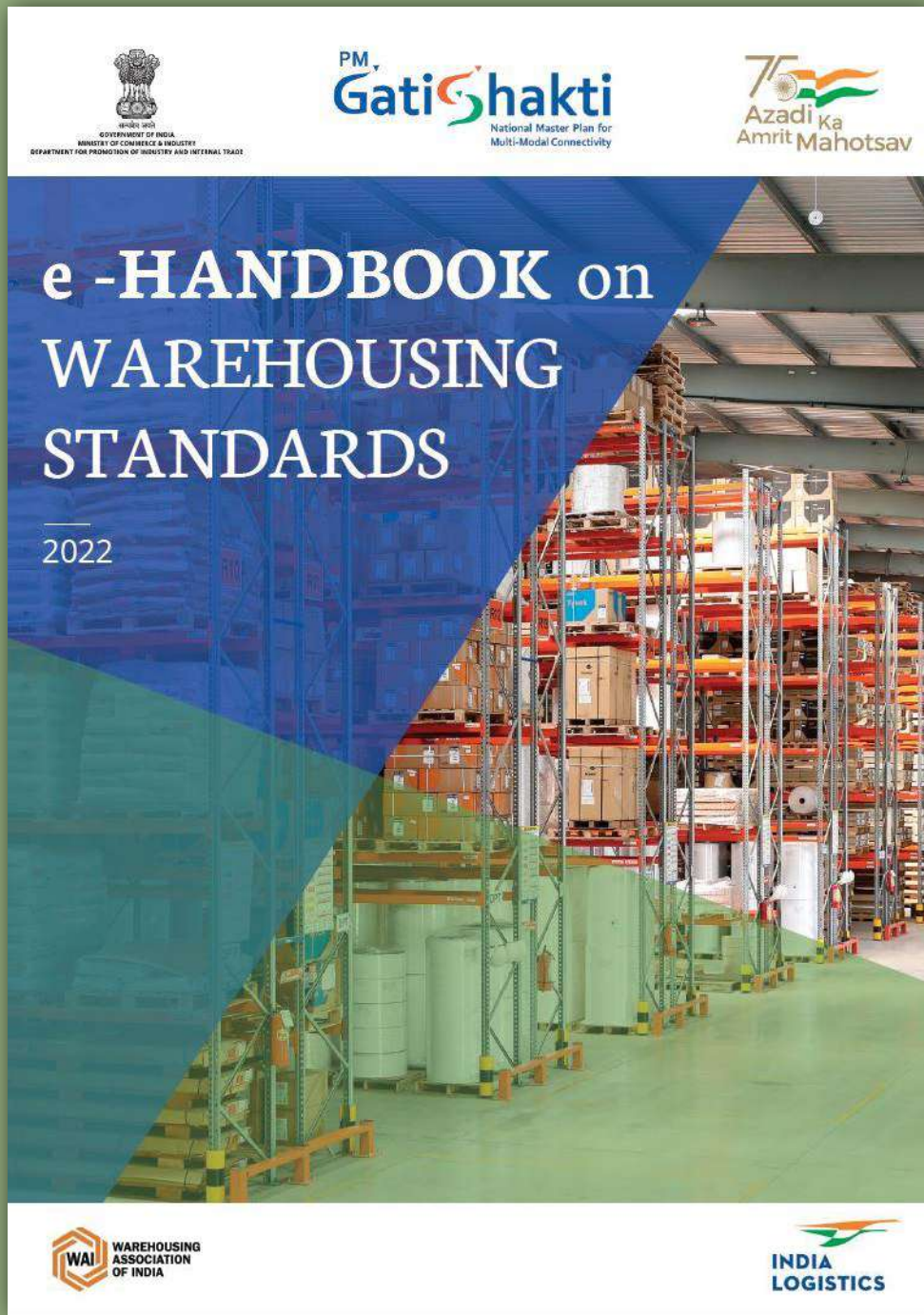
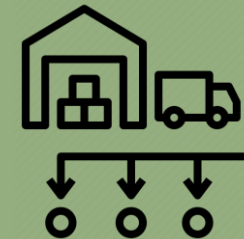




## Standardisation

is essential for reducing costs, improving efficiency, ensuring global compatibility and competitiveness.



# National Logistics Policy

## Contents



[Warehousing standards](#)



[Palletisation](#)



[Racking](#)



[Material handling equipment](#)



[Transportation](#)



[Product specific standards](#)



[Recent Trends – Automation & AI](#)





## National Logistics Policy

### Benefits



Integration of country's logistics with global supply chains



Efficient asset utilisation, reduced costs, operational efficiency and enabling intermodal transport



Unitisation of shipments, ensuring safety, reducing damages/ pilferage

# 1. Standards for Warehousing

- Warehouse Structure Standards
- Maintenance Standards
- Warehouse Machinery Standards
- Standards for Warehouse Management Systems

## Overview

The present warehouse standards prescribed are primarily governing the physical infrastructure of the warehouses. Additionally, best practices are listed for ensuring reduction in warehousing costs as well as achieving improved efficiency and effectiveness covering the following areas of warehousing:

Warehousing structure standards that include design and construction standards, flooring standards, roofing standards. Maintenance Standards including fire safety standards, security standards, occupational safety, health and sustainability standards and illumination standards. Warehouse Machinery standards and Standards for Warehouse Management Systems including regulatory compliance and labour management systems.



## 2. Palletization Standards

- Pallet Standards
- Practices in Vogue

### Overview

Palletization plays an important role in achieving efficiencies not only in warehousing but also in the whole cycle of logistics. Standardisation of pallet sizes will allow standardisation of palletizers, racking, material handling equipment, trucks, and warehouse design. This will result in economy of space and facilitate automation, thereby eliminating manual transfer of goods and improves the overall productivity and work efficiency, as well as reduces losses and the wastage of pallets.

In addition to the existing standards, best practices are listed for standardized pallet dimensions/sizes for unitized loads for various industry segments, viz. Chemicals/ petrochemicals, food & beverages, retailers, pharma, textiles, electronics, automotive etc.

The chapter includes the following Standards for pallet dimensions, Standards for tolerance and load capacity, Standards for pallet material specification, Packaging, Pallet stacking, Manufacturing material of pallets; and Number of entry points.



### 3. Racking Standards

- Design Standards
- Raw Material Standards
- Standards for audit and maintenance

#### Overview

A good warehouse should provide safe and efficient storage for various products. A warehouse facility providing maximum space utilisation for storage creates higher profit margins for the operator.

Currently, there are no existing Indian Standards for racking. Application of standards for racking is essential to ensure efficient storage within warehouse premises. The practices in vogue for racking cover the following: Racking dimensions, Load factors; and Material strength factors.



## 4. Standards for Material Handling Equipment

- MHE'S for different Applications
- MHE'S for different Racking types

### Overview

Warehouses use various types of material handling equipment for ease of operations. The most common equipment used are forklift trucks and cranes, conveyors and other dock levelling equipment. Details of the standards for material handling equipment have been provided in detail within the chapter.



# 5. Standards for Transportation

- Network Optimisation
- Vehicle Turning Radius
- Designing for Vehicles

## Overview

The standards for road transportation primarily include existing guidelines for dimensions of containers and other storage and transit equipment used at various warehousing and transportation facilities. Key changes will be required in truck body standards to make trucks ready for palletized cargo to improve throughput, besides truly synchronizing with international norms.

The truck body width must match the pallet sizes as also flooring of trucks should follow standards to facilitate use of mechanized material handling equipment. From environmental considerations, it is important to have optimal vehicular routing, to use electric vehicles and to ensure efficiency and maintenance of service vehicles. The best practices cover the following areas: Dimensions, truck design and Network optimisation.



## 6. Product Specific Standards

- Assaying/Grading Standards
- Sampling and Testing
- Standards Weightment Standards

### Overview

Products stored in warehouses may be classified as agricultural and non-agricultural items. These products are required to be stored in warehouses capable of protecting the quality. The standards for agricultural products and commodities are specified by WDRA, BIS and other product specific agencies. For the non-agricultural commodities, the standards are specified by various nodal regulatory agencies such as BIS as well as international agencies. The product specific standards cover the following: Assaying/grading standards, Testing standards and Weightment standards.



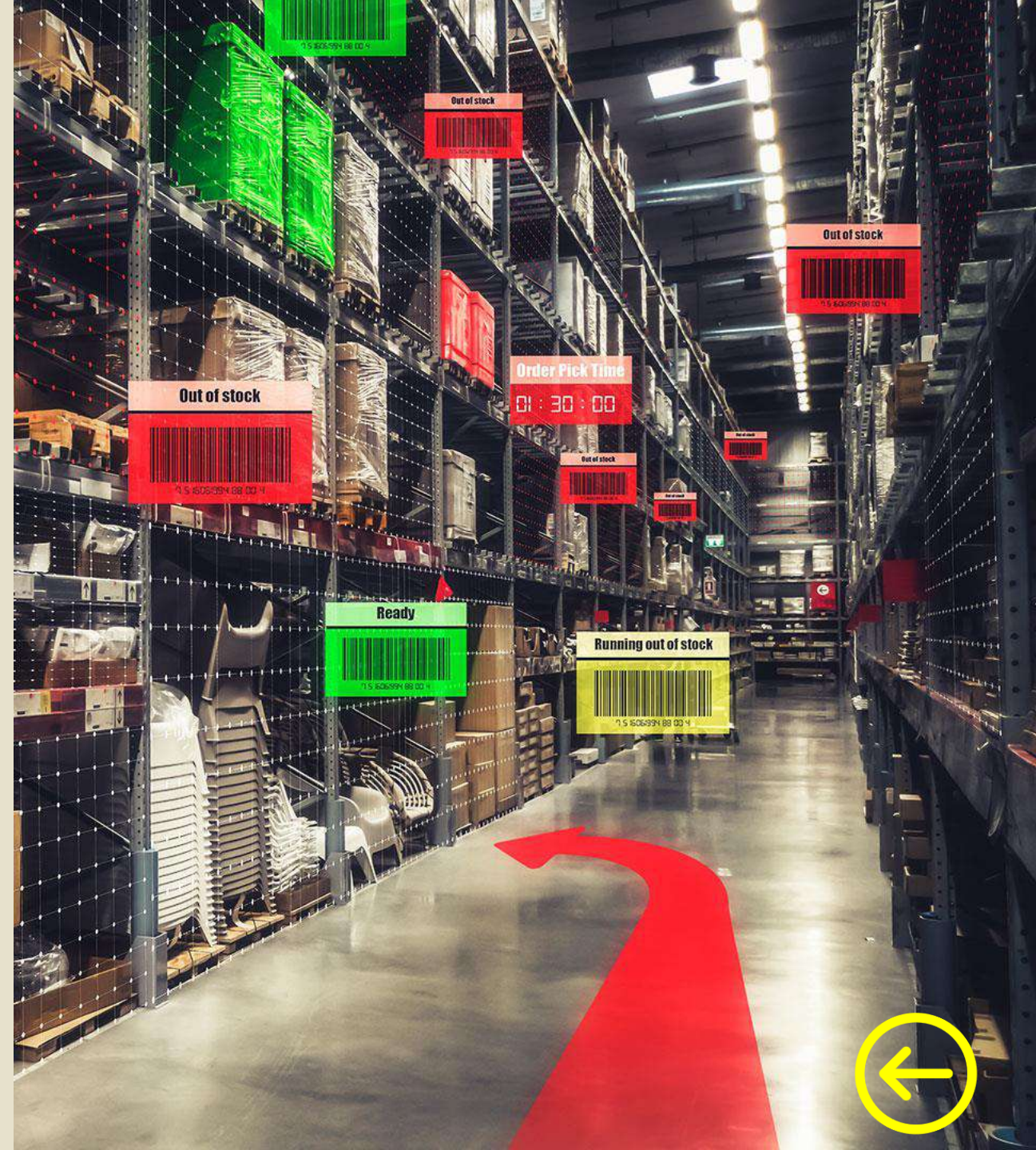
# 07. Recent Trends

## A - WAREHOUSE AUTOMATION

- Loading / Unloading
- Picking
- Sortation
- Movement

## Overview

Warehouse automation helps ensure that business critical operations in the warehouse meet customer demand. It starts with a warehouse management system (WMS) that automates manual processes and data capture, inventory control and supports data analysis. These systems integrate with other solutions to efficiently manage and automate tasks across different business and supply chain functions. The chapter covers automation systems for loading/unloading, picking, sortation, movement, storage and retrieval.



# 07. Recent Trends

## B- ARTIFICIAL INTELLIGENCE IN WAREHOUSE

- Storage
- Movement
- Other Tasks

### Overview

In this section a broad understanding of AI with current/possible applications of AI in the Warehouse is put forward with case examples (Domestic/international). Applications of AI in storage, picking, putting away, replenishment, movement, grading, kitting, cross-docking and yard management are described briefly.

