



Application Dossier

MANUFACTURING - ENGINEERING

Appliances

- A consumer appliance, also referred to as a domestic appliance, an electric appliance or a household appliance, is a machine which assists in household functions such as cooking, cleaning and food preservation.
- The consumer appliance industry includes electrical or mechanical devices used in a household, which is divided into two sectors: major domestic appliances and small domestic appliances. The first category includes large machines used at home, such as, Refrigerator, Air conditioners and washing machines and second category includes kitchenware, microwave ovens and stoves.
- Ex companies: **Whirlpool, TTK prestige**



White Goods



Air conditioners



Washing
Machine



Refrigerators



Electric fans

Brown Goods



Kitchenware

We Understand You

Challenges

- Storage & identification of multiple SKU variety
- Lesser vertical height utilization & high cost per inventory
- Manual & high time consumption in inventory counting
- To maintain product dispatch with FIFO
- Highly manpower dependent

Our Value Proposition

- Configuration to address selectivity and density
- Storage system to accommodate high CBM utilization
- Automated solutions and bar coding to ease inventory counting
- Storage solution with 100% selectivity and FIFO system
- AS/RS solutions

Application - 1

Kitchenware-Bulk Dispatch



Pressure Cookwares



Non-Stick Cookwares



Non-Stick Pans

Product storage form



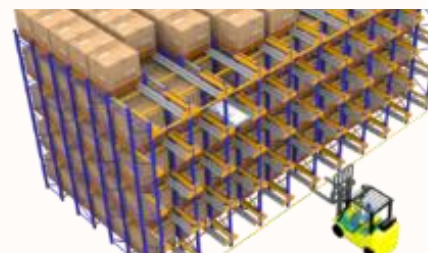
Recommended Solutions by Godrej

Selective pallet racking



- Each level supports different SKU types
- 100% selectivity with FIFO capability
- Throughput scalable by increasing MHE count
- No honeycombing; vacant positions only at single-deep retrieval
- Barcode-enabled inventory; WMS integration possible
- Manual put-away and picking via MHE
- Maximum building height up to 18 metres

Shuttle racking + FLT/RT (Semi automatic)



- Independent retrieval enables different SKUs at each level
- FIFO achievable at single pallet level
- Shuttle-driven handling ensures high throughput (~20 pallets/hour)
- Minimal honeycombing; vacant positions form only at rear end
- Wi-Fi enabled shuttle operation via WMS; automated inventory tracking
- Reduced manpower for put-away and picking using MHE
- Maximum building height up to 14 metres

Shuttle AS/RS (Automatic)



- Independent retrieval allows different SKUs at each level
- FIFO enabled at single pallet level
- Very high throughput (~50% higher than semi-automatic systems)
- Minimal honeycombing; vacant positions form only at rear end
- Wi-Fi integrated shuttle operation via WMS; automated inventory tracking
- Fully automated put-away and picking; no manpower dependency
- Maximum building height up to 30 metres

Application - 2

Kitchenware-Discrete dispatch



Pressure Cookwares



Non-Stick Cookwares



Non-Stick Pans

Product storage form



Recommended Solutions by Godrej

Selective pallet racking



- Each level in a bay can have different variety of SKU
- 100% selectivity with FIFO
- Handling of pallet is by MHE , hence throughput is moderate
- Bar coding stickering to ease inventory counting
- Maximum height Up to 18meters

Hybrid pallet racking



- Each level can have different types of SKU as they are independently retrieved
- 100% selectivity with FIFO
- Handling of pallet is by MHE & discrete picking manually, hence throughput is comparatively less than SPRS
- Bar coding stickering to ease inventory counting
- Maximum height Up to 18meters

High-rise shelving with order picker



- Each level in a bay can have different variety of SKU
- Batch wise FIFO with each level dedicated for a variety
- Loading & unloading of SKU is by order picker for discrete picking, hence throughput is comparatively higher for dispatches
- Bar coding stickering to ease inventory counting
- Maximum height Up to 18meters

Application - 3

Kitchenware-Spare parts



Small Fasteners



Burner Tops



Handles



Non-Stick Cookwares

Product storage form



Recommended Solutions by Godrej

Short span shelving system



- Due to shorter span, more locations are created in the same storage space
- High CBM utilization due to sleek panel design
- Each row is fixed with dedicated aisle enhancing air circulation
- Span ranges from 0.9m to 1.3m wide
- Possibility of having multi-picks at the same time

Long span shelving system



- Higher flexibility to create locations in a level due to longer span using dividers
- Option for mesh decking and cladding
- Can be expanded vertically with MT option up to 12 meters
- Span ranges from 1.5m to 2.6m wide
- Multi variety option for walkway with perforations

Application - 4

FG Storage Of Air Conditioners In Factory Attached Warehouse



Indoor unit



Outdoor unit

Product storage form



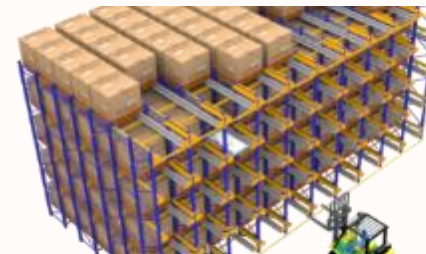
Recommended Solutions by Godrej

Drive in racking + FLT/RT (manual)



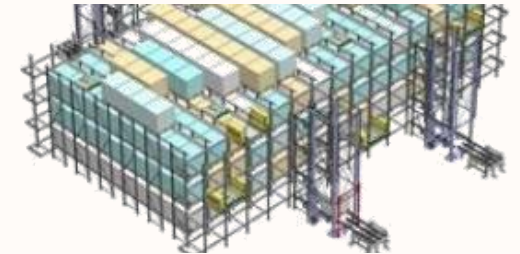
- Same SKU required across all levels in a bay
- Limited SKU variety (only 15–25% of shuttle system capacity)
- FIFO possible only at batch level
- Low throughput (~10 pallets/hour/MHE)
- High chance of vacant positions due to honeycombing
- No integration with end-of-line conveying systems
- High manpower dependency; skilled operation needed
- Maximum building height up to 10 metres

Shuttle racking + FLT/RT (Semi automatic)

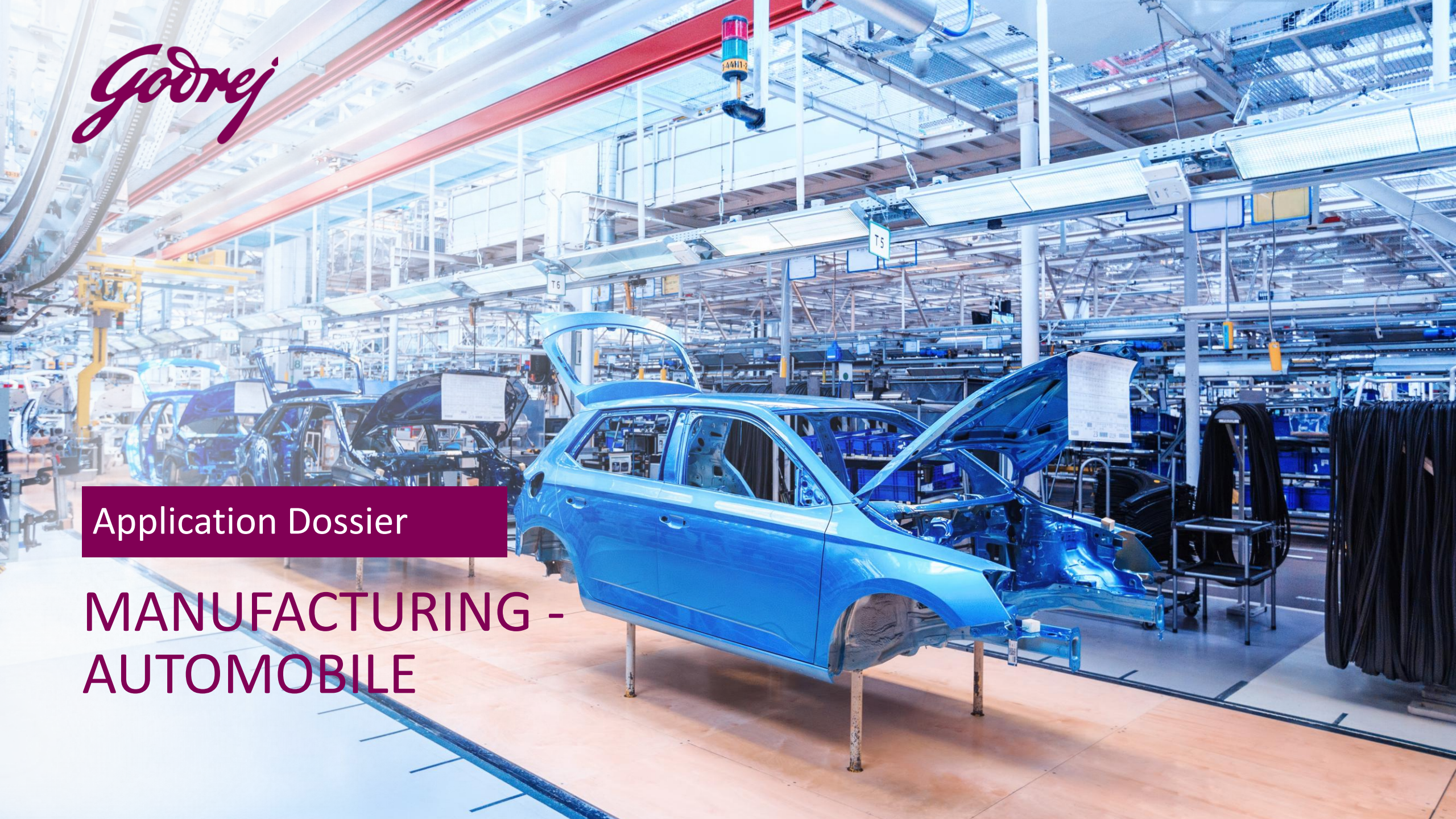


- Different FG types can be stored at each level due to independent retrieval
- FIFO enabled at single pallet level
- Shuttle-driven handling ensures high throughput (~20 pallets/hour per shuttle)
- Minimal honeycombing; vacant positions form only at rear end
- End-of-line conveying integration not possible
- Reduced manpower for put-away and picking using MHE
- Maximum building height up to 14 metres

Shuttle AS/RS (Automatic)



- Independent retrieval allows different FG types at each level
- FIFO enabled at single pallet level
- Very high throughput (~50% higher than semi-automatic systems)
- Minimal honeycombing; vacant positions form only at rear end
- Compatible with end-of-line conveying integration
- Fully automated put-away and picking; no manpower dependency
- Maximum building height up to 30 metres

A wide-angle photograph of a modern automobile manufacturing plant. The scene is filled with industrial equipment, including overhead cranes, conveyor systems, and various workstations. Several blue car chassis are visible on the assembly line, with their doors open. The floor is a light-colored, polished surface. The overall atmosphere is one of a busy, high-tech industrial environment.

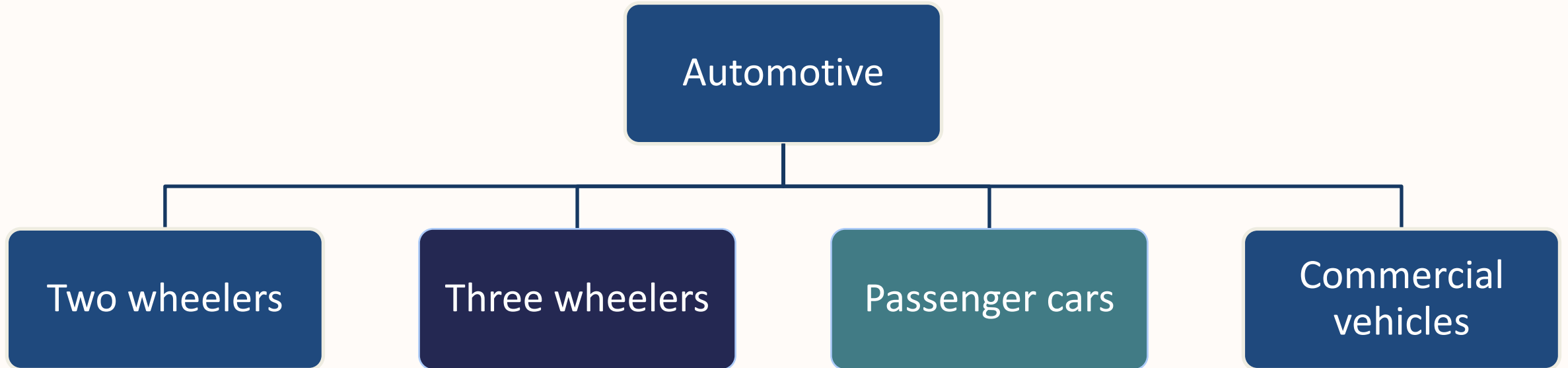
Godrej

Application Dossier

MANUFACTURING -
AUTOMOBILE

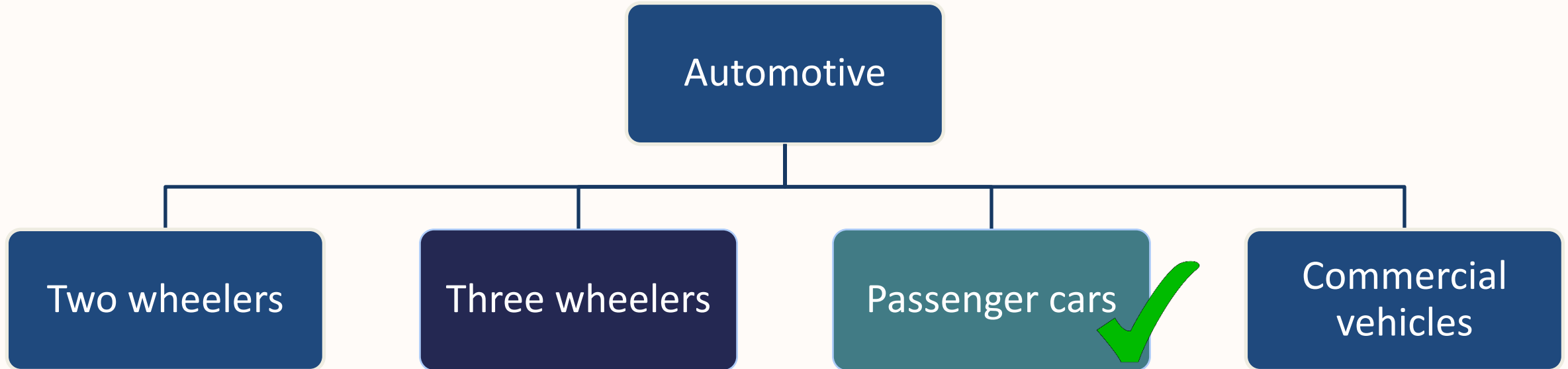
Application - 1

Recommended Solutions by Godrej



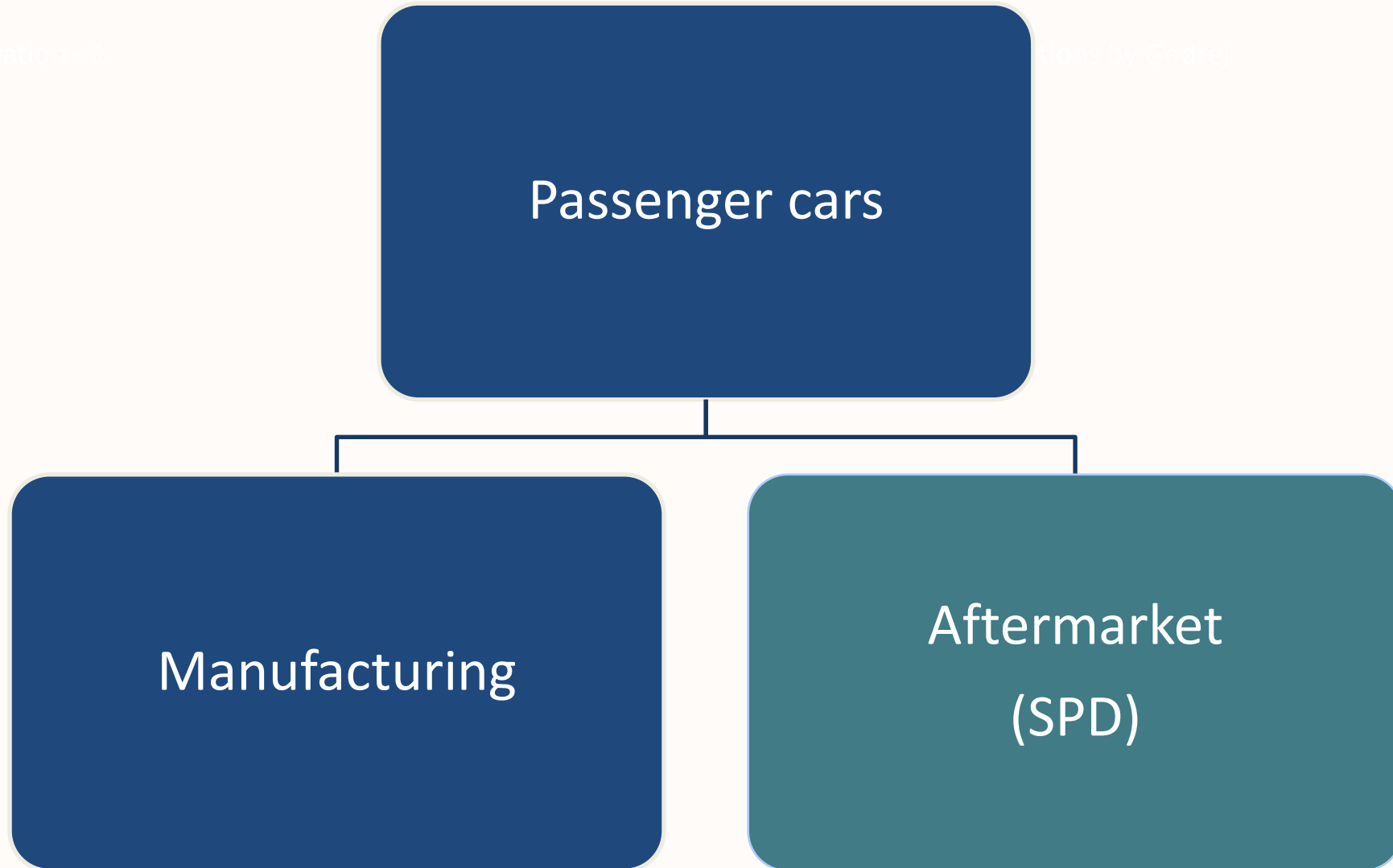
Application - 1

Recommended Solutions by Godrej



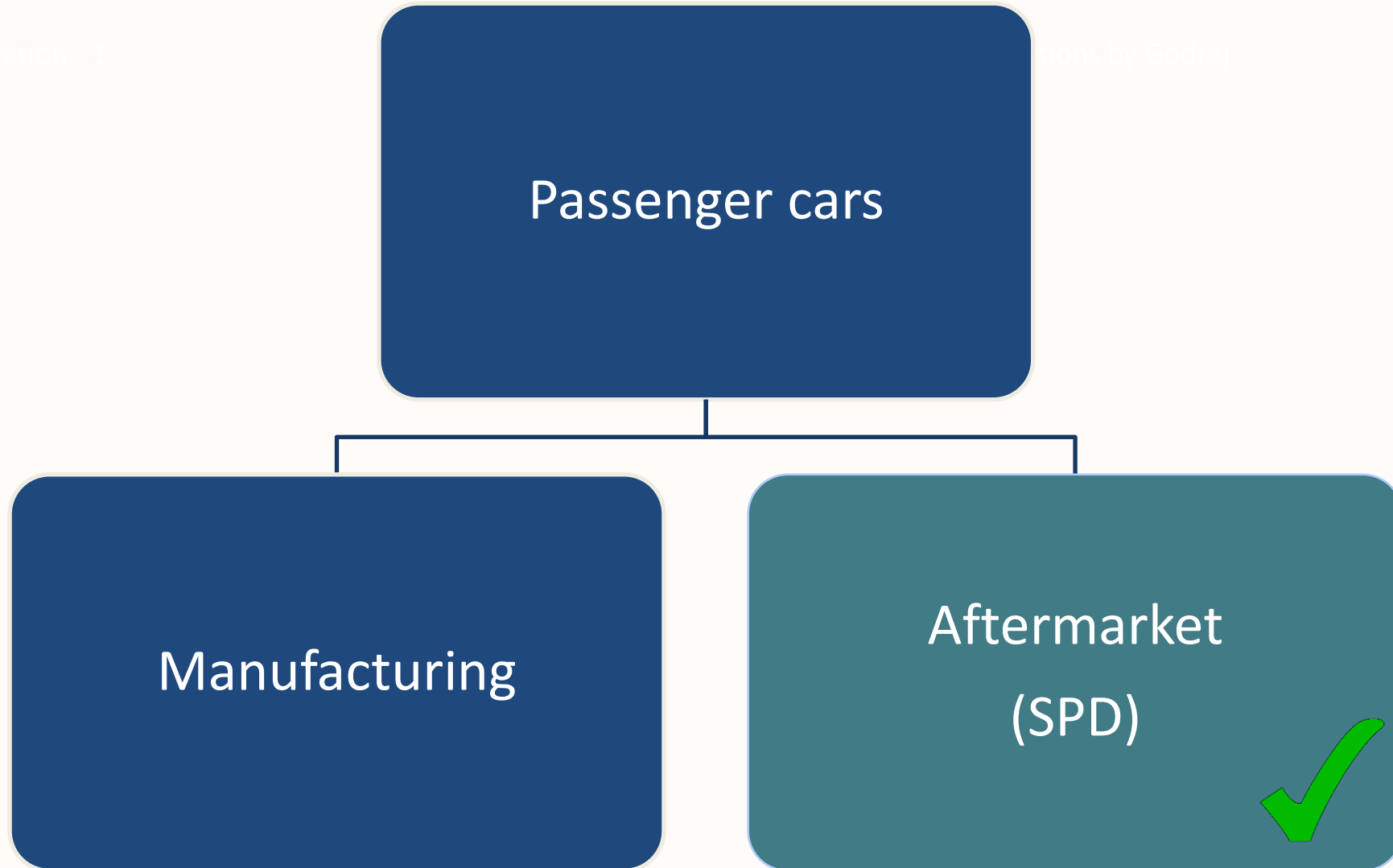
Application - 1

Solutions by Godrej



Application - 1

Applications by Godrej





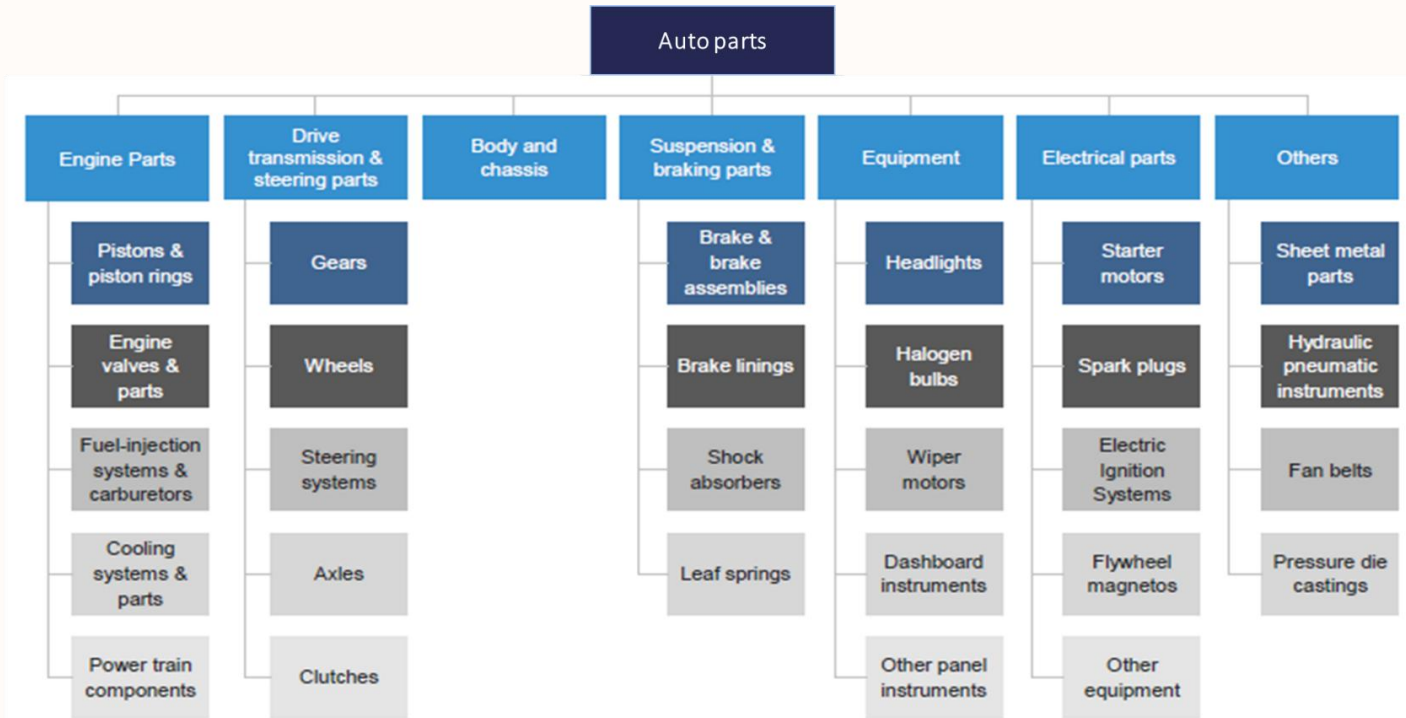
AUTOMOTIVE AFTERMARKET

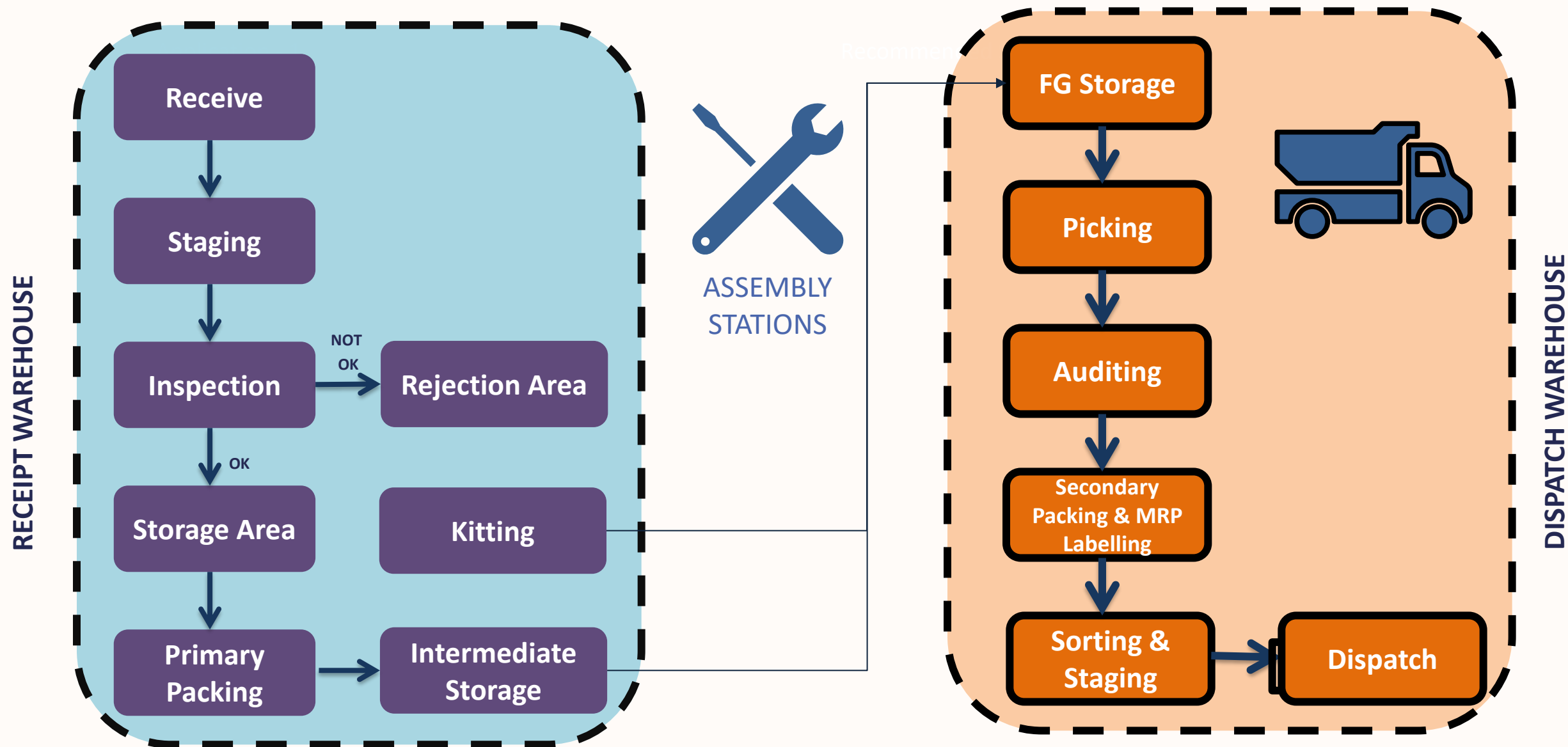
Application - I

- The automotive aftermarket is the secondary market of automotive industry, concerned with the manufacturing, remanufacturing, distribution, retailing and installation of all vehicle parts, equipment and accessories, after the sale of the automobile by the original equipment manufacturer (OEM) to the consumer.
- Aftermarket parts are divided into two categories: replacement parts and accessories. Replacement parts are automotive parts built or remanufactured to replace OEM parts as they become worn or damaged. Accessories are parts made for comfort, convenience, performance, safety or customization and are designed for add-on after the original sale of the motor vehicle.
- Ex companies: **Maruti Suzuki, Nissan**

Recommended solution by Godrej

Major parts of passenger cars





We Understand You

Challenges

- Huge varieties of SKU's
- Storage & handling of odd sized parts
- Stock integration with WMS
- Ensuring availability of parts for the stipulated period
- Comply with national regulations
- Environmental commitment

Recommended solution by Godrej

Our Value Proposition

- Storage design with selectivity
- Special solutions for auto spare parts storage
- Compatible with WMS integration
- High volumetric utilization
- Integrated sprinkler design
- Lead free & RoHS compliant

Application - 1

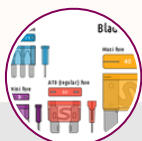
Small parts storage in auto spare parts distribution



Gaskets & Fasteners



Brass Joints



Electrical Components



Fasteners

Recommended Solutions by Godrej

Multi-tier short span shelving



- Dense storage with adjustable levels
- Easy indexing with bar coding on each shelf panel
- Span ranges from 1m to 1.3m wide
- Back & side cladding for fall prevention
- Provision for fixed and adjustable divider for multi-compartment locations

Multi-tier long span shelving



- Higher flexibility to create locations in a level due to longer span using dividers
- Suitable for relatively bulk items
- Span ranges from 2m to 3m wide
- Back & side cladding for fall prevention
- Provision for fixed and adjustable divider for multi-compartment locations

Mini Loaded AS/RS



- Allows maximize the use of overhead space up to 30m Ht
- High-speed order picking with WMS integration
- Maximum storage capacity with highest throughput in smallest footprint
- Minimal facility modification required, ideal for existing brownfield facilities
- Modular system allows for expansion as capacity requirements and SKU's increase

Application - 2

Medium parts storage in auto spare parts distribution



Kitted Boxes



Head Lights



Radiators



Side Mirrors

Recommended Solutions by Godrej

Multi-tier long span shelving



- Higher flexibility to create locations in a level due to longer span using dividers
- Heavy but varying SKU sizes taken care by various decking options
- Span ranges from 2m to 3m wide.
- Easier to integrate with VRC, loading gate and conveyor for achieving high picking throughput

High-rise shelving with order picker



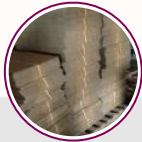
- Item can be picked directly from higher levels manually ensuring high throughput
- Heavy but varying SKU sizes taken care by various decking options
- Span ranges from 2m to 3m wide
- Flexibility to integrate with pallet racking solutions based on future needs

Application - 3

Packaging material storage in auto spare parts distribution



Packaging Rolls



Cartons



Labels



Kitting Box

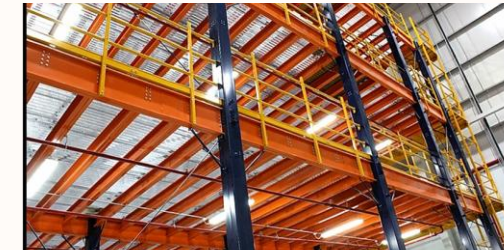
Recommended Solutions by Godrej

Selective Pallet racking + FLT/RT



- Selectivity – 100%
- Suitable for multi variety bulk palletized packing material storage
- Provision for decking option for bottom levels for manual access
- Materials can be handled in bulk using reach truck & order picker for discrete picking

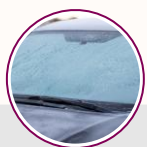
Multi-tier mezzanine



- Highly dense storage suitable for batch bulk storage
- Increased floor area & vertical height utilization
- Varying SKU sizes can be accommodated
- VRC, loading gate can be easily integrated
- System can be designed up to 1000 kg udl/sqm & one ton HPT load

Application - 4

Wind shield storage

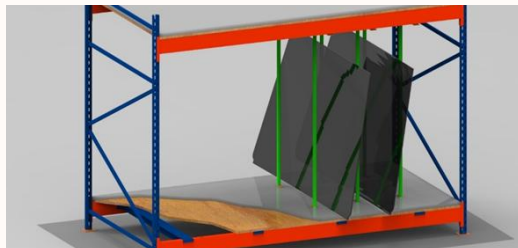


Wind Shield



Recommended Solutions by Godrej

Shelving system with pipe separator



- Possible to integrate with racking and multi-tier shelving system
- Method for storage – Vertical orientation
- MDF decking with foam cover arrangement to avoid scratches
- Separators with plastic sleeve for scratch free storage
- Wind shield to be handled manually since the levels are within human reach
- Separators are possible to adjust with supplier support

Shelving system with divider



- Possible to integrate with racking and multi-tier shelving system
- Method for storage – Vertical orientation
- Suitable for wind shield with packed condition for scratch resistance
- Wind shield to be handled manually since the levels are within human reach
- 100% accessible storage with divider adjustability of 100mm
- Cost effective option with slave pallet as bottom decking

Application - 5

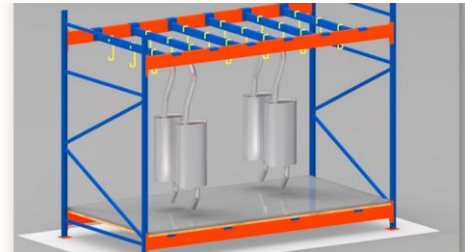
Muffler storage



Gaskets & Fasteners

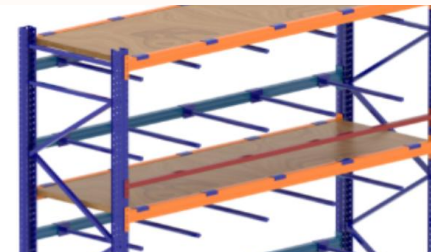
Recommended Solutions by Godrej

Shelving system with PSB & Hook



- Silencers are hooked in vertical orientation with hood support
- Wood decking provided for bottom support and scratch resistance
- Multi-variety sizes of muffler can be stored
- Suggested to store in 1st level of all units for manual handling
- Can be integrated with MT shelving

Shelving system with vertical support



- Silencers are placed in vertical orientation with tube separator
- Wood decking provided for bottom support and scratch resistance
- Multi-variety sizes of muffler can be stored
- Suggested to store in 1st level of all units for manual handling
- Can be integrated with MT shelving

Shelving system with horizontal divider



- Silencers are stored in horizontal orientation on top of deck panels
- Max stackability is only 2 due to damage protection.
- Possible to have both adjustable or fixed divider
- Organized storage
- Suitable only for flat type silencer

Application - 6

Tyre storage



Tyre



Recommended Solutions by Godrej

Shelving system with vertical storage



- Suitable for long duration storage
- Easy manual handling for rotation
- Impression free design ensured with tapered beam
- Mesh cladding can be provided for fall prevention

Shelving system with horizontal storage



- Suitable for short duration storage
- Flat decking surface for comfortable storage
- Stackability is recommended as per customer norms
- Mesh cladding can be provided for fall prevention

Application - 7

Hood & side door storage



Hood



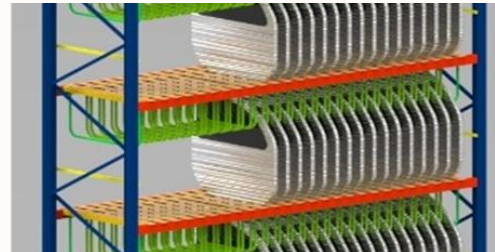
Fender



Door

Recommended Solutions by Godrej

Shelving system – resting type



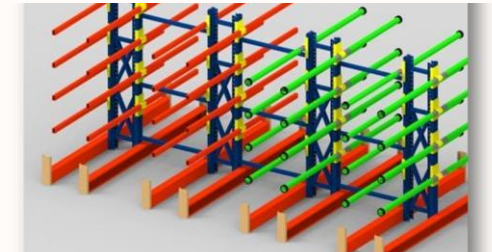
- Possible to integrate with racking or multi-tier shelving system
- Method for storage – Vertical orientation.
- Separators with plastic sleeve for scratch free storage
- Storage and retrieval either manually or by using order pickers

Shelving system - hanging type



- Best suitable for cut panel storage in vertical orientation
- Dense storage and easy picking of SKU
- Handling can be manual or with equipment
- Adjustable arms to accommodate varying size of models

Cantilever racking – hanging type



- Method for storage - vertical hanging
- Manual handling.
- Fall prevention with inclined arms & front stopper
- 100% accessible storage with arm adjustability of 100mm
- Option for tubular & circular arms

Application - 8

Long Parts Storage



Radiator Supports



Bumpers



Trunk Lids

Recommended Solutions by Godrej

Shelving system with manual picking



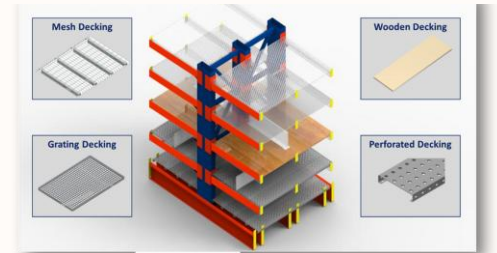
- Best solutions for long parts like bumper, fender
- Easy & 100% accessibility
- Manual handling
- Can be integrated with multi-tier shelving
- Requires wider aisles
- For materials not compatible for order picker since SKU is perpendicular during picking

Shelving system with order picker



- Full decking surface provide adequate support for the SKU's
- Large shelving to accommodate long parts
- Eliminate the falling of materials by providing rear pipe stopper
- Horizontal storage to help shorter aisle and compact design
- Compatible with order picker for faster picking

Cantilever shelving



- Best solutions for long parts like bumper, fender
- Scratch free design ensured with foam covered arms
- Light but varying SKU's length taken care by steel decking options
- Fall prevention with inclined arms and tray design
- 100% accessible storage with arm adjustability of 100mm

Application - 9

Other Goods Storage



Engine



Battery



Paints & Aerosol



Airbag

Recommended Solutions by Godrej

Single-tier short span shelving



- Best suitable discrete parts like aerosol cans, paint cans, airbag storage
- Full caging with doors to separate them from the rest of the storage to ensure safety
- Best suitable for multi variety discrete parts storage
- 5 side closed compartment for regulation compliance for certain good storage
- Adjustable dividers to create multiple bin locations

Selective pallet racking system



- Best suitable for heavy palletized parts & heavy battery storage
- Skilled operator not needed
- Lesser possibility of rack damage
- One level for one SKU
- Mesh caging and mesh door for fire safety and regulation compliance
- Grating decking for fire sprinkler integration and heavy point load application

Application - 10

Palletized Parts Storage



Wheel Hub



Engine Block

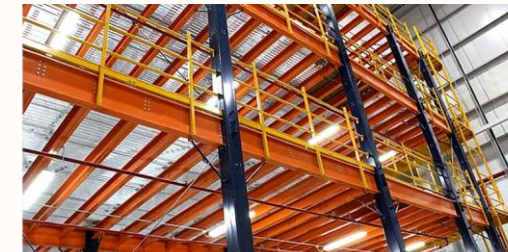
Recommended Solutions by Godrej

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- Materials can be handled in bulk using reach truck & order picker for discrete picking

Multi-tier mezzanine



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- Increased floor area & vertical height utilization
- Varying SKU sizes can be accommodated
- VRC, loading gate can be easily integrated
- System can be designed up to 1000 kg udl/sqm & one ton HPT load



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