



Transportation Management System in The U.S.

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Introduction

Explore the intricacies of the US Transportation Management Systems (TMS) market in this comprehensive report. Delve into critical aspects such as industry targeting, use cases, and market leaders' share. Real-world impact surfaces through customer case studies, spotlighting efficiency gains and cost reductions. Navigate market dynamics, including regulatory changes and emerging trends, for a holistic view. The breakdown of shipment values by transportation mode provides nuanced insights into the US transportation landscape. With practical takeaways, this report serves as a valuable resource for industry professionals and business leaders navigating the transformative realm of TMS.

Overview of the U.S. Transportation Management Systems Market

The U.S. transportation management systems (TMS) market has grown substantially recently. According to industry reports, the market size for TMS in 2022 reached **USD 3.05 billion**, and it is projected to experience a robust compound annual growth rate (CAGR) of 11.32% from 2023 to 2032. By 2032, the market is estimated to reach an impressive USD 8.91 billion.

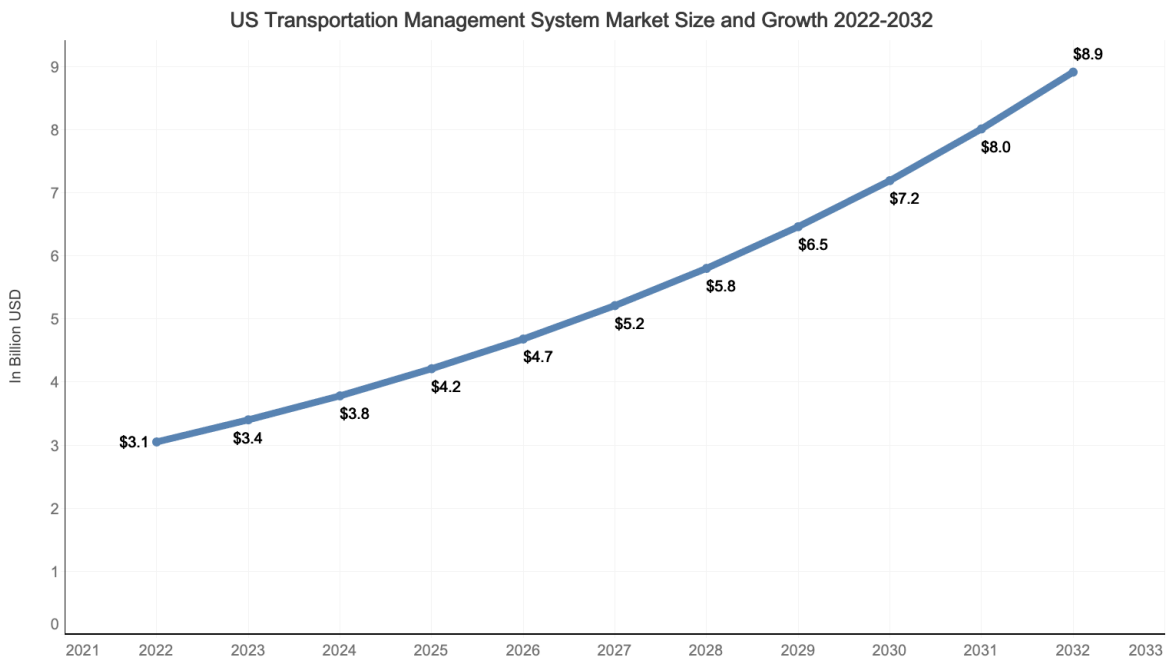


Figure 1

These figures underscore TMS solutions' increasing significance and adoption in the United States, reflecting a growing demand for efficient and technology-driven transportation management.

Leading Transport Management Systems Providers

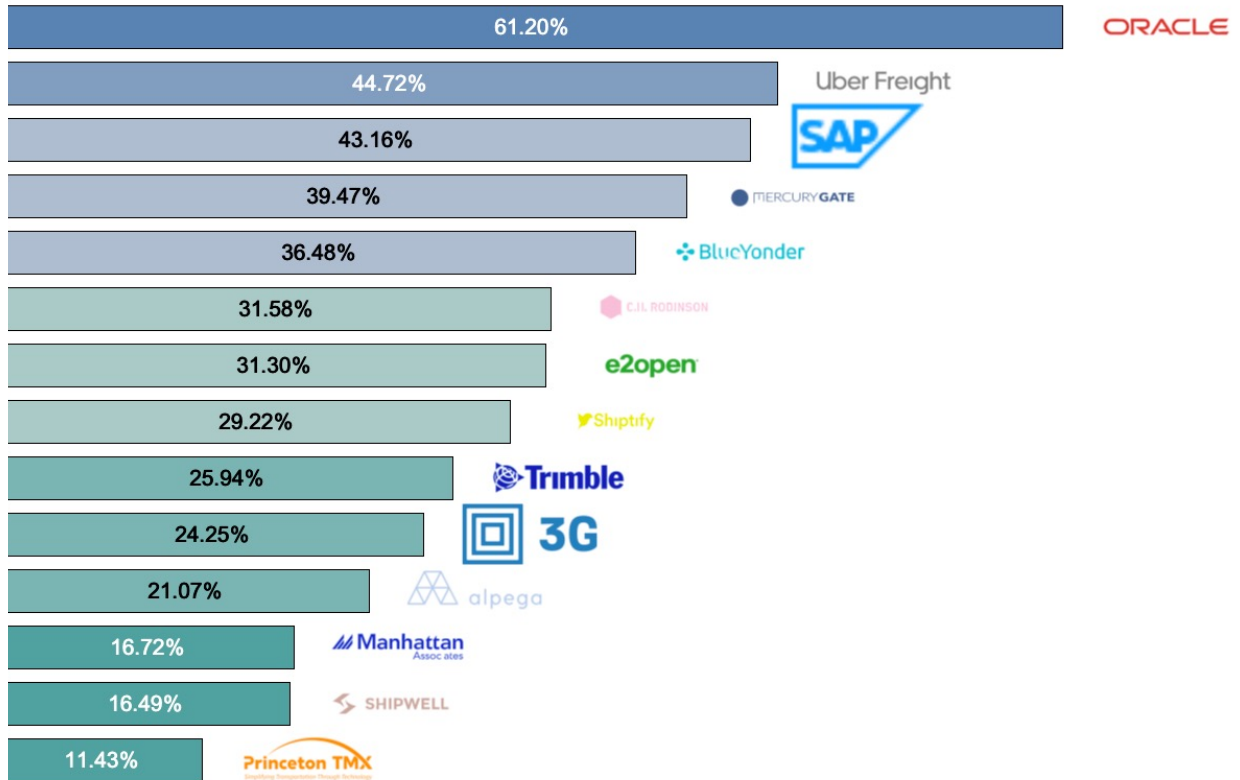


Figure 2

A weighted scoring system was utilised to evaluate the performance of these key players, considering both the rating scores and the number of ratings.

Several key players contribute significantly to the TMS market in this dynamic landscape. Notable companies include Oracle, SAP, Uber, MercuryGate, Blue Yonder, C.H. Robinson, Shiptify, Trimble (Kuebix), 3G, Alpega Group, e2open, Manhattan Associates, Shipwell, e2open (BluJay), and Princeton TMX. These companies' market share and positioning are essential factors influencing the competitive dynamics of the TMS market.

Notably, **Oracle Transportation Management (OTM)** emerged as a leading player with a substantial weighted score of 61%, followed closely by SAP Transportation Management and Uber Freight Transportation Management System.

Standard Features in Transport Management Systems

The evolution of TMS in the U.S. market has led to establishing certain features and functionalities that are now considered industry standards. These include:



Order Management:

Efficient creation, management, and tracking of transportation orders, encompassing order details, pickup and delivery locations, and scheduling.



Carrier Selection:

Streamlined processes for selecting carriers, offering visibility into available options, cost considerations, and expected transit times.



Route Optimization:

Determination of the most efficient routes for every shipment using AI, considering variables such as distance, traffic conditions, delivery deadlines, and load constraints.



Load Consolidation:

Optimization of load planning by consolidating multiple shipments into cost-effective and space-efficient loads, resulting in savings on transportation costs



Freight Tracking:

Real-time tracking of shipments, providing visibility into movement, estimated arrival times, and potential delays.



Documenting/Compliance

Built-in assistance for generating transportation-related documentation, ensuring compliance with regulations and creating bills of lading, shipping labels, customs documents, etc.



Reporting and Analytics:

Comprehensive reporting and analytics capabilities enable insights into transportation costs, carrier performance, delivery processes, and overall supply chain efficiency.

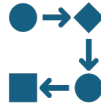
A set of **standard features** has crystallised in Transportation Management Systems (TMS), reflecting the industry's commitment to efficiency, cost-effectiveness, and compliance.

Order Management is a foundational element, empowering businesses to create, manage, and track transportation orders seamlessly. This encompasses intricate details, including pickup and delivery locations, scheduling nuances, and other critical components.

Another pivotal function is **Carrier Selection**, streamlining the complex process of choosing carriers. This feature gives users visibility into available carrier options, detailed cost considerations, and expected transit times, ensuring optimal decision-making.

Route Optimization emerges as a critical player, leveraging AI and machine learning to determine the most efficient routes for each shipment. Variables such as distance, traffic conditions, delivery deadlines, and load constraints are factored in, maximising overall efficiency.

The capability of **Load Consolidation** proves invaluable for businesses seeking to optimise load planning. Organisations can realise substantial savings on transportation costs by consolidating multiple shipments into **cost-effective** and **space-efficient** loads.



Integration Capabilities:

Seamless integration with other systems like ERP, WMS, and EDI for data exchange and collaborative workflows.

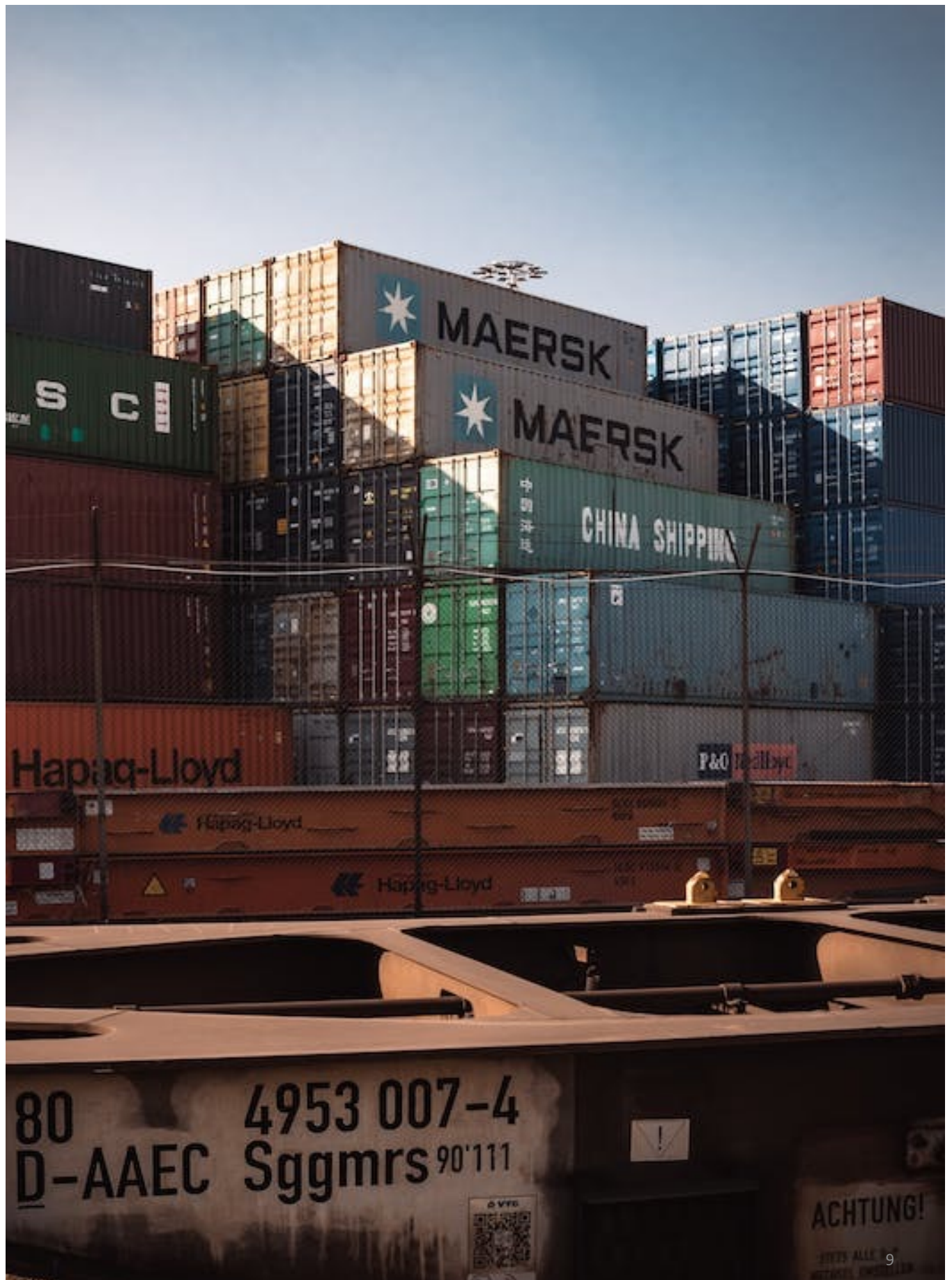
Freight Tracking ensures real-time shipment visibility, offering insights into movement, estimated arrival times, and potential delays.

An integral part of TMS is **Documentation and Compliance**, featuring a built-in assistant for generating crucial transportation-related documents. This includes bills of lading, shipping labels, customs documentation, and more, ensuring adherence to regulations.

The **Reporting and Analytics** capability enables a comprehensive understanding of transportation costs, carrier performance, delivery processes, and overall supply chain efficiency.

Lastly, the flexibility of Integration Capabilities allows TMS to seamlessly integrate with other essential systems like ERP, WMS, and EDI. This integration ensures smooth data exchange and collaborative workflows, enriching the overall efficacy of transportation management.

Adopting these standard features reflects the industry's emphasis on **efficiency**, **cost-effectiveness**, and **compliance** within transportation management.



Market Dynamics in the Transportation Management Systems Industry



Several regulatory changes and technological advancements have significantly influenced the TMS market, shaping its trajectory in recent years.

The adoption of [Cloud-based Software-as-a-Service \(SaaS\) Solutions](#) has emerged as a pivotal driver. This shift towards cloud-based solutions enhances accessibility, scalability, and cost-effectiveness for businesses utilising TMS.

Additionally, the industry has witnessed notable trends such as [Mergers & Acquisitions](#) involving top-tier TMS players joining forces with startup solutions. The strengthening of bilateral trade relations between countries and the overall growth in global trade has further fueled the demand for advanced TMS solutions.

Technological advancements in the broader transportation and logistics sector, accompanied by the exponential growth of the [E-commerce industry](#), have collectively propelled the need to replace and update conventional Transportation Management Systems.

In the realm of TMS, attention is gravitating towards new technologies and innovative business models.

[Big Data and Analytics](#) play a pivotal role, offering insightful data-driven decision-making capabilities for businesses involved in transportation management.

[Integrating Artificial Intelligence & Machine Learning](#) enhances predictive analytics and optimisation, driving route planning and load management efficiency.

[Blockchain technology](#) is gaining prominence for its potential to ensure transparent and secure transactions within the supply chain.

Moreover, the advent of the [Internet of Things \(IoT\)](#) and the rollout of [5G networks](#) further revolutionise TMS capabilities, enabling real-time tracking, monitoring, and communication.



Challenges



- Data security
- Data inaccuracies
- Cybersecurity
- High Capital Investments

Key Features



- Logistics Management
- Scheduling
- Inventory management
- Live reporting

Resilience



- Online Shopping
- E-commerce
- Consumer-Packaged Goods
- Food and Beverage

High Returns



- Freight Savings
- Route Optimization
- Reduced Risk
- Cost Reduction

While the TMS market has demonstrated resilience, specific challenges and restraints have shaped consensus views on its direction. The slow adoption of TMS solutions is attributed to [high capital investments](#), hindering widespread implementation. A notable challenge lies in the Lack of Awareness among end-users regarding the substantial benefits TMS offers.

On the other hand, [data security concerns](#) and data sets' inaccuracies act as restraints, urging the industry to prioritise robust cybersecurity measures and data accuracy.

Transportation Management Systems find primary utility among various industrial professionals engaged in shipping operations. Logistics managers leverage TMS software to identify transportation needs, ensuring efficient and cost-effective delivery methods. Dispatchers are crucial in [scheduling shipping operations](#), aiming to reduce transit times.

Drivers utilise TMS features, often delivered through mobile apps, to understand shipment details and report incidents impacting their work. Warehouse and inventory managers employ TMS software to plan [inventory movements](#), facilitating timely loading and shipping as scheduled by transportation dispatchers.

Despite a slowdown in the economy during the great lockdown, the TMS market showcased [resilience](#) and growth in 2020. Notably, the surge in E-commerce became a driving force, with the COVID-19 pandemic catapulting online shopping to unprecedented levels.

The growth in online retailing, especially in industries like [Consumer-Packaged Goods \(CPG\)](#) and [food & beverage](#), has contributed to an increased need for TMS applications. This trend will persist as consumers embrace online shopping for ease and convenience.

Historically, TMS has proven to offer a strong return on investment. The primary motivation behind TMS adoption is [freight savings](#), achieved through simulation and network design, load consolidation, lower-cost mode selections, and multi-stop route optimisation. As freight costs continue to rise, companies increasingly rely on their TMS to mitigate these challenges.

The decision to invest in a TMS is often driven by the desire to [improve transportation performance](#), with both TMS and Managed Transportation Services (MTS) providers demonstrating comparable performance in achieving significant reductions in freight spend. The inherent risk associated with TMS investments is lower, with a higher proportion of respondents achieving positive results than alternatives.

Truck Transportation's Pivotal Role in Shaping the USD 12.16 Trillion Dynamics of the U.S. Industry

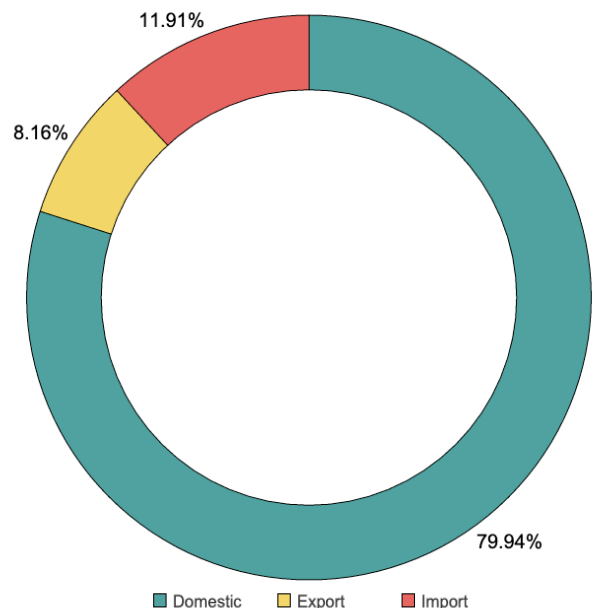
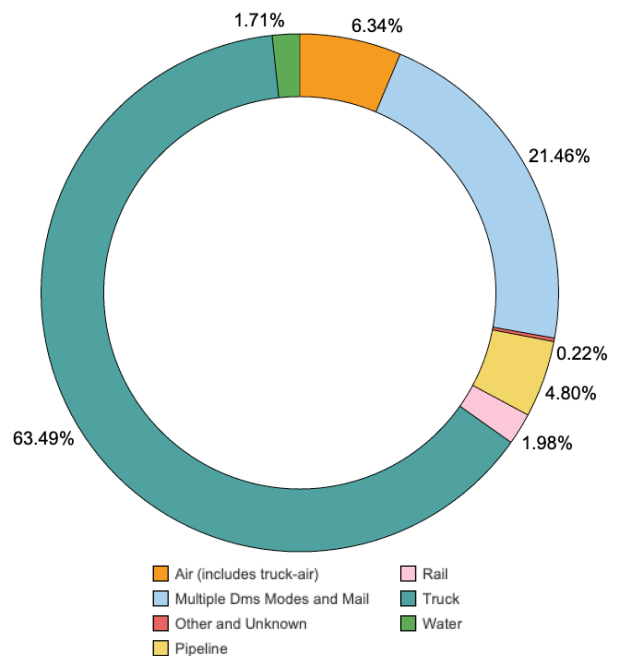
The breakdown of shipment values by transportation mode and trade type provides a nuanced insight into the multifaceted dynamics of the U.S. transportation industry. Within the domestic trade landscape, [air transportation](#), including truck-air connections, emerges as a pivotal force, boasting a value of [USD 1.29 trillion](#).

This underscores its crucial role in swiftly moving [high-value goods](#) within the country. The category of Multiple DMS Modes and Mail dominates with a value of USD 4.36 trillion, reflecting the versatility of various transportation modes and postal services catering to diverse industry needs. The significance of pipeline transportation is evident, with a value of USD 883.81 billion, particularly in the energy sector.

Meanwhile, rail transportation maintains its importance with a value of USD 233.46 billion, emphasising its efficiency in domestic trade.

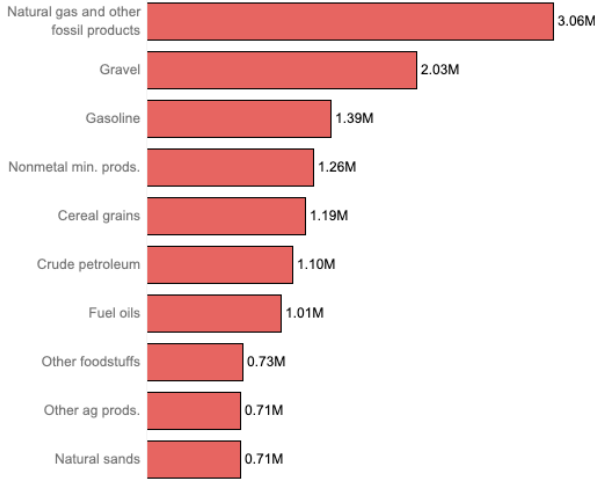
[Truck transportation](#) dominates the landscape with a staggering value of [USD 12.16 trillion](#), highlighting its unrivalled versatility and widespread use for the movement of goods within the U.S.

Water transportation plays a pivotal role [internationally](#), with USD 182.41 billion in domestic trade, USD 59.47 billion, and USD 105.79 billion in export and import trade, respectively. These figures collectively showcase the intricate web of logistics and trade relationships, demonstrating the adaptability and resilience of the industry in navigating the complexities of a global economy.



Top Commodities by Weight

Thousands of Tons



In the U.S. transportation industry, the movement of essential commodities emerges as a defining force, collectively amounting to a staggering 13.18 million tons. Each commodity plays a pivotal role in steering various sectors of the economy. [Cereal Grains](#), constituting 1.19 million tons, are a foundational cornerstone for diverse food and beverage industries.

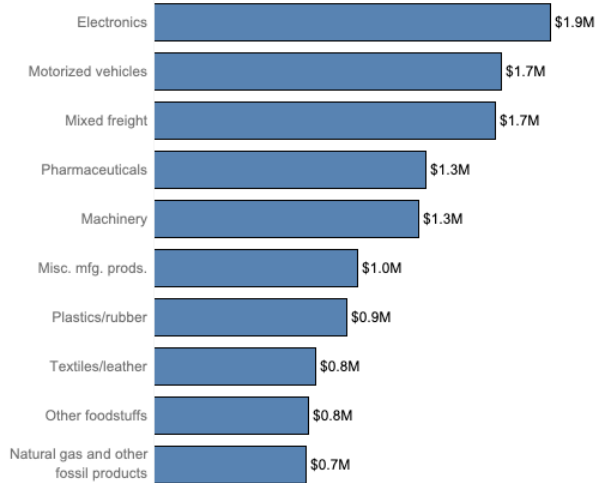
The indispensable role of Crude Petroleum, with 1.10 million tons, extends beyond energy to various manufacturing processes. [Fuel Oils](#), totaling 1.01 million tons, become crucial for energy production and industrial applications. Notably, [Gasoline](#) takes center stage, boasting a substantial movement of 1.39 million tons, underscoring its pivotal role in propelling the transportation sector. With an impressive movement of 2.03 million tons, Gravel proves indispensable for construction and infrastructure development.

The monumental movement of 3.06 million tons of [Natural Gas and Other Fossil Products](#) signifies the nation's dependence on diverse energy resources. Additionally, contributions from Natural Sands, Nonmetallic Mineral Products, Other Agricultural Products, and Other Foodstuffs, ranging from 705 thousand to 1.26 million tons, contribute significantly across various industries.

These figures vividly depict the transportation industry's sheer scale and complexity as it navigates the multifaceted needs of a thriving economy, transporting these vital commodities with efficiency and precision.

Top Commodities by Value

Millions of 2017 Dollars



Similarly, the intrinsic value of essential commodities emerges with a commanding presence, collectively wielding an impactful total of \$11.25 million (2017 \$). Each commodity assumes a pivotal role in shaping distinct facets of economic activity. [Electronics](#), commanding a substantial value of \$1.94 million, underscores the indispensable role of cutting-edge technology in propelling economic growth and innovation.

Following closely, the [Machinery](#) sector, contributing \$1.29 million, highlights the significance of industrial equipment across diverse sectors. The category of Miscellaneous Manufactured Products, valued at \$992 thousand, encapsulates various manufacturing processes crucial for economic diversification. [Mixed Freight](#), with a value of \$1.67 million, intricately weaves the narrative of goods traversing the nation, meeting the diverse needs of consumers.

Emphasizing the indispensable role of automobiles, the [Motorized Vehicles](#) category boasts a value of \$1.69 million. Contributions from the energy sector are discerned through [Natural Gas](#) and Other Fossil Products, totaling \$739 thousand, signifying the nation's reliance on diverse energy resources. Essential goods such as Other [Foodstuffs](#), [Pharmaceuticals](#), Plastics/Rubber, and Textiles/Leather contribute substantially, ranging from \$751 thousand to \$1.32 million.

Collectively, these values illuminate the economic prowess of the U.S., where the efficient movement of high-value commodities fuels innovation, commerce, and overall prosperity.



Revolutionizing TMS: Key Takeaways from Industry Case Studies

Customer case studies within high-demand industries provide valuable insights into the real-world applications and benefits of transportation management systems (TMS). These case studies shed light on the challenges companies face in managing their transportation operations and how implementing a TMS solution helped overcome them, leading to tangible efficiency and cost savings improvements.

In Case Study 1, we examine the implementation of Manhattan TMS Solution by Giant Eagle, a leading supermarket chain. The challenge faced by Giant Eagle was fragmentation in transportation technologies, with three disconnected systems leading to disarray in transportation strategy. This resulted in varying delivery times for over 460 stores, decentralized routing, ongoing delivery pressures, inefficiency, and wasted miles. To address these challenges, Giant Eagle consolidated their technology platforms into a single solution - Manhattan TMS.

By optimizing inbound and outbound orders, the company was able to maximize the cube, minimize empty miles, and raise service levels with a single application. The implementation of Manhattan TMS helped Giant Eagle achieve significant improvements, including an 8% reduction in empty miles, a 7.7% decrease in total miles, a 7% improvement in the cube, and better load utilization with backhauls, leading to lower inbound costs.

In Case Study 2, we explore how Celestica, a global electronics manufacturer, deployed the MercuryGate TMS Solution to reduce international transportation costs and improve visibility across its end-to-end supply chain. Celestica faced the challenge of lowering international transportation costs while improving visibility into its supply chain.

The solution came in MercuryGate TMS, which provided Celestica with the visibility, flexibility, and automation required to manage its global transportation requirements. MercuryGate's multimodal optimization capabilities enabled Celestica to model scenarios to determine the optimal freight network setups. As a result, Celestica gained better visibility into its freight in transit and supplier inventory, reducing expedited orders and improving transportation costs.

These case studies exemplify the transformative impact of TMS solutions in addressing complex transportation challenges, improving operational efficiency, and driving cost savings for companies operating in high-demand industries. By leveraging TMS solutions tailored to their specific needs, companies can optimize their transportation operations, enhance visibility across the supply chain, and ultimately improve their bottom line.



Efficiency Through Integration



Cost Reduction and Global Visibility



Scenario Modeling for Strategic Decision-Making



Optimized Delivery Schedules and Load Utilization



Enhanced Visibility and Reduced Expedited Orders