

birlasoft

METAMORPHOSIS

Transformational stories of how manufacturers leverage technology, process optimization, and analytics to improve product lifecycle, digitalize manufacturing operations and build superior experiences



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Getting better at warranty and claims management with Artificial Intelligence and NLP

Auto leader automates its warranty management, drives superior customer experience, and rationalizes spends

Challenge

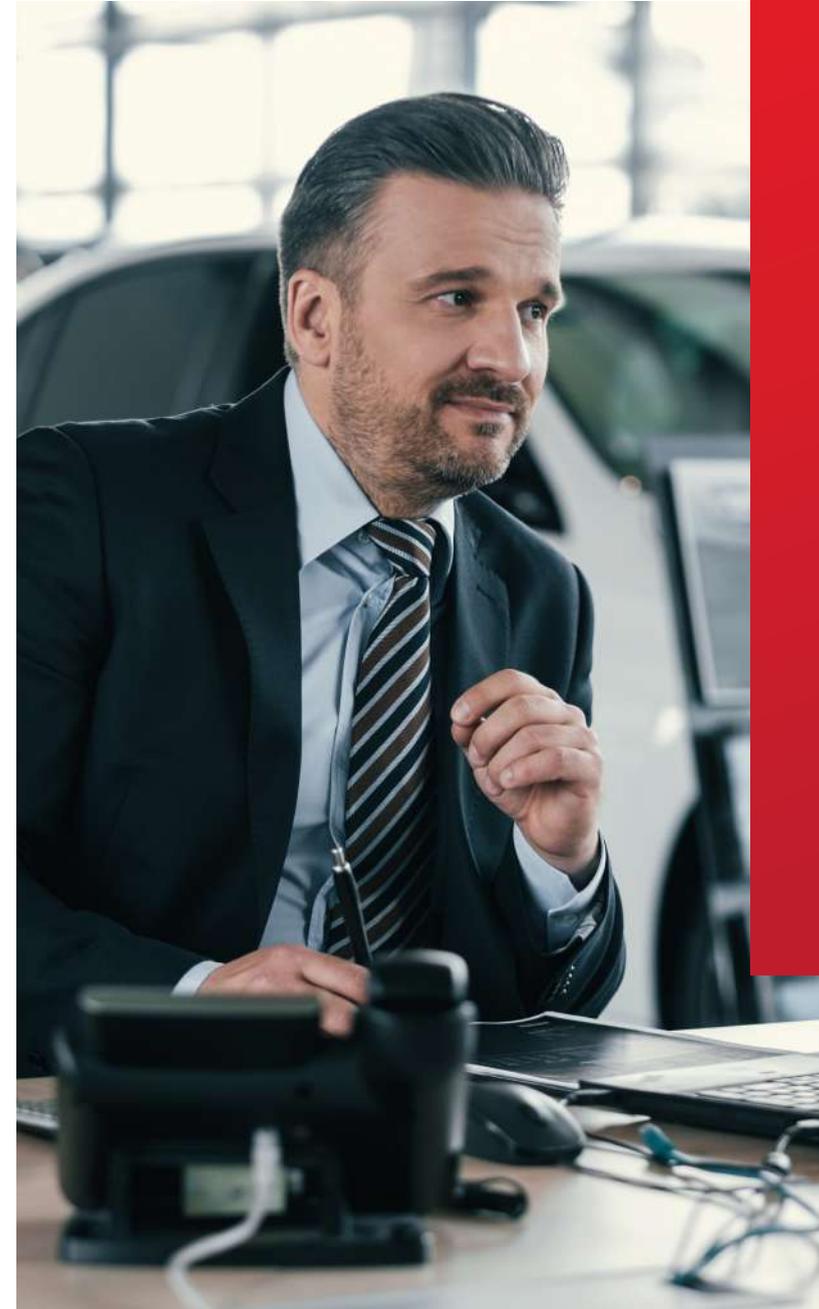
With a massive 600+ dealer network, our client received 5500 warranty claims in a month. Analyzing warranty claims applications was an extremely time-consuming and complex process. A truck engine typically has 900 failure modes across 120 subsystems. With such a wide range of failure modes, imagine how tedious it must be for the warranty claims manager to analyze the claims applications. The warranty claims manager would review the failure analysis data and stream of other information before approving or rejecting the application. The claims manager had to manually extract relevant information from structured and unstructured datasets as they reviewed the applications.

It usually took 20 days for a claims manager to process a warranty claim application. The extended service times started to hurt customer experience, customer retention, product uptime, and collaboration between OEM, supplier, and manufacturer. If left undressed, this issue would have adversely impacted the market share and profitability for our client.

Our solution and approach

The truck manufacturer turned to Birlasoft's team for a solution. After studying the entire claims processing cycle and their objectives, we recommended automating the end-to-end cycle through digital technologies like AI and NLP. We agreed to start with a pilot based approach and then scale it up to cover all sub-systems and claims. We shortlisted ten sub-systems, and a training set of 80,000 claim applications to build an AI model for this pilot. We used class balancing to remove the bias towards a specific dataset and fine-tune the AI model's performance. Our AI experts used four fundamental techniques to address data and failure mode issues. These techniques were Random Forest and xgBoost, Principal Component Analysis, SMOTE, word2vec, LDA (Latent Dirichlet Allocation). We trained the model to ensure it could auto approve and process claims by analyzing claims data, failure mode data, and sub-system data. With each claim that the model reviewed, it learned and became smarter in making future decisions. After the model was trained, we validated the model and fine-tuned it to make it market-ready.

This AI solution enabled the truck manufacturer to make smarter and quick decisions. For instance, pass on claims with low confidence factor for manual review, auto-approve claims with confidence, and reject fraud claims with high confidence. It also reduced the workload on the claims managers. They could now better manage false positives (genuine cases getting rejected) and false negatives (frauds getting approved). The solution learned on its own and ensured it evolved at the same pace as the frauds. The claims managers could now easily manage manual claims. They didn't have to do blanket approvals to reduce the pile-up of claims, which led to escalated costs. Faster and accurate validations meant better customer experience. Above all, this transformation helped the manufacturer optimize their operational costs.



IMPACT

91% claims were automatically dispositioned for payment

80% of the failure modes were auto processed

98% of the subsystems were auto processed

\$800,000 cost savings through automation

Superior customer experience due to faster and accurate claims validation

Shortened claims processing cycle time

Reduction in excess workload on the claims department and improved decision making

Driving smarter product selection, risk reduction, and superior customer experience with data lakes

Top defense manufacturer streamlines its product and parts data management and drastically reduces bid response cycle to two days

Challenge

Our client used PLM tech platforms to use the product and component data for various use cases. One of the use cases was about building bid responses to multiple proposals and helping customers in taking wiser decisions around parts and component selection.

Everything was going as per the plan and more significant programs they had set up. However, things started to get complicated when they began to receive bids with short response times like a couple of days. These bids were immensely crucial to national security, and any delays in response time were non-negotiable.

While the existing PLM ecosystem had all the required data required for the bid, it was scattered across many places. These included product data hubs, procurement, logistics, operations, quality control, field service, and support. Gathering all the correct data from so many disparate systems in just two days was next to impossible. That's how our client began its pursuit of building an agile, effective, and hyper-connected product development ecosystem.

Our solution and approach

As a first step, Birlasoft's team of experts reviewed the PLM cycle and the data flow across the systems. There were six distinct phases: bid, design, plan & source, make, and sustain. The product data needed for the bid response was scattered across the value chain residing in spreadsheets, ERP, PLM, MES, etc. These systems would talk to each other in a point-to-point fashion. Hence, it was not easy to run data flow across these systems for three reasons: every system has its data schemas/format, every department had its version of the truth, data leaks were common, and it was costly to run this show.

We proposed developing data lakes and buses to solve this business problem. The plug-n-play connectivity through data lakes drove agility by providing instant access to data across functions. This free flow of data and information answered fundamental questions in the context of a product or part: is the design ready for that part? If no, when will the design be ready? Is the company developing the part for the first time? Is there an available inventory? If yes, are there any quality issues with the product? If not, can we produce more of these? Is everything in place to source parts needed to produce? If yes, when do we need to inform the manufacturing team to start production? Does the manufacturing team have any issues with production? Were there any parts that malfunctioned earlier? Will we be able to produce in time as a replacement for these parts?

All of above questions get answered when everyone can access data around product structure, costs of parts, alternative parts, inventory of parts, supplier ability to deliver, part's performance and reliability data, open orders, pending part changes, manufacturing scheduling, and production plan, and many other critical data points that are needed to build the proposal.

As a result, our client was able to make smarter product choices, reduce risk, bring down the productions costs, and drive better coordination between cross-functional departments.



IMPACT

New ability to respond to proposals in **flat two days**

Met deadlines around mission-critical national defense needs

Lower costs of production and maintenance due to better selection of parts, their performance and sustainability

A smarter way to make product and component choices

Drastic reduction in risk associated with parts that are critical to field operations

Improved coordination between design, production, scheduling, quality, logistics, and field service teams

Transforming cement and RMX manufacturing with IIoT and Artificial Intelligence

Global cement major rationalizes logistics costs, improves workplace safety, and drive customer delight through intelliAsset™ for Silos

Challenge

A global building materials giant with a large ready-mix-concrete manufacturing business, our client was struggling with four key business challenges.

- High costs of logistics and transportation were hurting their margins.
- The cement manufacturing business demands extreme levels of safety due to the nature of operations. Our client ran manual site checks that were carried out by the workers.
- Further, they were struggling with customer satisfaction derived by cement quality and timely last-mile deliveries to customers.
- Lastly, the demand forecasts were inaccurate, which led to massive opportunity loss and high inventory costs.

Our solution and approach

The client partnered with Birlasoft to help them overcome the above challenges and stay ahead of the competition by leveraging the right digital technologies. Birlasoft leveraged its IIoT and Analytics platform called 'intelliAsset™ for Silos' to automate and transform a critical part of their supply chain to ensure timely delivery of cement to the plants, automated reordering, tracking driver behavior, and fleet optimization. intelliAsset for Silos is an IoT, AI/ML, and analytics powered digital system that provides benefits to stakeholders throughout the supply chain - Plant/Regional Head, RMX Plant Operator (Batcher/Dispatcher), Health and Safety Officer, Maintenance Engineer, and Supply Chain & Logistics Manager. The solution provided –

- Integration with multiple EBM systems and data collection from the control layer to enable efficient stock utilization and management.
- Continuous monitoring of critical sensors, scalable data acquisition, and streaming of high velocity, volume, and variety of near to real-time data.
- Automated tracking and reordering of cement-based on multiple parameters such as cement level in the silo, weather condition, lead time, demand and consumption patterns, etc. Monitoring of maintenance schedules and automatic capturing of maintenance records for critical equipment.
- Dashboards for monitoring cement levels, replenishment analytics, plant utilization, etc.
- Machine learning-based model for replenishment and logistics cost optimization.
- A mechanism to eliminate health and safety concerns by mitigating operational risks related to silo pressure monitoring and unloading of material from the truck to the silos at the facility.



IMPACT

3% reduction in annual logistics costs

8% reduction in incidents through condition-based maintenance and improved safety controls

Higher customer satisfaction due to assured product quality

Improved stock management and plant utilization

Improvement in driver behavior and logistics costs reduction

Enhanced safety in plant operations with continuous monitoring of critical sensors and alerts

Automated preventive maintenance of critical equipment, and safety and cement refilling alerts

Streamlining supplier onboarding with business process automation

Fortune 500 auto major implements RPA to transform its supply chain finance and facilitate automated EDI based e-commerce

Challenge

The client managed invoice payments for its suppliers through Electronic Data Interchange (EDI) transactions. The sourcing team would raise a request to the e-commerce team for onboarding a new supplier. The sourcing, material planning, and e-commerce team perform about ten-odd actions to set up the EDI account for a supplier. This process was 100% manual, and the material planning team would miss out on setting up some steps that led to EDI transfer failures. These unanticipated failures led to delayed payments and adversely impacted procurement and manufacturing operations.

Our client had three significant business challenges that prompted the need for a Robotic Process Automation (RPA) solution. This process involved many steps, and this was 100% manually driven. It was a complex process that involved updation of several parameters in the system (e.g., EDI location code, translator code). Any failure resulted in holding up payment, which disrupted the supplier finance and significantly impacted business continuity.

Our solution and approach

Birlasoft's team of supply chain and automation experts developed the business process automation solution for the updation of supplier EDI translator codes. The key highlights of this solution were:

- The RPA bot would run daily, which triggered a series of steps listed below.
- The bot would read the emails sent by the e-commerce team to the material planning team.
- By processing the information available in email, the bot would set up supplier EDI location and translator codes.
- As a final step, the bot notifies the supplier, e-commerce, material planner, and the sourcing teams of the completion of the supplier setup.



IMPACT

100% unassisted automation of supplier set up for EDI based e-commerce

800 person hours saved on annual basis

50% reduction in set up cycle time

Signification reduction in supply chain finance downtime related incidents

Bringing engineering and procurement closer with advanced analytics

Leading global truck manufacturer drives parts rationalization to drive \$ 2.3 million worth of savings and reduce parts obsolescence

Challenge

Truck manufacturing involves complex design and engineering. With systems and assemblies built from thousands of parts, any slippage in parts management can disrupt design and production. For our client, the part base was not just extensive and varied. It was mushrooming across several categories sourced from multiple vendors. This proliferation led to a surge in inventory costs. Margins were at risk now. Identifying obsolete parts and consolidating parts that didn't impact design and production was critical to the business.

Our solution and approach

The truck manufacturer selected Birlasoft to help them fix the problem. We collaborated with the purchasing and engineering teams to counter the obsolescence and promote parts reuse and rationalization. Our experts evaluated 9100 plates and cast brackets from 83 suppliers, as part of the due diligence. We used Birlasoft's Akoya™ analytics platform for this program. Akoya™ supports a visual part display that helps engineering teams visualize similar looking parts. This study led us to double down on 22 clusters that had more than three or related parts. The engineering teams reviewed the clusters and configurations, raw material specs, quality data, and supplier availability before passing on the drawings and recommendations to the purchasing teams. By comparing part configurations and alternative pricing available in their supplier network, we unlocked \$ 2.3 million worth of savings for the truck manufacturer.



IMPACT

\$2.3 million worth of savings validated and executed

90 days to achieve cost savings and parts rationalization

Reduction in parts obsolescence

Effective collaboration between purchasing and engineering functions

Boosting customer delight and field service excellence with CRM automation and IoT

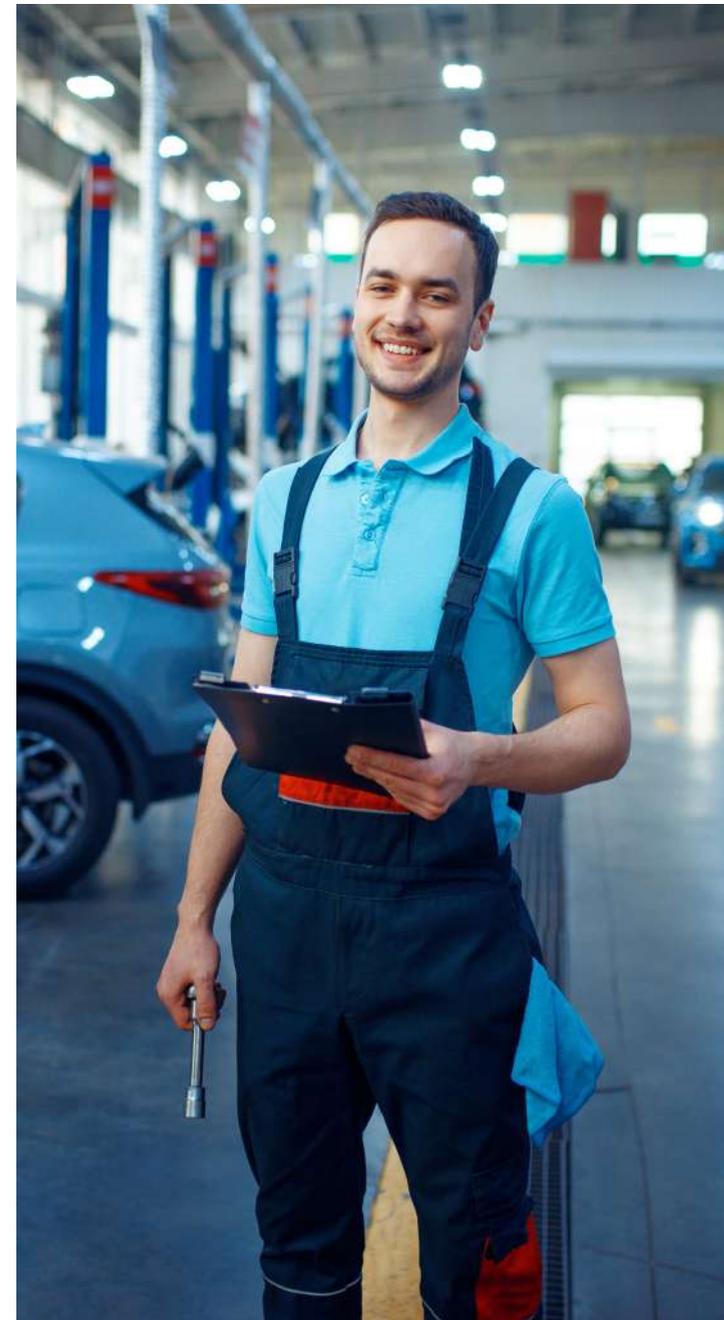
Leading US conglomerate modernizes 20+ years old legacy CRM system to reduce manual interventions, improve demand forecast, and reduce MTTR

Challenge

The success of vehicle servicing firms hinges strongly on customer experience. Our client, a diversified global manufacturer, operated in three major segments, with vehicle servicing being one of the top businesses in one of the three divisions. They had not upgraded their legacy system for the last 20 years, and they had begun to witness the fallout. Orders were manually handled right from order creation to order tracking. The company had grown in two decades and introduced four brands in that time horizon. Be it systems or processes; every brand had a separate support system that had convoluted the entire ecosystem. Customers were unhappy with the poor experience of field service. And, field service agents were struggling with case tracking and collaboration with cross-functional teams. It was time to upgrade the existing processes and systems for improved stakeholder experiences both for the customers and the service agents.

Our solution and approach

The manufacturer turned to Birlasoft to find a solution to this business problem. Our team of experts studied their field servicing process right from the case registration to reporting and tracking. Having evaluated their ecosystem and business needs, our client agreed to upgrade their archaic system to TruServ FSM. This cloud-based platform uses IoT and automation to provide touchless field services. Our team mapped out the client's business process to TruServ FSM. We also customized the platform to meet some of their bespoke needs. For instance, one of them was driving consistency across the distributors' operations for their four brands. Further, our team integrated all the systems for consolidated reporting. The other customized need was a unique Configure-Price-Quote (CPQ) framework. The customer could now raise issues with products and services through an online portal. The portal provided all the information that a customer would need to self-serve the need. The solution was capable of registering a service request in case an IoT supported device suggested so. Upon verification of entitlements, TruServ FSM created the work order and booked the services' appointment, all of it without any manual intervention. Depending on the case needs, the system would match the skillset and assign the field agent to service the request. Both the customer and the field service agent received notifications on a real-time basis. The service agents checked their scheduled tasks on their smartphones and collaborated with teams through SFDC chatter. Post the customer-agent interaction, the system recorded the outcomes with qualitative feedback and KPI-led metrics like MTTR, CSAT, etc.



IMPACT

30% reduction in Opportunity-Quote-Order turnaround time

25% reduction in manual interventions while servicing customers

20% improvement in forecasting accuracy

100% compliance with data quality

Manufacturing to the Power of Digital

Partner with us to accelerate your manufacturing 4.0 journey by reimagining business models, transforming product lifecycles, digitalizing manufacturing operations and driving best-in-class stakeholder experiences for your customers, suppliers and employees.

Learn more to know about how we can help you in your manufacturing business transformation journey, visit:

www.birlasoft.com/Manufacturing-to-the-Power-of-Digital



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Enterprise to the Power of Digital™

Birlasoft combines the power of domain, enterprise and digital technologies to reimagine business processes for customers and their ecosystem. Its consultative and design thinking approach makes societies more productive by helping customers run businesses. As part of the multibillion-dollar diversified The CK Birla Group, Birlasoft with its 10,000 engineers, is committed to continuing our 158-year heritage of building sustainable communities.

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