

PRODUCTION manager

Magazine for logistics & production



Swiss Steel is replacing a 40-year-old hook conveyor system with modern pallet transport logistics

Full automation in the pallet world

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EDITORIAL

Dear readers,

A number of definitions and visions are used in relation to Industry 4.0 and digitalisation and they need to be adapted to suit individual industries. Together with Primetals Technologies, PSI organised a conference to launch this process for the steel and aluminium industry. Experts from research, production and IT came together in IJmuiden, the Netherlands, just a stone's throw from steel producer Tata Steel, to examine the various aspects of Industry 4.0. The conclusion was "take action now and work together!" In the world of digital ecosystems, simply waiting and letting the "others" do it first is riskier than starting and possibly making mistakes. Producers like thyssenkrupp



and Tata Steel Europe are already on the right path with their global digitalisation strategies. Suppliers like HPE and Microsoft are also calling for collaboration and nobody is claiming the all-encompassing solution for themselves.

With PSImetals FutureLab, PSI Metals has initiated its own programme and is inviting customers and partners to work together on the solutions of the future. We also believe that we can only meet the challenges of the future by working together with our customers and partners because the days of lone warriors are over.

On that note, I hope that you enjoy reading the latest edition of Production manager.



Sven Busch
Managing Director
PSI Metals GmbH

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Steel is replacing a 40-year-old hook conveyor system with modern pallet transport logistics

Full automation in the pallet world

Renowned Swiss steel producer Swiss Steel is increasingly committed to digitalisation in the area of coil transport and is replacing its nearly 40-year-old system with modern pallet transport logistics. PSI's existing materials tracking system has been adapted to the new requirements and has successfully brought order to the world of pallets. Part of the Schmolz & Bickenbach Group, Swiss Steel is offering a good example of the evolutionary character of Industry 4.0 in the steel industry.

In steel production, Industry 4.0 and the associated digitalisation is not an issue that is solely limited to new plants. The usual investment cycles in the industry do not allow every new technological development to be implemented immediately. So, manufacturers need to develop a clever strategy that lets them leverage the benefits of continuing digitalisation on a step-by-step basis. It is important to identify and modernise specific areas of the process chain in different stages. Swiss Steel AG have

made just such an investment in Emmenbrücke, Switzerland.

The special steel manufacturer manufactures products including high-quality wire on two lines for different formats. This wire comes off the rolling mill in wire coils and the subsequent processing steps include cooling the hot coils, taking samples, weighing, pressing, and binding. For the past 40 years, this has been done using a hook conveyor system. Options to intervene in the material transportation were few and far be-

tween. The new pallet rail, on the other hand, has been equipped with three buffer lines, where one material can overtake another. This has several advantages, including the ability to prioritise a material or an entire customer order.

Investments in the new transport system and a state-of-the-art press have resulted in significantly lower energy consumption and greater transport reliability. In future, Swiss Steel will be able to meet the increasing demand for higher coil weights and innovative customer requests. And the fully automatic handling of the pallets also means a safer working environment in the factory area.

Material tracking as the key

Even in the past, a material tracking system from PSI guaranteed seamless recording of all material movements.



The new “pallet forest”; human observers can barely see the wood for the trees now.

With the new system, however, the task of material tracking has become even more pivotal.

Conversely, the increased flexibility leads to the elimination of rigid material flows. With such a “forest” of pallets, “where is my material?” becomes the crucial question. It is no longer possible for human operators to maintain an overview.

The automation systems involved need to be even more closely coordinated to prevent material from being mixed up at intersections or material weights being incorrectly allocated. In practice, checkpoints have been set up where the participating systems check the synchronicity of their data. The basic automation system determines whether there is material on the pallet, while the PSI tracking system determines what material this is.

Are people still needed?

In the context of Industry 4.0, there has been a lot of speculation about the

role that people will or should play in the factories of the future. At an academic level, quasi-philosophical arguments are being waged about whether a factory controlled by artificial intelligence and algorithms can ever replace or even improve the complex social structure of today.

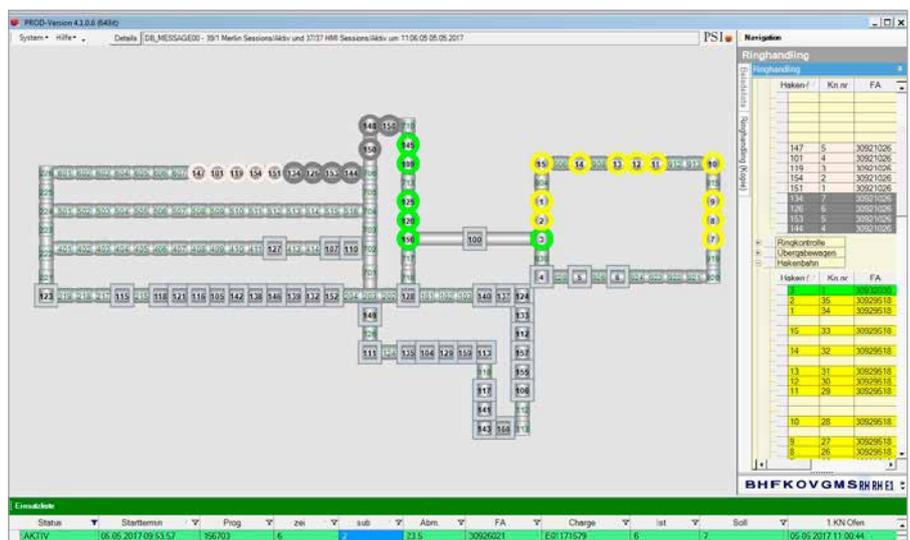
Practical examples already allow some conclusions to be drawn. Even though the case of Swiss Steel is by no means

an attempt to implement an unmanned factory, the firm has invested heavily in digitalisation and advanced automation in a specific area. However, there is one factor that is more powerful than the automation systems that have been mentioned, and that is the operator. If an emergency occurs, the operator can and must make corrections if the reality diverges from the virtual pallet tracking; for example, if a wire coil is removed.

If something like this happens, the operator is responsible for making corrections in all systems. In essence, he is upgraded to the position of responsible supervisor if the system deviates from the automated routine. In other words, steel production will continue to be impossible without people in the future, even if their tasks change.

Open-heart surgery

Designing this kind of system on the drawing board is one thing; introducing it alongside live operation is another. Just as surgeons plan and train in advance for open-heart surgery, this was also necessary at Swiss Steel, ultimately leading to a success-



Full transparency thanks to virtual coil tracking.

fully planned, tested and prepared introduction.

Timely and coherent communication between all involved parties is crucially important. Commissioning cannot be carried out without any errors whatsoever, and experience and trust are needed to deal with setbacks and problems.

From a purely practical point of view, it is always one thing to work through a particular signal chain in a test environment and to certify that the system is functioning properly, and quite another to run several signal chains simultaneously during operation. This is when any remaining problems will be revealed, and the excitement about a well-functioning system quickly turns into stress.

At Swiss Steel, “beaming” was briefly introduced, which means transporting a material from one point to another without any time delay. However, since this only happened virtually, it materialised as a delayed signal for the transfer of the material from the pallet rail to the hook conveyor system. This is because it involves the material moving past the transfer position, and then suddenly jumping across the system onto a hook. These and other perhaps less “innovative” phenomena could be resolved quickly during commissioning.

Digitalisation—why?

Investments in digitalisation must offer added value, and cannot simply be made for the sake of new technology. In the case of Swiss Steel, it is not enough just to manufacture high-quality products. The material quality must also be verifiable. This means that it is important to know the location of a particular material

Interview with Dr. Georg Nussbaum Rolling Mill Director, Swiss Steel AG

PSI: What was the main reason for this significant conversion of the plant?

Dr. Nussbaum: The almost complete overhaul of the transport system was essential because the market fundamentally requires higher coil weights. As part of the strategic expansion of the Swiss Steel AG rolling mill, this was one of the first steps needed to ensure we are able to meet this and future needs. In addition to market requirements, it was also simply a case of needing to replace an almost 40-year-old system, and to integrate it into the innovative automation platform of the rolling process.

PSI: Could the complexity be predicted and how did you prepare for it?

Dr. Nussbaum: Of course, it goes without saying that this was a major project for us and still is; as such, both we and various other trades have invested significant resources into the project. This increases complexity compared to a greenfield project, because construction and production have to be carried out simultaneously

with no room for manoeuvre and with ever-tighter scheduling, and there are no backup capacities during commissioning. Not every project partner identified this at an early stage, which meant that the complexity was underestimated. In future, our approach will be to monitor progress even more closely and to ensure better management of consequences.

PSI: Is a special customer-supplier relationship required to implement a project like this?

Dr. Nussbaum: A willingness to communicate and prompt, error-free reaction between partners is an absolute must. I would regard it as a special relationship if there is a deep understanding of the customer’s requirements, and the project partners always act in an entrepreneurial spirit. This is much easier if the “chemistry” between the parties is right. People simply make the difference! However, everyone who is involved must understand that a project is not an end in itself. Ultimately, we too have a duty to our customer, and want to offer them added value.

at all times, and the process parameters which govern it. This is the only way that the quality can be guaranteed in the long term during live operation and then documented on completion. This, together with the flexibility gained in the material flow and the savings in energy consumption, clearly demonstrate the advantages of digitalisation. Industry 4.0

does not have to mean revolution; the case of Swiss Steel proves that it can also be evolution. 

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Product report: ERP as a driver of business process modernisation?

Changing ERP systems in the age of Industry 4.0

In the face of the next digital revolution of Industry 4.0, there yet again seem to be ERP systems that anticipate a profound change towards more networking, better utilisation, and more agile production control. This gives further fuel to the transformation of parallel developments such as big data, cloud technologies, and the use of mobile apps in industry.

In future, workpieces and machines will communicate via the Internet and decide for themselves in real time which production step should come next. The resulting possibilities in terms of control and planning are enormous, offering the opportunity to efficiently display details down to batch size 1—an advantage not to be underestimated in times of increasingly individualised customer demands!

ERP system as a pacesetter

At the same time, the market for ERP systems is also becoming more individualised, with development in accordance with customer requirements becoming more important. Rather than applying the concept of linear production, as encapsulated by the assembly line, the smart factory of tomorrow will replace this with new requirements for openness, flexibility and ability to cooperate. As digitalisation progresses, the ERP system will take on the role of a paceset-

ter that simultaneously controls production processes and links them with the business management level.

Hypothesis 1: Always connected

The user, machine, tool, and work-



In the future, ERP systems will continue to bring all key data together in one system.

ter that simultaneously controls production processes and links them with the business management level.

Ten hypotheses on the future of ERP

Under these auspices, Bitkom, Germany's digital association, has pub-

lished ten hypotheses on the future of ERP in its paper "ERP after the digital transformation".

piece are all connected, and communicate in the cloud via the "Internet of Things" (IoT). ERP systems make sense of the huge amounts of data using big data technology to plan and control. The consequences include continuous transparency about all products and processes, as well

as optimum utilisation of scarce resources.

Hypothesis 2: Information, anytime and anywhere

Company data is available at all times and via all forms of (mobile) end devices. New operating modes such as voice input or augmented/virtual reality simplify day-to-day work.

Hypothesis 3: ERP secures business processes and data

ERP systems are open to the outside, but must also guarantee the security of the data. This requires the highest standards to be applied in terms of authentication, rights management and encryption.

Hypothesis 4: The ERP system makes decisions or prepares them

ERP systems can use models to make decisions themselves, or at least to prepare them. These models constantly improve themselves, based on accumulated experience and additional data (social web, pre-parameterisation, anticipatory shipping).

Hypothesis 5: Scalability through the cloud

If there are new requirements, computing capacity, memory space or even services—right up to the entire ERP system—can be procured via the cloud and rolled out immediately.

Hypothesis 6: From transaction to collaboration

Working collaboratively on problems and documents in temporary workgroups will become the norm—even across company boundaries. Machines communicate with each other (e.g., self-governing production). Opportunities for customer support are en-

hanced with digital innovations like virtual reality.

Hypothesis 7: Business models and ERP systems are changing

Digitalisation enables new business models, such as individualisation/personalisation of products, services to complement a product, smart products/smart services, and local 3D

The ten hypotheses are drawn from the Bitkom paper “ERP after the digital transformation”, available at:

<https://www.bitkom.org/Bitkom/Publikationen/ERP-nach-der-digitalen-Transformation.html>

The industry association represents more than 2400 companies in the digital economy, largely based in Germany. As a member of Bitkom, PSI is represented in various working groups.



printing. ERP software must therefore be tailored more (vertically) to the individual customer requirements.

Hypothesis 8: ERP is the “Single Source of Truth”

ERP systems bring together all relevant logistical, business, and commercial information. That makes them THE central data hub in the age of big data.

Hypothesis 9: ERP systems are the avatars (of companies) on the digital marketplaces of the future

Companies are represented by ERP systems in marketplaces and in wealth creation networks.

Hypothesis 10: ERP systems are responsible for the business administration of the digital transformation

Actually achieving the potential added value requires a focus on key business figures. ERP systems enable this integration as the pacesetter of digitalisation.

Quo vadis ERP?

The next generation of ERP systems will look different to today’s ones. Usability will become more akin to the standards that we are accustomed to from the consumer market. Apps will ensure full mobility.

On the functional side, the opportunities for integration will increase dramatically; not least through better networking opportunities and greater openness towards new developments. In future, products will no longer be regarded solely as hardware, but rather in conjunction with additional services. People refer to “digitally charged products”.

Data quality is an absolute must

Data quality is a huge challenge because highly automated business and manufacturing processes can only be implemented with well-maintained data. ERP systems therefore have to be able to offer master data and movement data for all systems along the value chain. At the same time, the smart networking of information will become more important, with a major focus on data security, costs and controlling. 🌐

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User report: PSIWms is redefining Warehouse Management at Würth Elektronik eiSos

Flexible and a secure investment

Würth Elektronik eiSos GmbH & Co. KG, part of the Würth Elektronik Group, has gradually expanded its distribution warehouse during live operation and automated the processes. Before setting up the automation components, the modified processes were established by implementing PSIWms as a new warehouse management system. The upgrade and release capability of the IT system ensures maximum flexibility and long-term investment security.

This is how Peter Schlechtinger, Project Manager at Würth Elektronik eiSos GmbH & Co. KG explains it: “The picking strategies will fundamentally

its state-of-the-art shuttle and Industry 4.0 solutions, the fully automated warehouse is now considered a “model factory for individual customer requirements and high service levels”.



A look at the picking station in the modern warehouse of Würth Elektronik.

change in the near future through continued automation. “And we are now creating the IT foundation for this by introducing a flexible warehouse management system.” Five years have passed since this announcement. Since the middle of 2015, automation has been implemented in the central distribution warehouse of Würth Elektronik eiSos in Waldenburg. With

Efficiency and coordination

The company distributes passive electrical components around the world from this central distribution warehouse at the company’s location. Its current intralogistics processes are dominated by a high-rack warehouse with 5000 pallet spaces, a new six-aisle automatic small parts warehouse with 86000 shuttle-operated con-

tainer spaces and four upstream repacking spaces, highly dynamic conveyor technology, ten new picking stations where pick-by-light and pick-to-light systems each process up to four orders in parallel, as well as eight new packing stations where employees pack the work orders with package-dimension calculations optimised for shipping.

The PSIWms warehouse management system from PSI Logistics underpins the efficiency and coordination of these processes. “We planned the restructuring and automation in several steps during live operation”, says Schlechtinger as he explains the reason for choosing the system. “This is why we needed a warehouse management system that offered us maximum flexibility to plan the processes that had been changed multiple times, and to ensure they were continuously covered by IT.”

Checking and optimising in advance

More than 30000 items, passive components for industrial applications, are stored in the Würth distribution warehouse for worldwide shipping. On average, employees pick 2000 orders each day with more than 4500 items. “Before the introduction of PSIWms, we therefore lost huge amounts of time”, explains Schlechtinger. The previous WMS only offered inventory data. There were no functions for modern warehouse management such as storage space and batch management, or automated picking with batch and date code management according to the first-in-first-

out (FiFo) principle. This led to a lack of transparency and a lack of data to switch over the processes. “So the first step for the new WMS was to prepare for the switch from the manual warehouse to automated processes by providing IT data”, says the project manager. “The PSIwms also allowed us to verify and optimise the planned processes in advance, and to tailor the IT to suit our precise requirements.”

Adaptive scenario management

Using indicators such as the item master data, the order structure, and the demand, for example, we were able to design the small parts warehouse and the conveyor line. A “low-risk strategy” was developed with PSIwms that covered the step-by-step switch overs during live operation with a low-risk fall-back scenario. This was possible thanks to the adaptive scenario management feature in PSIwms. This allows process controls to be verified before implementation, so operational processes can then be switched over to PSIwms virtually at the push of a button.

Upgradeability

During the phased expansion and modernisation project, the upgradeability of the IT system also benefited the warehouse operator. With the issuing of up-to-date releases, innovative functions are both added to the standard system and also made available to systems that have already been implemented. As part of product development, PSI Logistics separated product standards and individual configurations. The advantage of this is that during an upgrade, when the system switches to an up-to-date release of PSIwms, the new func-

tions can be used in the system while the individual configurations remain available for the customer-specific enhancements without additional programming or costs. At the same time, by applying a new release, users integrate the current technology developments and options.

Leveraging additional optimisation potentials

And the same is true at Würth Elektronik in Waldenburg with the phased process automation of its intralogistics. Over the past five years, two upgrades of PSIwms have been performed. The configuration of the

Multisite capability

With multisite capability, PSIwms also supports processes at multiple locations. For example, Würth can also manage inventories, replenishment control and coordinated order completion of the Würth warehouse in the French site in Lyon.

“With PSIwms, order completion is not only faster, but virtually error free”, explains Schlechtinger. He also notes that replenishments for picking areas have also been optimised. The multisite capability also offers the company integrated coordination of inventories and order completion across multiple loca-



Efficient warehouse processes at Würth Elektronik with PSIwms.

complex goods flows was retained, while new innovative functions such as Adaptive Scenario Management, the Warehouse Service Broker or an automatic goods receipt recording with collection of full cartons and individual products in containers on the conveyor system enable the company to leverage additional optimisation potentials.

tions. “The logistics intelligence of our processes is covered in full in PSIwms.” 

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News: PSIWms recognised in the IT section of “Best Logistics Brand 2017”

Award for “IT for Warehouse Management”

The PSIWms Warehouse Management System from PSI Logistics GmbH was awarded third place in the “Best Logistics Brand 2017” in the category “IT for Warehouse Management” as voted for by readers and experts of the journal LOGISTIK HEUTE (LH) and the Bundesvereinigung Logistik (BVL) e. V. The prize giving for the top three finishers in 11 categories took place on 26 April at a celebratory awards night in Berlin.

The independent committee, chaired by Prof. Dr. Christian Kille, logistics expert at the University of Applied Sciences Würzburg-Schweinfurt, nominated more than 260 brands that generate the largest turnover in Germany and are relevant to the market here. In the voting, LH and BVL determine which brands enjoy the best reputation among supply chain managers and logistics managers and experts in the German-speaking area. “The majority of companies in logistics understand the importance of a brand for building a good image”, explains Bert Brandenburg, Manag-

“

We feel vindicated in our future-focused development work on PSIWms by the vote of the logistics experts. The PSIWms brand, part of our highly-flexible PSI Logistics Suite, is a modern and high-performance Warehouse Management System. In our discussions with customers in collaboration with academic institutions, and also based on the release capability, we work on an ongoing basis to integrate the latest technological developments.

Sascha Tepuric

Managing Director, PSI Logistics GmbH

”

ing Director of the Huss publishing house and editor of the LOGISTIK HEUTE journal. “The results of this vote reflect how the brands are

regarded in the minds of the voting participants.”

“Adaptive Order Start” optimisation function

In addition to the positive brand image, the award also emphasises the

development of innovative, competitive functions of PSIWms, as recognised in the “IT for Warehouse Management” category. In the new Release 4.0, PSIWms offers functions that include the “Adaptive Order Start” optimisation function, which balances multiple warehouse metrics to ensure optimum utilisation. The Adaptive Order Start automatically starts order processing or delays order processing to improve the performance of the warehouse. In the past year alone, PSI Logistics was recognised as “Top Innovator 2016”. 



The award being presented at the celebratory awards ceremony.

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Event: Review of the Industry 4.0 conference and PSImetals Usergroup

Digitalisation in discussion: three days full of ideas

At the start of May, over 150 participants responded to the invitation from Primetals Technologies and PSI to attend the jointly organised Industry 4.0 conference at Tata Steel in IJmuiden, the Netherlands. Experts from research, production and IT offered a range of starting points to discuss digitalisation in the steel and aluminium industry. Afterwards, the PSImetals Usergroup invited over 90 customers to continue their discussions and share their experiences over two days. Presentations and panel discussions offered interesting insights at both events.

Industry 4.0 conference

The rich mix of presentations from the worlds of science, production and IT reflected the diversity surrounding Industry 4.0. In his keynote speech, Prof. Dr. Volker Stich from RWTH Aachen offered an overview of how digitalisation is already changing European companies. Manufacturers like Tata Steel, thyssenkrupp and Tang-Shan gave insights into their digitalisation strategies. The VDEh-Betriebsforschungsinstitut, HPE, and Microsoft as well as Primetals and PSI as the hosts gave presentations showing how IT is developing.

The overriding message of the presentations was that the time to act is now, otherwise companies risk disruption or even ejection from the market. In addition to new business models, customer-supplier relationships in par-

ticular will move from a bilateral model towards agile ecosystems of partners. Challenges and risks in the area of IT security rounded off the presentations. The broad thematic approach to digitalisation in the metal industry today and in the future was well received by the attendees. It is now up to everyone to present concrete solution examples at the next conference.

All attendees can access the relevant lectures as PDF and Videostream at www.psimetals.de.

The presentations of the Usergroup require a login, which had been sent to all participants via E-mail.

PSImetals Usergroup

The focus of this year's Usergroup was the path from solution to product. Managing Director Thomas Quinet left no-one in any doubt that PSI Metals has arrived in the product category in his opening speech. The product PSImetals forms the basis for customer solutions that generate added value. Presentations from SSAB, Arcelor-Mittal Poland, and NLMK Europe gave real-world insights in the project. After all, customers are always in-

terested in how companies overcome challenges and difficulties. thyssenkrupp reported on its initial experiences with the PSImetals Flow Configurator, and Tata Steel discussed its factory of the future.

The podium discussion with representatives from ArcelorMittal, Tata



More than 90 customers from around the world at the PSImetals user group in Amsterdam.

Steel, thyssenkrupp, and Vallourec offered the platform for a lively exchange about roll-out strategies, product releases, and also the greater independence of PSI as the supplier thanks to increased configuration options. The organisational anchoring of PSImetals excellence centres within customer ecosystems also plays a vital and growing role. The call for increased dialogue with each other was clear within the PSImetals community, and the added value of openness and dialogue was clear for all participants. 🌐

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Attentive audience during the Industry 4.0 conference.

Event: Hannover Messe and CeBIT as key way markers

PSI already heavily involved in topics for the future

Following CeBIT and the Hannover Messe 2017, the two most important trade fairs of the year are already behind us. Numerous exciting innovations, discussions and expositions drew interested visitors to both of our stands in droves. PSI showed that it is well prepared for the most crucial topics for the future; from electronic mobility and Industry 4.0 through to swarm production. Our customers are already productively using ground-breaking PSI solutions in their day-to-day operations.

Events including the guided tours organised by Deutsche Messe AG enabled enthusiastic visitors to see how the individual work steps in assembly are managed flexibly and transparently along the process chain using PSI software for logistical supply (TMS/WMS), vendor management

One of the best examples of is the SoniXs TR-6 Pro strapping machine from Mosca AG, as demonstrated at the PSI stand at the Hannover Messe. Visitors were able to see for themselves how using RFID tags simplifies the ordering processes and warehousing of strapping. The practical demonstration showed how strap coils fitted with RFID tags communicate with the PSIpenta ERP system, determine inventory levels, and automatically trigger replenishments. Employees can track the automated processes using an app. PSI and Mosca are working closely together to develop the system.

Mosca GmbH

Mosca is a leader in quality and technology as a systems provider and as a developer and manufacturer of high-quality strapping machines, straps and goods securing systems for professional and industrial applications. The product portfolio ranges from extremely small automated machines to large pallet packing presses. Mosca currently operates sales branches in 65 countries on all continents.



Huge visitor interest at Hannover Messe.

Self-organising swarm production live

Fully reflecting the spirit of Industry 4.0, PSI used its own integrated solutions (ERP, MES, WMS, Sequencing, SCADA, IoT/RFID integration) to present an example scenario of the dynamic production of electric vehicles.

(SCM), and production control and monitoring. Here, an operator controls self-organising production solely by specifying business and technical KPIs.

The PSI software solution that was presented is based uniformly on the group-wide and open PSI Java-Eclipse platform and for the first

time, is running jointly and fully integrated in a cloud environment. As a result, it already meets the requirements that are being set for future production systems. The initial findings promise double-digit productivity growth. PSI also presented its Workforce Management System at the Hannover Messe with new functions for maintenance management in Asset Service, including optimisation of order processing with Qualicision.

Making the production of tomorrow transparent

A few weeks previously, Hannover hosted CeBIT from 20 to 24 March 2017. PSI, in partnership with e.GO Mobile AG held a special show “Digitalisation live!” to present the standard solutions PSIpenta/ERP and MES, which the electric vehicle manufacturer is currently using in live production. The demonstration focused on the integrated digital value chain from Engineering and Production through to Logistics and After Sales.

e.GO Mobile AG

e.GO Mobile AG develops a particularly economic electric vehicle on the campus of RWTH Aachen. The production researchers demonstrate that Industry 4.0 enables highly iterative development processes and particularly cost-effective prototype and small batch production.



PSI standard solutions are used in production at e.GO.

Consistent digitalisation strategy

As a partner of the European 4.0 Transformation Centre at RWTH Aachen, PSI presented a practical example based on e.GO Life at CeBIT to show how the software enables minute-my-minute precision in coordination of interdependent work steps in companies with a consistent digitalisation strategy, thus helping to optimise capacities.

Another focal point was the presentation of the new Version 9.1 of the

ERP standard system PSIpenta with numerous innovations and improvements. The special “Manufacturing” show also gave visitors the opportunity to find out more about the cross-industry optimisation software Qualicision. 

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Interview: Thomas Quinet on his new role and his associated visions

Interview with new Managing Director of PSI Metals

Since early 2017, Thomas Quinet has been the Managing Director of PSI Metals alongside Sven Busch. We sat down with him for an interview.

Quinet: Thank you—for the trust that our customers have shown in us

What's the first thing you think of when you think about PSI?

Quinet: For me, PSI is a great company. It gives us all the opportunity to use modern IT technologies to solve specific problems in the steel and aluminium industry. What motivates me is ensuring that we at PSI are allowed to grow along with our customers.

What is your professional background?

Quinet: I graduated as a civil engineer, but never followed a career in that field. After several years in Sales, I assumed the position of CFO of PSI Metals in 2013. I now look forward to the responsible task of leading the business into a successful future as one of its two CEOs.

What targets have you set?

Quinet: Firstly, to carry on developing the company's products. I believe that we can call ourselves the leading provider of production management solutions in the aluminium and steel industry. Product liability means that we are able to meet the most varied requirements of our customers based on a standard software platform and technology. We have worked hard on this in recent years and are in the process of setting the course for the future. For us, it's not just about the challenges of today, but about the anticipated issues



Thomas Quinet is looking forward to solving the challenges in the steel and aluminium industry as co-CEO.

of tomorrow; such as globalisation, big data and IT security.

In addition to our product, the actual value of our company is also what drives me; in other words, our employees. I have set myself the goal of helping them to grow personally based on their talents and motivation. Each employee should have a part in the success of PSI based on individual targets. For me, the actual key to maintaining our market leadership is having experts who are globally available and well trained. The product business is also imposing new requirements on our colleagues. I am looking forward leading the PSI team into this new phase.

What would you say to the existing and future customers of PSI Metals?

in the past. This trust made it possible for us to work with them and improve their production together, to work on their delivery reliability and quality, and to make the entire supply chain more transparent—all with the aim of generating benefit for our customers.

It makes me very proud to see happy customers who we have been able to help, and who have been able to achieve the corresponding return on investment for our solution. 🌐

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Product report: PSImetals Release 5.14 available with comprehensive product improvements

More flexibility on complex processes

The new PSImetals Release 5.14 is again crammed with comprehensive product improvements. Even more customer requirements are now covered by the standard product, meaning no further individual project solutions are needed. Performance has also been ramped up yet another notch in some areas. And improvements in usability have also not been neglected.

Not so long ago, we were proud to report on Release 5.13. Now, the finishing touches have already been put to the next package, which is available to customers in the form of PSImetals Release 5.14. The driving force here is our close collaboration with our customers and, above all, their innovative spirit. It's often a matter of providing users with even more help with complex decisions, or making the modelling of complex processes in the virtual map of the system easier and more convenient.

The supply chain firmly under control

The Caster Scheduler now offers the option to override the maximum casting width, which can lead to increased throughput and a reduction in stored slabs. In addition, a new view has been introduced to predict hot metal consumption over time. The Line Scheduler was successfully modified for scheduling slab cutting lines.

In the Master Planner, the user can now influence the result by making manual interventions in the solution area of the Solver. Drag & drop can be used to change the order of individual tasks on a line, without affecting the planning of upstream and downstream ones.

In the Order Scheduler section, areas can now be defined that allow indi-

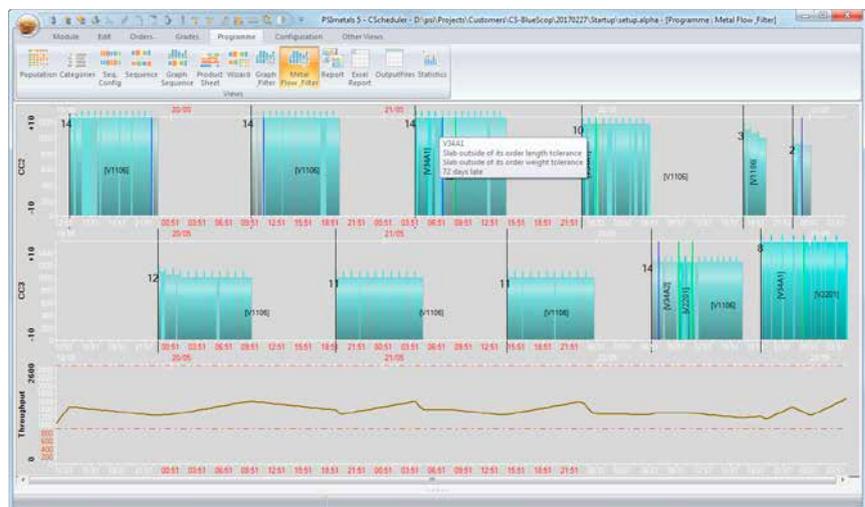
vidual users to create schedules that only apply to the lines relevant to them. And in the Reactive Scheduling section, a full scheduling plan can be transferred from one line to another if necessary. Performance increases of 30% and more have already been achieved when processing mul-

sampling and complex tests, as well as a new test browser that makes it much easier to handle completed tests.

When it comes to managing deviations, additional configuration options mean programming is unnecessary. A new graphical view provides a quick overview of welded coils.

The Melt Shop system now allows manual overwriting of process values and, if necessary, manual triggering of telegrams for automation.

For crane operators in the scrap warehouse, there is now a new crane dialogue to support their specific needs.



Pig iron consumption prediction in the Caster Scheduler.

multiple results of 50000 production orders, for example.

The shop floor has its own rules

In production, PSImetals Production now supports the seamless tracking of longitudinally split coils of different lengths. The production journal offers an improved overview of all scrap-based operations.

The quality department can look forward to more freedom in the area of

For space reasons, their colleagues in the slab warehouse often store a slab over two existing stacks. This is now supported with increased dynamisation in stacking. 

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Product report: Qualicision Functional Decision Design Scheduling Engine (QFDDs)

Integration of KPI-oriented process optimisation

Modern production is changing and increasingly demands self-organisation at shop floor level. Physical production structures need to become more flexible and be supported by driverless transport systems. Flows of information and material are to run in parallel with each other wherever possible, while the variety of KPIs and the resulting interdependencies between the options for controlling production processes is steadily growing.

The KPI-oriented optimisation software Qualicision from PSI FLS Fuzzy Logik Systeme GmbH allows key performance indicators (KPIs) to be mastered for individual targets in production by integrating decision-making expertise into business processes.

Controllability of alternatives

In manufacturing companies such as those in the automotive industry, interactions of the production processes optimised with Qualicision are recorded based on process data in impact matrices during the optimisation of production sequences. Subsequently, a conflict and compatibility analysis uses these matrices to calculate, which alternatives are to be selected in order to achieve as precisely

as possible the previously defined process targets. The number of possible control options thus remains controllable in relation to the optimisation of the KPIs.

KPI-oriented shop floor optimisation

The Qualicision Functional Decision Design Engine (QFDD) supports KPI-oriented planning with the integrable scheduling component QFDDs for shop floor optimisation. QFDDs can be integrated into surrounding infrastructure and administration systems, such as ERP or PPS. Orders for the manufacturing process, for example, are managed in the ERP system and made available to the QFDDs for detailed planning of machine utilisation, taking into account the required

optimisation priorities or KPIs, such as short order lead time, maximum utilisation, minimal setup times, order priorities, delivery dates, or minimum stock levels.

The utilisation plan generated with QFDDs is then provided to the surrounding system for further processing.



Optimisation results in the KPI Viewer.

Goal achievement using a learning algorithm

Qualicision also supports the user with an integrated learning algorithm to find the appropriate priority settings for the KPIs by running analyses by systematically changing the priority settings and optimising machine utilisation based on different KPIs, with the intention to meet the KPI goals as accurately as possible. The results of the KPI optimisation, based on the KPI priority sets calculated by Qualicision, can be displayed in the KPI Viewer. The maximum achievable characteristics per KPI that can be reached during the learning phase are shown in the red area. To help select a specific priority setting, the planner can set a wish pattern (see yellow area), and the corresponding optimal priority setting is displayed automatically (see green area).



KPI-oriented machine utilisation plan.

The modern, user-friendly GUI of QFDDs uses the PSI Java-based Framework (PJF), and makes it easier to adapt optimisation strategies in line with current target requirements, both online and taking into

account real-time situations on the shop floor. Thanks to implementation in PJF, QFDDs can be integrated into all tools of the PSI Software Group. 

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Event: 3rd PSI Logistics Day delivered sustained stimulus in intralogistics

Innovations for smart logistics

With intelligent IT solutions and the presentation of future-focused projects and concepts, the 3rd PSI Logistics Day delivered sustained stimulus for networking and the concentrated deployment of modern technologies in intralogistics.

Information and material flows are increasingly merging together. “Capturing relevant information and using it intelligently is the core of future business models”, explained Professor Volker Stich, CEO of FIR at RWTH Aachen, in his key note speech at the 3rd PSI Logistics Day. As action areas for the company’s future direction, FIR’s CEO called for the close examination of innovative technologies, and the gathering, use and networking of available data. Smart, future-focused software will play a key role in this.

Over 70 guests from business and research attended the 3rd PSI Logistics Day on 13 March 2017 in Stutt-

gart, Germany. With the theme of “Smart logistics is today”, they discussed the current challenges and solutions surrounding automation and digitalisation, as well as the requirements of future projects relating to Industry 4.0 and the Internet of Things (IoT) with renowned speakers, experts and IT users.

Developers from the software company, which was recognised as the Top Innovator 2016, also shared information about the latest innovations of the four software systems of the PSI Logistics Suite. The central focus here was the current release of the

strategic planning and optimisation system PSIGlobal 2.5 and the Warehouse Management Systems PSIWms 4.0, recognised as the “Best Logistics Brand 2017” in the category “IT for Warehouse Management” (see page 10). This award reflects the high regard for PSIWms among market players, chain managers,

logistics managers and experts. This was impressively underlined by the contributions to discussions at the PSI Logistics Day in relation to the high innovation level and scope of functions of the standard products of the PSI Logistics Suite.

Another highlight was the presentation of the showcase “Smart Parcel”, where modules of the PSITms transport management system communi-



Closing thoughts in a relaxed atmosphere in the Red Baron at Stuttgart airport.



Ingolf Heil, Head of Software Technology at PSI Logistics, talks about innovations and the future.

cate with IoT chips or iBeacons and record, network and provide information to the supply chain to enable tracking of monitored shipments. 

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News: PSI awarded contract by Altonaer-Technologie-Holding GmbH for three Group companies

ERP system PSIpenta controls production processes

PSI Automotive & Industry GmbH, a subsidiary of PSI, has been contracted by ATH Altonaer-Technologie-Holding GmbH, Hamburg, to implement the new version 9 of the ERP system PSIpenta for ATH and the Group companies KROENERT, ZAE-AntriebsSysteme and DRY-TEC. PSIpenta replaces the old system currently in place.

In addition to PSIpenta/Multisite, a central purchasing department and service, the scope of supply also includes numerous other modules, manufacturing execution system (MES) components, a control centre and the project management extension module PSIprofessional, as well as data warehousing/business intelligence (DWH/BI) and finance.

Combined Multisite solution

Following a highly competitive selection process, Altonaer-Technologie-Holding chose the ERP system PSIpenta. Ultimately, it all came down to an in-depth understanding of

the typical production requirements of a systems manufacturer and serial producer. In future, these will be optimally combined in a Multisite solution spanning Altonaer-Technologie-Holding's production facilities to allow the three companies to cooperate more effectively in business and logistics.

New PSI Click Design convinced

PSI was able to impress ATH from the beginning of the selection process by offering a preview of its latest technological advancement: PSIpenta version 9. Due to the PSI Java-based

framework, PSIpenta users can configure and combine interfaces with the new and intuitive PSI Click Design. The aim of the new ERP system launch is to increase production process transparency and create shared value for affiliated companies.

As a management holding company, ATH Altonaer-Technologie-Holding GmbH houses three medium-sized mechanical engineering companies under a single roof. The activities of the Group companies traditionally cover the design, construction, sale and service of coating, drying and drive systems. 

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News: PSI gets year off to a good start thanks to high order volume from industry

Growth in industrial business

The PSI Group increased its new order volume by 11% in the first quarter of 2017 to a new record value of 78 million euros; the order backlog on 31.03.2017 was, at 163 million euros, 4% above the figure for the previous year. Primarily thanks to growth in industrial business, group sales improved by 3% to 43.8 million euros, EBIT improved by 20% to 2.6 million euros while the group net result improved by 27% to 1.8 million euros.

Sales in Production Management (raw materials, industry, logistics) in the first three months, with 23 million euros, were 8% above the level for the previous year. The EBIT improved by 7% to

1.6 million euros. The Metals and Automotive Industry businesses were able to significantly increase their volume of orders, particularly through follow-up orders from group-wide contracts with further potential. In the form of

the Mining, Metals Industry, Automotive Industry and Logistics businesses, all areas of Production Management contributed towards improving sales and earnings.

Energy Management (energy networks, energy trading) attained 1% higher sales of 15.9 million euros in the first quarter. The EBIT for the segment improved to 1.5 million euros compared to the previous year. As a result of the regulatory "shadow year", the Electrical Grid business recorded a new order value slightly below that of

the previous year but succeeded at significantly improving sales in the area of higher combined energy systems and sector coupling.

In Infrastructure Management (transportation and security), sales decreased by 13% to 4.8 million euros, while the EBIT improved to -0.1 million euros.

The number of employees in the group decreased to 1,613 on 31.03.2017. Last year's capacity adjustment in Southeast Asia is offset by a growth initiative with new hires in Germany and other industrial countries. The cash flow from operating activities was characterised by changes in working capital and decreased to -0.2 million euros. Liquidity increased to 42.2 million euros, allowing for the proposed dividend payments, share repurchases, financing of sales during the season, and acquisitions.



The first quarter saw PSI establishing a subsidiary in Sweden whose initial focus is on distributing energy grid software and network control as a service in Scandinavia. PSI envisages major potential in both Northern Europe and North America for distributing the grid software offer-

ing many functions for stabilising networks characterised by fluctuations, capacity bottlenecks and, particularly in the USA, outages. In Production Management, the Industry 4.0 trend is increasingly evolving from an innovative topic to a real sales product. 

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EVENTS

www.psi.de/en/events



14.–15.06.2017	Future Steel Forum Sheraton Hotel Warsaw, Poland	PSI Metals
20.–22.06.2017	24. Aachener ERP-Tage Aachen, Germany	PSI Logistics, PSI Automotive & Industry
26.–29.06.2017	ESTAD European Steel Technology and Application Days 2017 Austria Center Vienna Vienna, Austria	PSI Metals
12.–13.09.2017	Zukunftskongress Logistik 35. Dortmunder Gespräche Dortmund, Germany	PSI Logistics
26.–27.09.2017	EXCHAiNGE—The Supply Chainers Conference Frankfurt, Germany	PSI Logistics

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