Automated line scheduling for a higher planning efficiency

To increase the productivity of the scheduling for several processing lines as well as to automatically consider economic and technical restrictions during scheduling in a standardised manner, ArcelorMittal decided for the implementation of the PSI metals Planning Line Scheduler. The line scheduling of production lines from pickling and cold rolling to galvanising and batch annealing is now carried out more automated. The incorporation of PSI metals into the planning philosophy of ArcelorMittal Flat Carbon South America (FCSA) resulted in higher standardised planning processes.

The manufacturing of the hot rolled coils, delivered from ArcelorMittal Tubarão to ArcelorMittal Vega by ship, is characterized by the following processes. Via pickling the oxide layer from the surface of the hot-rolled coils is removed in a continuous process. Multiple strips are welded together and at the end of the pickling process, the edges of the strip steel are ground or cut to the specific sizes. Pickled coils are reduced in their
Dear readers,

Many of our customers in the metal industry manufacture their products at distributed locations – often all around the world. Close proximity to customers is their competitive factor. Standardised and optimised business processes allow a fast response to customer wishes and offer significant potential for savings. The basis for standardised business processes is created by introducing a standardised production management system in place of individual solutions in different plants. An important success factor is the definition of a global rollout strategy.

PSI metals customers such as Vallourec & Mannesmann Tubes or Tenaris have recognised the importance of globally standardised IT processes and applications in their plants: they define PSI metals as their global standard for production management. A joint team – the customer and PSI – is introducing the systems step-by-step, plant for plant. Operators and maintenance personnel in new plants receive their training on live systems. Project terms, launch costs and project risks decrease with every introduction of the system into a plant. Reduced costs for support and maintenance of the systems also have a positive effect on the operating costs (TCO – Total Cost of Ownership).

You will get further suggestions for meeting the economic challenges of a global market environment reading the articles about PSIglobal, the comprehensive management of global logistics networks as well as about Industry 4.0 and its global focus on customers.

I hope you will enjoy an interesting and inspiring read.

Regards,

Detlef Schmitz
Managing Director
PSI Metals GmbH
thickness by cold rolling. After rolling, the coil can be treated in two different ways in accordance with the customer’s requirements. By galvanising the cold-rolled coils are coated with a fine zinc or iron-zinc layer to improve the steel’s resistance to corrosion. Products which are not coated are batch annealed to restore the mechanical properties of the steel. Those products are finally skin pass rolled to correct the flatness and to adjust the desired roughness of the product.

Technical Challenges

The different production lines at ArcelorMittal Vega are very complex with certain technical restrictions including e.g. restrictions regarding the welding machine, the dimensions of the plant (deviations as to width, thickness and length), capacity of the ovens and others, which in turn create certain restrictions in the workflow. Furthermore product specifications reflect customer requirements, for example in terms of material type, surface quality and mechanical properties. To reconcile the plant restrictions with the customer requirements during scheduling, sequencing rules, so-called line programs, for each specific line are needed.

Former Scheduling Processes at Vega

The former programming of the production lines was made by spreadsheet processing in Excel with the help of the in-house production control system (GPAO). For that the information about the coils available for sequencing was imported from the GPAO database into Excel. Based on this data, the programmers manually sequence the materials taking account of the sequencing rules for each line. As there are no Excel system restrictions in connection with violation of the rules the programmers needed long-term experience to be able to create feasible line programs. After creation of the line programs, the programmer manually entered the data into the GPAO system: Coil by coil, in accordance with their sequence in Excel. Finally the GPAO system sent the line schedules to the level 2 systems as requirement for production. Both the manual sequencing and the manual data input were very time-consuming. As the entire understanding of the operating procedure was in the heads of the programmers this planning procedure was furthermore very error-prone and of minor productivity.

Targets & Project Methodology

The main objective of the project is the automation of the sequencing of ArcelorMittal Vega’s production lines in the area of pickling/rolling, galvanising and batch annealing. With a new planning system based on the PSI metals Planning Line Scheduler the following targets shall be achieved:

- Automatic observance of line specific and process-related restrictions during line programming (e.g.: widths, thicknesses, combination of materials based on quality and grade, maximal and minimal batch sizes for each order/each plant)
- Enabling a priority-driven line scheduling with regard to efficiency, production and quality targets
- Decision making support for the programmer regarding the identification of critical points (e.g. automatic warnings in case of rule violations)
- Increase of the productivity of the production line sequencing team by an easier and faster creation of line schedules, higher standardised processes and reduced manual interventions
- Reduction of lead time, work in progress (WIP) and stock of finished products (FIP) as well as reduced scrapping

The project was coordinated by the Integrated Design Process department with the involvement of ArcelorMittal Integrated Planning and Programming department and IT department. The project planning was managed using the DMADV method for the implementation of new products or processes (design for Six Sigma).

Plant-specific sequencing using the example of galvanisation

Source: ArcelorMittal Vega
Realisation based on PSI\textregistered\textsubscript{metals}

The PSI\textregistered\textsubscript{metals} Planning Line Scheduler enables the scheduling of the production lines for different plants in metal production. Using PSI\textregistered\textsubscript{metals}, the scheduler of ArcelorMittal Vega generate simulations and optimised lists of the materials to be processed for each line (cold rolling and pickling, galvanising 1 and 2, batch annealing) taking into account the specific sequencing rules per line. Internal software models reflect the rules and restrictions of production and assign evaluation criteria to them which act as weighting for their significance in the decision-making process. Thus it is possible to suggest an optimal sequence for the list of the coils to be produced.

For each line a specific system configuration was set up taking account of the specific characteristics:
- Dimensions of the coils to be processed
- Types of materials which the line can process
- Physical restrictions of the plant
- Operational regulations such as:
  - Priorities for delayed or premature orders (delay of X days or orders completed Y days prior)
  - Combination of coils that need to go through a subsequent process (e.g. Cutting of coil edges)
  - Combination of material types (e.g. production of materials with restrictions as to the surface quality before or after another type of material)

For the scheduling of the pickling and galvanising lines the user defines which line programme or which production section he wishes to simulate. PSI\textregistered\textsubscript{metals} then provides an optimised sequence taking into account as many rules to be followed as possible. For the scheduling of the batch annealing line the planner defines the material quantity and the approximate number of batches to be produced. The system will then identify the best coil combinations. For all lines PSI\textregistered\textsubscript{metals} takes account of the technical and economic requirements and guides the scheduler in his decision-making. If rules or procedures are not complied, the system creates automatic warnings. Moreover, in a specific list view all critical rules are shown,
which the sequencer has not complied with. Various graphical user interfaces enable the user to analyse and change the list of the suggested coils if necessary:

- View the quantity of planned materials.
- View the quantity of materials available for programming.
- Add, remove or exchange coils in simulations.
- Define the production of one or several coils.
- Create new simulations.

Once the planner has made all changes, he can release the schedules for processing.

Integration with the MES System

The production planning and control system GPAO (level 3) assumes the production control, location monitoring on yards and cranes as well material tracking including material planning, material control and quality monitoring. The system is integrated with the PSI metals Planning Line Scheduler as well as with the basic automation (Level 2) at ArcelorMittal Vega. PSI metals receives the coils available for planning from GPAO, optimises their sequence and sends back optimised line schedules. These schedules can be displayed and monitored as well as directly changed by the user in the GPAO system. The user can also change the production sequence of simulated materials or cancel it. Cancelled coils are then available for programming in PSI metals again.

Achieved results

With the implementation of the PSI metals Planning Line Scheduler the generation of line schedules was highly automated, systematised and standardised. By the fastened generation of lines schedules more time can be spent for the quality analysis of the programs itself. The reliability in respect of meeting the technical and economic plant requirements during schedule generation resulted in reduced scrapping and reduced WIP stocks. The increase of productivity of the programmers results also in improved control of the area’s KPIs. The following productivity in scheduling time could be increased at the individual production lines:

<table>
<thead>
<tr>
<th>Production line</th>
<th>Increase*</th>
</tr>
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<tbody>
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<td>Pickling/cold rolling</td>
<td>60 %</td>
</tr>
<tr>
<td>Galvanising 1</td>
<td>50 %</td>
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<tr>
<td>Galvanising 2</td>
<td>50 %</td>
</tr>
<tr>
<td>Batch Annealing</td>
<td>66 %**</td>
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*in scheduling time   **estimated

These results were made possible only by the interaction between the IT department of process design and Information System Areas, Production programme planning and PSI Metals as software supplier. The use of the PSI metals Planning Line Scheduler at ArcelorMittal Vega and the application of the planning philosophy of ArcelorMittal Flat Carbon South America have contributed to the integration of the plants of Vega and Tubarão.

ArcelorMittal Vega
ArcelorMittal Vega, located in São Francisco do Sul, is specialized in the processing of flat carbon steel based on pickling, cold rolling, galvanizing and batch annealing processes. The unit has two product lines: galvanized steel and cold-rolled steel. The products are intended for the automotive, appliance, civil construction, pipes and other industries.

Source: ArcelorMittal

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Achieved results

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User report: IT support for more than 30,000 active items

An ERP system for a wide range of variants

Holmer Maschinenbau GmbH in Schierling-Eggmühl is a global market leader in the field of sugar beet harvesters. International customers can choose from several hundred configuration options to put together individual machines to meet their requirements. To ensure that production and assembly are synchronised, the PSpenta ERP system ensures that everything works smoothly.

For a long time, harvesting sugar beet was a very arduous task. However, since 1977, beet harvesters have been available from Holmer Maschinenbau GmbH to harvest the heavy beets. They are in such great demand that now over 3000 self-propelling “beet grubbing bunkers”, as the beet harvesters are known in the industry, of the generations Terra Dos T2 and T3 are in use in more than 40 countries. Holmer also manufactures the self-propelling Terra Felis 2 sugar beet cleaner-loader and the world’s most powerful systems tractor Terra Variant for spreading liquid manure, solid matter or mineral fertiliser and for transporting sugar beet or corn. The medium-sized company has its headquarters in Eggmühl near Regensburg in Germany, subsidiaries in France, Poland, the Czech Republic, Ukraine, USA and a representation in China. This market leader for self-propelling sugar beet harvesters employs 440 staff worldwide and achieved sales of EUR 114 million in 2012, around two thirds of which came from overseas. Since March 2013, the company has been part of the globally active French Exel Industries Group.

34,000 active items for several hundred variants

“The vehicles from our five production lines consist of 80% identical parts and 20% variant parts. Due to this wide range, we currently have more than 34,000 different active items in our portfolio. A company that executes its own planning, production and assembly needs extensive IT support to manage all of this”, says Michael Grüner, Technical Managing Director at Holmer, adding that for such a range, logistical control without an ERP system would just not be feasible today.

Seven years ago, the company wanted to expand its product range, increase productivity and grow by acquiring another company. It soon became clear that the old stock management, material management and production planning system, programmed in-house and based on IBM AS/400, had reached its limits. Together with an external consultant, Holmer therefore tested various market-leading ERP systems and finally decided on PSpenta from PSIPENTA Software Systems GmbH in Berlin.

Multi-site and web shop connection

The main reasons for this decision were the advantages in production management compared to other systems, the simple additional programming with Visual Basic for Applications (VBA) and the multi-site capability – in particular with regard to the planned purchase of Gebo Bottmersdorfer Gerätebau GmbH in Groß Germersleben, Germany. PSpenta also allows production and assembly of machines with a particularly high number of variants to be controlled close to production.

“We therefore needed a standard system whose basic functions matched a medium-sized company with a diverse
variant production. At the same time, the system had to be capable of reflecting the value flows from multiple plants well”, said Stefan Leidinger, head of IT, processes and production planning at Holmer. “Even before we purchased the new company we wanted to set up two logistically separate plants in Eggmühl – one for production and assembly and one for service and spare parts”. This makes sense, as both plants work differently: service processes many small orders, whereas production processes only a few, but very complex orders. The intention was that demand management would run separately. The multi-site capability of PSI Penta allowed the warehouses to be separated. This now works so well that in plant 2, order processing for spare parts has been coupled with an online shop. 85% of all orders for spare parts are processed via the web shop. These orders flow directly into PSI Penta Order Management via an intelligent interface. “This saves us from manually entering more than 100,000 order items every year, with an error rate of almost zero”, says Leidinger.

ERP as standard in all areas of the company

“For us, it was important from the very beginning to use standard solutions for the production software – solutions that would enable us to grow step-by-step. PSI Penta maps our business processes very well and we use the system throughout the company. In doing so we are trying to implement the concept of an ERP system fully”, says Leidinger. At the moment, Holmer is upgrading the ERP system from Version 7 to Version 8.2. This is important, as the production start-up of the new, three-axle beet harvester Terra Dos T4 is currently presenting new challenges. Holmer launched this machine at the beginning of this year and it will go into series production next year.

Holmer Maschinenbau GmbH

Holmer is a modern, medium-sized machine construction company that develops, manufactures and sells agricultural harvesters. In the field of self-propelling sugar beet harvesters, Holmer is a global market leader.

Main location: Schierling/Eggmühl, Germany

Founded: 1974

Employees: 440

Sales: EUR 114 million

Global locations:

Germany, France, Poland, Czech Republic, Ukraine, USA, China

Software in use

- Order management
- Multi-site
- Shop-floor data collection
- Personnel time management
- Financial accounting
- Cost accounting
- Product configurator
- Variant management

![Holmer Harvester](image)

In the five product lines, the vehicles are made up of 20% variant parts. Source: Holmer
Product report: Comprehensive analysis of the logistic network

15 million transport requests optimised

In solving strategic business issues around the design and optimisation of the supply chain, increasing numbers of market leaders are investing in the planning, optimisation and control software PS Ig l o b a l from PSI Logistics.

Using synergies, reducing costs, increasing efficiency and the level of service – these are the objectives of companies that are increasingly putting their entire supply chain to the test. More and more of them are turning to the planning, optimisation and control software PS Ig l o b a l from PSI Logistics. In the last two years alone, the specialists for logistics software have implemented numerous PS Ig l o b a l projects, mostly at renowned market leaders and across all industries, thus optimising around 15 million transport requests. “The particular benefit on the one hand is the extensive range of functions with which PS Ig l o b a l covers all important strategic issues”, explains Dr Giovanni Prestilippo, Head of Logistics Networks, PSI Logistics. “On the other hand, we offer PS Ig l o b a l equally for purchase and as a consulting service on a project basis. Companies can thus use the system once, such as when selecting a location or checking and redesigning their logistics network, or for an independent check, design and continuous optimisation of their supply chain.”

PS Ig l o b a l is the strategic standard software for setting up and expanding logistics networks, for mergers and acquisition measures or for the development of new business processes. As software for logistics management, the IT system not only merges specific operative data for management analyses, thus highlighting important key figures for detecting savings potential; it also enables the mapping, analysis, control and optimal design of multi-level and multi-module logistics networks – all around the world. Its scenario technology and integrated analytical models allow you to design, check and optimise multi-mode networks and multi-level processes, as well as identify main influencing factors and sensitivities. In model investigations, for example, the optimum number and position of locations or the transport structures are determined to reduce storage and transport costs. Mathematical procedures also allow future expected quantity structures or labour cost developments to be included in the planning and the networks to be aligned accordingly.

For example, Intersnack Group GmbH & Co. KG, Düsseldorf, Germany, one of the leading baked snack producers in Europe, has been using PS Ig l o b a l since June this year to check and optimise the logistics processes in the entire supply chain – from production to sales. For this type of analysis, the integrated scenario technology in PS Ig l o b a l and the flexible algorithm for optimising goods flows in road and rail networks also provide the opportunity to create multi-modal logistics networks in due consideration of the carbon footprint and after weighing up cost structures.

A further user of PS Ig l o b a l, a leading German mechanical engineering company and supplier to the automotive industry, recently launched the optimisation of its European location network. To consolidate the delivery flows of more than one million machine and plant parts every year, as well as to increase the quality.

At the baked snack producer Intersnack, PS Ig l o b a l optimised the supply chain. Source: Fotolia
of service, the number and position of locations is to be aligned with market requirements. The analysis focussed on the cost structures for warehouses, transports and stocks. PSIglobal supports the actual value analysis and the design of a future-proof location and distribution concept.

The range of tasks for the calculation models for PSIglobal was between one central and 30 decentralised locations. Effects of quantity fluctuations on logistics were also considered, as were the differing effects of different goods categories. In light of the short time slot for punctual delivery, the simulations also considered in particular the level of service. As a result of initial analyses, the solution for economic operation and optimal delivery flows could be restricted to just a few locations. The further application of the PSIglobal scenario technology finally determined the optimum locations and four European logistics centres for punctual continental supply to customers. For future, cost-optimised order assignment with PSIglobal, the complex tariff structures of the numerous logistics providers incorporated were presented to allow comparison.

One of the leading global manufacturers of sports items provides a further example. The strategic objectives for the use of PSIglobal includes the reduction of warehouse capacities and stocks as well as minimisation of the stock, handling and transport costs by concentrating storage locations and consolidating transports in procurement and distribution. The complex procurement network includes imports from overseas and supply from European production locations, as well as provision and storage of these products to numerous locations in Europe. From there, self-controlled sales areas, trade and consumers are supplied directly via all sales channels.

Using PSIglobal, the company reviewed the economic efficiency of the storage locations and aligned the global transports, continental distribution and storage costs in the European distribution centres with ideal demands. In hundreds of scenarios, PSIglobal illustrated the dependencies of cost-relevant factors such as stock and transport costs, level of service and delivery slots and calculated an optimised implementation model. This enabled the company to reduce the number of distribution centres in Europe to one third, maintaining the same service quality but with significantly reduced cost structures.

“PSIglobal is a unique standard software on the market for comprehensive solutions for strategic business issues”, continues Dr Prestifilippo. “The high demand and successes that the companies generate from the projects show that with this IT system, we have developed a premium product for the market.”

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Product report: People, machines and software

The Industry 4.0 eco-system

The fourth industrial revolution – Industry 4.0 – is the consequence of the changed production conditions in Germany and Europe. One outstanding objective is assuring the competitiveness of German and European industry in international competition in the supply chains. It is no longer only individual companies or company groups that are in competition for the favour of the global customer. The performance of these production networks is decisive for the success or failure in global markets.

Customer wishes that are becoming increasingly individual lead to a very wide range of variants, with production more frequently of a batch size of just one. This has far-reaching effects on company processes that can only be managed if manufacturing processes are integrated not only horizontally but above all vertically – up to the level of automation. To manage this high variant diversity economically, companies have to be extremely agile. This can only be achieved by creating smaller units and through cooperation between different companies, including on joint value creation.

Megatrends in business

Globalisation of demand goes hand in hand with the globalisation of production. “Local content” plays an increasingly greater role in conquering foreign markets. Managing the resulting requirements for production control and company management requires an efficient networking of all locations and value creation partners. The networking of various companies and the necessity of communication between the many different software systems available today is just one of the significant challenges. The demographic change demands new concepts in the design of the production environment. The ageing company with a simultaneously reducing potential for employees requires, in addition to an increasing level of automation in production, modified interaction concepts with the production process. The interaction will be aligned to a significantly greater extent with the user and must consider the given work context. This also means that, from the large quantity of information to be expected, the information relevant to the specific situation must be filtered out and presented. In addition to tools, new interaction concepts also require correspondingly trained people. The change in values is making people focus on new or different aspects when planning their lives. Social and economic sustainability are more important now than ever before. Freedom and individual responsibility in creating your personal environment will bring about new models in the organisation of the working world.

Smart factories

Production systems are shaped by cyber-physical systems (CPS). One of the main properties of this CPS is the advanced networking of the production systems using Internet standards. It is not only the machines that are communicating with each other – the workpieces are communicating more and more with the production environment.

“The decomposition of the value-added chains and the megatrends in society must be provided for with new approaches to the design of the production environment.”

Karl Tröger, Product Manager, PSIPENTA

Source: PSIPENTA
technology. To do this, resources and workpieces have an identity in the Internet of Things. The interaction between workpieces and production technology in smart factories allows flexible and application-based reconfiguration of production systems. The resources and capabilities of these production systems are visible and available in the Internet of Things, where they are known as “production as a service”.

“Industry 4.0” must be understood as a future concept for society as a whole, “society 4.0” so to speak, in which people, perhaps more than ever, are at the forefront. The profiles of certain job descriptions will surely change or be completely reformed. The increasing diversity of products with short delivery cycles and simultaneously decreasing numbers of specialist personnel available can be an additional challenge for many companies. It is also important not to forget that urban production of the future is moving closer to where people live. This will require different logistics concepts for production supply and disposal.

Versatile production systems – forerunner for the realisation of Industry 4.0

In 2010, the research institute for rationalisation at RWTH Aachen University, Germany, started the research project “Versatile production systems through integrated IT structures and decentralised production planning and control” (WInD). Partners from industry and scientists from industry-related research investigated how to increase the capability of coordination in production networks using a versatile production system, in particular for mechanical and plant engineering. PSIPENTA’s involvement in this research project as an IT partner brings with it an extensive range of expertise relating to ERP and MES. One focus was on closing known standardisation gaps with the aim of thus increasing data availability and realising close to real-time processing of this data. The result was a concept for standardised, process-oriented interfaces between the IT systems involved that can be used throughout a company’s process structure. The interfaces enable complete integration of the IT infrastructure: the integration of PLM, ERP and MES systems. At the same time, connection to the myOpenFactory EDI standard, enhanced with additional areas such as automated master data exchange or the connection of web shops, is possible. Thus for the first time, all processes from the purchase order through any changes in the design, the purchasing processes, the production planning and control up to workshop level are mapped completely via integrated software modules. The production planning logic developed enables adequate processing of real-time data.

Learn more about the important forerunner for the fourth industrial revolution and scan your QR code.

At the Hanover Fair, the WInD research results were presented for the first time at the PSIPENTA exhibition stand. Source: PSIPENTA

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► Your contact
PSIPENTNA presented the new ERP Version 8.3

From 24 to 26 September 2013, at IT Business in Stuttgart, (Hall 3, Stand E11), PSIPENTNA Software Systems GmbH presented the newly released (at the end of June) major release 8.3 of the ERP standard system PSI\textit{penta}, with the new Supply Chain Management (SCM) developed in Java. This year Gerd Mosca AG from Waldbrunn, Germany, was providing the PSI-typical customer exhibit.

The new, central SCM module of PSI\textit{penta} Version 8.3 contains the classic automotive functions such as batch tracing, packing material management and electronic data interchange (EDI). It also makes the implementation and adaptation of standards (EDIFACT, ANSI, Odette, VDA, Gayla,) and special processes such as MAIS (GM), BeLOM (BMW) or AMES-T (VW) easier. New graphic interface elements support users in the individual configuration of specific business processes.

The new Community Platform www.PSInG.org offers a more intensive exchange of experiences amongst end users as well as more efficient support processes. From Version 8.3, PSI\textit{penta} users will receive a central access to various service, support and communication functions from the client. These functions will strengthen dialogue in the network.

The trade fair exhibit this year, a fully-automated strapping machine from the latest EVOLUTION product series, is provided by Gerd Mosca AG. Mosca first decided to use the PSI\textit{penta} ERP standard system in 1997. In a new selection process, PSI\textit{penta} was awarded the contract again in 2010. Today, Mosca AG uses the system both in order-based small-scale production as well as in plant engineering. In cross-location collaboration, the company uses the integrated Multi-site multiple plant control system. This not only maps other international plants, but also maps the various divisions as separate units in the ERP system. An integrated variant configurator allows the sales team to configure the orders freely and agree them with production. The new procedures save Mosca 60% in administrative mean lead time alone.

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PRESENTATION
ERP specialist forum
24/09/2013, 13:00–13:30
“Supply chain management in global companies”
Specialist forum 3.1
Karl Tröger, Product Manager, PSIPENTNA Software Systems GmbH

GUIDED TOUR:
ERP FOR PRODUCTION COMPANIES
Variant management
24/09/2013, 13:00–13:30
Project management
26/09/2013, 12:00–12:30

Information:
www.messe-stuttgart.de/where-it-works/
Event: 27th annual conference of PSIPENTA users in Dresden

Values, economic efficiency and the future

The customer executive and PSIPENTA management are happy to announce that this year’s annual conference of the PSIPenta user interest group (IPA) will take place from 14 to 16 November in Dresden. The event is being run under the motto “Values, economic efficiency and the future!”

In particular, the discussions will look at topics such as the joint creation of values, the influence of the individual on design, as well as the big question: where is the journey taking us – for PSIPENTA and for customers!

As early as Thursday the participants will be brought together with three different viewings on the agenda. The plant viewing will take place firstly in Europe’s largest printing group, Prinovis Ltd. & Co.KG, and secondly in the Radeberg printing plant of Karosseriewerke Dresden GmbH. In keeping with the special event location in Dresden, the third viewing takes participants to the glass manufacture of Automobilmanufaktur Dresden GmbH. All participants will then meet for the traditional get-together.

The programme on Friday includes interesting workshops organised by and with customers that will provide opportunity to share experiences. A highlight of the event is the values discussion with the keynote speaker Dr. Heiner Geißler, a former federal minister. In a “Best in class” exhibition, customers will also have the opportunity to get to know eleven product partners along with their products that complement the PSIPenta portfolio. An exclusive evening event at an amazing venue concludes the second day of the congress.

The topics on the final day include the major release PSIPenta/Version 9, which will be completed in 2014, as well as the new functions and offerings of the PSIPENTA Service Portal and the Online Community PSIng.

Accompanying partners will be offered a supporting programme tailored to Dresden.

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Controlling diversity & complexity – Software for variant management
24 October 2013, 12:00–16:00

Using a best practice example from a long-standing customer, Gerd Mosca AG, PSIPENTA will show you how the ERP system PSIPenta interacts with the ACBIS variant configurator.

Participation: www.psipenta.de/praxistag-variantenmanagement/
Event: Focus on user benefits

First-hand news

At the meeting of the PSI Logistics User Group at the end of November in Waldenburg, Germany, the focus will be on interactive exchange of information and knowledge about PSI\textit{wms}. With a plant viewing at the distribution centre of Würth Elektronik eiSos GmbH & Co. KG, participants will learn about practice-based optimisation options of PSI\textit{wms}.

For the fourth time, users of the Warehouse Management System PSI\textit{wms} will meet on 28 November 2013 in Waldenburg, Germany, to swap experiences at the PSI Logistics User Group (PLUG) meeting and to find out about the latest developments, features and the current application options of the IT system. This year, the PLUG meeting is taking place at the premises of Würth Elektronik eiSos GmbH & Co. KG. In addition to customer presentations, the agenda includes an outlook for the current release PSI\textit{wms} 2.2 as well as an interactive workshop on the topic of 3D visualisation.

Furthermore, in a current inventory report, Holger Michael, Works Manager at the logistics centre of Eurotape Media Service GmbH, Berlin, will present the changes that have taken place in the twelve months since the operation viewing at last year’s PLUG event. Special attention will be given to the further tailoring and expansion of the support provided by PSI\textit{wms}.

This year’s PLUG meeting will finish with a viewing of the distribution warehouse of Würth Elektronik eiSos GmbH & Co. KG. Peter Schlechtininger, Würth project manager for the implementation of PSI\textit{wms}, will inform the participants about the special features of the project, the process optimisations that have taken place and the pending automation solutions in Waldenburg. The prize draw at the end of the event, now a well established occurrence, will give one lucky winner an exciting prize.

Message: ISO 27001 certification

Authenticated data protection security

Customers of PSI Logistics can be confident of compliance with high security and data protection standards: the IT security of PSI Logistics has been awarded the ISO 27001 certificate.

Security takes priority – following this maxim, PSI Logistics has had the company's data protection and IT security systems checked. With success: in June 2013, the company was certified in accordance with the requirements for
information security as per DIN ISO/IEC 27001. The successful audit was performed by TÜV SÜD Management Service GmbH. The independent certification from the German accreditation body certifies that PSI Logistics has successfully introduced and operated an extensive management system for information security. The system protects all business processes and the information from these business processes during the development and sales of IT systems for logistics as well as consulting and support services. The basis for the certification of the management system is the integration of all measures for information security in the quality management system according to DIN EN ISO 9001.

“With our products and projects, we often work at those IT interfaces of our customers that handle sensitive data. Secure handling of the data and information is one of our basic principles”, explains Wolfgang Albrecht, Managing Director of PSI Logistics. “The official certification of our management system for information security now underlines the high demands for data protection and security that PSI Logistics sees as an obligation to its customers as well as our high level of security in the development of software solutions and products and our services.”

### Event: PSI Logistics at CeMAT Russia

#### Logistics IT for the Russian market

At CeMAT Russia, in Moscow, PSI Logistics, along with PSIglobal and PSIwms, presented a cross-section through the entire product portfolio. Focus: the Warehouse Management System PSIwms with numerous unique selling points.

The control of automated processes in intralogistics directly from the Warehouse Management System PSIwms, as well as the options for individual configuration of PSIwms by the user was the focus of the PSI Logistics exhibition appearance at CeMAT Russia in Moscow.

From 24 to 27 September 2013, the software provider that specialises in logistics exhibited at Hall 7, Stand B101 at the International Exhibition Center on the Moscow Crocus Expo site.

As part of the subsequent German-Russian industry forum, in the section “Effective management of company intralogistics”, Aleksej Ladur, CIO of the Finnish contract service provider Itella Logistics, presented the optimisation options and the strategic business advantages that result from the use of PSIwms in warehousing. Itella, one of the leading logistics providers in the Russian market and a customer of PSI Logistics, uses PSIwms at around 15 locations in the Russian Federation.

In Russia, PSI Logistics has already realised numerous demanding software solutions for well-known national and international companies such as the producer of milk products Friesland Campina or the shoe manufacturer Ecco-Ros.

### Background:

PSIwms has been localised for the Russian market – in addition to the user interface and the product documentation, this applies to the entire documentation for project execution up to quality control.

At CeMAT Russia, in addition to solutions for current projects the focus will be above all on unique selling points of PSIwms. Thus, with only nominal programming effort, users can align PSIwms themselves to new clients as well as changes in topologies, storage and picking strategies in the warehouse. New configuration functions on the user interface, such as a new editor for the process logic, enable the desired adjustments to be implemented using Drag and Drop.

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Visit us in the PSI Havanna Lounge!  
Hotel InterContinental / Room Tiergarten 1
Secure energy supply

Process IT in the age of cyber security

The importance of information technology in the process area of energy supply has increased dramatically in the last few years. Important developments in energy supply such as the separation of network operations and energy operations (unbundling) were only made possible by means of modern information and communication technology (ICT).

In particular, the energy transition is based on a massive use of ICT and cannot be implemented without it. The resulting increased dependency of their availability is reason enough to properly protect the controlling and telecommunication systems required to operate the energy supply networks. In Germany and other European countries, the BDEW white paper currently serves as the primary guideline for security requirements for control systems. PSI control systems completely fulfil the requirements of the BDEW white-paper. The functionalities bundled and provided for PSIControl in an IT security basic package are integrated into the systems delivered in accordance with the customer requirements. Furthermore, PSI has designed and implemented the IT security expansion package PSIsecure.

psi China awarded new contract in Chinese Steel sector Valin ArcelorMittal Automotive Steel decides in favour of PSI metals

PSI China signed a contract with the Valin ArcelorMittal Automotive Steel Co., Ltd (VAMA) to implement the production management solution PSI Metals. VAMA is a joint venture between ArcelorMittal and Hunan Valin Iron and Steel Co., Ltd. The company is setting up a new cold rolling complex in Loudi in the Hunan province in order to produce and market products for the automotive industry. The start of the production is planned in June 2014.

In the first phase, PSI Metals will cover the whole cold rolling mill area offering functions for order dressing, integrated planning, production configuration, production execution, quality management and logistics. The VAMA project will be a milestone for PSI China in providing the PSI Metals solution to the automotive steel market in China. VAMA choose PSI as the MES provider due to PSI's worldwide steel industry experience and the long-term cooperation between ArcelorMittal and PSI.

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IT security basis package

PSI control systems are delivered only as tempered systems. That means that specifically generated minimal basic systems provide precisely the services required by the application software systems installed on the computer. All the system components are patchable. PSICONTROL has been consistently implemented as a so-called “minimal need to know” principle so that without a successful authentication, no system operation is possible with the exception of the login. The authentication is made using a password and card reader. It is assured that a login is also possible if the main domain name server is not accessible. Users can be issued precisely the rights that are required to fulfil their tasks. To assure that potential intruders cannot move freely through a “compromised” network, PSICONTROL networks are divided into appropriately sized network islands (perimeters). The network segmentation is achieved by the use of firewalls. All the network connections that extend beyond confines of the site (WAN connections) are produced as VPN tunnel connections with encrypted data transmission and TCP/IP protocol (IEC 60870-5-104).
In the age of cyber security, remote accesses are considered to be especially critical elements of system architectures due to the fact that as a rule they are connected with public networks and therefore accessible for attackers. PSIcontrol is equipped with a secure and time-tested remote access concept. The installation, compile and patch (ICP) server is an essential component for the fulfillment of the BDEW whitepaper requirements. All source and object codes as well as the system parameters are stored on this server.

Extension package for increased IT security

The solution PSIsecure provides a broad range of technologies for successfully resisting the attacks of the future that are becoming increasingly more sophisticated. Because the current attack scenarios are very complex in their design, conventional virus scanners neither detect all the known malware such as viruses, worms or Trojan horses nor the unknown, so-called zero-day exploits. This risk can be completely excluded with the application whitelisting, because, in contrast to the virus scanner, a list with trustworthy code is defined in the whitelist. Prior to starting any program, the content origin and integrity are checked and compared with the whitelist. Only recognized programs can be loaded and executed.

Centralized security events and next generation firewalls

The security information and event management (SIEM) is a central platform for the collection, detection, processing and reporting of security events. The SIEM integrated in PSIsecure consists of functions such as central data collection, correlation and alarming, reporting, archiving and compliance testing. Firewalls regulate data traffic. This simple regulatory mechanism has been significantly extended by means of a next generation firewall in PSIsecure. Next generation firewalls completely analyse the data traffic. As a result, for instance, rules are possible at the application level and even at the user level. With IPS/IDS functions data content is checked against signatures as well as against known viruses, Trojan horses and worms.

Events: Trade fairs in Brazil and China

PSI presents the SCADA system PSImining – the digital mine

By participating in EXPOSIBRAM from 23 to 26 September 2013 in Belo Horizonte, Brazil, PSI Production GmbH exhibited at a Latin American trade fair for the first time. At the communal stand for North Rhine Westphalia (stand F2), PSI presented the innovative PSImining control system for underground coal mining to the South American trade public.

At the largest mining trade fair in Latin America, EXPOSIBRAM 2013, spread over an area of around 15,000 m², large and important international mining companies as well as product and service providers demonstrated their mining solutions. Furthermore, PSI Production is also presenting the innovative control technology PSImining to a Chinese trade audience from 22 to 25 October 2013 at the CHINA COAL & MINING EXPO 2013 in Peking in China at the German communal stand (New Hall Stand D058). China Coal & Mining Expo, which has been taking place every two years since 1985, is the largest coal mining exhibition in China and is taking place this year for the 15th time.
Group sales increase

PSI invests more in Industry 4.0 and export in first six months

PSI Group increased its sales in the first half of 2013 by 2% to 87.7 million Euros. The EBIT was, with 3.5 million Euros, 31% below the figure for the previous year. As a result of higher deferred taxes, the group net result decreased to 1.7 million Euros. New orders of 109 million Euros were 4% below those of the previous year, the order book volume on 30 June decreased to 137 million Euros. In the previous year, there were two important new orders in the second quarter with a total volume of 10 million Euros and a licensing of over 2 million Euros.

Sales in Production Management were, at 43.2 million Euros in the first six months, slightly below the figure for the previous year. The metals and manufacturing industry businesses continued their good development. In the metals industry, PSI profited with orders from North America resulting from the strongly reduced energy prices as a consequence of shale gas that is leading to significant investments in the steel and aluminium industry in the US. Production Management was burdened by the investments in software for the optimisation and control of larger logistics networks that are well over budget and a functional prototype for highly flexible graphically modelled business process and production flow control that are extremely important for the implementation of the Industry 4.0 concept. PSI is significantly involved in a number of research projects for the Industry 4.0 initiative of the German government. Energy Management had 3% lower sales of 29.7 million Euros in the first six months. The gas and oil business continued its very good development; the energy trading systems business improved its result. The electrical energy business invested very heavily in multilingualism, support of Asian characters, client capability, voltage stability optimisation and other important special functions for the export to Asia.

Infrastructure Management increased sales by 31% to 14.8 million Euros. The EBIT for the segment increased significantly to 1.7 million Euros. The business in Southeast Asia and Poland again developed positively.

The number of employees in the Group increased as of 30 June 2013 to 1,667 as a result of the expansion of capacity in the export markets.

PSI in action!

Berlin TEAM relay and dragon boat FrankenCup

Company sporting events are increasing in popularity with employees in the PSI Group. In addition to the cross-location and cross-department shared experience, the health aspect, and a big portion of fun, there is also a certain central competitive element that in the end unites everyone in one big team.

For the 14th Berliner Wasserbetriebe 5x5 km TEAM relay from 29–31 May 2013 in Berlin, even more PSI colleagues took part than the previous year, travelling from Poland, Aschaffenburg, Hamburg, Hanover and Munich. A total of 12 PSI teams and many fans took part in the TEAM relay in the Tiergarten in Berlin. For the third time in succession, the colleagues from Aschaffenburg made the top of the internal PSI ranking. As part of the Aschaffenburg harbour regatta on 6 July 2013, the Aschaffenburg PSI team “Nutcracker” successfully took part in the 11th dragon boat FrankenCup 2013 and came 12th out of a total of 30 teams.
### EVENTS CALENDAR 2013

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Find out about all of the PSI Group events at: www.psi.de/en/events