

**MANHATTAN ACTIVE<sup>®</sup>**  
**SUPPLY CHAIN**



# Manhattan Active® Supply Chain

# UNITED AT LAST

Distribution, labor, automation and transportation within a single cloud-native application built entirely from microservices. No integration and no upgrades. One experience to watch, learn and respond in real time at every origin and destination across the supply chain — and everywhere in between.

## SUPPLY CHAIN UNIFICATION

A decade ago, Manhattan Associates began a journey to build a supply chain execution solution with no limits and no technological constraints. It had to be scalable, composable, frequently refreshed, but never require upgrading. It had to let retailers, distributors and manufacturers personalize their supply chain and adapt in real time to macro and micro disruptions to their business.

Manhattan Active® Supply Chain is the culmination of that effort, unifying distribution, labor, automation and transportation into a single, cloud-native application built entirely from microservices. Solutions like warehouse management, labor management and transportation management are now part of the same app and use the same composable business objects for customers, orders, shipments and everything else. That means no integrations and no upgrades. An intuitive, responsive, consistent user experience ensures teams are up and running quickly with real-time, actionable insight into every facility, every resource and every partner in the network.

Engineered to be extended, Manhattan Active Supply Chain solutions include intuitive tools to directly extend capabilities at every level of the application and even the network of connected partners. The Manhattan Carrier Network and the Manhattan Automation Network are pre-connected to industry-leading automation, robotics, marketplaces and visibility partners to quickly access more capacity, real-time weather and traffic data or deploy the latest in autonomous robotics.

Why is now the right time for a unified supply chain?

While the impact of macro-disruptions, such as the COVID-19 pandemic, are significant they are fortunately also quite rare. It is usually the daily micro-disruptions that cause the most damage over time because they are relentless. A proverbial death by a thousand paper cuts. Unexpected labor shortages, automation failures, delivery delays, last-minute order changes and poor visibility across the supply chain create headaches, inefficiencies and cost impacts every day — for every organization. And legacy supply chain solutions have no answer for them.

WMS solutions were created to organize, orchestrate and automate the distribution center and TMS solutions to do the same for shipping and transportation. WES systems were designed for automation and labor management systems for the workforce. All these solutions have grown substantially more powerful, more complex, and at the same time, more siloed. New systems were added because the old ones were not designed to adapt to emerging requirements — the technological bones they were built upon were too rigid and brittle. Every addition required another integration, another user experience, another upgrade cycle, another architecture. Each step taken further cemented the technologies, and the companies that used them, in the past.

**“Manhattan’s platform combines warehouse and labor management, transportation planning and execution, and automation within one cloud-native app. The result is a more agile and efficient supply chain.”**

Steve Banker, Vice President Of Supply Chain Management  
ARC Advisory Group





# Why cloud native?


Understanding the differences in cloud offerings can be confusing, as the terms “cloud” and “cloud computing” have become generalized to cover any solution being maintained outside the four walls of an enterprise. Usually, terms such as “runs on the cloud” or “hosted in the cloud” represent legacy solution architecture and design concepts that have been modified — or “washed” — to run in a remote data center. Cloud-washed solutions do not take full (or often any) advantage of the core elements of cloud architecture that offer so much promise to businesses. Instead, they simply shift the limitations of legacy solutions onto different servers in a different building. They still struggle with issues like extensions, implementations, upgrades, scalability, licensing costs and time to market, because they are essentially the same outdated, monolithic, on-premises solution designs.

Engineering applications natively for the cloud means designing flexibility and elasticity to be ready for whatever comes next. The term “cloud native” refers to applications that were 100% born in the cloud, take advantage of virtualization and containerization, use APIs extensively and leverage the scalability of the internet to autonomously harness vast amounts of computing power. These differences make them significantly more scalable, dependable, personalized and affordable. With Manhattan Active Supply Chain, we have created a single source of real-time truth across inbound and outbound processes. Built entirely from microservices, a single system supports supervisors, associates and partners, both in the distribution center and on the road. Users get personalized experiences, but with identical speed, consistency and accuracy. Manhattan Active technology means never worrying about future upgrades or broken extensions ever again.

Manhattan Associates takes a cloud-native approach because we are committed to ensuring that you can keep promises and create amazing experiences for both your customers and associates.







# SOLUTION COMPONENTS

Distribution, labor, automation and transportation have been harmonized. Get work to the floor with lightning speed. Add capacity with a click. Automatically adjust labor to match inbound arrivals. And pile on the order changes until the last trailer door slams shut. Manhattan Active Supply Chain makes it all possible.

# Warehouse Management

Manhattan Active Warehouse Management (WM) is versionless so it never needs upgrading, letting you focus on experiences, not on systems. It is a single, cloud-native application built entirely from microservices, which means you can “set it and forget it” when it comes to performance, resiliency and extensibility concerns. When your business has higher demand and your systems need more capacity, Manhattan Active WM automatically allocates more. And when you need less, it readjusts without any intervention.

With Manhattan Active WM, you have continuous access to innovation, with new features and updates released every quarter. All that innovation is extensible, too. We understand that your business is unique, which means you must be able to extend the data model, access APIs and exit points, and configure the interface without impacting newly released features and updates.

Manhattan Active WM makes execution of workflows easier to configure than ever before with step-by-step wizards. Distribution leaders have more visibility than ever before with access to highly actionable, real-time operational data across every facility in the enterprise and integrated direct communication with the workforce.

Manhattan Active WM is infused with artificial intelligence to refine its optimization. This technology accelerates the flow of goods and information; enables flawless execution across inventory, labor, advanced automation, robotics and physical space; and simultaneously balances competing task requirements across retail, wholesale and direct channels to achieve the optimal fulfillment plan.

With a built-in warehouse execution system (WES), Manhattan Active WM is the only distribution system capable of seamlessly orchestrating all work across man and machine. Moreover, the Manhattan Automation Network makes automation and robotics deployment a simple, plug-in process. Native support for modern devices and touch experiences helps users simultaneously manage all fulfillment.

Capabilities usually found in separate labor, warehouse and slotting solutions are unified into a single, integrated user experience. Intuitive workflows deliver responsive experiences that help new and temporary workers get up to speed and operating efficiently in just a matter of minutes. In addition, performance, coaching and recognition have been gamified throughout the user experience, driving higher associate engagement and a more productive workforce.

## WAREHOUSE MANAGEMENT CORE CAPABILITIES

Engineered specifically for the demands of the omnichannel marketplace, and agile enough for whatever comes next, Manhattan Active WM unlocks the untapped potential of every fulfillment center. Advance your warehouse operations beyond basic picking, packing and shipping to flawlessly execute a hyper-flow of goods and information through the distribution center.

### Features + Functions

- Streamline inventory receiving processes with crossdocking, quality audits and vendor performance monitoring
- Eliminate costly physical counts with auditor-approved, cycle counting
- Support advanced needs such as value-added services, lot management, serial number tracking and product recalls
- Accommodate omnichannel and/or multi-tenant fulfillment
- Simultaneously apply intelligent order fulfillment strategies with machine learning to support both waveless and wave-like planning and optimization
- Synchronize task creation and scheduling to minimize travel and ensure important work is completed on time
- Automate information exchange via modern, handheld mobile devices and voice recognition
- Support any material handling equipment with the only WES built directly within a WMS
- Utilize native transportation support or leverage the external parcel integration services to easily connect with external multi-carrier solutions
- Increase visibility, security and throughput with appointment scheduling, guard check-in and check-out, dock door management, and yard management functionality
- Improve item location placement and employee performance with slotting optimization and labor management capabilities, all within the same app





# Labor Management

Labor shortages, the rise of the digital native and the gig economy, as well as the dramatic impact of a global pandemic highlight the critical need for labor management approaches to evolve in alignment with the new generation of workers. Evaluating success must expand beyond common standards for measuring productivity to understand how we can motivate and engage employees on a human level. At Manhattan Associates, we believe once we understand what drives human desire, aspiration and behavior, we can develop techniques and intuitive tools to create a more individual and rewarding work experience. We are using things like data-driven gamification, real-time digital communication, automatic recognition and rewards programs, to go beyond labor management and realize true employee engagement. By empowering workers, operations can create a win-win scenario for both employers and employees.

## EMPLOYEE ENGAGEMENT

The Self-Determination Theory postulates that humans are driven by three fundamental needs: autonomy, mastery and connectedness. All of us want the freedom to own our destiny and determine the path of our success. We want to be good at something and enjoy the satisfaction of a job well done. And we want to do it with others who can share in our victories and defeats. These are what we need to create purpose in our work lives.

Employee-engagement technologies within Manhattan Active Labor Management prioritize and optimize metrics like recognition, feedback, happiness, personal growth, satisfaction, wellness, ambassadorship, relationships with managers, relationships with co-workers and alignment with the company. Clearly, cultivating these types of attributes takes more than simply reviewing raw performance data and finding the low performers. It requires unlearning what we think we know and activating a new approach to an old problem.

A fully engaged workforce is more motivated, productive and satisfied. So, we have gone beyond the traditional coaching and training of employees. Our technology unifies associates' daily work tasks with dynamic performance recognition, challenges, feedback and rewards in a single app. Together, it drives higher levels of worker motivation and satisfaction than ever before.

## UNIFIED EXPERIENCES

All labor management capabilities are now integrated within modern, mobile-touch experiences that seamlessly unify the daily task workflow for activities — like picking, packing and slotting — with embedded gamification techniques that help associates achieve new personal records for performance. Challenges for performance, throughput, tardiness and utilization can be combined with badges for milestone achievements and rewards points that can earn local recognition or be redeemed in a digital marketplace for prizes. In short, it's the first-ever commercially available distribution workforce engagement application.

Manhattan Active Labor Management helps distribution team leaders provide valuable feedback to employees in a more timely and automated manner. Just like the real-time performance data we receive using fitness apps, this new employee engagement technology fills the need for immediate and constant employee feedback for in a large and complex operation environment. These capabilities are the first step in driving real, lasting improvements in motivation, satisfaction, retention and productivity.

## COMPELLING AND REWARDING WORK

Manhattan Active Labor Management helps create a sense of accomplishment and empowerment, so associates are self-driven to increase their performance. Not only does it save supervisors from spending time coaching low performers, it promotes better warehouse culture and a stronger warehouse labor force. As performance increases, so does worker satisfaction and retention.

Manhattan Active Labor Management still measures performance, but does so with intuitive, consumer-oriented, mobile experiences. It's designed to encourage, guide and motivate employees using behavioral theory and gamification techniques that significantly increase individual and team productivity, efficiency and satisfaction.

Manhattan Active Labor Management and Manhattan Active Warehouse Management are now capabilities within a single, unified, supply chain application. Using machine learning to augment labor standards expertise with intelligent task-time scheduling and estimation ensures the system is continuously re-optimizing changing priorities and order variety within the distribution center. Once a "nice-to-have" application used to drive performance, Manhattan Active Labor Management is now a mission-critical component of every modern distribution center.



# Slotting Optimization

In warehouses, just like in real estate, location makes all the difference. It directly affects productivity, worker safety and order accuracy. You want fast-moving items situated in the most accessible locations, heavy items placed to minimize damage and total storage capacity optimized.

The challenges of smaller orders, SKU proliferation, volatile demand and shorter order cycle times require nonstop optimization of warehouse space. As distribution operations adapt to requirements driven by digital commerce, optimized slotting becomes more critical to controlling costs and meeting customer expectations.

## OPTIMAL APPROACH TO OPTIMIZATION

Manhattan Active® Slotting Optimization automatically determines the best locations to locate inventory to increase workforce efficiency, shorten order fulfillment cycles and maximize throughput. It also improves customer service by strategically grouping items together for fulfillment and updating placement recommendations based on trends and new product demand.

Manhattan's slotting optimization solution makes leveraging built-in learning intelligence — which continuously calculates optimal slotting — both intuitive and easy. Our technology considers seasonality, sales trends and product variations, while maintaining preferred-item sequencing and family groupings. And it is designed with capabilities to handle even the most complex warehouse environments.

Manhattan Active Slotting Optimization is the first and only technology that seamlessly integrates slotting moves and picking as part of the overall management of the distribution center. As a single application — natively unified with warehouse management and labor management — our new slotting optimization requires no integration or modifications to ensure decisions are executed in the timeliest and most cost-effective manner. That means pre-seeded, slotting-run strategies that streamline configuration and provide unprecedented flexibility, whether manually executed on demand or scheduled ahead of time and run without user intervention.

Because it is part of Manhattan Active Supply Chain, the new solution uses the identical intuitive, mobile-user experience integrated across the enterprise.

## Features + Functions

- Set and re-set pick locations based on product demand, changing consumer expectations and operational constraints
- Group items for rapid fulfillment and update placement based on sales trends and product variations
- Use product characteristics and velocity to calculate a relative value for each potential placement
- Aggregate values across products and compare millions of move combinations against user-configured strategies
- Configure multiple run strategies to ensure optimal configurations based on real-time picking patterns in the warehouse

## RIGHT INVENTORY, RIGHT PLACE, RIGHT TIME

Manhattan Active Slotting Optimization raises slotting workflow to a new level of efficiency, even in the largest and most complex facilities. The results are replenishment reductions and increased throughput volume, thanks to dynamic optimizing and executing slot location movement for all products in the distribution center.



# Transportation Management

Logistics complexities and service-level expectations have increased dramatically over the past decade, and micro and macro disruptions continue to upset the efficient flow of materials and goods across the world's supply chains. Network changes, rising rates, reduced capacity, escalating supplier and consumer demands, as well as the global pandemic, have created complexity and volume that legacy transportation management systems (TMS) were never designed for. Agility has become vital, as companies scramble to adapt to new uncertainties.

Manhattan Active Transportation Management (TM) is the next generation of TMS. It is cloud-native, built entirely from microservices and never needs upgrading. New features and updates arrive every 90 days for all users. It was engineered to be extended, so you can add your innovation to ours without ever impacting future updates. And it is part of Manhattan Active Supply Chain, a single app for complete command and control of all distribution, labor, automation and now transportation.

## FASTER

Manhattan Active Transportation Management was purposefully engineered from the ground up to make planning simpler. It was designed by dedicated data science and engineering teams with three decades of learning and experience working with some of the world's most complex supply chains.

The result is a cloud-native TMS built entirely from microservices, making it an autoscaling future system (like all Manhattan Active solutions) that provides the foundation for continuous innovation and blistering performance.

Manhattan Active TM includes an all-new, multi-modal optimization core that is the fastest in the industry, utilizing in-memory computing technology to keep data cached instead of recreating data structures each time new parameters are planned. The result is a monumental leap forward in processing speed, analyzing up to 18 million feasibility options every second and reducing solve times by up to 80%.

The extraordinary speed of the all-new solver means you can add more data points without slowing down your operations. The Manhattan Carrier Network offers turnkey engagement with many pre-integrated partners for data on visibility, rating and capacity, traffic, weather and more. In just a few clicks you can bring in additional information for more accurate planning, optimization and execution of your orders and shipments.

## SMARTER

Manhattan Active TM is also the industry's first self-configuring and self-tuning transportation engine. A single, multi-modal solver combines the industry's best solution quality and highest performance, while eliminating the complexity of configuration for planners. The system automatically selects between numerous route generation techniques in real time without any oversight required by the transportation planner.

Speaking of the planner, the all-new user experience is highly visual and designed to be configurable. Interactive maps provide a rich canvas to explore order and shipment details, with real-time details available with a click or a tap. The intuitive user interface offers a personalized planning experience by reorganizing visuals and data to match individual user needs. Creation and management of all planning and execution tasks can be accomplished within Unified Logistics Control, at any level of granularity. Shipment visibility is front and center, making changes simple to execute with fewer clicks than ever before.

### Features + Functions

- All microservices, cloud-native SaaS architecture
- Engineered extensibility to add unique logic seamlessly
- Continuous multi-modal planning and optimization
- Fastest optimization solve speed in the industry
- Self-configuring and self-tuning optimization engine
- Unified, responsive, user experience across the network
- Pre-connected visibility, capacity and carrier partners
- In-app messaging for quick and easy peer communication
- Subscription-based alerting to ease exception management





