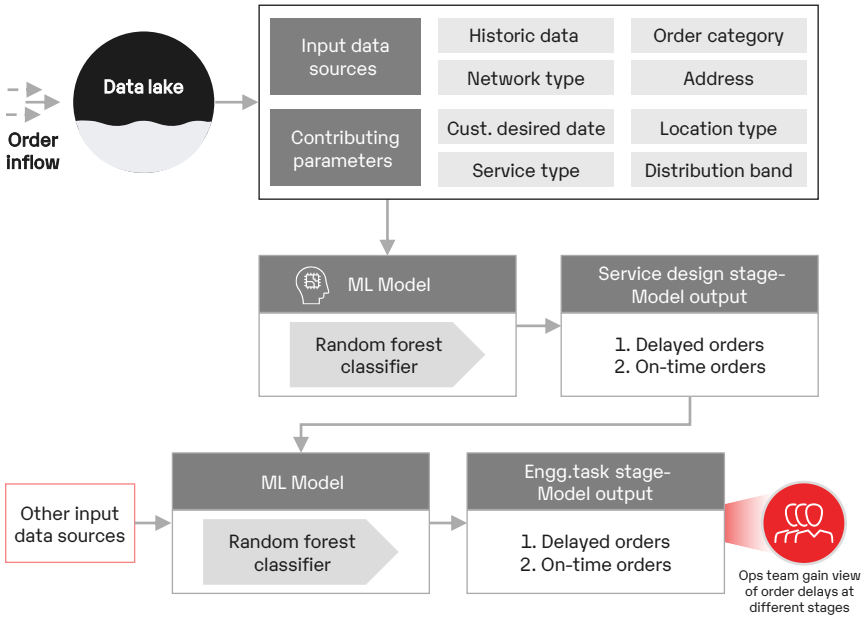
The following slides deep dive into each of these components and show how to build an ML model for effective and accelerated FTTP service delivery.

Dynamic order delay predictor

Enable teams to take preventive measures to mitigate delays and meet the SLA

1 2 3

Sample ML model- Dynamic order delay predictor



Sample use case-Operationalizing the order delay predictor

Order inflow

Behind the screens

ML model pulls a huge amount of historic data with numerous parameters, to predict the possible order delays at each milestones

Order ID	Order subtype	Address key	Delay at service design	Delay at engg.task
ORD0500	basic	Broadway	No	Yes
ORD0511	basic	Cooper square	No	No
ORD1524	basic	Torch club	Yes	Yes
ORD2608	basic	Newport	No	No
ORD3005	basic	Broome	No	No

Based on the predictions, operations team can gain idea on orders that will be delayed at different stages, to focus and take preventive measures as required.

Recommendations

- Implement algorithms such as **Logistic Regression, Random Forest, Decision Tree,** and **xgboost** that best suit the data set. This helps achieve accurate delay predictions
- Keep track of the service delivery stages like service design, appointment booking/ confirmation, engineering task, and order activation, where typical delays tend to occur

Predicting the possible delays for both new and in-progress orders at an early stage helps in proactive communication of delays to the customers and order fallout management. It also ensures order delivery within the customer commit date and reduces the customer churn by 2x.

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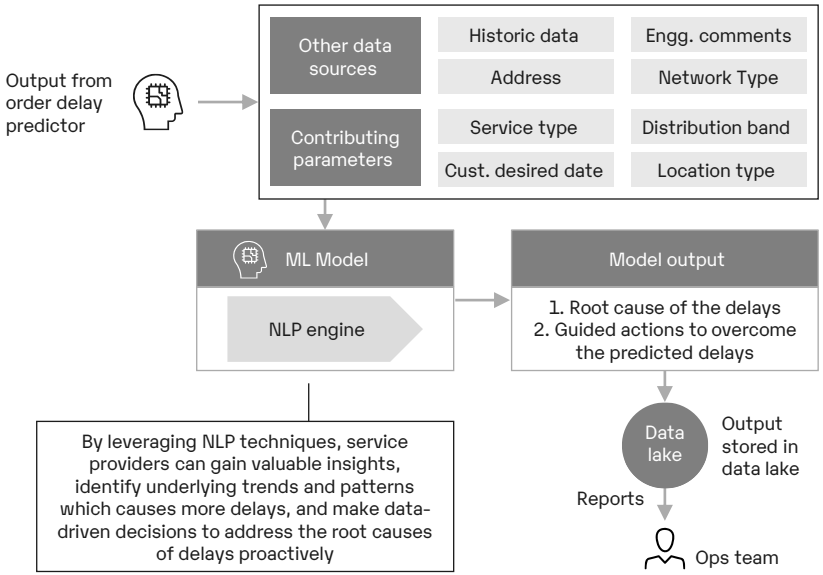
Recommendation engine

Guided actions to optimize resource allocation and proactively address potential delays

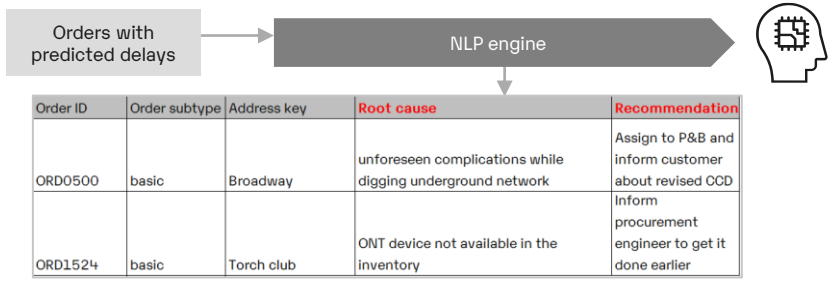
1 2 3

A recommendation engine provides guided actions for predicted order delays to improve operational efficiency and customer satisfaction. Its absence can lead to reactive problem-solving, inaccurate prioritization, and resource over-utilization.

Sample ML model-Recommendation engine



Sample use case – ML model providing root cause and guided actions for proactive delay mitigation



Order ID	Order subtype	Address key	Root cause	Recommendation
ORD0500	basic	Broadway	unforeseen complications while digging underground network	Assign to P&B and inform customer about revised CCD
ORD1524	basic	Torch club	ONT device not available in the inventory	Inform procurement engineer to get it done earlier

In the absence of a recommendation engine, the unavailability of an ONT device would be found at a later stage and arranging it would have required an additional 3-4days, which affects on-time provisioning and customer satisfaction.

Recommendations

- **Feedback loop and continuous learning**: Continuously update and refine the NLP model based on feedback and new data. This helps improve the accuracy of root cause predictions
- Keep track of the **major FTTP delay contributors** such as network availability, network infrastructure, appt availability, plan and build completion, EMS inventory sync issues, fallout handling, and engineering task completion

With the root cause of delays and guided actions, the ML model delivers 30% more insights to improvise and accelerate the FTTP service delivery.
It helps optimize resources and reduce additional operational work.

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Digital experience dashboard

Enabling teams to make smart decisions

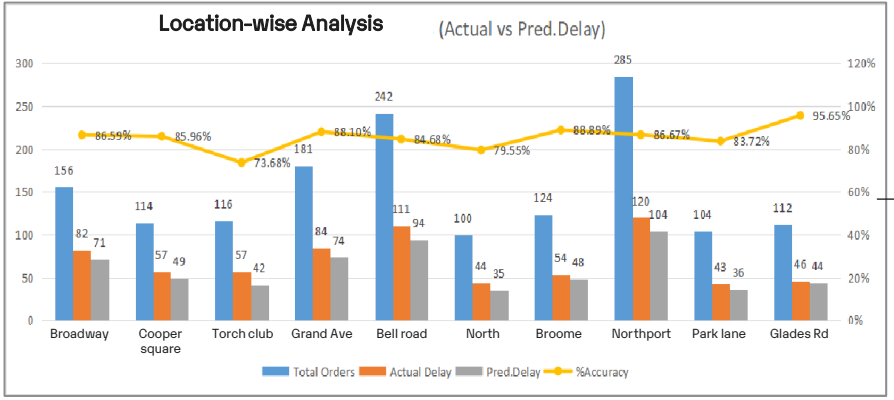
Provides the ability to track all in-flight orders and delays in a one-page view

Unique graphs developed to view order delays at different stages with weekly/monthly trends

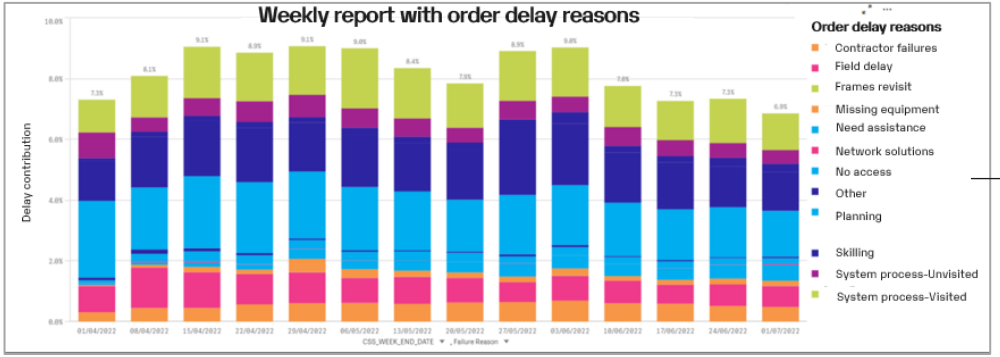
Gain a view of orders that fail to meet the customer committed date to focus on and communicate the possible delays to the customers

Track the daily progress on key metrics, display trends against SLAs, and locate bottlenecks

With the digital experience dashboard, the Ops team can have E2E visibility of all orders and take prompt actions, thus reducing time and effort.



Report showing actual vs predicted delay and accuracy of ML predictions for different locations. This helps the team to analyze and fine-tune the model's performance.



Report showing the percentage of orders that failed on-time provisioning each week and the delay reasons. This enables the team to focus on failure reasons and accelerate them.

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Business benefits achieved by a leading service provider after implementing the AI-powered FTTP service delivery framework

Implementing the 3 key components as discussed in this insight, resulted in the following benefits.

~25% order delays are predicted in the early stage, which reduced the operational time

30% improved data insights for the operations team to plan their capacity and work with an optimal workforce to achieve better on-time delivery

Improved customer experience as more accurate customer commit date will be shared in KCI2 based on predicted delays

Achieved **90%** accuracy in order delay predictions

Thank you

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