

HCLTech | Supercharging
Progress™

RETAIL 5.0 IoT platforms for smart warehousing



During the fourth Industrial revolution, retail companies are slowly moving towards digitization of the entire value chain. New scenarios and ways in which retail businesses can improve their operations are being tested actively as the industry is considering the move towards IoT-enabled solutions.

One such area is warehouse management, where IoT is playing a significant role, **enabling retail businesses to adapt according to the changing customer requirements, as they are expecting to get goods faster**. Retail companies are facing challenges like delayed deliveries, missing items due to human errors, low operational efficiency due to lack of equipment tracking and resource tracking capabilities.

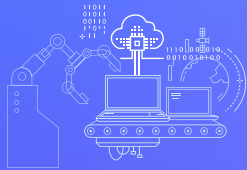
To fulfill these customer expectations and to overcome operational challenges, **retailers should consider the adoption of platform-based strategies**.



At its core, HCLTech's solution for smart warehousing offers the following capabilities



Connectivity management
To connect various devices, systems, and networks in an IoT ecosystem



The dark assets are energized or 'Things' are IoTised



Data aggregation and storage
To collect data from devices & systems, and store them for further processing



'Data' gets generated and analysed to gather insights



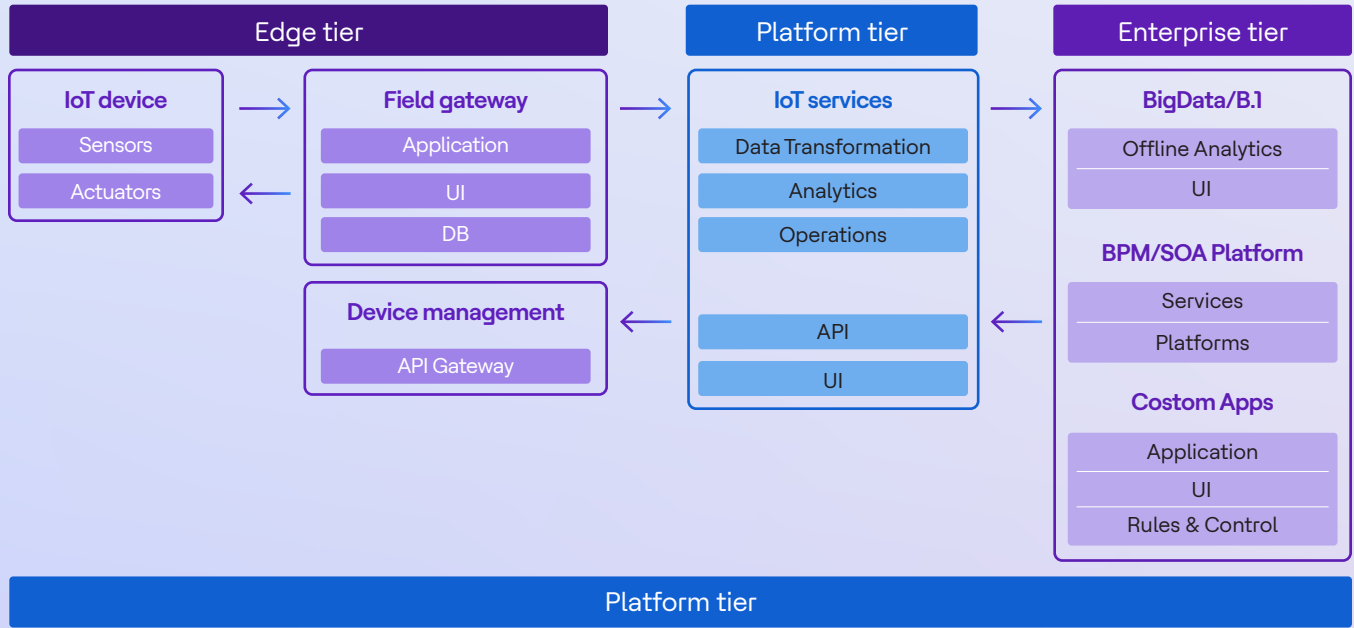
Application enablement
To build custom IoT solutions for the chosen business use case



Insights drive fundamental shifts in the 'processes' and in the 'People' practices

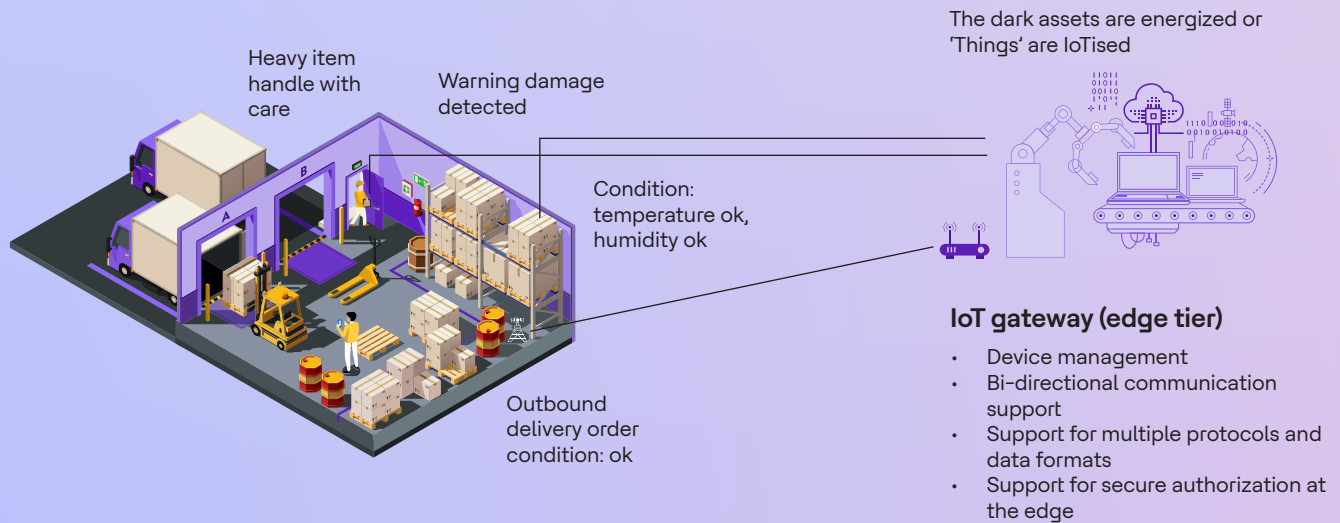
HCLTech's approach is structured around the emergence of an IoT ecosystem which has given rise to an asset value chain comprising of connections of things, people, data and technology

These capabilities can be delivered through a 3-tier IoT logical reference architecture



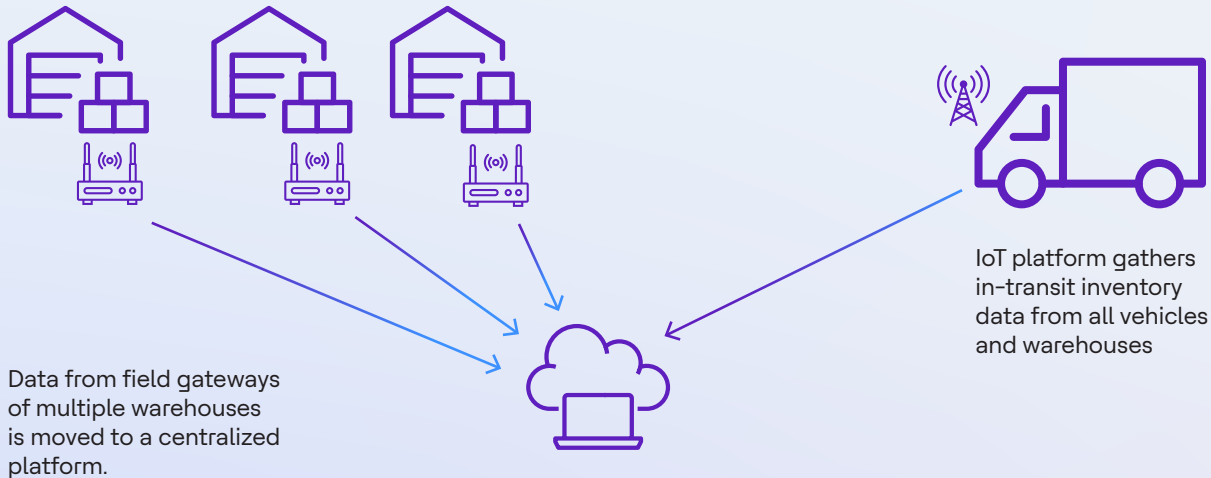
The Edge tier

Edge tier consists assets/devices like containers, forklifts, lights, etc., that are IoTised with the help of various sensors and actuators. These IoTised assets transmit data/messages to a field gateway device, e.g. the current temperature sent from a temperature sensor on a device.



The Platform tier

This tier consolidates, processes, and analyses data flows from the Edge tier and provides management functions for devices and field gateways. This tier receives, processes, and forwards control commands from the Enterprise tier to the Edge tier.



Data aggregation and storage (IoT platform tier)

Multi-modal database support such as relational, key value, document, and graph, stream processing, remote data synchronization.

The Enterprise tier (Application enablement)

This tier receives data flows from the Edge & Platform tiers and issues control commands to these tiers. The Enterprise tier implements retail distribution specific applications and decision support systems and provides interfaces to end users, including operations.

Below are some of the features that are enabled by HCLTech's IoT solution for smart warehousing.



Inventory management and tracking

Real time visibility of stock from the product's arrival to the warehouse to its delivery to a shopper's doorstep



Resource allocation and task automation

Automate repetitive tasks and allocate the workforce more efficiently



Building optimizations

Energy optimization & remote monitoring



Worker safety

Automate workers' safety and action with the help of Multi-sensor wearable device and real time locations tracking feature



Path routing for AGVs, AMRs, and forklifts

Determine how and where goods, equipment, and people should move within the warehouses



Space optimization

Automate repetitive tasks and allocate the workforce more efficiently



Product quality tracking

Gather quality information from several steps of product storage to ensure product quality is maintained



Predictive maintenance

Collect and analyze data from multiple equipment to activate preventive actions



Real time alerts

Timely alerts of respective information to field operators and business level executives



Benefits of using HCLTech's IoT solution for your warehouse



Increased operational efficiency through automation, thereby leading to decreased costs, labor, and overhead requirements



Improved supply chain visibility, thus improving visibility of demand, preventing stock-out, and inventory shrinkage



Improved last-mile delivery, enabling delivery trucks to collect orders more efficiently, because of improved space utilization and path routing



Reduced maintenance cost and maintenance downtime through better monitoring



Higher employee productivity



Safer working environment

Case study

Ice cold and lightening fast – digital transformation journey of Americas leading provider of packaged ice
Multi-modal database support such as relational, key value, document, and graph, stream processing, remote data synchronization.

The challenge

One of America's leading producer and distributor of ice faced challenges due to Legacy & disintegrated business operations with lots of tedious manual tasks, unattended support, poor application & DB design, and almost non-existent security.

The organization wanted to build a connected and smart distribution and logistics network to meet the customer expectation of faster delivery.



Our solution: customer transformation



Connected smart eco-system



Improved routing & fleet management



Improved analytics & reporting



Enhanced handheld app



Remote equipment maintenance

Transformation benefits



Financial growth

- Enabled more avenues for sales growth e.g. ecommerce
- Reduce labor cost by bringing in efficiencies



Improved efficiency

- Auto order creation & invoice generation using IoT
- Remotely maintain equipment and improve productivity
- Improved routing & fleet management



Customer satisfaction

- Improved transparency by providing up to date delivery & order fulfilment information
- Improved issue resolution time
- Improved customer service feedback

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For more information, please reach out to us at rcpg.solutions@hcl.com

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