GreyOrange

MASTERING

MEDICAL DEVICE LOGISTICS

A GUIDE TO KITTING EFFICIENCY

Introduction

As U.S. healthcare spending continues to surge (projected to soar to nearly $7.2 trillion[1] by 2031), the medical technology market anticipates a strong future, with a projected revenue of $570.7 billion in 2023. Medical Devices take the lead, projected to reach a market volume of $471.8 billion, charting a compelling annual growth rate of 4.73%[2] (CAGR 2023-2028) and propelling the market to an expected $719.2 billion by 2028[2].

A closer look at the global implantable medical devices market reveals a noteworthy trajectory, climbing from 105.2 billion in 2020 to an estimated 152.6 billion by 2026[3]. Driven by factors such as an aging population, an increase in age-related disorders and a growing appetite for cosmetic surgeries, this market push is being amplified by rising disposable incomes, rapid urbanization and technological innovations.

For warehouse operators, these factors are accompanied by heightened demands that stem from a rapidly evolving market landscape. Split case picking orders are on the rise and SKUs keep increasing, which is especially relevant for operations that specialize in kitting.

Managing kitting operations in the medical device industry requires carefully managing accuracy, speed and compliance. This ebook provides a blueprint for overcoming these challenges with automation. We'll explore how cutting-edge solutions for handling split case picking and navigating complex workflows can optimize your kitting processes and improve outcomes.

Source:

[1]Pifer, Rebecca, US health spending to surpass $7T by 2031, CMS actuaries say, www.healthcaredive.com, June 15, 2023, https://www.healthcaredive.com/news/us-health-spending-projections-cms-covid-ira/652973/

[2]Medical Technology - Worldwide,www.statista.com, https://www.statista.com/outlook/hmo/medical-technology/worldwide

[3]Expert Market Research Explores the Top 5 Companies in the Global Implantable Medical Devices Market, www.expertmarketresearch.com, 20 Jul 2021, https://www.expertmarketresearch.com/articles/top-5-companies-in-the-global-implantable-medical-devices-market

Medical device companies in a post-pandemic world: new challenges and new opportunities

Amidst the pandemic, medical device organizations showcased resilience, leveraging innovation and agility to surmount unprecedented adversity. Now the medical device landscape faces a new set of challenges. Lingering supply chain issues cast a shadow, with analysts predicting the extension of certain shortages into 2023. Paramount among these challenges are:

Rising raw material prices:

The escalation in raw material prices is exerting pressure on the cost dynamics within the industry.

Increased demand:

The uptick in demand, while indicative of the industry's vitality, makes it difficult to meet and sustain elevated product requirements.

Hampered distribution networks:

Disruptions in distribution networks further compound the existing problems, necessitating innovative solutions.

A key consideration for medical device companies is anticipating the next global disruption. Research from the McKinsey Global Institute highlights the stakes, suggesting that a major supply chain shock within the decade could result in some medtech companies losing approximately 38%[4] of a year's earnings.

The demand for faster product development has set a new benchmark for future timelines. As organizations seek to build more resilient technology stacks, the integration of new capabilities into existing systems and workflows emerges as a strategic avenue to sustained success.

Source:

[4]Mohammad Behnam, Tacy Foster, Tony Gambell, and Shyam Karunakaran, The resilience imperative for medtech supply chains, www.mckinsey.com, December 18, 2020, https://www.mckinsey.com/capabilities/operations/our-insights/the-resilience-imperative-for-medtech-supply-chains

Optimizing distribution efficiency through warehouse kitting

To improve efficiency, reduce costs and enhance customer satisfaction, many medical device companies have turned to warehouse kitting – the process of pre-assembling multiple components or items into a single kit before shipping. Kitting allows warehouses to:

Reduce travel time and enhance picking efficiency
Eliminate unnecessary travel and significantly reduce picking time for enhanced efficiency.

Handle and fulfill a smaller number of SKUs
Streamline inventory management by decreasing tracked SKUs. Efficient fulfillment and material handling are maintained while offering visibility into the individual SKUs within a kit.

Cater to customer needs with customized kits
Enable organizations to create customized product packages by bundling components to enhance customer satisfaction and potentially increase order value.

Minimize shipping costs and packaging waste
Cut costs by consolidating items into a single package, reducing shipments, saving space and minimizing packaging materials for a more cost-effective, sustainable solution.

Enhance quality control and ensure completeness
Kitting plays a crucial role in maintaining product quality and ensuring that all components are present and accounted for. By pre-assembling kits, companies can reduce the risk of errors and omissions.

Optimize warehouse space and reduce storage costs
Maximize space utilization by consolidating products into kits, reducing the storage footprint. This results in significant cost savings on rent and utilities, allowing for improved resource allocation.

Navigating manual kitting hurdles

For the purposes of medical product and instrument kitting, manual processes pose significant drawbacks. Manual kitting consumes a large amount of space, is prone to errors and takes a good deal of time. In contrast, automated pick-and-place systems provide a streamlined, quick and accurate solution that uses less floor space.

Manual kitting requires employees to sift through boxes for individual components, introducing multiple points of error. This can result in the assembly of kits with incompatible parts, affecting overall product quality.

Moreover, the software used in manual kitting environments often has to be customized in order to treat kits as unique SKUs. This can be a complicated and time-consuming process, and these customized systems often lack the flexibility and scalability needed to support the growing complexity of medical device kits.

How automation transforms kitting processes

Automated kitting systems not only address the drawbacks of manual kitting but also offer a range of additional benefits:

Increased productivity
Automation reduces labor time, enabling faster kit assembly and increased production output.

Enhanced accuracy
Robots eliminate human error, ensuring the accuracy of kit contents.

Reduced floor space
Automated systems require less floor space compared to manual kitting setups, optimizing production environments.

Improved traceability
Automated data collection and tracking capabilities enhance traceability for compliance purposes.

Reduced labor costs
Automation minimizes the need for manual labor, reducing labor costs and improving overall cost-efficiency.

Enhanced safety
Robots eliminate the risk of workplace injuries associated with the manual handling of components.

According to a **McKinsey** medical device supply chain case study, successfully **implementing AI-enabled supply-chain management** has enabled early adopters to **improve logistics costs by 15%, inventory levels by 35%** and **service levels by 65%** (compared to slower-moving competitors).

But there are gaps in the market with current Automation Providers

Companies offering automation solutions face a critical gap as they often depend on the client's software for intricate inventory transactions and comprehensive kitting processes.

1

Complex Integration:
Instead of a straightforward pick list, integrating tasks for full kit creation (storage, partial picking, full picking and fulfillment) becomes more intricate.

2

Need for Dual Flows:
Automation providers require both putaway and picking flows, adding an extra layer of integration complexity.

3

Software Providers:
Software providers proficient in managing inventory and kitting processes still lack efficiency in coordinating workflows with an automation agent.

MedTech giants are beating supply chain blues with AI

From dock-to-stock, deep storage and replenishment to order consolidation and more, streamline complex operations seamlessly. You can gain operational efficiency by managing multiple Autonomous Mobile Robots (AMRs), both in-house and 3rd party, under one roof.

Medical sector best practices for AI are a must as CEOs across industries invest in the technology*

61% of CEOs
have or are actively embracing AI, up from 51% last quarter

70% of CEOs
who already deployed AI have seen an immediate return on investment (ROI)

80% of CEOs
plan to deploy AI technologies within their operations over the next two years

86% of CEOs
support federal regulations to govern the use of AI within broader society

83% of CEOs
support the creation of a presidential task force to study and recommend regulations

Most CEOs are using or plan to use AI for supply chain management and manufacturing procurement.

AI tied automation as the most-significant tool CEOs are using to drive efficiency and productivity within their organizations this quarter

*Adapted from Xometry

Streamlining operations with AMRs and orchestration

Using an intelligent orchestration platform to support an automated solution composed of different AMRs optimizes processes from end-to-end. The platform can seamlessly manage both kits and individual SKUs, enabling it to support kit audits, replenishment and flexible kit creation. Furthermore, it can ensure granular visibility into inventory status, tracking lot IDs and serial codes at the individual SKU level. Solutions with these capabilities fall under the category of advanced automation technology.

The key benefits of an advanced automated kitting solution:

Unlock real-time visibility
Gain real-time insights to predict demand and allocate inventory effectively, minimizing waste.

Reduced delivery times
Expedite delivery by bundling components into kits, improving pick accuracy and ensuring faster availability of medical devices.

Move to a single software platform
A single orchestration platform dynamically models workflows, eliminating the need for additional software/hardware installations.

Complete compliance assurance
Ensure adherence to regulations and standards throughout the assembly and shipping processes.

Improved performance
Increase pick productivity significantly, achieve a high pick accuracy rate and reduce labor intensity and walk time throughout the facility.

Flexibility and scalability gains
Seek a flexible system with easy integration at both brownfield and greenfield sites, allowing minimal infrastructure changes. Scalability should enable meeting customer demand during peak seasons.

More easily handle high SKU counts
Effectively manage a high SKU count to assemble kits of all sizes.

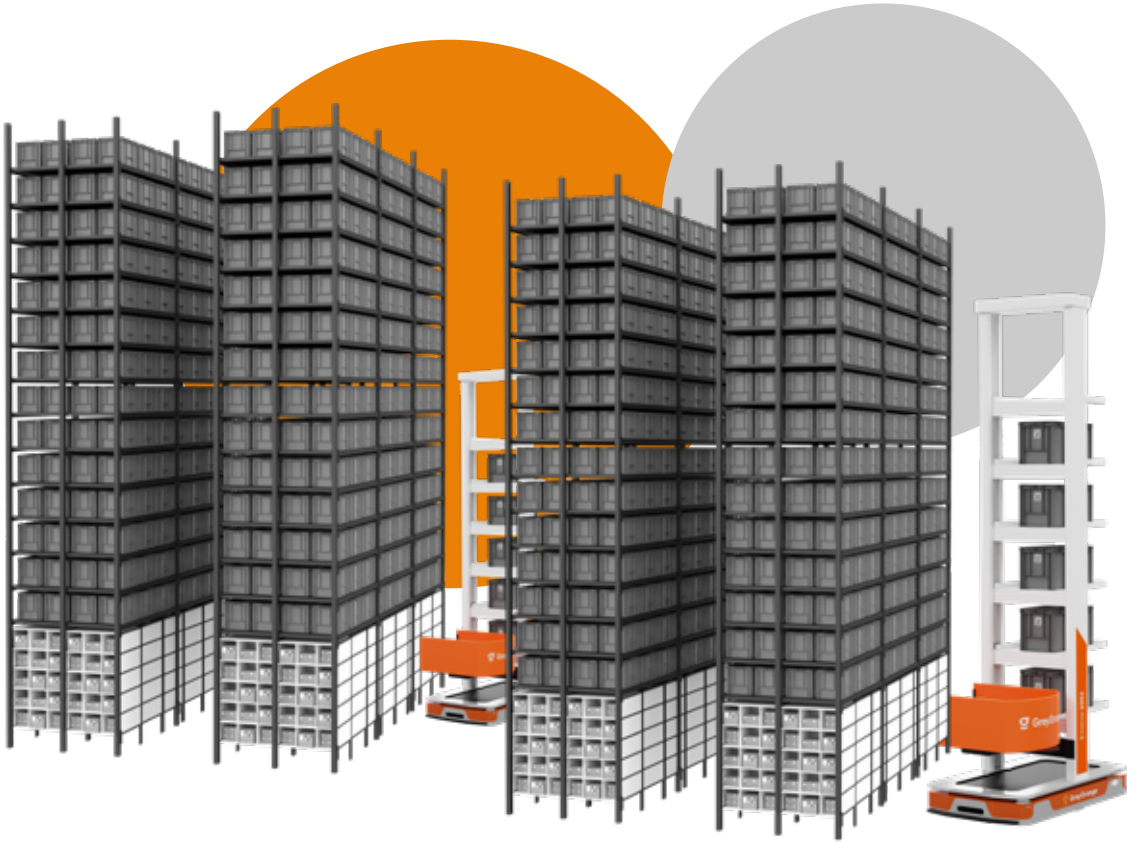
Upgraded serial code tracking
Advanced automation solutions offer the ability to map and track serial codes for better traceability.

Enhanced inventory management
Utilize data-driven insights to strategically allocate inventory, ensuring components are in the right place at the right time. Automated replenishment processes maintain optimal inventory levels.

Better storage efficiency
Optimize warehouse layouts and leverage vertical storage solutions to maximize space utilization. Analyze inventory data to identify opportunities for efficient storage allocation.

Revolutionizing logistics: Stryker's loaner kit distribution transformation and its $4.9 Million Impact

Stryker's fragmented loaner kit distribution network, coupled with outdated processes and employee reliance on institutional knowledge, hindered space consolidation and posed a risk to future growth.



Our Solution

We deployed Ranger TTP Vertical AMRs to efficiently manage the movement and tracking of kits and individual SKUs, ensuring that the right kits are available when and where they are needed. GreyMatter™, our proprietary multiagent orchestration (MAO) platform, drives the entire operation, providing a flexible and scalable advanced automation solution for Stryker's evolving requirements.

Completed kits are seamlessly inducted into the TTP system to be sent to doctors, and returned kits are examined via a QA process to identify consumed SKUs. For kits with missing SKUs, the system retrieves them, consolidates the items and then places them back in storage. When an order is received, the system efficiently retrieves and fulfills it, optimizing the kit distribution process for enhanced efficiency and accuracy.

This approach eliminates the need for manual handling and tracking and ensures that Stryker can meet the growing demand for its kits while maintaining operational efficiency.

Getting started with kitting automation

Today, kitting processes largely remain manual or semi-manual, lacking the efficiency of full automation. This can lead to missed deliveries, patient safety concerns and a struggle to keep pace in a competitive market.

GreyOrange can help you revolutionize your kitting operations and achieve better outcomes. Unlike co-bot solutions that rely on a patchwork of software and hardware from different vendors, GreyOrange offers a unified solution: Ranger series robots powered by our intelligent orchestration platform, GreyMatter. This seamless integration removes the complexities of external partnerships and delivers a fully automated kitting experience with a single, intuitive interface. The benefits include:

- Reducing human touchpoints throughout the kitting process, minimizing the risk of errors and contamination
- Boosting pick accuracy to near-perfect levels, ensuring complete and correct kits for every delivery
- Creating partially or fully picked kits in record time, optimizing order fulfillment and meeting even the most stringent deadlines

Our Ranger robots, guided by the dynamic intelligence of GreyMatter, streamline your workflows, optimize space utilization and provide real-time visibility into your inventory.

Our solution:

- Increases pick productivity by up to 5x, freeing up resources for other critical tasks
- Reduces labor intensity and walk time, creating a more efficient and comfortable work environment
- Enhances compliance with strict medical device regulations, giving you peace of mind and protecting patient safety

Take the leap toward operational excellence with GreyOrange. Visit our website today to learn more about how our unified solution can help you outperform the market and deliver on the promise of life-saving medical devices.

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