

WHITEPAPER

NEW USER INTERFACE IMPRESSES WITH ITS INTUITIVE DESIGN

German software manufacturer CIM has stirred up the WMS market with a new user interface. PROLAG World's revamped interface combines visual appeal with well thought-out functions and a flexible list design for an optimal user experience. The new UX design also provides digital assistants as well as intuitive operation across the system.

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Management
Software**
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User interface design has become a key aspect of the IT user experience in recent years. One of the reasons for this is that software systems are no longer a rarity but exist in large numbers within a highly competitive market. There are generally plenty of alternatives offering similar functions, meaning that users who become frustrated by a system with poor software ergonomics and an outdated design are likely to switch to a different application.

In terms of the WMS market, the user interface has not always been considered as pivotal to the success of the software. This is due partly to the fact that conventional warehouse management functionality does not exactly lend itself to innovative design and artistic license. Warehouse management software is undoubtedly one of the most complex products on the software market. And the complexity increases the bigger the warehouse, the higher the number of storage transactions per day, the greater the level of automation and the more diverse the article master. The average logistics software solution has over three million different parameters to consider and is more complex structurally than an aircraft. To adequately address this degree of complexity in a software solution, implement commands, instructions and logic and stably integrate them into a warehouse control system is the first challenge. And incorporating all of the required functions into a user interface that is functional as well as aesthetically pleasing is nothing short of a mammoth task.

A cutting-edge user experience

CIM decided to embark on this difficult challenge. The PROLAG World warehouse management system was taken apart by the logistics software experts and painstakingly put together again piece by piece within a new user interface. The result is a browser-based interface on the cutting edge of intuitive UI design and user experience. The responsive design enables problem-free display on various different end devices, from terminals to handhelds, and can be run on any conventional operating system. Not only the new visual design is a major achievement by the development team at CIM. All customers who have signed an upgrade contract can work with the functions which are already available in the new interface. This means that existing customers are already up and running with the new UI.

PROLAG World

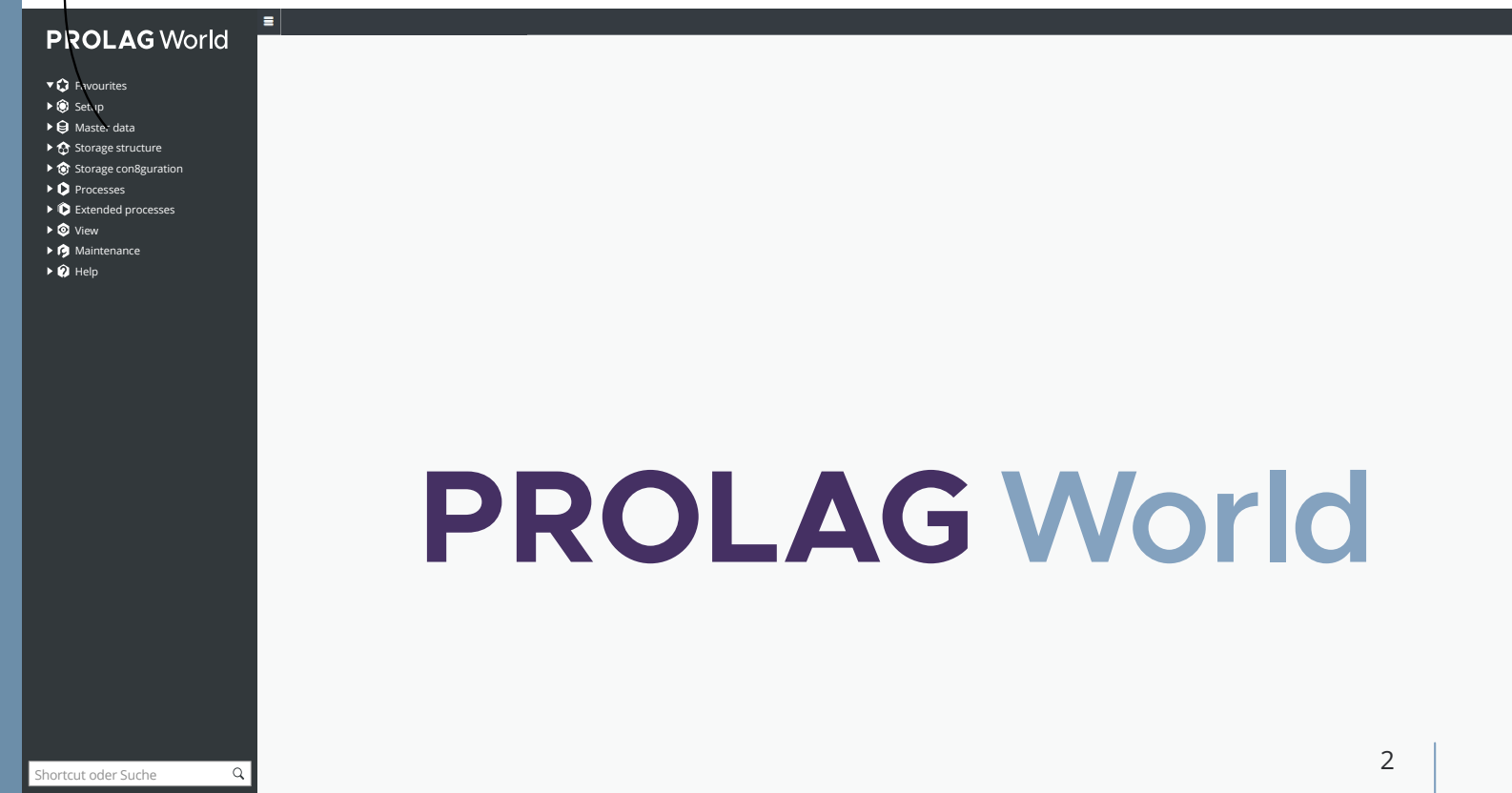
- ▼ ☆ Favourites
 - Article master
 - I-point
 - Order entry
 - Order control centre
 - Dashboard
- ▶ ⚙ Setup
- ▶ 📄 Master data
- ▶ 🏠 Storage structure
- ▶ ⚙ Storage configuration
- ▶ 🎬 Processes
- ▶ 🎬 Extended processes
- ▶ 👁 View
- ▶ 🛠 Maintenance
- ▶ ? Help

Easy to use through intuitive design

Even a first glance at the interface reveals the key aspects of the UI: simplicity and intuition. The initial screen in PROLAG World optimally caters to user needs and provides instant usability. User interface orientation is a factor that cannot be underestimated, especially if the program is complex and provisions large amounts of data in lists, for example. In warehouse management systems such as PROLAG World and in CIM's other logistics solutions, the capability to formulate and pass on complex instructions is an added factor. The tree structure on the initial screen allows users to find their bearings in their assigned area of activity within the warehouse. It shows all areas of the system at a glance and also offers the option of customising a favourites list to enable users to work faster and more efficiently.

All the 'main events' take place in the central section of the interface, which is kept clear from the start. The PROLAG World logo on the initial screen guides the user's gaze to the section where lists, pictograms, data and templates are displayed:

This user's favourites are the control centre, order entry, the I-point and the article master.



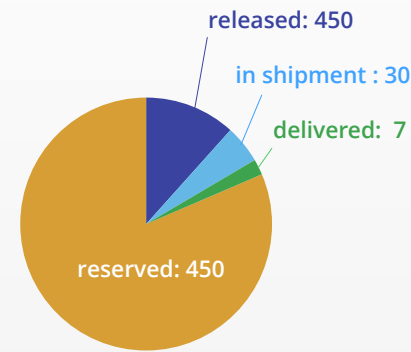
Favourites

- Erstellungen
- Stammdaten
- Lagerphysik
- Lagerkonfiguration
- Aktionen
- Arbeits
- ARBEIT
- Wartung
- Hilfe

Since the interface is called up in the browser, the design is based on web conventions and allows users to organise multiple work areas simultaneously in tabs at the top of the template. To ensure that the process started in the template is not interrupted by a new action, the system automatically opens a separate tab for each interaction. This provides transparency even while running multiple processes simultaneously. At the same time, it is possible to quickly switch between tabs to check the data on the dashboard, for instance.

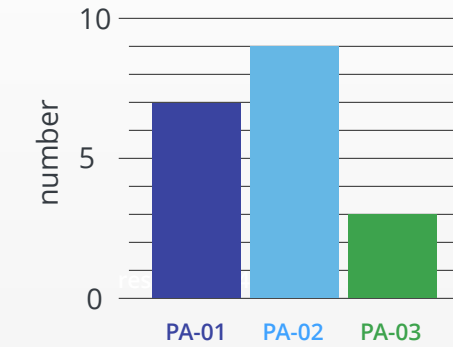
all delivery orders

total number of delivery orders - sorted by

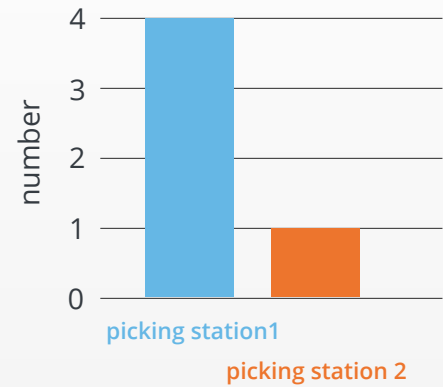


open lists at picking for picking with restorage

open lists at picking station for picking with restorage sorted by destination picking area



Offene Picks je K-Platz

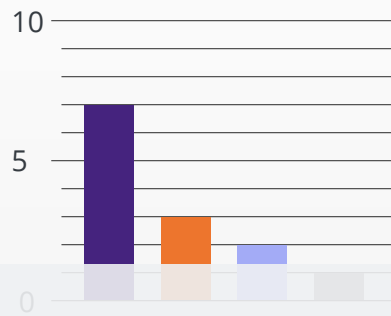


pending putaway lists

number of lists with transport type EIN, ZU and NACH - sorted by picking area

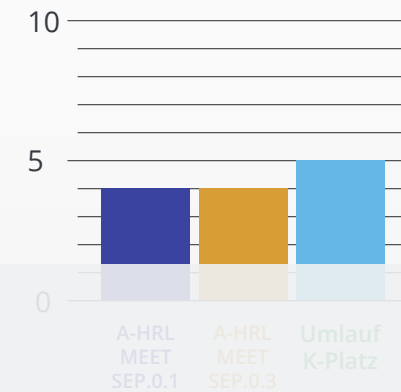


pending picking lists



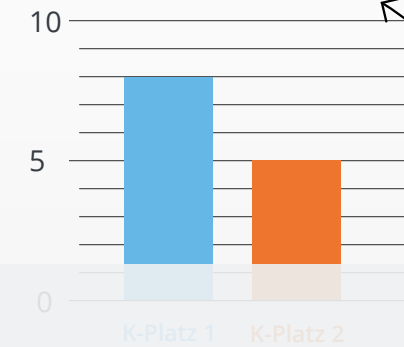
pallets in pre-zone

pallets not yet put into storage on meeting areas



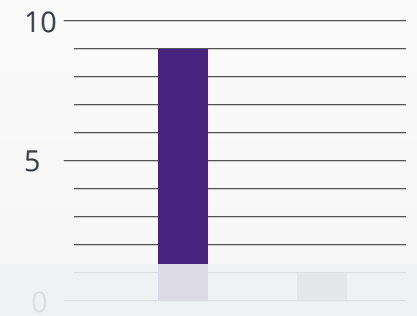
released orders by picking area

potentially not yet called



active mobile devices

number of mobile devices which are currently processing a list



Simple and fast navigation is guaranteed by a search field for entering search terms and shortcuts, which is always visible below the tree structure. Users who know the layout of the warehouse and the system functions by heart generally use the shortcut and search functions in PROLAG World. The intuitive placing of the search field is based on the most common user habits and routines.

The dashboard offers a comprehensive overview of information, clearly presented in graphs, pie charts and bar charts. The dashboard display can be personalised according to priority. All filterable elements in the system – any listed information related to the warehouse – can be mapped in the dashboard with just a few clicks. The Business Intelligence tool in PROLAG World provides a concise platform for efficient capture of all data streams. This feature is highly valuable for the control centre and for management since it allows numerous conclusions to be drawn about intralogistics.

The dashboard can be viewed without interrupting operations such as put-away.

UX design for all users

The user interface was designed with the specific goal of enhancing the user experience and making PROLAG World easier to work with. The special challenge in this regard was not only to adequately represent the complexity of the intralogistics processes. The varied requirements of the different application areas and the diversity of the software itself were additional hurdles. PROLAG World is used in multiple industry sectors all with different needs when it comes to storage, production, shipping and transport. There are standard workflows, business processes and transactions configured in the software based on the area of application. This enables a wide range of applications and rapid commissioning for the customer, the prerequisite being that the software meets the usage requirements of the respective industry sector and provides the necessary capabilities. The challenge is similar for data preparation in the dashboard, for example. The use of master data and warehouse data is industry-specific and can also differ from one company to the next. Company-specific structures are another relevant factor. Unlike apps oriented towards the general public, PROLAG World is designed for users with diverse areas of responsibility reflected in the 'role' of the respective logistics specialist. Not every employee needs all the functions provided in a template. A different user interface is required in the control centre than for goods receipt, for example. How can all these factors be taken into account while ensuring that the interface remains intuitive?

User-specific flexibility as a critical element of template design

Human intuition is the product of habits formed over many years. The challenge in terms of warehouse management software design is that multiple employees with different tasks – and different habits – all work in the same environment. In other words, there are varying expectations with regard to intuitive use of the software. In order to rise to this challenge, the team at CIM opted for a fully configurable UI with integrated role management. This was felt to be the only approach that could do justice to the complexity of the application. What's more, it meant that the simplicity required of any modern user interface could be provided in individual cases without having to forego important universal features in the system. Lists and templates can be displayed globally or on a user-specific or role-specific basis.

Template configurator with role configurations

The screenshot shows the 'Titel.Anzeige' template configurator interface. At the top, there is a search bar and a dropdown menu for 'template' set to 'article master - Artikel'. Below this, there are tabs for 'template', 'template fields', 'actions', 'columns', and 'fields'. The main area is divided into two columns: 'available' and 'selected'. The 'available' column lists various template fields, and the 'selected' column lists the corresponding system fields. The 'article number' field in the 'selected' column is highlighted in yellow.

available	selected
ABC strategy	p_abcStrategie
accumulated stock	cmdWareKumuliertAnzeigen
action class for batches	p_chargenAktionsklasse
action class for batches	p_chargenAktionsklasse-p_name
additional description	p_additionalText
additional description Czech	p_additionalTextSprache10
additional description Dutch	p_additionalTextSprache6
additional description English	p_additionalTextSprache2
additional description Finnish	p_additionalTextSprache7
5 additional description French	p_additionalTextSprache3
additional description Italian	p_additionalTextSprache4
additional description language 30	p_additionalTextSprache30
	article number
	article description
	article group
	length
	width
	height
	add-to-stock allowed
	volume per piece
	weight per piece
	default quantity
	ABC strategy
	SC strategy

Table design – flexible, concise and intuitive

The customisable user interface makes it possible to design what is probably the most central and also the most awkward element of any WMS in a clear and intuitive manner. If you call up one of PROLAG World's numerous lists, for example, you can optimise the display according to your needs. The example of the article master shows how useful this approach can be. When displayed in full, a list consists of multiple elements showing all data recorded for the articles in storage. Not all data is equally relevant for each user, which is why individual elements can be hidden. List elements can be moved using Drag and Drop, filter functions are readily available and the sequence can be changed based on individual requirements. The transparency of the numerous list contents is facilitated by the appealing list design. It provides a visual depth which is pleasing to the eye and reveals the relevant information at a glance. Colour elements for personalising specific list elements can be set as the default for a specific user. Thanks to the intelligent list design, the system offers a multitude of possible uses along with a high degree of flexibility.

K keep **I** t **S** imple, **S** tupid

This guiding principle of UI design is a real challenge when applied to software with a myriad of configurable parameters.

article number	article description	article group	length	width	height	add-to-stock al...	volume per piece	weight per piece	default quantity	ABC strategy	SC strategy	user strategy
10009	honey in round ...	CIM-promotion...	50.0	45.0	50.0	-	0.113	105.0	10.0	A strategy		
10010	custom made	CIM-promotion...	50.0	45.0	50.0	-	0.113	105.0	10.0	A strategy		
10011	article for prod...	CIM-promotion...	50.0	45.0	50.0	-	0.113	105.0	10.0	A strategy		
10012	honey in round ...	CIM-promotion...	50.0	45.0	70.0	-	0.158	145.0	10.0	A strategy		
10013	honey in round ...	CIM-promotion...	50.0	50.0	45.0	-	0.11	95.0	10.0	A strategy		
10014	honey in round ...	CIM-promotion...	50.0	40.0	25.0	-	0.05	45.0	10.0	A strategy		
20001	cornflakes	Food	24.1	16.1	8.2	✓	3.182	0.75	50.0	A strategy		
20002	cornflakes - RPL	Food	24.1	16.1	8.2	✓	3.182	0.75	50.0	A strategy		
20003	honey - expiry ...	Food	50.0	45.0	50.0	✓	3.182	0.75	50.0	A strategy		
20004	cornflakes - wit...	Food	24.1	16.1	8.2	✓	3.182	0.75	50.0	A strategy		
20005	large cup - Cha...		130.0	100.0	90.0	-	1.17	331.0	50.0	A strategy		
20006	washing machi...	Electric	60.5	60.4	95.8	-	350.072	14.3	1.0	A strategy		
20007	MP3 player - s...	Electric	10.1	8.1	2.1	-	2.296	1.2	10.0	A strategy		
20008	TV: serial numb...	Electric	34.2	50.2	40.1	✓	68.845	23.2	5.0	A strategy		
20009	cornflakes - ne...	Food	24.1	16.1	8.2	✓	3.182	0.75	50.0	A strategy		
20010	Bobby Car - fn...	Kits	39.0	57.0	30.0	-	66.69	4.0	4.0	A strategy		
20010-T1	Bobby Car whe...	Kits	5.0	15.0	15.0	-	1.125	203.0	40.0	A strategy		
20010-T2	Bobby Car stee...	Kits	19.3	10.5	19.3	-	3.911	625.0	10.0	A strategy		
20010-T3	Bobby Car carri...	Kits	34.0	57.0	30.0	-	58.14	2.563.0	4.0	A strategy		
20011	apple spritzer ...	Kits	1.0	1.0	1.0	-	1.0	1.0	10.0	A strategy		
20011-T1	water - sub-art...	Kits	1.0	1.0	1.0	✓	1.0	1.0	10.0	A strategy		
20011-T2	apple juice - su...	Kits	1.0	1.0	1.0	✓	1.0	1.0	10.0	A strategy		
20012	toolbox - pickin...	Tool	6.2	9.2	8.5	✓	0.485	4.5	66.0	A strategy		
20013	battery-operat...	Tool	27.1	30.1	10.1	✓	8.239	4.5	20.0	A strategy		
20014	jigsaw - pickin...	Tool	27.1	30.1	15.1	✓	12.317	3.4	72.0	A strategy		
20015	cup from PICKL...	Food	17.5	17.5	1.5	✓	0.459	295.0	50.0	A strategy		

A glance at the master data in the warehouse used for CIM training courses. The list elements for display can be selected on the right. Not only are the tables in the system clear and concise, they can also be exported as Excel or Print files.

delivery order	shipment	order type	status	picking started	customer num...	name 1	postcode	city	picks	priority	delivery date	retr
VISU-L123	386	ungeplant	reserved	-	1	CIM GmbH Log...	82256	Fürstenfeldbruck	1	99	1 Sep 2020, 00...	STAND
VISU-L124		ungeplant	created	-	1	CIM GmbH Log...	82256	Fürstenfeldbruck	1	99	1 Sep 2020, 00...	STAND
VISU-L125	387	ungeplant	released	-	1	CIM GmbH Log...	82256	Fürstenfeldbruck	18	99	1 Sep 2020, 00...	STAND
VISU-L126	388	ungeplant	released	-	1	CIM GmbH Log...	82256	Fürstenfeldbruck	18	99	1 Sep 2020, 00...	STAND
VISU-L127	389	ungeplant	released	-	1	CIM GmbH Log...	82256	Fürstenfeldbruck	3	99	1 Sep 2020, 00...	STAND
VISU-L142	390	ungeplant	partially reserv...	-	1	CIM GmbH Log...	82256	Fürstenfeldbruck	1	99	1 Sep 2020, 00...	STAND
VISU-L143-WA	385	ungeplant	released	-	1	CIM GmbH Log...	82256	Fürstenfeldbruck	3	99	1 Sep 2020, 08...	PACK
VISU-L52	384	ungeplant	booked	✓	1	CIM GmbH Log...	82256	Fürstenfeldbruck	1	99	1 Sep 2020, 00...	CHECK
do-e-com01	370	ungeplant	reserved	✓	1	CIM GmbH Log...	82256	Fürstenfeldbruck	1	99	28 Aug 2020, ...	QUICK
do-e-com02	371	ungeplant	reserved	✓	1	CIM GmbH Log...	82256	Fürstenfeldbruck	1	99	28 Aug 2020, ...	QUICK
do-e-com03	372	ungeplant	reserved	✓	1	CIM GmbH Log...	82256	Fürstenfeldbruck	1	99	28 Aug 2020, ...	QUICK
do-e-com04	373	ungeplant	reserved	✓	1	CIM GmbH Log...	82256	Fürstenfeldbruck	1	99	28 Aug 2020, ...	QUICK
do-e-com05	374	ungeplant	reserved	✓	1	CIM GmbH Log...	82256	Fürstenfeldbruck	1	99	28 Aug 2020, ...	QUICK
do-one-scan01		ungeplant	created	-	1	CIM GmbH Log...	82256	Fürstenfeldbruck	1	99	28 Aug 2020, ...	PACK
do-one-scan02		ungeplant	created	-	1	CIM GmbH Log...	82256	Fürstenfeldbruck	1	99	28 Aug 2020, ...	PACK

The options for colour highlighting in the control centre are extremely useful. This user has already set up a favourites list.

The template configurator

To enable maximum personalisation and optimisation not just of tabular lists, CIM has integrated the original template configurator into the new UI and enhanced it. Users can configure selection fields, input fields and buttons themselves according to the layout of their warehouse or the respective user role. This prevents the interface from being cluttered by seldom used template elements which complicate work and reduce usability. The settings in the template configurator are not made during working hours but are generally made during the commissioning phase.

Once the interface details in the template configurator have been configured, together with the dashboard and list elements, the system is intuitive to use. Users will find their habits and experiences in software usage reflected in the PROLAG World user interface. New processes quickly feel familiar and make it noticeably easier to get started with the system. The flexible template design is one of the key features of the user interface since it helps to save time in the workplace and reduce training effort.

A special feature of PROLAG World is its ability to guide users through the individual process steps for actions at the I-point, such as putaway. Depending on the action, the system knows the required criteria and supports the user by marking mandatory fields or drawing attention to any incorrect entries. It also maps out the individual steps necessary to complete the action.

A glance at the template configurator. The two columns show the available action fields on the left, and the fields that have already been added on the right. Role management allows the control centre to customise the templates according to an employee's function. Buttons can be added or deleted with a simple click.

Titel.Anzeige

template: article master - Artikel

configuration for: user, admin-gbr

actions: create, delete

template fields | actions | columns | fields

available	selected
▶ ABC strategy	ABC strategy
▶ action class for batches	ABC strategy
additional description	accumulated stock
additional description [language]	action class for batches
▶ ADR hazardous goods master	action class for batches
alternative occupancy sequence	add-to-stock allowed
alternative occupancy sequence	additional description
▶ article group	additional description Czech
article outer packaging transport	additional description Dutch
article storage locations	additional description English
▶ article supplier	additional description Finnish
average checking time	Additional description French

settings

9 10

Digital assistance through intelligent software design

A special feature of PROLAG World is its ability to guide users through the individual process steps for actions at the I-point, such as putaway. Depending on the action, the system knows the required criteria and supports the user by marking mandatory fields or drawing attention to any incorrect entries. It also maps out the individual steps necessary to complete the action.

At the top of the screen, the user can see the steps that need to be entered on the interface to make an addition to stock, complete with a colour-coded progress indicator. Reordering the famous 'jar of honey' in our CIM warehouse requires the entry of an expiry date. Once all the master data has been entered, the system proposes an expiry date.

Optimal usability across the board

Our glance at the interface shows that PROLAG World guarantees optimal usability for three different user types: The end user – the logistics professional operating a mobile device or stacker crane – can use the system almost without any detailed knowledge of the myriad of possible parameter settings. At the same time, it provides the warehouse management team with as many functionalities as possible in a straightforward and easy-to-use manner. Thirdly, the system integrates maximum user experience for performing configuration prior to commissioning. Because the easier the system is to implement, the easier it is for users to seamlessly adapt the software to their needs. Consequently, service requirements and training effort are reduced to a minimum.

So standard WMS software can indeed be configured and personalised as the PROLAG World user interface shows. The intuitive design of the system reflects browsing habits and in the medium term reduces training effort and onboarding time. More than anything else, PROLAG World offers a pleasant user experience enabling logistics professionals to operate terminals, handhelds and the control centre easily and quickly. With features such as the template configurator and role management, PROLAG World caters to the individual requirements of multiple different work processes.

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