



**ACTIW LOADMATIC®**  
**GET PAYBACK ON**  
**AUTOMATED LOADING**

ACTIW Systems White Paper 2013



# ACTIW SYSTEMS WHITE PAPER LOADMATIC

Automated loading has the largest potential for cutting costs in intralogistics operations. This far, it has been applicable only in certain settings due to technical limitations. Actiw LoadMatic changes the rules of the game. LoadMatic offers a unique, fully integrated automation solution for loading standard containers and trucks. The purpose of this white paper is to explain in which settings this new technology is applicable and illustrate the real, monetary business benefits it generates.

## INTRODUCTION

Pallets move the world. There are billions circulating the globe. To draw the picture, in US alone, 80 % of all commerce is moved on pallets and their manufacturing account for 46 % of all hardwood lumber production in the country.<sup>1</sup>

Logistics chains everywhere are optimized for pallet handling; as in production, packaging, warehousing, shipping and moving. There is, however, one area that is strikingly ignored – automated truck and container loading. So far, mainly technical limitations have prevented wider adaptation. Not anymore!

Actiw LoadMatic revolutionizes automated loading. It makes loading as easy as it should be. It loads full trucks and containers in minutes. It requires no alterations to the cargo space or substructures beneath the cargo. It integrates seamlessly into any production, warehousing or sequencing system.

## READ FURTHER, IF YOU WISH TO:

- learn about the latest advancements in intralogistics automation
- figure out whether Actiw's LoadMatic might benefit your business
- understand what kinds of tangible business benefits LoadMatic is able to provide

<sup>1</sup>Tom Vanderbilt, The Single Most Important Object in the Global Economy, Slate, 2012

# RETHINK OUTBOUND LOGISTICS – WHAT OPTIONS ARE THERE?

According to research performed by the Aberdeen Group<sup>2</sup>, there is a strong correlation between improved performance and intralogistics automation. Despite these findings, the overall adaption rate of automated systems remains fairly low, mainly due to outdated misconceptions about up-front cost and lack of flexibility.

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 competitors.

Automated loading has the largest potential for cutting costs and improving safety in intralogistics operations. Companies that were most successful in reducing labor cost were 76 % more likely to have automated loading than their competitors. A fair conclusion is that automated loading bears significant potential for competitive advantage.

For years, automatic loading and unloading has required combined systems: one system in the trailer or container and fixed installations for both dispatching and receiving ends, or a special base frame structure under the cargo to accommodate the structures of the loading and unloading equipment. This has substantially limited the applicability of these solutions.

Conveyor based systems are the most widely spread loading and unloading solutions. Their applicability is, however, restricted, as they require alterations to the

cargo space and compatible systems both at the sending and receiving ends. Investing in a system like this is not an option, if the material flows are more complicated than mere shuttle traffic between company's own sites. If products are shipped to distributors, customers etc., the system must be capable of loading standard cargo spaces.

Another quite widely adopted group of solutions require a special base frame structure beneath the cargo, to accommodate the structures of the loading and unloading equipment. Even though standard cargo space is adequate, also this type of solution suffers from the restriction that both the sending and receiving ends must be equipped with compatible systems.

Actiw's LoadMatic changes the rules of the game, as it offers a system for automatic loading that does not require any alterations to the standard cargo space and has no requirements for the equipment at the receiving end. This means that LoadMatic offers major efficiency gains and reduced accident and product damage risks without hefty investments in fleet of modified containers or expensive special frames and compatible systems at both ends. In addition, LoadMatic integrates seamlessly with any outgoing material streams, like production lines or automated warehouses.



<sup>2</sup> Aberdeen Group, Warehouse Automation – What's Really Working For Pallet, Case, and Piece-pick Operations, 2007

# ACTIW LOADMATIC – HOW DOES IT WORK?

Actiw LoadMatic makes automated loading as easy as it should be. It is the last link in the end-to-end solution for fully automating pallet handling at the production unit or in the warehouse. In short, the LoadMatic is a plate which sequenced pallets are rolled onto. When a full container or truck load is ready, the LoadMatic simply loads the cargo into the container or truck in one push. No alterations to the cargo space or substructures beneath the cargo are required. The LoadMatic is seamlessly integrated into any production, warehouse or sequencing system.

## THE LOADMATIC OPERATES IN A FEW SIMPLE STEPS:

- **Load forming** – LoadMatic's load forming equipment arranges incoming pallets typically one row at a time, that is 2 or 3 pallets side-by-side depending on their size and direction. After this, the pallets are gently pushed onto the loading plate which is covered by rollers.
- **Alignment** – LoadMatic stands on two sets of legs. Both ends are height adjustable to cater standard trailer heights. The rear legs are adjustable also in horizontal direction, enabling automatic and accurate alignment with the cargo space.

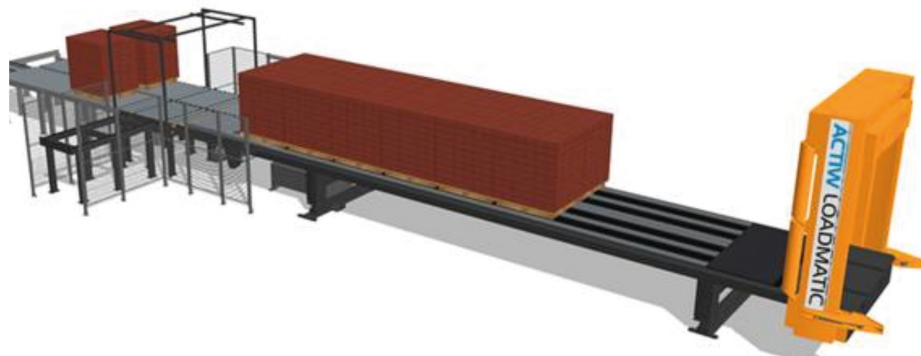
- **Loading** – The pallets are pushed into the cargo space on the loading plate. The stopper gate is driven down to keep the pallets inside the cargo space while the loading plate is pulled out. When the plate is out, the loading process is complete and the container is ready for transportation and the LoadMatic is ready to receive pallets for a new load.

All functions are orchestrated by a sophisticated PLC (Programmable Logic Controller) based control system, ensuring safe and easy usage of the system. The control system can easily be integrated into other software systems.

## WHAT ACTIW LOADMATIC OFFERS TO YOU?

- Fully automated loading, seamlessly integrated with any complementary systems
- One shot loading, reducing docking time to a matter of minutes
- Less manual work and equipment needed
- Gentle loading, both for cargo and cargo space
- No alterations needed to trailers and containers
- No special equipment required at the receiving end

**“LOADMATIC REDUCES TURNAROUND TIMES TO A FEW MINUTES!”**



# INCREASED CAPACITY WITH A FRACTION OF THE OPERATING COSTS – ILLUSTRATIVE EXAMPLE

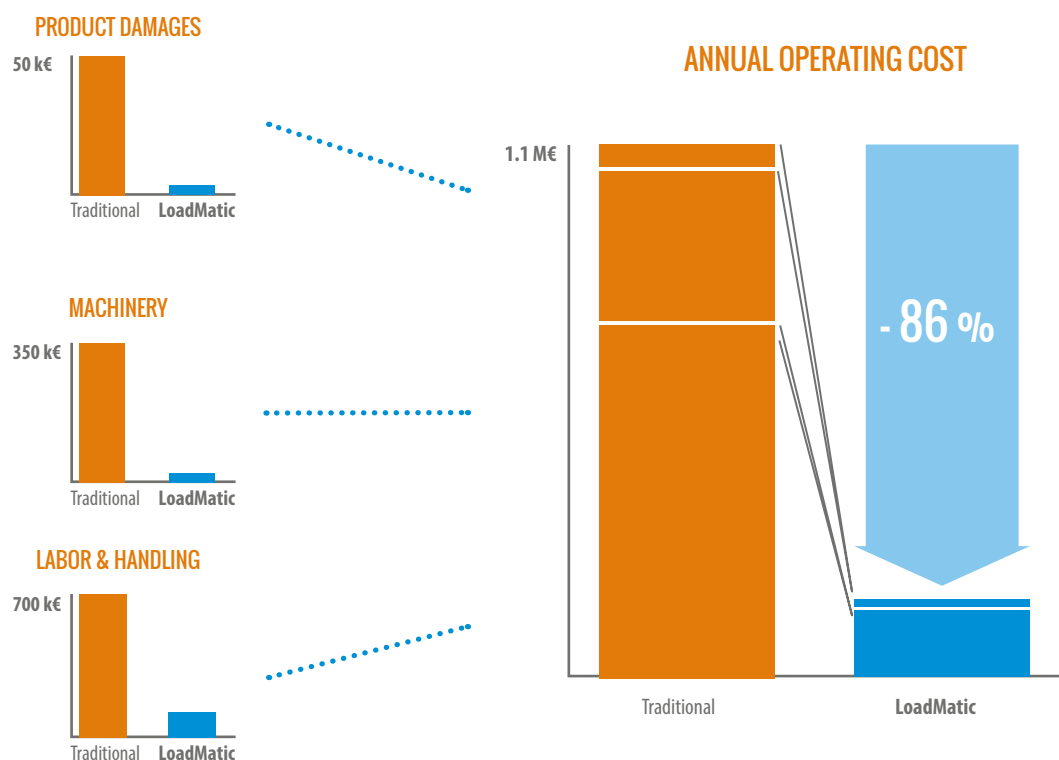
*(This is an illustrative example, but similar benefits and results have been verified in actual, real-life installations.)*

Let's imagine a situation of handling shipments at a modern, high-volume production plant. The high volume results in a hectic environment for the logistics operation. Stopping production is not an option, leaving no room for error.

This example compares a traditional loading process, using forklifts, with a fully automated LoadMatic solution. It only models a short part of the value chain. The simulation assumes that palletizing is automated and it starts at the moment when complete pallets roll out from the packaging line and ends when a loaded container is ready for dispatch. In this example, we model a situation of two packaging lines running simultaneously. (Note! The process is very similar for loading trucks.)

The advantages of LoadMatic translate into real, monetary benefits. In a situation like this, the benefits can be divided into the following categories:

- Product Damages
- Machinery
- Labor & Handling
- Health & Safety



**PRODUCT DAMAGES** Loading containers with forklifts will always result in damages. The direct cost of damage depends on the value of and how easily breakable the goods are. Often, however, this is just a fraction of the total cost.

The cost of damage increases significantly the further in the logistics chain the goods travel before the damage is discovered. Often, a broken pallet reaches the end customer before the damage is noted. In addition to just fixing or replacing the damaged pallets, handling complaints and reimbursing damaged goods all incur extra costs. With LoadMatic, all damages in the loading process can be eliminated.

**MACHINERY** LoadMatic automates the entire loading process. The goods move automatically from the packaging lines, onto the LoadMatic and further into the containers. This means a great reduction in required machinery.

In a manual setting, trucks or terminal tractors would move the containers into the loading area. In order for the forklifts to be able to load the containers, reach stackers would be used to lift down the containers to floor level and up again after loading. For effective loading, each packaging line would require 3-4 small forklifts. In addition, an extra fleet would be required as stand in during repairs. LoadMatic alone replaces this fleet of machines with a significantly lower total investment cost and streamlines the process significantly.

LoadMatic generates additional savings by lowering the energy consumption. LoadMatic runs on electricity instead of diesel oil, eliminating emissions of harmful fine particles. The total cost of energy with LoadMatic is estimated to be less than 10 % compared to the traditional alternatives.

**LABOR & HANDLING** Traditional loading operations are quite labor intensive, as production usually runs in three shifts, around the clock. LoadMatic simplifies the operation, eliminating unnecessary working steps. Instead of a team operating the reach stacker and the forklifts, only one LoadMatic operator can handle the operation of two LoadMatic units, i.e. two packaging lines. This results in over 80 % savings in labor & handling costs.

**HEALTH & SAFETY** Besides the direct financial benefits, improved safety is a major benefit of LoadMatic. In a manual environment, there is a high risk involved in each working step. Manual preparation of containers and heavy forklift traffic causes risk of falling, pinching, collisions and so on. The stakes are high, as mistakes can lead to severe injury or death. With automating the entire process, the human factor and the risk for people getting hurt is eliminated.

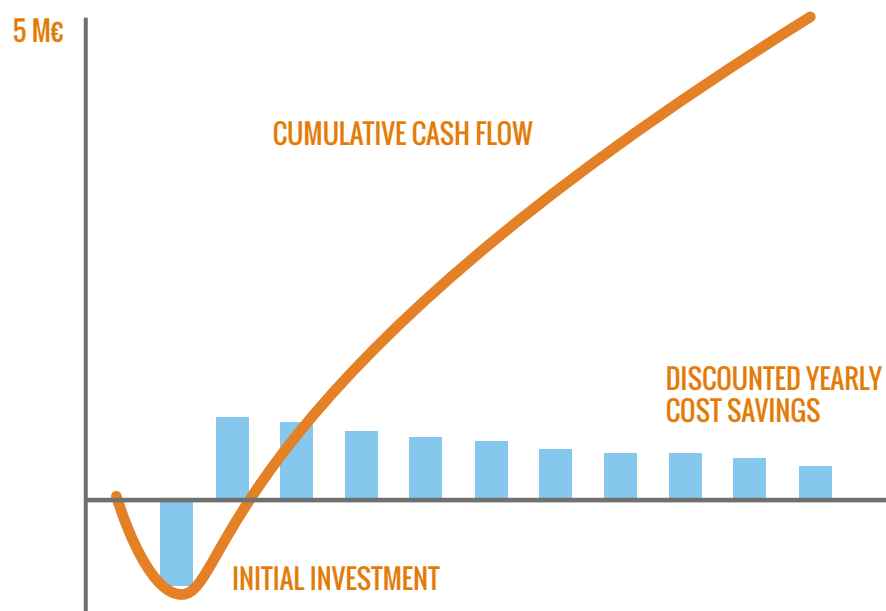
# RETURN OF INVESTMENTS

When we combine the efficiency gains explained above with typical investment and implementation costs, we can model the investment.

The analysis reveals that LoadMatic is a terrific investment. When using a WACC (Weighted Average Cost of Capital) of 10 % for discounting future cash flows, the investment has a payback period of mere 13 months. ROIC (Return On Invested Capital) during the first year is 93 % and the ROI (Return On Investment) is a staggering 431 % when calculated for the first 10 years, although the expected

lifetime of the LoadMatic system is at least 20 years. The NPV (Net Present Value) for the same period results in 5 million euro.

**CONTACT THE EXPERTS AT ACTIW TO FIND OUT WHAT KIND OF BUSINESS IMPACT LOADMATIC COULD PROVIDE FOR YOUR BUSINESS!**



PAYBACK TIME:  
**13 MONTHS**

ROIC:  
**93 %**

ROI:  
**431 %**

NPV  
**5 M€**

*The analysis reveals that LoadMatic is a terrific investment.*



**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. For more information, please visit: [www.symbioosi.fi](http://www.symbioosi.fi)



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