

Warehouse management solutions.

Intelligent, future-proof, systematic warehouse management.



INTRO

HIGHLIGHTS

Overview: integrated management, control and optimisation of warehouse processes. 03

OUR SOLUTIONS

JUNGHEINRICH WMS

The comprehensive solution for intelligent warehouse control. 04–05

THE RIGHT SOLUTION FOR EVERY TYPE OF WAREHOUSE

Overview of warehouse types and WMS solutions. 06–07

JUNGHEINRICH WMS – PROCESSES AND MODULES

YOUR WAREHOUSE PROCESSES AT A GLANCE

Overview of all processes from goods-in to goods-out. 08–09

GOODS RECEIPT

Process reliability from the outset. 10–11

PUTAWAY AND RETRIEVAL

The optimum strategies for manual and automated warehouse areas. 12–13

PERSON-TO-GOODS ORDER PICKING

Efficiency – for your most important process in the warehouse. 14–15

GOODS-TO-PERSON ORDER PICKING

Ergonomics – Focusing on picking. 16–17

**WORKPLACES FOR CONSOLIDATION,
VALUE ADDED SERVICES AND PACKING**

Our industry experience is to your advantage. 18–19

OPTIMISED PROCESSES AT GOODS RETRIEVAL

Transparency that you see in the warehouse. 20–21

YOUR IT SOLUTION FOR WAREHOUSE MANAGEMENT

Know what is happening in the warehouse in real time – thanks to artificial intelligence. 22–23

OPTIONS AND ADDITIONAL INFORMATION

CUSTOMISED ADVICE AND SERVICE

We support you every step of the way, from planning to service. 24–25

JUNGHEINRICH COMPANY PROFILE

Leader in complete solutions for intralogistics: information on products, systems and services. 26–27

Steer your warehouse to success.

Integrated management, control and optimisation of warehouse processes.

Wide functional scope

Individual configuration from more than 60 modules, tailored to your requirements as well as continued development of the entire system.

Intelligent process support

thanks to more than 180 highly optimised, combinable algorithms. Your artificial intelligence in the warehouse for early detection and reporting of critical situations.

Uniquely high degree of future-proofing

The forward compatibility facilitates easy updates to the latest WMS release. Customer-specific parameters and developments are retained.

Excellent user experience

Simple, intuitive operation in all processes – customisable dialogues and the intelligent AI chatbot "NerdistiX" support you in your work.



Decades of experience

More than 60 years of material handling experience and over 35 years of experience in the development and implementation of intralogistics software, including specially trained 24/7 in-house support.

Outstanding integration of warehouse technology

Excellent integration of conveyors and special warehouse types without the otherwise familiar interface problems via the fully integrated material flow computer from Jungheinrich.

Maximum transparency

by interconnecting the entire warehouse. View stocks in real time, increase delivery reliability, reduce errors and minimise returns.

With the intelligent warehouse management systems (WMS) by Jungheinrich, you can manage, control and optimise your warehouse more efficiently than ever before, enabling you to benefit today from the developments of tomorrow. We accompany you step-by-step into the future of digital intralogistics and will be at your side as process and software experts, providing comprehensive advice.

Jungheinrich WMS.

The comprehensive solution for intelligent warehouse control.

EFFICIENCY IN ALL AREAS.

The higher the degree of automation in your warehouse and the more complex the processes, the more important it is to have a warehouse management system that adapts to your individual processes, yet remains simple and intuitive to operate. The Jungheinrich WMS offers exactly this. You can increase the efficiency of your intralogistics processes, reduce your costs by up to 70 % and bring a consistently high level of transparency to every area of your warehouse.

As the world of material handling is constantly evolving, the Jungheinrich WMS never stays the same. Our in-house developers monitor new intralogistics trends, such as artificial intelligence, and translate them into smart functions. The forward compatibility of our system allows you to upgrade to the latest version at any time, benefiting from the latest functional developments – all while maintaining your customised parameters. This will ensure that your warehouse always remains fit for future material handling requirements.

- ▶ Intelligent warehouse management for every industry and every degree of automation.
- ▶ Customised solution with a wide range of functions as standard.
- ▶ Maximum stock transparency and process reliability.
- ▶ Intuitive operation thanks to user-friendly interface.
- ▶ Excellent integration of warehouse technology thanks to fully integrated material flow controller.
- ▶ 24/7 in-house support, also via remote connection.
- ▶ Future-proofing thanks to more than 35 years of experience and continued further development by Jungheinrich intralogistics experts.



Jungheinrich WMS core modules



Jungheinrich WMS additional modules



Truck guidance system modules



Interface modules



Jungheinrich WCS/MFC core modules



Jungheinrich WCS/MFC additional modules

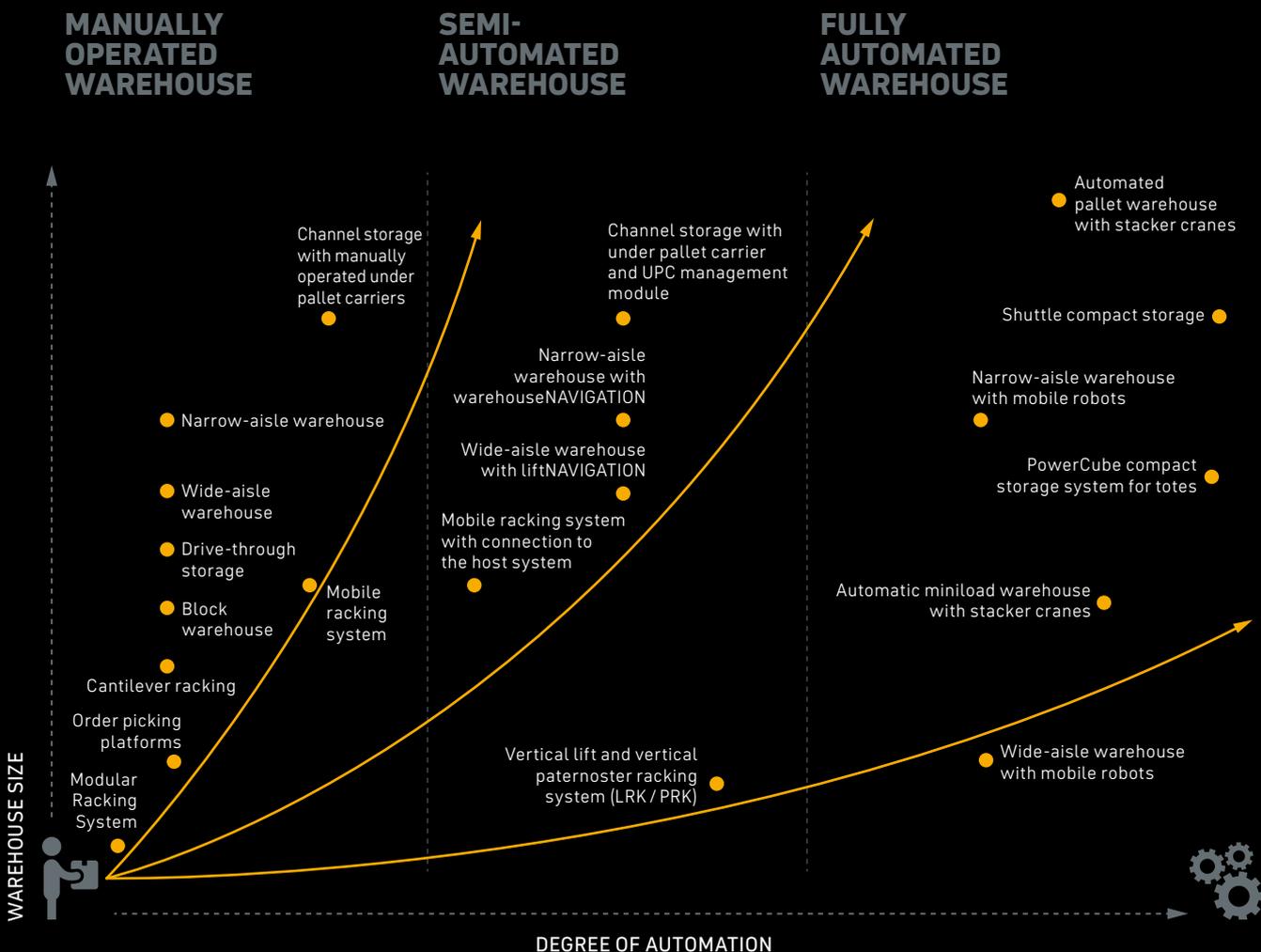


The right solution for every type of warehouse.

Overview of warehouse types and WMS solutions.

The Jungheinrich WMS is a powerful and intuitive software solution for the efficient control of your warehouse processes. It combines our decades of experience in warehouse management with individual customisability – for every warehouse size, from manual to fully automated.

Thanks to our multidimensional configuration model and modular design, the system can be flexibly tailored to your requirements.



Goods receipt, quality assurance

- 1 Goods receipt
- 2 Quality assurance

Putaway and retrieval in manual and automated warehouse areas

- 3 Single-stage putaway and retrieval in manual warehouse areas
- 4 Multi-stage putaway and retrieval in narrow-aisle warehouses
- 5 Putaway and retrieval in automated high-bay warehouses with conveyor system connection
- 6 Putaway and retrieval in multi-depth racking

Person-to-goods order picking

- 7 Pick-by solutions
- 8 Replenishment process

Goods-to-person order picking

- 9 Putaway and retrieval in automatic miniload warehouses
- 10 Integration of lift systems

Workplaces for consolidation, value added services and packing

- 11 Consolidation and packing
- 12 Kit creation / kittings

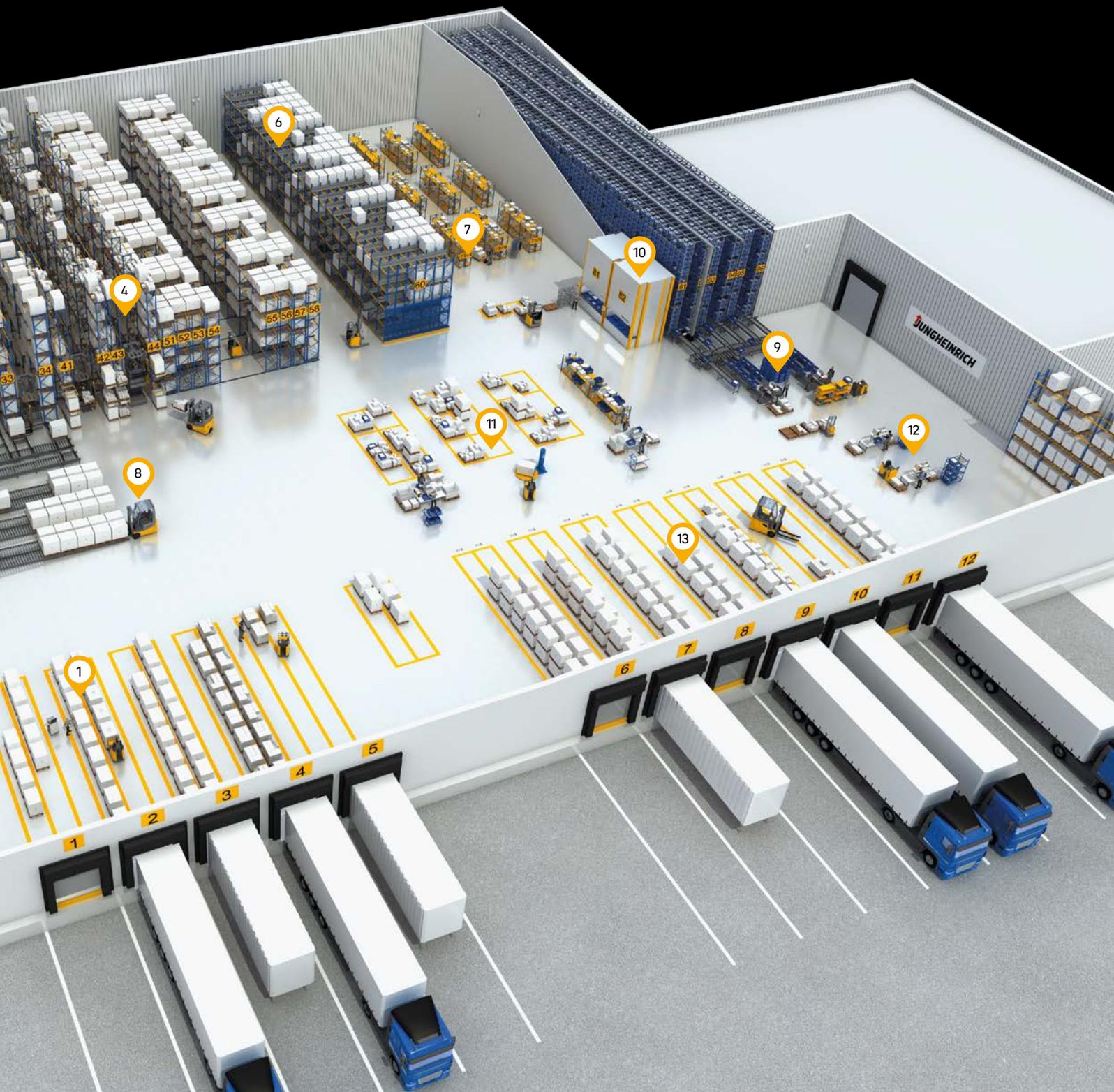
Optimised material flows at goods retrieval

- 13 Goods issue and dispatch preparation

Your IT solution for warehouse management

- 14 Control centre functionalities and hardware system requirements





The **GS1** module can be used to scan and print labels in the so-called Global Standard One format. The **Serial number management** and **Batch management** modules make it significantly easier to identify the goods.



The **Empties management** module enables you to always keep track of your empties receivables and liabilities. It provides particular support when empty pallets or containers cannot be exchanged concurrently during delivery or collection because, for example, the freight carrier collecting them does not bring any pallets or brings too few pallets.



The **Hazardous goods / hazardous substances** module helps you to correctly observe hazardous goods restrictions relating to your operational processes as well as the correct storage of hazardous substances in accordance with the applicable regulations.

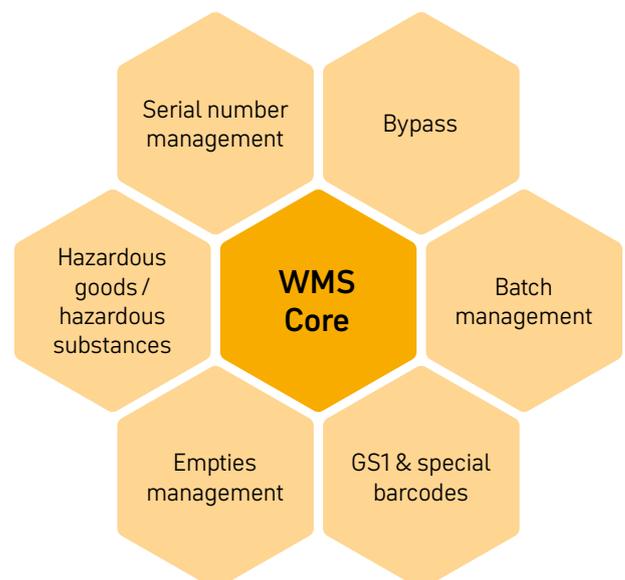
There is an existing picking order? The **Bypass**-module ensures that goods are not even stored in such cases. This saves you unnecessary transports and additional work steps, thereby shortening your delivery times.

Goods receipt.

Process reliability from the outset.

SIGNED, SEALED AND DELIVERED.

Goods receipt includes all the necessary steps for receiving, inspecting and putting away incoming goods. Save time, space and resources to make the process more efficient and achieve the optimum solution. The Jungheinrich WMS will assist you in doing just that. You can assign goods receipts to a purchase order via the order number and identify them quickly and efficiently. For this purpose, all necessary order data is transferred via an interface to the host system. You can also simply collect unplanned goods receipts without advice slips in the Jungheinrich WMS. A quality inspection can optionally be carried out in order to block goods with quality defects for customer orders.



Putaway and retrieval.

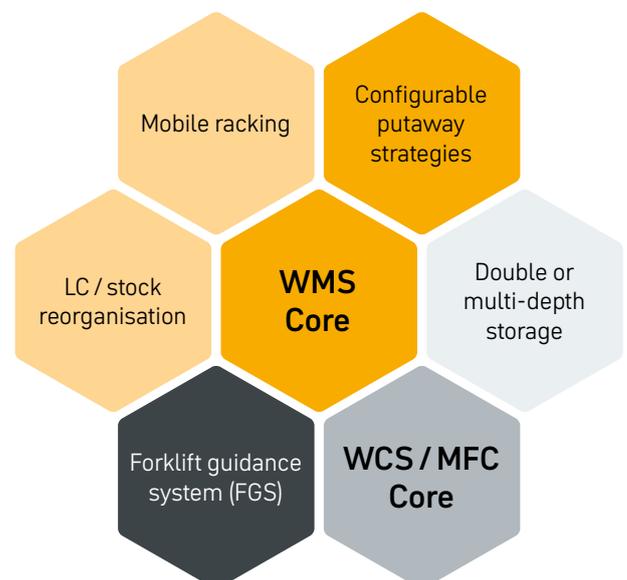
The optimum strategies for manual and automated warehouse areas.

IDENTIFYING AND UTILISING OPTIMISATION POTENTIAL.

The Jungheinrich WMS can be used to map and intelligently control both manually and automatically managed areas. The Jungheinrich WMS uses individually tailored, configurable **putaway and retrieval strategies** in different warehouse areas, depending which are best suited to your purpose. Sophisticated algorithms ensure that every opportunity for improvement is utilised. This calculation takes into account physical factors in the warehouse as well as the characteristics of the goods themselves.

With single-stage putaway, which is mainly used in manual environments, a received load unit is picked up at goods-in and taken directly to the destination storage location. Identification of the storage locations in the racking is possible via an RFID tag, for example.

Multi-stage putaway or retrieval processes are primarily used in narrow-aisle and high-bay warehouses. The integration of Mobile Robots is also possible for the perfect interplay of warehouse strategy and transport.





The **Forklift guidance system (FGS)** module optimises upcoming goods movements within the entire warehouse. Based on the selected warehouse strategy, the transport orders are transmitted to the trucks with optimised routing and processing. This ensures that extensive movements through the warehouse are now a thing of the past. In addition, all work instructions appear directly on the truck terminal. The Jungheinrich WMS forklift guidance system helps to facilitate efficient double cycles, reduce travel distances and minimise empty runs and waiting times. Additional transport efficiency for narrow-aisle trucks is also achieved by using warehouseNAVIGATION of the Jungheinrich Logistics Interface.



The material flow controller (**WCS / MFC Core**) integrated in the Jungheinrich WMS optimises your material flow and ensures efficient transport management, troubleshooting and storage location searches with the help of highly optimised algorithms. The transport instructions are transferred from the MFC to the truck control system. After transferring a pallet onto the conveyor system, the material flow controller accepts responsibility for its subsequent putaway in the automated warehouse system. The transport, reorganisation and optimisation strategies used here are specially customised to your needs and processes. In this way, the material flow controller steers the pallet on the conveyor system and via the stacker crane to its destination.



Double or multi-depth storage, e.g. in channel warehouses, drive-through storage racking, push-back or drive-in racking, can also be mapped in the Jungheinrich WMS. When storing or retrieving goods in multi-depth areas, the under pallet carrier can also be fully integrated and controlled via the Jungheinrich WMS.

Other modules in this operational scenario:

- ▶ **Mobile racking** can be controlled directly via the Jungheinrich WMS and the corresponding destination aisle can be opened automatically.
- ▶ The **Stock reorganisation** module facilitates a recalculation of the optimum assignment per storage location - for maximum efficiency in highly automated environments.

Replenishment strategies can be configured for each warehouse area and used as required. Using the **Forklift guidance system**, the replenishment instruction will appear directly on your employee's terminal. The distribution of the instructions takes place based on defined criteria such as the optimisation of routes and resources.



The integrated **Control centre incl. dashboard** enables you to utilise and monitor your personnel and material resources at any time. Simultaneously, you have the option to process your orders in a timely manner and with significantly less effort.



The **Paperless warehouse processes** module enables your employees to order pick with a digital wireless terminal and receive all relevant information in real time. By providing direct feedback to the WMS, the integrated scanner further increases the efficiency of information acquisition.

Other modules in this operational scenario:

- ▶ **Pick-by-Voice** order picking is a convenient alternative to the wireless terminal. Your employees are able to keep their hands free. The result: improved ergonomics with a noticeably reduced error rate.

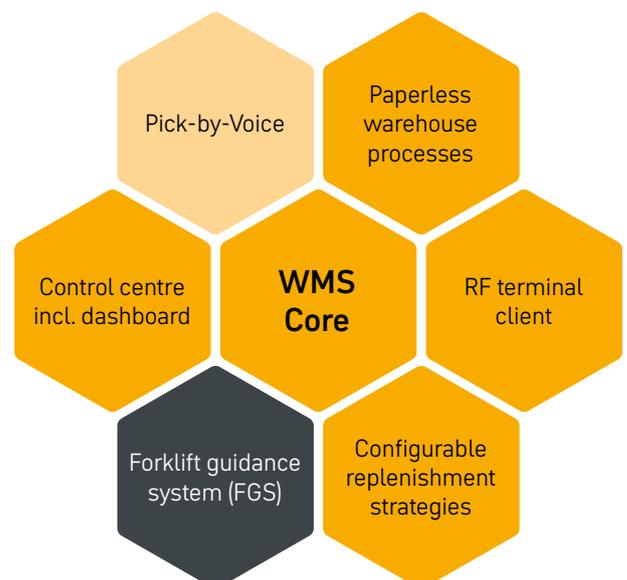
Person-to-goods order picking.

Efficiency – for your most important
process in the warehouse.

THE RIGHT STRATEGY FOR EVERY PURPOSE.

Whether your business is in distribution or production, order picking is the key process in any logistics system. Jungheinrich will increase your efficiency with a variety of order picking strategies, e.g. order-oriented, product-oriented or parallel order picking as well as multi-order picking. At the same time, your employees are guided through the warehouse using optimised routings.

In addition to an availability check of the ordered items, the software also takes into account any item or order-specific requirements such as FIFO, batch requirements or quantity optimisations when calculating the optimum picking actions.



Goods-to-person order picking.

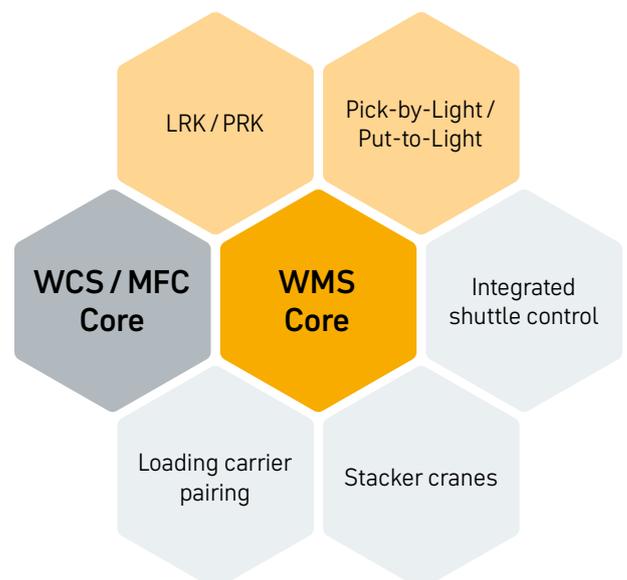
Ergonomics – focusing on picking.

COMPLETE AUTOMATION OF YOUR PICKING PROCESS.

Thanks to the outstanding fully integrated material flow controller (**WCS / MFC Core**), the Jungheinrich WMS is also able to take on the control and management of complex automated warehouse systems. The **Stacker crane** module facilitates the seamless connection of diverse stacker cranes, from pallet to miniload stacker cranes with single and multiple load handling devices.

Other modules for this operational scenario:

- ▶ Using the **Integrated shuttle control** module, you can also manage your miniload shuttle warehouse with maximum efficiency, thereby creating the optimum prerequisites for high-performance goods-to-person order picking.
- ▶ When retrieving goods in double- or multi-depth automated systems, the **Loading carrier pairing** module allows you to achieve additional efficiency increases and consistently high utilisation of the trucks.
- ▶ The **Pick-by-Light / Put-to-Light** module enables you to connect Pick-by-Light systems which significantly increase process reliability when order picking thanks to the additional visual support.



Automatic miniload warehouses and the corresponding stacker cranes are used in high-performance environments and are controlled via the **Stacker crane** module in the Jungheinrich WMS. With the use of stacker cranes, the putaway of goods from the workplaces as well as the retrieval of goods to the workplaces take place automatically. This enables you to enjoy accelerated processes and a reduced error rate.



The Jungheinrich vertical lift system (LRK) and the Jungheinrich vertical paternoster racking system (PRK) can be managed entirely via the Jungheinrich WMS using the **LRK / PRK** module. Order picking aids such as the laser pointer and the position display of the vertical lift or paternoster racking can also be controlled this way. The result: high speeds, minimum waiting times and perfected tray handling for more efficient order picking.

Based on more than 30 years of experience in digital intralogistics in interaction with automated systems, Jungheinrich offers **more than 180 combinable control and optimisation strategies:**

Single cycles

Minimised shifting

Double cycles

Product-oriented properties

Multiple cycles with n x LHAs

Order picking-oriented characteristics

LHDs Priorities

Work zones

Sequences

Aisles

Bypasses

Multiple putaway

ABC

Nearby location

... and much more



The **Consolidation** module brings together items from different warehouse areas for the respective customer order. **Packing** itself is generally controlled via a user dialogue on a **PC client**. This straightforward user guidance lessens the mental strain on your employees and reduces the error rate. All the necessary documents such as the package vouchers or shipping labels are also printed during packing.



With the **Product kit** module, the Jungheinrich WMS facilitates the creation of a new product by means of two or more other products. Following this, a new product label or other documents can then be printed by the Jungheinrich WMS. **Batch management** is also becoming more transparent: batches of individual components are saved when processing a production order and can easily be viewed. Optimum traceability back to the individual part is possible at any time.

Other modules in this operational scenario:

- ▶ The **Container precalculation** module calculates the optimum loading pattern for goods in the shipping container and arranges the packing and picking sequence in such a way that the volume and weight of the shipment are utilised in the best way possible.

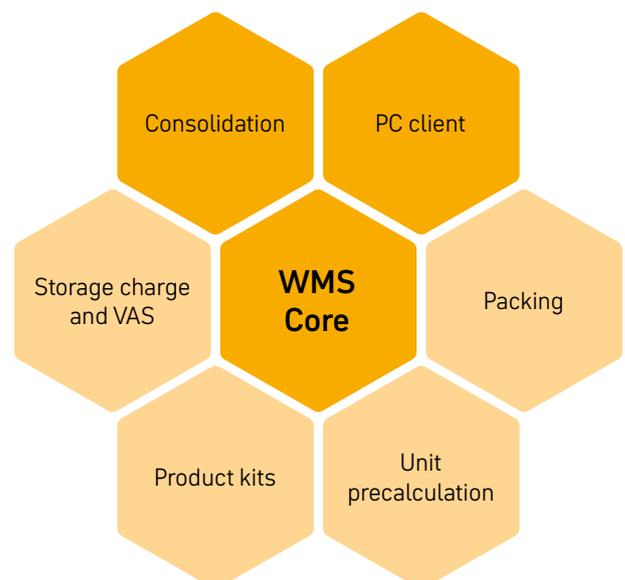
Workplaces for consolidation, value added services and packing.

Our industry experience is to your advantage.

WE KNOW WHAT MOVES YOUR BUSINESS.

Benefit from our broad industry experience and the perfectly tailored functions of our intralogistics software. The individually configurable strategies for retrieval enable you to efficiently handle your **Consolidation** and **Packing** processes at your workplaces using the Jungheinrich WMS.

The **Storage charge and VAS** module creates the basis for billing services in your warehouse accurately and according to performance. The recorded data is exported directly from the Jungheinrich WMS via an interface. This ensures that nothing stands in the way of a timely settlement of the service to your customers.



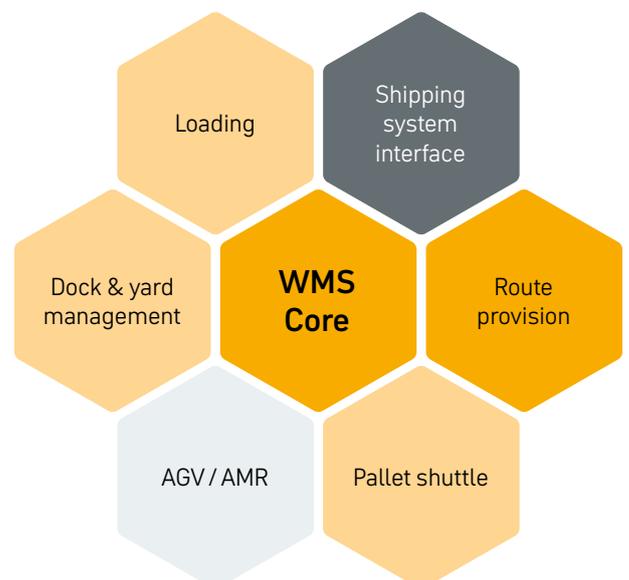
Optimised processes at retrieval.

Transparency that you see in the warehouse.

EVERYTHING IN SIGHT UNTIL THE END.

In order to satisfy your customers in the long term and to meet the growing demands of Intralogistics 4.0, it is essential to meet agreed delivery dates and to quickly identify and prevent any potential delays. The Jungheinrich WMS helps you achieve precisely these goals by making your processes transparent throughout, recording information on every order without gaps, and using artificial intelligence to proactively identify and report bottlenecks (in resources, time and inventory).

The configurable retrieval strategies as well as the optional packing and loading modules guarantee that goods retrieval is also optimally managed. All important documents are reliably printed in the respective process step and, thanks to complete traceability, you always have an overview of how the goods were packed and when they left the warehouse.





After the packing process, the packages are delivered to goods-out. The **Loading** module facilitates the actual preparation for shipping. Required documents such as the bill of lading are printed by the Jungheinrich WMS. The **Route provision** module enables several orders to be combined in one route. Individual packages are loaded into the HGV according to the route sequence in order to ensure fast retrieval at the destinations. The **Shipping system interface** makes all relevant data on the packages available in digital form for shipping providers or shipping software.

The **Dock & yard management** module enables you to model and fully manage docks and parking areas – seamlessly integrated into all your warehouse processes in the Jungheinrich WMS. You create and coordinate all HGV departures and arrivals by means of this simple operation. The included timeslot management creates full scheduling transparency and the order overviews per dock reduce errors during the loading process.



Other modules in this operational scenario:

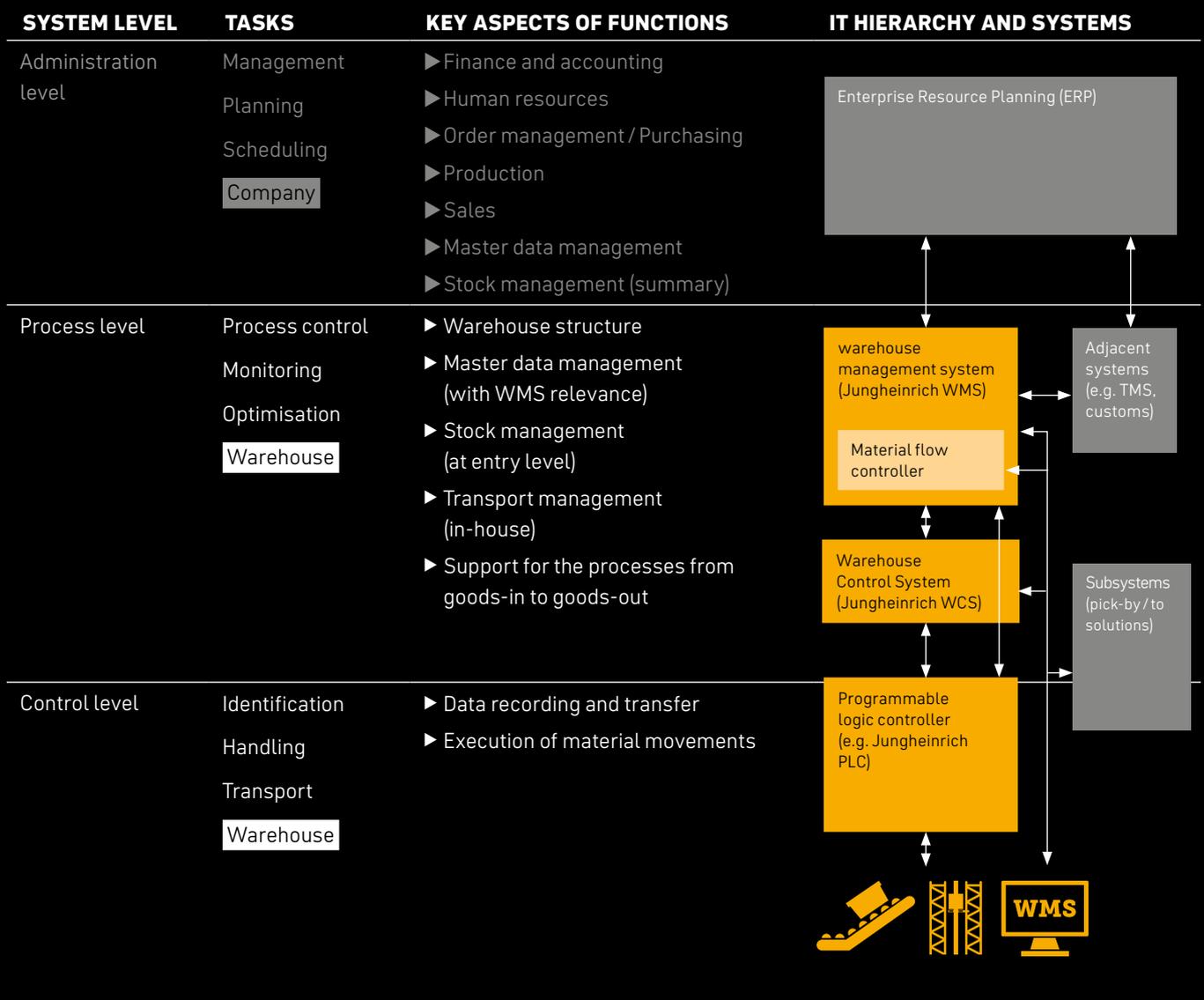
- ▶ The control of all important shuttle functions is possible via the Jungheinrich WMS with the aid of the **Pallet shuttle** module.
- ▶ The **AGV / AMR** module enables you to control your Mobile Robots in narrow aisles directly via the fully integrated material flow controller of the Jungheinrich WMS.

CLEAR DEMARCATION – CLEAR RESPONSIBILITIES.

While you can use your **ERP system** to manage all data (e.g. for Controlling, Human Resources, Production), thus scheduling and coordinating your business tasks, it is the task of the **warehouse management system** to bring transparency and order to your warehouse by managing, controlling and optimising it in an integrated fashion.

Consequently, the WMS maintains a constant exchange of information with the ERP system and other adjacent systems.

INTERACTION OF WMS AND ERP.



Your IT solution for warehouse management.

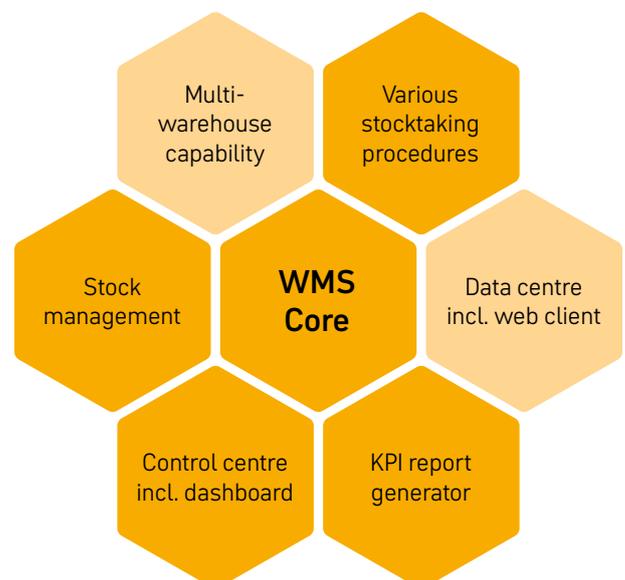
Know what is happening in the warehouse in real time – thanks to artificial intelligence.

ALL DATA, ALL LOCATIONS ALWAYS IN VIEW.

For a quick and easy overview of events in your warehouse, the Jungheinrich WMS offers a comprehensive information system with **KPI report generator** and **Data centre**, which provides you with additional functions based on artificial intelligence. With the help of the **Control centre** in the Jungheinrich WMS, orders can be started and monitored at any time in addition to the **Stock and master data management**. To keep track of all relevant data at all times, the individually configurable dashboard provides you with a quick visual overview of the key figures for your warehouse, and the “NerdistiX” AI chatbot supports you in creating any new reports you may need.

The intelligent AI chatbot “NerdistiX” is your personal assistant for creating complex reports and analyses from your WMS data. You describe what you need, and “NerdistiX” does the rest.

- ▶ And if you would like to manage several company locations worldwide, the Jungheinrich WMS is the right choice: the **Multi-warehouse capability** allows master and profile data to be easily transferred for several locations and all warehouses to be coordinated from a central point. In addition, the WMS is available in 12 languages; the language can be changed at any time without restarting the system.



Customised advice and service.

We support you every step of the way,
from planning to service.

FIRST-CLASS SERVICES FOR SMOOTH OPERATION.

Jungheinrich systems and products are extremely reliable. Our many years of experience in working with customers from the most diverse of industries shows that investment in service and support pays off. It leads to increased productivity, reduced operating costs and maximised availability of your system. Our support employees can provide you with assistance and answer your questions 365 days a year, 24 hours a day, quickly and reliably via remote connection. The contact persons and service engineers in your immediate vicinity are also happy to help.

We offer three different models for your support. We are always available to help you with the selection of a suitable support model. You can benefit from our expertise and experience, enabling you to focus on your core business. We look after your automated system.

JUNGHEINRICH CARE SUPPORT.

Without conclusion of a support contract, provision of support during office hours for an event fee plus hourly rate.

For customers with simple, non-critical logistics processes or their own support team.

JUNGHEINRICH BASIC SUPPORT.

Flat-rate basic support package with guaranteed response times and with support hours charged according to use.

For customers with simple to complex logistics processes requiring basic support coverage.

JUNGHEINRICH PREMIUM SUPPORT.

Premium coverage of all support services for a flat rate, regardless of duration and scope.

For customers with complex to highly complex logistics processes requiring maximum reliability and round-the-clock support with very short response times.

EXAMPLE SEQUENCE FOR THE INTEGRATION OF A JUNGHEINRICH WMS.

1. OFFER PHASE

- ▶ Analysis of your requirements and expenses in conjunction with Jungheinrich Sales.
- ▶ Preparation of a binding offer.
- ▶ Placement of order.

2. SYSTEM SPECIFICATION PHASE

- ▶ System specifications workshop: specification of the delivery and service content.
- ▶ Coordination of the system specification with all parties involved.
- ▶ Acceptance of system specification by the ordering party.

3. IMPLEMENTATION PHASE (INHOUSE)

- ▶ Modelling of your warehouse: mapping of your processes and implementation of the interface as per the system specification.
- ▶ Installation of the WMS clients on the PC provided.
- ▶ Provision of a server and remote maintenance access.
- ▶ Remote installation of the database and the WMS on the server.

4. TRAINING AND TEST PHASE

- ▶ Interfaces test and pre-commissioning of the systems at your site.
- ▶ Training of your key users by Jungheinrich.
- ▶ Final integration testing for the Jungheinrich WMS and adjacent systems, e.g. ERP, warehouse systems.
- ▶ Coordination of the go-live date.

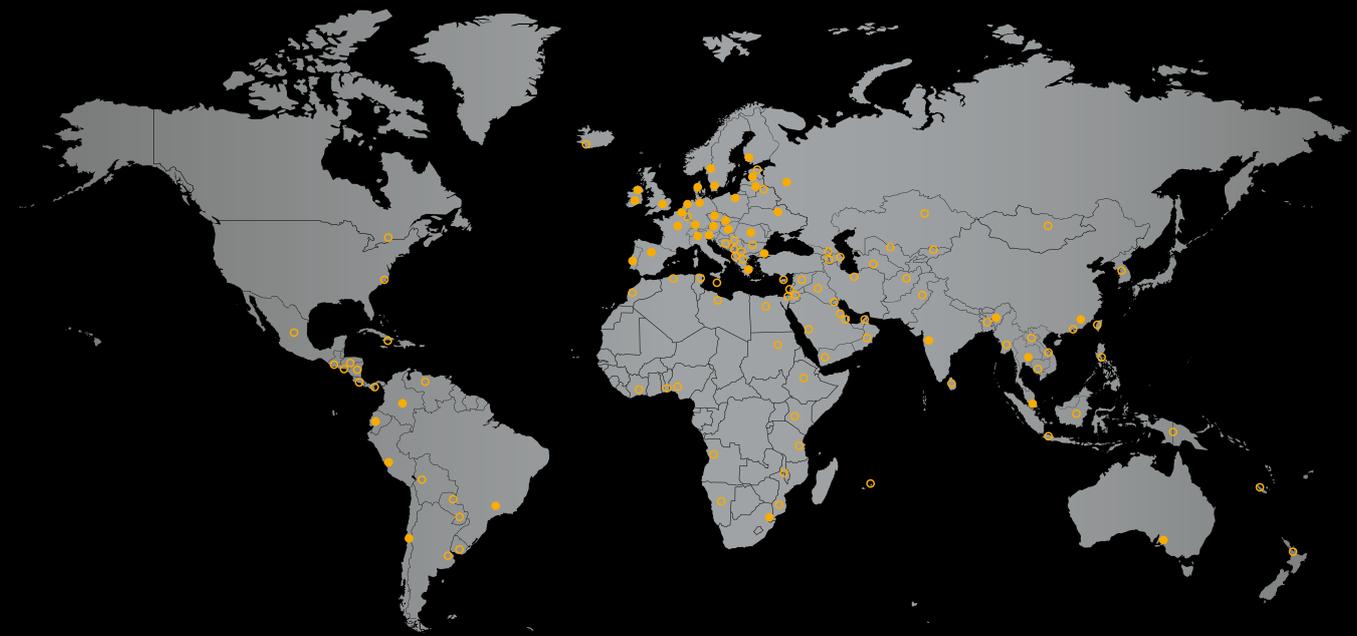
5. IMPLEMENTATION PHASE (ON SITE)

- ▶ Completion of the commissioning of the delivered systems at your site.

6. SUPPORT AND LIVE OPERATION

- ▶ Support for live operation in your warehouse.
- ▶ Remote support and handover of your system to our trained support team.
- ▶ Support services corresponding to the chosen support contract.
- ▶ Support for enquiries and extensions relating to your WMS.

A leader in material handling. There for you across the globe.



● Our own direct sales companies in 42 countries.

○ Partner companies in around 80 other countries

More than 21,000 employees.

More than 6,300 service engineers worldwide.

Founded in 1953, Jungheinrich is one of the world's leading providers of material handling solutions. With a comprehensive portfolio of industrial trucks and automated components, as well as services, we offer tailor-made solutions that allow you to devote your full attention to your core business. With our unique direct sales and service network, you can call upon a reliable partner who is at your side at all times, wherever you may be in the world.



AUTOMATION SOLUTIONS

With comprehensive process knowledge and many years of experience in numerous industries, we develop tailor-made automation solutions for you, from semi-automated to fully automated. Together, we can take your efficiency and productivity to a whole new level.



NEW INDUSTRIAL TRUCKS

Storage and retrieval, loading and unloading, transport, order picking – electric or manual? We have the right industrial trucks for you in our product portfolio.



WAREHOUSE EQUIPMENT

From pallet racking to automated small-parts warehouses, we offer the right solution for every item and every warehouse size. In combination with Jungheinrich industrial trucks and IT solutions, this creates a sustainable, unique overall concept for your material handling.



RENTAL

Renting forklifts is ideal for covering short-term or seasonal needs. Jungheinrich offers “power on demand” for every industry and all sizes of companies. You get rental solutions for all requirements, with vehicles available immediately in numerous variants worldwide.



USED TRUCKS

JUNGSTARS are used trucks backed by the Jungheinrich quality promise. With their outstanding technical and visual condition they are among the best on the market.



DIGITAL SOLUTIONS

With intelligent software and sophisticated hardware components, we ensure complete digital networking in your warehouse. All processes can be monitored centrally and controlled efficiently. Integration of different manufacturer systems is possible without any problems.



CONSULTING

Products and services must meet your requirements precisely. That is why we combine excellent technical expertise and process knowledge with in-depth industry knowledge in our consulting services. This enables us to arrive at the best overall solution together.



FINANCIAL SERVICES

Jungheinrich Financial Services is your reliable partner throughout the entire life cycle of your Jungheinrich product. We offer you individual solutions for trucks, racking, and warehouse and system solutions, taking into account your budget and the specific requirements of your business.



SERVICE UND SUPPORT

The smooth operation of your material handling solution is our top priority. That is why we offer reliable support for your trucks and systems with more than 6,300 qualified customer service technicians worldwide. This enables us to be on site within the shortest possible time and restore the availability of your trucks and systems.



Certified information security ISO/IEC 27001:
The highest security standards apply to the
development and operation of our digital solutions
to protect your information.

ISO 9001 The German production facilities in
ISO 14001 Norderstedt, Moosburg, Landsberg
and Kaltenkirchen are certified.



Jungheinrich trucks
conform to the European
Safety Requirements.

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 **JUNGHEINRICH**

The logo for Jungheinrich, featuring a red upward-pointing arrow above the word 'JUNGHEINRICH' in a bold, black, sans-serif font.