DS DELMIA

SUSTAINABLE END-TO-END RETAIL LOGISTICS

Delivering excellence while driving down operating costs and embracing sustainability

DS DASSAULT SYSTEMES

Introduction

Driving a Sustainable Course in Retail Logistics

Consumers demand agility. They expect lighting-fast deliveries while sustainability mandates eco-conscious solutions. Optimizing delivery networks for both cost and speed remains paramount, but efficiency must now embrace the rise of electric vehicles and stricter environmental regulations.

DELMIA Logistics Planner:
Your Strategic Partner for a Sustainable Future

DELMIA Logistics Planner empowers you to navigate this new frontier. As your strategic partner, DELMIA offers a comprehensive suite of tools that seamlessly integrate with your existing infrastructure. Imagine a future where:

Gain real-time insights to optimize routes, maximize resource allocation, and unlock significant cost savings.

Efficiency through data-driven decisions

01

Sustainability is a competitive advantage

02

Leverage features like mixed-fleet management to minimize your environmental footprint and attract eco-conscious customers.

Deliver exceptional experiences with faster, more accurate fulfillment, fostering loyalty and trust.

Consumers become brand advocates

03

DELMIA Logistics Planner is the key to achieving this future. Read this e-book to discover a solution that will give you end-to-end capabilities in retail logistics.

The Evolving Retail Landscape:
A Balancing Act

The agility and sustainability pressures introduced earlier paint a clear picture: today's retail landscape is a tightrope walk. Balancing ever-changing customer demands, stricter regulations, and the need for efficiency and profitability is a constant challenge for retailers.

Adapting to a New Operating Reality

Navigating a Regulatory Tightrope

Stricter environmental regulations, including Low-Emission Zones (LEZs) and CO_2 restrictions, force retailers to embrace sustainable practices. This requires investments in eco-friendly logistics solutions and infrastructure upgrades. While the rise of electric vehicles (EVs) is presented as a sustainable solution, it comes with its own set of challenges: EVs require adaptable solutions for infrastructure (charging stations) and route planning to maximize battery life.

Optimizing Urban Deliveries

Delivering in dense city centers with traffic congestion, limited parking, and stricter regulations demands innovative thinking. Retailers must explore solutions like strategically located micro-fulfillment centers or alternative delivery methods like cargo bikes or partnerships for last-mile logistics.

Evolving Retail Business Models

The Shifting Retail Landscape

The traditional brick-and-mortar model can no longer stand alone. Omnichannel shopping and alternative fulfillment options such as micro-fulfillment centers necessitate flexible distribution systems capable of handling diverse delivery demands (e.g., faster deliveries for urban customers).

Catering to New Consumer Preferences

The rise of specialized stores with smaller selections and increased focus on home delivery models reflects consumers' desire for convenience. This, however, requires adjustments to traditional logistics networks to ensure timely and accurate deliveries.

The Workforce Challenge

High turnover rates and difficulty retaining qualified drivers pose a significant problem that affects both the ability to adapt to external pressures and the evolution of business models. Offering competitive employment conditions, stable work schedules, and a focus on driver well-being are crucial for recruitment and retention.

Navigating the Network Maze

Here, we take a deeper look into the complexities of retail distribution networks, which face real-world limitations. Retailers don't always have complete freedom in choosing distribution center locations due to factors like existing infrastructure, partnerships with third-party logistics providers (3PLs), and local regulations. Establishing new centers represents a significant investment, requiring careful planning and data-driven analysis to ensure optimal placement within the network.

Optimizing Your Distribution Network

Network design involves strategically planning the physical layout and flow of goods throughout your supply chain, encompassing decisions that include:

Distribution center locations

Transportation routes

Inventory distribution

Fulfillment center placement
(including micro-fulfillment options)

The evolving retail landscape presents challenges in keeping pace with changing customer demands, business goals, and environmental considerations. Here are the key challenges and the strategies to address them:

Optimizing Distribution Center Location and Flexibility

Finding efficient locations for new distribution centers includes considering proximity to customers, transportation costs, land availability, and future demand. Additionally, retailers must be flexible in their distribution center operations. Transitioning to alternative fulfillment options like micro-fulfillment centers or considering the closure of existing centers necessitates analyzing impacts on delivery times, costs, and customer satisfaction.

Navigating Regulatory Landscapes and Optimizing City Deliveries

Retailers must adapt logistics flows to navigate city regulations like access bans. This might involve strategically located distribution centers on city outskirts and utilizing sustainable, smaller vehicles for final-mile deliveries. Taking this approach not only ensures compliance with environmental regulations such as LEZs but also minimizes environmental impact.

Enhancing Driver Retention

Inefficiently designed networks contribute to driver fatigue, wasted time, and longer delivery distances, worsening the global driver shortage. Optimizing networks with shorter distances, strategically placed distribution centers, and improved route planning can improve driver well-being and reduce turnover rates.

Optimizing Inventory Distribution

Efficiently distributing inventory across the network is crucial. This involves using data analytics to predict demand and placing inventory closer to areas with high demand, minimizing transportation costs and ensuring faster deliveries.

The Flow of Goods:
Managing Logistics in Retail

Efficiently managing the flow of goods is essential for maintaining a streamlined retail operation.

Inbound Logistics

The first step of the distribution puzzle is the movement of goods from manufacturers or suppliers to distribution centers. Efficient transportation and inventory management are crucial. Challenges include limited visibility into transportation costs and potential inefficiencies in route planning. Additionally, the lack of real-time data can make it difficult to anticipate and prevent stockouts at distribution centers, potentially delaying order fulfillment.

Outbound Logistics

Outbound logistics encompasses the movement of goods from distribution centers to the final destination. This includes:

✓ **Retail Stores**
Bulk deliveries replenish store inventory for in-store purchases.

✓ **Consumers at Home**
Online orders are delivered directly to homes, bypassing retail stores. This facilitates a convenient home delivery experience.

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Data Visibility and Exception Handling

Real-time data on driver locations, traffic conditions, and potential disruptions is essential for proactive communication, rerouting drivers, and managing customer expectations for timely deliveries.

Optimizing Delivery Fleets

Choosing the right vehicle mix is crucial. Traditional trucks might be inefficient for urban deliveries. EVs or cargo bikes might be better suited for urban areas, optimizing efficiency.
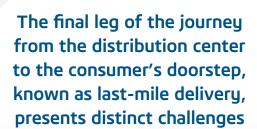
Sustainable Delivery Practices

Traditional home delivery methods often rely on fossil fuel vehicles, contributing to traffic congestion and emissions. Exploring alternatives like EVs or micro-fulfillment centers can minimize environmental impact.

Balancing Cost and Speed

Consumers demand faster home delivery times, but retailers must ensure cost-effective fulfillment through route optimization and economies of scale. Individualized deliveries can make last-mile delivery more expensive compared to bulk deliveries.

Compliance with LEZs and Noise Regulations

Ensuring the right vehicle is used at the right time and location is critical. Large trucks may be restricted in LEZs and can disturb neighborhoods if operating at night.

The final leg of the journey from the distribution center to the consumer's doorstep, known as last-mile delivery, presents distinct challenges

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Fragmented Systems: A Barrier to Efficiency

Despite the strategies outlined, many retailers still struggle with fragmented or siloed systems. This impacts their ability to effectively manage the complexities of modern distribution networks. Separate systems for distribution center or warehouse management, transportation logistics, and last-mile delivery often lead to inefficiencies, redundant processes, and missed optimization opportunities. These fragmented approaches not only increase operational costs but also limit agility in responding to dynamic market demands and regulatory changes.

Unlock Compelling Capabilities with DELMIA's End-to-End Logistics Solution

DELMIA Logistics Planner empowers retailers to overcome siloed systems with a comprehensive suite of capabilities that seamlessly integrate with existing infrastructure. This provides a single source of truth for your entire logistics operation and enables data-driven optimization across every stage.

Optimizing the Entire Network

Virtual Twin Technology

Establish a virtual twin to mirror and capture the intricate complexities of transportation operations. Test new strategies and optimize your network design before real-world implementation. Simulate various scenarios, such as distribution center layouts, traffic patterns in urban areas, or potential impacts of workforce changes. This allows you to identify improvement opportunities and minimize risk.

Seamless Integration & Unified Platform

Gain an end-to-end view of your logistics network with real-time data at your fingertips. DELMIA Logistics Planner seamlessly integrates with existing systems like Warehouse Management Systems (WMS) and Transportation Management Systems (TMS), creating a unified platform for informed decision-making to optimize efficiency, reduce costs, and meet customer demands.

Cost & Network Optimization

DELMIA Logistics Planner intelligent route planning goes beyond distance. It considers factors like fuel efficiency, traffic patterns, and minimizing empty miles to optimize your network. Additionally, DELMIA Logistics Planner accommodates your evolving fleet by optimizing routes for EVs, bio-diesel trucks, and any combination within your network.

Enhancing Warehouse & Fleet Management

Enhanced Fleet Management & Dynamic Capabilities

Maximize fleet utilization for any vehicle type, including electric, bio-diesel, and more. Real-time data and dynamic route planning keep deliveries efficient by adapting to traffic disruptions and optimizing driver workloads.

Enhanced Distribution Center Management

Optimized picking routes, real-time inventory visibility, and improved space utilization contribute to faster throughput, reduced costs, and fewer stockouts.

Revolutionizing Home Delivery

Prioritize Sustainable Deliveries with EVs

Route optimization and data integration empower you to prioritize deliveries requiring temperature control for EVs equipped with refrigeration units. This data-driven strategy reduces emissions and noise pollution in urban environments. It also aligns with the growing demand for sustainable practices and ensures the cold chain integrity of frozen, chilled, and ambient temperature products.

Dynamic Route Re-planning

Adapt to real-time disruptions for efficient deliveries under changing conditions, enabling drivers to navigate unexpected situations confidently and reduce wait times in traffic.

Dynamic Load Planning

Maximize vehicle space utilization, minimizing empty miles and optimizing driver schedules with fewer stops.

Meeting Evolving Customer Demands

Delivery & Inventory Management Integration
Offer flexible delivery windows with real-time inventory visibility through WMS or distribution network integration.

Multi-Stop Route Optimization
Design efficient delivery routes considering diverse order profiles and sustainability in dense urban environments, including functionalities for consolidated deliveries and route optimization to minimize empty miles.

Advanced Data Integration & Collaboration

Advanced Data Integration
Integrate DELMIA Logistics Planner with Order Management Systems (OMS) for better planning and proactive customer communication.

Real-time Visibility & Telematics Integration
Gain real-time vehicle status and location information for dynamic route optimization, improving driver efficiency and safety.

Workforce Planning for a Sustainable Future

DELMIA optimizes workloads and fosters a predictable work-life balance, attracting and retaining talent, which reduces turnover rates, training costs, and ensures a more reliable workforce.

DELMIA Logistics Planner Impact:
Unleashing the Power of Optimized Logistics

Profitable & Sustainable Deliveries

Measurable Cost Reduction
Intelligent route planning and network analysis minimize empty miles and fuel consumption, leading to significant cost savings.

Sustainable Business Practices
DELMIA Logistics Planner's data-driven approach extends to optimizing loading activities, minimizing bottlenecks, and maximizing dock space utilization. This, combined with route optimization that considers fuel efficiency, contributes to a more sustainable logistics network.

Maintaining Store Supply & Urban Efficiency

Efficient Store Replenishment

DELMIA Logistics Planner optimizes deliveries for various store sizes and locations, ensuring timely inventory replenishment for both large distribution centers and smaller urban stores.

Urban Delivery Expertise

Tackle urban complexities with features like route optimization for LEZs, real-time traffic considerations, and micro-depot planning for efficient deliveries within city centers. By empowering drivers with optimized routes and real-time traffic information, DELMIA Logistics Planner leverages their expertise to navigate urban challenges more effectively.

Enhancing the Home Delivery Experience

Dynamic Route Optimization

Leverage real-time data and multi-stop specialist vehicles, such as refrigerated vans with designated compartments, to create efficient delivery routes. This ensures on-time deliveries while minimizing wasted time and empty miles, regardless of fulfillment options or unexpected delays.

Optimized Grocery Deliveries

Traditional routes struggle with the complexities of grocery deliveries. DELMIA Logistics Planner tackles this with specialist vehicles and Multi-Temperature Trailers (MTTs). These solutions consolidate frozen, chilled, and ambient products into a single vehicle, significantly reducing empty miles and the number of trucks needed. This translates to improved efficiency, lower costs, and timely deliveries of fresh groceries that meet specific temperature requirements.

Improved Customer Communication

Leverage real-time tracking data to proactively communicate with consumers about their deliveries. This fosters transparency, builds trust, and allows them to plan their day accordingly.

Improved Driver Retention

Optimized routes and workloads create a happier and more productive driver workforce.

The Real-Life Value of DELMIA Logistics Planner:
Delivering Measurable Results

Customer story 1

A European retail giant, struggling with a complex supply chain and siloed planning processes, sought a solution to improve delivery efficiency, reduce costs, and achieve sustainability goals.

Challenges

Fragmented Planning
Separate management of international inbound, local inbound, and outbound logistics led to inefficiencies.

Limited Tools
Spreadsheets hindered data sharing, analysis, and consolidated planning.

Outbound Inefficiencies
Existing solutions couldn't handle complex truck configurations and lacked integrated planning.

Solution

DELMIA Logistics Planner provided a comprehensive solution:

Unified Planning
Combined inbound/outbound planning for resource optimization and cost reduction.

Scenario Planning
Explored various scenarios for proactive plan adjustments.

Enhanced Flexibility
Accommodated diverse transportation modes, assortment, and storage needs.

Collaboration & Visibility
Real-time data visualization and a multi-user system facilitated informed decision-making.

Multi-Level Planning
Integrated tactical and operational planning for accurate forecasts and optimized execution.

Scalable Optimization
Efficiently handled large volumes (up to thousands of inbound flows over multiple weeks) with scalability for future growth.

Results

Cost Reduction
20% lower inbound logistics costs, **7%** lower outbound costs, and **12%** total cost reduction.

Logistics Efficiency
Optimized flows improved efficiency and achieved a **5%** service level improvement.

Full Visibility
Single system provided complete transparency, enabling data-driven adjustments for optimal outcomes.

Planning Efficiency
Reduced planning time and effort through streamlined information access.

Fleet Optimization
Shorter trips, minimized empty miles, and CO_2-based planning led to cost savings and environmental benefits.

Customer
story 2

A leading retailer faced increasing pressure to deliver goods faster and more efficiently across their entire supply chain, from suppliers to customers.

Challenges

Rising Customer Demands
Increasing customer expectations for faster and more convenient deliveries.

Balancing Cost & Service
The need to minimize costs while maintaining high service levels.

Solution

Integrated Planning Environment
The retailer partnered with DELMIA to implement a comprehensive logistics solution that created a single, integrated planning environment.

Real-Time Visibility
This solution provided real-time visibility across the entire fleet and existing business systems, offering a holistic view of the supply chain.

Synchronized Planning & Execution
The integrated view facilitated synchronized planning and execution across primary and secondary distribution networks, optimizing resource allocation and delivery schedules.

Results

Optimized Truck Utilization
The system ensured trucks were in the right place at the right time, maximizing capacity and minimizing downtime.

Reduced Transportation Costs
Fewer miles were driven through optimized routes, leading to lower fuel consumption, emissions, and wear and tear on vehicles.

Improved Shunter & Driver Efficiency
Automated shunter and driver allocation minimized idle time and improved overall operational performance.

Enhanced Customer Service
Faster and more efficient deliveries led to higher customer satisfaction.

Efficiency Redefined:
Sustainable Deliveries, Exceptional Results

Fast deliveries alone are no longer enough in retail. DELMIA Logistics Planner empowers you to redefine efficiency by providing the tools you need to:

Unlock Data-Driven Decisions Tailored to Your Complexity
Gain real-time insights to optimize routes, maximize resource allocation, and achieve significant cost savings, all while catering to the unique complexities of your retail network.

Minimize Your Carbon Footprint and Optimize Delivery Costs
Implement sustainable fleet management strategies to reduce environmental impact while optimizing delivery routes for efficiency and cost savings.

Deliver on Your Promises
Prioritize accuracy and speed while keeping environmental impact in mind, fostering trust and loyalty amongst your customers and workforce.

Discover how you can stay ahead of the curve and create a future of efficiency for retail logistics. Contact us today to explore how we can help you achieve sustainable and exceptional delivery results.

Our **3D**EXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3D**EXPERIENCE Company, is a catalyst for human progress. We provide business and people with collaborative virtual environments to imagine sustainable innovations. By creating virtual twin experiences of the real world with our **3D**EXPERIENCE platform and applications, our customers can redefine the creation, production and life-cycle-management processes of their offer and thus have a meaningful impact to make the world more sustainable. The beauty of the Experience Economy is that it is a human-centered economy for the benefit of all –consumers, patients and citizens.

Dassault Systèmes brings value to more than 300,000 customers of all sizes, in all industries, in more than 150 countries. For more information, visit **www.3ds.com**.

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