

**ENHANCING
ASSET MANAGEMENT
AND
PROFITABILITY
WITH
AUTOMATED MATERIAL
HANDLING SYSTEMS**



ADDING VALUE IN A COMPETITIVE ENVIRONMENT

Global competition, deregulation, technological changes. Takeovers, LBOs, divestitures. Eroding brand loyalties. Consumer demand for better quality and service. It's all part of the current business climate.

Restructuring is in. So is value-based planning. Return-On- Investment (ROI) has become the yardstick of success. Increasing productivity is still important, but improving profitability is a primary goal.

"Staying close to the customer" is heard as often in boardrooms as in sales seminars. Customer influence on design, manufacturing, distribution and marketing has never been more pronounced. New or enhanced products must reach consumers faster and at a lower cost. In the marketplace, sales depend as much on product reliability as on style and performance.

But good products and service are no longer enough to increase shareholder wealth. Companies are looking to the management of assets and the reduction of costs to add value to their business.

For companies who have managed their income statement - restructured business units, spun off unproductive assets, cut production and front office people, or any other strategy - where can value be added? Material logistics may be the answer.

The cost of moving and managing materials is part of the logistics process and today many believe it is the last area in manufacturing and distribution operations where significant cost efficiencies can be realized.

How material logistics relates to asset management and what role Automated Storage/ Retrieval Systems have in adding value to a business is the subject of this Executive Summary.

IMPROVING MATERIAL HANDLING EFFICIENCY REDUCES COSTS, INCREASES PROFITABILITY

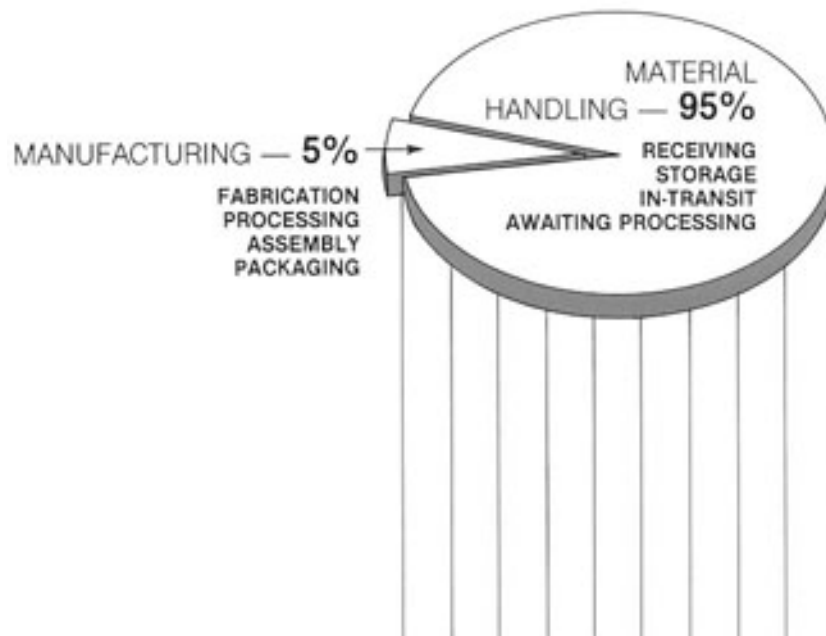
Virtually any item being manufactured in a conventional facility may be “idle” as much as 95% of the time - in receiving, storage or in transit from one operation to the next. Idle time in distribution operations may be even greater. But managing these idle assets is often overlooked in the effort to create value in products or services, or for stockholders.

The profit potential of a smooth, continuous flow of materials has been widely discussed and documented. With continuous flow you need less material on hand so the reduction in inventory contributes directly to profitability.

But the cost of moving and storing what remains on hand is not always easy to quantify since costs may be spread across several product lines or functions. As a result, material handling and storage costs are often lumped with company overhead. Determining the amount of value created by each business activity is essential to the realistic allocation of costs and is a prerequisite for an effective cost management program.

The more profitable companies are recognizing that increased value comes from operating efficiencies, not solely from financial manipulations. They recognize that improving material handling efficiency is a way of significantly reducing costs and lowering invested capital, thus increasing profitability while providing better service to customers.

*Typical material disposition in conventional
(non-automated) manufacturing facilities.*



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A PRODUCT SECTION OF THE MATERIAL HANDLING INDUSTRY**



CONTROL IS THE ESSENTIAL INGREDIENT IN MATERIAL HANDLING EFFICIENCY

Automated material handling is a key element in the integrated logistics system. Without automated equipment and systems, materials could not be moved, placed, stored or manipulated with the speed necessary to meet production or shipping requirements. But speed is not enough.

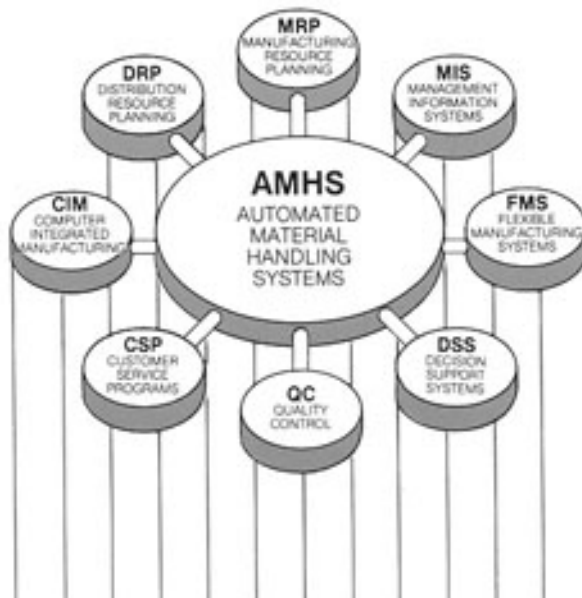
If the logistics system is to add to profitability, materials must be controlled - from receiving to shipping. At any given moment, you need to know precisely what materials are on hand, where they are, and be able to access them quickly and accurately.

Real-time control is being achieved through automated material handling technology: minicomputers talk to microprocessors on-board material handling machines, directing them to move, store, or manipulate materials while simultaneously reporting their status back to a computer. Or, a computer may direct equipment operators and require verification of tasks completed.

Humans are still very much involved, but computer technology and automated equipment have made material handling infinitely faster, safer, and more flexible. Most important, with automation, material can be accurately tracked and physically controlled.

When you know what material you have, where it is, and can control its movement, you can likely get by with less material - and hold onto what you must have for a shorter time. With material control, you get both initial and on-going savings.

Real-time control of materials through automated material handling systems impacts virtually all business activities and is essential to logistics profitability.



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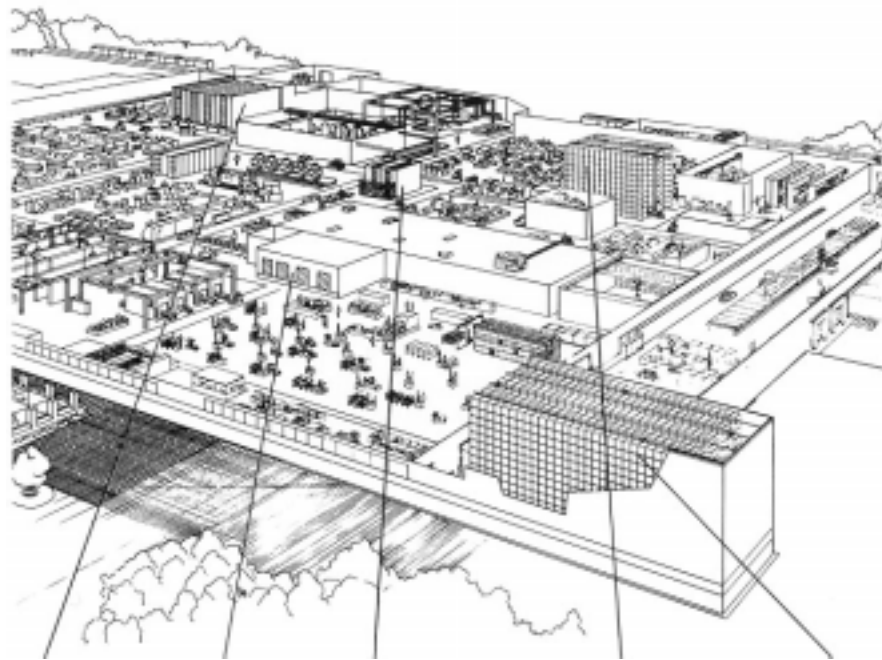
AS/RS IS A VITAL LINK IN AUTOMATED MATERIAL HANDLING

Automated Storage/Retrieval Systems (AS/RS) are only one element of an automated material handling strategy, yet these systems that automatically store and retrieve materials are a vital link in material management and profitability in the factory or distribution center.

In receiving, inspection and picking, in manufacturing, assembly and shipping, AS/RS appears in many sizes and configurations to serve a variety of functions - all aimed at reducing the cost of holding, protecting and controlling materials.

Even in so-called "zero" inventory operations, AS/RS is being used in buffer stores to assure continuous material flow.

With the advances in data acquisition, information processing, and production automation, AS/RS has become an essential ingredient in automated materials handling strategies.



Raw materials or vendor parts are automatically quarantined in an AS/RS until released by quality control.

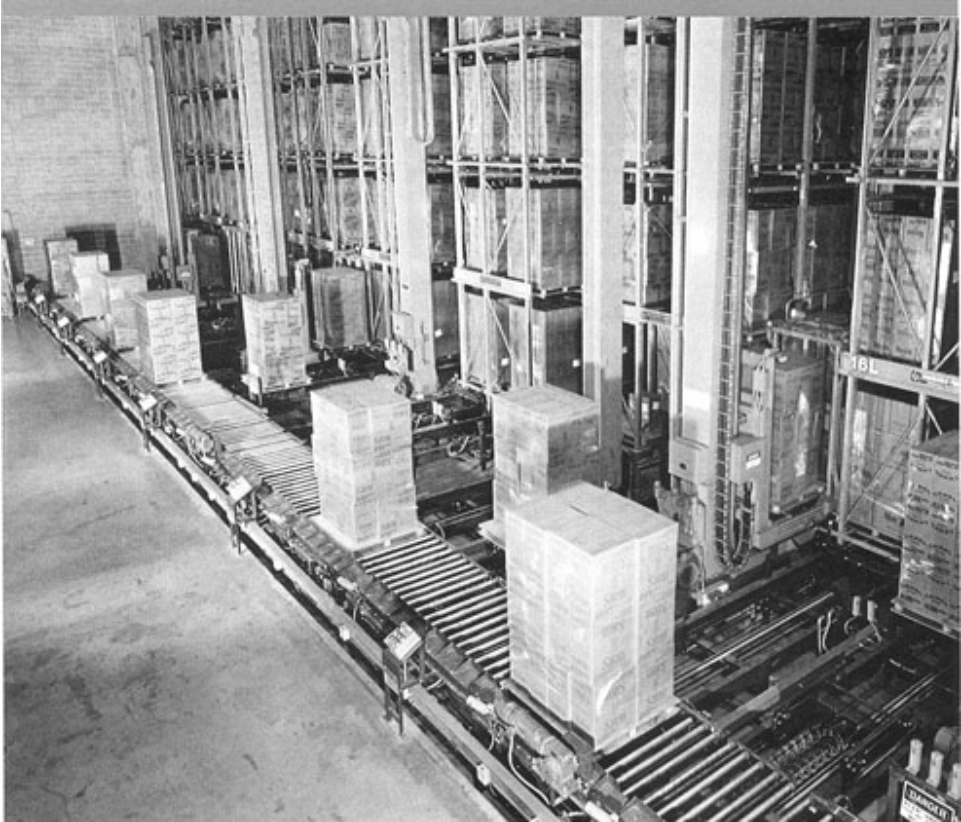
Small parts in bins are brought to operators who make fast, accurate picks aided by instructions on a TV screen.

Assemblies are staged in an AS/RS on the factory floor awaiting the next step in production.

AS/RS functions as a line transport/delivery system, feeding parts directly to test stations, then returning them to storage.

Finished goods are released sequentially from an AS/RS and delivered just-in-time for outbound shipment.

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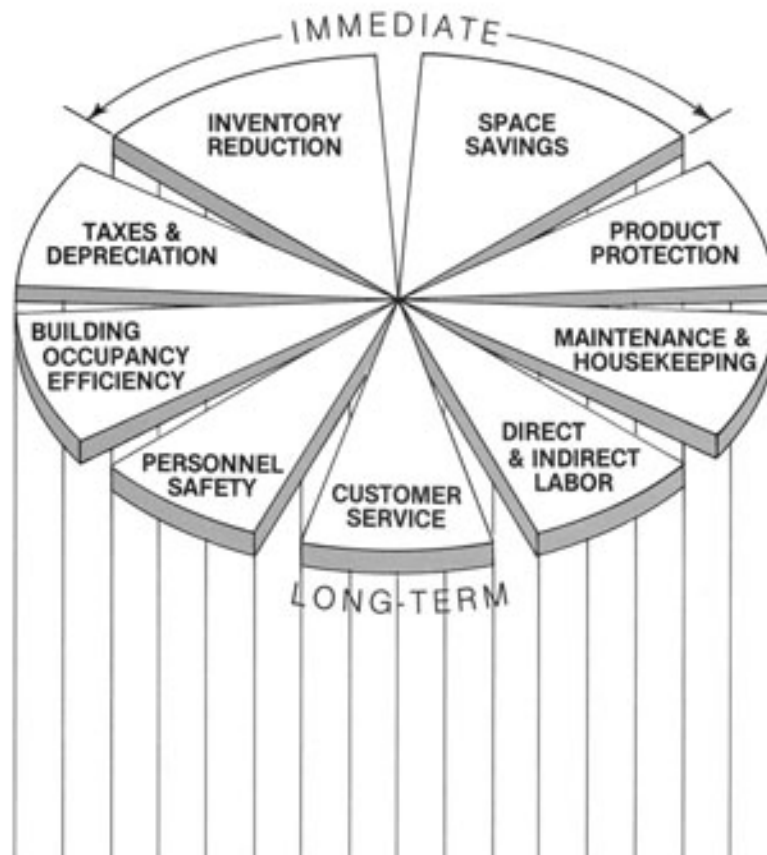
THE VALUE OF AS/RS IS MEASURED IN QUANTIFIABLE TERMS

The ROI of an Automated Storage /Retrieval System may be justified solely on the basis of inventory reduction. Or, the savings in space alone may make AS/RS an economically attractive addition to the material logistics program.

But beyond these one-time cost savings, the continuing contribution to profitability by AS/RS should be the more important consideration. How much will the automated system reduce direct and indirect labor costs, not only payroll, but for hiring, training and retraining costs? What savings will be realized through improved product protection? How much will be saved in maintenance and housekeeping costs? What would be the value of faster, more accurate order response?

When all the immediate and long-term benefits are quantified, a realistic ROI can be determined for the AS/RS. What's more, this comprehensive justification process will reveal what automated material handling systems can actually contribute to overall cost reduction, increased productivity, and company profitability.

Determining contribution of AS/RS to profitability includes consideration of both immediate and long-term benefits.



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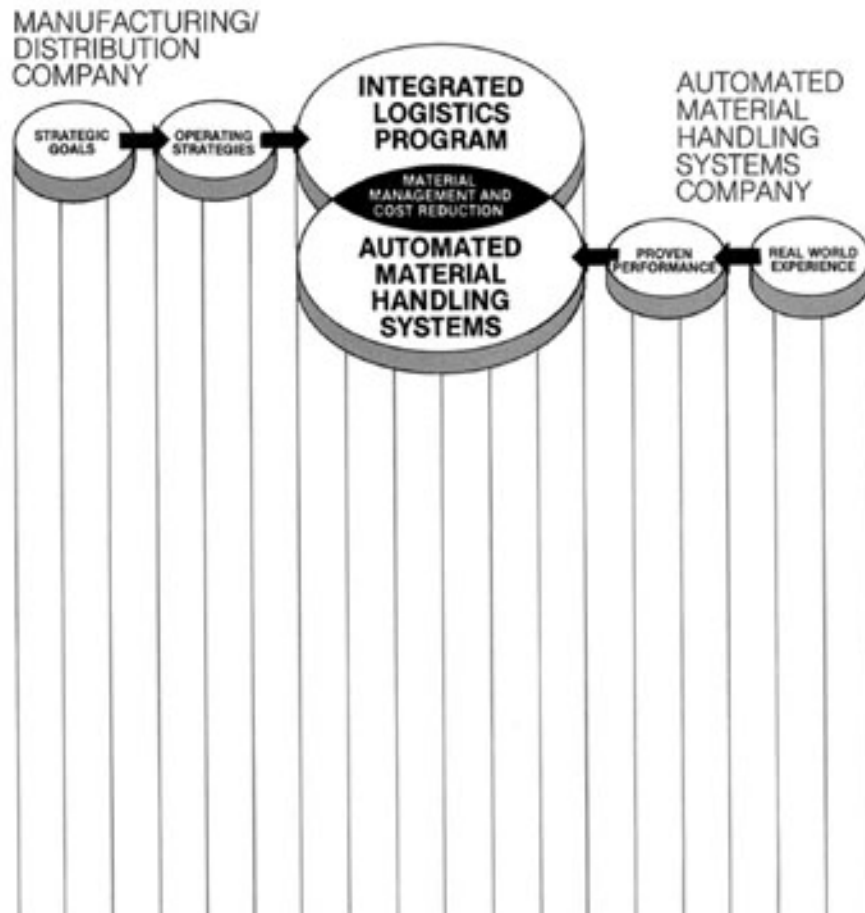
DETERMINE GOALS AND FORM STRATEGIC ALLIANCES

Logistic functions that are managed to support the company's strategy for competitive advantage invariably make a measurable contribution to profitability. Correspondingly, the most successful automated material handling systems are those which are designed and arranged to support operating strategies.

With strategic goals established, companies who have realized the most value from integrated logistics programs are those who sought out and formed alliances with experienced automated systems companies. These integrators of automated material handling systems bring to the partnership a depth of real-world experience unavailable with any other alliance.

The Automated Storage /Retrieval Systems association welcomes the opportunity to discuss with you the management and reduction of costs through the application of automated material handling systems.

Integrated logistics programs yielding the most value come from strategic partnerships with automated systems companies



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ASSOCIATION MEMBER COMPANIES

AS/RS is an association of America's leading manufacturers of Automated Storage /Retrieval Systems. The association is a product section of MHI, The Material Handling Industry, a national trade association of manufacturers of material handling equipment or systems which are manufactured in U.S. facilities.

Information relating to the association and its membership is available by contacting MHI.

EXECUTIVE SUMMARY VIDEO PRESENTATION

A short video presentation is available which shows how a number of America's leading companies have applied AS/RS technology to the management of materials. This Executive Summary video may be requested at no charge through MHI

LITERATURE AND DOCUMENTING

Literature and documents are available from MHI covering virtually every aspect of automated materials handling, and specifically AS/RS. A sampling of areas covered include:

- AS/RS in the Automated Factory
- Impact of AS/RS in Warehousing and Distribution
- Considerations for Planning an AS /RS
- AS/RS Case Studies

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