

PRODUCTION manager

Magazine for logistics & production



Interconnectivity as a key factor for digitization

IT for digital transformation

User report

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Integrated solution for ERP and MES

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Product report

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Qualitative labeling of business process data

EDITORIAL

Dear readers,

When leaders in technology such as Bosch and Schaeffler are using PSIGlobal to plan, design and continuously optimize their international logistics networks, and market leaders such as VW are putting their faith in the ERP system PSIpenta, our company has every reason to be happy about our achievements in terms of development. Sure, this is just a snapshot. However, the numerous accolades that have been conferred upon the group companies in the past 24 months alone corroborate our solid foundations and sustainability. The PSI Group is most definitely a leading innovator in the market thanks to its future-oriented software solutions for the respective product areas. This is driven by the integration of consistent, strategic innovative tech-



nologies which were initiated at an early stage and which provide maximum benefit for the customer. The fundamental basis for this is the group-wide development platform which paves the way for the future viability of the products and which guarantees that our customers are secure in the investments they make, are flexible and are competitive over the long-term.

This platform also fulfills the complex requirements in regard to digitization and networking under Industry 4.0. The next evolutionary step has already been taken by incorporating artificial intelligence (AI) methods and processes into IT systems. The following pages of the third edition of Production Manager will show you what your options are in terms of the digital transformation of your company.

We hope you enjoy reading all about it

Dr. Giovanni Prestifilippo and
Sascha Tepuric
Managing Directors of
PSI Logistics GmbH

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COVER STORY

Interconnectivity as a key factor for digitization

IT for digital transformation

Interconnectivity between IT systems is a key factor for digitization. By abandoning end-to-end system and data networking as the basis of holistic process analysis and control, many companies are currently missing out on opportunities for achieving efficiency gains, cost advantages and future-oriented design of their IT infrastructure.

It's hard to comprehend, but is in fact an everyday occurrence even in large companies: In order to somehow pull together the data for reports on operating results, the responsible department heads often spend several hours sitting at their computer, taking information from various (sub) systems and inputting it in Excel files. Digitization, data harmonization, intelligent data management—far from it.

These companies are running a superimposed ERP or merchandise management system, perhaps even both alongside each other, intralogistics at various points are controlling several warehouse management systems, and the capacity of automation components and order picking stations in the warehouse are recorded in subordinate systems.

Heterogeneous data sets inhibit potential

Heterogeneous data sets cannot be converted and cannot be exchanged or consistently mapped to control more efficient operational processes in IT infrastructure. Performance, efficiency and growth potential in the context of Industry 4.0 fall by the wayside.

Interconnectivity between the systems is the key factor for digitization. In addition to time and efficiency sav-

ings for the areas of operation, end-to-end networking provides reliable data for strategic decision-making, virtually at the push of a button.

Linked systems

Therefore a modern, holistic IT infrastructure on the one hand links the levels of Enterprise Resource Planning, production and logistics, is accurately tailored to individual requirements, and can be flexibly adapted to changing business processes. On the other hand, it paves the way for the integration of up-to-date technology and software developments.

“We have had bad experiences with small software providers and isolated solutions,” Rainer Mönning, IT Process Manager for the logistics service provider NOSTA GROUP tells us about the problems with a heterogeneous IT infrastructure. “We had a lot of unnecessary interfaces and no transparency around stock and processes.”

Foundations for Industry 4.0

By implementing the Warehouse Management System (WMS) PSIWms

from the PSI Logistics Suite, the logistics service provider has solved these shortcomings as far as data networking is concerned. At an intermediate level below the ERP system, the multi-site capability of the system, the current release of which has been extended to include the Warehouse Service Broker module, coordinates and controls, among other things, the lo-



gistical processes and subordinate subsystems at multiple locations.

As part of this process, the PSIWms acts company-wide as a superordinate WMS at NOSTA. It clusters together multiple physical warehouses and provides for end-to-end networking and transparency with all the advantages that multi-warehouse inventory management and optimization bring. “A useful tool for multi-site process control as well as for designing tailor-made logistics concepts for our customers,” summarizes Mönning.

Further-reaching potential in terms of optimization, efficiency and cost reduction can be tapped into thanks

to end-to-end integrated system concepts of a unified IT infrastructure, ranging from the ERP system through to the coordinated process control of automated material flow components or picking using forklift trucks in intralogistics.

Modular system

Based on the group-wide Java-based development platform and the modular design of the standard products, PSI covers these requirements in the system architecture and development

PSI/penta/ERP undertakes company-wide planning, management and control of operational tasks, as well as the efficient use of various company resources such as material, personnel, capacity, capital and information.

The PSIwms has been installed in order to control complex logistics processes in an optimal and coordinated way. As a result of having the same technological basis in the development environment, it integrates seamlessly into the production planning processes of the PSI/penta/ERP

material in and for different storage areas. Kitting and value-added services are just as much part of the functional standard of the modular WMS as time-optimized and resource-optimized control, allocation and planning of all movements of goods by an intelligent shipment control system.

Optimization functions such as the “adaptive job start” function of the PSIwms use high-performance fuzzy logic to autonomously reconcile key inventory figures and to automatically initiate or suspend order processing

according to given parameters and priorities. They thus guarantee steady utilization and improved performance in the warehouse. Ranges of functions which can be seamlessly

and almost directly in-

tegrated into the scope of performance of the PSI/penta/ERP.

As part of this process, the ERP system automatically routes operational processing to the linked system, receives the appropriate feedback from the WMS, but retains the main stock view.

Significant gains in productivity and service

e.GO thus has an integrated IT infrastructure at its disposal which connects the business and operational process levels and therefore provides end-to-end data transparency. This results in optimal inventory management, maximum availability with reduced transportation, idle and job production times and shorter turn-



in an optimal way. “They provide a modular system for end-to-end material flow management across all functional levels,” explains Dr. Giovanni Prestifilippo, Managing Director for PSI Logistics. “Linking all information and data processing operations to the physical processes forms the basis for meeting the demands of Industry 4.0 and Logistics 4.0 in an optimal way.

Integrated system concept

e.GO Mobile AG, a manufacturer of electric vehicles based in Aachen, has recently implemented an integrated system concept of this kind using PSI. As the data management ERP system for production at this company, the

without the customary interfaces being required.

At the same time, thanks to its specialized functional standard which far exceeds the core and additional functions for WMS as defined in VDI (Association of German Engineers) directive 3601, it covers the requirements of intralogistics processes in a considerably more detailed and wide-ranging way than an ERP does.

ERP and WMS seamlessly linked

In this way, the PSIwms takes into account different criteria and strategies for collecting, storing and retrieving

around times, coupled with significantly increased warehouse utilization rates.

In addition, a just-in-time production supply is available during the picking and material supply processes, and follow-up processes thanks to integrated Kanban functions, full transparency, and a zero error quota.

All of this taken together results in significant productivity gains coupled with high quality of service and maximum flexibility when designing and managing logistics processes. “Thanks to the integrated PSI solution, we are able to apply strategic agility to our products and implement our systems that are geared towards production in an agile way,” Dr. Rupert Deger, former CIO at e.GO MOBILE, sums up the situation.

“Established functions in an end-to-end, open system architecture allow us to carry out product-related changes quickly and transparently and map them to the scalable system.” At the same time, the seamless and intelligent linking of ERP and WMS thereby meets the demands of the necessary transformation process in terms of digitalization, data harmonization and intelligent data management in the context of Industry 4.0.

AI supports automated IT processes

Against the backdrop of the modern development environment, the integrated IT infrastructure of the PSI also brings benefits which pave the way for the latest technology developments. According to studies, ERP systems play a central role in the context of Industry 4.0 thanks to their modern architecture.

Thanks to seamless, vertical system integration, they assume the function

of a data and process control hub. The evolutionary step that logically follows in terms of PSI product development therefore aims, on the one hand, to create further more in-depth, direct integration of modules such as the PSIWms in the PSIpenta/ERP. Appropriate concepts have already been initiated based on the PJF.

On the other hand, the systematic further development of the systems paves

the way for integrating increasingly automated system processes. In future development cycles, the systems will identify and initiate the required (re)actions of the process control process by means of special artificial intelligence (AI) algorithms, methods and procedures autonomously, whilst being auto-adaptive.

program developments and pilot projects are already being implemented and demonstrate a variety of further options for optimization. Integrated system concepts, which rely on smooth interconnectivity of IT systems to connect the business and operational process levels, as shown by the examples mentioned above, tap into significant potential for efficiency gains, cost benefits and



ERP and WMS are already being put to use by e.GO Mobile AG.

future-oriented design of the IT infrastructure. They promote the necessary digital transformation process within the company and support competitiveness in increasingly volatile market environments. The corresponding tools and concepts are available—we just need to use them! 🌀

Seamless interconnectivity

Taking advantage of fuzzy logic, neural networks or deep learning, PSI is already designing standard products on the basis of further automation of functional processes. Specific pro-

future-oriented design of the IT infrastructure. They promote the necessary digital transformation process within the company and support competitiveness in increasingly volatile market environments.

The corresponding tools and concepts are available—we just need to use them! 🌀

PSI Logistics GmbH
Phillip Korzinetzki
Marketing Manager
Phone: +49 231 17633-280
p.korzinetzki@psilogistics.com
www.psilogistics.com

User report: Rekers GmbH Maschinen- und Anlagebau sets the course for the future

Integrated solution for ERP and MES

For over 60 years, Rekers GmbH Maschinen- und Anlagebau has been developing, constructing and installing machines and equipment for the concrete products industry. Over this period, the “Made in Germany” seal has been of particular importance to Rekers’ managers, as all expertise from design, planning, service, manufacturing, assembly through to commissioning is all pooled in-house.

At Rekers’ headquarters in Spelle, approximately 150 employees are constructing complete systems for the concrete products industry across an area of 36000 square meters. In order to be able to efficiently accomplish demanding processes in future, the company has introduced a new, integrated shop-floor data collection system and staff time and attendance recording system, and for this purpose first of all had to migrate to a new version of the installed ERP system.

Improving cross-functional processes

In order to provide end-to-end support for the cross-department pro-



cesses, not only was an ERP system required, but also the integration of a Manufacturing Execution System (MES), which combines the production process at workshop level with the order processing process at management level.

In addition to the corresponding software modules, new shop-floor data collection and staff time and attendance recording terminals also formed part of the project. “This is where we needed to take action,” recalls Jens Bonnekesel, Operations Manager at

Rekers. “Our shop-floor data collection, which was developed in-house, was no longer sufficient in terms of meeting our requirements, especially from a functional point of view. The staff time recording system had been discontinued by the manufacturer some time ago and consequently had become obsolete.”

Short implementation period

However, the desire to be able to program VBAs ourselves also played a role when choosing the new solution. “Ultimately, it wasn’t just the MES solution itself that won us over. The fact that we were already familiar with the company as our ERP supplier, that the MES had already been closely linked to the ERP system from day one, and that we were able to count on a relatively short implementation time were, of course, relevant criteria when awarding the contract,” explains the Operations Manager.

Seamless migration

Migration to Version 8 of PSIpenta went as smoothly as could be expected. Rekers uses the system to plan and control all production, service, spare parts, storage and complaint jobs. In this way, the solution covers all requirements that a typical manufacturer of a wide range of product variants might have—in other words, production jobs relating to series production or projects.

“Ultimately, the fact that choosing PSI meant that we would first need to migrate to a new version of ERP did not stop us in our tracks. The reason for this is that in the medium term, we were



Rekers’ headquarters in Spelle.

planning to migrate to the latest Release 9 with the group-wide Java-based user interface anyway. However, existing customers need to have Release 8 in order to be able to migrate. This is where we were able to kill two birds with one stone,” adds Jens Bonnekessel.

Implementation as an opportunity

Rekers also used the migration and implementation of MES as an opportunity to critically rethink work processes and to tap into further efficiency potential by means of optimization. This included, for example, comparing the individual adjustments made to the system with the standard features offered by the system.

“For example, the PSIpenta provides a suitable module for pre-ordering parts with a long service life, which we were not making use of but which would be perfect for our needs. This is be-




The RS-2-KV-1000 block machine offers a lot of technical opportunities.

just a means to an end, and this holds doubly true. We were well-positioned from a functional point of view even before the migration.

In fact, with Version 8 for example, we take advantage of “Workflow light” and the improved plausibility checks,” Jens

Like the ERP system, the solution boasts a fully-developed scope of features which allows all processes to be mapped. In terms of ergonomics and interface, Rekers expects the migration to Version 9, which should be carried out in around two years, to represent a great leap forward.

From a software point of view, an end-to-end ERP/MES system ensures Rekers is best equipped to continue its success story. The link between the planning and implementation levels paves the way for an optimized process, from management through to the workshop level.

Last but not least, this step allows the machine and plant manufacturer to set the course for the upcoming migration to a new, technological generation of products for its software partner. 

Ultimately, the fact that choosing PSI meant that we would first need to migrate to a new version of ERP did not stop us in our tracks. The reason for this is that in the medium term, we were planning to migrate to the latest Release 9 with the group-wide Java-based user interface anyway.

Jens Bonnekessel

Operations Manager at Rekers

cause we regularly encounter the scenario where bills of materials have not yet been released and therefore requests have not yet been registered, although it is clear that certain parts with a long service life are definitely required,” says Bonnekessel.

From a functional point of view, Rekers was able to use the new release to carry out small but finely-tuned improvements. “For us, migration was

Bonnekessel adds, obviously pleased about this. With “Workflow light,” users have the opportunity to create their own workplace-specific filters or search jobs, which automatically populate a task list; this helps us out enormously during our everyday working life.

End-to-end processes

The new MES system also meets the expectations of those in charge.

PSI Automotive & Industry GmbH

Jens Reeder

Divisional Head of Machine and Plant Construction

Phone: +49 30 2801-2055

jreeder@psi.de

www.psi-automotive-industry.de

Product report: PSImetals Release 5.16

Functions follow fiction

In recent years, the traditional metals market has come under increasing pressure to invest in IT and digitalization by its customers and new emerging technologies. On this long road to digitization, some fiction was sometimes needed to overcome the obstacles faced by metals producers. Together with FutureLab, PSI Metals is constantly working on the functions of tomorrow, which still seem somewhat fictitious today. In a dynamic and visual way, the new PSImetals release 5.16 focuses on flexibility and configurability instead of hard customization. These real innovations of tomorrow and functions on the brink of fiction are already available to PSI's customers today.

With the new PSImetals release 5.16, PSI offers a list of innovations that are oriented to the requirements and needs of its customers in order to help them to enhance their business. In addition to several smaller but valuable further developments, there are five major innovations that are intended to improve the usability, configurability and graphical representation of the PSImetals standard and its project-specific extensions.

Flexible flows

The PSImetals Flow Configurator is the best example for today's function at the edge of fiction. By simply re-orchestrating the so-called "bricks", this application enables the configuration of the process flows instead of a lengthy implementation effort to customize the packages.

The standard PSImetals version already offers several processes as configurable flows. As a matter of fact, the user has access to a library with all standard and project-specific func-

tions, which are defined as bricks. A graphical editor supports the user in displaying flows graphically by dragging and dropping a



Mobile support for plant employees in the logistics area.

brick into a flow and thus developing individual process flows.

Through this consequent separation of PSImetals' standard functionality and project-specific features, the PSImetals Flow Configurator offers a way of adding custom functionality and avoiding high customization costs as well as unnecessary efforts in the course of a product update.

Views per mouse-click

Combined with the PSImetals Flow Configurator, the introduction of Configurable Actions and View Parameters are the final steps by PSI to making the GUI components such as screens and views fully configurable. The new PSImetals Configurable Actions function allows the system integrator and/or the end user to add and configure predefined actions to a view without coding. All already defined actions are stored in a system-wide repository that can be enriched by a system integrator with new actions, action groups or go-to actions. They can then be easily added to the views via the GUI configuration.

Hand in hand with Configurable Actions, the PSImetals View Parameters feature enables system integrators in particular to configure certain views without coding and re-deployment of the client. Depending on the view type, the user can set a large number of parameters for a view, such as load mode, filtering mode as well as initial and fixed terms.

All data on your phone

The fiction of yesterday and the reality of today is the introduction of the new PSImetals Mobile Logistics Business Screens. With their help, the plant employees now receive mobile support in areas where a typical production life-cycle takes place including position tracking and overviews of materials, means of transport, terminals and loading.

Since the previous mobile applications had some shortcomings, PSI now offers a solution based on the new PSI Web Device Framework (WDF) that is not restricted to specific mobile devices or screen resolutions. Consequently, it runs on every mobile device and on every common browser. A responsive design increases the user experience and improves the usability of the applications. The standard applications provided can be easily enhanced according to customer needs furthermore completely new mobile apps can be developed within the WDF. Customer's fictions are set no boundaries.



Configurable visualization of process states with the PSI Metals Plant Monitor.

which in turn are fully integrated with the Click Design functions. By visualizing the current process status in

ants will push this new way of using PSI Metals in new spheres.

Flexible master data

The “more” of configurability increasingly requires better management of the associated master and configuration data. The new PSI Metals Master Data Management helps users to better organize and control the implementation of these often sensitive changes. To manage partial changes to master data together with necessary synchronization between development and productive systems, PSI Metals

5.16 introduces the concept of Change Sets, which represents a consistent subset of configuration change data. This new feature helps several workgroups to organize changes to master data and to transfer individual Change Sets to other systems. Faster updates without interrupting other areas are the result.

Much more to come

The art of fiction is to invent things that are not true. Our task is to invent them in such a way that they come true. Our customers can therefore look forward to new functions, extensions and performance enhancements in future releases. ☺

Adaptability and upgradeability of PSI Metals solutions are important for our customers. Click design and high configurability in Release 5.16 make this possible.

Jörg Hackmann

Director Product & Methodology

Visual monitoring

The PSI Metals Plant Monitor offers configurable graphical data display of plant areas and thus increases its operation efficiency. This requirement was a minor weak point of the PSI Metals standard in the past. The Plant Monitor is based on the PSI Framework components for process control and graphical representation,

tions, KPIs like current shift OEE, material flow volumes between the lines, etc., can be easily displayed.

Similar to the new PSI Web Device Framework the new Plant Monitor can be seen as a building kit that allows customer solutions within a standard environment. Customer requirements paired with the experience of PSI Application Consult-

PSI Metals

Swetlana Maschinez
Marketing Manager
Phone: +49 30 2801-1820
smaschinez@psi.de
www.psimetals.com

Product report: Deep Qualicision for automated optimization of business processes

Qualitative labeling of business process data

Using artificial intelligence to optimize business processes is part and parcel of digitalization strategies for many companies. However, applying AI methods from AI applications such as character or speech recognition to make, for example, decisions for production process optimization does not directly lead to the desired results.

AI applications such as character recognition, recognition of spoken language or gestures build on the stability of the detected pattern. It is true that the patterns vary significantly in terms of how they look. Yet, we can come up with a solid consensus from a semantic point of view about the meaning of the patterns because the meaning of the form of characters remains unchanged over time: obviously, we can write the sign for the number seven in different ways.

Nevertheless, a human being is able to reliably match the various ways of writing seven to the number seven

stable over time. In AI jargon, this form of matching is called “labeling.” If solid labeled patterns that are consistent in terms of meaning do not exist, it is not possible to directly apply neural networks (CNNs or RNNs) as an AI method. Unless labeling is conducted algorithmically.

Good-natured stable game process of Go allows to use calculations with combinatorial probabilities

The AI projects AlphaGo and AlphaGo Zero have become generally known over recent times. They automated the board game Go, where

two opposing players each place white and black stones on the board’s grid pattern with the idea being that a player captures as many of their opponent’s stones as possible. Altogether AlphaGo and AlphaGo Zero solve the problem of labeling algorithmically. However, these solutions cannot be applied directly to production processes.

Although AlphaGo and AlphaGo Zero label algorithmically by using probabilistic estimation methods and reinforcement learning they put upon the non-problematic nature of the combinatorial reliability of the board game Go.

Despite the enormous combinatorics of scenarios during a game its situations arise according to a fixed set of unchangeable rules which guarantee that the analysis of the moves made in relation to Go remains completely reliable over time.

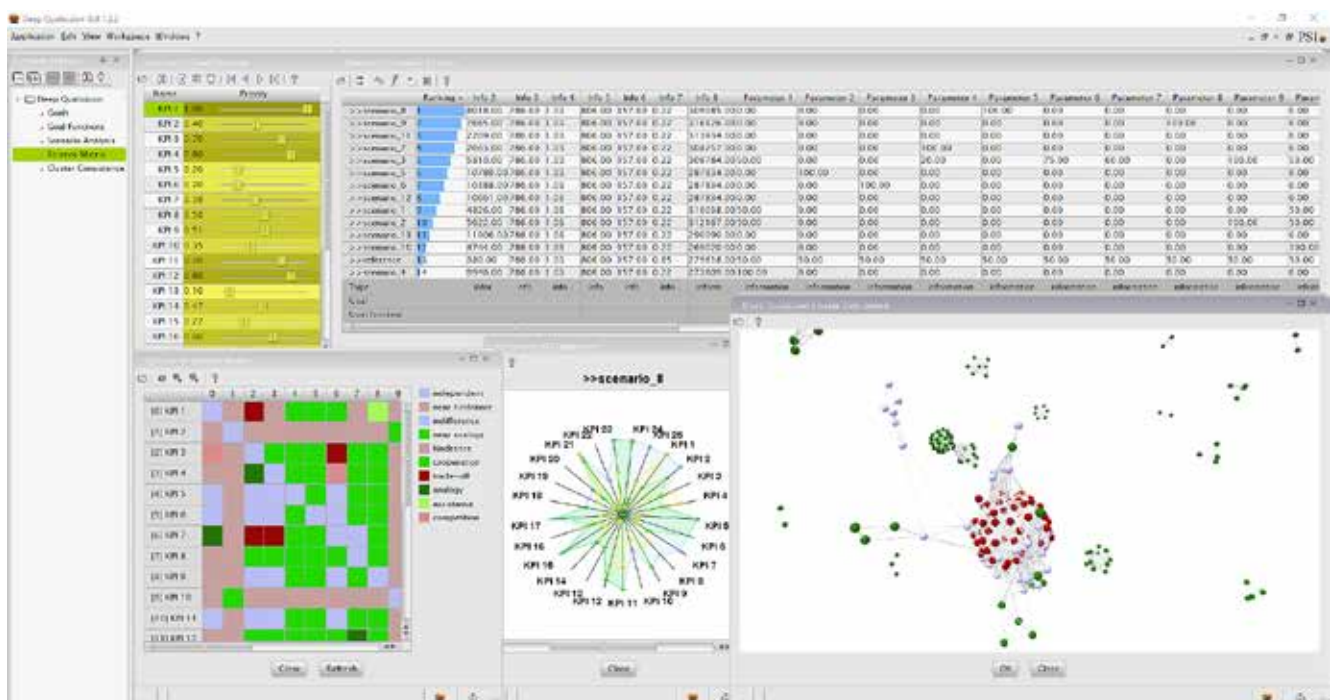


Figure 1: Qualitative labeling as a requirement for the automated optimization of business processes using Deep Qualicision.

When estimating the positive and negative consequences of the game scenarios, everything calculated up to a point in time probabilistically endures in the future.

Combinatorial probabilities are not transferable to production processes

In this regard, industrial production processes are not as stable as a board game: firstly, their rules need to be flexible. Process parameters such as production volume, performance profiles, availability of staff and equipment, work schedules or skills profiles of employees vary continuously. Secondly, the number of KPIs which control the processes, is variable and high. Cost and revenue models are faced with a KPI portfolio which due to the KPI goal conflicts cannot be conclusively pre-calculated over time in a combinatorial way using values of probability. Thirdly, there is a need to deal with continuous changes in the products themselves, because they are in a constant state of flux. As existing products run out, new ones are added.

As a result of goals being, consistent, qualitative labeling and KPI goal conflict analysis are more structurally robust

Compared to the board game Go, the situation is as if the number of stone types changed from game to game and as if we never knew exactly the number of dice sides when giving a random throw of the dice (Monte Carlo) in relation to the scenario to be labeled. Therefore, what we have learned during the last game might no longer hold for the next game. Hence, reinforcement learning to train an AI system that opti-

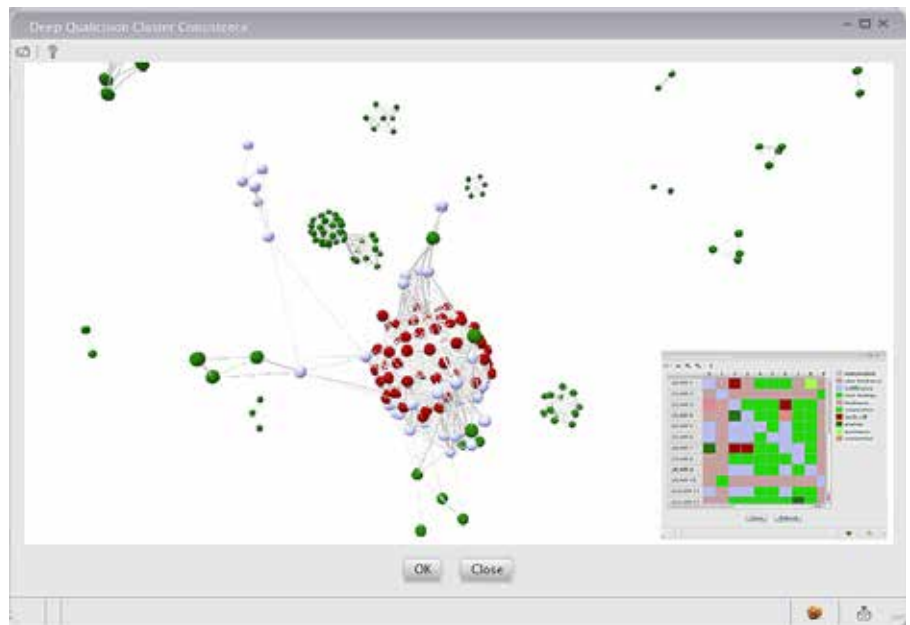


Figure 2: Positively and negatively labeled process data from a qualitative point of view in Deep Qualicision.

mizes production processes needs to work differently.

The solution is qualitative labeling. Due to the flexibility required by production processes, data needs to be labeled in a qualitative way based on process optimization rather than on combinatorial probabilities derived from randomly studied fixed rules.

Situation-based patterns arise as a result of KPI optimization algorithms

Situation-based patterns do not arise at random (Monte Carlo) but as a result of KPI optimization algorithms. Each of the KPIs that assess process quality is deemed to be an optimization criterion. In terms of achieving their goals, these KPIs are classified in graded rate ranges between -1 and 1.

Positive ratings represent advantageous, desirable situations and negative ratings warn of non-desirable situations. An algorithmic KPI goal conflict analysis is being used to optimize the production process by balancing the KPI goal conflict in line with the situation.

On one hand, the calculated evaluations control the optimization and, on the other hand, as qualitative translations of the dynamically varying quantitative process data they are also suitable for labeling.

Qualitative labeling as a core component of an automated learning method

As a qualitative copy of process data qualitative labels are consistent and more robust than the situation-specific data itself can ever be. Qualitative labeling is the core component of a machine learning process (see Figure 2) that has already proven its value in an industrial environment under the name Deep Qualicision. ☺

PSI FLS
Fuzzy Logik & Neuro Systeme GmbH
Dr. Rudolf Felix
Managing Director
Phone: +49 231 9700921
felix@fuzzy.de
www.qualicision.de/en/home/home.html

News: PSIGlobal selected location as well as planned and analyzed logistics network

Schaeffler reduces transportations to a quarter

Opening the Central European Distribution Center means that the Schaeffler Group has now finished restructuring its European distribution center. The Group has used the strategic analysis and planning system from the PSI Logistics Suite to select the location and to analyze and plan the logistics network.

The Central European Distribution Center in Kitzingen, with 94 000 m² of built-up area over a site nearly 15 acres in size on Harvey Barracks, the former US Army airfield, is the largest of the three central warehouse locations in Schaeffler's European distribution network. Two more logistics centers in Northern Sweden (Northern European Distribution Center) and Italy (Southern European Distribution Center) supply the markets in Scandinavia and Southern Europe and South-Eastern Europe.



Scenario analytics dashboard for the PSIGlobal system.


ble, faster and more courageous,” says Klaus Rosenfeld, Chairman of the Executive Board for Schaeffler AG: “It’s all about making the entire global

strategic analysis and planning system, by way of software support to carry out analysis and planning and to select the location.

Optimal network planning

“In order to achieve the optimal logistics network, we have continuously adapted our plans to the changing market and operating conditions, whereby various factors such as location, transportation costs, delivery capability and services were weighed against each other,” emphasized Andreas Schick, Board Member for Production, Logistics and Purchasing for Schaeffler AG, on the occasion of the

launch event in Kitzingen. “We used PSI Logistics software to carry out the appropriate analysis and planning.”

With the Central European Distribution Center, Schaeffler is consolidating thirteen of its previously separately operated warehouse locations into one. Optimal network planning and pooling into a single shipping point reflects the Industrial Division’s aim to “reduce the number of transportations to a quarter of the trips that were required previously,” according to Schick. 

It’s all about making the entire global supply chain, from our suppliers to our production network through to our customers, more cost-effective, faster and more flexible.

Klaus Rosenfeld
Chairman of the Executive Board for Schaeffler AG

Global supply chain

The Central European Distribution Center supplies Central Europe and the overseas markets. The restructure forms part of the “Agenda 4 plus One” program for the future, which is intended to make the automotive and industrial supplier “more flexi-

supply chain, from our suppliers to our production network through to our customers, more cost-effective, faster and more flexible.”

The restructure of Schaeffler Industrial Division’s logistics network was launched four years ago. The Schaeffler Group drew on PSIGlobal, the

PSI Logistics GmbH
Phillip Korzinetzki
Marketing Manager
Phone: +49 231 17633-280
p.korzinetzki@psilogistics.com
www.psilogistics.com

News: ArcelorMittal embraces Industry 4.0

With partnership 4.0 to a MES experience

ArcelorMittal Burns Harbor is embarking on a new manufacturing execution (MES) system to enhance the efficiency of its operations and improve customer service. The new MES solution, based on PSI's standard product PSImetals, replaces antiquated IMS software, and is aimed at making production management processes more efficient for Burns Harbor's light flat rolled operations.

The planning and scheduling of the ArcelorMittal facility in Indiana, USA, will

delivery initiative. The new delivery initiative system takes into account orders the customers need at a specific

time, as opposed to customers who want their available inventory replenished.

"To satisfy these customers, we need to provide the full order on-time, all the time. This requires better production scheduling and planning systems which we feel the PSI

MES model will deliver," said Jean

Louis Muller, senior division manager,




The new MES implementation team.

be totally revamped which will complement Burns Harbor's new customer

A project video with the interviews of Jean Louis Muller (ArcelorMittal), Franz Nawrath and Harald Henning (PSI Metals) is available by scanning the QR code.



Burns Harbor Hot Rolling, Finishing and Columbus Coatings. Implementation of the full PSImetals solution is expected to begin in 2019. 

PSI Metals

Swetlana Maschinez
Marketing Manager
Phone: +49 30 2801-1820
smaschinez@psi.de
www.psimetals.com

News: PSI awarded best showcase by FIR e. V. and wins German Brand Award

Integrated solution and outstanding brand management


This summer, PSI was awarded two significant accolades.

At the German Brand Awards on June 21, 2018 in Berlin, PSI Logistics GmbH received the highest award in the category "Industry Excellence in Branding" for its outstanding marketing strategy in the field of "Logistics & Infrastructure."

Almost at the exact same time, FIR e.V., an associated research institute at RWTH Aachen University, awarded PSI Automotive & Industry



Karl Tröger demonstrates the integrated PSI software for production control and logistics, which is being put to use successfully by e.GO Mobile AG.

GmbH the Best Showcase Award on the occasion of the 25th Aachener ERP Tage conference. This accolade was given for an innovative showcase in the field of series production of electric vehicles. 

PSI Software AG

Bozana Matejcek
Corporate Public Relations
Phone: +49 30 2801-2762
bmatejcek@psi.de
www.psi.de

News: Coordinated warehousing processes for storage and production locations

PSIwms in use at MV Werften

MV WERFTEN Wismar GmbH, a Genting Hong Kong Group company and producer of the world's largest cruise ships, uses PSIwms to coordinate warehousing processes for its storage and production locations.

The three MV WERFTEN sites in Wismar, Rostock and Stralsund form the heart of maritime industry in Mecklenburg-Vorpommern. The company develops and manufactures luxurious river cruise ships in covered dry docks, using one of the largest ship lifts in the world and an efficient logistics infrastructure.

Ten million parts per liner

This includes ice-class mega yachts and the largest cruise ships in the world which are used for tourism purposes, in the Arctic, in logistics as well as for the offshore industry. As part of this process, ten million parts per liner are fitted in order to build large cruise ships alone.

Components range from comprehensive hotel and catering facilities, to waste disposal and exhaust gas cleaning systems,

entertainment equipment, power generation units, through to navigation and drive technology.

Multi-site capability

Since spring 2018, PSIwms, which has multi-site capability, has been taking care of the coordinated control of warehousing processes in the supply and management of storage and production sites. This is the case for passenger and crew cabin assembly lines, which were inaugurated by the group of companies in September 2017 in Wismar.

A cabin is produced every twenty minutes, a total of around twenty a day, by the production facilities located in the production building, which is 9000 square meters in size. The intention is for production to gradually increase to 7000 cabins per year by 2026.

The scheduled supply of material comes from the group of companies' logistics centers, which in future will be managed by PSIwms. Thanks to



MVW Crystal Endeavor.

the multi-site capability of the system, MV WERFTEN is able to control, manage and coordinate stock and processes across all sites.

Future-oriented digitization strategy

Investing in the warehouse management system from the PSI Logistics Suite forms part of the future-oriented digitization strategy, which Genting Hong Kong wants to put to use to turn MV WERFTEN into one of the world's most modern and efficient producers of cruise ships. 🌐



Warehouse layout.

PSI Logistics GmbH
Phillip Korzinetzki
Marketing Manager
Phone: +49 231 17633-280
p.korzinetzki@psilogistics.com
www.psilogistics.com

Interview: ERP System implemented in just 68 days?—An interview with Jens Reeder

Customer needs to make quick gains

ERP implemented in just 68 days? PSI Automotive & Industry now makes speedy implementation possible. At the same time, expert consulting is becoming more and more important to the success of ERP projects. Production Manager asks Jens Reeder, Head of the Industry Division, how consultants can meet their customers' expectations and how rapid implementation can be successful whilst ensuring quality remains at a high level.

Mr. Reeder, what makes for good consulting in your opinion?

Reeder: Good consulting is a balancing act. You need to reconcile the customer's requirements with the capabilities of the ERP system. A consultant needs to be able to quickly understand and get a feel for the customer's requirements.

The consultant needs to come up with good ways for meeting the customer's requirements, ideally solutions which conform with the ERP standard offering in order to avoid high adaptation costs. To be successful in this field, the consultant needs to know our software inside out and bring a wealth of experience in terms of having resolved similar issues for similar companies.

What are PSI's strengths when implementing ERP systems?

Reeder: We have gained a great deal of knowledge and experience over the last few decades in terms of implementing ERP systems, particularly in the fields of machine and plant construction and in the automotive field. PSI has a large pool of long-serving employees who are happy to share their knowledge.

Another great advantage is that our consultants see themselves as all-

rounders as far the entire ERP system is concerned and know the system inside out.

PSI Automotive & Industry has recently announced that it has implemented the ERP system in 68 days. How is it possible to implement ERP so quickly?

Reeder: I wish to clear up a misunderstanding: in terms of implementing the ERP system, we talk about a budget for 68 days. The mean lead time for a project of this kind is, of course, longer. As far as implementing the ERP system within 68 days is concerned, we have benefited greatly from our many years of experience and can fall back on tried-and-tested methods.

So, PSI provides standardized processes?


On the basis of what we know about how other companies operate in similar situations and a thorough analysis on-site, we provide the customer

with a pre-configured system. During implementation, we use standardized processes which we discuss and fine-tune with employees selected by the customer. In addition, training documents are created on the basis of the pre-configured system.



Jens Reeder talks about the benefits of introducing ERP quickly.

Can customer's individual objectives be taken into account?

Reeder: Where necessary, individual objectives can be added at a later stage on the basis of the robust standard system. What's important is that the customer makes quick gains from the new system. 

PSI Automotive & Industry GmbH

Felix Saran

Content Marketing Manager

Phone: +49 30 2801-2130

fsaran@psi.de

www.psi-automotive-industry.de

Event: PSImetals Digitization Brunch in Cologne

Discussion platform for digital topics

The PSImetals UserGroup, the FutureLab workshops and bilateral roadmap discussions form the basis of the PSImetals Excellence Program for customers. A new addition is the digitisation brunch. As the name suggests, PSI invites key customers to a joint breakfast in order to exchange experiences and points of view on a predefined topic from the areas of digitization and industry 4.0 in a small round.

In order to be able to achieve these objectives around transformation in a sustainable way, there is a need for a strategic framework, the so-called Industry 4.0 Maturity Index. This allows a company to identify areas for action

The first event with the main topic “Center of Excellence” took place in January 2018 with five PSImetals customers. In his keynote address, Dr. Andrew Zoryk, Global Lead for Metals & Mill Products at Accenture, gave an insight into establishing a Center of Excellence (CoE) in a company. As part of his address, he demonstrated



Delegates of the second digitization brunch in Cologne in June.

various ways of cooperating and considerations around CoE design, together with their operating models.

The delegates then got an informative and insightful question and discussion session underway. Having put in place a final definition of the way in which to collaborate in future digitization brunch meetings, nothing could stand in the way of a second meeting.

In June 2018, Managing Director Sven Busch and Key Account Manager Franz Nawrath welcomed seven representatives of the steel industry to a second brunch at the customs port of Cologne, making for a pleasant working atmosphere.

Looking back at the theme of the first meeting, Harald Henning, Managing Director of PSI Metals North America, first gave an overview of his ex-

perience of working with a center of expertise.


Digital transformation begins in the mind

Moritz Schröter, PhD student of Product Management at RWTH Aachen University and Member of the Industry 4.0 Maturity Center, gave a keynote speech which gave an introduction to the topic of the second key theme “Managing Digital Transformation.” During his presentation, he stressed that digital transformation begins in the mind and that production management therefore plays a key role in achieving objectives around digital transformation goals. This is because new manufacturing technologies alone cannot improve business processes.

and thereby derive a company-specific Industry 4.0 road map.

Further meetings planned

The objective of the digitization brunch series is to provide an informal communication platform to allow delegates to have regular discussions about digital topics. The delegates can then feed the resulting impetus into their own business objectives.

The next digitization brunch will take place in November 2018, in the direct run-up to the PSImetals UserGroup in Istanbul. 

PSI Metals
Swetlana Maschinez
Marketing Manager
Phone: +49 30 2801-1820
smaschinez@psi.de
www.psimetals.com

Event: PSImetals UserGroup 2018 in Istanbul

The art of production

It's that time of year again: on the theme of "The Art of Production," PSI invites you to share your experiences of PSImetals solutions on November 13 and 14, 2018. This year, customers can once more look forward to a varied program, this time in the heart of Turkey.

Once, Napoleon said about the city which straddles two continents: "If the earth were a single state, Istanbul would be its capital." Customers and PSI will deliver various presentations on the theme of digitization over the course of this year's PSImetals UserGroup at the Swissôtel The Bosphorus, located on the European shore of the strait. A tour of the aluminum flat rolling facility at ASAŞ will round off the program.

Balancing customer requirements

Competitiveness is an important prerequisite in today's markets, which continue to present new changes and requirements. This is where digitization comes into play; it allows you to optimize production and logistics in the best possible way. Balancing customer requirements with one's own business processes and how they are mapped to digital processes is what we call the "Art of Production."

We and our host ASAŞ look forward to welcoming many of our customers to the UserGroup in Istanbul. As usual, the conference will be in English and it is free to take part. More information about the event such as the agenda, hotels and travel, can be found in the customer area of our website. 



PSI Metals
Annett Pöhl
Marketing Manager
Phone: +49 30 2801-1820
apoehl@psi.de
www.psimetals.com

News: Vallourec and PSI Extend Worldwide Master Supply Agreement

PSImetals for all Vallourec facilities worldwide


PSI Metals has signed a Master Supply Agreement (MSA) with Vallourec, defining the governance of the close cooperation with respect to production management solutions based on PSImetals. The industry standard for production planning and control PSImetals has already been implemented successfully in numerous Vallourec business units and plants.

The new MSA allows the use of PSImetals in all Vallourec facilities worldwide as its Manufacturing Execution System (MES) up to 2022. It forms the base for current projects such as the rolling out of PSImetals in all plants in Brazil, Germany and France. "We are pleased to continue our collaboration with PSI as our long-

standing and innovative partner. As a leading provider of premium tube solutions, we are convinced that together we can contribute to major improvements in productivity and quality," stressed Dr. Barthélémy Longueville, CIO/CDO at Vallourec.

The first MSA has been signed for Europe, Middle East and Asia in 2007. Since, PSImetals has been

successfully implemented at Vallourec plants in the Middle East, China and the UK.

Vallourec is a world leader in premium tubular solutions for energy markets and demanding industrial applications such as oil and gas wells in challenging environments, the latest generation of power plants, sophisticated architectural projects, and powerful machinery and equipment. 

PSI Metals
Swetlana Maschinez
Marketing Manager
Phone: +49 30 2801-1820
smaschinez@psi.de
www.psimetals.com

Event: 32nd annual IPA conference provides an insight into the second wave of digitization

High-caliber program with many practical examples

The motto of the 32nd annual IPA conference of the “Interessengemeinschaft der PSIpenta-Anwender” (Association of PSIpenta Operators) is “Charting a course for the second wave of digitization.” Not only does this motto tie in brilliantly with the maritime venue in the Hanseatic city of Hamburg, but also directs our focus on to a development that is of enormous importance for small and medium-sized enterprises.

Up until now, digitization has meant collecting and processing data. We are

put to use, serves as a practical example of the possibilities generated by digitization.



This year the IPA conference takes place in Hamburg.

now facing a qualitative quantum leap: Software is learning to understand data and is ultimately using it to draw conclusions. We want to discuss this development with our customers. The new MES, which is already being

Sharing experience and best practice

We would like to invite you to share your experiences and best practice at the Hotel Sofitel in Hamburg on November 15 and 16. You can expect


The annual IPA conference will be held on November 15 and 16, 2018 at the Sofitel in Hamburg.

Please, find more information under our PSIng customer community:

www.psing.org/en.html

Register at: www.ipa2018.de

there to be a varied program with practical presentations from customers and PSI employees, opportunities for sharing experience as part of best-practice seminars and an evening program against the backdrop of the Hanseatic city.

We weigh anchor and chart a course for the upcoming annual IPA conference! 

PSI Automotive & Industry GmbH
Felix Saran
Content Marketing Manager
Phone: +49 30 2801-2130
fsaran@psi.de
www.psi-automotive-industry.de

News: PSIpenta supports production of the Cityskater as part of VW's micro mobility program

ERP software for special vehicle construction

PSI Automotive & Industry GmbH has been contracted by Volkswagen Sachsen GmbH with the delivery of the Enterprise Resource Planning System (ERP) PSIpenta. In the future, the order management module will be used in the production of the VW Cityskater. In the field of electromobility PSI software now supports the production process of an additional vehicle.

With its modular structure, the scalable ERP system PSIpenta opti-

mally covers the needs of special vehicle construction in the standard version and supports established

processes. Smaller group units are able to lean on their organization on the planned process schemes and therefore to achieve shorter project durations. In addition to the production site in St. Egidien in Saxony, the PSI software has been used by the VW Group for many years in the area of special vehicle con-




Volkswagen's new study case Cityskater.

struction and is integrated into the Group landscape.

The Cityskater is produced in St. Egidien and is the first concrete vehicle from the VW micro mobility program, which will be available later this year. Hence, in particular drivers and commuters can park their car outside the city and drive the last distance with the e-scooter directly to the city center. The range of the three-wheeled, foldable and thus trunk suitable Cityskater is about twenty kilometers at a speed of up to 20 km/h.

PSI Java-based technology

The software solutions based on the modern, Java-based technology platform of the PSI Group are already

successfully used in the production of the electric vehicles Streetscooter and e.GO Life. 

PSI Automotive & Industry GmbH

Felix Saran
Content Marketing Manager
Phone: +49 30 2801-2130
fsaran@psi.de
www.psi-automotive-industry.de

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Publisher

PSI Software AG
Dircksenstraße 42–44
10178 Berlin (Mitte)
Germany
Phone: +49 30 2801-0
Fax: +49 30 2801-1000
produktionsmanagement@psi.de
www.psi.de

Managing Editor

Bozana Matejcek

Editorial Team

Raffael Binder, Pascal Kätzel,
Phillip Korzinetzki,
Swetlana Maschinez, Annett Pöhl,
Felix Saran

Layout

Heike Krause

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www.psi.de/en/events



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17.-19.10.2018	35. German Logistics Congress Berlin, Germany	PSI Logistics
23.-25.10.2018	22. IAS Steel Conference Rosario, Santa Fe, Argentina	PSI Metals
06.11.2018	GATE FUTURE 2018 Berlin, Germany	PSI Logistics
08.-09.11.2018	PSI Metals China Day 2018 Beijing, China	PSI Metals
13.-14.11.2018	PSI Metals Usergroup 2018 Istanbul, Turkey	PSI Metals
15.-16.11.2018	IPA-Annual Conference 2018 Hamburg, Germany	PSI Automotive & Industry
03.-05.12.2018	Supply Chain Controlling and Performance Management Conference Berlin, Germany	PSI Logistics

PRODUCTION manager

PSI Software AG
Dircksenstraße 42–44
10178 Berlin (Mitte)
Germany
Phone: +49 30 2801-0
Fax: +49 30 2801-1000
info@psi.de
www.psi.de

PSI 