PROWAY
BUSINESS WORLD

# Warehouse Management Highlights

www.proway.de

Member of BVL

SYSTEM WMS 2021 VALIDIERT
WAREHOUSE LOGISTICS

# THE STANDARD

FLEXIBLE.

INDIVIDAL.

FUTURE-PROOF.

PROWAY
BUSINESS WORLD

# Content

# MORE THAN JUST SIMPLE WMS.

PBW is a standard product with generic structure and almost unlimited possibilities – depending on customer requirements.

# About Proway Business World

***Organization, control, analysis and optimization of the flow of goods and logistics - worldwide. Suitable for any warehouse regardless of industry.***

Proway Business World puts you in the position to make your value chain efficient, precise and fast. This ensures a continuous improvement of quality, customer satisfaction and sales. PBW ensures transparency in the company and supports the best possible decisions at all times.

The heart of every logistics facility is the software which makes sure that all areas, transports, and processes interact smoothly with each other. With PBW software, all flows of goods and information alongside the intra logistics supply chain can be organized, steered, displayed and analyzed – even beyond various logistics facilities.

The Proway warehouse logistics solution PBW is multifunctional and structured in a modular fashion throughout. Therefore, it is suited for all manual, half, or fully automatic intra logistics supply chain facilities, all the way up to high performance logistics facilities. PROWAY BUSINESS WORLD can be adjusted to new requirements or extended features at any time so it can keep pace with the continuing development of your business or with its cycles and processes.

An essential advantage of PBW is the high level of configurability and the related adaptability. If your processes in the warehouse change, these requirements / new features can be implemented directly in the system without any problems and major effort. PBW works strictly with key values, which can be changed by the user. This enables the customer to adapt the system perfectly to the needs of the company. During the development of PBW, attention was consistently paid to high configurability in order to create a powerful tool - a standard product that can be almost completely individualized.


***State-of-the-art technology and highest demands on our own work guarantee our customers - from the small business to the medium-sized company and up to global operating groups - a steady increase of their competitiveness. Benefit from the advantages of PBW's professional logistics software and stay ahead of the competition!***

Because of its modular and integrative structure, PBW can be used in projects according to the requirements and it allows an efficient distribution of functions. This brings along excellent possibilities for testing and it offers a transparent documentation. The modular structure allows parallel processing of tasks without mutual dependencies and ensures high performance. The system allows warehouse management and material flow computing (MFC) for different automated units and hardware within a common database. That way, costs for server and licenses can be minimized.

Due to the integration of warehouse management and material flow computer within PBW, no separate interface is required between the warehouse management system and the material flow control. The dialogues of the various modules for warehouse management and transport control are integrated for the user in a single application. Interfaces to external systems such as SAP, scales, automated warehouses or shipping service providers are already available as standard or can be implemented in such a way that existing systems and architectures do not have to be adapted.

PBW is preferred available within the MS SQL Server landscape. The preferred operating system is Microsoft Windows Server. The application is based on a native Microsoft Windows client and is also available as a web application for various browsers. Centralized management allows software updates to be imported without major administrative costs. A comprehensive online user manual, which can be downloaded directly from the application rounds off the user concept and offers the operator the best possible support.

# Innovative. Modern. More Flexible. Better.

***Often existing business processes have to adapt to the software. PBW is different. PBW adapts to your business processes. Extremely flexible.***

**Higher performance**
no waiting and no delays. PBW works in real time

**Cost reduction**
through optimised material flows at their locations

**Simple and error-free operation**
through intuitive user interfaces and contextual input

**Continuous improvement**
of quality, customer satisfaction and turnover through efficient and precise Designing your value chain

**Time saving**
through digitalisation and automation of your logistics processes with Proway Business World

**Individual use**
through role- and user-defined permissions, as well as in different languages Flexible customisable text modules

**More flexible storage and better storage overview**
through dynamic storage location management with occupancy variants and graphic display of the warehouses, production and shipping

**Optimisation of process costs**
with activity based costing in Proway Business World

**Intuitive production control**
optimum production planning with just a few mouse clicks in PBW

# Modular Design

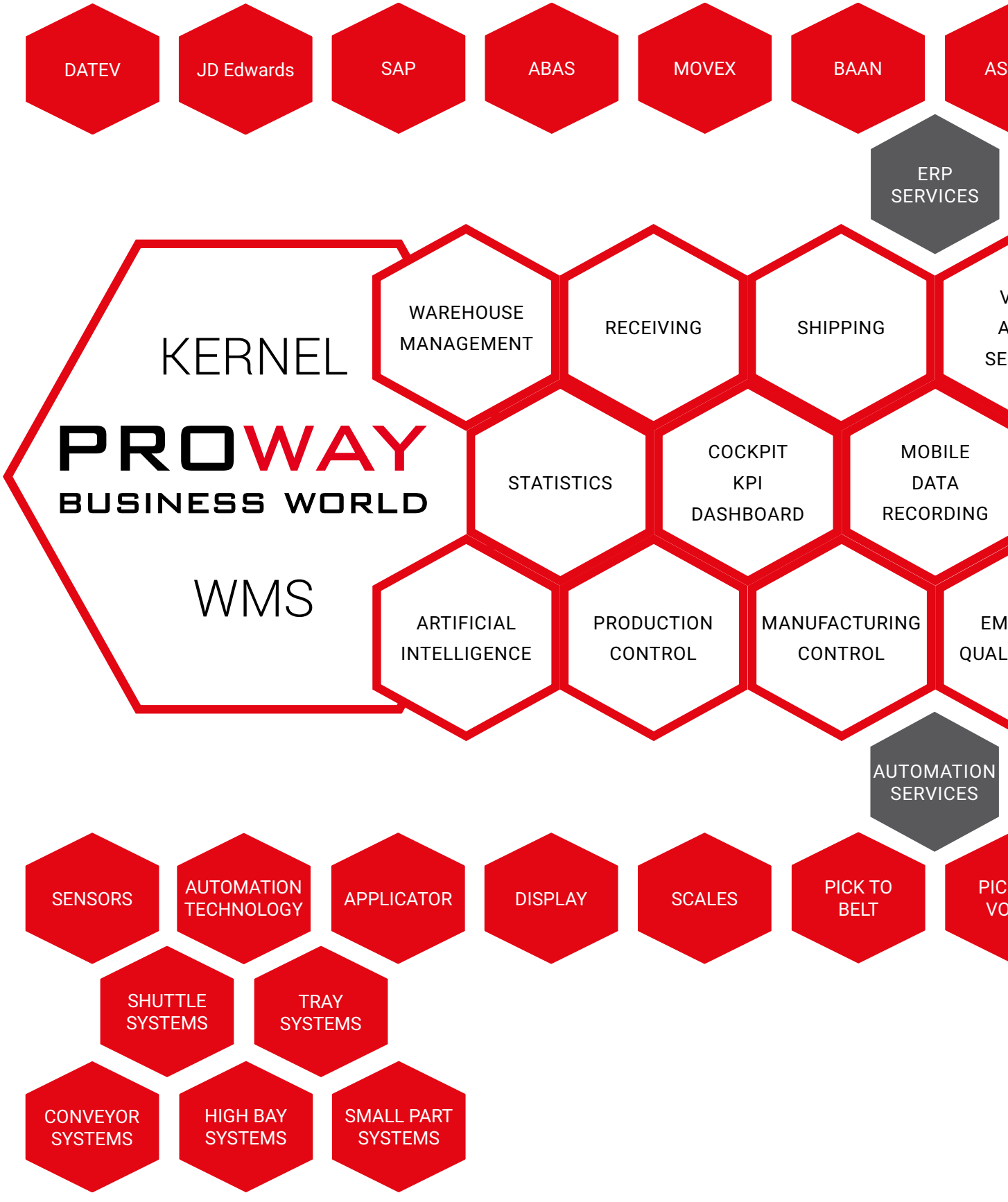
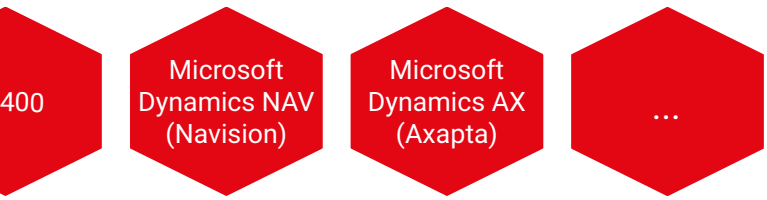



Fig. 1: Modular Design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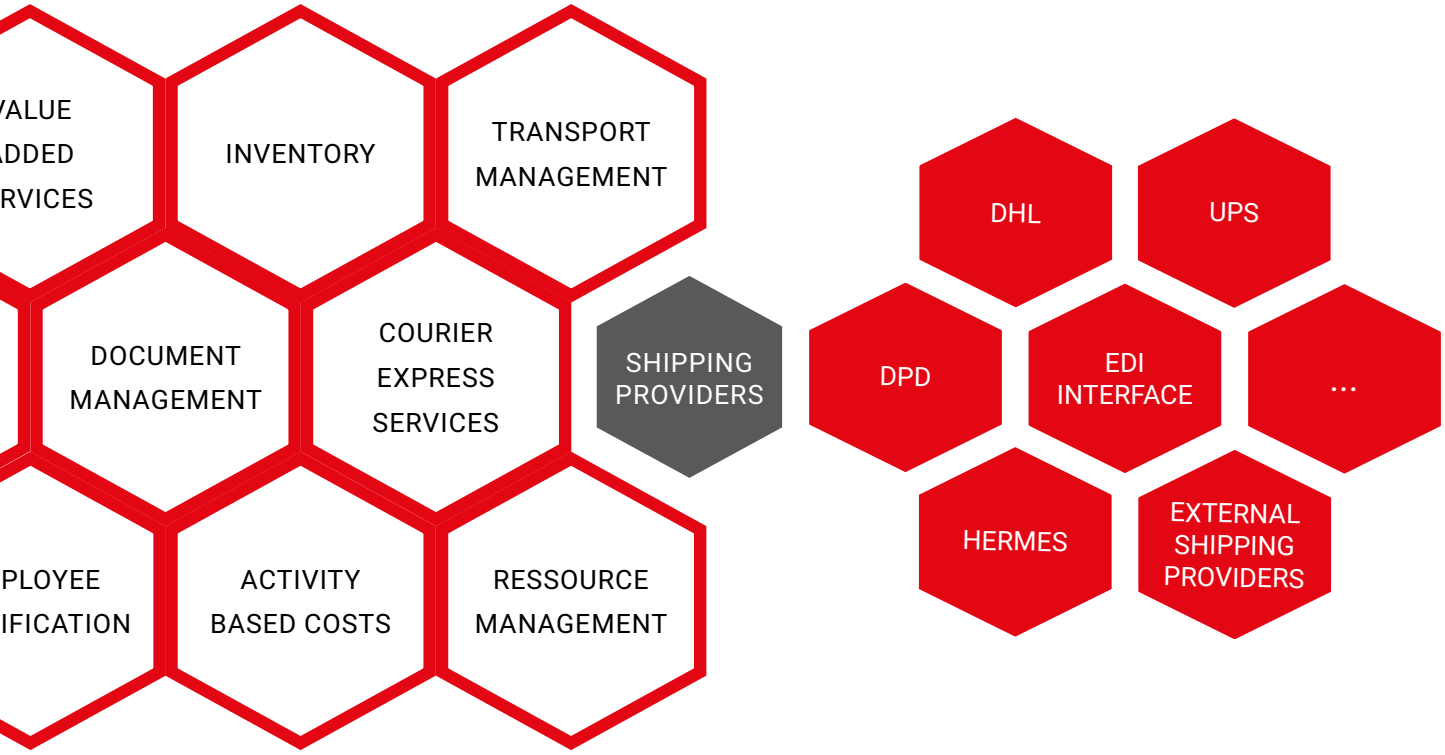
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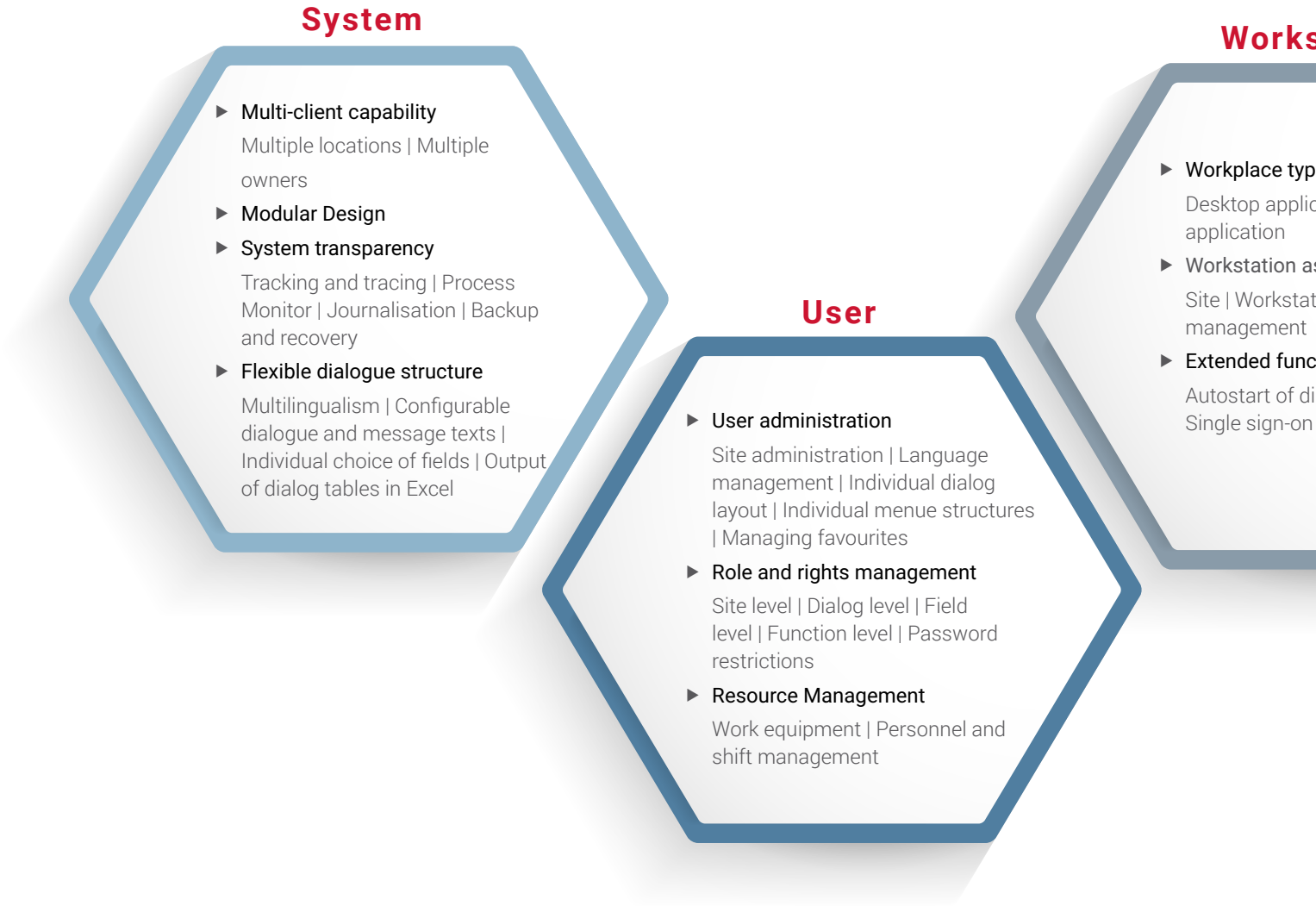
INVENTORY
TRANSPORT MANAGEMENT
DOCUMENT MANAGEMENT
COURIER EXPRESS SERVICES
SHIPPING PROVIDERS
DHL
UPS
DPD
EDI INTERFACE
...
HERMES
EXTERNAL SHIPPING PROVIDERS
PLOYEE IFICATION
ACTIVITY BASED COSTS
RESSOURCE MANAGEMENT


K BY ICE
PICK BY LIGHT
PICK TO LIGHT
...

# Software Kernel & Basic Functions

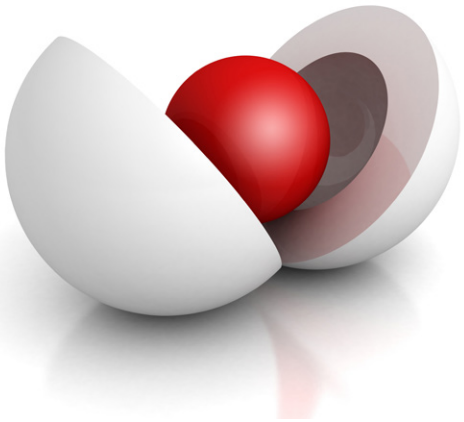
***The basis of PBW is the kernel, which is the platform for all other functions. All modules access these central functionalities. The PBW kernel consists of the following modules:***




## System - Modular Design

PBW was designed and realised with a modular design. The individual functions and modules can be licensed individually and switched on exactly according to your needs. All relevant settings are carried out on a module-by-module basis using central key tables. Changes can be made at any time, even during operating hours.

This standardisation ensures consistent release capability so that you can always work on the latest version of PBW.



## Office

- **Calendar function**
  Dates | Reminders | Task management | User groups
- **Contact management**
  Deposit contacts | Profile pictures | E-mail client

## Usability

- **Auxiliary functions**
- **Table functions**
  Fixed and variable columns of table | move | hide | Multiple sorting
- **Targeted search queries**
  Free selection of filter fields | Free arrangement of filter fields | Saving search queries

## Usability - Auxiliary functions

PBW provides the user with a standardised dialog layout for efficient operation. This intuitive interface facilitates the familiarisation and operation of the system. Combined with a large number of help functions and online help, this ensures a smooth, error-free process.

- Auxiliary functions

  dialog-based online help | context-related lists of value | marking of mandatory fields | status and object-related background colours | tooltips | shortcuts

# Usability & Usermanagement

***Dialog-based and interactive configurations allow quick and efficient adjustments to the system.***

## User Interface

The intuitive user interface enables a quick and safe learning of the application. For the daily operation we paid attention to a meaningful and user friendly usability, which enables efficient working.

The basis for this is a uniform structure of the dialogues consisting of buttons, filter fields and a tabular data output.

The available data filters and their placement in the dialogue can be adjusted by an administrator. In addition, the desired data fields in the tables and all labels can be set individually. Programming is not necessary.

PBW supports the correct entry of values using context-dependent value lists. Queries can be saved as templates for further use. The results can be sorted within the table and exported as an Excel file for external processing.

The highlighting of mandatory fields and a coloured background of relevant status values simplifies the work. For customised usability, users can individually set the appropriate font size, favourites, autostart entries and default values.

However, should any questions arise, PBW provides the user with more than 2,700 information, warning and error messages, as well as 1,800 pages of dialogue-based online help.

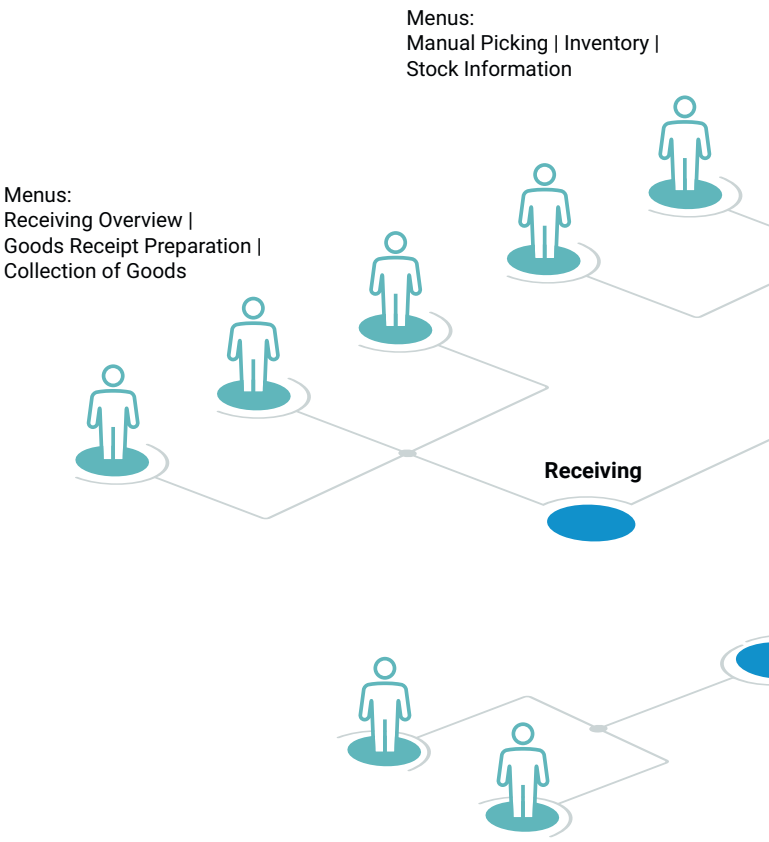
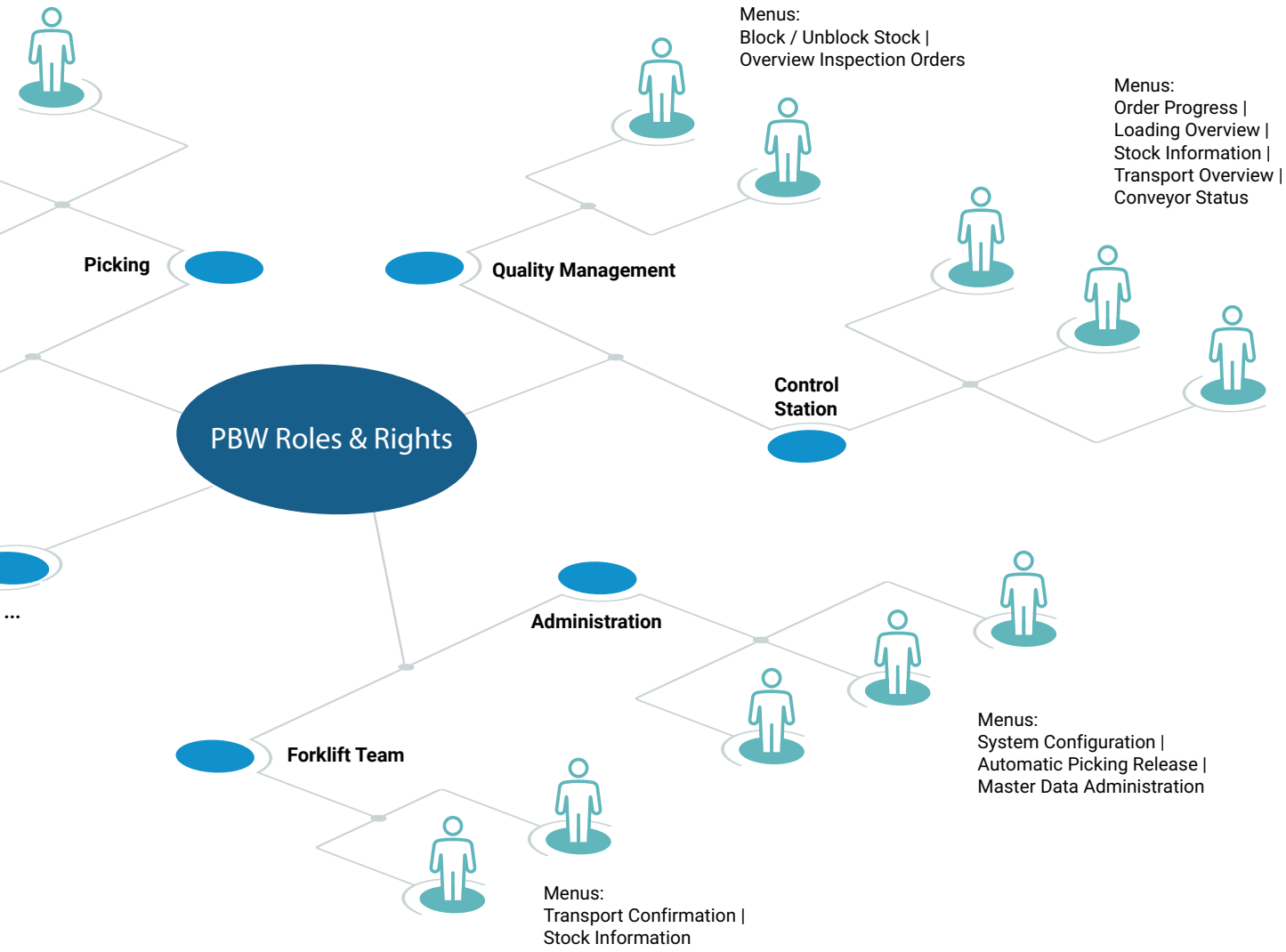



Fig. 2: PBW rights and roles

## User & authorization management

PBW uses an innovative authorisation concept: "Roles" are collections of authorisations, such as access to certain dialogues or functions. These can be assigned to users according to their areas of responsibility.

In addition, site authorisations are also managed for assigning users to different logistics sites or only to one.



# Material Master Data

***The Material Master Data Administration in PROWAY BUSINESS WORLD contains all logistical base data for a product. PBW achieves a maximum data quality for the product in relation to the logistic scope of work.***

## Material master data administration

The material master serves as the basis for logistics processes. It can be transferred from a superordinate ERP system or created manually in the PBW. The data are subdivided into the following categories:

- Basic data
- Additional texts and information
- Location and plant
- Quantity units
- Supplies and fixed bin location
- Hazardous material data
- Dangerous goods data
- Access statistics
- Customer-specific information (additional to materials)

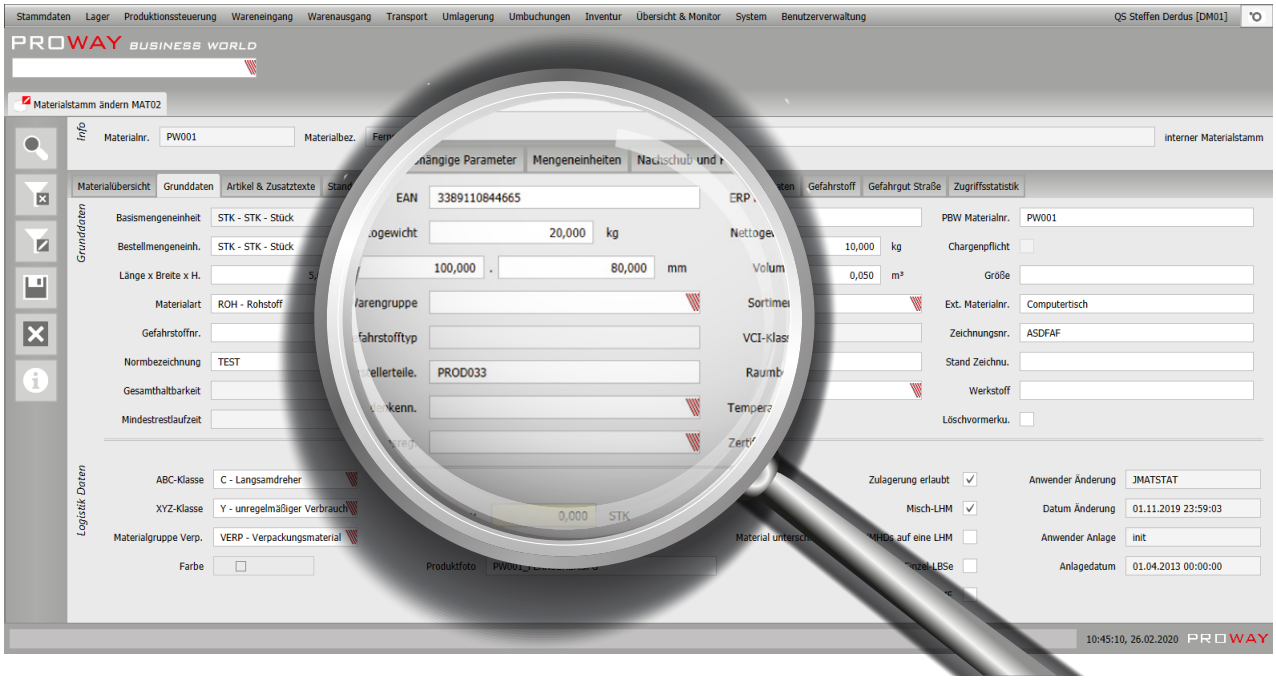



Fig. 3: Material master data


Basic data
Material number and text | Additional texts for the material | Material pictures | Base and order unit of measure | ABC and XYZ classes | Material groups | Material type | Category | Assortment | Batch obligation | BBD obligation | Serial number handling | Certificate handling | Hazardous material and dangerous goods data | Inspection intervals for QA | Material | Temperature | Indoor conditions | Standard designation | Drawing number with version
Units
Managing a packaging hierarchy | Base quantity per unit | EAN per unit | Measurements per unit | Volume per unit | Gross and net weight per unit | Subordinated units
Storage strategy | Retrieval strategy | Storage zone | ERP plants | ERP storage | Serial number profile | Procurement types
Site & plant
Site | Destination warehouse reorder point | Order replenishment | Fixed bin management
Replenishment

# Warehouse Structure Management

In PBW, several physically and graphically separated logistics sites can be managed, such as distribution centres, branch offices or production plants. It is possible to view the stocks of a material across all sites at any time.

Warehouse areas are defined zones within the logistics site having the same or similar functionalities. They can be used in the PBW for storage or as process areas.

Resources such as narrow-aisle stackers or stacker cranes can be assigned to the corresponding aisles and shelves. In addition, strategies for storage and retrieval are linked such as circular aisles or picking went by sampling.

Locations are divided into rows (X coordinate) and levels (Y coordinate) to store the load carriers and the stock. Z coordinates can also be used to configure multiple-depth storage bins.

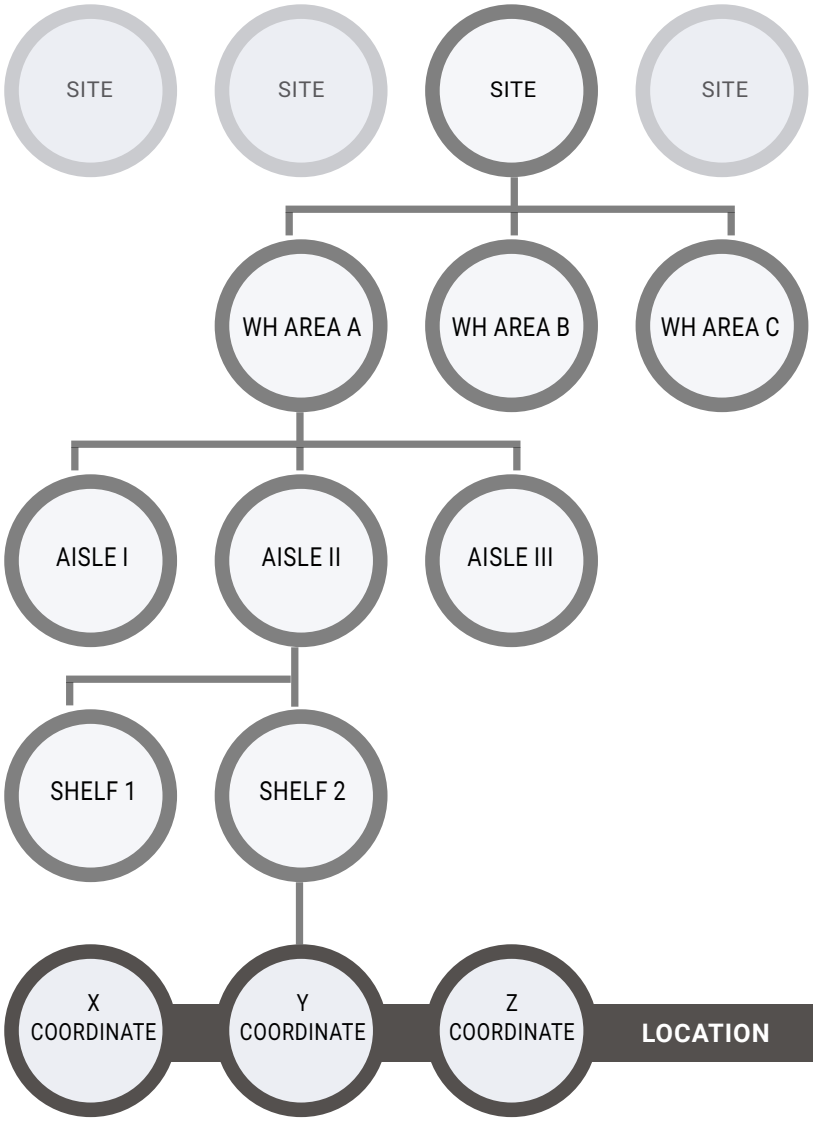



Fig. 4: Warehouse structure management

# Stock Management

***The PBW stock management handles storage units (pallets, containers, etc.), stocks (item quantities) and locations in the warehouse so that at each time it is exactly known which items are stored on which location in the warehouse.***

The stock can be viewed on the following levels:

- Logistics site
- Warehouse area
- Location

Grouping can be made according to:

- Owner
- Batch
- Serial numbers
- Best before date

# Efficient Storage Space Usage

***In PBW, optimal storage is ensured by means of load classes. A load class defines the dimensions and maximum weights of the load carrier to be stored as well as the potential storage space.***

In order to ensure optimal storage space usage, the corresponding load classes are assigned to all storage bins and load carrier created. In addition, further criteria are defined, such as ABC class or storage zone, which are to be taken into account when searching for storage bins. Based on these properties, PBW can determine the best space for each storage.

- Assignment of load classes to storage spaces
- Assignment of load classes to load carrier
- Matching of compartment class storage bin and load class load carrier
- Consideration of further criteria such as
  - ABC classes
  - Storage zone
  - Bay loads
  - Prohibitions on mixed storage

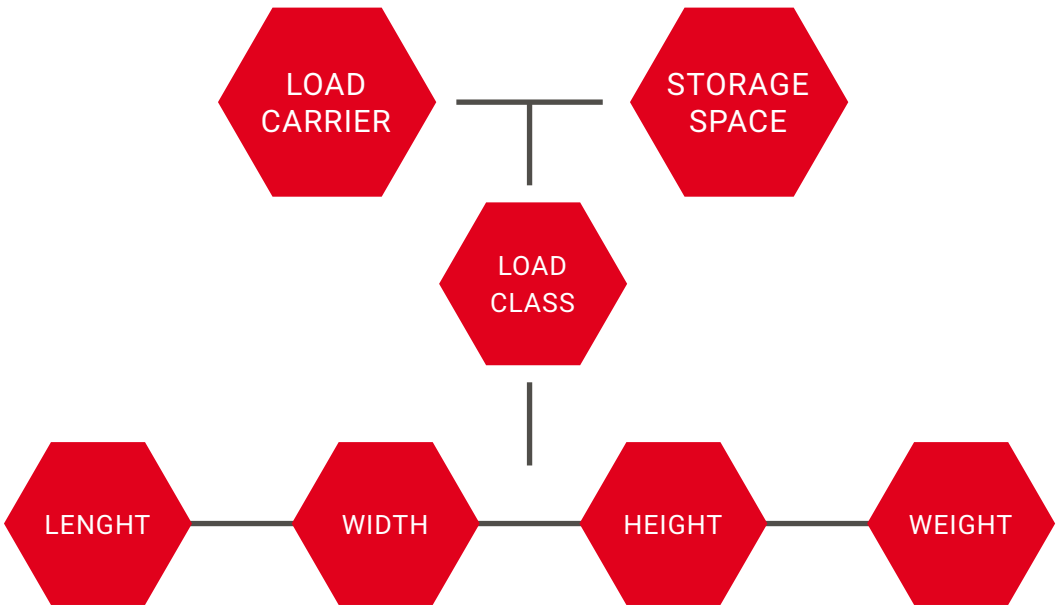



Fig. 5: load classes

# Transport Control

***The transport control in PBW is responsible for executing all pending material movements in optimal order, so usually as fast as possible and with as few transport steps (transports) as possible.***

To enable PBW to solve this complex task, various strategies are defined in the transport control system and the complete route network of the warehouse is mapped. This ensures that the most optimal / efficient transport route can be determined.

The cross-system transport control takes account into both, manual stacker transports for different types of storage and retrieval machines, various picking equipment, as well as fully automatic conveyor systems and stacker cranes are supported.

A graphic interface with your individual warehouse layout provides an overview of the complex route network of the warehouse. All transport points and routes are displayed there with the associated information. Any necessary changes can be made directly from the graphic display.

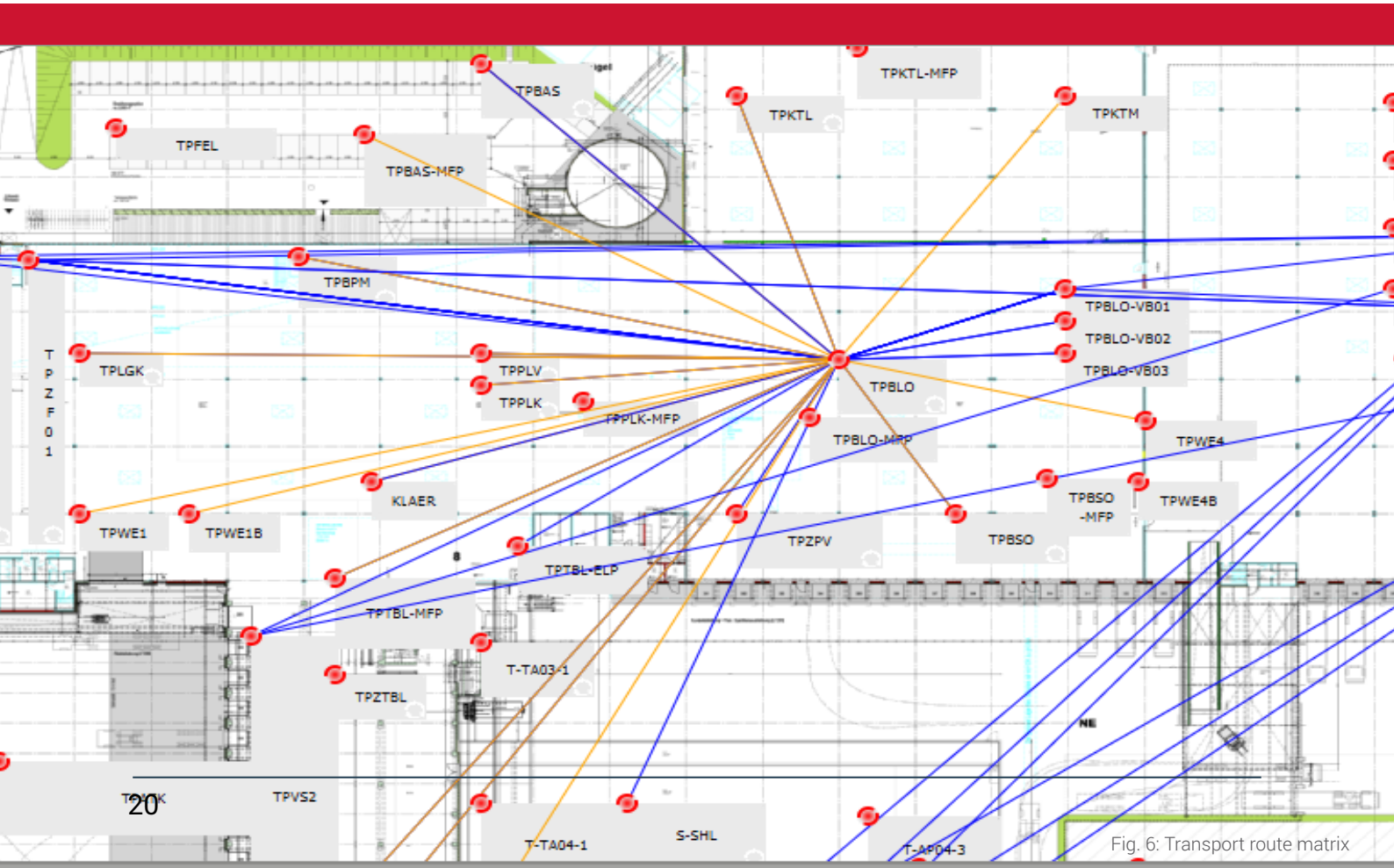



Fig. 6: Transport route matrix

# Process Control

***The task of process control is to ensure a correct sequence in processes. For this purpose, PBW uses modifiable process plans and monitors the execution of the individual steps, taking into account various dependencies, such as order types.***

The required process plans and included process chains are fully configurable and ensure the optimal material flow in your operation.

## Process plan templates

A process plan template describes a desired target process in your warehouse.

- Assignment of templates to the relevant object types such as order types
- Management and definition of customised activities
- Linking of actions in the process plan with predecessor or successor activities
- Definition of the desired control, monitoring and confirmation level, e.g. order item or total order
- Deposit of target times for the activities

## Process linkage

In PBW, a transition between the predecessor and successor actions can take place at all relevant process points.

- At the end of a transport
- After completion of a function
- After completion of a dialog step

# Goods Receipt

***PBW controls all activities for processing the goods receipt from the notification to the actual storage in optimal storage bins.***

## Incoming goods

- **Goods receipt types**
  External suppliers | Internal receipts | Returns | Production returns | CEP parcel services
- **Quantity management**
  Delivery note reconciliation | Part deliveries | Short deliveries | Over deliveries
- **Goods Receipt Disposition**
  Overview of open goods receipts | Assignment of gates | Assignment of employees | Release management

## Collection

- **Flexible working**
  By mobile devices | At fixed workstation
- **System support for the employee**
  Material picture | Work instructions
- **Management of inventory characteristics**
  Batch | Best before date | Serial number | NVE / SSCC | Management of certificates
- **Value Added Services**
  Repackaging | Deconsolidation | Set formation and assembly

## Load C

- **Structure of t**
  Homogeneou pallets | Addit
- **System supp**
  Palletizing pr tray manage management
- **Dimension da**
  Dimensions |

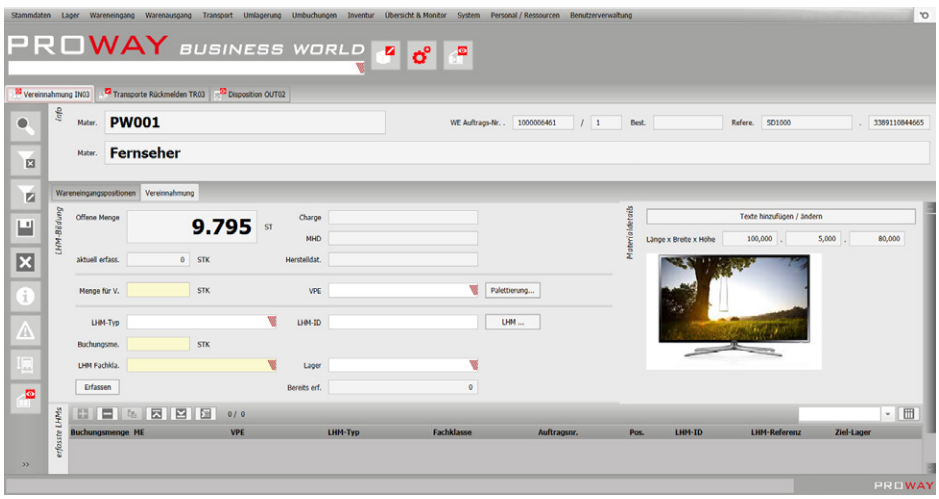
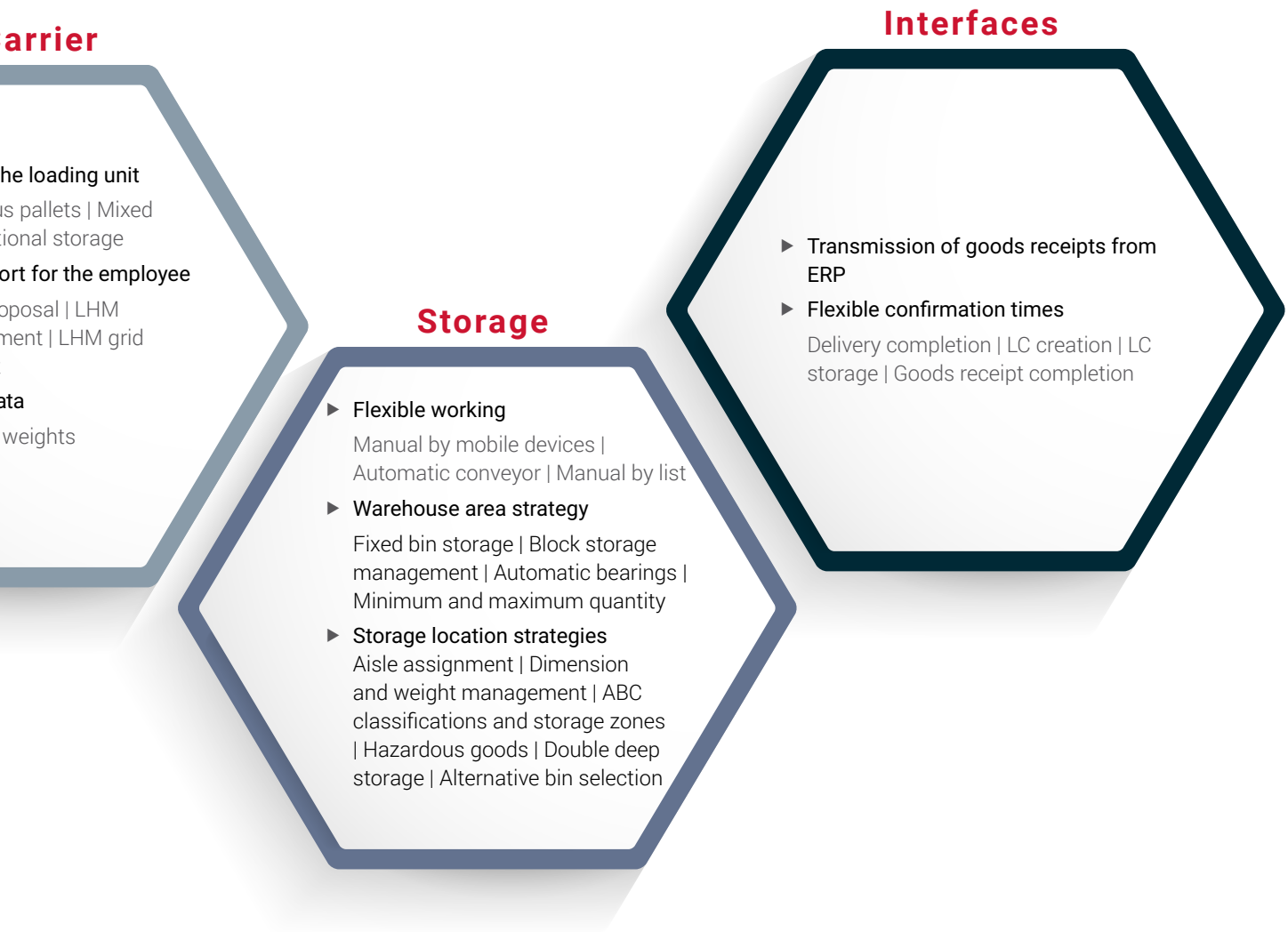



Fig. 7: Collection


Fig. 8: Mobile device




## Storage - bin location strategies

The determination of optimal storage locations is a central core task of a warehouse management system and depends on many factors. PBW solves this complex task in two steps:

- Determination of storage area via storage location strategies
- Determination of storage bin via bin search strategies

The individual inspection criteria and rules within the warehouse search and bin location strategies are fully configurable. This means that the different needs of your locations or articles can be covered precisely and individually. Optimal storage is ensured.

# Shipping

***PBW plans and controls the entire shipping process from order transfer and scheduling to shipping. Due to the high level of configurability, the complete portfolio of outgoing goods, such as B2B, B2C, third-party, e-commerce, branch deliveries, CEP, but also a production supply with parts lists, is covered.***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Pick to light | Pick by
belt | Automatic
nnection | Mobile device |
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Goods handling area |
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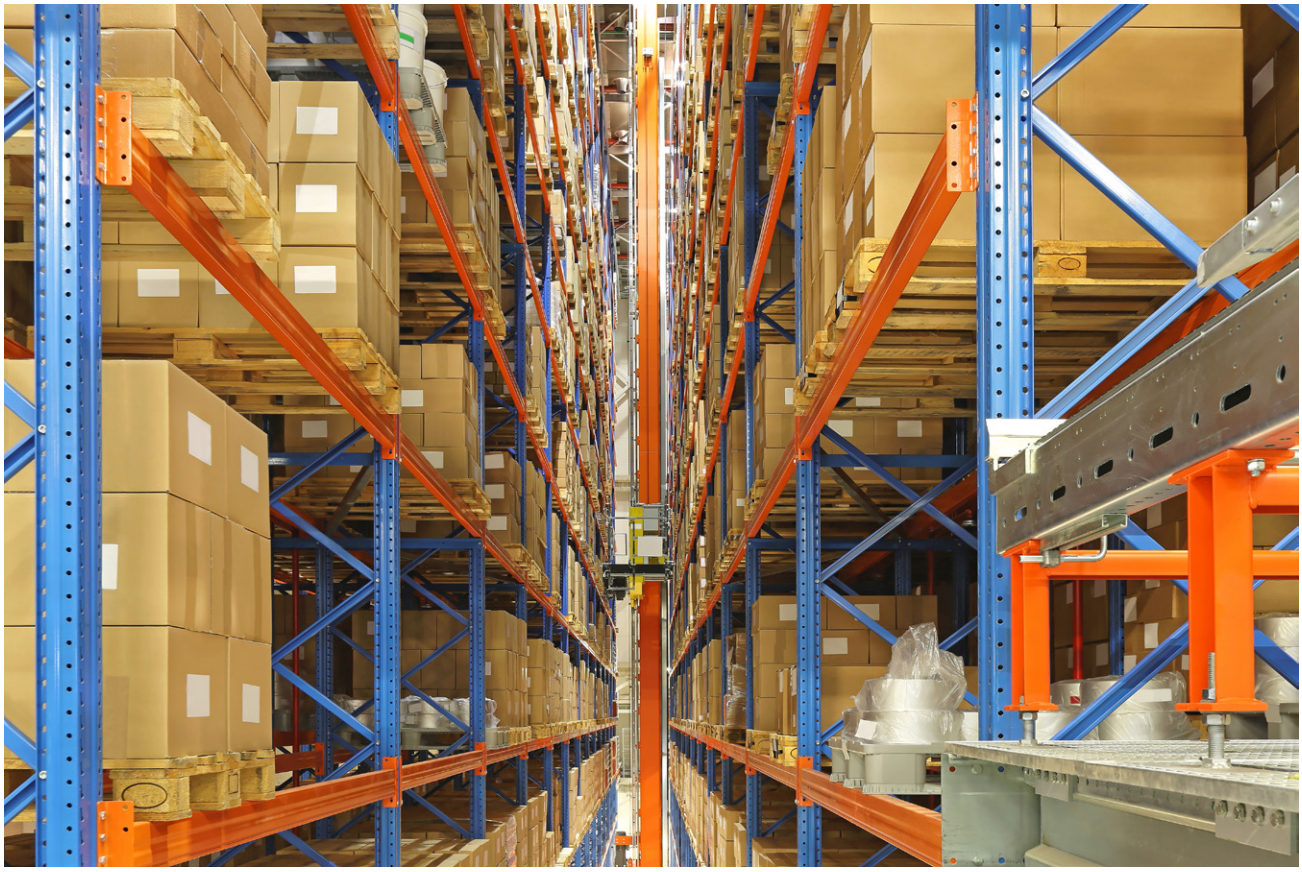
r group | Loading zone
idation
Packing
Packing station handling
Packing station | Repacking | Unpacking | With mobile device | At a workstation
Forming packing unit
SSCC/NVE labels | Weights and volumes | Pack contents lists | Hazardous goods handling
System support for the employee
Picture management | Packing instructions | Connection to scales
Loading
Dock Management
Dock planning | Staging area management
Printer
Delivery note | Bill of landing | Dangerous goods advice
System support of the employee
Loading overview | Loading completion / manifest | Photo manager | License plate | Recessions non-loadable material
Transmission of orders from ERP
Flexible confirmation times
Picking confirmation | Completion of package | Provision of shipping zone | Loading of package | Completion of order
Interfaces

## Kanban processing

In Kanban processing, replenishment to a customer is based on his actual consumption. In this way, stock is reduced to the absolute minimum. The resulting requirement for exact, on-time replenishment prevents overfill in the target area or delays in subsequent processes.

A typical area of use for Kanban processing is as an example production supply.
With PBW, all common functionalities for optimum kanban processing are available to you.

- Storage and tracking of the customer's empty Kanban boxes in the warehouse
- Confirmation of the box numbers to the assigned ERP system
- Receipt of the delivery order from the ERP system
- On-time scheduling and execution of the delivery order
- Assignment of the required materials to these boxes
- Delivery of the filled boxes to the respective goods recipient



## Handling of parcel service providers - CEP

The growth of online trade and e-commerce is changing the structure of orders in many industries. Instead of a few large store orders, a high number of small orders now leave the warehouse and are brought directly to the end customer by parcel.

The transport of the parcels is handled by the various courier express parcel services (CEP) on the market. Each CEP offers different delivery services and has different requirements for labelling, routing or data transmission.

PBW offers you the possibility to connect the different CEP service providers and services and to map all the necessary handling processes.

- Parallel connection of several CEP in one system
- Process-related selection of the desired CEP
- Control of the flow of goods according to CEP, e.g. to different packing tables
- Packet formation according to CEP specifications
- Printing of CEP-specific shipping labels and routing
- Interface communication with CEP

# Automated Logistics Control Station

***PBW can perform all control station tasks in your logistics for you in a fully automatic and intelligent way. The control takes place via freely configurable check rules, which are assigned in a time scheme for each individual day of the week.***

## Automatic control

Check rules are defined according to the exact criteria that were previously used by your employees to make decisions about the complete schedule, reservation and release of the shipping orders.

This enables PBW to initiate the required logistical activities on time, depending on e.g. shift operation or goods issue date.

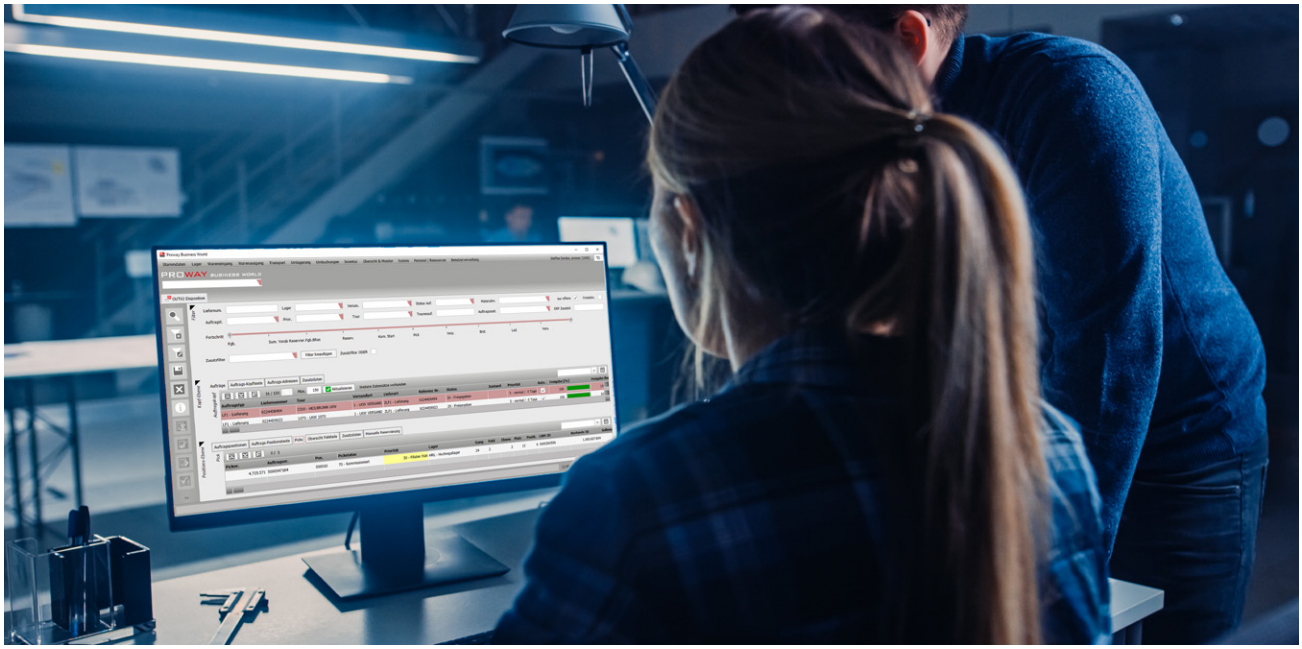
***Examples of check criteria and exclusion criteria:***

- Order types
- Order types of the customer
- Delivery types
- Priorities
- Goods issue date and time
- Tours
- Shipping service provider
- Picking warehouse
- Whole and partial pickings
- Add-on as required

## Monitoring and analysis in the control station

Success is measurable. The various key figures in PBW show whether and to what extent the various goals in the processes are being achieved. This information can be evaluated transparently and in real time during ongoing operations or in follow-up analyses. This allows you to maintain a complete overview at all times and to identify potential for improvement.

- Visualisation of key performance indicators (KPI) at a fixed workstation or in the WEB on mobile devices
- KPIs can be created individually in the dialogue
- Process, goods flow and stock control at all levels in the warehouse
  - Site
  - Warehouse area and location
  - Order and order type
  - Tour
  - Process areas
  - ...
- Already archived history data can also be displayed
- Automated optimisation of incorrect occupancy in the warehouse due to dimensions, ABC classes, VCI and hazardous substance types during ongoing operation or rest periods classes, VCI and hazardous substance types in the background or during rest periods



# Activity Based Costing

***PBW precisely maps every sub-process in logistics and records the costs incurred. This makes it possible to identify potential savings in real time and processes can be optimized.***

The tasks executed are broken down into process-related activities. The costs are assigned to these activities depending on so-called cost drivers and process cost rates are calculated on this basis. This allows the assignment of process-related overhead costs to the products and services performed.

By maintaining internal and external costs of the activities, profitability checks of the processes and corresponding improvement measures can be initiated.

In addition, the results of PBW's activity-based costing can generate an invoice. This makes it easy to bill other departments in your company or external warehouse clients for logistics services. The detailed journalization in PBW allows you to create each invoice with transparent detailed lists of the activities.

The generic structure of activity-based costing also allows the functionalities described above to be applied to processes in external applications. For this, it is only necessary to import a journal file of the activities into PBW.

- Definition of beneficiaries, cost centres, account assignments and types of benefits with their cost rates
- Forming benefit type groups to calculate costs for partial and main processes
- Creation of invoices for the beneficiaries for any period
- Analysis and monitoring of processes up to individual activities
- Reconciliation between internal and external costs
- Application of process cost accounting with any journal file of external systems


Proway Business World
Stammdaten Lager Warenausgang Wareneingang Transport Umlagerung Umbuchungen Inventur Übersicht & Monitor System Personal / Ressourcen Benutzerverwaltung
Steffen Derdus, proway [1000]
PROWAY BUSINESS WORLD
SYS01 Systemeinstellungen
Arbeitsplatz Schlüsseltabellen Lagerverwaltung Wareneingang Warenausgang Nachschub Transportmanagement Produktionssteuerung Standort / Eigentümer Texte, Einheiten & Nummernkreise Reports LHM-Typen / Fachklassen LPL Vorlage LPL Belegungsvar. LPL Feldlast KEP Admin Programme
Schlüsselarten
6 / 8 Filter
prüf
Sc. Bezeichnung
40 Prüfkriterium für Einlagerprüfregeln
96 Materialattributs-Prüfung
164 Prüfkriterien für Transportpunktprüfregeln
165 Bearbeitungstyp Pick / Transportpunktprüfregeln
166 Prüfregelkriterium für die automatische Reservierung
167 Prüfregelkriterium für den automatischen Kommistart
168 Prüfregeln für die automatische Reservierung
169 Prüfregeln für den automatischen Kommistart
Schlüsselwerte
1 / 17 Filter
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AUFTYP gleich PBW-Auftragstyp DE - Deutsch 22.06.2017 18:16:12 PWDBA - PW Admin
BSTART gleich Bestellart des Kunden DE - Deutsch 22.06.2017 18:16:12 PWDBA - PW Admin
GANZENTNFL Y: nur Ganzentnahmen, N: nur Teilentnahmen DE - Deutsch 22.06.2017 18:16:12 PWDBA - PW Admin
LAG gleich Lager DE - Deutsch 22.06.2017 18:16:12 PWDBA - PW Admin
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LKWTOUR gleich LKW-Tour DE - Deutsch 17.01.2019 14:37:07 AB
MTART gleich Materialart DE - Deutsch 22.06.2017 18:16:12 PWDBA - PW Admin
OK keine Einschränkung DE - Deutsch 22.06.2017 18:16:12 PWDBA - PW Admin
PRIBIS Priorität bis DE - Deutsch 22.06.2017 18:16:12 PWDBA - PW Admin
PRIVON Priorität von DE - Deutsch 22.06.2017 18:16:12 PWDBA - PW Admin
WADAT-TAGE Kommi-Start frühestens # Tage vor Warenausgangs... DE - Deutsch 22.06.2017 18:16:12 PWDBA - PW Admin

# Inventory

***Inventory is the recording and difference analysis of all existing stock of an owner in one or more logistics sites.***

The materials managed by PBW are recorded and documented by different inventory teams in one or more counts. An analysis of the inventory differences is performed with final confirmation of the results to higher level ERP systems.

All inventories are stored in a separate archive in accordance with legal requirements and can be viewed at any time by external auditors.

PBW provides the following types of inventories:

- Annual inventory
- Pre- and post-balance sheet date inventory
- Permanent inventory
- Empty bin inventories
- Remaining quantity inventories
- Zero-crossing inventories
- Individual inventories initiated by an ERP system

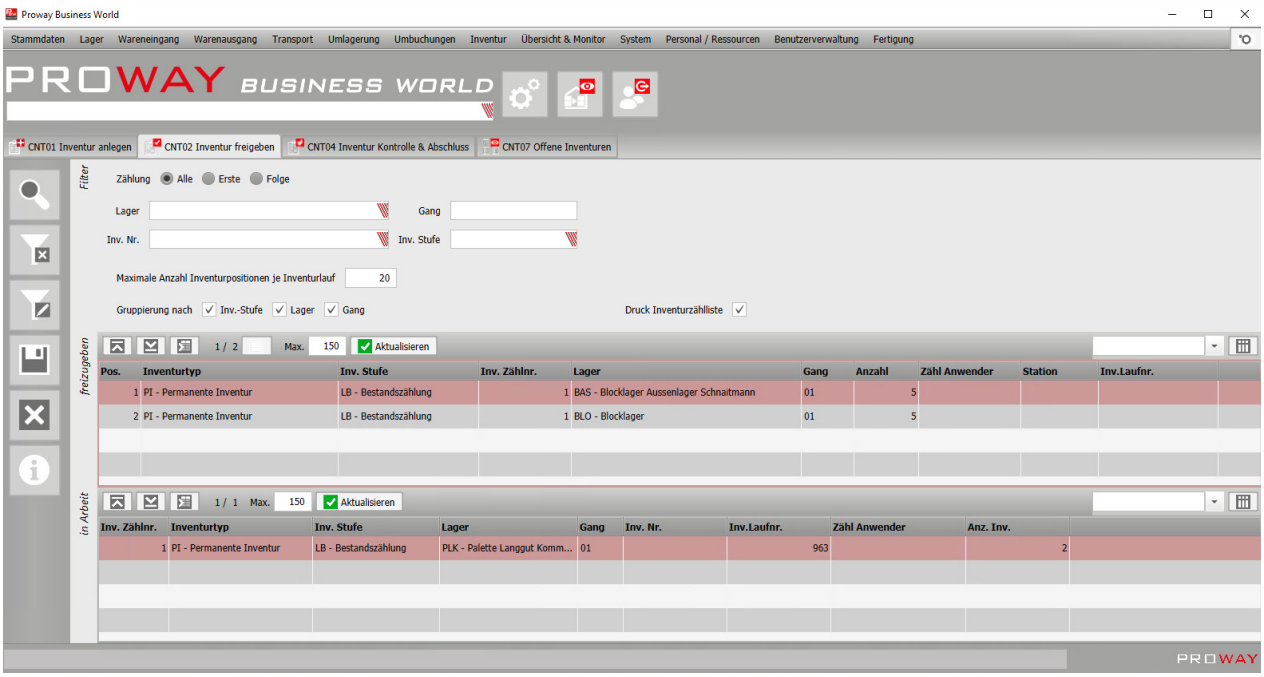


Fig. 9: Inventory

## Release

- **Selection**
  Owner | Material | Storage area
- **Transaction management**
  Initial counts | Recounts | Counting teams

## Analysis

- **Difference handling**
  Differences overview | Trigger recounts
- **Closing**
  Quantity postings | Inventory report | Archiving according to legal requirements
- **System support of the employee**
  Overview of open inventories | Inventory progress | Cumulative list of differences

## Count

- **Inventory techniques**
  With mobile device | On automatic warehouse | With lists
- **Counts**
  Optimised routes | Collection of quantities | Recording of batches | Recording of best-before date | Note for quantity diff

## Interface

- **Transmission of inventory order from ERP**
- **Flexible feedback**
  Differences | Matching quantities | Counts performed

# Production Supply

***The demand time of exact supply to single workstations or up to complex production lines is based on the resolution of bills of material and the execution of stock and transfer orders.***

What had previously to be designed in complex tables and connections can now be realized with PBW in just a few steps.

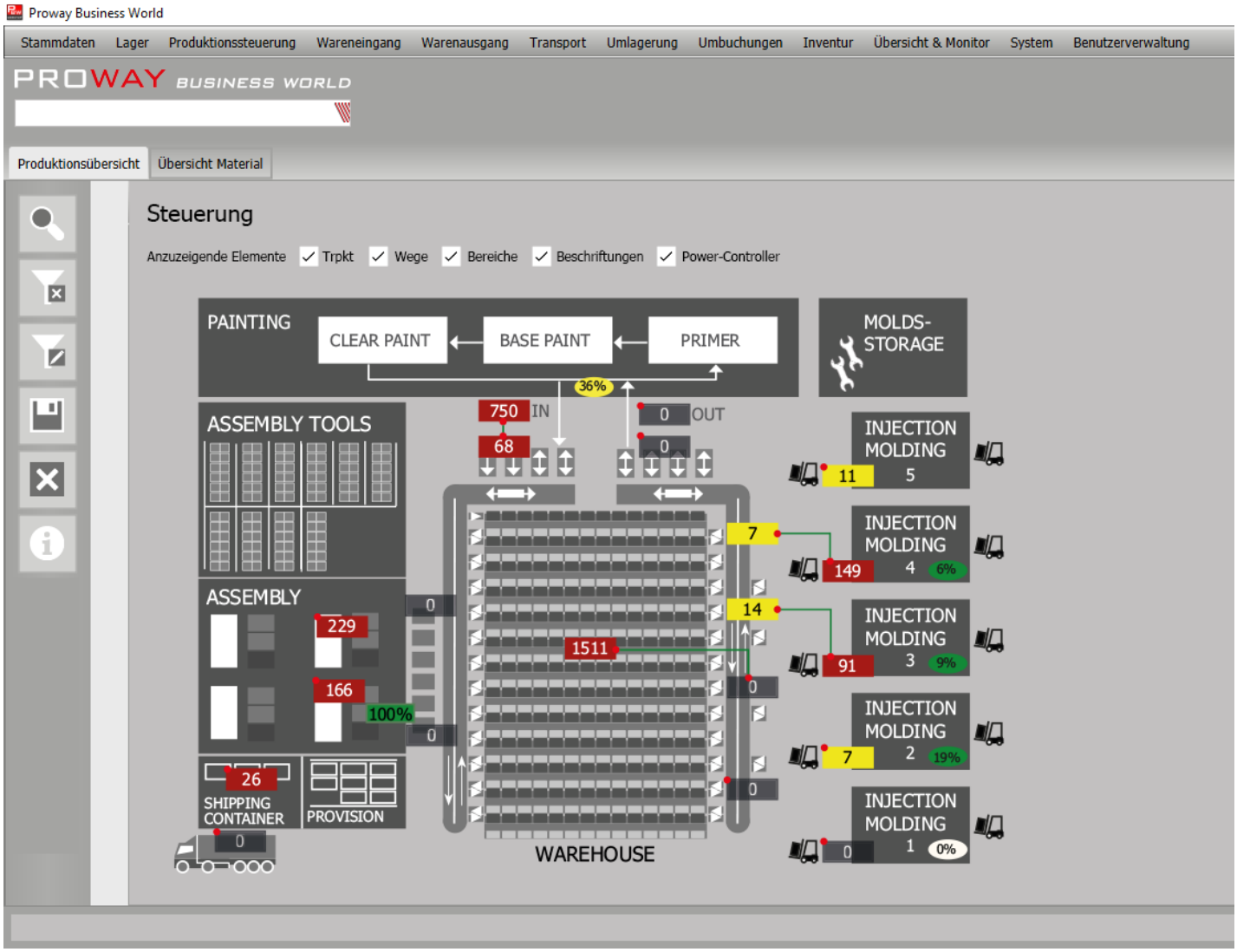


Fig. 10: Production control

## Graphical view of the warehouse

- Graphical view of the warehouse, the production and the shipping area
- Transport- and decision-points with actual stock
- Announcements of the way for products located in transport
- Topical degree of performance per production line by means of power controller
- New installations and changes of transport points and paths within the graphic can be easily created with the mouse and activated immediately
- Any number of warehouse layouts (e.g. ground floor and first floor, block warehouses and outdoor areas) can be integrated into the dialog

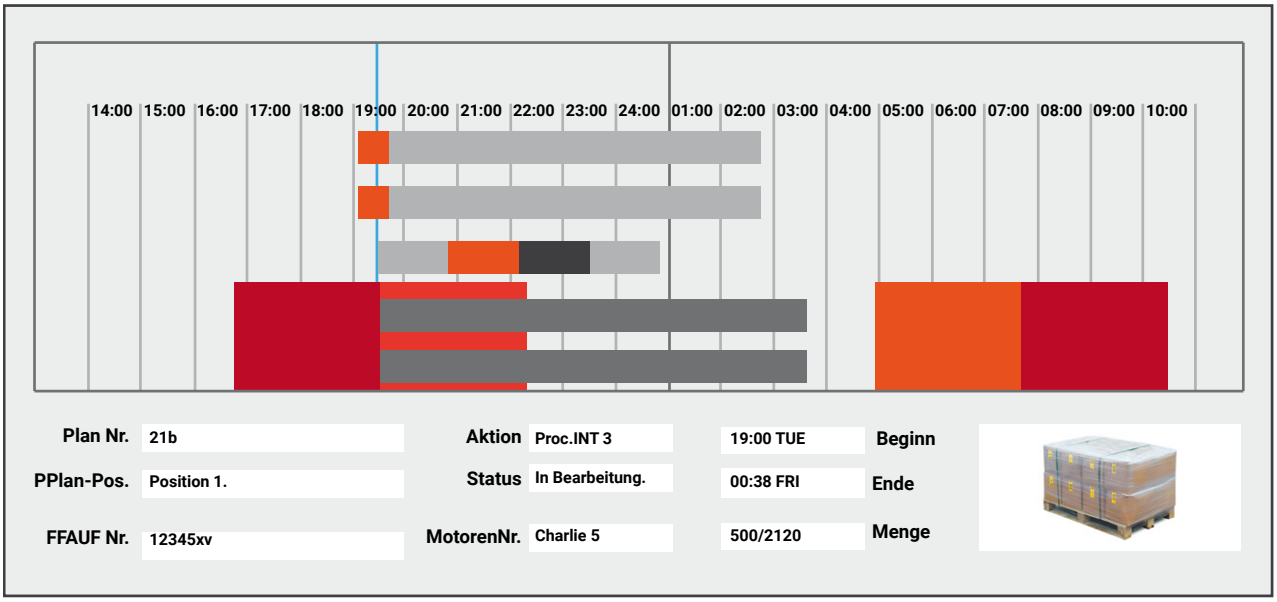


Fig 11: Production plan

## Production plan

The production plan administrates:

- Shifts
- Workstations
- Storage technology
- Machines
- Persons
- Tools

# Integration Management

***As the heart of your logistics, PBW controls all relevant processes. This also requires an efficient communication with adjacent systems.***

Any connections to external systems can be established in PBW via the integration management. In addition to the connection of several ERP systems, communication with other systems such as route management, CEP service providers or shipping systems can also be established.

All common technical procedures such as the TCP/IP protocol, table, database, XML, FTP, web service and file interfaces are available for data exchange. The data contents can then be mapped according to the customer's needs.

In addition to various included standardized interfaces, such as SAP or Heidler HV32, our experts can connect any system to PBW at customer request and integrate it into the processes.

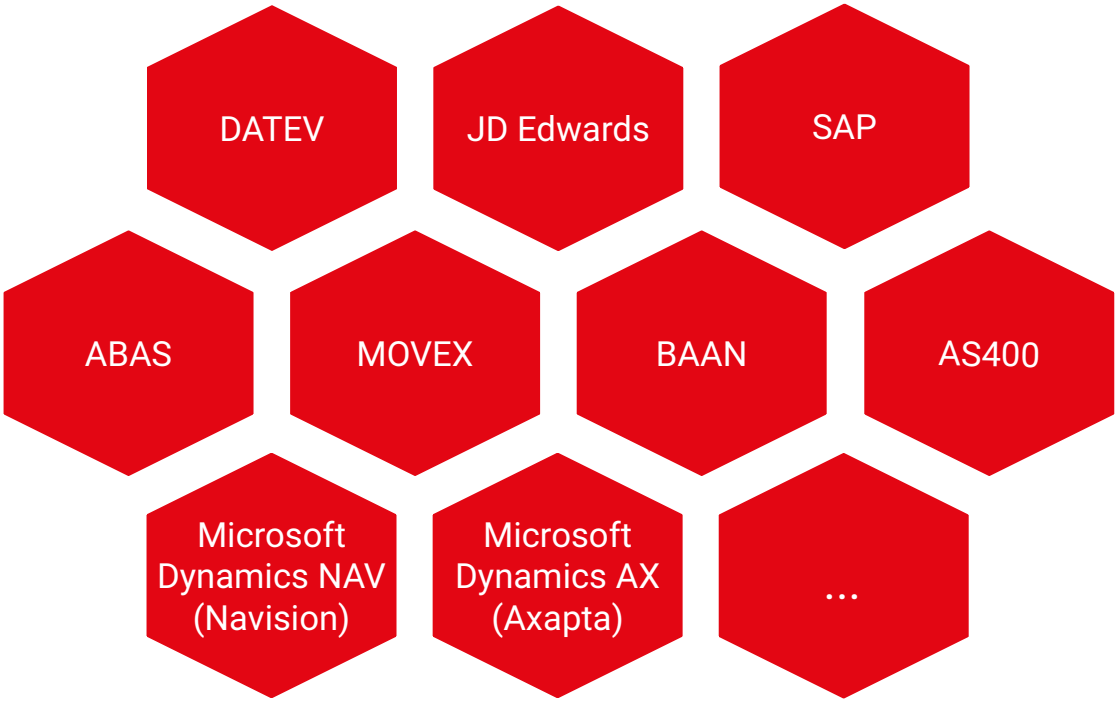


Fig. 12: ERP services

# Automation Services

***The automation of processes through appropriate conveyor technology reduces costs, increases reliability and boosts efficiency.***

In addition to classic automated components such as high bay warehouses, automatic small parts storage or tray storage, there are a wide variety of new solutions such as Autostore or shuttle systems.

PBW makes it possible to connect any type of automation. Regardless of the manufacturer the tasks of warehouse management, a material flow computer or a communication module can be handled individually or as a whole.

Besides the classic automated warehouses, other peripheral devices such as scales, labelers, carton erectors, or lifters can be controlled and used in a process-oriented way.

This flexibility, coupled with our extensive know-how in the field of automation, offers an optimal solution for every constellation.

## SYSTEM CONNECTION

- Manufacturer-independent
- Via telegrams
- Interface to SOC
- TCP/IP protocol
- Serial by VDI 5600

# Mobile Services

***Mobile devices provide the ability to display, record and process data and operations of PBW in real time with a well-organized control system, away from a fixed workstation. Process-relevant data are recorded on the move and are made available regardless of location.***

Business processes are optimised to the extent that times for information acquisition are saved. Real-time data in the system provides an overview of what is currently happening in the warehouse.

The mobile PBW application is web-based and can be accessed with any standard browser. This means that PBW can be used independently on any end device such as mobile terminals, tablets, mobile phones or hand-held scanners.

Excerpt of functionalities:

- Display worklists
- Goods receipt
- Transport confirmations in push and pull mode
- Initiating stock transfers and replenishment
- Order picking
- Packaging
- SSCC formation
- Loading
- Kanban
- CEP inbound deliveries, receipts and shipping
- Inventory
- Balance sheet transfers

# IN REAL TIME.
# ON YOUR MOBILE DEVICE.
# WEB-BASED.
# WORLDWIDE.
# ANYTIME.


Fig. 13: PBW mobile

# Cloud Solution

***Instead of setting up your own server and IT infrastructure, there is also the option of using PBW in the cloud. The entire flow of goods and information can be accessed at any time, from anywhere with an internet connection.***

The cooperation with your partners and customers is perfect as well: In real time, all relevant information can be retrieved from both sides and current stock can be viewed. And your data is optimally protected from access by unauthorized parties.

Data storage, including data integrity assurance, maintenance and system updates are performed by and at Proway. This enables faster implementation, which leads to lower start-up costs and reduced personnel costs. The investment and maintenance costs for WMS or MFC servers in your own warehouse are completely eliminated.

PBW can be deployed in the cloud in a timely manner: All external interfaces and numerous systems in the warehouse, such as individual workstations or mobile devices, will be configured and installed. All you need is a stable Internet connection.

- No need to install the software yourself
- No need to set up an IT infrastructure
- No hardware resources required for data storage
- Always the latest software version in use

| | |
|---|---|
| 100% | Supply of the complete PBW functionality in the cloud |
| 100% | Flexibility due to time and location-independent access |
| 100% | Platform-independent |
| 100% | Web-based |


Fig. 14: Cloud computing

We will be happy to clarify whether the use of a cloud application is the right solution for you in a joint meeting, taking into account your requirements and system environments.

# Artificial Intelligence

The optimal flow of materials and the planning of resources, whether human or machine, is becoming increasingly complex and can hardly be controlled by conventional means. Artificial intelligence and neuronal networks help PBW to achieve optimal results in a short time.

With the help of AI, we make forecasts based on provided data, for example, to optimize resource planning and the utilization of a logistics location. Recurrent neuronal networks (RNN, LSTM) can be used to process sequences.

Increasing data volumes and computing power will favour the use of AI in various fields of industry and society in the future. If sufficient computing power is available, unstructured or incomplete data can also be used.

In this way, forecasts of the resource requirements of people and industrial trucks in a warehouse can be made on the basis of historical and current data. For AI-supported resource planning, the automatic evaluation of the data and the creation of a relationship between these data will play a decisive role in the future. Several material groups and warehouse areas are examined over a certain period of time.

With AI-supported resource planning, existing resources can be used and controlled more sensibly and efficiently.

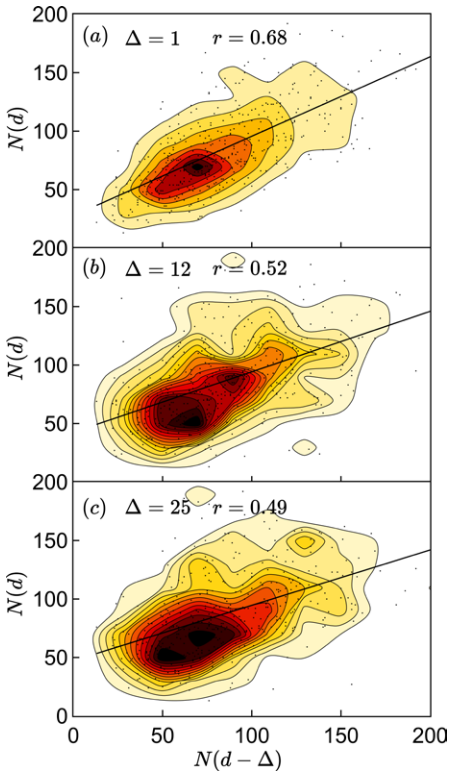


Fig. 15: correlation of the picking figures in a manual warehouse, depending on the time

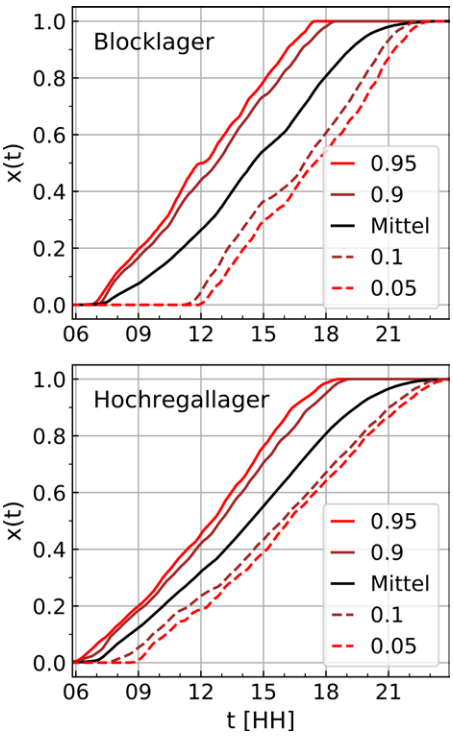


Fig. 16: proportion of picking processes completed at time t x(t) in relation to the total daily number. The quantiles 0.95, 0.9, 0.1, 0.05 and the average are shown.

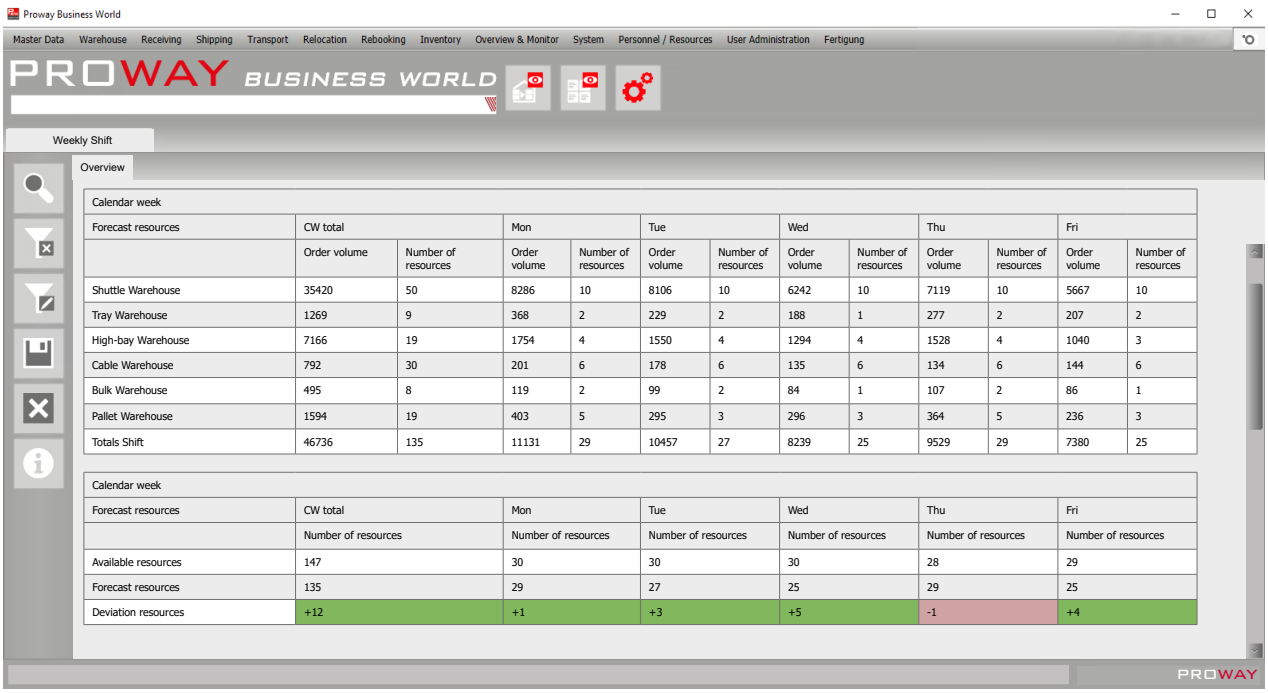


Fig. 17: Resource forecast

# Feel free to contact us

We would be happy to advise you on a personal appointment and work with you to develop individual solutions for your specific problem. You deliver the challenge - we deliver the solution!


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