



**ACTIW** STORAGE

**WHITE PAPER**  
**PROCTER & GAMBLE**  
**RIGHT SYSTEM FOR RIGHT APPLICATION**

# RIGHT SYSTEM FOR THE RIGHT SETTING

Actiw offers a unique automated warehouse system, which, in certain settings, is unbeatable on the market. The purpose of this white paper is to share the latest trends in intralogistics automation and to discover in which settings Actiw Storage is the best alternative on the market. Finally we get to learn why Procter & Gamble, the world's largest and most profitable consumer goods company, has a long history as Actiw's client and currently operates four Actiw warehouses worldwide.

## INTRODUCTION

Adaption rates in intralogistics automation are steadily growing. This growth is supported by the development of ever more sophisticated and flexible automation solutions. These solutions alleviate the pain that logistics operations around the globe are experiencing in continuously finding new ways to improve efficiency and accuracy.

Actiw offers a unique, ultra-high-density warehouse automation system that provides maximum flexibility with highest-in-the-market throughput, efficient cubic fill and built-in order sequencing capability. Actiw is especially suitable for situations where the space is restricted by height or otherwise has a challenging shape.

Procter & Gamble operates a large number of distribution centers worldwide. P&G considers logistics as a source of competitive advantage. As a forerunner in the field of warehousing, P&G is well aware of all possibilities offered in the market, both automated and traditional. Through the years, Actiw has had the privilege to deliver its state-of-the-art systems for the benefit of P&G on several occasions. P&G currently operates four Actiw warehouses around the globe.

## READ FURTHER, IF YOU WISH TO:

- learn the latest trends in logistics, warehousing and automation
- figure out in what kind of situations Actiw's solutions are the best choice on the market
- gain understanding on how P&G goes about comparing different alternatives for developing their warehousing functions and understand in which situations Actiw has been able to best answer to these needs.

# MANUAL VS. AUTOMATION – SHOULD I AUTOMATE?

Despite the strong correlation with improved performance, overall rates for warehouse automation remain fairly low. According to research performed by the Aberdeen Group<sup>1</sup>, the overall adaption rate to AS/RS (Automated Storage & Retrieval Systems) remains in the 10+ % range, although the trend is steadily upwards. Some technologies still suffer from outdated misconceptions about up-front cost or lack of flexibility. On the other hand, shorter order turn-around times and space concerns are driving companies towards automation.

Despite its up-front cost, AS/RS systems are shown to correlate well to reduced labor costs and improved on-time and complete orders. AS/RS can also be applied as a buffering tool to sequence and stage products prior to shipment. Because of its high storage density, AS/RS can help companies to remain in their existing space, rather than make an expensive move to a new facility or use complementary satellite facilities. According to Aberdeen, especially companies that have freezer or cooler space should consider AS/RS, as the high cost of expanding a freezer area may easily help to justify the investment in automation.

In its research, Aberdeen defines a best-in-class company by three metrics on which such a company outperforms its rivals: percentage of on-time shipments, labor cost reduction, and pick accuracy. Best-in-class companies boast significantly higher automation adaption rates than their less well performing rivals, especially in areas like buffering & sequencing, shipping, put-away, returns processing and replenishment.

Automated buffering & sequencing has the strongest correlation with the best performing companies on on-time shipments. Companies that were most successful in reducing labor cost were far more likely to have automated shipping (76 % more likely), put-away (81 % more likely) and returns processing (75 % more likely).

Inbound process automation correlates strongly with improved pick accuracy. Using automatic data capture technologies during the picking process only does so much to improve accuracy. To truly breakthrough the 99% accuracy barrier, companies need to realize that accuracy

starts with automated put-away, returns processing and replenishment, Aberdeen concludes its findings.

Although both geographical and industry specific differences exist, some general themes in developing the warehousing function can be identified:

- Cost
- Consolidation
- Lean
- Environment
- Safety

**COST** The operating cost is always on the agenda when discussing logistics, more should constantly be achieved with less. This is a difficult task as costs all around are going up, as in labor and energy. There is, however, a lot that can be done, both by traditional means and by automation.

In manually operated warehouses there is a great plethora of cost issues that can be affected. Ultimately it is the question of achieving more with the same human resources. Better warehouse management and processes can be developed, operations outsourced, forklifts replaced by faster, bigger or more powerful ones that can be steered more accurately with electronic aids. In the end, these measures result, however, only in incremental improvements.

To make the big leap in cost efficiency, automation is the way to go. Especially if it concerns growth in volumes pushing for more capacity and higher cost. An automated warehouse works 3 shifts, 7 days a week, in the dark, consuming a lot less energy in the process. Significant cost savings, on the longer term, are achieved only by automation.

<sup>1</sup> Aberdeen Group, Warehouse Automation – What's Really Working For Pallet, Case, and Piece-pick Operations, 2007

**CONSOLIDATION** Automation is especially viable in situations where growth must be accommodated within the current facility. Efficiency and capacity gains can be massive, while the alternative to build a new warehouse adjacent to the current one, or to use several additional warehouses with increased transportation in between, to comply with higher volumes are usually very costly alternatives.

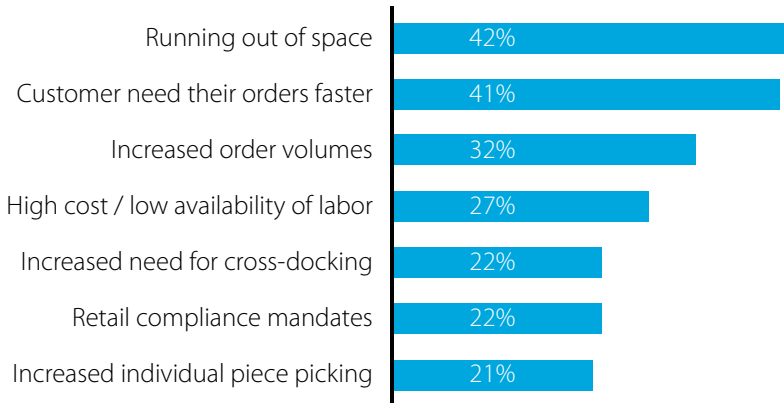
**LEAN** The lean philosophy seeks to minimize waste and inventory, leading to smaller production batches and less products in warehouses. The effect is two-fold. Less volumes to be stored and increased flexibility speak for higher level of manual workforce. Yet, higher throughput is needed, which speaks for automation. The decision must be taken based on analysis and calculations for each different situation.

The common belief is that the true benefits of automation can only be reaped when handling unit size loads and full truck loads. This is not entirely true anymore. Sequencing, load preparation and special picking areas can all be handled with automated solutions, thus significantly widening the scope where automation is a viable solution. Automation not only reduces waste by faster turnaround times and flow, but accurate track and trace functions also minimize theft and error.

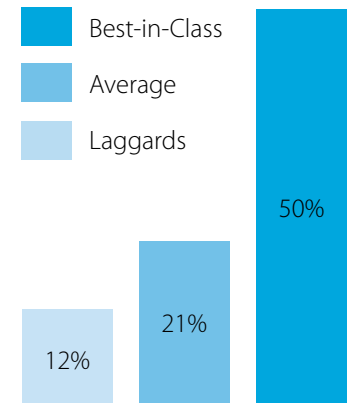
**ENVIRONMENT** Sustainability is an increasingly important part of all business operations. Automation can contribute especially in reducing the usage of energy. An automated warehouse does not require even a fraction of the lighting that manual warehouses require, and the pallet movement in an automated warehouse often outperforms that of a forklift operated in terms of energy efficiency. Furthermore, automation is especially suitable for special storage, like freezers and cold storages, where the higher storage density directly results in less volume requiring cool down and thus less energy consumption. Not to mention that cold spaces are a lot more suitable for machines than people.

**SAFETY** A safe working environment is an issue that no responsible corporations are ready to compromise. The advancements in automated warehouse safety have been tremendous and today automated warehouses, including Actiw, pack latest in safety technology, including fencing, electronic access doors, light beams & movement sensors and emergency stop switches. In addition, automation always minimizes the possibility of human error.

### Top Warehouse Pressure Pushing Automation

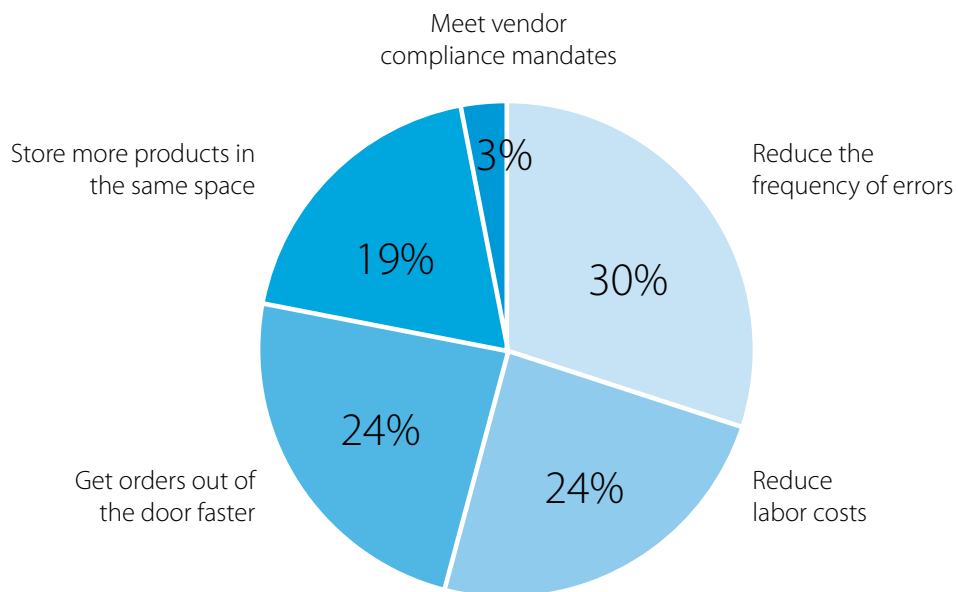


### Automated Shipping Sortation



**“BEST-IN-CLASS COMPANIES ARE 32% MORE LIKELY TO USE AUTOMATED BUFFERING AND SEQUENCING”**

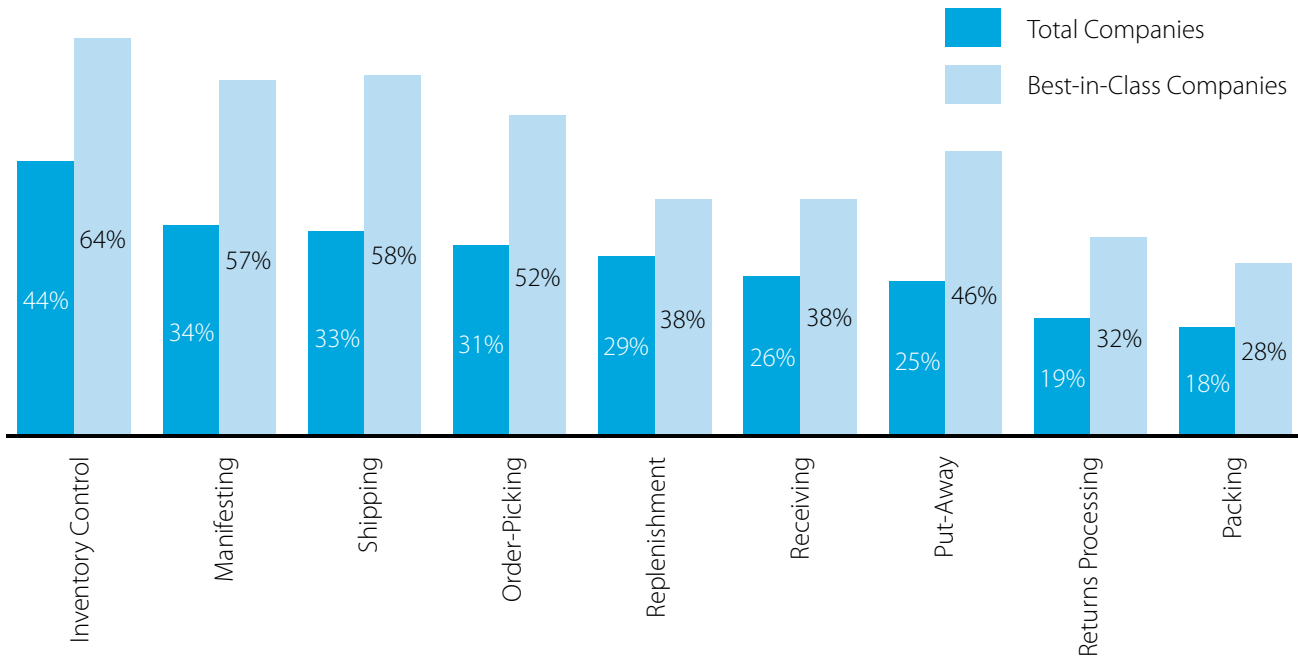
### Top Initiatives for Warehouse Improvement



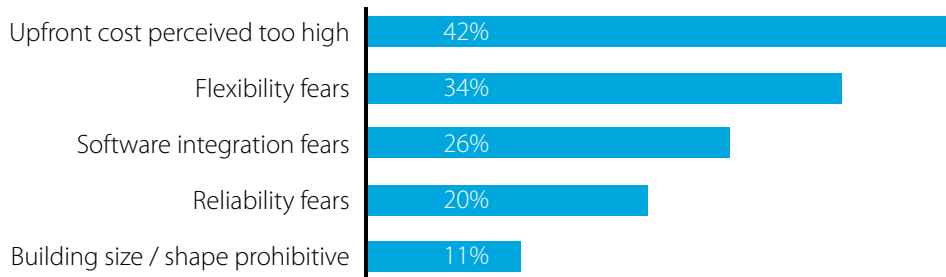
Sources:

- Aberdeen Group, Warehouse Automation – What’s Really Working For Pallet, Case, and Piece-pick Operations, 2007
- Aberdeen Group, Warehouse Automation: How to Implement Tomorrow’s Order Fulfillment System Today, 2008
- Rogers L K., How AS/RS works, Modern Materials Handling, March 2011, p. 36-42

### Reduced Labor Cost: Automation Adoption



### Top Reasons for Not Investing in Warehouse Automation



## “THE TOTAL ADOPTION RATE OF AS/RS SYSTEMS HAS INCREASED 60% YEAR-ON-YEAR FROM 2010 TO 2011”

Automation investments might be difficult to justify by labor savings alone. However, if the warehouse dimensions are restricted, the functions of several warehouses can be fitted into one location or other business benefits can be identified, then automation starts to make a lot of sense. There are generally two alternative paths to choose from when developing the warehousing function: incrementally improve current manual operations or invest in warehouse automation.

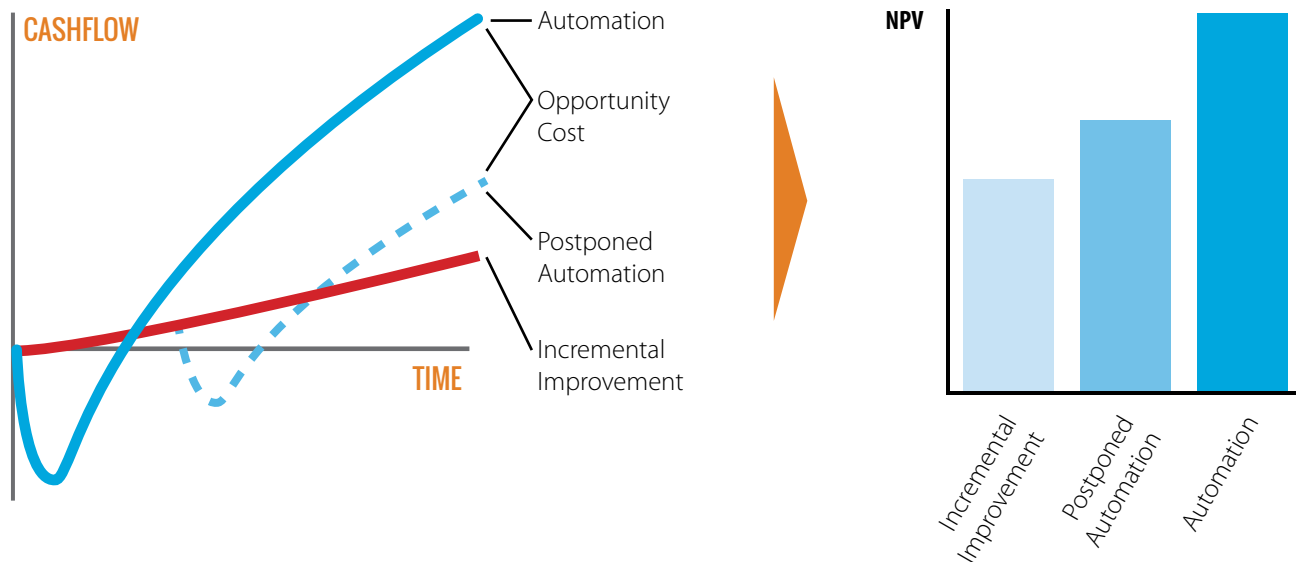
Typically, a lot of areas can be improved in traditional operations. Modern Materials Handling, in its November 2011 issue, lists improving warehouse processes, inventory control and changing rack configuration as the three most common actions when aiming to reduce costs in traditional warehouses. The upside of incremental improvement is that it requires low or none initial investments, but the decision doesn't come without an opportunity cost.

Sources:

- Aberdeen Group, Warehouse Automation – What’s Really Working For Pallet, Case, and Piece-pick Operations, 2007
- Aberdeen Group, Warehouse Automation: How to Implement Tomorrow’s Order Fulfillment System Today, 2008
- Rogers L K., How AS/RS works, Modern Materials Handling, March 2011, p. 36-42

# – ILLUSTRATIVE EXAMPLE

Let's imagine a typical scenario of a traditional warehouse function, with operating costs of 6 M€ annually. We have the possibility of incremental improvement, automation or a combination of both where we start with incremental improvements and move on to automation later.



Let us say that we can gain 2 % year-on-year efficiency gains by continuous development without any significant investments. This means 120 k€ gains the first year. Next year, our operating costs have shrunk to 5,88 M€, so improving an additional 2 % results in additional 118 k€ savings. Thus, the actual cost effect for year-2 is 238 k€ and cumulative gains reach 358 k€. This rate of improvement continues for the coming years. Obviously the effects of later years must be discounted, for simplicity, let us assume 10 % WACC (Weighted Average Cost of Capital).

We assume that the automation investment, if made today, would require a 4 M€ upfront investment and the

implementation would take 12 months, meaning that any positive effects of automation would not be visible until a year later. Once in place, the automated warehouse would be one third more efficient to operate than the manual one, resulting in a yearly cost reduction of 2 M€ (assuming similar total volumes, if the volume increases, the actual reduction in cost per pallet through can be significantly higher). We do not assume any year-on-year improvements for the automated warehouse; although these can usually be gained, for example, by optimizing pallet movements based on data analysis.

In this scenario, the investment would pay itself back in little over 2 years of operations. Cumulatively the positive cash flow effect of automation would surpass the cumulative gains of incremental improvement at the end of the 3rd year. The net present value of choosing incremental improvement is with these assumptions roughly 8,6 M€ and with automation 15,3 M€, when calculated for 10 years including terminal value.

In the third alternative, let's assume that the decision to move to automation would be taken in the fifth year of operations. The starting level is already more efficient, due to incremental improvement, but the investment lower as the investment is discounted accordingly. All other assumptions remain the same. In this scenario, it takes additional 6 years to reach the same cumulative cash flow effect as with keeping up with incremental improvements, meaning that the payback period for the automation investment is greatly increased.

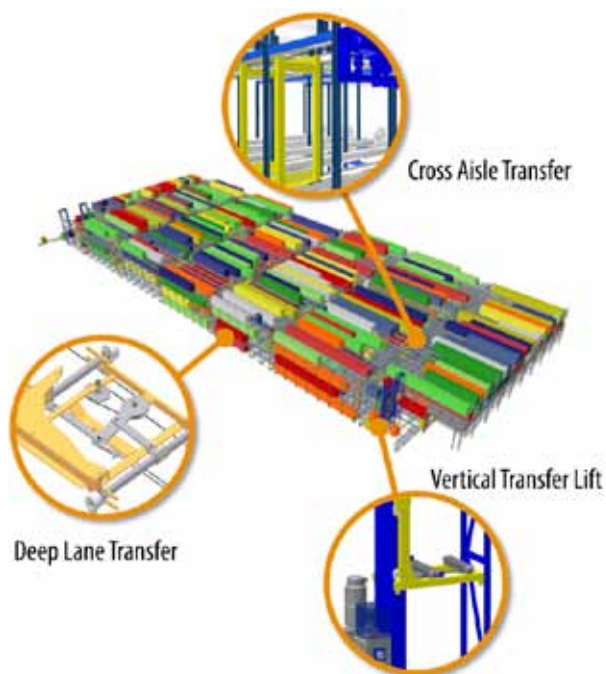
In addition, the later investment will never catch up with the cumulative gains of the earlier investment. If continuous incremental improvements are made and the possibility of automation is therefore postponed, the small improvements ultimately eat up the business case for automation. The efficiency improvement gained by automation is no longer viable for justifying the automation investment, although this would have been the case if the choice to go automated would've been taken earlier. This lost opportunity cost can never be recuperated.



# THE ACTIW SYSTEM – HOW DOES IT WORK?

“ACTIW IS THE ONLY MAJOR INNOVATION IN UNIT LOAD MATERIAL HANDLING TECHNOLOGY INTRODUCED IN THE LAST 30 YEARS”

– Pete Hartman, President of Retrotech Inc.



Actiw's patented system works like a large sliding puzzle on multiple layers, with dense storage at every position in its height, width and depth. In the most typical setting, the Actiw system is used for handling pallets, but it can easily be applied for other loads as well, e.g. paper rolls and steel products.

## THE SYSTEM IS COMPRISED OF FOUR KEY ELEMENTS:

- **Deep Lane Transfer (DLT)** – Mechanical DLT carts transport loads within the deep lanes (storage lanes). Each deep lane is operated by one DLT cart with a cable-driven lift mechanism to pick up and deposit the loads on the lane with no certain fixed positions or cells, enabling filling of the lane segments maximally.
- **Cross Aisle Transfer (CAT)** – Cross aisles split deep lanes into shorter segments. CAT carts transfer loads from one deep lane to another, moving perpendicularly to the deep lanes.
- **Vertical Transfer Lift (VTL)** – Lifts or lowers loads between levels, also used to interface with incoming / outgoing material flows.
- **Software** – Orchestrates pallet transfers in a series of movements using route-solving algorithms.

## CHARACTERISTICS OF THE ACTIW SYSTEM:

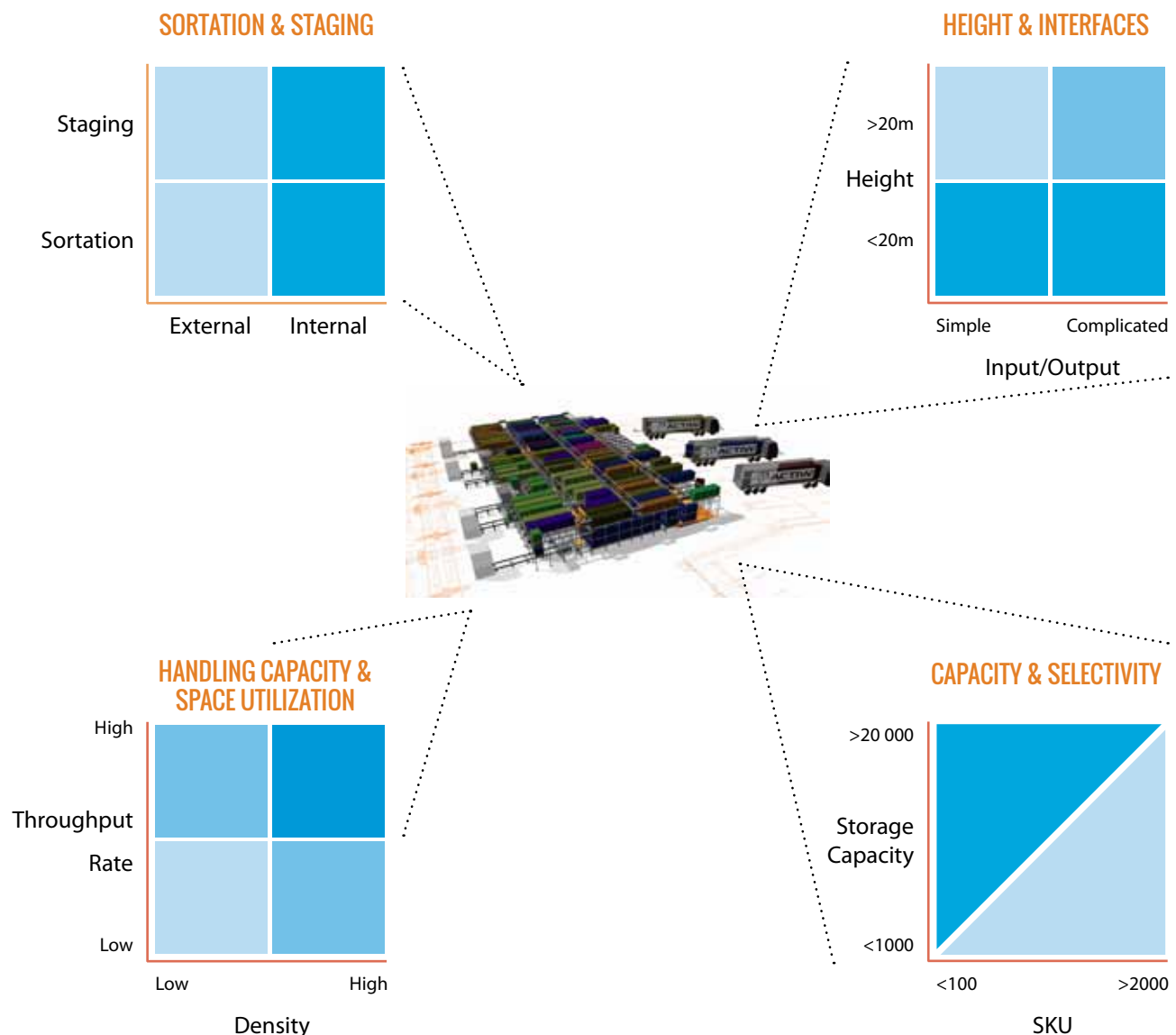
- Storing as well as inbound and outbound handling are independent features, allowing an increase of throughput flow without compromising the system's storing capacity.
- Loads move simultaneously, on multiple levels. The Actiw system offers an unmatched combination of high-density and flow.
- There are no full height empty aisles for the transfer devices, as in stacker crane storage systems. This increases density and maximizes space utilization without compromising handling capacity.
- Loads ride on carts that are pulled by cables. Since the carts themselves have no power, they are easy to maintain and extremely durable.
- All electrical components and drive units are located outside the rack structure and they operate independently. This enables quick and safe repairs with high level of system redundancy.
- The sophisticated software determines the ideal path that a unit should travel within the system and the ideal position where it should be stored.
- The system integrates seamlessly with other material handling systems. Its versatile, modular design can be adapted to changing requirements. Native features of the Actiw system accommodate first-in/first-out delivery, sequencing, picking, staging or any other order fulfillment strategy. Actiw enables optimization of storage and handling processes in a variety of environments.

# ACTIW VS. OTHER AUTOMATION SOLUTIONS – WHEN SHOULD I CHOOSE ACTIW?

Most AS/RS installations are so called stacker crane systems. Two rows of metal racks face each other with a narrow aisle in between. Down the center of the aisle is a raised metal rail. A tall mast travels through the aisle along the rail and simultaneously a carriage travels up or down the mast to the level of the storage location. When the mast reaches the designated storage location, a load han-

dling mechanism reaches into the storage location to put away or retrieve a load.

Actiw offers a flexible and modular alternative to the stacker system with highest-on-the-market throughput. This chapter answers the remaining question: In which settings should I choose the Actiw system?



In the next section, general variables are listed that determine the best AS/RS system for a given situation. Each variable is explained and the competitive range for the Actiw system is given:

- Handling capacity
- Space utilization
- Selectivity
- Flow interfaces (I/O)
- Sorting & Staging
- Redundancy & Maintenance
- Expandability

**HANDLING CAPACITY** The Actiw system has, due to its design, an inherently high throughput rate. Actiw uses dynamic pallet positioning within the rack, where transfers are carried out by independent handling devices for each direction (x, y, z). A stacker system has all these functions combined into a single equipment, the crane, and the rack is only used for static storing. Actiw's handling capacity can, furthermore, be expanded by adding more drives into an existing rack, speeding up the "multilayer puzzle", without necessarily expanding the storage capacity.

Typical parameters for defining the required handling capacity are: units handled per hour and warehouse throughput time. We are in the Actiw ball park when the combined handling capacity requirement of inbound and outbound loads exceeds hundred units per hour, but when the capacity becomes extremely high (several hundred per hour) within limited space, Actiw is the best choice.

The days on hand time affects directly the required handling capacity compared to the total storage capacity. If the throughput time is less than a couple of weeks on average, Actiw is competitive, but when the throughput time is less than a day, Actiw is superior.

**SPACE UTILIZATION** Actiw is designed for ultra-high density and it can adapt well to cumbersome space requirements. Due to the compact size of the structures and carts, the system's space requirement is low. Actiw can utilize the given height very efficiently, because the first level can be installed very close to the floor and the highest level close to the roof structure. Especially in situations where an additional storage level barely fits due to height restrictions, Actiw can comply more often than other technologies.

The layout of the Actiw system need not be of cuboid-form, but it can be built in a non-symmetrical space even on multiple floors in a building. These properties of ultra-high density and flexibility of the Actiw system are particularly valuable in special applications. High density is especially valuable if more capacity is required in a cramped existing space, or additional space is costly to build and maintain, as, for instance, in freezers. Flexibility allows Actiw to be applied to inconvenient spaces, such as an old building on several floors adjacent to a production facility.

Actiw loses, however, some of its competitive edge the higher the warehouse is, having a threshold of about ten levels. A stacker crane unit is several times more expensive than the drive unit and transfer cart used by Actiw. In high installations, however, the stacker crane can be extended and the same crane unit can service the entire height of the warehouse, while Actiw requires separate drive units and carts on each lane and level to control the same number of pallets. This usually results in Actiw being less competitive in high installations.

Actiw can be installed on standard floor space designed for conventional warehouses, generally without any modifications. The weight of the rack structure and transfer devices is lightweight. Majority of the floor load comes from the weight of the stored goods.

**SELECTIVITY** Accessibility and density are somewhat trade-offs of each other. A stacker system (single or double deep) is well suited for environments with only a few loads per SKU (Stock Keeping Unit) with typically multiple date codes, lot numbers etc. requiring segregation. A single deep stacker system offers, in principle, full random access and selectivity. All this, of course, at the cost of storage density.

Actiw, on the other hand, suits better environments with more units per SKU, where the date code and lot number segregation is not as critical and accessibility to products is more serialized. This enables high density, but with its dynamic sequencing capability Actiw is still able to adapt to different order fulfillment strategies, like First in First out (FIFO) or Last in First out (LIFO).

Generally, Actiw is competitive when the number of SKU's compared to the total storage capacity is lower than 10 %. If this figure is lower than 5 %, Actiw excels.

**FLOW INTERFACES (I/O)** Due to the flexibility of Actiw's design, it is easy to set floor space free for other operations such as production, picking, and shipping. Where stacker cranes can receive and deliver loads only at the ends of the stacker rail, the Actiw system can be designed with input/output points in the entire periphery of the system; multilevel, all sides, above and underneath.

**SORTING & STAGING** The dynamic internal handling characteristics of the Actiw system means native sorting and staging ability. Actiw minimizes the need for connecting conveyors and other equipment. Actiw enables automated filling up of picking positions without conveyors and fast truck loading with possibility of internal and external staging. In fact, the Actiw system can be used as a sole sequencer adjacent to any other warehouse system.

**REDUNDANCY & MAINTENANCE** The modular design of the Actiw system translates into high system redundancy. Even with a partial shutdown, Actiw provides full functionality (with reduced capacity). All electrical equipment and drive units are placed outside the rack structure and only standard off-the-shelf components are used, giving the Actiw system very good maintainability.

**EXPANDABILITY** Actiw's modular structure makes it possible to expand the system without disruption and investment in additional load moving equipment (e.g. conveyors). Thanks to several shoehorn installations and over 20 years of experience, Actiw has superior competence in securing non-disruption implementation of projects.

# FOLLOW THE BEST – WHY HAS P&G CHOSEN ACTIW?

Procter & Gamble operates a large number of distribution centers worldwide. The options in logistics technology are scouted and evaluated on a global level. All new investments are evaluated in-depth and only the ones with highest returns and value-add are implemented. P&G considers logistics as a source of competitive advantage. Competitive advantage can be achieved only through deep knowledge of all available options and by carefully evaluating and choosing the option with the highest value for a given situation. As a forerunner in the field of warehousing, P&G is well aware of all possibilities offered on the market, both automated and traditional.

“The cost of distribution is growing year-by-year and has become a very important cost element in the total cost of manufacturing and shipping a product to our customers. This has prompted high attention to optimize our distribution centers in order to reduce cost, while maintaining high flexibility and high service level”, says Han Sanders, leading expert on warehouse automation at P&G.

Han Sanders has global responsibility for logistics technology development for distribution centers at P&G. He has been 27 years with the company. Within P&G, Han is the person to turn to when options within warehouse design and technology come to question. Through his position, he has an unmatched perspective to the offerings on the automated warehousing market.

“Productivity is the mantra of today”, says Mr. Sanders. “It is not only about reducing costs, but at the same time we need to improve the level of customer service in terms of flexibility. In other words, we need to do more with less.”

At P&G, all costs are tracked all the way down to product level, including logistics costs. This enables products to be benchmarked between each other and improvement areas to be discovered. It is this sophisticated cost control system that functions as a backbone for all investment decisions.

The decision making process is very thorough and all possibilities are carefully reviewed. This might result in seemingly slower decision making, but actually the question is about ensuring that right decisions are made, which will support long-term business objectives regardless of small fluctuations in the world economy. P&G analyses where its money gets the best return and makes informed decisions based on that, in order to secure its competitiveness on the long-term.

A warehouse automation project typically surfaces when a business unit recognizes a need, for example, for increased capacity or cost reduction. The business unit conducts initial feasibility calculations and, if the figures seem encouraging, proceeds with a more sophisticated supply chain study to evaluate the possibility further. The financial department provides financial data and payback requirements, while the technical support organization provides the technical solution and project cost data and assists in decision making. Finally, the management either accepts or rejects the proposal for investment, or sends it back for further analysis.



THE PROCTER & GAMBLE COMPANY (P&G) IS AN AMERICAN MULTINATIONAL CONSUMER GOODS COMPANY HEADQUARTERED IN CINCINNATI, OHIO, USA. P&G'S ANNUAL REVENUE IS NEARLY \$84B AND NET INCOME OVER \$10B (2012).

P&G POSSESS THE WORLD'S MOST VALUABLE PORTFOLIO OF CONSUMER BRANDS. THEY SPAN A BROAD RANGE OF PRODUCT CATEGORIES - INCLUDING HOUSEHOLD CARE, BEAUTY, GROOMING, AND PERSONAL HEALTH CARE - AND ARE HOUSEHOLD NAMES AROUND THE WORLD, INCLUDING PAMPERS, GILLETTE, TIDE, ARIEL, DOWNY, PANTENE, HEAD & SHOULDERS, OLAY, ORAL-B, CREST, DAWN, FAIRY AND ALWAYS.

P&G OPERATES 136 PRODUCTION FACILITIES IN 42 COUNTRIES AND CLOSE TO 300 DISTRIBUTION CENTERS AROUND THE WORLD.

Within P&G, projects compete with each other and only the ones with highest returns are implemented. Only a part of the projects included in the budget plan will actually be implemented. All in all, it is a rigorous process to get a project approved and implemented at P&G, underlining the fact that the projects that do see daylight are of very high quality.

Even though investment preparation is thorough and no stones are left unturned, it is simply a question of a five-step-process:

- Technology – Does this technology answer our needs?
- Solution – Can they solve our problem?
- Financials – Is there a business case?
- Reliability – Can we trust the technology?
- Safety – Does it meet our safety standards?

**TECHNOLOGY** The first step is to decide if a certain supplier is invited into the discussion. It is a question of whether the offered technology can answer to the problem at hand. “Generally, Actiw is regarded as a proven technology. Usually for Automated Storage and Retrieval Systems it is space, throughput and selectivity requirements that dictate which suppliers we invite”, says Mr. Sanders, and continues: “If I’m encountered with a situation that requires low selectivity, but high storage density, high throughput and outstanding reliability and redundancy, especially in situations where the space is restricted in height, I see Actiw as a competitive technical solution.”

**SOLUTION** The second hurdle is a question of the suppliers’ ability to solve the technical challenge. At this point, the technical solutions and specifications are evaluated, and the most promising ones will move forward. “The relationship with Actiw works well. They admit when they are not competitive, but when they are, they do deliver!”

**FINANCIALS** The total cost and the payback thereof is an equation with a multitude of variables. Technical requirements will define the need for the initial investment, in relation to which additional costs (e.g. software integration) and cost savings (e.g. labor, energy, transportation and so on) are calculated. “This is the main reason why automated solutions shouldn’t be designed to serve all possible and impossible scenarios, but carefully determine what kind of performance is required from the system”, Mr. Sanders reminds. Actiw’s price is largely defined by the number of drives needed to accommodate the requirements of flow and selectivity. Especially when building height is restricted, Actiw is very competitive.

**RELIABILITY** The reliability of the system consists of two main factors: durability and redundancy. Durability depends on the technology, while redundancy is a question of system design. Actiw’s resourceful design of placing all machinery outside the rack structure makes it very robust. In addition, Actiw’s way of designing the system in blocks enables full functionality, also during partial shutdown.

**SAFETY** When it comes to the safety of its employees, P&G makes no compromises. By placing machinery outside the rack structure and having only durable, mechanical components inside, Actiw minimizes the need for physical rack entries which has a direct positive impact on safety. Furthermore, Actiw has put great effort into developing its safety solutions. All moving parts are protected and state-of-the-art sensor technology automatically stops movement if any risk is detected.



# CASE EXAMPLE

## P&G LIMA WAREHOUSE

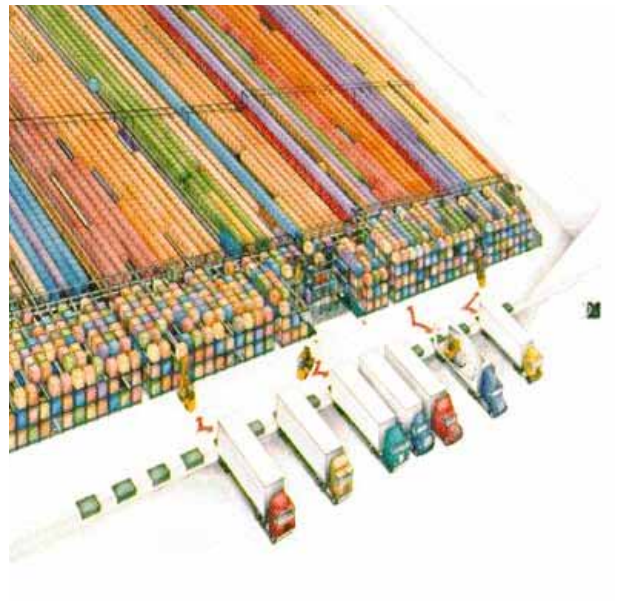
After years of steady growth in the Home Fabric Care division, P&G faced the situation where it had to consolidate the distribution of these products. This far, P&G had delivered these products from its production warehouse adjacent to the manufacturing facility in Lima, as well as six other contracted facilities, as far away as 100 miles from the factory. The decision was made to build a central distribution center. By utilizing Actiw's high-density, high-throughput characteristics the need for outside storage was eliminated and capacity objectives were met.

The Actiw System at the Lima warehouse runs continuously – 24/7 – reshuffling the loads and optimizing them for current and future demand cycles. It allows P&G to build 500 truckloads a day, equaling some 16 000 sequenced pallets. The warehouse handles high-turnover products that are held within the system for only 3-9 days before being sent to the customers, making it optimal for an Actiw system.

When pallets are needed for orders, the Actiw system automatically sequences the pallets and delivers them to the discharge stations, where lift truck operators can easily load them directly onto trucks. The need for staging or buffering on facility docks is eliminated!

This is one of the six warehouses that Actiw, together with its North American partner Retrotech Inc.\*, has delivered to P&G. Three of these have later been consolidated into one, resulting in P&G today operating four separate Actiw warehouses. The warehouse in Lima is one of the largest automated facilities in North America, equaling the size of 19 football fields. It was constructed and operational in less than a year – 18 weeks ahead of schedule.

BY INTRODUCING ITS 109 000 PALLET POSITIONS, AUTOMATED DISTRIBUTION CENTER IN LIMA, OHIO, P&G WAS ABLE TO REDUCE TRAFFIC ON LOCAL ROADS BY 50% - OR 3 MILLION MILES EACH YEAR, BY CENTRALIZING OPERATIONS CONDUCTED AT 7 SATELLITE FACILITIES. THE NEW OPERATION IS MORE EFFICIENT, PROFITABLE, AND ENVIRONMENTALLY FRIENDLY.



***“Actiw is extremely competitive in low height installations requiring high throughput. It is, however, the integration of sequencing and staging inside the system that makes Actiw unique”, Mr. Sanders concludes.***

\* Retrotech Inc. represents Actiw technology in North America by the name Actiw



**Actiw Oy** is a Finland based manufacturer and systems integrator, specialized in intelligent and sustainable automated warehouse and loading solutions. Actiw has a solid track record with dozens of successful installations and pleased clients; Actiw's automated material handling projects have been executed since mid-1980. The company has invested strongly in developing their own, unique automated storing, sequencing and loading systems for the international market. For more information, please visit:  
[www.actiw.com](http://www.actiw.com) | [www.loadplate.com](http://www.loadplate.com)

**Symbioosi Partners Ltd** is a Helsinki, Finland, based sales development powerhouse. Symbioosi has prepared this white paper in cooperation with Actiw and P&G. For more information, please visit:  
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