EVONSYS
EVOLUTION BY INNOVATION

TRANSFORMING INDUSTRIAL OPERATIONS THROUGH THE POWER OF AUTOMATION

Discover how automation revolutionized weighbridge operations, reducing manual labor and enhancing data integrity while significantly cutting operational costs and increasing throughput efficiency.

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About the Customer

A global leader in industrial manufacturing, supplying essential materials to various industries. With operations spanning multiple countries, the company manages a critical supply chain focused on efficient and sustainable product delivery. Known for its commitment to operational excellence and sustainability, it consistently pursues innovative solutions to maintain a competitive edge in the global market.

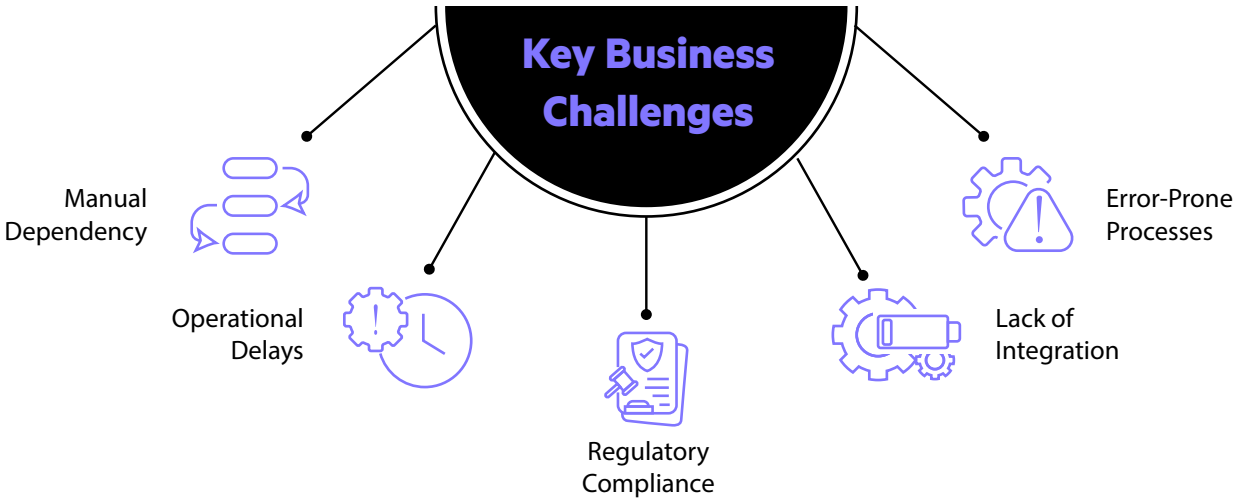
Engagement Story

The company identified inefficiencies in its manual weighbridge operations, where vehicles were weighed entering and leaving the facility. These processes required constant staffing, caused delays, and led to potential data entry errors, impacting overall supply chain efficiency.

To address this, the company sought a technological solution to automate these processes, reduce manual reliance, and improve data accuracy. Partnering with EvonSys, a global leader in Low-code implementation, the goal was to transform the weighbridge operations into an automated, unmanned system for greater precision and speed.

Key Business Challenges

Numerous critical issues stemmed from the existing system that prompted the search for an automated weighbridge solution. Some of the crippling challenges were:



Manual Dependency :

The existing weighbridge operations relied heavily on manual labor for data entry and supervision, leading to high labor costs and inefficiencies.

Error-Prone Processes :

Manual data handling increased the risk of errors in recording weights, which could lead to significant discrepancies in inventory and billing.

Operational Delays :

The manual system was slow, affecting the overall throughput of vehicles and thereby impacting te supply chain's efficiency.

Lack of Integration :

The existing system lacked integration with other enterprise systems, leading to data silos and challenges in real-time data access and decision-making.

Regulatory Compliance :

The old system made it challenging to keep up with regulatory requirements, especially in accurately reporting and auditing transactions.

The partnership focused on automating manual weighbridge operations to minimize delays, improve data accuracy, and enhance overall supply chain efficiency through an unmanned, precision-driven system.

Desired Goals

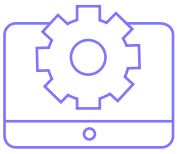
The Organization set clear objectives for the new automated weighbridge system to address the challenges identified:

Automation of Weighbridge Operations

Implement a fully automated system to eliminate the need for manual intervention in vehicle weighing processes.

Data Accuracy and Integrity

Enhance the accuracy of data capture at the weighbridge to ensure reliable inventory and compliance records.



System Integration

Develop seamless integration between the weighbridge system and other critical business systems, such as inventory management and billing, to ensure data coherence and real-time access.

Operational Efficiency

Increase the throughput of vehicles at the weighbridge, reducing wait times and improving the overall supply chain efficiency.

Regulatory Compliance

Ensure the system adheres to industry standards and regulations, providing necessary reporting features for easy auditing and compliance checks.

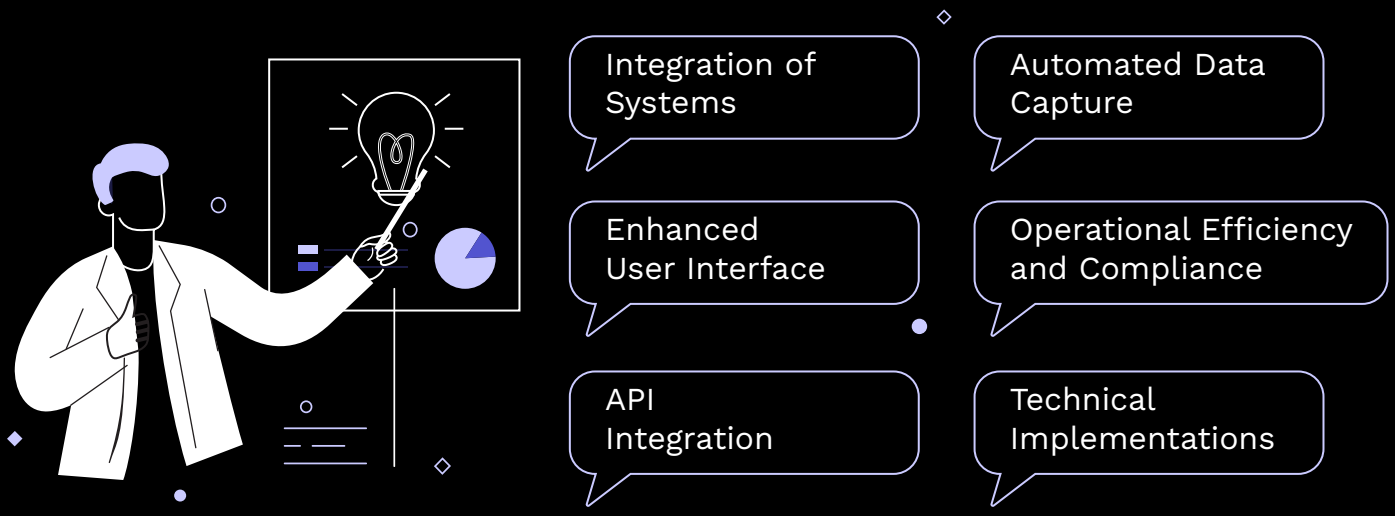
Scalability and Future Proofing

Design the system to be scalable and adaptable to future business needs and technological advancements.

These goals aimed to transform the weighbridge operations by leveraging technology to streamline processes, enhance accuracy, and integrate systems for better decision-making.

Solution

The solution involved several key elements:



Integration of Systems :

The solution involves integrating the Weighbridge System (WBS) with the Web Forecast System (WFS) and the Raw Material Management System (RMMS), which is based on Mendix.

This integration allows for the transformation of the weighbridge operations into a fully automated, unmanned system, reducing the need for onsite personnel.

Automated Data Capture :

The WBS captures the weight measurements of incoming and outgoing vehicles automatically.

This data is sent to the WFS, which acts as an intermediary layer, integrating the weighbridge data with the RMMS for further processing and management.

Enhanced User Interface :

A new user interface for the WFS allows drivers and other users to interact with the system easily, enhancing the operational workflow and reducing the potential for human error.

The interface includes functionalities for viewing PO details, initiating vehicle check-ins, and confirming transport arrivals.

API Integration :

Multiple API trigger points facilitate data exchange between the WBS, WFS, and RMMS.

These APIs handle everything from uploading PO lists and initiating transport processes to validating weights and updating transaction records in real time.

Operational Efficiency and Compliance :

The automated system not only speeds up the process but also ensures higher accuracy and compliance with regulatory standards.

System-generated reports and real-time data updates aid in maintaining accurate records and making informed decisions.

Technical Implementations :

The solution utilizes POST methods for API interactions, ensuring secure and reliable data transmission.

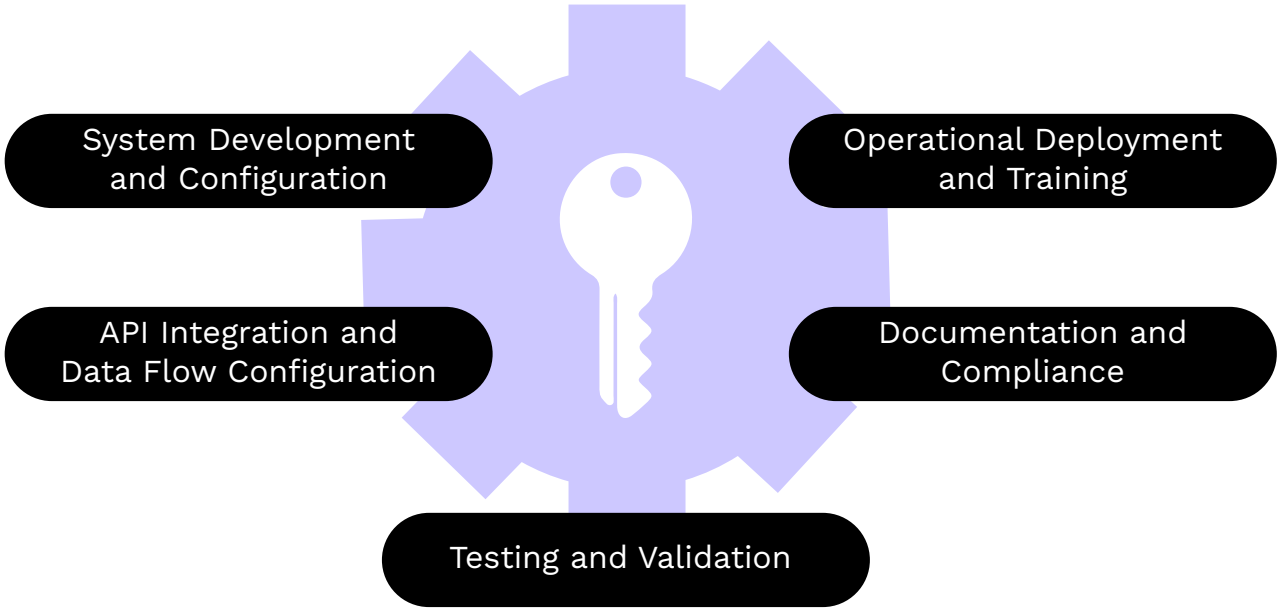
Conditional logic embedded within the system helps determine when third-party weigh-ins are necessary based on specific criteria set within the system.

This comprehensive approach not only automates the weighbridge operations but also integrates them seamlessly with the company's broader raw material management processes, significantly improving efficiency and reducing manual errors.

The solution integrated the Weighbridge System with key management platforms, automating weighbridge operations, capturing real-time data, and streamlining workflows through enhanced interfaces and API-driven processes. This transformation reduced manual effort, improved efficiency, and ensured compliance with regulatory standards.

Key Activities Involved

The implementation of the unmanned weighbridge system involved several detailed activities to ensure the successful integration and functionality of the new system:



System Development and Configuration

The Weighbridge System (WBS) and Web Forecast System (WFS) were integrated with the Raw Material Management System (RMMS) running on Mendix. This integration aimed to automate the weighbridge completely.

Development included the creation of a new user interface for the WFS to facilitate interaction with the weighbridge operators and drivers seamlessly.

API Integration and Data Flow Configuration

Multiple APIs were set up to trigger data exchanges between the WBS, WFS, and RMMS at different stages of the vehicle handling process. These APIs ensured that data from the weighbridge was accurately captured and relayed to the relevant systems for processing.

API Trigger Point #1 involved uploading the Purchase Order List from RMMS to WFS, which facilitated the viewing of necessary details by the truck driver upon arrival.

Testing and Validation

The new system underwent extensive testing to ensure accuracy in weight measurements and data integrity during transmission between systems.
Validation checks were included to determine if third-party weigh-ins were necessary based on predefined criteria.

Operational Deployment and Training

Once testing was completed, the system was deployed operationally. To familiarize all relevant staff with the new automated processes and interfaces, training sessions were conducted.
Continuous support was provided to address any issues that arose post-deployment, ensuring a smooth transition and operational stability.

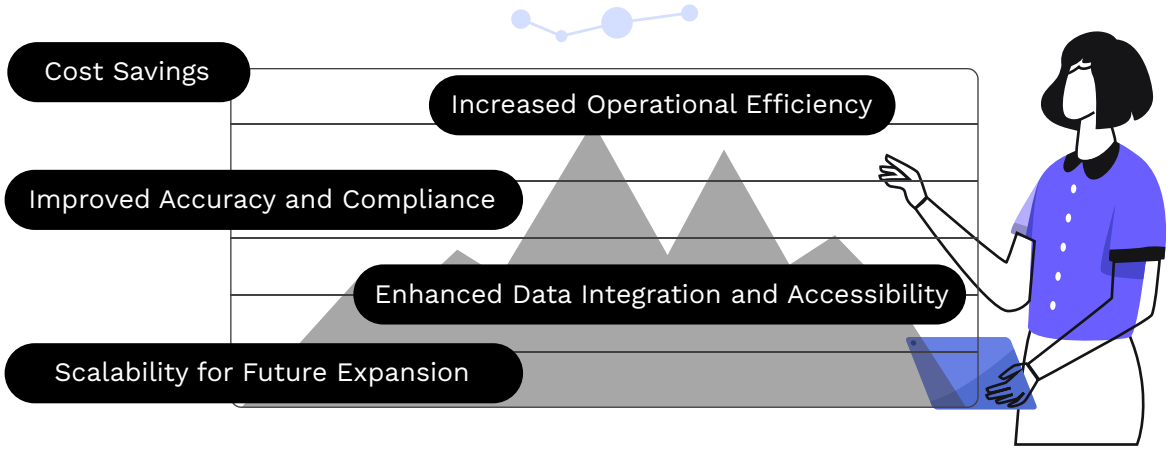
Documentation and Compliance

Comprehensive documentation of the system architecture, integration points, and user interfaces was created. This documentation supports ongoing maintenance and compliance with industry standards.
Compliance checks were integrated into the system to ensure all operations met regulatory requirements and internal standards.
These activities collectively ensured that the unmanned weighbridge system was effectively integrated into the operational framework, providing a seamless, efficient, and error-free process.

Key activities included system development, API integration, thorough testing, and operational deployment. The automation of the weighbridge system ensured seamless data flow, regulatory compliance, and a smooth transition for all users.

Business Outcomes

Following the implementation of the unmanned weighbridge system at Kaneka, significant improvements were observed:



Increased Operational Efficiency

Vehicle processing times were cut from 10 minutes to approximately 2 minutes, significantly increasing daily throughput.

Cost Savings

The automation led to annual labor cost savings of around $500,000 by reducing the need for onsite personnel.

Improved Accuracy and Compliance

Enhanced weight measurement accuracy has improved compliance with transportation laws, minimizing penalties.

Enhanced Data Integration and Accessibility

Seamless integration across the weighbridge and management systems has enabled real-time monitoring and improved decision-making.

Scalability for Future Expansion

The system's scalable design allows for easy expansion and integration of additional technological features.

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