

# PRODUCTION manager

Magazine for logistics & production



Connecting real-time production processes with self-learning software

## AI-based Scheduling and Sequencing with Qualicision

### User report

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**Efficiency Gain with Unified IT Infrastructure**

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## EDITORIAL

Dear Readers,

Artificial Intelligence (AI) is considered as key technology for the industry. Meanwhile, AI applications are being used very successfully in a wide range of application fields. In this issue, we will inform you in the lead article about how to optimize your production processes in real time, in planning or simulating scenarios and how to combine them with the goal conflict-based and self-learning software Deep Qualicision AI and further AI methods.

The software technological and functional foundation is the PSI platform, the basic software environment Advanced Scheduling and Monitoring and the Qualicision AI framework. The integration concept has already been implemented in a number of PSI software products. Thus,



use cases in connection with the PSI products PSIdms and PSIdems, PSIRoads/MDS, PSIsaso, PSIngo, PSICommand, PSIMarket, PSIPenta, PSIOhs, PSIdetect, PSIGasguide, PSILup/Qualicision have been implemented or are in preparation. We also report on current developments from the PSI business units

in the Production Management segment. Discover, for example, how leading metal companies are shaping their digitalization and decarbonization strategy. Further articles from the manufacturing, logistics and metals industries report on current exciting customer experiences and related new trends.

The research and development section is certainly worth a look as well. I hope you enjoy reading and look forward to your feedback.

Sincerely yours,

Dr. Rudolf Felix  
Managing Director  
PSI FLS  
Fuzzy Logik & Neuro Systeme GmbH



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[www.psi.de/en/psi-pressevents/customer-magazines/](http://www.psi.de/en/psi-pressevents/customer-magazines/)

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Connecting real-time production processes with self-learning software

## AI-based Scheduling and Sequencing with Qualicision

Deep Qualicision combines the Qualicision optimization engine with goal conflict-based machine learning as well as further AI methods. The software efficiently learns to adjust parameters so that it can predictively optimize and achieve key performance indicators (KPIs) in the best possible way. Analytics functionalities are provided to combine manual and AI-based optimization. For this, Advanced Scheduling and Monitoring and the Qualicision AI framework provide the technological foundation.

Qualicision AI-based scheduling and sequencing algorithms can be used to obtain efficient multi-criteria KPI decisions from individual decisions. This is done by data-based KPI evaluation

from automatically calculated conflicting goals in the production processes to be optimized. In addition, priorities of the KPI-based criteria can be machine-learned in such a way that consistent priority settings of the cri-

teria are automatically recommended (see Figure 1).

Thus, Deep Qualicision AI can be used to calculate the deeper interaction between individual decisions and goal criteria, as well as to learn in a data-driven way. When applying this AI principle to scheduling or sequencing production orders and operations, the production process can be optimized either in real-time or in terms of planning or simulation scenarios.

Figures 2 and 3 show a typical Qualicision scheduling and sequencing interface as they are available as soft-



Fig. 1: QFDD (Qualicision Functional Decision Design) web interface.



Fig. 2: PSIASM/Qualicision Gantt chart.



Fig. 3: PSIASM/Qualicision line graph.



Fig. 4: Deep Qualicision AI framework.

ware products. The data derived from the tools can then go directly into the Deep Qualicision AI software, where it is machine-learned (Figure 4).

### Balancing inequalities Qualicision-based

In practice, a very common scenario shows that there are sometimes significant deviations between the assumptions about the performance parameters of the production resources that are present in the process and the reality in the day-to-day process.

Numerous industrial applications confirm that both Qualicision-based planning and real-time optimization can successfully balance these deviations. With the learning software, additional deviations between planned and actual sequences can be systematically identified and preventively treated without costs.

Studies show that such deviations consist on the one hand of a mix of spontaneously occurring anomalies of the process. These arise from unplannable resource downtimes, quality-related stops or supplier failures, as well as from order mix that is spontaneously changing.

### Learning from historicized data

In addition to spontaneous anomalies, structural deviations between planned

and actual processes can also occur. Regularly, these only become apparent in the processes retrospectively and lead to avoidable cost effects such as machine downtime or conveyor belt stoppages. Therefore, it is better to automatically learn the structural anomalies in advance from historicized data. Such scenarios can be implemented and optimized by using Deep Qualicision AI.

With predictive optimization, past production plans are compared with actual processes and the differences are evaluated in such a way that subsequently defined KPI goals are weighted predictively and thus better followed. Here, goal conflict analysis and automated anomaly detection cooperate hand in hand. This detection is implemented using Machine Learning (ML) and relies on Qualicision-based Qualitative Labeling of process data in addition to the classically known ML methods.

In this process, property classes of orders, operations and resources from past production sequences are sys-

tematically detected in their patterns associated with structural anomalies. From this, the anomalies can be translated into optimization goals for optimization algorithms where optimization balances systematic anomalies. Using learned interactions in the context of available resources and actual margins, these anomalies are removed.



Fig. 5: Cluster surface showing the positive and negative Deep Qualicision clusters.

Figure 5 shows the application of learned anomaly classification to a demonstration example from vehicle sequence optimization for ranking in scope of sequencing processes. Based on a set of already planned and then produced sequences, it is detected that orders that include, for exam-

ple, a combination of a certain drive variant and the features “right-hand drive”, “rearview camera”, and “panoramic roof” systematically experience a certain delay between planned and actual positions in their respective sequences.

If such a combination is learned by Deep Qualicision AI, a specification for optimization algorithm can be automatically generated, so that future sequences can be additionally optimized against the learned anomaly.

### KPI-oriented manual evaluation and selection of pre-optimized production plans

In addition to the option to perform an AI-based anomaly analysis, the software is also equipped with a manually controllable pre-stage of the learning logic. For this purpose, the KPIs to be used as a basis for evaluating the deviations can be defined manually and evaluated using Qualicision labeling functions (see Figure 2). Subsequently, the optimized production plans (sequences or schedules) are ranked. Thus, further analysis can also be done manually. The adjustment of KPI priorities (Figure 2) and evaluation of goal achievement levels of the KPIs can also be performed during this manual analysis and additionally compared with machine-achieved results. This also allows hand-in-hand work between the manual process analysis and a Qualicision AI-supported machine analysis. The results obtained in this way can then in turn be incorporated into the machine learning logic or the manual learning process in the same way. The result is an interactive and explainable AI application.

### Based on the PSI platform with a number of advantages

All tools described so far are built on the PSI platform where the direct scheduling and sequencing software packages additionally use the ASMQ component. The products are under one technological umbrella and can be regarded as basic platform components in terms of their PSI App Store as well as web capability.

This offers a number of advantages:

On the one hand, linking with all PSI software products is directly possible and can be integrated. On the other hand, the Qualicision and Deep Qualicision AI functionalities are available in these tools with regard to both intelligent optimization and the AI functional scope which can be used as a door opener to AI. This allows open and intelligent systems to be realized easily, efficiently and in a very short time-to-market, especially via the AI framework, by linking original functionalities with AI technology.

At the same time, the applications can be further developed by PSI's partners as well as customers via the programming interfaces provided. In the case of Deep Qualicision AI, this is achieved via a Python AI interface (Figure 6). For the scheduling and sequencing tools, it is possible via a Python interface, and for the interactive Qualicision decision analyses, via the interface (GUI) of the Qualicision component QFDD (Qualicision Functional Decision Design En-

gine) directly itself. The latter can also be operated by non-programmers. Therefore, not only the functionality is available, but also the

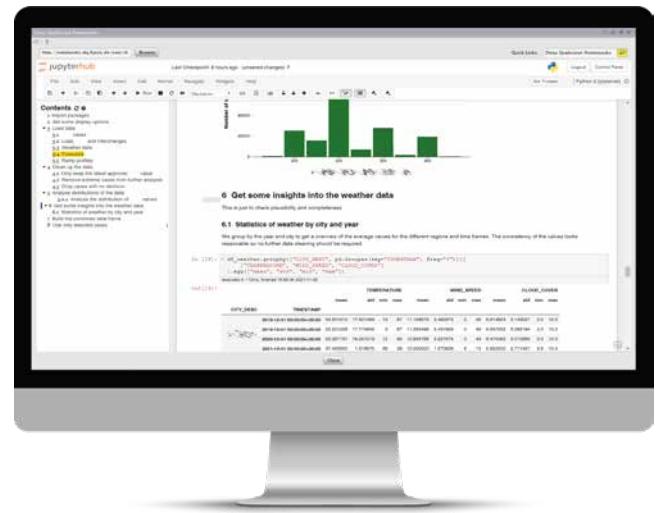


Fig. 6: Deep Qualicision AI with the Python Jupyter notebook frame.

existing partner capability is still secured.

### Numerous connections to PSI software products

The integration concept has already been implemented in a number of PSI software products. The application examples range from infrastructure optimization and mobility to the energy sector, monitoring and optimization of maintenance processes and asset management processes, production planning and control in the metal industry, automotive OEM and discrete manufacturing. Further examples such as raw material extraction and BPM (Business Process Modeling) with Qualicision decision support are in preparation. 🌀

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User report: Sensor technology manufacturer elobau increases performance by up to 20 percent

## Efficiency Gain with Unified IT Infrastructure

By using the warehouse management system PSIWms, the sensor technology manufacturer elobau is increasing efficiency and transparency in warehousing for production supply and shipping. Thereby, the consistent IT infrastructure with the ERP system PSIpenta and PSIWms reduces the interfaces and thus increases the performance. In addition to the optimal integration of an AutoStore system into the coordinated process control, the close system networking opens up further optimization potential in intralogistics processes.

with the challenge of first communicating, displaying and mapping the processes and day-to-day operations of our intralogistics in video conferences in order to optimally customize PSIWms. The connection of the AKL AutoStore system could also initially only be communicated theoret-

**F**ounded in 1972, elobau GmbH & Co. KG, headquartered in Leutkirch in the Allgäu region of Germany, is one of the leading international manufacturers of sensor technology. The ERP system PSIpenta has been used as the company-wide software since 1999. More than twenty years of positive experience were the decisive factor to also rely on a PSI management and process control system for intralogistics as part of a comprehensive restructuring of internal logistics. Finally, the warehouse management system PSIWms was selected.

“With the new, future-proof warehouse management system, we wanted to simplify the IT infrastructure with an expanded range of functions, increase process efficiency and performance of the installed automation systems, identify and eliminate inefficient processes, and overall create new opportunities for the digital mapping of logistics,” explains Matthias Gromer, Head of Logistics and Lean Coordinator at elobau. “The previously managed warehouse management system was an isolated solution that could no longer keep up with the restructuring of our logistics or cover the processes.”



Front view of the AutoStore system at elobau.

### Challenging coordination processes during lockdown

In April 2021, PSIWms went into operation at elobau. By August, full-load operation had been successively integrated into the system, as well as some system configurations implemented and an external warehouse connected. “The entire software project was in the first lockdown phase of the Corona pandemic at the beginning of the extremely important workshop or mandatory specification process and was implemented during ongoing operations under high load,” explains logistics manager Gromer. “Due to the pandemic, we were faced

ically—all in all, quite difficult coordination processes for such a complex and sustainable project.”

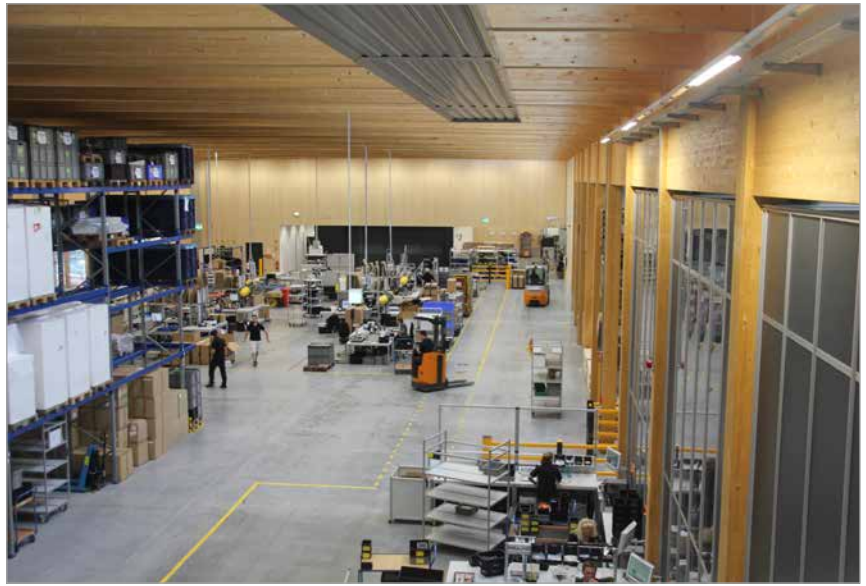
### Transparent processes in the logistics center

With a functional scope of PSIWms exactly customized to the requirements and an optimal interlinking of the ERP system PSIpenta and the warehouse management system via standard interface, the two systems offer a continuous networking of operational and process data. In the meantime, PSIWms takes over the management of incoming goods and storage locations, piece-precise picking and,

via transport Kanban from the AutoStore system and high-bay warehouse, as well as the demand-oriented provision of components for production. In the goods receiving area, deliveries of raw parts and semi-finished assemblies for production are checked and received. The goods receipt posting is performed in the ERP system PSIpenta, from which PSIWms receives the corresponding advice data. With the master data stored in the system, PSIWms determines the corresponding storage bins. The storage of whole pallets is done with forklifts. For this purpose, a narrow-aisle warehouse with 1000, a heavy-duty warehouse with 400 and a rented warehouse with 600 pallet spaces, which is operated by a service provider, are connected to PSIWms in Leutkirch. In the two internal pallet warehouses, a total of around 75 stock placements and 200 stock removals are processed per day. “Furthermore, the external warehouse is mapped and managed in PSIWms, and process control is also carried out from the IT system,” explains Gromer. “This means that all movements of the logistics center can be viewed transparently in PSIWms.”

### Route-optimized forklift activities

For forklift-based transports, the Transport Control System (TCS) integrated in PSIWms ensures route-optimized forklift activities. The forklift control system was presented by PSI Logistics at LogiMAT 2022 as a complete web application of a stand-alone solution for optimized productivity and resource planning of internal transports. It marks the entry into the future fully web-based PSIWms. In the goods receiving area of elobau, articles and transport units are “mar-



*PSIWms controls the management of goods receipt and storage locations, picking and provision of components for production at elobau.*

ried” by scan and transported in a route-optimized manner to the storage locations generated by PSIWms. The incoming goods for storage in the miniload are repacked at packing stations into storage containers for the AutoStore system. An interface in PSIWms ensures reliable data exchange with the process control of the miniload. “The AutoStore system is the heart of our intralogistics,” says Gromer. “Around 90 percent of our orders run through the system. PSI was able to point to reference projects for the connection of AutoStore systems—an important aspect for the awarding of the contract. In the meantime, all hardware has been connected to PSIWms and the improved process efficiency confirms our decision for the IT system.”

### Increase in performance of up to 20 percent

30 000 container storage locations for around 16 000 different raw parts and assemblies are provided by the AutoStore cube. Via a standard interface in PSIWms, the compact warehouse is

connected to the coordinated process control and AutoStore is integrated into the inventory management, material flow and process control by the WMS. Moreover, the direct connection of the programmable logic controllers (PLCs) to PSIWms increases the performance of the AutoStore system by up to 20 percent. Every day, PSIWms controls 550 stock placements and 2000 stock removals in the AutoStore system in Leutkirch alone. Additionally, the stocking and route planning for the digitalized production supply will be integrated into PSIWms right up to the shelves of the plants. “As of today, we are recording an increase in performance of 15 to 20 percent thanks to the unified software infrastructure and the coordinated processes,” summarizes logistics manager Gromer. “Overall, one of the biggest digitalization steps in our company history.” 🌀

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User report: PSImetals in use at steel producer Peiner Träger

## On-site Implementation During Corona Times

**Just imagine:** A solution go-live is scheduled and curfews have been set in place. Close and personal cooperation with the customer, which was actually common practice, had to be avoided all of a sudden. This was the situation the PSI team faced during last year's commissioning of PSImetals at Peiner Träger during the Corona pandemic. Despite all the challenges, and thanks to the protective measures and tireless efforts on both sides, the PSImetals Production, Quality and Logistics modules were successfully commissioned in June 2021. But the most important thing is that everyone remained healthy!

a 3-shift presence of PSI experts on site at the plant for at least the first two weeks," says Peter Kohlmann, Project Manager at PSI Metals. He adds, "Due to Corona, we were able to gradually reduce our presence on site while complying with all protective measures, of course in consultation with the customer." This was only

**P**einer Träger GmbH has been an operationally independent subsidiary of Salzgitter AG since 2001 and operates globally from the idyllic town of Peine in Lower Saxony. With its product range, it covers all steel materials for beam and column sections and impresses with first-class service. With 140 years of success, Peiner Träger is one of the most successful European steel companies.



*Peiner Träger GmbH plant site.*

### The project scope

The project, which was scheduled to last three years, required the implementation of a unified production management system with low maintenance requirements, using PSImetals on two rolling mills—the heavy beam mill and the universal and middle beam mill (UMIT). In the process, the outdated Multiple Virtual Storage (MVS) systems had to be replaced by the PSImetals modules Production, Quality and Logistics.

As part of the project, the interfaces to SAP, the level 2 systems, the already existing PSImetals planning system and the steel mill had to be set up. For this, features from the areas of

production, quality and logistics, such as warehouse and transport management, automatic pre-material planning, production tracking and sample planning were essential components. Only one and a half years after the start of the project, the heavy beam mill was successfully up and running in January 2020. On this basis, the Manufacturing Execution Systems (MES) for the universal and medium beam lines was also developed. The system went live on April 5, 2021, under strict Corona safety measures.

### On-site commissioning during Corona times

For the kickoff in the midst of the pandemic, it was stated that six weeks would be needed. "Experience shows that such large-scale projects require

possible because the production ran smoothly from the beginning. Otherwise, a 3-shift presence on site would have been unavoidable.

Of course, planning and organizing such an on-site commissioning is an enormous challenge. For example, it requires a team of at least seven employees—two per shift plus the project manager as the day organizer and cross-shift "bracket." Since it is impossible for individual employees to know everything about the project, the composition of the shift team must reflect this. The goal is to have as much knowledge as possible per shift. The personal preferences of individual employees was also considered, as some prefer to work early in the morning while others are more productive at night.



## Output restrictions and other challenges

Of course, additional safeguards had to be put in place as well. Due to Corona-related movement restrictions, the project team had to carry an official PSI document at all times stating that travel for commissioning was unavoidable and a 7/24 presence on site was mandatory. On-site vis-

its to users in multiple control rooms were also avoided as much as possible. This was a rather unusual measure, as commissioning in pre-Corona times always involved close and personal collaboration at the respective workplaces. But daily management meetings also faced an unexpected challenge: they had to be held in a large meeting room with good ventilation and were limited to the minimum number of participants that were absolutely necessary.

Then, after six weeks, the result came in: “The plant is producing successfully and independently—and, most importantly, no one got sick during commissioning,” says Peter




*Employees on steel girders.*

Kohlmann. Torsten Ryl, UMIT operations manager, also remarks: “We were all very worried about Corona, but fortunately there were no problems at all” and adds: “The accessibility and support from the PSI experts was super!”

## Results and outlook

The implementation of the new system resulted in significant improvements: after the respective go-live of the two rolling mills, there was no ramp-up curve at all and thus no production losses. At UMIT, the new system achieved a higher output than the old system right from the start. The team in Peine is now pleased to

have a modern and release-capable standard system that is open to extensions.

Even under difficult conditions, impressive results were achieved and valuable experience gained. Plans for further cooperation are now being diligently forged. All’s well that ends well, or as Stephan Lemgen, then managing director of Peiner Träger, concluded: “Then the project can be described as positive!” 

### PSI Metals

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## HANNOVER MESSE

17.–21. APRIL 2023

At Hannover Messe 2023, the PSI Group will focus on presenting intelligent software products and AI-based applications for optimized production and sustainable energy supply.



Event: The 36th IPA annual conference in review

## ERP, Digitalization and a Bit of Magic

“ERP in Changing Times” was the motto of the 36th IPA Annual Conference, which took place in Berlin on November 10–11. After two virtual editions, the pleasure of a personal exchange of experiences and networking was enormous. The PSIpenta Users followed the invitation to the Steigenberger Hotel in Berlin as well as to the Tipi am Kanzleramt for the evening event. They experienced a successful mix of informative and creative presentations, interactive workshops and a hands-on partner exhibition—as well as a little bit of magic.

**D**ue to the Corona pandemic, for two years there had been a successful virtual edition of the IPA Annual Meeting each time. Just in time for PSI Automotive & Industry’s 25th anniversary, the 36th annual conference was once again able to take place live and very close to Germany’s political heart with the Steigenberger Hotel am Kanzleramt, but also under

the impression of a particular joy of reunion.

### Vision and review

In keeping with tradition, CEO Dr. Harald Schrimpf presented news from the PSI Group. These included further plans for the PSI App Store, the Project Collaboration Space and the Virtual Factory eLearning. Afterwards, Dr. Herbert Hadler, Managing Direc-

tor of PSI Automotive & Industry, presented news from the ERP and MES world. He gave insights into the revised PSIpenta/ERP as well as the roadmap of version 10. In addition, he looked at the milestones of the milestones of the 25-year company history.

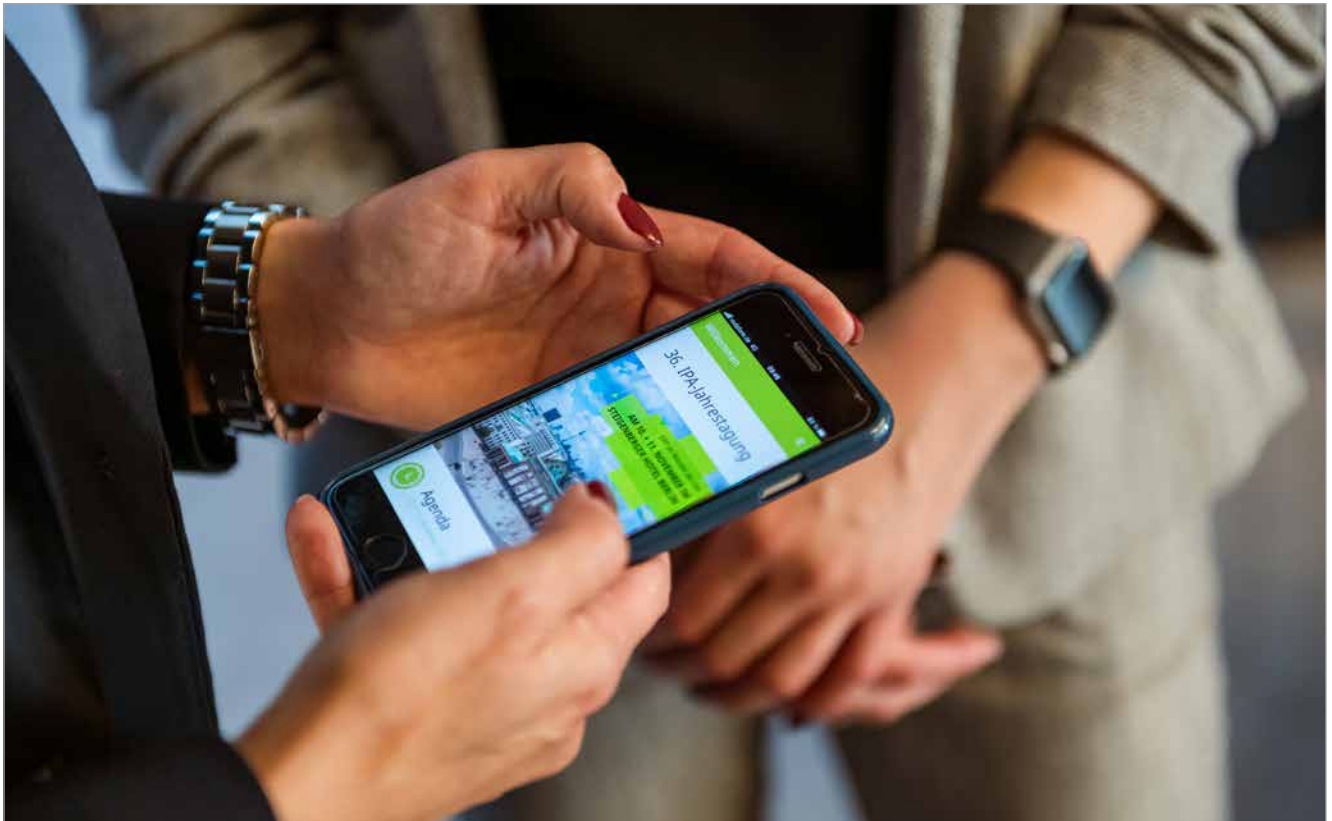
He also announced that Mathias Kulbe, Head of Product and Development, will retire and hand over the baton to René Meevissen on January 1, 2023.

### New Executive Board member elected

Another change of personnel took place in the IPA board of directors. While voters confirmed all current board members in office, they elected Diana Neu of Rex Industrie-Produkte



Sharing experiences and networking at the partner exhibition.



36th IPA Annual Conference App with online conference program.

Graf von Rex to succeed outgoing board member Hans-Peter Rudolph of Lämple. Rudolph is switching from IT to the training department of Lämple Dienstleistungsgesellschaft, which he will manage and develop further.

### Theory versus practice

Other highlights were the presentations by Ömer Atiker and Andreas Duve. As an internationally renowned speaker on the subject of digital transformation, Ömer Atiker closed the official part of the first day and spoke about aspects that are usually excluded in this context. Thus, the main topic was the gap between theory and reality. As a management consultant, however, he also revealed to the audience his recipe for success on the digital journey: balancing technology, sales and employees coupled with the courage to get started and make things as simple as possible.

### AI or magic?

On Friday, things got a bit magical in the conference room when Andreas Duve, Head of Platform Marketing and Partner Business at PSI Software AG, captivated the audience with his presentation on the liaison of e-commerce and customer experience. The bottom line: Even in digital business, the personal approach counts. Duve received the facts for his talk from his “personal artificial intelligence” from off stage in the conference room. This made the technology tangible for those present—a maxim that the Group follows in all its applications.

### Magic!

The guests had already experienced magic far removed from all magician clichés on Thursday evening in the Tipi am Kanzleramt. After the presentation of the customer award to

GMN Paul Müller Industrie, Siegfried & Joy, the meanwhile internationally well-known Magic Duo from Berlin, spread the maximum load of charm, magic and word wit with tricks and crazy stories. The organizer puts it in a nutshell: “until even the dustiest cliché of the magic show disappears in a cloud of glitter”.

With this in mind, we are looking forward to the 37th IPA next year. 🌀

Scan now and learn more about 25 years of PSI Automotive & Industry.




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News: thyssenkrupp Electrical Steel successfully puts PSImetals 5 into operation

## Digitalization Supports Sustainable Steel Production

thyssenkrupp Electrical Steel GmbH has successfully launched the production management system PSImetals 5 from PSI Metals. The software modules Production and Quality control the cold rolling mill, heat treatment, surface treatment and cutting. The solution allows for a seamless integration of the production processes with the business layer in ERP and plant automation.

a subsidiary of the thyssenkrupp Group, is a leading manufacturer of high-quality electrical steel. The digitalization of processes is intended to improve steel production and quality management and adapt them optimally to customer needs. 

**B**efore the new version update, thyssenkrupp Electrical Steel used individual solutions with limited functionalities and features in their plants in Gelsenkirchen, Germany and Isbergues, France. With PSImetals 5, the two sites now are running harmonized solutions while gaining full transparency of all materials and activities in the respective plants.

*By implementing a standard system with customer-specific extensions and cooperation between our two plants in France and Germany, the go-live helps us to harmonize our quality and production processes across our IT landscape. This is an important step on our way to sustainable and digitalized steel production.*

**Michael Umierski**

Head of Information Technology Management,  
thyssenkrupp Electrical Steel

### Site-specific extensions and project-related adaptations

The comprehensive functionalities and configuration capabilities of the new system allow site-specific en-

hancements and project specific adaptations for their factories in Gelsenkirchen and Isbergues. thyssenkrupp Electrical Steel GmbH,

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Digitalization for a sustainable steel production.

**Product report:** The new PSImetals Release 5.24 is available

## Towards New Horizons

Let me reveal a well-known secret: The metals industry is undergoing enormous changes in terms of digitalization and decarbonization. Steel and aluminum producers can either react quickly and use the changes to their own advantage, or they can catch up later and risk losing touch with the competition. Our experts at PSI Metals work tirelessly to ensure that our customers benefit from the former. Under the motto “Towards New Horizons”, new functions have now been added in the current PSImetals Release 5.24 to facilitate our customers’ journey to new horizons.

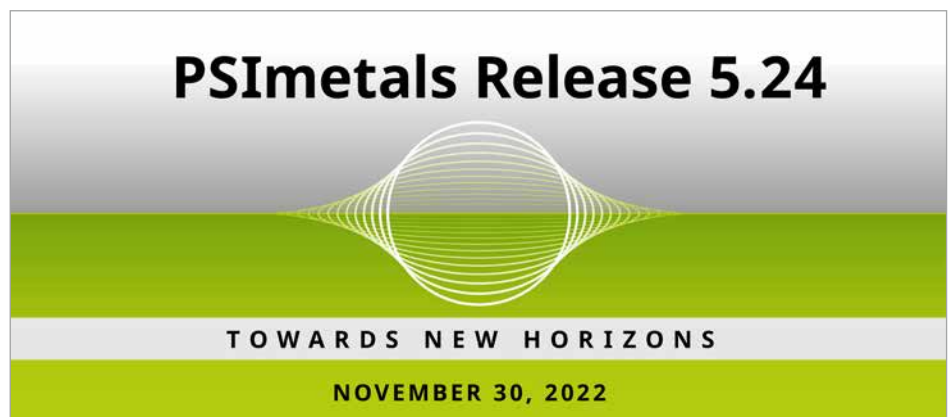
**W**ith the new release, we are providing the first components based on the PSImetals Service Platform (SP) that can be easily purchased and installed via the PSI App Store. With this, we are further advancing our own delivery strategy and enabling our customers to have highly digitalized access to our products and comprehensive services such as license renewals, patches and upgrades.

### Supporting the decarbonization goals

In addition, we support our customers on their decarbonization journey. The new PSImetals Online Heat Scheduler (OHS SP) enables full support for hybrid scenarios when transitioning from a BF/BOF to a DRI/EAF-based route. The OHS SP offers “Green KPI Optimization” and the integrated Qualicision Solver enables optimized scheduling, taking into account grade-specific routes, treatment times and materials, as well as the availability of necessary production resources such as ladles. The software is either fully integrated into our Melt Shop Execution System or can be integrated as a stand-

Solutions, the older Oracle-based versions of the components are still included and maintained in the new release. This co-existence of our classical technology allows each one of you to migrate along your business timing preferences and scope.

All of us at PSI Metals are driven by the common goal to support you suc-



*PSImetals Release 5.24—Towards New Horizons—is available.*

alone solution into existing third-party installations. The icing on the cake is that, like other SP-based components, it is completely Oracle-independent.

### New and improved SP-based services

Of course, we are also driving the overall technology migration to our Service Platform. PSImetals 5.24 brings many new and improved SP-based services, such as our new Casthouse Scheduler, the fully integrated SP-based Quality Indicator (QI) for advanced quality decisions, a new version of our Demand Manager, as well as the first release of our new Rule Management component. During the rollout of PSImetals

successfully in your digitalization and decarbonization journey and this new release is one of such efforts. Through thick and thin, we continue to stay close to you, listen to you, innovate for you and watch you smile as you look to your new horizons. 🌐

Would you like to learn more about PSImetals Release 5.24? Just scan the QR code!



### PSI Metals

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Interview: Andreas Duve, Head of Platform Marketing and Partner Business at PSI provides answers

## ERP and MES from the App Store?

Shopping ERP and MES online in the PSI Industrial App Store? We have questions! Andreas Duve, central Product and App Store Manager at PSI Software AG, has answers.

Andreas Duve: That's exactly how it is. Discussions with many companies have shown us that there has

**Jasmin Erfurt:** Mr. Duve, in the B2B world, e-commerce and with it app stores are also entering the market. However, in PSI Automotive & Industry's focus on the ERP and MES environment, they are still few and far between. What does the PSI Industrial App Store offer to our customers?

Andreas Duve: Speaking casually: a bit more freedom. In other words, with this offer, we are also transporting the self-service idea into our world of business IT. Thus, we are primarily targeting existing customers who, in addition to the classic sales channels, now have the opportunity to independently obtain information on the platform about expansion solutions—in your case, for PSIpenta ERP and MES—and to purchase them without detours. Incidentally, with its Industrial Apps, PSI Automotive & Industry is one of the first PSI business units to offer apps in the store.

**Jasmin Erfurt:** Our ERP and MES apps are becoming increasingly popu-

lar. Being able to buy them in an app store totally makes sense. But what happens if questions remain unanswered—not only about the apps, but also about other products? To whom can a customer turn?

Andreas Duve: This is an absolutely legitimate question. On the one hand, it is

important for me to emphasize here that the store is not a substitute for our consultants. Just like the sales teams, they will still be available at all times. On the other hand, interested parties will not only find products in the store, but also introductory videos, short demos and online training courses that answer many typical questions in a decision-making process. And that's not all: PSIpenta training can also be used for the induction of new employees or for training courses that allow users to deepen their knowledge of specific modules.

**Jasmin Erfurt:** In other words, we are aiming for interplay between the App Store, consulting and sales—but completely remotely?



Andreas Duve takes questions about the Industrial App Store.

long been a need for this in the business environment as well. The idea of the PSI Industrial App Store and ultimately, the answer to the changing wishes of our customers is to be able to obtain information, receive advice, try out a product and then buy it directly via an interface at any time and from anywhere. This is particularly true for cloud services. PSI is thus consciously helping to shape the digital transformation on another level, namely with regard to customer experience. Our credo: Customers should have it as easy as possible.

**Jasmin Erfurt:** That reminds me of my last car purchase!

Andreas Duve: Yes, that's exactly the idea. Just like buying a car, interested parties can configure their dream car and get help if they need to. In

*With the PSI Industrial App Store, we are also transporting the self-service idea into our world of business IT.*

**Andreas Duve**  
Head of Platform Marketing and Partner Business  
PSI Software AG



*The idea behind the PSI Industrial App Store is to be able to obtain information, get advice, try out a product and then buy it directly via an interface at any time and from anywhere.*

**Andreas Duve**

Head of Platform Marketing and Partner Business  
PSI Software AG



our case, they can also book a demo version based on their wishes. This means that customers can try out the products, experiment, collect questions and then approach their advisors as usual.

**Jasmin Erfurt:** One thing that doesn't exist when it comes to buying a car, but plays an important role for many of our customers, are partner products. For many years now, we have been pursuing the "Best-of-Breed" idea and, in the area of document archiving or business intelligence, for example, we work together with partners whose solutions are integrated into our products. You can probably guess what I'm getting at: Can customers also purchase these products via the App Store?

**Jasmin Erfurt:** For all companies, sustainability is a big issue. Everything we do today need to pay attention to this topic as well. To what extent does this apply to the PSI

ing on this idea and also want to integrate maintenance services, for example. This means that customers can use the platform to conclude new maintenance contracts, book additional service hours, and access all information about their contract status at any time. As you can see, we've already achieved a lot, but we still have a lot of plans.

**Jasmin Erfurt:** And we're looking forward to it! Thank you very much for your time and the interesting insights and outlook. 🗨️



*The new Collaboration Space will be seamlessly connected to the PSI App Store in the future.*

**Andreas Duve:** Of course, we've thought about that, too. The Collaboration Space is currently being created for this purpose, which will be seamlessly linked to the PSI App Store. Both partners and customers will then have their own area to find the relevant information for them, and to get in touch with their contacts and so on. So the answer is: This will also be possible in the near future.

**Industrial App Store? And finally, can you take a look into the future?**

**Andreas Duve:** Sustainability management is indeed one of the most urgent tasks of our time. The marketplace also meets this requirement: because it saves time, distances and energy. And as far as the future is concerned, we are of course build-

Video on  
highlights  
of HM 22



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News: PSIWms successfully implemented in new distribution center of LPP Logistics

## Warehouse Management System for another Location

PSI Polska Sp. z o.o. has successfully implemented the Warehouse Management System PSIWms 2020 including the Warehouse Advanced Planning module in the new distribution center of LPP Logistics Sp. z o.o. in Brześć Kujawski. Accordingly, the Polish market leader for clothing operates another location with PSIWms.

**F**rom the new 75000 square meter logistics center in Brześć Kujawski, LPP Logistics, a company of the LPP Group, delivers up to 8 million garments and accessories per week. Up to 1000 items can be processed simultaneously via two sorters with a modern unloading station. The facility also has a racking system with a capacity of 40 million garments and 67000 pallets.


Here, PSIWms controls not only the flow of goods, but also warehouse automation and workforce scheduling.

### Efficient end-to-end management of all processes with Advanced Planning

The integrated Warehouse Advanced Planning module enables efficient end-to-end management of all processes, including warehousing, quality control, palletizing, buffering and various picking processes as well as packaging and shipping. The software also handles direct deliveries from manufacturers and suppliers, as well as from the distribution center in Pruszcz Gdański and the fulfillment centers

for the e-commerce market. At these centers, orders are processed from the online stores of LPP Group brands in Poland, Romania and Slovakia.

### Strengthening of the long-term partnership

The partnership between LPP and PSI Polska, which has existed since 2007, will be further expanded through the successive roll-out of PSIWms to support the dynamic expansion of the LPP network managed by LPP Logistics. 

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Automated processes in the new distribution center of LPP Logistics.



News: PSI Logistics listed by Focus-Business for the fifth time

## “TOP Employer for Medium-Sized Businesses”

PSI Logistics GmbH is one of the 4000 best employers in Germany in the current ranking of the “TOP Employers for Medium-Sized Businesses” list, which is updated annually by the business magazine Focus-Business.


For the listing published on November 26, 2022, Focus-Business and research partner FactField GmbH conducted a large-scale survey across all industries in Germany. More than 550 000 employee reviews as well as existing online reviews on over 38 000 companies with 11 to 500 employees were evaluated. The range of questions reflected, among other things, the attractiveness of the employer and the working environment, working conditions and career prospects.

Employer ratings with a rating average of at least 3.5 stars on a scale of 1 to 5 served as the basis for the survey. The final ranking of the companies is derived from a point value



calculated from the factors rating average and number of ratings (of all data sources). In addition, the em-

ployers were grouped into size categories according to the number of their employees, compared with the companies in their reference group and rated. The top list is broken down by industry branches.

Around 4000 employers with the best scores across all groups made it into the current ranking, including PSI Logistics. With a good overall rating, PSI Logistics was awarded the title of “Top Employer for Medium-Sized Companies 2023”, making it one of the best employers in Germany for the fifth time in a row in the assessment of employees, applicants and the analysts of the research institute. 

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News: Magazine FOCUS and initiative For Our Planet award PSI again

## Top Climate Commitment

Once again, the magazine FOCUS and the sustainability initiative For Our Planet have honored the PSI Group as one of the German companies with top climate commitment in their study, which was conducted for the second time.

**A**s in the previous year, the selection was carried out together with research partner FactField, Klimaschutz-Unternehmen e.V. and Prof. Dr. Stefan Schaltegger from the Centre for Sustainable Management (CSM) at Leuphana University Lüneburg.

### PSI rated as “excellent” in all four evaluation dimensions

In total, 216 companies were honored for their top climate commitment, including 14 from the EDP and IT industry group, of which only PSI and one other company were rated as “excellent” in all four dimensions. 

To the FOCUS /  
For Our Planet  
publication:  
focus-klimaschutz.de



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R&D: PSI participates in the ELMAR research project as part of a partner network

## Decarbonization of Raw Material Extraction

PSI is participating with partners in the newly launched ELMAR research project with the aim of “integrating the use of electric heavy-duty transport machines in the raw materials industry”. Within this framework, a partner network of top-class research and industry partners is working out how decarbonization of raw material extraction, and thus a sustainable reduction in CO<sub>2</sub> emissions, can be holistically thought out and implemented. PSI supports the project with a software platform for monitoring and controlling production resources as well as with AI and cloud-based software products.

Within the ELMAR research project, the foundations are being created and implemented for the use of electric mobile heavy-duty transport machines to maintain process reliability in production and ensure electrical supply security, as well as coupling to renewable energy sources. On this basis, it is demonstrated that sustainability as well as climate neutrality for the sustainable supply of the economy and society begins with the extraction of raw materials and contributes to the achievement of climate protection goals and competitiveness.

### Cloud-based service with online monitoring functionalities

As part of the project, PSI is developing a prototype of a cloud-based service that will allow raw material extraction companies to operate their production according to sustainability criteria and energy-optimized. This service will provide online monitoring functions for connected mining vehicles, machines and energy infrastructure including visualization and alarming.



Visit of the extraction plant of Nivelsteiner Sandwerke & Sandsteinbrüche GmbH during the ELMAR project kick-off.


### Decision support for operations

In addition, the service will provide decision support for operations based on a multi-criteria approach that compares and optimizes raw material production requirements and resource availability in addition to the availability of renewable energy. Therefore the models of the partners will be integrated and the found correlations of the different sub-processes will be mapped and optimized with an online AI approach.

### The partners at a glance

The partner network is composed of two institutes of RWTH Aachen

University, the Institute for Advanced Mining Technologies (AMT) and the Institute for Power Electronics and Electrical Drives (ISEA), as well as representatives from industry. These include Volvo Group Trucks Central Europe GmbH, Volvo Construction Equipment Germany GmbH, Volvo Autonomous Solutions AB (commissioned by VCE Germany GmbH) are participating as construction machinery and transport vehicle manufacturers and automation providers, Mineral Baustoffe GmbH (part of the STRABAG Group), Knauf Gips KG, Nivelsteiner Sandwerke & Sandsteinbrüche GmbH as mine operators, PSI FLS Fuzzy Logik & Neuro Systeme GmbH and PSI Software AG as providers of AI- and cloud-based software, and TITUS Research GmbH as developers of autonomous monitoring systems.

The ELMAR project (FKZ 01MV22001\*) runs from 1.8.2022 to 31.7.2025 and is funded by the BMWK under the funding guideline “Research and development in the field of electro mobility” in the 5th funding call “Competition for electrified goods and passenger transport” with around 6 million euros out of a total volume of around 11 million euros. 

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News: PSI Metals and Seresco enter into strategic partnership

## Launch into New Local Markets

In July, PSI Metals signed a strategic partnership with Seresco, a Spanish software company. Within this partnership, Seresco will support the distribution of the PSImetals products and will launch them into new local markets.

**W**ith a worldwide presence in Europe and Latin America, Seresco forms an important service group for consultancy up to software development. With these years of know-how,

*PSI Metals is the leading provider for innovative production management solutions for steel and aluminum producers.*

**Thomas Quinet**  
Managing Director  
PSI Metals GmbH

the company intends to specialize in the steel sector. Thus, PSI Metals will support Seresco in building a center of excellence where resources for PSImetals solutions will always be available to customers globally.

Rubén Pérez Sobrino, Head of Business Development at Seresco, explains: “PSImetals is the best solution to support us in achieving this goal. As a global industry leader, PSI Metals allows us both to special-

ize and to establish us as a preferred supplier. The partnership is an excellent combination as both companies share the same values and have the same understanding of business and customer relationships.”

The partnership emphasizes PSI Metals’ commitment to providing customers with state-of-the-art and sustainable production management solutions through strong local presence, enabling enhanced services and responsiveness.

“PSI Metals is the leading provider for innovative production management solutions for steel and aluminum producers. This partnership fits into our 2030 business strategy, where our partners play an essential role in serving and being close to our customers. At the same time, we support them in their business growth as well as digitalization and decarbonization goals,” adds Thomas Quinet, Managing Director of PSI Metals. 🌐

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The PSI blog features more interesting and in-depth articles on production, logistics, AI, energy and mobility.



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