Supply Chain Offering
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UST Global works with some of the largest retail organizations across the globe (top 12 Global retailers out of top 25).

Courtesy of our deep domain knowledge and technical expertise, we are the preferred Supply Chain Solution partners for many of our retail and CPG clients.

We provide consulting services in the areas of:

• Warehouse Profiling
• Network Modeling
• Automation Design and simulation
• Software Package selection
• Optimization
• Integrated demand and supply chain planning
• Dock Management
• Warehouse automation - Hardware and Software selection
Products and Platforms

- End-to-End Supply Chain Visibility
- Enterprise Inventory Management
- Order Management System
- Transportation Exchange
- Farm-2-Fork
The aim of E2ESCV is to provide controlled access and transparency to accurate, timely and complete events and data — transactions, content and relevant supply chain information — within and across organizations and services operating supply chains. Complete with predictive analytics, Supply Chain Control Tower, Dock Labor Planning, & Outbound Transportation Planning.

**The need for End-to-End inventory visibility platform and associated analytics**

<table>
<thead>
<tr>
<th>Lack of inventory visibility across supply chain</th>
<th>Leads to poor operational judgement and overall cost increases for</th>
<th>In an increasingly dominant Omni channel world</th>
</tr>
</thead>
</table>
| Increases Out of stock in shelf                  | Order processing  
               |       | Labor  
               |       | Transportation  
               |       | Two key metrics: Available to Promise and Available to Pick  
               |       | get polluted due to lack of visibility —  
               |       | Leads to wastage of organizational resources  
               |       | and erosion of customer confidence, and a damaged brand  
| Over stocking and blockage of cash               |                                                               |                                             |

The UST Global E2ESCV Platform provides rich data sets that include:

- Product and SKU level detail
- Temperature tracking capabilities
- Platforms for last mile delivery details
- Exception management
- Visibility into delays
- Risk scoring that goes beyond weather
- ETAs
- Touchless Receiving
- Custom features and functions
- Mobile ready
- Control Tower
- Predictive Analytics

**Highlighted Features:**

- UST Global E2ESCV gives visibility into the Domestic and International Supply Chains from PO Control to Delivery Receipt and all milestones in between with input from over 60,000+ external feeds
- E2ESCV is a cloud hosted solution
- Entire platform is offered as a managed service

Interested in a Discussion?

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Enterprise Inventory Management System (EIMS), is UST Global Inventory management solution that is used for tracking inventory levels in the store. This tool is capable of storing and organizing the inventory data from multiple transactions of sales (both in-store and C&C), return, exchange, transfer, receiving, stock adjustment, audits, store picking, etc. and sharing it in near real-time with all other integrated systems.

**Key Value Proposition:**
- Real-time, multichannel inventory access to empower associates, improve customer service, and reduce costs.
- Streamline instore activities viz. receiving merchandise, conducting stock counts, ordering, or transferring stock and manage Price changes (Print Shelf Edge labels or Integration of the ESELs)
- Look up detailed information about merchandise items, suppliers, containers, and customer orders
- Execute in-store commerce anywhere fulfillment – Manage Customer Orders within different store locations
- User friendly mobile interface for customer associates

**Highlights of UST EIMS:**

**Instore**
- EIMS maintains and displays inventory level data across all channels
- Inventory visibility with store and within store network
- Enables integration with operating systems and industry partners

**Customer Satisfaction**
- Delivers better customer service and flexibility to respond to changing demand
- Promotes on demand availability to customers
- Efficient click & collect experience

**Inventory**
- Provides complete inventory transparency
- Provides lost sales reports of high accuracy data values
- Information of what was moved, how much, when, where, and any other pertinent information needed can be included, hence eliminating miscalculation oversights.

**Mode of Delivery:** Cloud Hosted Solution

(Platform as a service)

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SCOPE OMS Solution

Unlike traditional monolithic solutions, SCOPE Order Management System is designed as:

- **Scalable & Simplified** user experience helps reduce cost for training and improve productivity (configurable for business rules)
- **Cloud native** OMS will be device agnostic and developed by considering mobile first approach
- **Individual products** integrated together with SOA technology for total Omni-channel experience
- **Flexible design** for speed-to-market, CORE OMS separated from client specific needs to react faster for client specific request
- **Real-time dashboards** to help management; real-time exception handling
- **Flexible and seamless integration** with other transactional systems
- **AI and ML component** for Advanced Cognitive Analytics
- **Social media** approach to information sharing and training

Benefits and Advantages over other OMS

<table>
<thead>
<tr>
<th>Contemporary Technology</th>
<th>Flexibility for business users &amp; costumers</th>
<th>Efficient routing and fulfillment</th>
<th>Simple and efficient order management</th>
</tr>
</thead>
<tbody>
<tr>
<td>User friendly interfaces</td>
<td>Single order can be placed for fulfillment by multiple suppliers</td>
<td>Better handle out of stock conditions with auto allocation algorithms.</td>
<td>Simplified order monitoring with user friendly UI and custom reporting</td>
</tr>
<tr>
<td>Cloud native application with microservices</td>
<td>Configurable business rules and functions</td>
<td>Fair distribution of inventory based on order demand</td>
<td>Operational dashboards, alerts and notifications</td>
</tr>
<tr>
<td>Offers flexibility for business expansion</td>
<td>Dynamic source of supply assigned by priority</td>
<td>Reduced LTL (less than truck load) conditions with adjusted orders going for routing</td>
<td>Easier schedule maintenance with more control for order release by supplier</td>
</tr>
<tr>
<td>System limitations don’t dictate the design anymore</td>
<td>Faster and easier disaster recovery by order auto holding and dynamic SoS</td>
<td>Auditing of all amendments to ensure accuracy before routing and fulfillment</td>
<td>Flexible way to move inventory across the SC network</td>
</tr>
</tbody>
</table>

Design and Key Capabilities

<table>
<thead>
<tr>
<th>MDM</th>
<th>Collect Store Orders</th>
<th>Auto Replenishment</th>
<th>Cognitive Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td>• User Setup</td>
<td>• Manual Order Entry</td>
<td>• CGO</td>
<td>• Weather</td>
</tr>
<tr>
<td>• Store Setup</td>
<td>• Rush Orders</td>
<td>• Order History</td>
<td>• Event</td>
</tr>
<tr>
<td>• Warehouse Setup</td>
<td>• Firm/Buyer Push Order</td>
<td>• Order Review</td>
<td>• Social Media</td>
</tr>
<tr>
<td>• Organization Master</td>
<td>• 3rd Party Orders</td>
<td>• Auto Acceptance with Tolerance</td>
<td>• Machine Learning Algorithms</td>
</tr>
<tr>
<td>• Vendor Master</td>
<td>• Plant Orders</td>
<td></td>
<td>• Dynamic Source of Supply to Reduce Order Split and Transportation Cost</td>
</tr>
<tr>
<td>• Store Item Setup</td>
<td>• eCommerce Customer Order</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Store Order Delivery Schedule</td>
<td>• Warehouse Transfers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Customer Order Group Maintenance</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OMS PLATFORM

<table>
<thead>
<tr>
<th>Order Review &amp; Maintenance</th>
<th>Allocation, Substitution &amp; Prioritization</th>
<th>Integration with WMS &amp; TMS</th>
<th>Reporting &amp; Dashboard</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Order Schedule Inquiry</td>
<td>• Inventory Allocation – Various Algorithms</td>
<td>• On Hand</td>
<td>• Substitutions</td>
</tr>
<tr>
<td>• Order Status Monitoring</td>
<td>• Pre-defined Schedule</td>
<td>• Order to WMS</td>
<td>• Unfulfilled Orders</td>
</tr>
<tr>
<td>• Update Order</td>
<td>• Unscheduled Orders</td>
<td>• Substitute Info</td>
<td>• Inventory Positions</td>
</tr>
<tr>
<td>• Order Smoothing</td>
<td>• Substitution Recommendations</td>
<td>• Orders to Route</td>
<td>• Item Discrepancy</td>
</tr>
<tr>
<td>• WH Order Audit</td>
<td>• Sub Always</td>
<td>• Roaded Orders</td>
<td>• Warehouse Order Recap</td>
</tr>
<tr>
<td>• Waving of Orders for Dispatch</td>
<td>• Sub When Out</td>
<td>• Warehouse Setup</td>
<td>• Item Not Available</td>
</tr>
<tr>
<td>• Dynamic Source of Supply Assignment</td>
<td></td>
<td>• Inventory Allocation</td>
<td>• Item Order Recap</td>
</tr>
</tbody>
</table>

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Transportation Exchange, is part of UST Global Supply Chain Management solution that efficiently utilizes the fleets used to transport goods from distribution centers, between locations and from vendors. Currently, significant amounts of backhauling capacities goes unutilized, as carriers are not aware of nearby shipper’s and Trucks needs to transport the goods. This lack of optimal utilization of Truck and trailer adds up to the total cost of transport for big retailers.

Key Value Proposition:
Currently this is a $60 billion problem among the top 100 retailers and top 25 Consumer Packaged Good companies.

Highlights of UST Transportation Exchange:
- Maximize transportation asset utilization
  - Truckload dedicated equipment and transport
  - Payload capacity
  - Hours of utilization
- There is nothing similar in the market.
  - GTE’s strategic positioning enables brick-and-mortar to compete with current and future disruptors
  - GTE is based on building partnerships and collaboration, while at the same time allowing carriers to keep routing and lanes confidential
  - GTE has carefully mapped and primed engine and collaboration platform.
  - GTE is self evolving and creates bi-directionally, triangulated and even hexagonal milk run.
  - Collaborates with existing Transportation Management systems.
  - It is architected for future of autonomous and connected transportation eco-systems.

Mode of Delivery: Cloud Hosted Solution
(Platform as a service)

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The UST Farm-to-Fork solution is a platform that aims to track food throughout its processing and logistical journey. It enables the measurement, authentication and tracking of various states of the food at an individual box level. Currently, the supply chain is comprised of heavily disconnected pieces. From suppliers, to processors, to retailers there is no visibility into every piece of the supply chain.

The need for a Farm to Fork platform

**Food spoilage and wastage**
- Around one third of the food produced in the world for human consumption every year — approximately 1.3 billion tons — gets lost or wasted. While the US accounts for $160 Billion in wastage each year.1—Food and Agricultural Organization of the UN

**Food safety and compliance**
- The food safety law passed by Congress on December 21, 2010 aims to ensure the U.S. food supply is safe by shifting the focus of federal regulators from responding to contamination to preventing.
- According to the CDC, roughly 1 in 6 Americans get sick from foodborne diseases each year.

**Visibility at every stage**
- Traditionally, the food safety industry has embraced the “One Up and One Back” (OUOB) system to manage its supply chain traceability, allowing it to know where products came from and where they’re being sent or sold.
- This process lacks visibility in that users can only be sure of the last place their product was, and where it goes next in the multifaceted food supply chain.

The F2F Platform Individual Technology and Processes have their own significant ROI

<table>
<thead>
<tr>
<th>Farm Analysis</th>
<th>Connected Shipment</th>
<th>Product Labeling</th>
<th>Food Safety &amp; Quality Tracking</th>
<th>Price Optimization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pick at right time</td>
<td>Know where your shipment is</td>
<td>Product and shipment tracking</td>
<td>Adherence to newly passed laws</td>
<td>Better pricing</td>
</tr>
<tr>
<td>Negotiate right price</td>
<td>Reduce theft during transit</td>
<td>Logistic automation of transactions</td>
<td>Brand enhancement</td>
<td>Better inventory management</td>
</tr>
<tr>
<td>Build traceability</td>
<td>Temperature, humidity, pressure monitoring</td>
<td>Consumer awareness, loyalty, &amp; tracking</td>
<td>Waste reduction</td>
<td>Automated price updates and labor reduction</td>
</tr>
</tbody>
</table>

Highlighted Features:
- Farm to Fork is a cloud hosted solution
- Entire platform is offered as a managed service

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Automation Services

- Sorter
- Butler
- Autonomous Goods Vehicle
- Autonomous Drones
- Warehouse Validation
The GreyOrange Sorter is a hi-tech automated warehouse sorting system comprising of advanced software, offering unmatched throughputs, package-handling capability and reliability. It routes parcels or packages based on industry, defined sortation logics such as destination, volume, weight or any other custom logic based on your business dynamics.

GreyOrange linear sorter comes as a standard product and it has the shortest lead time to implementation. From concept to installation to go live, it can be deployed in 4-6 week.

<table>
<thead>
<tr>
<th>Problem Statement</th>
<th>Benefits Delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>The company wanted to manage the growing touch points without increasing the cost of operation</td>
<td>The GreyOrange sorter line comes as a standard product with modular parts, which significantly reduces the implementation time</td>
</tr>
<tr>
<td>There was a growing pressure to boost the turn around time for last Mile Delivery</td>
<td>With the linear sorter the customer managed to achieve up to 100% productivity</td>
</tr>
<tr>
<td>Operational expenditures had increased the per-person productivity</td>
<td>There was significant (up to 40%) improvement in workforce efficiency.</td>
</tr>
<tr>
<td>The requirement was to do shipment profiling even at very high throughputs</td>
<td>The solution enabled 100% profiling accuracy which lead to significant reduction in waste and cost overheads</td>
</tr>
<tr>
<td></td>
<td>Saved 15% space within the same area</td>
</tr>
</tbody>
</table>
The GreyOrange Butler is an advanced autonomous mobile robot that uses goods-to-person technology for automated put-away, inventory storage, replenishment and order picking in fulfillment and distribution centers.

These autonomous mobile robots create efficient and time saving solution to warehouse management and order fulfillment.

**Problem Statement**

- Manage complex Omni channel fulfillment with growing share of online orders
- Optimize warehouse for handling multiple inventory load units (pallets, cases and eaches) to increase throughput
- Handle wider range of SKUs across a variety of dimensions & fragility
- Configure warehouse operations for scalability with increase in number of stores
- Reduce space and time required for consolidation of store fulfillment orders

**Benefits Delivered**

- The GreyOrange Butler solution was able to help the customer fulfill twice more volume of orders while reducing the operating expenses significantly
- The customer was able to adapt to evolving Omni Channel processes using the solution
- Unified order picking and consolidation model. Reduced dock to stock time and DOH inventory at client’s stores
- Capacity increased within the warehouse leading to Capex avoidance. Besides, there were open savings and space optimizations

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Online orders and demands have been growing alongside ecommerce and automation has been the solution to not only keep up but surpass the demand. Autonomous robots have become the unstoppable workforce working around the clock to maintain warehouse management and fulfill orders.

Freight 500
The freight500 is designed to assist with transporting material throughout the warehouse. With its small size it is designed to handle smaller pallets and maintain the ability to maneuver tight areas.

CartConnect
CartConenct solutions are easy to set up are meant to support workflows in the warehouse and manufacturing environments.

Hmishelf 15/20/25
Transporting materials have become easier with the Hmishelf 15/20/25. With its ability to plan optimal point-to-point travel around obstacles.

Roller Top
Conveyor tops have been used to increase efficiency however now the roller top has been redesigned to accommodate the everchanging material transport requirements.

Freight 1500
Slightly larger than the Freight 500 this one is designed to work with the largest of pallets. It is designed to operate safely with warehouse associates and other vehicles.

Benefits:
- Around the clock workforce
- Increased industrial efficiency
- Adaptable
- Integrates easily with current systems
- Transporting pallets within the warehouse is made easier

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Autonomous Drones

Current Process
• Manual repetitive tasks by humans are the norm
• Operations still lack sophistication & technology enablement
• Enhancing humans with technology doesn’t eliminate errors
• Checks are time consuming, risky & utilize expensive equipment
• There’s never enough time with existing staff
• Accuracy lacks precision

Key Benefits
Improved Inventory Accuracy Rates
• Increased frequency of inventory checks
• Increased certainty of inventory levels
• Reduced losses due to inventory shrinkage
• More reliable financial reporting
• Better visibility to out-of-stock and excess inventory
• Increased velocity of order picking

Greater Operational Efficiency
• Savings in personnel costs or operations downtime
• Elimination of resources and equipment
• Staff redirected to handle high value activities
• Employee Safety

Automating the digitization of inventory, equipment and processes

IDENTIFY
Inventory identification using RFID, barcode, text, deep Learning computer vision or active tag

LOCATE
Low cost & very robust sensor platform to pinpoint inventory whereabouts in 3D

ORCHESTRATE
Powerful process automation engine requiring minimal human intervention

AUGMENT
Simple real-time integration to existing systems delivers increased value to current investments

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Computer modeling and simulation addresses your most critical business problems in a powerful virtual environment.

Integration of business domain knowledge with advanced analytical techniques, to optimize business processes and making informed decisions.

Simulation technology can be used across multiple industries. From Laboratory robotics to Global supply chains, systems of all sizes benefit from Modeling and Simulation.

Experienced
200+ projects delivered

Impactful
10X historical ROI

Trusted Advisors
10+ Fortune Global 500 clients
Consulting in decision support, model development, visualization and analysis

**Consulting**

Our team of professional simulation consultants can utilize a wide variety of tools and analytical approaches to solve your most challenging problems. A passion for learning the nuances of each system we model, and utilizing world-class modeling skills to obtain positive results for each and every client, is what differentiates our consultants from competitors.

Our team brings invaluable international experience, having worked across four continents for organizations ranging from Fortune Global 500 multi-nationals to leading edge consumer technology start-ups. The skill-set of our team ranges from engineering, technology, finance, business, academia and industry specialists. This has enabled us to establish itself as a leading advanced decision support and solutions providing company.

Use our consulting services to:
- Answer difficult operation questions
- Create a digital twin of your system
- Optimize resources
- Complete a bottleneck analysis

**Software & Training**

variety of training courses for starting simulation modeling and developing advanced skills. We share best practices, identify pitfalls and help clients fast-track solutions for their areas of focus.

We are knowledgeable in a range of industry leading tools and advise on tool selection, software support and provide software licenses.

**Historical Outcomes**

- Identified workload assignment approach to save **$240,000 annually**
- Reduced trailer processing times by **50%** through assignment optimization
- Identified **$20 million** cost avoidance at a platinum mine site
- **$150 million** in additional revenue opportunity by improved raw material blending
- Determined optimal staff schedules for a hospital, saving over **$8 million**
- Reduced excess inventory by optimizing material flow, leading to a **$1 million** saving

“Tens of millions capital investment saved by analysis from the simulation model...Gives way more confidence than arm waving”