ERP
Trends
2019

Steering You Through the Second Wave of Digitalization

ERP Trends 2019

User Report	News	Interview
Bosch Unlocks Savings Potential with PSIglobal Analysis and Planning System Intelligent Network Design	**Artificial Intelligence in Interdisciplinary and Group-Wide Applications** PSI Community Industrial Intelligence	**Vallourec Focuses on Standards** IT Strategy: Product not Project

PSI

EDITORIAL

Dear readers,

This year we are celebrating 50 years of PSI! PSI has been controlling and optimizing processes for our customers since 1969 and—you could say by tradition—this makes us one of Germany's leading pioneers in the area of digitalization. In 2019, the digital transformation is now entering a new phase. The second wave of digitalization known as Industry 4.0 is upon us and is becoming a reality in the everyday life of manufacturing companies. While in 1969 the technological revolution still involved punch cards, nowadays we are facing quite different demands. Smart interfaces, usability and agile work processes are set to fundamentally transform working practices with enterprise resource planning (ERP) and manufacturing execution systems (MES).

With the latest version of our PSIpenta product suite, we have developed mature solutions for the fast-changing and networked production of tomorrow. PSIpenta V9 is already in productive use by many new and existing customers. We are particularly pleased that our developments in the area of process orientation (modeling of processes in Camunda) and integration capability (PSIbus) have been received so positively by customers. The practical possibilities are immediately obvious: ERP and MES users can look forward to a lighter workload, while the system also provides the basis for agile work within the company. Let's shape the next wave of digitalization together.

Warm regards,

Dieter Deutz
Managing Director
PSI Automotive & Industry GmbH

Dr. Herbert Hadler

CONTENTS

ERP
Trends
2019

Steering You Through the Second Wave of Digitalization

ERP Trends 2019

Industry 4.0 is here. This is not least due to the continued and ongoing activity to develop the Industry 4.0 platform by research institutions and users themselves. They are engaged in projects, building test beds together with partners, and working on the standardization of data and communication that is undoubtedly essential for networking and automation.

Naturally, software systems also have to keep abreast of the latest technological and application-related developments. In the manufacturing industry, enterprise resource planning (ERP) solutions and manufacturing execution systems (MES) are at the forefront here. The following trends are key in 2019:

1. Shop floor integration

For the digitalization of processes in the manufacturing industry, it is increasingly important for data to be able to flow freely and unimpeded from systems in the factory to the ERP system—and back again, if necessary. And not only do data and communications need to be standardized, but the production technology also needs to be upgraded appropriately (including the new automation of old plants and machinery). The increasing automation of processes to the point that "delivery contracts" can potentially be negotiated between machines in the future can only work if all partners involved have access to the necessary, up-to-date, and above all digital information.

2. The digital twin as a representative of the Internet of Production

Thought through to the end, the progressive integration and networking of the shop floor with all systems across all levels will create a digital map of the production system and the products that run through this system, which is continually updated. This is referred to as the "digital twin" of a smart factory and the products manufactured within it.

Data is also increasingly being provided throughout and made availa-

ble for the implementation of new commercial and business models. The Industrial Internet of Things (IIoT) plays a leading role, not only in networking, but also—or perhaps primarily—in the provision of technologies (e.g. artificial intelligence) and computing power.

3. Analytics and artificial intelligence

Although the manufacturing industry is still lagging behind other industries in this area, there are many examples of successful application. It is difficult
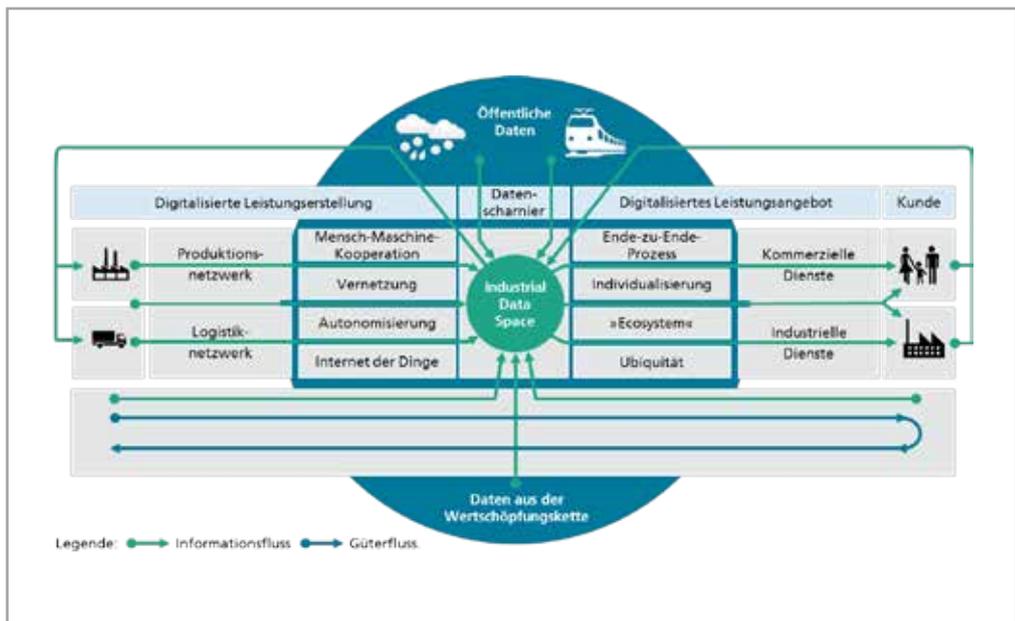
the near future. Pick-by-voice solutions have been supporting picking processes for a long time.

4. ERP is becoming (even) more mobile

The pressure to move towards the mobilization of processes in production and logistics is continuous. As data becomes ever-more important in terms of exerting an effective and real-time influence on value creation, it is becoming increasingly important to record or evaluate data at its point of origin.

rise in requirements for flexibility and agility. This sounds like a contradiction in terms at first.

However, this is exactly where platforms and networks come in. The connection of services and demand can be standardized as the norm via intermediaries. These facilitators can act as a marketplace or connector. Examples of this are the Industrial Dataspace (IDS) as a data space and automator of business processes, or the myopenfactory platform as a standardized interface between business partners. ERP systems act as both the provider and consumer of services or materials, and must be able to connect with platforms of this kind. In the medium term, smart contracts and the use of distributed ledger technologies such as blockchain can be used for the negotiation of contracts between providers and suppliers.

Industrial Data Space as the connecting link between digital production/logistics and smart services.

to perform a purely analytical assessment of the sequencing of products based on a variety of restrictions in a continuous production process due to the sheer number of possible options. Another application area is the use of image recognition for quality assurance or sorting of end products in series manufacturing. Voice control and recognition (natural language recognition) technology has reached a level of maturity that will allow it to be widely used in ERP systems in

The massive, sometimes monolithic, function blocks of ERP systems must be broken down and rendered suitable for mobile use. It all comes down to providing access to precisely the right data and functions required to solve the task at hand.

5. Interfaces & platforms: The rise of the digital platforms

Digitalization requires the deep integration of systems and processes at the same time as we are seeing a sharp

6. Master data is more important than ever

The success or failure of digitalization is largely dependent on the data that is exchanged between the partners in the value creation networks. It is not possible to automate processes without a reliable data base. The completeness and accuracy of the master data is what makes digitalization possible in the first place. Therefore, as well as the organizational positioning of master data within the company, it is essential that the processes for the creation, maintenance and harmonization of master data, particularly in ERP systems, are controlled, stable and reliable.

7. Usability is more than just the GUI

The functions in established ERP systems that have often been developed over many years bring a high level of complexity. The comprehensibility and self-descriptiveness must be gradually adjusted to the usability of consumer apps on smartphones. This often relates not to the application as a whole, but more to the precise information required to make a decision.

Related (process) information must also be displayed in context. Here, the configuration of these contexts and relationships is vital. Not every company has the same processes, and users have different preferences, working methods and information requirements.

8. Practical use of cloud computing

ERP systems must be made fit for cloud compatibility. This is a long-winded process, which in the short term is often at odds with "lift & shift" strategies, in which applications are simply "shifted" (lifted into the cloud). However, the potential and flexibility of cloud platforms are often barely used, if at all. Interest in providing ERP systems in this way is gathering pace. With the high availability of infrastructures (IaaS: Infrastructure as a Service), this is already possible today with a relatively low level of complexity.
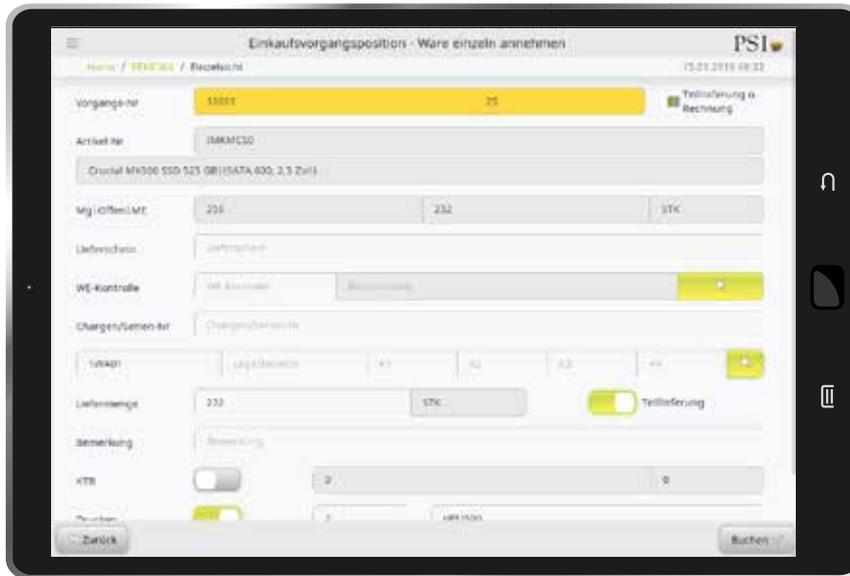
Usability and accurately tailored operating screens are a decisive factor.

The success of this provision will depend on the re-design of particular processes and applications using cloud applications and suitable technologies. In the ERP environment, this includes the connection of IoT devices and the use of AI services. Time-critical applications can be operated as controllers on the "edge" of the production system. Data is then transferred to a private cloud, where it is processed further ("fog"). The challenge lies in the synchronization of data on the different levels between the production process (machine, PLC) or the use (IoT) and the corresponding cloud application.

9. Data protection in a networked world

ERP systems host a vast quantity of data that is required for the processing of digital business models, and they must also be able to make this data available securely, rapidly and without interruption. As a result, data security and data protection requirements are increasing all the time. "Security by design" requires a wide variety of both technological and or-

ganizational measures. Consistent digitalization can only be achieved if secure end-to-end data exchange is in place. It must be possible to reliably determine the identities of users, both human and non-human, and a corresponding authorization management system must also be in place (authentication and authorization).

10. RPA & workflow management—processes under control

Robotic process automation (RPA) is increasingly attracting the attention of companies. The idea behind RPA is the automation of processes (such as tasks and workflows), which promises to deliver a high level of benefit and stability in processes, particularly company-critical ones. An increase in quality is also expected.

The most promising application is for processes that are based on fixed rules or are highly standardized. The processes should not be too complex, as otherwise changes may have a much greater influence and many more aspects will need to be considered, meaning that any flexibility gains are lost. The success of the activities must be verified using clearly defined measured variables. ◉

User Report: Bosch Unlocks Savings Potential with PSIglobal Analysis and Planning System

Intelligent Network Design

In the design of logistical networks with complex cost structures, technology and service provider Bosch has unlocked potential savings in the double-figure percentage range. The implementation of the PSIglobal strategic analysis and planning system from the PSI Logistics Suite supports digital transformation in supply chain network design.

When it comes to the analysis and (cost) efficient design of production and logistics networks, maintaining an overview of the complete picture is high on the list of requirements. This Logistics Consulting at Bosch, who is responsible for methods in supply chain network design (SCND). The technology and service provider has 15 divisions with a total of 60 product groups, 270 production plants, 800 logistics centers, 20 000 direct suppliers and 250 000 customers.

velopments in the key markets", explains Dr. Lippolt. "To meet these requirements, we rely on a strategic analysis and planning system."

Optimization of production and logistics

Since 2017, Bosch has been using the strategic analysis and planning system PSIglobal from the PSI Logistics Suite for the optimization and design of its logistical networks. The functional

PSIglobal helps companies to save resources through the efficient planning of delivery chains.

means that as well as the processes and structures of your own production facilities, storage locations, procurement and distribution chains and networks, and tariffs, those of suppliers and customers also need to be considered. "Goods and products must always be available efficiently at the right time and in the right place," explains Dr. Christian Lippolt, Head of

When it comes to the analysis, and where applicable optimization, of existing logistics networks and the design of new networks, Bosch also adopts a holistic, cross-functional TCO approach. "This doesn't look at logistics alone—it also takes into account purchasing, production and de-

scope of this modular standard software is designed specifically for the analysis and end-to-end optimization of operational, tactical and strategic planning and control levels of logistical networks. The program functions also enable the combined optimization of production and logistics. The scenario technology can be used in analysis and simulation models

to specifically and efficiently solve strategic issues, such as location and structure optimization, as well as tactical issues in logistics projects such as storage capacity utilization. "Of all the tools available for supply chain network design, the scenario optimization and evaluation functions offered by the software we have deployed brings us the greatest benefits," explains Dr. Lippolt. "We mainly benefit from the integrated optimization algorithms and the enhancement capability and flexible design of data interfaces."

With the "Pick-up & Delivery" module, for example, PSIglobal provides a complex algorithm for route planning. Features for the integration of free geodata such as OpenStreetMap enhance the quality of the information and the level of detail in the visualization of tracking and tracing applications. The continuous comparison of actual vs. planned data ensures end-to-end optimization of the operational, tactical and strategic planning and control levels. The core functions of the system offer comprehensive analysis methods for the calculation, provision and structured evaluation of relevant key performance indicators (KPI).

Special feature: PSIglobal can read all common data formats, and can format heterogeneous data from a variety of sources to suit the required use and application. It can then work with this data without the need for intermediate synchronization steps. This also positions PSIglobal, in dialog with ERP systems, as a central cog in big data systems.

Excellent decision-making basis

However, day-to day work in supply chain network design at Bosch "does
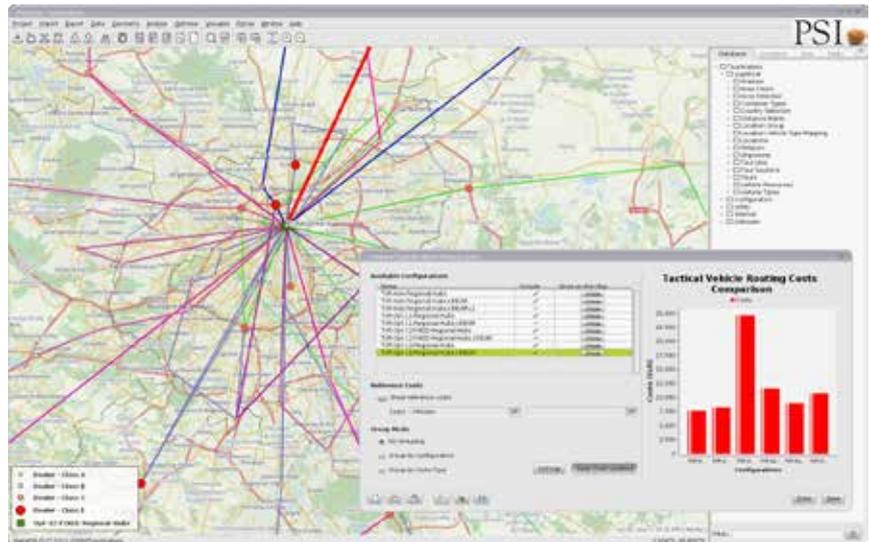
Route analysis with PSIglobal.

not just involve the analysis of individual relationships and simple structures—it also requires comprehensive network analysis with complex cost structures," explains Dr. Lippolt. This has been performed, for example, for a complete network of 15 divisions on the basis of the existing actual data from all Bosch plants and storage locations in each division.

The data was imported into PSIglobal, the suppliers, customers and transport tariffs gradually input in the simulation models and optimization variants determined. The analysis and planning system then allowed further specification of the key elements, cost drivers, key parameters and decisive factors for the network design, allowing Bosch to realize savings in network costs such as customs, inventory, and transport costs of 13 percent.

Scenario technology optimizes models

Following the success achieved in the network design of existing networks, PSIglobal will now support SCND at Bosch in the analysis and optimization of networks for new product

groups. "We undertake comprehensive product life cycle management," explains Dr. Lippolt. "This begins with product development, and embeds dynamic effects in the combined analysis of production, product life cycle and logistics."

With the scenario technology in PSIglobal, the changes are incorporated into the planning model, their effects on the structures and TCO are analyzed and the models optimized accordingly. Dr. Lippolt explains that the key segments—alongside manufacturing costs—include customs, transport, packaging and warehouse logistics. "The analysis and planning system therefore provides an excellent basis for decision-making." "Optimizing a network further down the line can be a difficult and highly complex process. We can incorporate the bulk of the variables into the overall picture from the beginning, which enables us to plan and design the best possible network." ◉

PSI Logistics GmbH
Phillip Korzinetzki
Marketing Manager
p.korzinetzki@psilogistics.com
www.psilogistics.com

News: Artificial Intelligence in Interdisciplinary and Group-Wide Applications

PSI Community Industrial Intelligence

In industrial intelligence, PSI deploys software systems that combine the reliability and robustness of industrial process knowledge with the complete range of methods for artificial intelligence (AI). PSI Community Industrial Intelligence (PCII) combines and coordinates all activities in the PSI Group that are related to this important, strategic future topic.

The stability of the solutions is ensured by the industrially tried-and-tested technology and the PSI framework. From a methodical point of view, the existing knowledge covers all topic areas relevant to industry. From applications in artificial neural networks and extended fuzzy logic, through wide-ranging portfolio of multi-criteria and combinatorial optimizations to advanced methods industrial engineering, all methods are in use at numerous big name customers.

Interdisciplinary approach

In total, PSI offers over 50 different AI processes that are continually maintained and deployed in live production. This forms the basis for methodically developed AI systems that are interdisciplinary in terms of the customer benefits they offer. Not only do they benefit the customer, they also act as the start ramp that is required for the integration of industrial solidity and methodical AI innovation. And this is also the reason why the PSI Group is ahead of many young start-up companies.

At the same time, the PCII is a driver of innovation. Since its formation in summer 2017, the interdisciplinary spirit of the Community has already produced and piloted over ten new AI products. All relevant PSI application areas are represented (see figure below).

Complete system scenarios

In addition to these existing applications, PSI has already recognized the future potential in the networking of existing systems to create complete system scenarios. If we connect, for example, the individual systems from the areas automotive, warehouse management, traffic flow optimization, network maintenance, and management of power grids to create networked scenarios, this immediately creates new global system scenarios, for example in the networking of assistance systems for the optimization of production processes, autopilots for decision-making support in the management of energy networks, and solutions for modern mobility, electric mobility, and the networking of production and transport logistics.

Concrete examples for AI in industrial applications:
https://www.psi.de/en/psi-group/artificial-intelligence/

AI-related methods in PSI industrial solutions
- Artificial neural networks
- Extended Fuzzy Logic Qualicision
- Deep Qualicision machine learning
- Cluster learning methods for machine learning
- Monte Carlo methods
- Simulated annealing
- Combinatorial search techniques

Application fields for PSI industrial solutions
- Transmission and distribution grids
- Predictive quality in metal industry
- Optimization of gas transport and energy trading
- Sequencing in the automotive industry
- Workforce and asset management
- Real-time optimization in public transport systems
- Traffic infrastructure management
- Supply chain optimization in logistics
- Luggage recognition at airports
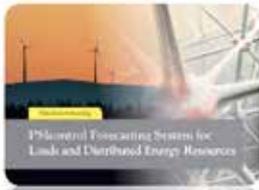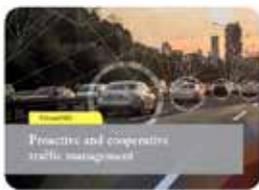
Figure: Application examples of PSI AI industry solutions.

PSI Community Industrial Intelligence working meeting.

To enable innovations to be developed into AI products in the shortest possible timeframe, the Community is made up of working groups, usually comprising three PSI units. These groups work independently but report back on the progress of their work in regular Community meetings, often via video conference. This ensures continual communication across PSI, in which technological issues are clarified across the different disciplines and implemented in AI applications.

In this way, the working groups can use the group-wide PJF platform to develop AI demonstrators that can be rapidly presented to PSI customers.

Trade fairs are an important communication platform in this regard. New AI components have already been successfully demonstrated at this year's E-world and LogiMAT. These will be followed by Hannover Messe 2019 and leading smaller trade fairs such as the Tire Technology Expo 2019.

This means that a range of completely new products or products enhanced with AI from the Community are being introduced in 2019. Some examples include the autopilot for discrete manufacturing, predictive maintenance, predictive quality and the autopilot for support in the management of power grids. In the area of electromobility, this has given rise to optimization and learning methods for urban and suburban mobility and the balancing of micro grids.

For a comprehensive overview, including articles, reference videos and further information, visit the Community's landing page at:
https://www.psi.de/en/psi-group/artificial-intelligence/. ◉

PSI FLS
Fuzzy Logik & Neuro Systeme GmbH
Dr. Rudolf Felix
Managing Director
felix@fuzzy.de
www.qualicision.de

Interview: Vallourec Relies on Standards

IT Strategy: Product Instead of Project

The use of standard products often requires a restructuring and change of the processes in a company. In an interview, Andreas Groos, Vallourec Business Program Manager for the revamping of the information systems in the European mills, explains why the company prefers product-based solutions to project-based solutions and how Vallourec rolls out the template at its worldwide locations.

Vallourec has been working with PSI Metals for over ten years. Why is this long-standing relationship so important for Vallourec?

Mr. Groos: The plants' IT systems usually have a very long lifespan and are highly integrated both in the automation level of the machines and in the Level 4 or ERP systems on the planning side.

Interview with Andreas Groos a PSI Metals.

It is therefore extremely difficult to change or adapt them. For this reason, it is very important for a company like Vallourec to have a reliable partner at its side in order to be able to maintain the software in the long term.

Why does Vallourec prefer product-based solutions to project-based solutions?

Mr. Groos: Today we still feel the effects of the fact that the software we use is legacy software. It is therefore

an important aspect that we are able to update the releases of our software in the plants. This is how we want to benefit from new developments and react to new customer requirements. In order to achieve these goals, we rely on a standard system.

Another important aspect is of course that working with a standard system enables us to carry out a kind of benchmarking. When we were working with PSI on a joint project, we carried out the so-called "fit gap analysis." We analyzed how we see the

production processes and what kind of processes we want to support with the software in the future. We then compared these with the functions and possibilities of PSImetals, which is a kind of industry standard in our

industry. It always makes sense to compare one's own processes with an industry standard in order to look beyond one's own nose!

Standard products often require restructuring and changes in processes. How does Vallourec deal with this?

Mr. Groos: We started the project on the business side, initially without IT in business process analysis. On this basis, we created a process design in

which experts from all plants were involved. Finally, we received confirmation from our top management that these business processes are really the ones we want to apply in the future. Next, we went to the individual plant managers and asked both them and the management teams from each plant involved to confirm that they were all really new business processes. Achieving this personal commitment was an important step for us.

We know from the past how important it is to focus on business processes in IT projects, because "business knows what business needs ". On the other hand, of course, IT must also play a central role, because otherwise business often tends to design things too specific. Our goal is a balanced and uniform project organization on both the IT and the business side.

Vallourec has numerous plants in China, Brazil and Europe. How are production management systems implemented and rolled out at plants worldwide?

Mr. Groos: First of all, before the project started, we defined that we wanted to work with a template concept. This means that we have the same business processes in all plants and therefore ideally wanted to establish the same software solution for all of them. The template approach is important because it significantly reduces the effort required for later rollouts. This is why experts from the various mills were involved from the very beginning to ensure that we covered the aspects relevant to all plants. Since we work with a standard product, stable interfaces between the automation level and the ERP level are also important. In this way, we want to limit the integration costs for future rollouts.

Last but not least, in the course of developing such a solution, we also built up internal know-how on the technical and IT side. The IT and business experts from other plants are already involved in the rollout of the template in the first plant. As soon as the first mill is in operation, they can support the rollout in the second mill. In our pilot plants we can even provide training for our employees. It is therefore a great advantage to work with the standard concept and a standard template. ◉

News: Steel Producer HBIS Laoting Steel Relies on PSImetals 5.0 in New Steel Mill

Digitization of Production Processes

Chinese steelmaker HBIS Laoting Steel Co. Ltd. awarded PSI Metals with the implementation of the production management software PSImetals Planning, Quality Management, Production and Logistics in the new steel plant in Tangshan Laoting after a two-year evaluation phase.

HBIS Laoting decided in favor of PSI Metals due to its leading global market leadership in production management software for the metals industry. With the implementation of PSImetals, the project objectives of HBIS Laoting should be optimally achieved in line with the Chinese initiatives "Industry 4.0" and "China 2025". These include e. g. the digitization of production processes for more transparency, system integration for harmonized information, business and data flows with the support of big data applications.

New central information system
In the future, the new production facility should produce high-quality steels with a capacity of around 10 million tons. Already at the beginning of the planning of the new plant, the new information system formed a central component in the overall project. Zhang Chi, General Manager of HBIS Laoting Steel commented: "Measured by the relatively low investment, the information system plays a key role as a centralized system."

The strategic PSI partner Primetals Technologies Germany GmbH supplies the equipment for the steel and cold rolling mill. Go-live is scheduled for February 2020.

HBIS Laoting was founded in 2017 in order to transfer production capacity out of the core city of Tangshan. The company belongs to HBIS Group Co., Ltd, which is one of the largest Chinese manufacturers of iron and steel ◉

PSI Metals
Swetlana Maschinez
Marketing Manager
smaschinez@psi.de
www.psimetals.de

Product Report: Self-Learning Preparation of Process Data using Deep Qualicision AI

Value-added Business Process Data Analysis

Only when data are in a suitably prepared (labeled) form they can be used for further machine learning procedures and more in-depth forecast-oriented analyses. This key advantage makes the difference between ordinary Business Intelligence (BI), which only describes business process data after the fact, and data processing that is suitable for Artificial Intelligence (AI). The latter learns data correlations from historicized data by qualitative labeling so that they can be used for prognoses and for predictive control of business processes. Only then business process data can be used for value-added machine learning and AI makes possible the optimization of business processes.

Qualitative Labeling is part of the AI learning software Deep Qualicision that recognizes and visualises correlations applying certain process metrics (Key Performance Indicators or KPIs) on raw business process data. The software is user friendly and easy to use. In addition to the provision of business process data, it is only necessary to specify according to which KPIs the quality of the business process is to be evaluated and which KPI value ranges are to be regarded as good or rather as non-standard.
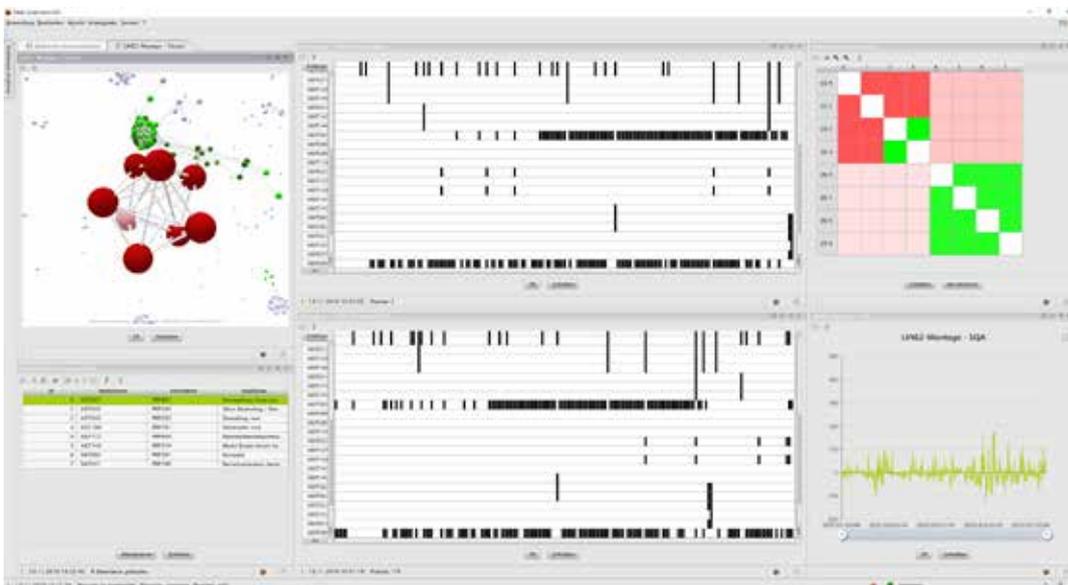
Goal conflict and goal compatibility analysis

These can be both micro KPIs which evaluate small process steps, as well as aggregated macro KPIs which are important concerning the relevant business process. A systematic goal conflict and goal compatibility analysis is part of the software and automatically learns groups (KPI clusters) of positive and negative correlations between the KPIs so that the raw business process data is qualitatively enhanced in the form of visible (labeled) correlations (see figure below).

Business process optimization with labeled data

The existence of labeled business process data is a basic requirement for the targeted value-adding use of AI methods for business process optimization. For example, neural networks without labeled data are useless. With regard to business process data, labeling can not be done manually because the dynamics of the business processes are much too large. Using automatic Qualitative Labeling it is possible to run AI data analysis without having to be an AI expert because the underlying KPIs are derived from the practice of the business process and require no AI-specific knowledge. Thanks to the labeled data of the Deep Qualicision software the user can independently initiate transparent measures for AI-supported business process optimization, and he can make sure his processes are working in a value-added way.

Deep Qualicision GUI.

What's New: How Blockchain Could Change Enterprise Software

ERP Reinvented?

What does a complex topic like ERP have to do with a new technology like blockchain? This technology has huge potential. But what is its current status?

Blockchain is a database that documents transactions and is organized remotely on the web—and is therefore continually growing. It is made up of blocks that reference each other, whereby each new block contains the checksum of its predecessor. This results in a "chain of blocks": Each transaction participant or network node contains the whole blockchain and receives all additions.

A blockchain can contain executable code as well as data, and can therefore serve as data storage and a platform for distributed applications. The complete networking of participants in a peer-to-peer network means that no central instance is required for coordination, enabling IT solutions to be decentralized.

But what are the actual practical benefits of blockchain for companies? Currently, five trends have been identified.

Greater (data) security: Data integrity and consistency have a major influence on the quality of decisions and processes. Information security is therefore important. Encryption and authentication methods can be more effectively applied to blockchain-based systems.

A blockchain can be used to store smart contracts as well as data.

More transparent business processes: The guaranteed integrity and unchangeability of the data enables seamless traceability and verifiability of transactions. Weak points in the business processes and within the delivery chain can be traced.

Reduction of dependencies: The distribution of data and business rules means that if one node fails, the system as a whole remains functional. Blockchain-based systems are error-tolerant.

More flexible processes: Intermediaries or central points for business processes could become superfluous. The processes can be modified and optimized with minimal intervention.

Improved reporting: The potential global availability of data enables significantly more efficient and on-time reporting and therefore a quicker response to deviations.

What is the current status?

In the private sphere, this could lead to a world without notaries, intermediaries or control bodies. In the world of business, new business models can be developed and processes made secure and transparent.

Some may say that it is still too early for the broader application of this technology in the enterprise environment and in ERP systems because the integration with existing systems is no easy task.

The structures and basic principles of current business applications are quite far removed from blockchain technology. While the new technology offers a lot of possibilities, further work is required before it can be implemented. Potential applications can help to gradually evaluate potential and adapt it into newy developed solutions.

A more detailed article is available here (in German): www.erp-demo.de/blog/2019/02/13/erp-neu-gedacht-so-koennte-die-blockchain-unternehmenssoftware-veraendern/ ◉

PSI Automotive & Industry GmbH
Karl Tröger
Business Development Manager
ktroeger@psi.de
www.psi-automotive-industry.de

Event: Success at the 5th PSI Logistics Day and 17th LogiMAT 2019

Industrial Intelligence Is in Demand

Looking back at a successful customer event and our subsequent appearance as outstanding innovation leader 2019 at the 17th LogiMAT intralogistics trade fair in Stuttgart, PSI Logistics can draw a lot of positives from both events.

Dr. Giovanni Prestifilippo, Managing Director of PSI Logistics, sums up the successful events in mid-February: "We made the right decisions when developing and designing products in line

from the in-depth discussions at the PSI Logistics Day (PLD) and conversations with trade fair visitors.

At LogiMAT, PSI presented the enhanced functional scope of the PSIwms warehouse management sys-

Interested visitors at the PSI stand at LogiMAT in Stuttgart.

customers who have already implemented standard products were keen to discuss the functional innovations and optimization functions at the PLD and LogiMAT. In his keynote speech, Dr. Harald Schrimpf, CEO of PSI Software AG, highlighted the facets of "industrial intelligence" and its significance for current software development at PSI. Ulrich Tietze, Head of Backend at online optician Mister Spex GmbH, and Steffen Leck, Corporate Network Design Specialist at Schaeffler AG, explained the optimization potential they have already been able to achieve using the previous releases of PSIwms and PSIglobal in omnichannelling, location planning and network planning.

To conclude, the new features in the PSI Logistics Suite were introduced and explained in depth in four parallel workshops. "The feedback at both events was extremely positive," summarizes Dr. Prestifilippo. "We feel extremely encouraged in where we are going with our product development." ◉

with market requirements, doing so at an early stage and with a far-sighted outlook. The company-wide PSI development platform, the functional spectrum including the integration of the latest technologies, and the seamless integration in a complete IT infrastructure attracted a great deal of interest." This was apparent both

tem and the PSIglobal supply chain planning and optimization system for the first time. Current projects involving artificial intelligence (AI) were also introduced. "Both attracted great interest," recounts a delighted Dr. Prestifilippo. "We made a lot of very promising new contacts."

As well as these new leads, existing

PSI Logistics GmbH
Phillip Korzinetzki
Marketing Manager
p.korzinetzki@psilogistics.com
www.psilogistics.com

Product Report: Discovering Hidden Features with PSImetals Quality Indicators

It's What's Inside That Matters

Nowadays, steel products have to meet the most stringent requirements and the highest quality standards. Numerous quality inspections are therefore carried out to ensure that the product characteristics meet the customer's specific requirements. However, not all quality features can be measured directly and immediately. Help is at hand with the PSI quality indicators.
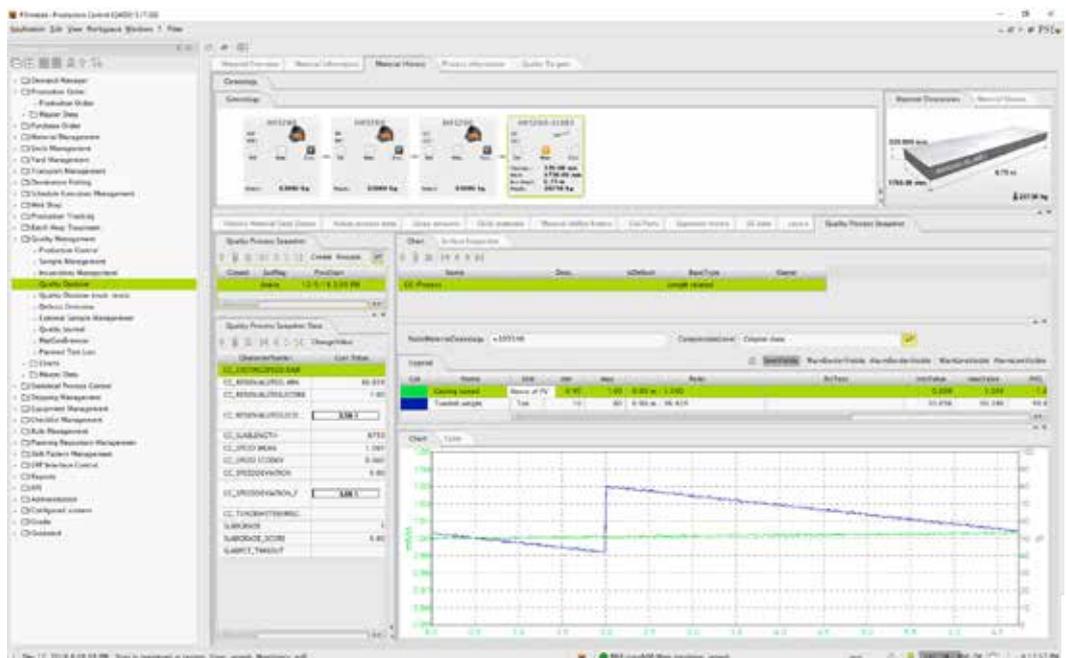
Simply put, a quality indicator (QI) is a formula that generates a single value from a large number of parameters, therefore enabling a quality decision to be made. The input parameters that are used to "feed" a QI are material-specific and process-related measured values from current and previous production steps. While the value generated in this way has a real background, it cannot be determined directly at the required time. In specific terms, this can be explained by using the example of continuous casting quality.

and joint structure. These properties can only be determined directly using metallography methods.

However, there are proven correlations between process parameters and the material quality. Experienced

Quality decisions without lengthy sampling processes

In the above example, this means that the average casting speed, the standard deviation, heating cycles and other data can be used to derive an indicator of continuous casting quality. Based on the continuous casting quality determined in this way using process parameters, the system is now able to make a quality decision immediately after casting and without the need for lengthy sampling processes.

Quality snapshot of a steel slab after casting. QI "slab grades" with corresponding input values in the highlighted field.

QI example: Continuous casting

Continuous casting is one of the most complex processes in metallurgy and therefore has a significant impact on product quality. Parameters such as the casting temperature, distribution level, mold vibration and casting speed, as well as data from secondary metallurgy can have a significant influence on material quality in terms of purity level, increases

steelworkers often know which conditions are required for good quality. This valuable experience needs to be incorporated in quality indicators. Alongside the conventional mathematical functions, PSImetals therefore offers a freely definable system of rules and a comprehensive data model for quality parameters.

The new feature is available to all PSI customers in the PSImetals Release 5.17. ◉

PSI Metals
Swetlana Maschinez
Marketing Manager
smaschinez@psi.de
www.psimetals.de

Event: Preview of METEC 2019 in Düsseldorf

„It's Future Inside"

From Brazil to Poland and beyond—the PSImetals box labeled "Future Inside" has already generated excitement among visitors at many events across the globe. The secret is about to be revealed in Düsseldorf at METEC 2019, the 10th international metallurgical trade fair and associated congresses.

In the metal industry, the digital transformation, often referred to as Industry 4.0, is in full swing and presents customers with a wide array of new possibilities such as optimized production, faster reaction times and improved customer service, as well as new data-controlled products.

The PSImetals "Future Inside" box

As a market leader in metal production, PSI is at the forefront of this digitalization trend and, with its PSImetals production management system, is connecting systems, information, employees and whole companies across the entire value chain.

Platform offers new opportunities

At METEC 2019, PSI will finally let the cat out of the bag! We will demonstrate how PSImetals, as a platform for digital transformation and Industry 4.0, uses state-of-the-art technology to help customers make the most of these new opportunities. ◉

PSI Metals
Swetlana Maschinez
Marketing Manager
smaschinez@psi.de
www.psimetals.de

News: The PSImetals Academy Is Coming Your Way!

By Experts for Future Experts

It is important to get an overview of any software before full deployment. The PSImetals Academy offers a range of training courses teaching you about the PSImetals products and how to make optimal use of them in your company. Each quarter, our experts will be heading to a different training location around the world, giving you the flexibility to choose the time and place of the training.

The new format offers the option to complete a two-week intensive course or to select the Planning, Meltshop, Rolling & Finishing or Logistics modules separately according to requirements. "The PSImetals Academy on Tour

To access more information and the registration form, scan the QR code.

want to learn about individual PSImetals modules or gain a comprehensive overview," explains Ulrike Bien, Head of the PSImetals Academy. ◉

gives customers and interested parties a compact introduction to the world of PSImetals—whether you

PSI Metals
Ulrike Bien
Head of PSImetals Academy
academy.met@psi.de
www.psimetals.de

Event: PSI Presents Practical Examples and AI Applications at the Hannover Fair 2019

Industrial Intelligence for Production and Logistics

At this year's Hannover Fair, the PSI Group is presenting integrated software solutions from the fields of production, logistics and asset service management from 1 to 5 April 2019 (Hall 7, Stand A 24). On the basis of fair scenarios, the combination of ultra-modern manufacturing and logistics concepts as well as Artificial Intelligence solutions based on the PSI framework, that have been in use by industry for years, will be demonstrated.

How industry-compatible and practice-proven solutions are implemented for the digital factory will be demonstrated using a number of scenarios. These include, along with the ERP standard solution, work management at work stations, flexible integration of production technology and equipment, as well as monitoring and visualization of the manufacturing processes. Furthermore, besides work-flow based process control, the cross-system flexibilisation of the manufacturing processes as well as the flexible timing and integration of the transport systems will be presented. In addition, Just-in-Time/Just-in-Sequence provisioning of the material (e-Kanban) and material-flow control by warehouse management are applied.

AI expert Dr. Rudolf Felix in an interview at the Hanover Fair 2018.

Optimized order handling

In asset service management, functions for maintenance management, in particular the optimization of order handling with Qualicision PSI soft-
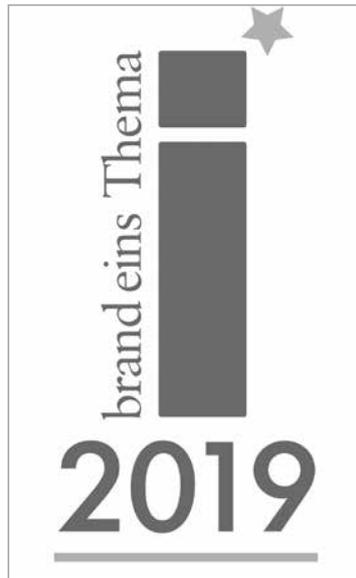
ware will be shown. The integration with machine-like OEM control systems serves as an example for a predictive maintenance solution on the basis of extended fuzzy logic and machine learning.

Novelty: Deep Qualicision KI

The AI software Deep Qualicision solution will be presented as an innovation at the fair. Deep Qualicision provides qualitative labelling of business process data, which automatically learns associations in the data between process parameters and KPIs and consequently reveals additional added-value opportunities.

Based on this, AI solutions for automatic optimization of business processes will be demonstrated that work as assistance systems and decision-making support systems and can be used either in planning or for real-time scenarios. The solutions are available in the AI toolkit Qualicision and Deep Qualicision as an AI software stack. ◉

PSI Software AG
Bozana Matejcek
Corporate Public Relations
bmatejcek@psi.de
www.psi.de

News: brand eins and Statista Name Innovation Champions of the Year

PSI Logistics is "Innovator 2019"

The business magazine brand eins awards the "Innovator 2019" award to more than 3400 companies in 20 industries in the Transport, Transport & Logistics sector to PSI Logistics GmbH.

For the fourth time, the business magazine brand eins, a cooperation partner of Zeit Online, and the statistic portal Statista are honoring Germany's most innovative companies. The voting is based on a survey of 25 000 industry and innovation experts. These include 1930 representatives of innovation-winning companies such as board members, managing directors and chief executives, in particular in the areas of R & D and production, around 400 specialists from the Institute for Innovation and Technology (iit), Berlin and more than 20 000 experts from the Statista panel "Expert Circle". Across all sectors, performances of more than 1800 large and 1600 small and medium-sized companies employees in Germany was assessed.

Six awards in 22 months

With the current award, PSI Logistics is honored for the sixth time in 22 months for its development achievements and innovative strength. "The verdict of nearly 25 000 industry and innovation experts is of particular importance," states Dr. Giovanni Prestifilippo, Managing Director of PSI Logistics. "The awards as TOP Employer Mittelstand 2019 and Innovator 2019 underline the inspiring work environment and the attractiveness of PSI Logistics for expert employees." ◉

PSI Logistics GmbH
Phillip Korzinetzki
Marketing Manager
p.korzinetzki@psilogistics.com
www.psilogistics.com

Event: PSI delivers Warehouse Management System to ASMET in Poland

PSIwms Controls Entire Logistics Center

PSI Polska Sp. Z o.o. was awarded by ASMET spółka z ograniczon odpowiedzialnoci Sp.k. with the implementation of the Warehouse Management System PSIwms in the new logistics center in Moszna-Parcela near Warsaw.

ASMET offers all-inclusive delivery of fasteners for plant and machinery in the construction, energy, petrochemical, agriculture and automotive industries. As both, a manufacturer of customized solutions and as a distributor, ASMET has about 40 000 standard products in stock and 50 000 more for orders. The dynamic company growth and the need to ensure smooth running of the complex logistics processes as well as a best-in-class customer service required improvements in the logistics center.

Integration into ERP and supplier communication systems

Following an in-depth analysis of the WMS solutions offered in Poland, ASMET commissioned PSI Polska to supply the PSIwms Warehouse Management System for the entire logistics center, including the material flow control system in the automated mini-container warehouse. The system should also be integrated into the existing ERP and supplier communication systems. The operation will start in 2020.

PSIwms supports customer requirements

"The use of PSIwms with the automatic warehouse control forms a fur-

ASMET logistics center.

ther important milestone for us, after the new ERP system and logistics center successfully has been put into operation. The PSI system helps us to meet our customers' growing needs to reduce order lead times and optimizing our flagship service, developed over years, "said Janusz Onyszczuk, Director Organization and Management Systems and Board Member at Asmet.

"In such a strategic and complex investment, the successful customer references in similar projects as well as a strong and competent local team formed the key factors for our decision in favor of PSI Polska."

PSI Logistics GmbH
Phillip Korzinetzki
Marketing Manager
p.korzinetzki@psilogistics.com
www.psilogistics.com

EVENTS
www.psi.de/en/events

26.–28.03.2019	Passenger Terminal Expo 2019 London, England	PSI Logistics
28.–29.03.2019	ASK Umformtechnik 2019 Aachen, Germany	PSI Automotive & Industry
01.–05.04.2019	Hanover Fair Hanover, Germany	PSI Group
25.04.2019	International Steel Industry & Technologies Conference Istanbul, Turkey	PSI Metals
06.–09.05.2019	AISTECH 2019 Pittsburgh, Pennsylvania, USA	PSI Metals
22.–23.05.2019	Future Aluminium Forum Warsaw, Poland	PSI Metals
04.–05.06.2019	26. Aachener ERP-Tage Aachen, Germany	PSI Automotive & Industry, PSI FLS, PSI Logistics

DATA PROTECTION

We are glad that you are receiving our customer magazine. Please also refer to our Privacy Policy at https://www.psi.de/en/privacy/.
www.psi.de/de/datenschutz/.

SOURCES

Page 1, 3: thinkstock
Page 4: Mbsnom/Wikimedia Commons
Page 5: PSI Automotive & Industry
Page 6: Bosch
Page 7: PSI Logistics
Page 8: PSI FLS
Page 10, 15, 16: PSI Metals
Page 12: PSI FLS
Page 13: ismagilov/iStock
Page 14: PSI Logistics
Page 15: PSI FLS
Page 17: brand eins
Page 18: PSI
Page 19: ASMET

PRODUCTION manager

PSI