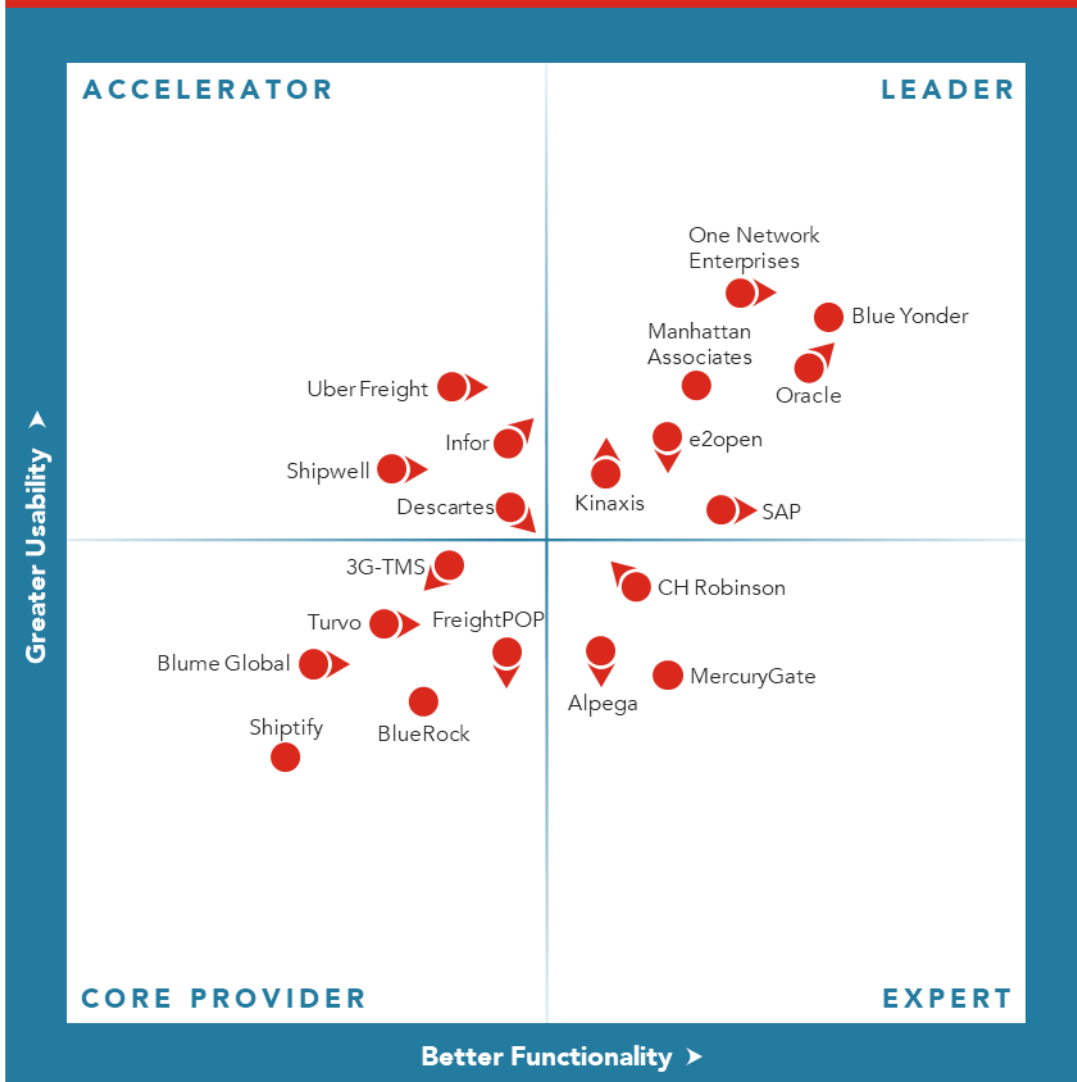**NUCLEUS RESEARCH**

TMS TECHNOLOGY VALUE MATRIX 2024

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THE BOTTOM LINE

The transportation management market in 2024 is characterized by the introduction of generative AI capabilities, acquisitions, and partnerships to round out functionality gaps and a shift towards comprehensive supply chain management suites over point solutions. This is driven by the demand for increased visibility and operational efficiency to control costs. As a result, vendors have moved beyond traditional TMS functionalities, shifting focus towards autonomous logistics operations, comprehensive SCM suites, and capabilities that address real-time disruptions and sustainability requirements. This year's matrix leaders include Blue Yonder, e2open, Kinaxis, One Network Enterprises Oracle, Manhattan Associates, and SAP.

Transportation Management
Value Matrix | June 2024
NUCLEUS RESEARCH

ACCELERATOR — LEADER

Greater Usability ▶
Better Functionality ▶

- One Network Enterprises
- Blue Yonder
- Manhattan Associates
- Oracle
- Uber Freight
- Infor
- e2open
- Shipwell
- Kinaxis
- Descartes
- SAP
- 3G-TMS
- CH Robinson
- Turvo
- FreightPOP
- Blume Global
- MercuryGate
- Shiptify
- BlueRock
- Alpega

CORE PROVIDER — EXPERT

OVERVIEW

At their core, TMS platforms provide planning and optimization tools to streamline transportation operations. These tools enable businesses to plan routes and loads better, choose the most suitable carriers cost-effectively, and schedule shipments more efficiently. TMS capabilities also involve facilitating carrier rate acceptance, dispatching carriers, and ensuring that drivers have access to the necessary instructions and tools to complete their

assignments successfully. Settlement tools within TMS platforms facilitate freight audit and payment processes, ensuring that all charges are accurate and that carriers are paid promptly. This streamlined approach reduces the administrative burden and minimizes the risk of payment disputes or delays. Analytics capabilities are becoming increasingly important in the TMS space. By analyzing vast amounts of transportation data, organizations can gain insights into their transportation patterns, identify areas for improvement, and make data-driven decisions.

Building upon last year's TMS trends of increased partnerships with real-time visibility platforms and improved ESG reporting with the rise of increased demand in transportation visibility in the B2B and B2C markets and sustainability requirements. Analysts found that in 2024, the industry continues to face persistent challenges in cost controls, with port and route disruptions, customer returns, and increasing truck driver shortages. This has pushed software vendors towards more innovative solutions that allow organizations to do more with less and be more agile when facing logistics disruptions. To combat these growing trends, software vendors have improved logistics functionality through acquisitions and partnerships to round out functionality gaps, introduce control tower functionality to their logistics suite, enhance geofencing functionality, and deploy generative AI capabilities.

Generative AI capabilities offered by vendors now allow users to ask questions and generate answers related to logistics operations, such as why a delay occurred and the impact, quote generations, and appointment scheduling. These generative AI capabilities can also show map and model visualizations, analytics, and corrective action capabilities to bottlenecks such as route disruptions. Vendors have improved capabilities for geofencing outside of yard management, including at maritime checkpoints, allowing customers to monitor shipments when they enter and leave zones. Supply chain vendors have partnered with shipping management software vendor Shipium, which specializes in parcel and last-mile deliveries with an out-of-the-box carrier network, fulfillment network, and delivery promise feature. These partnerships aim to help customers reduce transportation costs, increase carrier deployment speed, and improve decision-making. Organizations have rolled out or acquired solutions for returns management and reverse logistics functionality. With reverse logistics and returns management capabilities, customers can improve how they handle the increasing volume of returns more efficiently. These solutions streamline first-mile logistics for consumers by offering parcel pick-up and drop-off locations. From there, these returns can be processed for last-mile delivery and returned to the facility for restocking. This is a critical capability in the e-commerce-driven market where customer returns are frequent and must be processed quickly to maintain customer satisfaction and operational efficiency.

Another notable market trend in 2024 is the increasing preference among organizations to select vendors that offer a complete suite of supply chain management (SCM) applications that provide control tower, warehouse management systems (WMS), supply chain planning (SCP), and order management rather than specific best-of-breed point solutions.

Specifically, outside of the major control tower players, other software vendors have begun introducing control or command center functionality, allowing customers to continuously analyze the logistics environment and identify potential risks, opportunities, and issues with machine learning that provides recommendations for optimization, automates resolutions to enhance operational efficiency and reduce costs. The desire for increased supply chain visibility and more control and actionability for logistics operations alongside a simplified IT ecosystem drives this approach. Overall, organizations using advanced TMS solutions will be better positioned as the logistics landscape evolves to navigate route and port disruptions, capitalize on cost-saving opportunities, and achieve long-term success in their respective market.

In this Value Matrix, vendors are positioned according to the relative usability and functionality of their respective solutions, as well as the value that customers realized from each product's capabilities (Nucleus Research X222 – Understanding the Value Matrix – December 2023) and presented as a snapshot of the current market rather than an empirical ranking of vendors. The arrows indicate perceived momentum in the indicated direction with respect to usability and functionality. Positioning and momentum are informed primarily by conversations with end-users, along with the most recently released capabilities/features and areas of vendor investment.

LEADERS

Leaders in the 2024 TMS Technology Value Matrix include Blue Yonder, e2open, One Network Enterprises, Oracle, Manhattan Associates, and SAP.

BLUE YONDER

Blue Yonder is ranked a leader in the 2024 Transportation Management Systems Technology Value Matrix. Blue Yonder supports tier-one companies in the automotive, logistics service provider (LSP), consumer products, food and beverage, pharmaceutical, manufacturing, retail, and transportation sectors. Blue Yonder's Transportation Management (TMS) is a part of a broader planning, execution, and commerce end-to-end supply chain platform that includes warehouse management (WMS), labor management, supply chain planning, control tower, and order management solutions. The TMS solution helps companies streamline first-to-last mile deliveries by supporting optimization and execution capabilities across standard carrier plans, private and dedicated fleet management, and dynamic intercontinental planning. Retailers, manufacturers, LSPs, and distributors can increase productivity, cut expenses, and minimize driver hours and miles by using Blue Yonder TMS to automate workflow management, split orders, and reschedule asset

movements at the execution level. These benefits are achieved along with anticipating the quantity, kind, and location of future vehicles that will be needed so that businesses can reduce detention and dwell times. Blue Yonder's forecasting and replenishment capabilities help organizations determine and predict carrier resource and fleet forecasted needs in advance, enabling shippers to secure capacity from third-party carriers or increase fleet capacity needs.

Blue Yonder's Transportation Optimization and Planning capabilities can handle detailed transportation network constraints and utilize actual costs for planning. This is useful for large enterprises needing to manage numerous shipments quickly due to its optimization and heuristic techniques that enhance processing speed and result in quality. The solutions also include scenario-based planning and procurement optimization features, using combinatorial bidding to identify cost savings while integrating seamlessly with execution systems like WMS and OMS to enhance visibility and decision-making.

Blue Yonder's transportation modeling functionality generates transportation scenarios that highlight the effects on potential cost savings and enhanced service levels within that network. Using modeled traffic flow and congestion levels at ports, facilities, and in transit, transportation modeling insights assist organizations in reducing impacts on service levels, optimizing fleet utilization, and improving overall routing and travel behavior. The Blue Yonder Platform offers pre-configured adapters for digital carrier marketplaces, real-time visibility partners like project44 and FourKites, and API- and EDI-based multi-modal carrier integrations to track and trace assets throughout the order lifecycle. By providing a single platform for shippers and carriers to communicate, validate POs, and oversee supplier compliance, organizations can expedite order management and supplier collaboration, manage supplier compliance, monitor milestones, assign routing instructions, and generate reports.

From 2022 to 2023, Blue Yonder announced enhancements across its product suite to streamline and optimize supply chain management. For example, improvements in the Load Building Integration to Blue Yonder Supply Chain Planning can support replenishment plans and transportation constraints, improving vehicle load efficiency and order consolidation. Additionally, Fleet Management functionality allows for more flexible order splitting by WMS Operators, and Routing Guides offer improved management of carrier priorities and tariff maintenance. On the technology front, updates to the Transportation Archive Service facilitate more frequent data purging hosted on Snowflake, enhancing the operational database efficiency.

Recent product updates and announcements include:

- Blue Yonder expanded its product suite by acquiring Doddle for returns management in November 2023 and flexis AG for production optimization and last-mile transportation planning and execution in February 2024. flexis AG extends Blue

Yonder's existing transportation management capabilities with localized vehicle routing and scheduling and transportation capacity planning to enhance transportation constraints in the overall planning process.

- In May 2024, Blue Yonder partnered with Shipium, a shipping management vendor, to improve its shipping and fulfillment solutions. This partnership combines Shipium's shipping optimization models with Blue Yonders' inventory and fulfillment technologies, enabling customers to better manage shipping costs and delivery times. The integration aims to help retailers provide more accurate delivery dates and reduce shipping expenses.

- Over the last 12 months, Blue Yonder introduced a SaaS modernized deployment designed to offer a cost-effective and quickly deployable solution for smaller customers with shipment counts of 50,000 or less per month.

- Blue Yonder now leverages AzureSQL to provide dynamic scaling and shared infrastructure, enhancing database deployment options for emerging customers while reducing time to value and deployment costs.

- Blue Yonder has enhanced its capabilities to allow building nested cases on tiers, pallets, and trucks, considering route sequencing and warehouse loading limits, thereby maximizing efficiency for sectors such as food and beverage and consumer packaged goods. This new feature primarily benefits operations focused on driver-load delivery for industries like food and beverage and CPG.

- Blue Yonder now enables ocean carriers to pre-book capacity handling, process booking revisions and in-transit updates, manage changes to carrier booking details and adjust shipments. The company solved the ability to retain capacity commitments while accommodating changes that affect port locations and in-transit updates, providing enhanced real-time visibility.

- Blue Yonder introduced an end-to-end, API-based capability for securing carrier partner rates and managing execution from booking to freight payments, fully integrated into the TMS. This enhancement allows customers to maintain parcel rates directly within the Blue Yonder TMS or utilize external rate data for executing shipments, simplifying integration into optimization and tendering workflows.

- Blue Yonder has improved the editing and management of routing constraints with a new tabular view, simplifying the maintenance of tariff structures. The company provides easier geographical, mode, and equipment type maintenance constraints, facilitating carrier and rate selection across various load compositions.

- Blue Yonder now offers a best-of-breed user experience that enables easy management of pickup, delivery, and transfer tasks, with features like scheduled runs and fleet management visibility.

- Blue Yonder has enabled synchronization with its WMS and OMS by integrating routing and optimization capabilities through an API-driven model.

- The company offers planning tools through a standalone microservice accessible via non-Blue Yonder TMS tools. This service supports truckload and less-than-truckload planning across all regions.

E2OPEN

e2open is a leader in the 2024 TMS Technology Value Matrix. e2open provides enterprise-level support to businesses in the following sectors: manufacturing, oil and gas, chemicals, retail, life sciences, aerospace and defense, automotive, communication, construction, consumer goods, healthcare, and transportation. e2open provides customers access to an enterprise network and integrated supply chain applications, including TMS, SCP, and Control Tower functionality. All forms of transportation, including air, sea, rail, road, and parcel, are supported by e2open's TMS, which integrates functions for scheduling, forecasting, booking, shipping, real-time tracking, freight auditing, and settlement. Modules for data analytics, teamwork tools, and personalized workflows for shippers, logistics suppliers, freight forwarders, and carriers are offered by e2open.

Over 37,000 rail and truck carriers, 80 ocean carriers, 100 air freight carriers, 25,000 freight forwarders, 1,300 intermodal carriers, 5,000 warehouse/reload operators, and 1,000 drayage carriers make up e2open's partner network. Customers can use channels, suppliers, logistics, and the global trade ecosystem to make decisions using internal and external data streams. Users can interact with multimodal carriers to reserve capacity and schedule tenders by lane, class, and day by using Transportation Forecasting with e2open. The AI-driven prescriptive and predictive analytics used by the e2open Global Logistics Orchestration application calculates ETAs and suggests actions like route modifications, inventory adjustments, and expedited shipments. Real-time data on asset utilization is provided by equipment management functionality, which can be used to request drop-off and pick-up changes and lower carbon footprints automatically. Contracts are digitalized by the e2open audit and settlement application, which also allows for automatic submission of payments, tracking of rules agreed upon by the parties, comparison of bills of ladings, and establishment of rate and surcharge variances. With e2open's partnership with Shippeo, a real-time visibility platform, users can look inside trucks or containers to plan and take the best corrective action possible. Users can eliminate data silos by integrating Shippeo's visibility applications into e2open's platform. This promotes efficiency and sustainability throughout the partner ecosystem as businesses produce, transport, and market goods and services.

Over the last few years, e2open has focused on enhancing its supply chain management platform with several significant updates. They launched a feature for ESG impact visibility, allowing organizations to access emissions data to make environmentally and economically informed booking decisions. This tool aids in choosing transportation modes that balance. It

reduces costs and carbon footprint and optimizes the usage of containers and trailers to minimize unnecessary travel distances. The platform also improved its Carrier Services, enabling carriers to interact with the TMS via an end-to-end integrated workflow using APIs. This allows for functions like document management, rate changes, and load handling to be supported directly through APIs instead of just the UI.

Lastly, e2open enhanced its Global Logistics Orchestration application to provide visibility for all goods in transit – regardless of whether shippers manage and execute their freight shipments, if logistics operations are outsourced to a freight forwarder or 3PL or managed by the supplier. E2open connects upstream/downstream inventory and demand data to provide comprehensive insights into potential issues across the supply chain when logistics disruptions alter changes to the plan. Its resolution framework assists operators with identifying corrective actions combined with workflow and collaboration capabilities to orchestrate corrective activities across multiple parties within the end-to-end supply chain using the largest multi-enterprise network of 480,000 connected enterprises.

KINAXIS

Kinaxis is a leader in the 2024 TMS Technology Value Matrix. Kinaxis supports medium- to enterprise-level businesses in the logistics, manufacturing, retail, wholesale distribution, high-tech, and healthcare sectors. Customers can use Kinaxis TMS to optimize and streamline orders across numerous manufacturing sites, distribution centers, sales channels, and all modes, including truck, rail, ocean, air, last mile, and parcel. Kinaxis connects to diverse and global carrier and forwarders networks. Additionally, users can connect their multi-enterprise networks across all parties and systems, such as ERP, WMS, eCommerce, and 3PLs, to provide end-to-end real-time visibility and control across the entire order lifecycle. The standard features of Kinaxis TMS are event management, freight auditing, multi-leg planning, multi-modal rating, on-demand reporting, service rate agreements, and invoicing matching. With real-time alerts and in-app exception management, organizations can guarantee on-time and complete delivery while enabling last-minute order and route modifications and last-mile delivery optimization. Kinaxis provides real-time cost optimization and invoice matching to businesses to control transportation costs and ensure that execution aligns with agreed service levels. Kinaxis also offers a cost-to-serve tool for all transport and logistics expenses, such as handling, detention, warehousing, and customs duties. On top of the standard TMS functionality, Kinaxis also has capabilities that include order management, inventory performance, inventory planning, warehouse capacity, financial control rules, reverse logistics, spare parts management, anomaly detection, and supplier order performance. Logistics teams can adjust and adapt to execute fulfillment with knowledge of the financial, inventory, and transportation constraints thanks to Kinaxis, which offers real-time visibility across the entire order lifecycle and highlights disruptions as they happen. Moreover, Kinaxis provides automated exception management, which can include,

for instance, expedited orders, stock transfers, and alternative supplier selection. Kinaxis supply chain orchestration capabilities can integrate planning and execution with real-time feedback from transportation milestones and activities, helping planners to keep supply and demand in better sync. Customers now begin planning weeks with more accurate lead times and capabilities like transportation load optimization and other functions incorporating logistics constraints into planning.

Over the last few years, Kinaxis expanded its supply chain management offerings by acquiring MPO, a move aimed at integrating end-to-end supply chain operations across multiple business networks. This acquisition enhanced Kinaxis' capabilities by adding order management, transportation management, a logistics control tower, and multi-enterprise visibility to its existing suite of solutions, which includes sales and operations planning (S&OP)/integrated business planning (IBP), supply and demand balancing, and inventory management. The integration facilitates concurrent planning and execution for supply chain orchestration. This development represents Kinaxis's effort to provide a more integrated and seamless approach to managing complex supply chain activities, from business planning to last-mile execution.

Recent product updates and announcements include:

- Kinaxis has improved its configuration management capabilities, enabling users to migrate configurations between various environments. This enhancement aims to streamline the setup and maintenance processes for its supply chain management tools.
- The company has introduced new APIs for inventory and available-to-promise data. These APIs facilitate better integration with existing systems and improve data accessibility for real-time inventory management and order fulfillment decisions.
- Kinaxis has made updates related to compliance, specifically targeting the approval processes for order and master data. These improvements are intended to ensure higher data integrity standards and regulatory compliance.
- The user interface (UI) of Kinaxis' platforms has been enhanced to improve user experience. These enhancements focus on making the interface more intuitive and user-friendly, facilitating easier navigation and more efficient operation by end users.

ONE NETWORK ENTERPRISES

In the 2024 TMS Technology Value Matrix, One Network Enterprises (ONE) is a leader. One Network Enterprises supports global organizations within the Aerospace and Defense, Automotive, Manufacturing, Consumer Goods, Healthcare, Pharmaceutical, High Tech, Food and Beverage, Logistics, and Retail industries. Transportation planning and optimization, transportation execution, and financial reconciliation are all included in One Network's cloud-based logistics suite, which offers multi-enterprise, end-to-end supply chain

functionality. Companies use One Network TMS to give them a single platform to represent their supply chain network by integrating data feeds from all suppliers, distributors, and logistics service providers. Organizations can also implement TMS services like dock scheduling, yard, fleet, parcel shipment, and worldwide trade processing to improve their logistical operations.

One Network's NEO Platform improves transportation planning and execution while autonomously optimizing transportation routes and reducing costs. Stakeholders such as carriers, shippers, customs brokers, suppliers, and other logistics providers can communicate more easily with the NEO Platform. For multi-party network ecosystems, the NEO Platform is an application platform as a service (aPaaS), allowing two or more parties to participate in the transaction. Based on demand, inventory levels, and commodity types, NEO optimizes freight through real-time internal and external data streams. Businesses use One Network's analytics to determine the best route, carrier, and mode of transportation while providing self-regulating and adaptive policies with autonomous planning, execution, and real-time visibility.

One Network Enterprises integrates planning and execution on one platform, eliminating the boundaries between these processes with a single network data model for the entire supply chain. This allows for continuous optimization across trading partners and strategic, tactical, and execution time horizons. It enables planners to conduct "what-if" scenarios and make real-time adjustments to operations without sacrificing cost or service quality. NEO's ML-driven recommendations help streamline and automate decision-making processes, enhancing adaptability and operational efficiency in tendering, consolidation, and predictive lead times. The platform supports autonomous operations, significantly reducing non-value-added activities like problem identification and impact analysis.

Over the last few years, One Network Enterprises has made advancements in integrating and enhancing its supply chain management tools. They introduced transportation forecasting into their operations platform, which not only combines planning and execution but also allows for the forecasting of transportation equipment (TEU) by integrating order forecasts, orders, and shipments across various transportation modes. To address sustainability, they launched ESG capabilities focusing on carbon tracking, environmentally conscious decision-making, and improving safety and sustainability metrics reporting. Notably, One Network rolled out ScenarioChains and LiveChain to bolster supply chain modeling and automation, with ScenarioChains offering what-if scenario analysis and LiveChains enabling transactions without user intervention. They also introduced a "Bring your own intelligence" (BYOI) feature, allowing users to integrate external AI insights to enhance decision-making within their Supply Chain Network. Additionally, the Optimized Execution module was launched to unify planning and execution on a single platform, featuring forecasting tools and real-time insights that operate autonomously or with user interaction.

Recent product updates in the past 12 months:

- Over the past year, One Network Enterprises introduced Constrained Transportation Forecasting, which accommodates various constraints, including lane, site, inventory, fleet levels, and geopolitical risks, to provide actionable recommendations and support scenario planning.
- In 2023, One Network Enterprises implemented the Scheduling Standards Consortium (SSC) API, creating a more efficient appointment scheduling process between shippers, carriers, and suppliers.
- The company integrated AI-based chat tools, such as Chat GPT, enabling users to ask any transaction-related questions, and introduced a chatbot that supports role context and includes a machine learning model for predicting ETAs for global movements.
- One Network Enterprises enhanced its platform with a Global Supply Demand Workbench that manages container consolidation at Container Freight Stations (CFS), adjusting DC inventory based on safety stock projections.
- The company has expanded support for transloading operations, incorporating yard and warehouse management enhancements for transloading activities.
- One Network Enterprises has developed an advanced optimizer for improved route quality, optimizing complex problems faster, and supporting load building, including 3D.
- One Network Enterprises has standardized integration with major 4PL providers such as UPS Supply Chain, DB Schenker, and DHL Global Forwarding, and also enhanced Rail mode EDI integration.
- This past year, the company has enhanced its risk management capabilities by incorporating the assessment of various geopolitical, cyber, and financial risks and developed predictive and prescriptive solutions to manage these risks effectively.

ORACLE

In the 2024 TMS Technology Value Matrix, Oracle is a leader. Oracle Fusion Cloud Transportation Management (OTM) supports international businesses in the following verticals: automotive, communications, consumer goods, healthcare, high tech, life sciences, industrial manufacturing, oil and gas, restaurants, retail, wholesale distribution, and federal government, among others. Through fleet management, cooperative routing, logistics network modeling, logistics digital assistant, logistics machine learning, and transportation operational planning, OTM offers businesses a single platform to handle all aspects of transportation activity across all modes. OTM's capabilities include transportation procurement, order management, carrier and rate management, fleet and driver management, shipment booking and tendering, visibility and event management, freight audit and payment, tactical analysis, and reporting. Additionally, the program supports a

number of currencies, languages, units of measurement, and business functions. Orders and shipments are optimized by OTM based on cost, service level, and asset utilization through the use of optimization engines and algorithms. The solution supports cross-border shipments throughout their lifecycle and simplifies user configuration and customization. Auto-assignment logic can generate and validate the required trade documents and certificates with document management features.

Throughout 2023 and 2024, Oracle made several updates to its Oracle Transportation Management (OTM) application, enhancing its logistics and transportation management capabilities. These updates included enhancements to the Oracle Logistics Digital Assistant, first introduced in 2020, which allows users to monitor shipment statuses through voice commands. In addition, improved workbenches can consolidate data from various sources into a unified dashboard to simplify operations and aid decision-making. Oracle also rolled out new templates for managing drivers, dock scheduling, and other logistics tasks alongside a mobile app that facilitates remote management of transportation activities, offering features like real-time shipment tracking and location updates. In December 2022, enhancements to the Ocean module were announced, improving integration with external voyage schedule providers and enabling better access to these schedules within OTM. Additionally, Oracle introduced new operational reports for tracking fleet status and positions and, in November 2022, expanded its Documents SmartLink feature, improving document accessibility and workflow transparency across a broader range of logistics functions. Finally, Oracle expanded its Logistics Machine Learning models to include planned and event-based ETA predictions, enhancing the accuracy and responsiveness of shipment arrival forecasts.

Recent product updates in the past 12 months:

- Over the last 12 months, Oracle expanded its business intelligence capabilities to enable customers to combine transportation and trade data with other operational data in Oracle Fusion Data Intelligence. The augmented data helps organizations improve decision-making and global logistics performance by providing a holistic, real-time view of the business.

- In 2023, Oracle enhanced its logistics network modeling to help logistics managers model scenarios and compare driver scheduling options. The enhanced capabilities help organizations quickly evaluate schedules, improve assignment decisions, and optimize fleet performance.

- Oracle launched its new trade incentive program to enable customers to automate support for multiple country-specific trade programs simultaneously. Automating trade documentation helps organizations reduce manual processes, improve the accuracy and efficiency of trade program participation, and reduce duty and tax costs.

- In 2023, Oracle updated its transportation management mobile app to support third-party transportation service providers and fleet-managed drivers. The app enables users to bid on spot market shipments, capture shipment actuals, and launch maps. Its added functionality and high configurability help improve logistics operations' efficiency by providing users with a more intuitive and personalized experience.

- Over the last 12 months, Oracle improved its workbenches to help logistics managers quickly and easily create highly configurable workbenches that provide a single view of operations. New workbench personalization and data visualization features help organizations increase productivity and improve business decisions.

MANHATTAN ASSOCIATES

Manhattan Associates is a leader in the 2024 TMS Technology Value Matrix. Manhattan Associates serves large global enterprises within the aerospace and defense, automotive, communications, consumer goods, distribution, healthcare, life sciences, manufacturing, oil and gas, chemicals, professional services, retail, transportation, and utilities industries. Manhattan Associates TMS is a part of a larger cloud-native Manhattan Active Supply Chain platform that unifies Manhattan Active Labor Management, Manhattan Active Transportation Management, and Manhattan Active Warehouse Management under one solution. Manhattan Transportation offers support for all forms of transportation across the whole logistics network. Strategic analysis, purchasing, operational planning and execution, visibility, freight payment, and claims handling capabilities are available within the Manhattan Associates platform.

Manhattan Associates Unified Logistics Control has access to real-time shipment visibility, facilitating quicker decision-making and change execution. The fleet management platform from Manhattan minimizes miles and maximizes service hours, availability, compliance, seniority, and service needs by using machine learning algorithms to suggest routes, drivers, and assets. Manhattan TMS assists businesses in responding to disruptions and surges in demand and foresees the effects of changes in the number of DC and store locations through scenario modeling and side-by-side comparisons. The Transportation Procurement feature in Manhattan lowers transportation costs for all modes of transportation by automating contract sourcing. It uses benchmark data to assess bid responses, permits alternative pricing, and uses scenario management to maximize contract award combinations. Additional features include fast and easy search and filter options, customizable interface panels for customized planning, in-app messaging for rapid communication, and proactive alerting for modifications and exceptions.

Recent product updates in the past 12 months:

- On March 19th, 2024, Manhattan Associates partnered with shipping management platform Shipium to enhance its retail shipping operations. Through the partnership, Shipium's technology will allow retailers to use Manhattan Associates' systems to achieve better shipping performance and cost efficiency.

SAP

SAP is a leader in the 2024 TMS Technology Value Matrix. SAP TMS provides support to multinational corporations operating in the following industries: manufacturing, media, oil and gas, chemicals, professional services, retail, utilities, healthcare, leisure and recreation, hospitality, consumer packaged goods, distribution, Federal, State, and Local Government, and Aerospace and Defense. By leveraging blockchain, IoT, and machine learning technologies, SAP's TMS system connects with other programs, such as SAP Business Network and Extended Warehouse Management (EWM), to help businesses align their logistics operations with their products. SAP TMS allows companies to manage freight capacity and establish agreements through its freight procurement and capacity management features. Accurate order processing and receipt are made possible by the ability to retrieve transportation requirements from multiple order management systems. SAP TMS's execution features help streamline logistics operations with direct integration to SAP EWM for real-time freight document synchronization and truck arrival and departure information sharing. The system also offers a visual load planning feature that lets users examine freight at the pallet level. Advanced freight charge calculation, mode-specific charging, and tariff management are additional options for organizations that enable improved freight cost allocation and settlement across orders and materials. SAP TMS has decision support tools like dashboards, KPIs, and real-time reporting capabilities to help users make better decisions. In addition, it provides instant summaries of logistics processes, document templates for road, sea, and air shipments, and compliance with trade regulations through integration with SAP Global Trade Services.

Over the last few years, SAP has rolled out and improved how it receives orders and deliveries from SAP ERP by saving them as transportation requirements. Additionally, SAP TM can now suggest deliveries that SAP ERP generates. Another significant update includes the ability for SAP ERP to split outbound deliveries based on planning changes in SAP TM and to update crucial dates like goods issue, loading, transportation start, and delivery. These updates are then fed back to SAP TM to ensure current transportation requirements. SAP also introduced a new scheduling service that is used when creating, changing, or rescheduling sales orders in SAP ERP. This service considers the transportation situation as reflected in SAP TM, allowing for the calculation of feasible dates and quantities for order items during the order processing phase in ERP. Furthermore, SAP TM can integrate scheduling agreements from Materials Management (MM) and Sales in SAP ERP via delivery schedules. These agreements specify delivery quantities and dates over a period and are

entered as schedule lines. ESOA services facilitate this integration and can be activated by creating or changing delivery schedules, with a batch process available to manage the future transfer of these schedules.

Recent product updates in the past 12 months:

- In the last 12 months, SAP has introduced capabilities for managing commodity codes within freight documents, including freight orders, bookings, units, and consignment orders. This update allows users to effectively classify products and manage commodity codes through new applications and customization options, improving compliance and operational efficiency. By integrating commodity codes from SAP Governance, Risk, and Compliance into the TMS, SAP provides a more streamlined, accurate, and compliant approach to goods classification across transportation processes.
- In 2023, SAP enhanced its Freight Order Management in SAP S/4HANA 2023 by introducing functionalities that increase the system's adaptability and user-friendliness across global operations. These enhancements include the ability to display international address versions, manage communication data for drivers outside the master data, specify alternative service providers for service items, and improve freight unit determination for customer returns. Moreover, SAP has integrated a new customizing setting that allows users to selectively ignore unreliable weight and volume data from inbound messages, thereby enhancing data accuracy and reliability in freight management operations.
- SAP's update to its Freight Order Management system in SAP S/4HANA improves how handling execution statuses and event reporting are managed. The update establishes a strict coupling between events and handling execution statuses, ensuring that events consistently drive status changes. This change emphasizes that any status modification through the user interface technically originates from an event trigger, creating a more uniform and reliable system for tracking changes across user-initiated and external events.
- In 2023, SAP introduced a refined feature in its Freight Order Management within SAP S/4HANA that enhances manual planning processes by considering the handling execution status during document assignment. This update allows users to configure the system to acknowledge the execution status of stops when assigning a requirement document to a capacity document, such as adding a freight unit to an already partially executed freight order. Specifically, the system will ignore stops marked as "Checked Out" or "Departed" and, if necessary, create a new stop at the exact location to ensure consistency in handling statuses.
- Over the last 12 months, SAP has enhanced its environmental accountability functionality by enabling the calculation of greenhouse gas emissions for road freight orders. This feature allows users to set specific CO_2 emissions parameters for

different vehicle types, which are then used to calculate emissions during manual planning and vehicle scheduling and routing (VSR) optimization. The emissions data is integrated into the road freight order and displayed within the transportation cockpit, offering visibility on emissions per vehicle stage and item.

- SAP enhanced its TMS by offering greater flexibility in using normalized and additional normalized quantities independent of package building. This update allows users to define how normalized quantities (NLQ) and additional normalized quantities (ALQ) are determined based on specific conditions or default units of measure defined in Customizing for various freight and transportation unit types. The enhancements facilitate more precise and adaptable freight unit building, utilizing NLQ and ALQ as split criteria and integrating these measures into transportation charge calculations and freight settlement processes. This feature streamlines operations by providing more granularity in freight planning and cost allocation, improving operational efficiency and financial accuracy in transportation management.

- SAP has enhanced its manual planning and transportation cockpit in SAP S/4HANA 2023, introducing key features that enhance control and flexibility in freight management. Updates allow for modifying cargo cut-off dates, availability times, and movement types within the transportation cockpit. The enhancements support inter-company sales and incoterms to prevent planning conflicts across different company codes. Additionally, new functionalities have been added to manage equipment types and capacity limits more effectively, along with improved navigation and parallel processing capabilities for creating capacity documents. These changes streamline operations, improve resource utilization, and enhance user experience within SAP's freight management system.

- Over the last 12 months, SAP has introduced a new feature in its Transportation Management system that considers constraints related to driving time and working hours during scheduling and Vehicle Scheduling and Routing (VSR) optimization. This enhancement enables the definition of constraint profiles to model different regulatory requirements, ensuring compliance with regulations such as those in the EU and US. Rest periods are automatically scheduled within these constraints to optimize transportation plans while respecting legal working hours and driving limits. These constraints and rest periods are displayed within the transportation cockpit and visually represented in the Gantt chart, enhancing road freight operations' planning accuracy and regulatory compliance.

- SAP enhanced its package-building functionality by introducing support for wildcards in product relationship profiles, allowing for broad specification of product incompatibilities and stacking permissions. It also accurately handles cylindrical product shapes, enabling efficient placement and dense packing of cylindrical items on pallets. These improvements streamline package optimization, enhance space

utilization, and reflect more accurate physical product characteristics in the packaging process.

- In 2023, SAP introduced a new feature for configuring fields within the Transportation Cockpit, allowing for tailored display setups in lists and hierarchies to optimize response times. Users can create and modify field catalogs to determine which fields are shown by default, available via personalization, or not displayed. This configuration not only customizes the user interface but also improves the efficiency of the Transportation Cockpit by reducing load times based on the fields selected. SAP provides default field catalogs, which users can copy and edit to fit their specific needs, and these settings can be transported to other systems for consistent application across the enterprise.

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- SAP made enhancements to Load Planning, introducing more versatile optimization approaches and improved handling of cylindrical products in automatic load planning. Users can now select between two optimization strategies: a row-stack approach, ideal for homogeneous loads such as uniformly sized pallets, and a free positioning approach, better suited for heterogeneous loads with varied shapes and sizes like boxes and cartons. Additionally, the update has refined the treatment of cylindrical products, allowing them to be densely packed in their natural orientation rather than being treated as boxes. This optimization applies explicitly to cylinders that share dimensions, weight, and stacking characteristics and is only supported by the free positioning approach. These enhancements aim to improve space utilization and efficiency in load planning operations.

- In 2023, SAP introduced a new feature that streamlines transportation logistics by enabling the management of transportation activities based solely on outbound deliveries, integrating decentralized Extended Warehouse Management (EWM) with Transportation Management (TM). This integration allows users to handle the entire outbound process through Advanced Shipping and Receiving setups, where freight unit building (FUB) processes consider outbound delivery orders from EWM. The transportation cockpit has been enhanced to select freight unit stages based on outbound delivery order numbers, further integrating the flow between EWM and TM. This enhancement simplifies logistics operations and improves the efficiency of

outbound processes, particularly in decentralized environments where EWM and an ERP system are integrated.

EXPERTS

Experts in the 2024 TMS Technology Value Matrix include Alpega, CH Robinson, and MercuryGate.

ALPEGA

In the 2024 TMS Technology Value Matrix, Alpega is an expert. Alpega supports mid-sized to large organizations within the agricultural, automotive, chemical, packaging, food and beverage, 3PL, pharmaceutical, manufacturing, mining, and materials industries. Alpega TMS is a cloud-based transportation management system that enhances supply chains into cooperative ecosystems by optimizing logistics processes, such as transportation sourcing, planning, execution, settlement, and analytics. Specific features within the Alpega TMS platform include Reusable Packaging Management, which tracks valuable packaging; Smart Booking, which streamlines the warehouse slot booking procedure; and TenderEasy, which reduces freight procurement costs and time. A feature of Alpega's logistics software called 3D load planning supports the planning workflow and adds 3D visualization to operational and tactical planning. This enables the most economical and sustainable handling of temporary changes, the grouping of individual shipments, and the selection of the best transportation services. Alpega helps organizations analyze past and future transportation data to find the best ways to manage capacity and costs across their network, bundle shipments, optimize strategies, cut costs and service times, and maximize asset utilization. Shippers and carriers can track the location of orders in real-time with Alpega's Real-Time Visibility Network, which enables users to respond swiftly to and minimize unforeseen events like accidents and traffic jams. Alpega's Analytics suite gives users a comprehensive picture of their performance, freight costs, and individual carrier scorecards.

Over the last few years, Alpega Group strategically acquired Road Heroes, a specialized job site from Pinetco that connects truck drivers with potential employers. This acquisition addresses the persistent driver shortage, a significant bottleneck in the supply chain. Road Heroes operates across Europe and offers a platform where hiring companies and prospective drivers can interact, giving both parties a competitive edge in meeting market demands. This move by Alpega is expected to enhance its broader logistics and transportation services by mitigating one of the key challenges in the industry—ensuring an adequate supply of qualified drivers to meet the needs of the logistics market.

CH ROBINSON

In the 2024 TMS Technology Value Matrix, CH Robinson is an expert. CH Robinson supports small and medium-sized enterprises and major corporations in North America and Europe in the verticals of consumer-packaged goods, professional services, retail, and manufacturing. Truckload, LTL, ocean, and air shipment lifecycles can all be automated and optimized with the aid of CH Robinson's TMS. CH Robinson provides end-to-end shipment visibility with nearly 200,000 shippers and carriers integrated within Navisphere. Using data science, CH Robinson's integration network, and shipping data, organizations can use Procure IQ to create customized routing maps for procurement. By mapping the density and direction of shipping regions, benchmarking performance data, and offering insights into the cost volatility for each lane, Procure IQ offers bid analysis to increase savings and service reliability. With Procure IQ maps, users can view region density and cut transportation costs while enhancing service quality by drilling down. Instant quotes, shipment tracking, and tendering are all made possible by digital connectivity with the Navisphere API and EDI integrations, saving time and money. Navisphere Vision makes real-time inventory visibility across all modes and transportation providers possible. Organizations can automate route guides among carriers and forwarders and grant access to transactional and contractual rates for different modes and regions to facilitate multiple freight tendering and spot bidding. CH Robinson provides Freightquote and Freightview, two tools for small businesses that streamline and automate the shipping quotation and booking procedures. Custom reports that track freight, fuel costs, taxes, and accessories can be created by organizations, helping users cut down on transportation costs and increase the efficiency of their supply chains. Emissions IQ calculates and presents emissions based on mode, location, and retailer, allowing users to view and benchmark carbon footprint.

MERCURYGATE

In the 2024 TMS Technology Value Matrix, MercuryGate International is an expert. MercuryGate provides support to SMB and tier-one businesses. It also supports verticals such as food and beverage, healthcare, pharmaceuticals, retail, manufacturing, and wholesale distribution. With MercuryGate's TMS, shippers, brokers, carriers, and third-party logistics providers can manage freight transportation more efficiently and centrally. With more than 100,000 carrier integrations, MercuryGate International facilitates every kind of transportation, including air, sea, rail, truckload, LTL, last mile, parcel, and intermodal. MercuryGate's features for multimodal optimization, dynamic routing, load planning, advanced rerouting, street-level optimization, carbon impact, dock scheduling, and scenario-based modeling help organizations improve their transportation planning and forecasting. With MercuryGates' digital freight, document generation, fleet management, multimodal rating, rate repository, spot market, transportation order, carrier management,

compliance and governance, and customer rating management features, organizations can take charge of their transportation operations. Users can find the location of a product's vessel and container, ETA, shipment details, and quantity using MercuryGates, Ocean Container, and Vessel Ledger filters. Users can increase throughput times, improve operational efficiency, and make data-driven decisions by utilizing freight management features such as drones, dynamic rerouting, final mile, native parcel, reverse logistics, white glove services, courier, digital proof of delivery to improve inbound and outbound distribution decision-making, MercuryGate TMS offers business intelligence features that give users access to transportation intelligence data. This data combines customer and carrier scorecards, freight rate index, planning metrics, predictive analytics, predictive ETA, advanced reporting, and carbon footprint and drayage made available to them through MercurcyGate TMS.

Over the last few years, MercuryGate has made significant strides in enhancing its transportation management capabilities over the last few years through strategic acquisitions and partnerships. In 2022, MercuryGate acquired Clear Track Information Network, a provider of cloud-hosted and on-premises systems that track the movement and activity of goods in transit. This acquisition is expected to improve decision-making, enhance logistics visibility, and increase operational efficiency for MercuryGate's customers while improving its existing TMS with enhanced ocean freight procurement and transportation solutions. Additionally, MercuryGate expanded its technological framework by introducing new REST APIs. These APIs are designed to streamline integrations with the systems of suppliers and customers, facilitating more connected and efficient workflows both within and outside the organization. In 2022, MercuryGate International partnered with Amazon Freight, the freight transportation service powered by Amazon. This collaboration enables shippers of all sizes to access Amazon Freight's logistics network and service offerings directly through the MercuryGate platform. Users can view competitive rates, book spot loads, and benefit from a complimentary lane-match analysis offered by Amazon Freight.

Recent product updates in the past 12 months:

- MercuryGate International has partnered with Infor to integrate its TMS into Infor's Supply Chain Execution application, allowing MercuryGate to reach a broader customer base by linking with Infor's extensive supply chain product portfolio. This collaboration provides MercuryGate's clients with enhanced capabilities to manage global transportation needs effectively and gain competitive advantages through a robust, single-platform solution.

ACCELERATORS

Facilitators in the 2024 TMS Technology Value Matrix include Descartes, Infor, Shipwell, and Uber Freight.

DESCARTES

Descartes is an accelerator in the 2024 TMS Technology Value Matrix. In the 2024 TMS Technology Value Matrix, Descartes is an accelerator. Descartes supports global mid-sized to large organizations within the aerospace and defense, automotive, consumer goods, distribution, manufacturing, retail, and transportation verticals. The Descartes Global Logistics Network (GLN) offers a solution called Descartes Transportation Management, which unifies broker enterprise systems, customs, telematics, e-commerce fulfillment, global trade intelligence, routing, and transportation management onto a single platform. Organizations can plug and play various GLN modules with Descartes' templated approach, eliminating the need for extra IT work. Descartes' standard capabilities, which include rail, intermodal, ocean/air, LTL, truckload, freight audit, carrier booking, contract management, and routing guides, are usually the first things an organization uses. All plug-and-play options are advanced features like retail distribution, parcel delivery, dedicated fleet, import and export documentation, dock/yard management, denied party screening, global visibility and analytics, and optimization. From PO inception to final warehouse receipt, Descartes' end-to-end supply chain visibility capabilities are frequently the reason why organizations choose it. This includes viewing pre-shipment actions, post-shipment receipts, location updates, in-transit statuses, and customs statuses for international moves. Organizations often track the position and status of shipments by using the Descartes MacroPoint. This freight visibility platform uses location-based data from multiple sources, including telematics and GPS-enabled devices. Businesses can use this data to enhance customer satisfaction, streamline operations, and obtain insights into supply chain performance. Descartes Transportation Management and other data sources are integrated with Microsoft Power BI data models, dashboards, and reporting templates, upon which the Descartes Analytics feature is built. This allows tracking KPIs such as carrier performance, shipment volumes, delivery times, and cost analysis.

Over the past few years, Descartes has made several product updates to enhance functionality and user experience across various facets of its software. These updates included improving multimodal visibility for service providers such as vessel operators, ports, airlines, forwarders, and customs agencies, thus facilitating better global coordination. Furthermore, Descartes introduced a new dashboard feature and an updated user interface to enhance efficiency and user engagement in daily operational tasks. Expanding API functionality and data management capabilities also played a crucial role in streamlining operations and simplifying the maintenance of transportation-related functions.

Additionally, Descartes implemented advanced dock scheduling features that support flexible constraints for commodities, packaging, and equipment levels within a self-service, automated scheduling environment, enabling more tailored logistics solutions. These enhancements collectively aimed to refine the integration and functionality of Descartes' system in the face of evolving global logistics demands.

Recent product updates in the past 12 months:

- On April 22, 2024, Descartes Systems Group announced its acquisition of Aerospace Software Developments (ASD), an Ireland-based company specializing in customs and regulatory compliance solutions. The acquisition enhances Descartes' capabilities, particularly in customs declarations and RFID solutions, and it supports logistics service providers (LSPs) and shippers, primarily within the Irish market. ASD's essential products include Thyme-IT, a customs filing solution that facilitates secure and efficient compliance with Irish import and export regulations. Furthermore, ASD's RFID technology offers robust tracking solutions tailored for the air logistics sector, aiding airlines and ground handlers in streamlining asset management and adhering to various airline regulations through advanced tagging and tracking.
- On March 28, 2024, Descartes Systems Group announced the acquisition of OCR Services, Inc., a leading provider of global trade compliance solutions. OCR Services specializes in export compliance and controlled commodities, offering solutions that automate processes such as denied party screening, license management, and product classification. Its core platform, GlobalEASE, supports multinational organizations in adhering to evolving regulatory requirements by updating trade data content libraries daily. This acquisition expands Descartes' global trade content library.
- On October 12, 2023, at its Innovation Forum for Routing, Mobile & Telematics in Chicago, Illinois, Descartes Systems Group showcased a series of enhancements and new integrations across its routing, mobile, and telematics solutions. These innovations are designed to augment fleet operations, improve driver safety, and boost customer interaction for fleet operators. Key developments include the introduction of the Descartes Fleet Control Tower, a new performance management tool that integrates with the company's existing route planning and execution systems. Additionally, Descartes launched the Customer Engagement Platform, a digital self-service portal that allows customers real-time access to delivery updates and direct communication with drivers or call centers.

INFOR

Infor Nexus TMS is an accelerator in the 2024 TMS Technology Value Matrix. Infor Nexus TMS is a multimodal transportation visibility and planning platform that serves various industries, including manufacturing, retail, and logistics. It supports multiple organizations, from medium-sized enterprises to large multinational corporations. The platform supports multileg, multimode, and multistop planning, enabling seamless collaboration between shippers and 3PLs. As a single platform, it covers all transportation management capabilities, including sourcing, planning and optimization, execution, visibility, freight pay, and audit. This integrated approach ensures that transportation plans and execution leverage the latest contracts, activities are validated against these contracts for compliance, and freight invoices are automatically created based on shipping and contract data to reduce errors and ensure accurate charges. Execution data feeds back into planning, making more accurate planning decisions based on the current state of transportation flows. The platform's real-time visibility foundation integrates with carriers, forwarders, LSPs, and suppliers through APIs, EDI, and other data feeds, providing up-to-date status of transportation events. It supports intelligent optimization for sourcing, route planning, and execution and includes carbon emissions tracking and compliance features. Additionally, the platform offers flexibility for service provider engagement, allowing shippers to collaborate directly with their logistics partners or empower them to manage transportation processes. Infor Nexus also features a low-code development platform for easy customization and extension of its capabilities, enhancing its adaptability to various use cases in transportation and supply chain management. Additionally, Infor Nexus TMS facilitates automated booking and tendering, freight payment, and auditing processes. By providing detailed visibility into transportation plans and execution details, the platform helps improve cost containment, carrier performance, and organizational compliance.

Recent product updates in the past 12 months:

- Infor has enhanced its bin-package algorithms to improve equipment utilization. These updates introduce flexible consolidation rules tailored to specific industry requirements, such as commodity class grouping and supplier-based consolidation.
- The platform now supports the transportation planning of containers carrying hazardous and non-hazardous materials, expanding its capability to handle diverse and complex shipping requirements.
- Infor Nexus now generates load plan data that suppliers can share. This ensures that suppliers pack shipments in alignment with the load plan, enhancing coordination and efficiency in the supply chain.

- The platform has improved its allocation management capabilities at the zone or group level. This includes better handling cutoff and layover timings in transportation planning and optimization.
- Users can more easily check costs and resource availability before booking or tendering transportation with carriers, streamlining decision-making and improving cost management.
- Infor Nexus has introduced geofence zones around critical maritime transit points, such as the Suez Canal, Red Sea, Panama Canal, South Indian Ocean, and Cape Of Good Hope. The platform actively monitors and alerts users when shipments enter or leave these zones, reducing the need for manual tracking and ensuring shipments move as expected.
- Monitoring technologies have been implemented to detect network-wide data quality issues. Infor has identified and addressed issues with certain carriers' source systems, improving data quality for individual companies and the broader shipping community.
- The platform uses process mining to identify patterns and variations in supply chain flows, such as order and shipment lifecycles. Users can set monitors to trigger alerts when expected processes do not occur. Released monitoring situations include missed transship alerts for shipments stuck at transship ports. Missed departure alerts at the port of load, indicating potential delays. Excessive dwell alerts at the port of discharge, signaling potential demurrage charges. Missed vendor booking alerts, warning that a supplier may not ship on time, impacting delivery schedules.

SHIPWELL

In the 2024 TMS Technology Value Matrix, Shipwell is an accelerator. Shipwell supports small to medium-sized businesses in the automotive, consumer goods, manufacturing, oil and gas, chemicals, distribution, retail, aerospace and defense, and transportation sectors. The platform optimizes the entire supply chain process for logistics, carriers, and shipping companies. Users can schedule shipments, get real-time quotes, and track them with one platform's EDI, API, and ELD integrations. Shipwell provides pre-integrated interfaces with billing and payment systems to guarantee correct payment and expedite financial procedures. Additionally, it protects shipments by monitoring carrier compliance, evaluating carrier effectiveness, and providing predictive lane pricing to help companies reduce freight expenses. End-to-end visibility is made possible for various shipments, including FTL, LTL, ocean, container, drayage, and parcel shipments, by Shipwell's real-time tracking technology. 850,000 drivers have been integrated into the platform, and 2 million ELD-connected units allow users to track shipments. The Compass Dashboard eliminates the need for manual platform checks by presenting all shipment issues and statuses in one location. Additionally, Shipwell guarantees correct payment and expedites financial

procedures by integrating with invoicing and payment systems. With the platform's native support for NetSuite, QuickBooks, and TriumphPay, you can manage back-office financial operations, track line-item financials, and manage accessory fees in one place. Shipwell has also partnered with NMB Solutions to provide a cloud-based solution for the Microsoft D365 community. This collaboration combines Shipwell's technology and experience with NMB's Microsoft Certified Dynamics 365 finance and supply chain integration modules.

Product updates in the last 12 months:

- Shipwell recently announced a partnership with ChatGPT, the large language model developed by OpenAI. This collaboration represents a significant step forward in Shipwell's ongoing effort to integrate AI and machine learning technologies into its TMS to enhance efficiency and customer service. The integration of ChatGPT into Shipwell's platform focuses on automating and optimizing the freight quoting process via email. Traditionally a time-consuming task requiring manual data entry, ChatGPT's ability to automatically generate and dispatch quotes in response to email inquiries can streamline the quoting process. This reduces the workload on human operators and speeds up the response time, enabling Shipwell to handle a higher volume of requests more efficiently.

UBER FREIGHT

In the 2024 TMS Technology Value Matrix, Uber Freight is an accelerator. Uber Freight TMS focuses on providing self-service transportation management technology to shippers. It operates primarily in North America. While its primary customer base consists of small to midsize organizations, it can also handle the needs of large enterprises. The platform offers ocean visibility, a logistics control tower, rail execution and visibility, and a module for executing contract lane bids. The system improves freight management by enabling users to secure reliable and cost-effective freight capacity, obtain accurate spot load estimates through predictive pricing models, and run spot auctions or get instant quotes from multiple carriers. Users can upload contract rates and manage awards, contracts, and carrier communication from a single platform. It also provides comprehensive tools for optimizing multimodal network planning, streamlining dock appointments, and monitoring carrier performance with data-driven scorecards. The TMS offers shipment tracking, proactive service alerts, automated freight payment and billing, and detailed data analytics and reporting to help shippers make informed decisions and improve their procurement strategies.

Product updates in the last 12 months:

- In February 2024, Uber Freight initiated a pilot rollout of its new scheduling API, marking the first activation of the industry's scheduling standards consortium's (SSC)

technical standard. This new API is integrated into Uber Freight's TMS and aims to significantly enhance scheduling capabilities while facilitating seamless communication across its network of shippers and carriers. Scheduled for general release in the second half of 2024, this initiative promises to revolutionize operational processes within the freight industry.

▪ In November 2023, Uber Freight launched a new Emissions Dashboard tool to enhance emissions visibility across complex supply chain operations. This dashboard is tailored for companies with sustainability goals, providing a detailed view of their carbon footprint across all transportation modes using the Global Logistics Emissions Council (GLEC) framework. As sustainability becomes a crucial component of operational strategies, this tool allows shippers to measure and manage their emissions more effectively, fostering informed decision-making for decarbonization efforts. It will be accessible via the Uber Freight TMS. As a standalone, the Emissions Dashboard offers comprehensive insights into total emissions, accommodating various transportation modes, including road, sea, and air. It also allows for integrating freight data managed outside of Uber Freight, ensuring a unified view of all transportation emissions. The dashboard tracks carbon intensity performance per metric ton per kilometer and aids shippers in identifying and addressing carbon hotspots within their networks.

▪ In late 2023, Uber Freight launched its control tower functionality to customers. This module provides shippers with real-time data and complete visibility, enabling effective management of shipments from creation to delivery. The Control Tower allows shippers to quickly access shipment details, update data faster, and manage exceptions more effectively, increasing productivity and operational efficiency across various shipping modes, including rail, ocean, and air.

CORE PROVIDERS

Core providers in the 2024 TMS Technology Value Matrix include 3G-TMS, BlueRock, Blume Global, FreightPOP, Shiptify, and Turvo.

3G-TMS

In the 2024 TMS Technology Value Matrix, 3G-TMS functions as a core provider. 3G-TMS offers logistics functionality for organizations within the e-commerce, 3PLs, freight brokers, and omnichannel shippers. The TMS suite addresses aspects of transportation management, from electronic order capture to vendor and customer collaboration, routing guide

management, and mode and service level selection. With 3G-TMS' embedded optimization engine, the vendor can create executable loads and suggest the optimal delivery options for customers. The engine can adapt routes and suggest new options as conditions change by using continuous pool optimization and multi-variable inputs to handle complex routes like multi-stop, multi-leg, LTL, and pool distribution. Integrated map views, "what-if" planning analysis, and pooling and cross-docking are further features organizations can add to the basic offerings. With 3G, customers and partners can be informed of delays and ETAs through messaging features, and the cloud-based platform provides reporting and exception management along with proof-of-delivery and other necessary documentation. In addition to standard reports on delivery performance, carrier metrics, and compliance, 3G-TMS offers customized ad-hoc reports that can be accessed based on user permissions and embedded within the application framework. In addition, the software offers freight audit, eMatch and Pay or Auto-Pay, operational and scorecard reporting, status tracking, and automated alerts.

BLUEROCK

BlueRock TMS is a core provider in the 2024 TMS Technology Value Matrix. BlueRock TMS is ideal for small to midsize customers, primarily in Europe, serving industries such as logistics service providers, industrial shippers, and last-mile distributors. Its key functionalities span freight sourcing, procurement, operations planning, order management, shipment execution, and freight settlement. For strategic planning, BlueRock TMS offers network design and consultancy studies for strategic optimization, ensuring future-proof network designs and data-supported decision-making. Tactical functionalities include routing simulation, volume analysis, and consolidated network performance analysis, enabling mid-term decisions that prepare for upcoming periods and execute robust plans. Operationally, BlueRock TMS supports daily activities and short-term planning with modules for planning, operational visibility, and performance analysis. The system optimizes complex international and domestic distribution networks through customer pickup planning, FTL and milk run planning, linehaul scheduling, and last-mile distribution. It provides real-time visibility, anomaly detection, and milestone monitoring across the network. The platform also supports dock and yard management, ensuring efficient resource allocation. BlueRock TMS's advanced control tower offers granular visibility and optimization, signaling at-risk orders and supporting invoicing and returns processes.

Product updates in the last 12 months:

- BlueRock TMS recently acquired a majority stake in VOICT, a company known for its freight and last-mile delivery solutions. This partnership will enhance BlueRock TMS offerings and expand its market presence, particularly in last-mile logistics, where VOICT has established expertise and a customer base.

BLUME GLOBAL

Blume Global is a core provider in the 2024 TMS Technology Value Matrix. Blume Global TMS offers global transportation management for shippers, with additional capabilities in freight audit and payment, transportation visibility, and supply chain orchestration. Operating across regions with a strong presence in North America, Blume Global caters to small to large enterprises, especially logistics service providers and freight forwarders. Blume Logistics integrates a network for logistics tendering, tracking, event capture, proof of delivery (POD) verification, and settlement initiation, ensuring efficient multimodal transportation management. Key functionalities of Blume Logistics include automated carrier selection based on business rules and performance metrics, real-time drayage capacity discovery, optimized shipment planning and consolidation, and comprehensive carrier performance evaluation. The platform facilitates logistics management, allowing users to plan, book, execute, settle, and track shipments across a global ecosystem of trading partners. It also supports financial processes from pre-move rating to automated auditing, invoicing, and payment, enhancing operational efficiency. With a vast partner ecosystem, including over 600 ocean carriers, 750 air cargo carriers, and extensive motor carriers and rail networks, Blume Logistics provides support to meet the diverse transportation needs of its customers.

Recent product announcements include:

- On May 9th, 2023, Blume Global introduced its Cognitive Command Center, a machine learning-enabled control tower designed to navigate the complexities of today's global supply chains. The platform responds to the increasing volatility and complexity in international logistics, offering a robust solution beyond traditional control towers' capabilities, which often struggle with fragmented execution and siloed data. The Cognitive Command Center by Blume Global is engineered to continuously analyze the supply chain environment, identifying potential risks, opportunities, and issues. It leverages advanced machine learning algorithms to provide proactive recommendations for optimization, automates resolutions to enhance operational efficiency, and aims to maximize overall business success.

FREIGHTPOP

FreightPOP TMS is a core provider in the 2024 TMS Technology Value Matrix. The vendor focuses on offering functionality to medium-sized and large enterprises to help them manage their logistics and transportation operations more efficiently. Shipments within the platform, tracking of incoming and outgoing shipments, carrier invoice auditing, warehouse activity analysis, and parcel, LTL, FTL, ocean, and air shipping are all covered by FreightPOP. Organizations can access rates and streamline the shipping process with connections to over 1,500 carriers, ERP, WMS, and rate marketplaces. FreightPOP

generates documents and prints labels, invoices, and BOLs. FreightPOP transportation management feeds shipment data into the relevant business systems while automating several shipping tasks, including document creation and printing labels, invoices, and BOLs. The Freight RateHACKER tool is a matchmaker algorithm that finds the best route for a customer's shipment from point A to point B by combining all possible combinations from available carriers. Artificial Intelligence is used by FreightPOP's Auto Dispatch tool to expedite shipping without compromising control over preferred routes, carriers, and prices. Purchase and sales orders are automatically transformed into shipments and then automatically processed according to user-defined parameters down to the accessory level.

Over the last few years, FreightPOP has made several updates and partnerships to enhance its logistics and shipping software capabilities. Notably, they announced an integration partnership with FedEx IPD, designed to help shippers consolidate multiple shipments for more straightforward borders and customs processing for international deliveries. Additionally, FreightPOP enhanced shippers' visibility of their container movements during drayage, including the ability to track per diem and demurrage charges, addressing a crucial need for more detailed cost tracking in logistics operations. FreightPOP formed a partnership with Cubiscan, a provider of freight dimensioning solutions. This collaboration aims to supply customers with accurate dimensional data to prevent chargebacks and improve logistics efficiency by integrating precise dimension information directly into the FreightPOP platform. This integration of Cubiscan's hardware and FreightPOP's software aims to provide solutions that work seamlessly with existing warehouse management and shipping systems, potentially saving on labor, carrier chargebacks, and reclassification fees. FreightPOP partnered with Tive, an in-transit visibility provider, to deliver an improved shipping experience for manufacturers, distributors, 3PLs, and logistics service providers. This partnership aims to merge traditionally separate systems for a cohesive view of supply chain operations. Other significant updates from FreightPOP include the introduction of auto dispatching, single sign-on functionality, UPS paperless documentation, custom broker address capabilities, and direct integration with eBay. These enhancements are geared towards simplifying logistics processes and increasing operational efficiency for FreightPOP's users.

SHIPTIFY

In the 2024 TMS Technology Matrix, Shiptify is a core provider. European SMBs to large corporations in the consumer goods, retail, e-commerce, logistics, distribution, food and beverage, manufacturing, and pharmaceutical sectors are supported by Shiptify. On a single platform that supports all modes of transportation, Shiptify Transportation Management Control Tower integrates order management, transport planning, dispute management, spend optimization, and control tower technology. The transportation planning module of Shiptifys makes it easier to create and modify transport plans. Businesses can examine multi-

carrier quotes, view recommended carriers based on customer, department, or geographic criteria, and even change the carriers according to the mode of transportation. By presenting suggested carriers based on costs, lead times, and service quality, the planning feature helps operations and distribution teams make decisions. The shipment tracking module of Shiptifys provides geo-tracking, Shiptify APIs for shipment management, and anomaly or delay alerts. Transport information can be uploaded to ERP systems, and organizations can offer automated carrier feedback. If any anomalies are found, real-time proactive litigation notifications are sent, and recipients can receive them via email, web notifications, or personal dashboards. Resolving disputes more quickly is possible through collaborative dispute management with carriers, and docks and customers' feedback offers a trustworthy indicator of carrier service quality.

TURVO

In the 2024 TMS Technology Value Matrix, Turvo is a core provider. Turvo helps SMBs in the distribution and logistics sectors improve their logistics operations. Order management, shipment execution, appointment scheduling, analytics, and integration hub suites are all combined into a single platform. Organizations can assess partner performance, execute contracts, optimize turnaround times, optimize routes, and monitor driver performance with Turvo's control tower features. Businesses can reduce shipment rerouting and speed up order processing by tendering shipments, arranging pickups, and reviewing carrier rates with Turvo's order management features. Shipping documents can be uploaded, shared, and edited within the platform with its shipment execution and document management features, which also increase the visibility of shipments for outside partners. With self-service appointment scheduling, real-time truck status updates, and context scheduling, Turvo's dock management feature simplifies the carrier management process. Additionally, businesses can use Turvo Analytics Supply Chain 360 to create customized dashboards and targeted reports that assist users in concentrating on high-margin clients, carriers, lanes, and supply chain partners. This enables them to identify top-performing clients and enhances freight seasonality planning.

Over the last few years, Turvo has engaged in several strategic partnerships to enhance its logistics and supply chain management offerings. In early 2023, Turvo partnered with Highway, a carrier identity management platform, to improve transparency and carrier onboarding. This integration allows Turvo's customers to automate carrier identity management and compliance, helping freight brokers and 3PLs source and vet capacity more effectively. Turvo entered a strategic partnership with DAT Freight & Analytics to enhance freight matching and supply chain orchestration. This collaboration provides Turvo's customer's access to a North American truckload marketplace. Turvo joined the MuleSoft Technology Partner Program and introduced a MuleSoft Certified API specification, contributing a custom MuleSoft Certified Connector to the partner ecosystem.

This development aims to enhance integration capabilities and streamline operations for Turvo's customers. Lastly, Turvo partnered with project44 to improve services for shippers, logistics providers, and carriers handling full and LTL shipments, aiming to improve logistical efficiency and data integration across the supply chain.

Notable product updates from the past year include:

- On April 17, 2024, Turvo Inc., a provider known for its collaborative application tailored for the supply chain, announced a strategic partnership with Navix.io, a company specializing in freight audit and invoicing automation. This collaboration is set to enhance the efficiency and scalability of freight management for freight brokers and 3PLs by integrating Navix's advanced auditing and automation technologies with Turvo's TMS.
- On February 13th, 2024, Cargo Chief, a player in Carrier Procurement for 3PLs and freight brokerages, announced its integration with Turvo. This partnership introduces a digital freight matching (DFM) capability into Turvo's platform, significantly enhancing the carrier procurement process for freight brokers by automating carrier matching and boosting carrier reuse and profit margins.
- On January 25, 2024, MileMaker, a provider of commercial transportation mileage, rating, and routing software, announced a partnership with Turvo. This collaboration focuses on integrating MileMaker's advanced Web Services API with Turvo's TMS platform, enhancing Turvo's capabilities with precise truck-specific mileage calculations and comprehensive routing functionalities.
- On January 23, 2024, Turvo announced a strategic partnership with Oko, a technology firm specializing in supply chain data automation. This collaboration is set to revolutionize how 3PLs and brokers handle order and shipment creation, integrating data automation directly into the supply chain management process.
- On November 14, 2023, Turvo announced a strategic partnership with Splice, a company specializing in data-sharing platforms that integrate systems and translate logistics data. This partnership is poised to enhance the connectivity and functionality of Turvo's TMS by incorporating Splice's advanced integration and workflow automation capabilities.
- On August 15, 2023, Turvo announced a strategic partnership with Optym, a leading provider of transportation optimization solutions. This partnership is poised to transform the landscape of collaborative logistics by integrating Optym's LoadOps platform with Turvo's TMS, enhancing the operational capabilities of asset-based logistics businesses.
- On May 11, 2023, Turvo announced a strategic partnership with Denim, a freight payment vendor specializing in flexible factoring and payment automation. This collaboration integrates Denim's advanced freight payment capabilities with Turvo's TMS, streamlining the financial operations for logistics service providers. This

integration enables the seamless processing of factored and non-factored payments directly within Turvo's platform, eliminating the need for manual document uploads or email invoicing, thereby enhancing operational efficiencies.