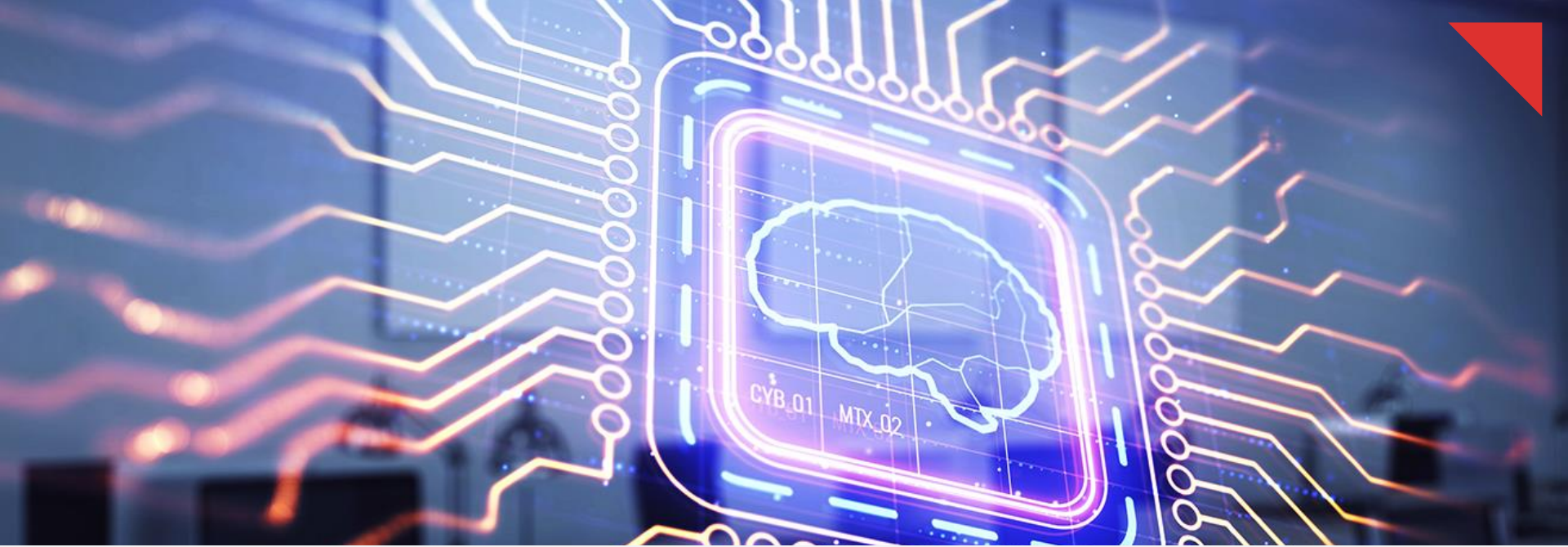


Prodapt Chase Extraordinary

Fiber is fast, but rollout needs to keep up

AI/ML can forecast delays before they occur, making the service delivery predictable and fast

Credits | Senthil Murugan | Mohana Priya Boominathan | Priyankaa

Today, most Digital Service Providers (DSPs) struggle with a conventional service delivery process leading to high customer churn and reduced NPS

Major challenges in the conventional service delivery process

1. **Complex ecosystem and multiple handoffs**
   Siloed systems and manual handoffs leading to a high possibility of human errors and misinterpretations

2. **Delayed cycle time due to vendor dependencies**
   Dependency on process and SLAs of third-parties for order completion

3. **Forecasting order delays**
   To foresee the order delays and provide efficient service delivery within the customer commit date

4. **Continuous order tracking**
   Lack of mechanisms to track the milestones and complete service delivery flow in real-time

How a **conventional service delivery process impacts DSPs?**

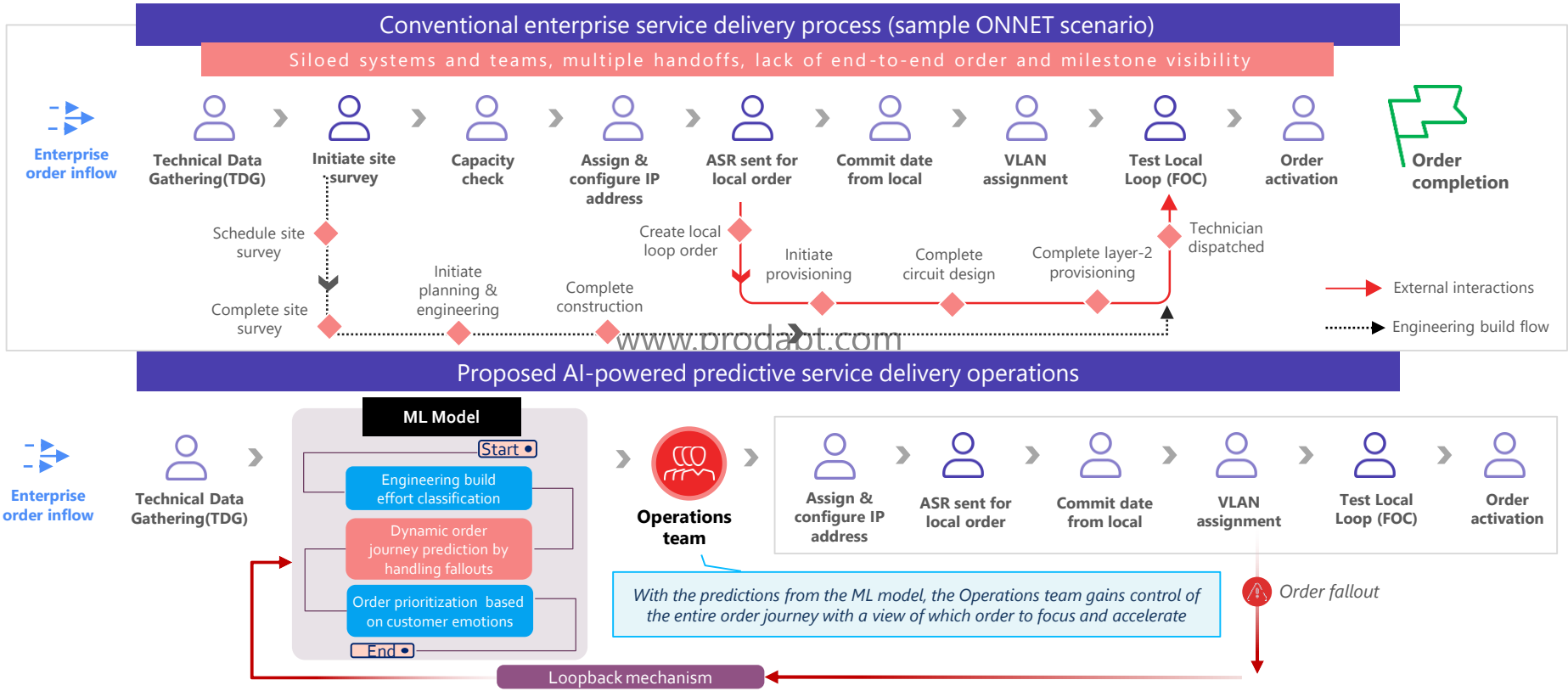
- More orders receive escalation/disconnection requests as DSPs fail to meet the customer commit date
- 50-60% lesser number of order completions per month due to inefficiencies in service delivery

- Increased order provisioning time
- Order fallouts and dissatisfied customers
- Higher customer churn
- Reduced NPS

The challenges in fulfilling an order exponentially go up with increasing complexities in the enterprise service delivery process.

Embrace AI/ML techniques in enterprise service delivery operations

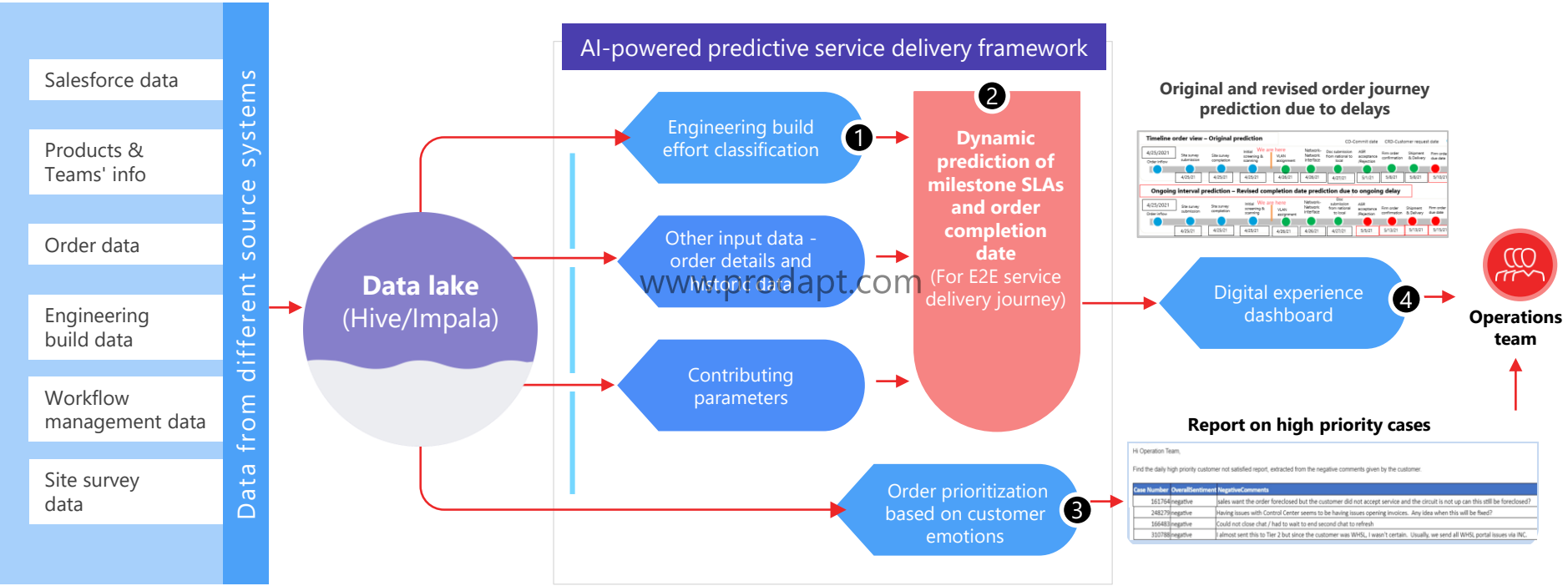
Reduce cycle time by 30% and increase order completion rate by 2x



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

Leverage an AI-powered predictive service delivery framework to improve operational efficiency

Proactive order fallout management, prediction of order delays, milestone completion dates, and dynamic order delivery recalculation



The following slides deep dive into each of these components and show how the ML model can be built to accelerate service delivery and reduce customer churn

Classify the engineering build effort for accurate prediction of the order completion date

1 2 3 4

ML model – Engineering build effort classification

Order inflow

Data Engineering

Historic site survey data

Data lake

Historic engineering build comments

Pattern mapper

Based on the current order location and bandwidth details, the pattern mapper derives the contributing parameters from the historic data

Pattern mapper

Contributing Parameters
- Relay rack
- Meets power/ground requirements
- Dedicated circuits backed up by generator systems

Contributing Parameters
- Building permit & specialized access
- Card and cable work requirement
- Existing capacity & building extension
- Simple system installation/system add

ML Model

Gradient boosting classifier

Compares the keyword and prediction trueness from both streams

NLP packages (Fuzzy, spacy, genism)

NLP-spacy phrase matcher

Custom Python component

Orders are classified into one of the four types: **Simple/no build, small, complex, special**

Model output **Engineering build type**

Data lake

Output stored in data lake

Reports

Executives/ Ops team

Operationalizing the ML model

Order inflow

Behind the screens

ML model pulls a huge amount of historic data with numerous parameters, thus reducing the effort and time on site survey, building assessment, and parameter collation

Order ID **82065975**

City **NEW YORK**

Predicted build type **Simple**

Actual build type **Simple**

Site survey report **Complex**

Fig 1: Operations dashboard view of actual vs. predicted build type

Based on the predicted build type by ML model,

- Alerts/reports are sent to the operations team to accelerate and complete the orders within the customer commit date
- The milestone SLAs and order completion date will be calculated

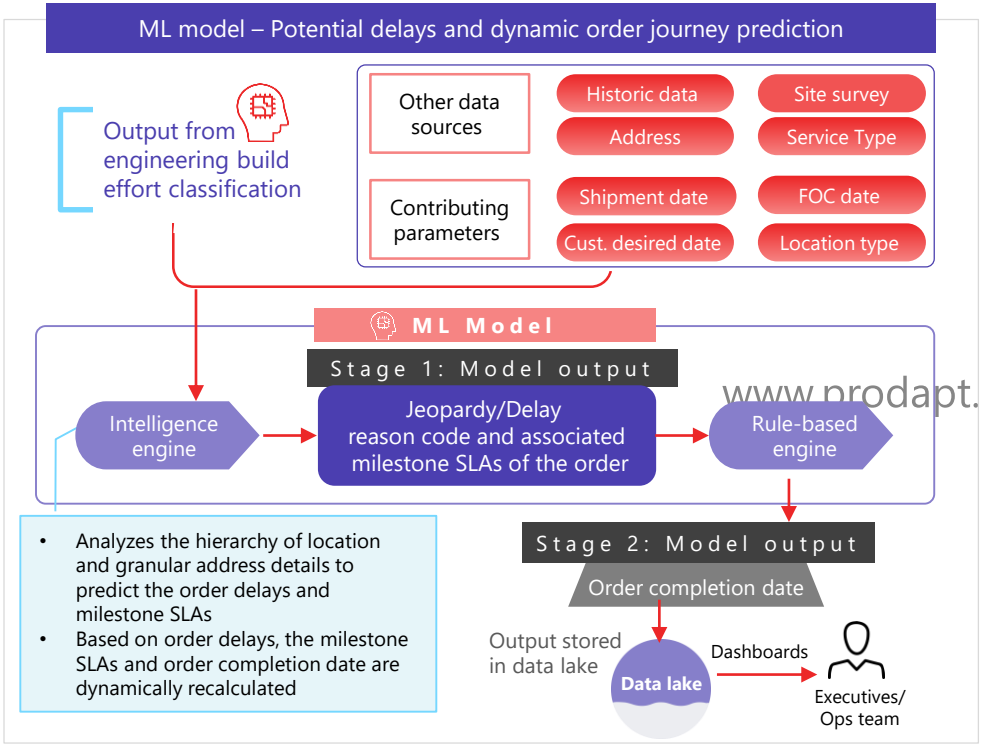
Key recommendations

- Implement a **scorecard** to compare the build type predicted by ML model vs assessment by field engineer for data validation and finetuning of the model
- Implement an automated mechanism to identify the **discrepancies in site survey data** and to send **periodic reports** to the operations team. This helps to improve the accuracy of site survey data capture, resulting in efficient build type classification, and improved ML model accuracy

Predict the potential delays and order journey milestones ahead of time

Enabling the operations team to take preventive measures to mitigate delays and meet the SLA

ML model – Potential delays and dynamic order journey prediction



- Analyzes the hierarchy of location and granular address details to predict the order delays and milestone SLAs
- Based on order delays, the milestone SLAs and order completion date are dynamically recalculated

Key recommendations

1 Define SLAs for all data combinations

Develop rule-based scripts with **pre-defined SLAs for different combinations** of product, build type and address details. This helps in the accurate prediction of milestone SLAs and order completion dates.

2 Identify actionable delay reasons for the missing records

In a typical service delivery process, around **30-40%** of the new orders **miss actionable delay reasons**. Implement a 'Smart Fix' tool that fills the missing records by extracting and processing data from multiple sources. Feed these records to the model for improved accuracy.

3 Automate the repetitive tasks

Analyse the process and fallout scenarios to effectively identify and **automate the repetitive tasks** in each milestone(e.g. IP assignment). This helps in the effective prediction of order journey milestones.

Predicting the milestone SLAs and order completion dates dynamically ensures order delivery within the customer commit date and helps DSPs in reducing customer churn by 2x.

Sample use case - Dynamic prediction of the entire order journey for a leading DSP in North America

Query Screen

Ops team queries an order

Order ID# 82065975 Submit

Calls the AI/ML exposed APIs for build type prediction and dynamic order completion prediction based on ongoing delays

Cognitive dashboard

Order ID	City	Address	Region	State	Zip Code
82065975	**New York**	**830 Broadway**	**D**	**NY**	**10003**

Predicted Build Type	Order Signed Date	Customer Commit Date	Location Type
Simple	**4/25/21**	**5/20/21**	**ONNET**

Timeline order journey view – Original prediction

Completed In-progress Risk

Order inflow	Site survey submission	Site survey completion	Initial screening & scanning	VLAN assignment	Network-Network interface	Doc submission from national to local	We are here	ASR acceptance /rejection	Firm order confirmation	Shipment & Delivery	Firm order due date	Local loop acceptance	Installation	Network ready	Billing
4/25/21	4/25/21	4/25/21	4/25/21	4/26/21	4/26/21	4/27/21		5/1/21	5/8/21	5/8/21	5/10/21	5/11/21	5/15/21	5/18/21	5/20/21

Timeline order journey view – Revised prediction

Order inflow	Site survey submission	Site survey completion	Initial screening & scanning	VLAN assignment	Network-Network interface	Doc submission from national to local	We are here	ASR acceptance /rejection	Firm order confirmation	Shipment & Delivery	Firm order due date	Local loop acceptance	Installation	Network ready	Billing
4/25/21	4/25/21	4/25/21	4/25/21	4/26/21	4/26/21	4/27/21		4/29/21	5/2/21	5/2/21	5/8/21	5/10/21	5/12/21	5/14/21	5/15/21

Ops team considers the milestones at risk and coordinates with the respective team. It accelerates the order and updates the live tracker periodically.

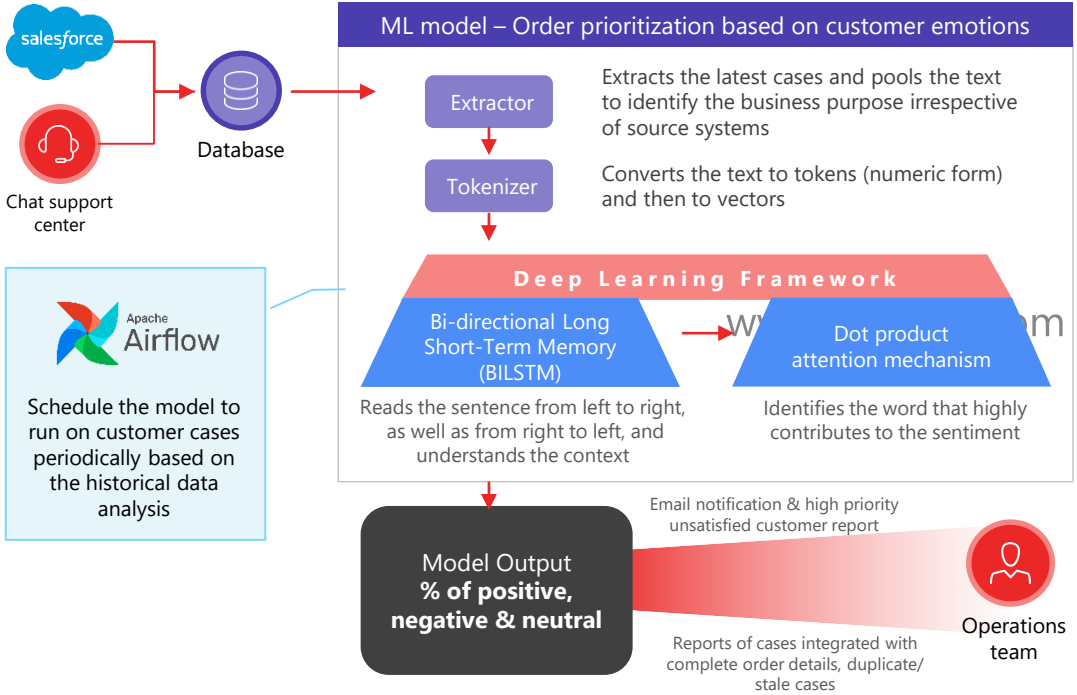
Revised order completion date: **5/15/21**

Customer Request Date: **5/20/21**

Based on the updates done by the Ops team in the live tracker, the model dynamically recalculates the milestone SLAs and predicts that the order can be completed earlier by 5days

Analyze the emotions from customer cases to reprioritize the orders in real time

DSPs find it hard to manage customer cases as there are multiple sources of unstructured cases and no proper integration with the orders. Understanding the customer emotions and prioritizing the orders also stays a challenge. These challenges can be addressed by predicting the sentiment and intent of the customer cases using an ML model.



Sample use case

Sample report -Alert: High priority cases for 20 May 2021

Hi Operation Team,

Find the daily high priority customer not satisfied report, extracted from the negative comments given by the customer.

Case Number	OverallSentiment	NegativeComments
161764	negative	sales want the order foreclosed but the customer did not accept service and the circuit is not up can this still be foreclosed?
248279	negative	Having issues with Control Center seems to be having issues opening invoices. Any idea when this will be fixed?
166483	negative	Could not close chat / had to wait to end second chat to refresh
310788	negative	I almost sent this to Tier 2 but since the customer was WHSL, I wasn't certain. Usually, we send all WHSL portal issues via INC.

Key recommendations

- Leverage **sentence tone analyzer** and smart **intent detection** along with custom ML algorithms for easy scanning of huge customer conversations from webchat and email
- Generate timely reports with dynamic report template using **Qlik Nprinting**
- Produce APIs with ML processed data to integrate with various case management portals

Analyzing the customer emotions helps in efficient customer case management and prioritization of orders. This, in turn, accelerates 30-40% of orders and ensures delivery within the customer commit date.

Digital experience dashboard- Enabling teams to make smart decisions and boost the entire service delivery process

Provides the ability to track all in-flight orders and focus on numerous KPIs in a one-page view

Unique graphs developed to monitor WIP orders, highlighting the order inflow monthly/daily trends, ageing, and MRR

Milestone buckets provides visibility into key steps along the order journey & allows users to drill down to the underlying order data to drive performance

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 the effort by 80%

Business benefits achieved by a leading DSP in North America after the successful implementation of AI-powered predictive service delivery framework

Increase in order completion by 2x
In place of 800 orders, now 1600 orders are completed per month for a specific product

30%-40%
Acceleration of orders due to order prioritization

Interval reduction by 30%
With end-to-end visibility of orders, delays, and proactive order fallout management

Improvement in NPS

THANKS!

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