

PEAKLOGIX

AN ALTA MATERIAL HANDLING COMPANY

Optimizing Warehouse Efficiency with **Goods-to-Person Systems** Automation





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UNDERSTANDING GOODS-TO-PERSON

Efficiency and precision are more than operational goals—they are strategic imperatives. Businesses managing warehouses and manufacturing environments face increasing pressure to reduce costs, improve order accuracy, and streamline operations to remain competitive.

Goods-to-Person (G2P) automation is emerging as a transformative solution that not only meets these needs but also redefines the very nature of warehouse and manufacturing operations.



What Is Goods-to-Person (G2P) Picking

Goods-to-Person picking represents a significant shift from traditional operational processes. Instead of having employees traverse vast facility spaces to locate and retrieve items, G2P systems deliver goods directly to the worker's station.

This innovative approach eliminates the time-consuming travel associated with conventional picker-to-goods systems, where much of the labor is spent moving between storage locations.

By automating the delivery of cases, totes, or pallets to the picker, the process becomes faster and more accurate. This results in increased throughput and lower labor costs, making G2P an essential strategy for modernizing order selection operations.



Types of Goods-to-Person (G2P) Picking

A variety of G2P systems exist to address different operational needs, each offering unique benefits tailored to specific warehouse environments. Below, we explore the key technologies that make up modern G2P solutions.

Common types of GTP systems include:

- Vertical Lift Modules (VLMs)
- Horizontal Carousels
- Automated Mobile Robots (AMRs)
- Shuttle Systems
- Tote and pallet-based robotic delivery solutions

Vertical Lift Modules (VLMs)

Vertical Lift Modules (VLMs) are automated storage systems that use vertical motion to bring items directly to the picker.

By storing products in a compact, high-density configuration, VLMs maximize floor space, which is particularly valuable in facilities where space is at a premium. These systems not only enhance storage capacity but also streamline the retrieval process, ensuring that the right items are delivered efficiently to the workstation.

The use of vertical motion minimizes the time spent by employees walking or searching for products, ultimately contributing to a more productive and organized operation.



Horizontal Carousels

Horizontal Carousel systems operate by rotating bins or trays in a circular motion to present goods to the operator. This approach is especially effective in high-density storage environments where quick access to a wide variety of items is necessary.

The continuous rotation mechanism ensures that products are always within reach, reducing the time spent by employees retrieving items. Horizontal Carousels are particularly well-suited for operations that require rapid fulfillment of orders, as they streamline the picking process and help maintain high throughput levels.



AMR Tote

AMR Tote systems integrate Autonomous Mobile Robots (AMRs) with tote-based storage solutions. These systems are designed to transport small to medium-sized goods throughout the facility autonomously. AMRs navigate complex layouts and dynamically adjust to changing conditions, ensuring that totes containing products are delivered swiftly and accurately to the picker. This technology reduces human intervention, mitigates the risk of errors, and supports continuous operation. AMR Tote systems are ideal for facilities aiming to boost operational flexibility and scalability through cutting-edge automation.



Pallet Shuttle AS/RS Systems

Pallet Shuttle Automated Storage and Retrieval Systems (AS/RS) are designed for the efficient handling of large, heavy items such as full pallets.

These systems utilize shuttle mechanisms to transport pallets within the storage facility, automating what is traditionally a labor-intensive process. Pallet Shuttle AS/RS systems are capable of high-speed movement and precise placement of pallets, reducing manual handling and the associated risks of injury or damage.

This technology is ideal for warehouses that manage bulk storage and require robust solutions to maintain operational efficiency.

Tote Based G2P System

Tote Based G2P Systems standardize the storage and retrieval of goods by using uniform totes. This consistency simplifies the handling process, as the system is optimized to work with containers of a fixed size and shape.

The standardization enhances batch picking techniques, allowing for multiple orders to be processed simultaneously with minimal error. Tote Based G2P Systems are especially beneficial for operations looking to streamline workflows and achieve higher levels of accuracy in order fulfillment.



Tote Shuttle AS/RS Systems

Tote Shuttle AS/RS Systems combine the benefits of tote-based storage with shuttle technology. This integration enables rapid and precise retrieval of totes within the automated system, further enhancing operational efficiency.

By leveraging shuttle mechanisms, these systems can quickly transport totes to the picker's station, reducing cycle times and improving throughput. Tote Shuttle AS/RS Systems are particularly suited to environments where speed and accuracy are critical, providing a reliable solution for modern warehouses aiming to optimize their picking processes.

Each of these G2P technologies offers distinct advantages, and choosing the right solution depends on the specific needs and layout of your facility. Whether maximizing vertical space, enhancing flexibility with autonomous robots, or ensuring rapid pallet or tote retrieval, these systems collectively enable a more efficient, accurate, and cost-effective warehouse operation.

Why Consider a G2P System for Your Business?

Adopting a Goods-to-Person (G2P) system can transform your warehouse operations and drive overall business success. Beyond the technological advantages, G2P solutions offer strategic benefits that extend to organizational culture, profitability, customer satisfaction



Improve Your Organizational Culture & Employee Satisfaction

G2P systems help reshape the workplace by automating labor-intensive tasks, which can greatly improve employee morale. When workers are relieved from the physical strain of traversing large warehouses to retrieve items, they can focus on higher-value activities that contribute to business growth.

This shift not only enhances job satisfaction but also reduces the risk of injuries and fatigue. As a result, employees are likely to feel more engaged and motivated, fostering a positive organizational culture that supports innovation and continuous improvement.



Increase Your Organizational Profitability

Efficiency is at the heart of profitability, and G2P systems are designed to boost operational performance. By significantly reducing travel time within the warehouse and streamlining the picking process, businesses can achieve faster order processing and reduced labor costs.

The precision and speed of automated systems minimize errors and waste, leading to direct savings and higher profit margins. With optimized resource allocation, organizations are better equipped to handle increased volumes without a corresponding rise in costs, paving the way for sustained profitability.



Enhance Your Current Customer Satisfaction

Customer satisfaction is critical in today's competitive market, and timely, accurate order fulfillment is key to maintaining strong customer relationships. G2P systems contribute to higher accuracy rates in order processing, reducing picking errors and shipment delays.

When customers receive their orders quickly and correctly, their overall experience improves, leading to increased loyalty and positive word-of-mouth. By integrating G2P automation with existing enterprise systems, companies can ensure that each order is handled efficiently, thereby enhancing the overall customer experience.



Enable Your Business to Grow into New Markets, New Clients

Scalability is a vital advantage of G2P systems. With enhanced operational efficiency and reduced labor constraints, businesses can handle higher order volumes and expand their service capabilities without major disruptions. This scalability not only supports current operations but also positions the organization to enter new markets and attract new clients. As the operational backbone becomes more robust, businesses are able to explore new growth opportunities, diversify their product offerings, and ultimately achieve a competitive edge in emerging markets.

By addressing critical aspects such as employee well-being, profitability, customer satisfaction, and market expansion, G2P systems provide a comprehensive solution that drives both operational excellence and strategic growth. This holistic approach ensures that investments in automation yield benefits across all levels of the organization, making G2P an essential consideration for any forward-thinking business.

How to Determine if a G2P System is a Good Fit

Evaluating whether a Goods-to-Person system is the right choice for your facility requires a comprehensive, data-driven approach. By closely examining your current operations and forecasting future needs, you can select a solution that not only meets today's requirements but also scales with your business growth. Here are the key areas to consider:

Let Data Drive the Solution

Begin by letting data guide your decision-making process. Collect and analyze historical order volumes and trends to understand your facility's performance. This data will help you gauge both the current workload and projected future demand, ensuring that the G2P system you choose can handle fluctuations and scale effectively over time.



Assess Current & Future Order Volume

A crucial aspect of determining the right fit is assessing the volume of orders you process on a daily basis. This evaluation should extend beyond your current output to include anticipated growth. By understanding the scale at which your operations function, you can ensure that the G2P system will maintain efficiency and accuracy, even as order volumes increase.



Understand Product Types and Define Picking Complexity

Different products require different handling and storage solutions. Analyze the types of products in your inventory, considering factors such as size, weight, and fragility. Additionally, define the complexity of your picking operations—consider the number of SKUs, the diversity of items per order, and the overall mix of products. This understanding is vital to determining the level of automation needed to streamline your process effectively.



Facility Space & Performance

Evaluate your current facility footprint to understand how space is utilized and where improvements can be made. Consider the layout, available storage, and overall performance metrics such as throughput and accuracy. Analyzing these factors will help you determine how a G2P system can be integrated into your existing operations to maximize efficiency and optimize space usage.



Assess Direct Labor and Define ROI Success

Direct labor costs are a significant part of warehouse operations. By automating key tasks, a G2P system can reduce the amount of manual labor required, leading to substantial cost savings. Define your return on investment (ROI) success by considering not only the immediate labor savings but also long-term benefits such as the reduction of errors, returns, and overtime expenses. A successful ROI will be reflected in lower operational costs and a more streamlined workforce.





By systematically evaluating these factors—driven by data, current operational metrics, and future growth projections—you can determine if a G2P system is the right fit for your business. This thoughtful approach not only improves your operational efficiency but also sets the stage for sustainable growth and enhanced profitability.

Improve Inventory Management & Cash Flow

Accurate inventory management is essential for maintaining healthy cash flow and reducing costs. G2P systems provide real-time inventory tracking, which minimizes stock-outs and reduces excess inventory. Improved accuracy in inventory management translates into better cash flow, as you can avoid the financial pitfalls of overstocking or missed sales opportunities.



Scalable Operations to Meet Demand and Future Growth

A crucial aspect of determining the right fit is assessing the volume of orders you process on a daily basis. This evaluation should extend beyond your current output to include anticipated growth. By understanding the scale at which your operations function, you can ensure that the G2P system will maintain efficiency and accuracy, even as order volumes increase.



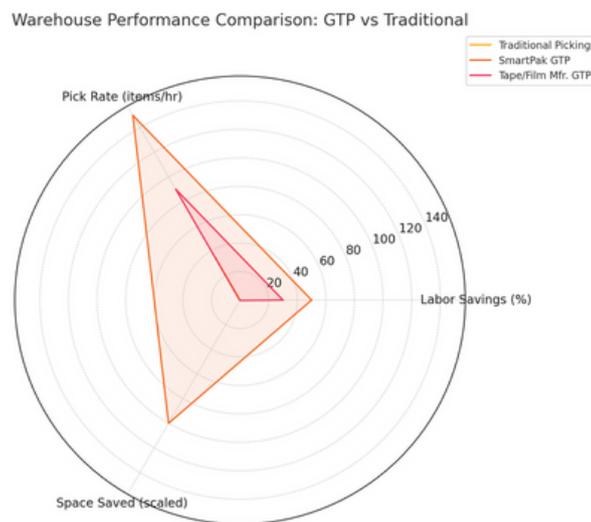
Finally, ensure that the G2P solution you choose is scalable and capable of meeting both current demands and future growth. As your business expands, your operations will need to handle increased order volumes, a broader product range, and more complex workflows. A scalable G2P system will allow you to adjust seamlessly to these changes, ensuring long-term operational efficiency and a competitive edge in the marketplace.

Expected Benefits From a G2P Solution

Implementing a G2P system brings transformative benefits that can be grouped into what is often referred to as the "Big 3": Throughput, Labor, and Accuracy. Each of these areas contributes significantly to the overall operational performance of a warehouse, ensuring that businesses can meet increasing demands with greater efficiency.

Labor Optimization

Reducing direct labor costs is another significant benefit of G2P systems. By cutting down the travel time required for workers to move around the facility, companies can achieve labor savings of 30% to 50%. With automation taking over the more repetitive and time-consuming aspects of the picking process, workers can focus on processing more orders concurrently.

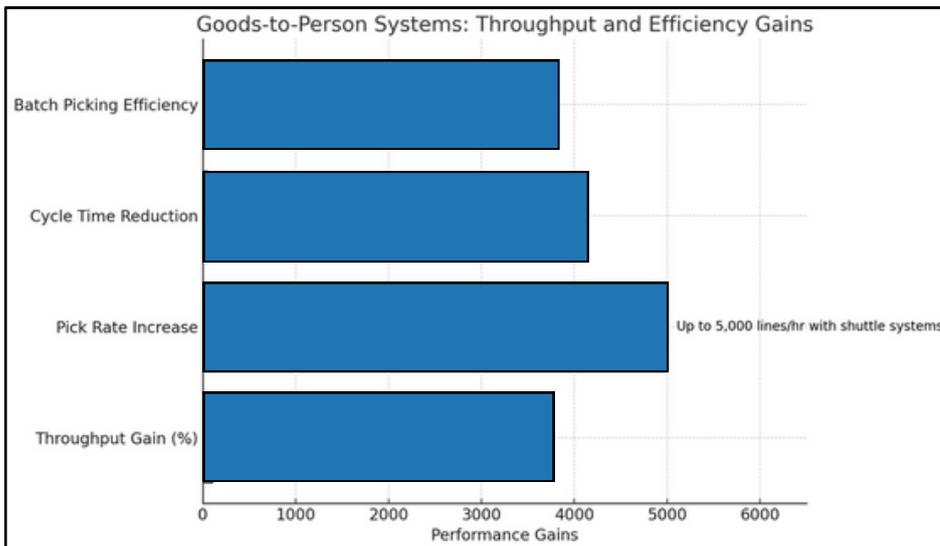


This boost in productivity, often ranging from 30% to 60%, means that more orders can be completed in the same time frame. Moreover, the enhanced efficiency of G2P systems reduces the need for a large headcount, with potential reductions in the number of pickers by 25% to 50%. This decrease in staffing requirements not only lowers labor costs but also simplifies workforce management, allowing organizations to reallocate resources to other critical areas.

Increased Throughput

One of the primary advantages of G2P systems is the marked improvement in throughput. By automating the process of delivering items directly to the picker, these systems drastically increase the speed and efficiency of operations within the work center or facility.

With increased picking speed, workers are freed from the lengthy tasks of searching for products, resulting in throughput improvements of anywhere from 20% to 50%. Additionally, G2P systems often support batch picking techniques, allowing workers to efficiently pick multiple orders simultaneously.



This capability further streamlines operations by reducing the cycle time for order processing. Integration with ERP and Warehouse Management Systems (WMS) also plays a crucial role by queuing orders and ensuring that each task is executed in a timely manner.



Accuracy

Accuracy in order fulfillment and inventory management is paramount, and G2P systems excel in this area. By delivering the right product at the right time, these systems help reduce human errors dramatically—by as much as 50% to 90%. Real-time inventory tracking further ensures that stock levels are accurately maintained, which reduces stock-outs and improves cash flow while achieving inventory accuracy rates between 95% and 99.9%.

In addition, the combination of batch-picking and automated guidance means that items are grouped together more efficiently, leading to a reduction in shipment errors by 30% to 50%. The enhanced accuracy in both order picking and inventory control not only boosts customer satisfaction but also contributes to smoother, more reliable operational performance across the board.

By delivering comprehensive improvements in throughput, labor efficiency, and accuracy, a G2P solution offers a compelling value proposition for modern warehouses. These benefits collectively result in a faster, leaner, and more accurate order fulfillment process, setting the stage for improved profitability and customer satisfaction while paving the way for scalable growth.

Use Cases and Deployment Models: Replacing Static Shelving

Replacing static shelving with automated solutions is often one of the first steps companies take toward modernizing their warehouse operations. Static shelving, while simple and inexpensive, can significantly limit efficiency and storage density. As order volume increases or product lines diversify, these limitations become more pronounced—slowing down picking processes, increasing labor costs, and reducing overall throughput.

Many organizations find that transitioning to more dynamic systems, such as vertical lift modules (VLMs), mobile shelving, or automated storage and retrieval systems (AS/RS), not only improves space utilization but also enhances picking accuracy and productivity. In fact, PeakLogix has helped clients reclaim and repurpose significant floor space—optimizing even as little as 1,400 square feet to increase efficiency and capacity without expanding the facility's footprint.

From Static to Strategic: Reclaiming Space with Smart Storage Solutions

Static Shelving
1,400 sq. ft.

Optimized with Automation

↓ **Up to 60% Less Floor Space Needed**

🚀 **Increased Picking Efficiency by 2x-3x**

✅ **Improved Accuracy and Throughput**

"In one PeakLogix project, we helped a facility reduce their storage footprint from 45,000 sq. ft. to 15,200 sq. ft. using horizontal carousels – while increasing capacity for over 50 million slides."

Big gains don't always require big spaces.
Let us help you unlock more from your current footprint.

Visit peaklogix.com to learn more

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Deployment models vary based on the size of the operation, SKU velocity, and budget. For smaller facilities or those with low to moderate throughput needs, mobile shelving or vertical carousels can be a cost-effective entry point into automation. Larger warehouses often see greater ROI from more advanced solutions like AS/RS, which integrate with warehouse management systems to deliver real-time inventory tracking and optimized order fulfillment.

In one standout project, PeakLogix helped a client reduce their storage footprint from 45,000 square feet to just 15,200 square feet using horizontal carousels—demonstrating how scalable and impactful these systems can be. By partnering closely with clients, PeakLogix ensures every automation strategy is tailored to both the current operational landscape and future growth potential.

IMPLEMENTATION CONSIDERATIONS

Successful deployment of warehouse automation starts with a data-driven discovery process. At PeakLogix, we evaluate key factors like inventory profiles, order volumes, SKU velocity, and storage needs to design a tailored solution. This thorough analysis ensures we create a system optimized for your unique operations.

Integration with your existing WMS and ERP systems is handled collaboratively, ensuring smooth data exchange without disrupting your workflows. During installation, we prioritize keeping operations running smoothly. PeakLogix project managers work closely with your facility leaders to carefully coordinate the process, minimizing

disruption and maintaining productivity throughout the deployment. Once the system is installed, PeakLogix continues to provide support through post-deployment monitoring and optimization.

We don't just walk away after the installation; our team works with you to ensure the solution is performing as expected and making the impact you envisioned.

By analyzing system data and performance metrics, we can make any necessary adjustments to further optimize the system. This careful planning ensures the transition to automation is seamless and efficient.

Expected ROI Most organizations realize a return on investment within 2 to 3.5 years. Some systems may pay back even faster, depending on scale and labor savings.

Up to 100%



THROUGHPUT INCREASE

35% - 50%



LABOR REDUCTION

Up to 90%



ORDER ACCURACY IMPROVEMENT

Investment Considerations for G2P Systems

While the operational benefits of G2P systems are compelling, the financial investment required must be carefully evaluated. Capital expenditures (CAPEX) for these systems can vary widely depending on the complexity and scale of the implementation. It is essential to build a robust business case that outlines expected savings, additional revenues captured, and costs avoided through automation. Moreover, understanding the payback period is crucial.

Most G2P solutions are designed to deliver a return on investment within two to three and a half years. This clear timeline helps justify the initial expenditure and aligns the investment with long-term strategic goals. By analyzing both the upfront costs and the anticipated operational savings, businesses can make informed decisions that support sustainable growth



Real-World Operational Facility Assessment

Before committing to a G2P system, conducting a thorough operational facility assessment is critical. This assessment should begin with an in-depth workflow analysis to identify current bottlenecks and inefficiencies. Understanding the existing process in detail allows you to pinpoint where automation will have the greatest impact.

Next, evaluate the physical layout of your facility. Determining how to best utilize available space can reveal opportunities for reconfiguration that complement G2P technology. Working with industry experts to develop a custom implementation roadmap ensures that the transition is smooth and that the new system integrates seamlessly with existing operations. This tailored approach minimizes disruptions and lays the foundation for long-term success.



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Peaklogix offers expert guidance and tailored solutions designed to meet the unique needs of modern warehouses. To learn more about how G2P automation can revolutionize your facility and support your business growth, visit Peaklogix.com.

Schedule Your Assessment Today