

# AGILOX

# UNLOCKING EFFICIENCY AND GROWTH

Transforming Your Material Handling Operations through Automation

Are you entrusted with spearheading Material Handling Operations within your organization? Is charting a course toward future competitiveness through automated transport logistics a priority on your agenda? Our comprehensive whitepaper is your roadmap to seizing these advantages.



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# 1 SOLUTION LANDSCAPES

Intralogistics automation offers a range of solutions, each with its own set of designations and abbreviations. We provide a breakdown to facilitate your evaluation of various solutions based on your specific needs. Let's dive into the key terms and concepts that define this landscape.



## AGV - Automated Guided Vehicles

The abbreviation AGV stands for „Automated Guided Vehicle.“ These are automated transport solutions deployed for warehouse materials, production goods, and internal tasks. These systems come in two main variants: „automatically controlled“ vehicles and „autonomously acting“ transport vehicles, the latter known as AMRs.



## Automatically Controlled Vehicles

In the case of automatically controlled AGVs, transportation occurs along predefined virtual or physical pathways. These vehicles adhere to rigid paths, limiting adaptability. Notably, when undergoing fundamental changes in internal logistics or warehouse configurations, their continued use requires significant effort due to the need for substantial reprogramming.



## AMRs - Autonomous Mobile Robots

In contrast, AMRs (Autonomous Mobile Robots) can independently determine and, if needed, correct their paths to destinations. This grants them unparalleled flexibility and adaptability to evolving environments. AGILOX's pioneering work in this field is noteworthy, exemplifying cutting-edge developments with features like swarm technology. AMRs can communicate within fleet operations, learn from one another, and calculate alternative routes.

AGILOX's AMRs, a hallmark of advanced intra-logistics solutions, redefine versatility. The technology facilitates real-time communication between units within fleets, enabling learning and route optimization. In cases of operational changes, accessing a single unit via a web application allows for seamless adjustments. The other units in the fleet, powered by the proprietary X-Swarm Technology, independently adapt, learning to integrate seamlessly into new processes. The agility and intelligence of the AGILOX AMRs provide a transformative edge. As your operations evolve, consider the autonomy and adaptability that AMRs offer in paving the way for efficient, flexible, and optimized intralogistics solutions.

# 2 COST OPTIMIZATION

In production logistics, distinctions arise between inflexible solutions—think conveyor belts and rail-bound transport—and the field of autonomously acting transport systems. These progressive systems not only offer heightened dynamism but also adapt with exceptional flexibility to shifts in logistics processes or warehouse reorganizations. In the long run, this adaptability is a significant cost-saving advantage, addressing possible stagnation risks inherent in centralized control units. Let's explore the various cost benefits in more detail.

## **Cost Savings through Optimal Space Utilization**

Unused warehouse space and expansive connecting paths, prevalent in manual forklift scenarios, tie up valuable storage real estate. Enter intelligent autonomous intralogistics solutions boasting omnidirectional drives that can easily navigate narrow aisles, maximizing space utilization and allowing for meticulous logistic planning.

## **Cost Savings through Uninterrupted Operations**

Autonomous transport systems tirelessly operate around the clock, 24/7. Configured to your specifications, they provide consistent service, ensuring maximum efficiency. These systems can seamlessly coexist with analog logistics units, such as forklifts.

## **Elevated Value Addition, Reduced Turnover**

By entrusting monotonous tasks to autonomous logistics systems, you liberate your workforce to engage in roles

with significantly higher value addition within your production processes. Through targeted retraining, you can rapidly elevate the portion of skilled workers contributing directly to value creation without increasing personnel numbers. Moreover, integrating autonomous systems reduces the complexities stemming from workforce fluctuations, reducing costs linked to recruitment and training.

## **Stability in Holistic Systems**

Ultimately, the cost savings from automating production logistics intertwine with your overall production ecosystem. The more harmonious the interaction between these areas, the more efficient the broader business system becomes.

Beyond immediate cost efficiencies, automation elevates space utilization, ensures uninterrupted operations, amplifies value addition, and stabilizes your business infrastructure. The symbiotic relationship between automation and production efficiency charts a course toward a more optimized, cost-effective, and agile future.

# 3 EFFICIENCY AMPLIFIED

Conventional production and warehousing endeavors often involve substantial resources to keep productivity steady. Interruptions, however, are not entirely avoidable, and the resulting delays have ripple-down effects on the entire operation. Efficiency is, therefore, the cornerstone of successful intralogistics operations, and automation emerges as the catalyst for achieving substantial and sustainable efficiency gains.



## Empowerment and Enhanced Efficiency through Automation

Automated and autonomous intralogistics systems enable seamless, year-round operations free from delays and quality compromise by assuming fundamental logistics tasks that would otherwise fall on your workforce. This consistent material flow improves your logistics with improved predictability, reliability, and scalability, immediately translating into measurable efficiency gains.

## Reliable Efficiency via Decentralized Units

AGILOX AMRs are highly efficient and reliable automation solutions. They are autonomous and communicate with each other, powered by X-Swarm Technology without a central fleet manager. This ensures that if any unit encounters an issue, the other units continue functioning without disruption. In contrast, a defective central control unit would result in a complete shutdown of automated operations.

The synergy of automation and intralogistics holds the key to unprecedented efficiency. By embracing automation, you unleash continuous operations, sidestep interruptions, and improve the logistics landscape's predictability and scalability. Efficiency and reliability converge in a future where automation ensures seamless operations backed by resilient, intercommunicating units. This is the pathway to an optimized and empowered intralogistics future.

# 4 SAFETY ELEVATED

Safety and security form a fundamental human need that intersects closely with physical and mental well-being. Safety and security are also fundamental business needs, and any negative impact on the safety and security of your operations will directly result in inefficiencies and, ultimately, reduce profitability. This is where the remarkable efficiency and sustainability of robotics-driven automation solutions come into play.

## **A New Benchmark: AMRs Leading the Way**

Automated intralogistics solutions fundamentally relieve employees from monotonous and non-value-adding tasks. They excel particularly in managing hazardous and physically demanding activities, all while optimizing the storage and delivery of goods. AMRs stand out in this arena, characterized by their versatility and impeccable safety features.

## **Safe and Sound: AMRs' Safety Prowess**

AMRs are equipped with specialized sensors and control systems that guarantee the seamless and secure execution of potentially hazardous and physically demanding processes. When encountering obstacles, AMRs proactively and gradually slow down, ensuring load stability and preventing falls. They then autonomously assess the situation:

- If space permits, they execute an obstacle avoidance maneuver and continue their journey.
- If avoidance isn't practical, they chart alternative routes for a seamless transition.

Simultaneously, AMRs communicate with the other units in the fleet, fostering a networked approach to adaptability and safety. Their flexibility and predictive safety systems render inflexible material handling systems incomparable.

## **An Upheld Commitment**

Autonomous systems undergo meticulous development and testing, adhering to rigorous processes and methods for autonomous operation. Moreover, these systems are often subjected to validation by external testing institutes, solidifying their safety credentials.

In modern business, the currency of safety isn't negotiable. By embracing automation, particularly the advanced capabilities of AMRs, you elevate safety while fortifying your business ecosystem, yielding a secure environment for productivity and well-being.

# ENHANCING PROFITABILITY THROUGH ROBOTICS-DRIVEN AUTOMATION SOLUTIONS



# 5 EMPOWERING YOUR WORKFORCE

The Digital Revolution has ushered in transformative changes across the work landscape, primarily through process automation. Automation brings substantial advantages for the entire workforce, particularly in areas entailing potentially hazardous, physically demanding, or monotonous tasks.

## **Elevated Safety**

Automated and autonomous intralogistics solutions revolutionize safety by assuming tasks with potential dangers or physical strains. This transition relieves employees from processes that could compromise their well-being, leading to fewer accidents, illnesses, and subsequent sick leaves.

## **Enhanced Working Conditions**

Work environments characterized by potential hazards or previous accidents can cast shadows on workplace morale. However, integrating automated and autonomous systems for warehouse and logistics activities elevates safety standards, fostering an environment marked by better conditions and improved efficiency.

## **Empowerment of Employees**

Automation's role in task management doesn't equate to personnel downsizing. Existing staff can be upskilled to

take on roles with higher value addition. This retraining and empowerment allow vacancies to be filled without new hires, significantly boosting production efficiency.

## **Strengthened Job Security**

Elevated performance potential translates to broader job opportunities, driving profits and ensuring business vitality. For employees, this equates to enhanced job security, supported by training initiatives that secure a future stream of skilled workers.

## **A Fluctuation Solution**

In this evolving landscape, automation also redefines how you address fluctuation. You elevate operational safety and reshape job dynamics by entrusting challenging tasks to automated systems. The result? A more resilient, agile, and enticing work environment primed for sustained success.

As automation reshapes our work landscape, fostering trust becomes pivotal in embracing its potential. Embracing automation ensures workplace well-being, enhances efficiency, paves the way for upskilling, and secures a future where employees thrive. By collaboratively navigating the evolving realm of automation, we build a more promising and empowered future for all.



# 6 SEAMLESS PRODUCTION TRANSITIONS

Transitioning production or manufacturing lines is a meticulously prepared journey demanding substantial effort, significant costs, and sometimes revenue losses. This transformation is particularly complex as production lines usually cater to high-volume, uniform item outputs. Yet, the need for change is inevitable—often driven by innovation, customer-specific adaptations, strategic brand differentiators, or the dynamic pulse of a shifting market landscape.

## Confronting the Costly Quandary

Conventional transport systems, from assembly lines to vehicles bound by guide rails, can impose exorbitant expenses and consume precious time during changes. In stark contrast, Autonomous Mobile Robots offer a seamless transition. AGILOX AMRs effortlessly adapt to new circumstances. Guiding an AGILOX AMR through your premises via a smartphone generates a virtual layout, mapping transport routes—a shared knowledge among AMRs, forklifts, and human counterparts.

## An Era of Adaptability

In an age where adaptability is supreme, your business's contemporary, innovative, and robust image rests on the crucial pillars of flexibility and adaptability. This perception holds immense sway, influencing potential customers' decisions to engage with your offerings or

attract clients to entrust you with complicated individual components, complex assemblies, or comprehensive products.

## Navigating Shifting Terrains with Agility

Whether manufacturing your products or operating as a service provider, the race belongs to those who swiftly respond to emerging trends and novel developments or even catalyze them. Such agility provides a formidable edge in a world perpetually in flux.

## Navigating Change: The Logistics Imperative

In your operational journey, minute adjustments often ripple into substantial transformations across the system. Intralogistics, in particular, highlights whether your past decisions support logistical agility or if the time has come to course-correct.

Upon task allocation, the network thrives. AMRs mirror the initial data, poised for action. Interconnected, they exchange insights, learn from each other, and chart alternate routes when roadblocks surface.

# YOUR PARTNER FOR COMPREHENSIVE INTRALOGISTICS COVERAGE



## Smart Automation's Promise:

# STAY COMPETITIVE IN AN EVER-EVOLVING LANDSCAPE

Logistics automation promises a wide range of benefits. Selecting an ideal automation system centers on your company's strategic trajectory. In an era brimming with unpredictable shifts, prioritizing the flexibility of these systems is paramount. This decision not only preserves competitiveness but forges paths to new opportunities, ushering in customers and markets that await in an evolving landscape.

AGILOX stands ready to support you in your automation journey. We invite you to contact us and start a conversation to see how we can enable you to benefit from the implementation of our sophisticated Material Handling Solutions.

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