

production manager

Journal for Logistics & Production

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Optimum multiple plant management with PSIPenta/Multisite Successful in different cultures

IT-based management of more than one site from a central point is not really that new. But precisely what you can do with an ERP system with sophisticated Multisite functions is by no means known to everyone. The Grenzebach Group demonstrates to impressive effect how a clever and well-designed system can contribute to a company's success.

Grenzebach Maschinenbau GmbH is based at Hamlar, a town in the Bavarian region of Germany. Originally set up as a repair shop for agricultural machinery in 1920, Grenzebach Maschinenbau then came into being in 1960, initially specialising in the manufacture of materials handling systems such as

conveyor belts for gravel. This was followed by machines for cheese production and the furniture industry. Today the firm's business areas include process engineering, building materials, glass and wood technology, baggage handling and intralogistics, as well as numerous special solutions.

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News ticker

+++ PSI continues to improve its market position in the Swiss rail transport sector – Aare Seeland mobil AG is relying on a new operations control system with integrated passenger information +++ PSIPENTA is presenting a Smart Factory scenario at CeBIT 2013 – Tribute paid to the 25-year partnership with VW in the Robotation Academy +++ PSI China lands a major steel contract for JISCO TianFeng Stainless – New client Jiuquan Steel and Iron Group opt for PSIMetals +++ PSI awarded stock management contract by lingerie manufacturer Milavitsa – PSIums used to manage a distribution centre at a new site with a higher daily throughput +++ Change in management of PSI AG – Harald Fuchs joins the Executive Board – Armin Stein to leave the company on 30 June 2013 – Dr. Harald Schrimpf renews his contract for another five years +++

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Editorial

Dear readers,

We are delighted to present to you this year's first issue of the Production Manager just in time for the two major spring fairs, CeBIT and the Hanover Fair.

At the moment everyone is talking about Industrie 4.0, a term that is perhaps being rather overworked. And indeed, software from the various units of the PSI Group is already making a key contribution towards integrating modern information technology with industrial processes, and so turning rigid production structures into efficient modular systems.



In this latest issue you can read about the attendance of PSIPENTA and PSI Logistics at CeBIT and the Hannover Fair. Here we take a look at the topic of the Smart Factory and present some of the latest product innovations.

In our cover story "Successful in different cultures" you can read how the company Grenzebach Maschinenbau GmbH, one of PSIPENTA's first development partners, nowadays manages its plants in Germany, China and the USA using centralised control with the help of the PSIPenta/Multisite connection.

Other articles describe the successful use of PSI software at Groth Luftfahrt- und Systemtechnik GmbH and Würth Elektronik eiSos GmbH & Co. KG as well as the "Best for Production" project underway at Friedrich Wilhelms-Hütte Eisenguss GmbH (FWH).

We hope you enjoy reading this issue.

Regards,



Alfred M. Keseberg
Managing Director
PSIPENTA Software Systems GmbH

► Continued from page 1

By founding agencies and production plants in Georgia/USA (1988) and Shanghai/China (1998) the company has managed to gain a firmer foothold in its various markets while not only maintaining, but also increasing its high export shares. Majority holdings, acquisitions and start-ups in Europe, Brazil, India, Indonesia and Taiwan make Grenzebach a rapidly expanding global player with agencies and production facilities in three different currency zones. A workforce of more than 1500 notches up sales exceeding 300 m.

IT in different cultural contexts

With such rapid growth, one issue became increasingly evident in recent years and was described by

Jürgen Brunner, CIO, as follows: “Given our massive expansion, a key task for the entire organisation over the last few years has been to set up and anchor identical processes at all sites – in other words, to complete rollouts involving different cultures and languages.” The ERP system PSIPenta introduced across the company many years ago has greatly assisted the people in charge of IT in achieving this objective thanks to its sophisticated and carefully designed Multisite functionalities for managing multiple plants.

The ERP standard of Berlin-based PSIPENTA Software Systems GmbH has featured the Multisite concept since 1999. It has been continuously enhanced with the help of PSIPENTA users and above all with Grenzebach, which was one of its first development partners.

Following Grenzebach's takeover of the former Babcock subsidiary BHS at Bad Hersfeld in 2005, a firm that exclusively operated with SAP, it was not least these very Multisite capabilities which prompted a move away from SAP at all production and materials management departments. Another major benefit is also cited by the CIO: the transparent functional scope of the ERP standard, which is equally suitable for managing a 500-strong business or a small agency with just 20 people.

Global planning

Grenzebach meanwhile makes use of Multisite throughout the company group. If the firm is awarded a contract for a plasterboard plant from Mexico, it will be handled by Grenzebach America as the official contractor.



Automatic baggage loading with Grenzebach Robotic in the field of intralogistics (Figure 1) and optimum (un)loading of pallets (Figure 2).

Source: Grenzebach

The customer transaction is then created in the Multisite Central Sales Division. The project can be instantly viewed all over the world. The central order management team responsible in the USA, which has an overview of all plants in the group, can now divide up the tasks depending on the expertise and capacity available. The plasterboard plant mentioned above consists of a component used to produce the plaster paste. In this machine the mass is applied to a foil, where it is moulded into shape and smoothed out. It then runs along a setting belt until it has the right consistency. The set plaster paste is then cut to size, transported to a drier and stacked.

Production is a lengthy process that calls for a number of different techniques. The stacking system at the end of the line is one of Hamlar's core competencies, and drying involves process technology

that is a speciality of the Bad Hersfeld production plant. While roller conveyors can be manufactured almost everywhere, i.e. allocated according to free capacity, dryers for example are clearly a matter for the Bad Hersfeld works. In any event, this is where they will be designed, although manufacture might also take place elsewhere. The entire contract is ultimately divided up internationally between different sites, where it is then completed.

Delivering all over the world

Logistics also plays a major role when allocating the work involved in a contract as the finished systems are only put together at the customer's site. Depending on the country of destination and applicable transport/customs regulations, Central Order Management, which is additionally

responsible for logistics, must carry out exact planning to ensure that all components of a plant arrive at the installation location on time. The project manager can monitor the progress of production overall so that none of the fitters available throughout the world turns up for work in vain.

All sites post the work they perform using a separate cost unit in PSI*penta*, in which all items are finally brought together. Every process is mapped, from the quotation through order acknowledgement, production and invoicing. An online interface transmits the invoicing data to the SAP financial software which posts it and tracks all payments. Invoices for constantly recurring spare parts are directly issued by PSI*penta*.

Although the program is used for posting all items in the case of large plants, invoices are individually designed by



Process-controlled material flow and handling systems in the plate glass industry provide for maximum precision and trouble-free operation during the manufacture, processing and conveying of glass, making Grenzebach a company that sets standards. Source: Grenzebach



Jürgen Brunner

Head of IT/Organisation, Grenzebach

“Given our massive expansion, a key task for the entire organisation over the last few years has been to set up and anchor identical processes at all sites — in other words, to complete rollouts involving different cultures and languages.”

each contracting factory and generated in Word as such plants generally involve customised manufacture that will not be repeated.

Competing successfully in international markets

The ERP system in fact corresponds to a company's headquarters. Strategy and key decisions naturally remain the responsibility of Management, but the work is carried out directly where a contract comes about, in a system that is centralised for all parties. “It would be simply nonsense to give an order from anywhere to some central point that would then handle it, distributing individual jobs to production plants, which would possibly have to start the planning process all over again”, comments Brunner, explaining the benefits of the Multisite system. The CIO emphasised how the Multisite concept helps make the Grenzebach Group more competitive at an international level. It shortens response times, does away with poor planning, cuts costs and greatly reduces interfaces while decreasing the number of information transfer points, which in turn leads to massive time savings.

In China users have already been working successfully with PSIPenta 8.0 featuring a Chinese interface. The latest release, 8.2, is also set to be introduced across the organisation: “Upgrading to the new release will enable us to significantly reduce the number of our modifications. We are also seeing ourselves increasingly reflected in the standard”, comments Brunner, describing the background for this decision. “Developing the program in line with customer requirements has always been a strength of PSIPENTA. We feel our needs have been understood and taken seriously”, says Brunner, praising the partnership-based collaboration with the firm from Berlin and its expertise in the branch. ☺

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Founded: 1960

Employees: > 1500

Turnover: > € 300 million

Users: > 580

Business areas:

- Process engineering
- Glass and wood technology, building materials
- Baggage handling and intralogistics

Locations:

	Germany
	Italy
	USA
	Russia
	India
	Brazil
	Taiwan
	China
	Indonesia

Product report: A variety of functions and new ways of optimising picking

Optimising intralogistics with PSIlwms

Thanks to its many different functionalities PSIlwms provides for intelligent warehouse and space management and the organisation of efficient material flows while reducing picking times by as much as 50%. Simulation tools and forecasting functions moreover result in reliable forecasting and resource efficiency.

Intralogistics offers a great deal of unused potential for optimisation. Focus on picking. Depending on the company and branch, picking accounts for between 40% and 55% of warehousing costs. The latest results from reference applications of the PSIlwms Warehouse Management System from PSI Logistics show that picking times for example can be slashed by up to 50% with the right warehouse structure and optimised picking strategies.

New and efficient optimisation modules

The basis for this is provided by new, efficient optimisation modules offered by PSIlwms. They for instance include the optimisation of single-order picking and the planning of replenishment, packaging and sorting. In this regard, the system ensures high levels of transparency for operational processes. With its intelligent simulation and planning tools PSIlwms also provides for efficient forecasting, based on the order data, item master data and warehouse layout.

The Shipping module of the PSIlwms warehouse and space management system optimises picking processes and consignment assembly. The master data, order data and imported movement data are used to ensure the optimum allocation of items in

the fast and slow-moving goods areas while taking account of the framework conditions. PSIlwms users are able to create a perfect layout for the warehouse thanks to the warehouse and space management system. This layout can be used to analyse processes and determine standard times for performance. This is followed by optimisation of the picking processes: Complex optimisation algorithms allow PSIlwms to minimise the overall effort required for replenishment, picking and stock transfer. To rule out any confusion during picking, one of the factors that PSIlwms takes into consideration is ensuring the physically separate storage

of products with similar packaging. This reduces error rates and improves service levels. Optimised item positioning and uniform utilisation of all stock locations has already decreased variance in picking costs to less than three percent. Another option for optimisation is offered by consolidated order picking in a separate area. Instead of using conventional ABC classification, the PSIlwms warehouse and space management system allows an order-related item store to be set up, the so-called express service area. With a small number of items and optimum inventory management, the objective here is to complete picking for as many orders as possible in the shortest possible time. Bypassing the normal picking area in this manner allows an express system such as this one to offer significant alleviating effects. PSIlwms uses complex optimisation methods to



Optimum shipping packaging reduces carton and dispatch costs.

Source: Fotolia



Conveyor belt at Shipment: Optimum picking strategies tap into extensive potential for optimisation. Source: IStock

solve the challenges presented here in terms of efficiency and availability.

Multi-level picking

Many companies employ a multi-level picking process. In this segment it is possible to tap into savings potential using the PSIwms modules for route and stock location optimisation. The optimum organisation, assignment and staffing of picking areas enables users to create an intelligent flow of materials with PSIwms. Here, picking times can be shortened by compiling optimised picking lists, for example. In practice such batch formation is used with multi-order picking. Route-optimised picking orders are generated by PSIwms. Where possible, the IT system dispatches the full cartons or full pallets possibly also required for order fulfilment directly from the depot to the Shipping department. Bypassing the individual picking areas in this manner results in shorter lead

times and improves efficiency. Tools and automatisms also ensure that there is no longer any obstacle to optimising the dispatch areas.

The program takes an overall view here, thereby allowing the most effective selection of packaging to be determined depending on the sizes and costs of cartons and possibly the season, based on information such as item master data, order data, costs of boxes and carriage. The software also offers the option of supplying optimum dispatch packaging according to the actual dimensions and weights of the stored items. In this manner, users can significantly reduce carton and shipping costs.

The PSIwms simulation and forecasting tools also provide for the continuous optimisation of processes. Permanent simulation of order processing allows future picking times to be determined more accurately and incorporated in resource planning as a database for reliable forecasting. This also applies

to the replenishment process. In the case of forecastable item demand with a demand probability of 95% for example, PSIwms can already initiate replenishment the day before. This relieves the workload for routine operational processes. Where picking is concerned, it ensures the prompt release of all orders as well as improved, uniform utilisation levels in the picking area.

Picking times slashed by up to 50%

In overall terms, the results of reference applications show that users can benefit from significant potential savings thanks to software-assisted optimisation measures in the intralogistics sector. The optimised assignment of items to shelf compartments can reduce the requirement for such compartments by as much as 20% — and offer options for considerable increases in capacity. Picking routes can be shortened by up to 15%, and utilisation variance by as much as 30%. Lastly, optimised flows of materials and processes ensure that 85% of returns bypass the high-rack warehouse. This frequently allows distribution centres to cut picking times by between 15 and 50%. 

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At GLS, fresh and waste water systems are manufactured either according to customer specifications or are designed in-house. Source: PSIPENTA

User report: Aviation industry supplier Groth Luftfahrt- und Systemtechnik relies on PSIPenta

An IT system catering for rapid growth

Probably everyone has come across products supplied by Groth Luftfahrt- und Systemtechnik GmbH (GLS) at some time or other: Its special valves are used as standard in the on-board lavatories of all Airbus aircraft and the numerous galleys of Airbus and Boeing. The waste and fresh water systems on aeroplanes cannot manage without this firm's turned and milled parts either. In 2009 it would no longer have been possible to cope with the increasing volumes, a growing range of variants and high demands made on documentation without appropriate IT support. GLS has done away with its outdated system and now relies on software from Berlin-based specialist PSIPENTA.

Groth Luftfahrt- und Systemtechnik GmbH & Co. KG is a medium-sized family-run business. It specialises in the development, manufacture and distribution of different types of valves, taps and fittings (adapters) for waste and fresh water systems in galleys and WCs on board aeroplanes. In 2012 the company moved to a modern, new building in Schenefeld, north of Hamburg, and in the same year enjoyed a 30% increase in turnover.

GLS operates in the aviation industry as a second-tier supplier. Its business is divided into two areas. The firm firstly manufactures custom turned and

milled parts according to customers' design specifications ("build-to-print production"). In this segment GLS mainly acts as a supplier to companies producing waste and fresh water systems for the aviation industry. Secondly, GLS also performs in-house development, which the firm carries out single-handedly from the design stage to product approval. This in particular involves fresh water parts such as taps for galleys (kitchenettes on commercial aircraft) and on-board lavatories.

Managing Director Lars Engelhardt proudly explains: "We were chosen as the supplier for furnished equipment

for taps and diverse shut-off valves on the Airbus A320 and A350 (the airliner is currently still at the development/ approval stage)."

Dynamic growth calls for continuous, lean processes

In 2009 the Management of GLS was forced to look round for a new ERP solution. Lars Engelhardt remembers the reasons behind this: "At the time we were using an outdated, small-scale system more or less like a typewriter". A production order was created in a Word document by hand and used to generate a bill of material manually in Excel, and this document was then forwarded to the Production department. The staff there had to allocate serial and inspection certificate numbers (ATR numbers) and separately maintain them, using another application to initiate the printing of labels. Documentation plays a key role in the aviation industry. Every single part has to be tested in

different stages and these documented in so-called Acceptance Test Reports (ATRs). A copy of the inspection certificate must also be supplied with every item. "And now imagine that in 2015 the number of parts to be produced will have increased by 600% compared with 2009, and that there will have been a sixfold increase in the range of variants, which was pretty large to start with", comments Managing Director Engelhardt, describing the rapid growth of his firm. "This would no longer have been possible with our old system and the many inputs made by hand. What is needed here is simply clean, lean, automated processes, given these order volumes and contracts with customers that are concluded for periods of up to seven years and projects that sometimes run for twenty. And this is something that is not lastly demanded by our customers", says Engelhardt, explaining the situation.

This step was additionally made necessary by the EN 9100:2009 quality standard, introduced by GLS in 2012, which stipulates that certain core processes must be measurable. "Although application of the standard was not yet required in 2009, we already knew where things were heading", comments Engelhardt. The new system was also meant to provide the key data required and to evaluate specific processes.

At the end of the selection process the choice was between the systems of two well-known ERP suppliers. In January 2010 a decision was taken in favour of the ERP and MES specialist PSIPENTA Software Systems GmbH from Berlin and its solution with the same name.

"It is a coincidence that I in fact wrote my dissertation at PSIPENTA. This meant I knew the firm,

many of its staff and how the company worked. And I was not only convinced by the processes but also by the product. I was however sceptical about whether PSIPENTA was the right system for us: The software offers a wealth of functions that I thought were oversized, given the size of my company. On the other hand I was tempted by the fact that PSIPENTA covers many functions in the standard, something that is not just an advantage in terms of costs. At the end of the day we were also being offered a cost-effective solution while being a rather small-scale customer. Today we are very glad that we have opted for a system that



A tap destined for the aviation industry

can map our highly complex sequences, with changes to processes in some cases and in particular our levels of sustained growth", was Engelhardt's verdict. The aviation industry supplier has initially introduced the Order Management and the Engineering Module from PSIPENTA's product portfolio as well as the MES Module Finite Capacity Scheduling.

No IT gobbledegook during introduction and support

The go-live took place in November 2010. Introduction of the system included difficult phases, as is often the case when ERP is introduced. We however benefited from the process expertise and practical experience of

our advisor, who did not come out with incomprehensible IT jargon. Regarding our collaboration, I today set store by the fact that the staff in charge of the project have translated my concrete requirements into the language of software and repeatedly offer us optimum solutions", comments Engelhardt in praise of PSIPENTA.

With PSIPENTA everything is now automatic at GLS: from generation of the production order, through release, requirements planning and creation of the bill of material to documentation and the printing of standard labels and ATR numbers. Managing Director Engelhardt explains: "The continuity of the processes has allowed them to be optimised by making them markedly leaner." Omission of the many manual steps has significantly minimised the risk of error while appreciably shortening lead times.

Today Engelhardt speaks of the system's "excellent performance" and reports high satisfaction levels among key users.

"We can above all rely on PSIPENTA being able to map our increasingly complex processes, even if this involves making greater demands on system operation."

GLS is now planning to introduce change management and digital archiving. Due to the growing requirements, the company plans to migrate to the latest version of PSIPENTA (8.3) in 2013, as this offers an even greater functional scope in the standard. 

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User report: PSI Logistics enables restructuring with ongoing operation

Flexibility improved with custom configuration

Würth Elektronik eiSos GmbH & Co. KG is converting the IT infrastructure for its distribution warehouse while maintaining business operations. The new **PSIwms Warehouse Management System** does not just improve transparency and efficiency at the warehouse. The far-reaching management functions of the IT system provide the basis for further process optimisation, subsequent automation solutions and additional growth.

Restructuring with ongoing operation – a challenge that was taken up by Würth Elektronik eiSos GmbH & Co. KG, part of the Würth Elektronik Group. The company is currently busy restructuring the processes and the IT infrastructure used by its worldwide shipping store for passive components in industrial applications while maintaining operation at its Waldenburg site. “We are expecting sales to increase fourfold in the next ten years”, says Peter Schlechtinger, project manager at Würth Elektronik eiSos GmbH & Co. KG, explaining the firm's engagement here. “A change in order structure is taking place at the same time. The number of orders is increasing, but the orders themselves involve more and more small parts. This is why we have first installed a modern warehouse management system before optimising our processes in the next stage of the project and introducing automation.” And the contract for this system was awarded to PSI Logistics and its software **PSIwms**.

Fast configuration

In the first instance, the IT system offers Würth transparency about its stocks and processes. “When subsequent changes are made, it should be possible to configure the WMS with little effort instead of having to carry out reprogramming”, explains Schlechtinger. A special

feature of the project is that PSI Logistics offers a version of **PSIwms** that, after training, allows users to customise it on their own in line with their requirements. With this version they can independently tailor the configuration without any appreciable programming effort by themselves, for example to include new clients, to make changes to topologies, stock receipt / picking strategies within the warehouse or to incorporate a forklift control system. Warehouse operators can themselves assign users, storage locations, production plants and reasons for posting, and create or manage statistical functions or interfaces to the goods management system. A range of operations is possible here: For example, client data records

can be changed at any time, special storage locations and transfer areas configured, and optimisation carried out for stock receipt and picking strategies, supply chains or the organisation of replenishment. In addition, the basic configuration of **PSIwms** is designed so that subsequent program upgrades and automation control are possible at any time, as business processes change and automation becomes more complex. “This ensures that we will always keep control of our processes in future”, remarks Schlechtinger.

Another special feature of the system: Multisite capability. **PSIwms** firstly allows the various sites to be incorporated into an individual process landscape, run down and modified. Secondly, it gives so-called super-users an insight into the stock levels and situation of each associated site.

The Waldenburg distribution centre has to manage 10,000 item masters. 5,000 pallet spaces are available in the high-rack warehouse as well as a further 30,000 bin spaces in the small parts warehouse



Successive inventory acquisition in **PSIwms** is followed by further automation. Source: PSI Logistics



In 2012 Würth Elektronik invested ten million euro in building a modern extension at its Waldenburg site.

Source: Würth Elektronik

for storing electronic components and PCBs. At present picking still takes place according to the man-to-goods principle – averaging 2,000 orders, with 70 percent consisting of partial quantities with less than one shipping unit. “Before introducing PSIwms, we wasted enormous amounts of time and were without any transparency or data basis for switching over processes”, Schlechtinger explains. “The previous inventory control system only offered us stock level data, stock location control and batch management.”

Successive changeover with parallel operation

Since installation of the PSIwms software successive changeover from the old inventory control system to PSIwms is underway with operations being maintained in parallel. “This was something the competitors of PSI Logistics could not offer us”, remarks Schlechtinger. Normal order processing takes place by day while at night storage spaces are re-organised, items and item quantities are captured by PSIwms, new spaces generated and items redistributed.

“Benefits can already be seen just from the organisational improvements brought about by PSIwms: they give us faster access to stocks, speed up order picking thanks to optimised routes and have significantly boosted throughput”, says Schlechtinger, summing up the successes of the first project phase. “New processes and the handling of new products can be swiftly incorporated in the system structure. In the end we will be able to configure and manage PSIwms more or less by ourselves. We also have the option of incorporating the management and control of additional warehouse locations in the system. The decision to opt for PSIwms as a future-oriented investment has now been more than confirmed.”

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Head Office: Niedernhall (Hohenlohe)

Employees worldwide: 6,200

Turnover (2011): € 699 million

Divisions:

- **Printed Circuit Boards:**

As a leading German manufacturer of printed circuit boards Würth Germany specialises in prototyping as well as small and medium-sized production orders.

- **Intelligent Systems:**

As a specialist for the development and production of system solutions based on press-fit technology such as central supply, Würth Elektronik acts as a development partner to numerous manufacturers of commercial vehicles.

- **Electronic & Electromechanical Components:**

Würth Elektronik is Europe's largest manufacturer of electronic and electromechanical components. Its international distribution network with over 250 technical sales staff is unique in the electronics market.

- **Photovoltaics:**

Würth Solar is a supplier of complete photovoltaic systems from a single source and has already built numerous ground-based solar power plants with outputs of up to 11 MW.

User report: A funded project confirms expectations of parties involved

Successfully managing energy consumption at a large foundry

The ongoing debate about energy prices and the challenges associated with Germany's turnaround in energy policy have prompted industry, and in particular high-energy production plants, to optimise their consumption levels. This is why Germany's Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) is sponsoring a project with the motto "Best for Production". The ministry wants this project to serve as an example for energy-optimised production at large foundries and to play a pioneering role in the context of Green IT.



Magnesium treatment using an immersion ladle and plunger with efficient utilisation of the residual heat of the ladle from the previous work step. Source: FWH

Whenever the aim is to improve production processes and sequences and to make more efficient use of potential in the supply chain, it is normally factors such as plant capacity, the availability of materials and human resources that are the focus. However, when it comes to energy-intensive operations such as foundries, this is not sufficient. In this context, intelligent control of their

massive energy consumption levels is an additional, if not the decisive factor if a firm wants to boost productivity while conserving resources and so improve its competitive ability.

Realisations and results

This realisation was fundamental to the Best for Production project, which

was kicked off by Friedrich Wilhelms-Hütte Eisenguss GmbH (FWH) with its partner PSI Metals in May 2011 and has received funding from the Federal Ministry for the Environment to the tune of some € 290,000 under its Environmental Innovation Programme. For the first time an IT-based Manufacturing Execution System (MES) has been implemented that also defines and highlights energy efficiency as a relevant target criterion. The results are extremely satisfactory: "We assume that we will even exceed expectations in terms of optimising energy efficiency. A truly satisfactory and gratifying outcome", was the comment of Dr. Georg Stierle, Commercial Managing Director at FWH. The savings target was after all 1.5 m KWh of electricity per year, corresponding to a reduction in CO₂ emissions of 850 tonnes. And that's not all: The savings include 60,000 m³ of gas per year. "It also looks as if we are going to surpass the planned increase in productivity of 10%."

Project grant programme

Best for Production is a Green IT project attracting priority funding under "IT goes green" in the Environmental Innovation Programme of Germany's Ministry for the Environment. Since 1979 the Environmental Innovation Programme has offered funding for demonstration projects aimed at encouraging the utilisation for the first time of innovative technology that does not burden the environment. This is subject to certain conditions: Such ventures must demonstrate that they bring about a marked improvement in the state of the art in the relevant sector and that they can be applied to similar processes and systems. The Environmental Innovation Programme acts an important link between R&D in the field of environmental engineering and its implementation and market penetration. In the foundry industry 40 innovative projects have to date received funding worth over 42 m of euros.

Since July 2012 all production facilities at the foundry have been working with PSI's innovative production control system. The project will most probably also be of interest to other large foundries as Green IT, as applied here, has improved the energy balance, boosted productivity and cut lead times. The optimisation of raw materials/materials efficiency likewise results in additional effects, for instance in the case of maintenance and repair or by making energy procurement more flexible.

Initial situation and approach or: Mastering complexity

Work processes at large foundries are rarely organised in a centralised manner, but are traditionally perceived as individual steps in isolation, which are mainly controlled through the skills and expertise of the foremen or individual departments at the firm. Another problem that is typical of such plants is the occurrence of bottlenecks in the availability of cranes and casting pits. The result is that processes are likely to get held up due to external and internal influences. The production chain is seldom transparent, with workers often waiting around and machines standing idle, thereby putting a massive strain on resources. Optimum energy efficiency is almost impossible here. An alternative scenario: A Manufacturing Execution System that incorporates energy consumption as a key control parameter. On this project, the factor of energy efficiency has been introduced in a Manufacturing Execution System as a relevant control parameter for the first time. This represents a significant difference and benefit in relation to conventional process optimisation procedures and is undoubtedly one of the reasons prompting the ministry

Dr. Georg Stierle
Managing Director, FWH

“We assume that we will even exceed expectations in terms of optimising energy efficiency. A truly satisfactory and gratifying outcome. It also looks as if we are going to surpass the planned increase in productivity of 10%.”

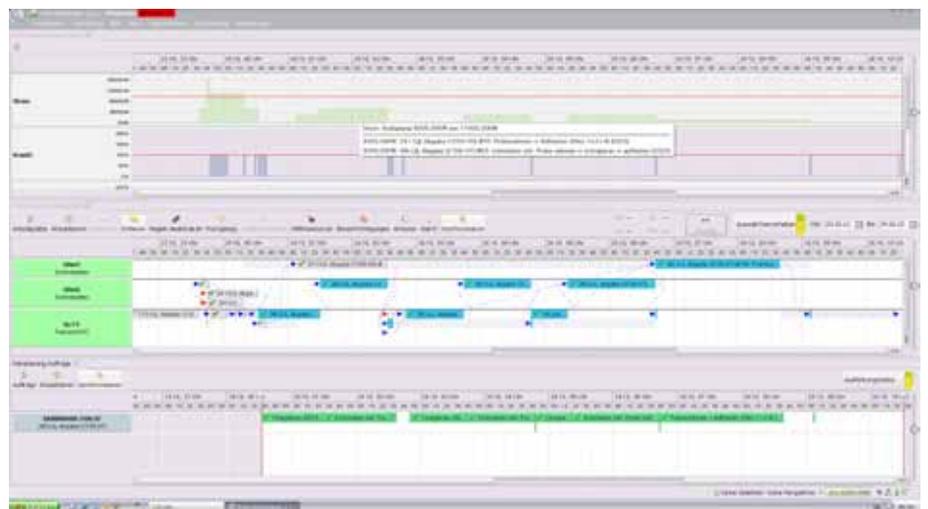
to offer funding for this innovative venture.

PSI extended its standard modules and created new interfaces to the energy consumption measuring systems. The concept proved to be the correct strategy: “While the project was underway, intermediate results already showed we were on the right track”, comments Reiner Eschen, Technical Managing Director of FWH. “The improved synchronisation of processes has a direct impact on energy efficiency and productivity.” Efficient planning and control of the weekly casting schedules on the basis of energy consumption is now possible with the help of the MES. All upstream processes (moulding, core-making) and

downstream steps (emptying, fettling, processing, inspection, dispatch) can be organised in the schedules and coordinated accordingly.

Transparency allows business strategy to be adapted

“It was our objective in terms of rough-cut and detail planning to set up centralised, market-driven continuous production that responds in a fast and flexible manner to changes in conditions and is above all geared to energy consumption requirements”, comments Wolfgang Tobias, the man in charge of the project. “This was a multi-stage process, and we had to proceed step by step, one department after



Energy consumption as a key control parameter for planning.

Source: FWH

the other, since the new system was being introduced while maintaining production with our old system.”

The Production Planning and Control department was set up to ensure more accurate planning. This means that in future, centralised, transparent and more precise coordination will be possible on a 24-hour timescale. One important factor for the control process is the collection of shop-floor data, which is fed back to the new terminals in the Production department. The program not only shows staff the daily worklist but also the sequence of operations involved. The time actually taken for each task and disruptions are analysed by the MES for the purposes of subsequent planning, with any bottlenecks or conflicts being displayed in good time. Like an early warning system. The constant acquisition of actual data is followed by permanent analysis of this information by the system. Data for post-costing is consequently available at any time. This method allows workflows and products to be continuously improved, so helping to optimise business strategy.

Wolfgang Tobias

Project manager, FWH

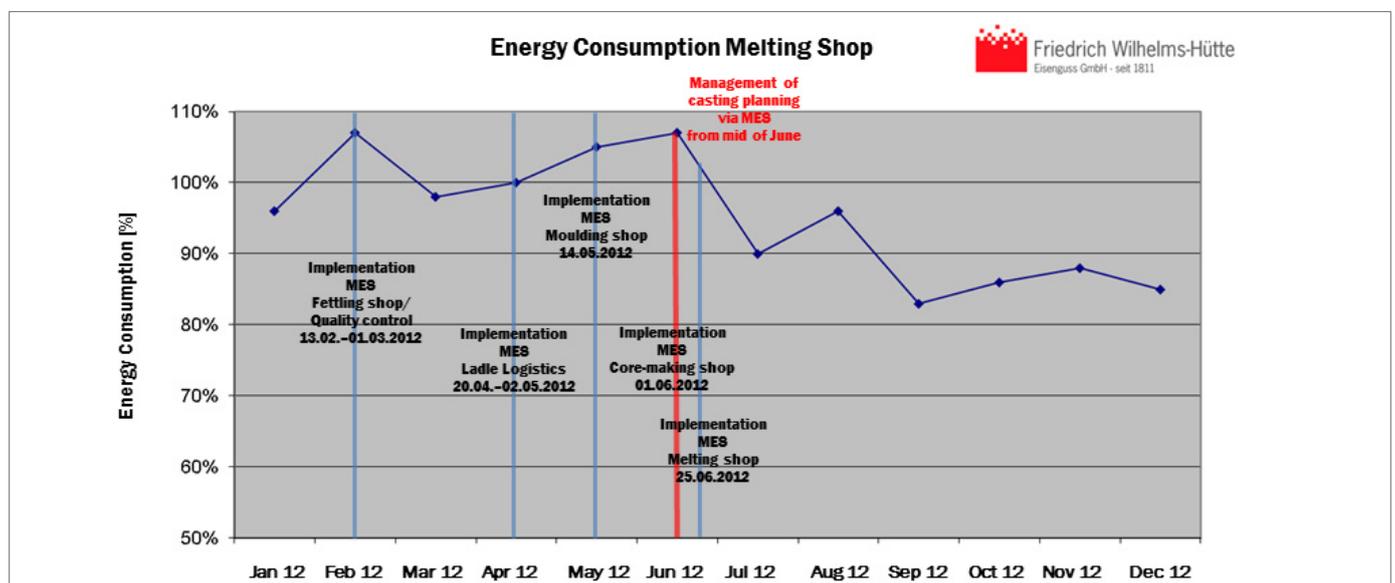
“It was our objective in terms of rough-cut and detail planning to set up centralised, market-driven continuous production that responds in a fast and flexible manner to changes in conditions and is above all geared to energy consumption requirements.”

Moving towards a new structure step by step

Given the complexity of the system switchover, the stepwise approach proved to be effective here. Interestingly enough, it was the fettling shop that was restructured first, a process that is at the end of the production chain. As this involves an especially wide range of work steps, with crane and space availability also being key factors here, it was important to ensure the consistent reorganisation of sequences and rearrangement of the layout from the start. This has served as an example for the rest of the project, as it supplied empirical values and

insights that offered significant benefits later on when dealing with the other departments.

“The entire process involved major effort and made high demands on us all”, remarks Wolfgang Tobias. This is not surprising, as modifying tried and tested internal structures at a plant is always a great challenge, particularly when the entire production chain is undergoing reorganisation. Smooth implementation has thus also depended on the provision of training by PSI for heads of departments, foremen, supervisors and workers. All staff in charge of the project at FWH consider it essential not to underestimate possible resistance to the switchover to



Energy consumption at the meltshop before and after introduction of the Manufacturing Execution System when planning melting.

Source: FWH



Efficient communication with the new system: Friday meeting attended by the Works Management, Production Planning, Production Control, heads of departments and foremen. Source: FWH

computerised operation or a fear of new technology. It is in any event worth making the effort to overcome such opposition given the long-term energy savings available here.

Side effects and opportunities

Another consequence is a significant improvement in lead times for individual products. This has already been clearly demonstrated in the test phase of the new system. A casted mainframe for wind energy plants was initially planned using the old procedure and then switched over to the new system. The result was a 20% improvement in mean lead times, although theoretically an optimisation level of 10% had been expected here. Another side effect also came about: the positive effect on the working atmosphere, thanks to all staff having a better overview of operations. They know what they have to get through each day and the time needed for every worklist. This allows them to pace themselves and they now do fewer extra shifts at the weekend. The company has managed to convincingly do away with initial opposition, which above all came from the foremen and

heads of department, who were obliged to surrender their “power base”.

FWH's Best for Production project will undoubtedly act as an example to other large foundries as the benefits are obvious: Intelligent Green IT allows resources to be conserved during production and offers the branch the opportunity of totally rethinking networking in the context of a smart grid. Not lastly, this innovative Manufacturing Execution System is able to make a significant contribution to the competitive ability of what are largely traditional companies. “A pioneering project” in the view of Georg Stierle. “Literally Best for Production.”

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The partners involved: Close collaboration



FWH is part of the Georgsmarienhütte Group with customers from the conventional power engineering sector, mechanical engineering, heavy-duty engines, the minerals and the steelworks industry as well as wind energy. As a traditional large-scale iron foundry FWH manufactures products weighing between 8 and 160 tonnes.



Its key partner on the Best for Production project was the PSI Metals team from Würselen, which has made a name for itself with production management solutions for metal producers to optimize production and logistics. Its specialists had already come up with a concept for a Manufacturing Execution System and shop-floor data collection based on earlier analysis of actual values. They managed to successfully implement it at FWH in just 13 months.



The Fraunhofer Institute for Factory Operation and Automation IFF, which is based in Magdeburg, offered advice on special questions of energy optimisation for melting processes.

Event: Appreciation the 25-year VW partnership in the Robotation Academy

PSIPENTA Presents Smart Factory Scenario at the CeBIT 2013

From 5 to 9 March 2013 manufacturing specialist PSIPENTA Software Systems GmbH will be presenting the APS solution PSIPenta/Adaptive extended by algorithms for the optimisation of the production sequences to bottlenecks at the CeBIT in Hannover (Hall 5, Stand E16)

All of the planning and controlling measures will be oriented on the optimal utilisation of the production system's bottlenecks. This will be achieved by integrating the algorithm developed in the DePlaVis research project for the detection and prioritization of bottlenecks in the APS system PSIPenta/Adaptive. The Qualicision® technology supplements this solution with the opportunity of multi-criteria optimisation of the production sequences, whereby the sequencing of the orders is performed using variable target criteria. The integrated PSIPenta/Control supports the visualisation and realisation of the production plan developed in this manner.

The system is both for made-to-order manufacturers and contract manufacturers as well as serial production and reacts automatically to changes in logistics conditions or changes in target criteria of the optimisation. "This continuous, dynamic interaction of the various components is unique to the market," explains Karl Tröger, Head of Product Management. "The system targets Industry 4.0 and the smart factory. It is a matter of using resources intelligently and efficiently, maintaining delivery dates and automatically orienting all of this on changing conditions."

On 6 March PSIPENTA is also hosting a VW Day in the Robotation Academy. "We are appreciating our 25-year business partnership with the VW Group," emphasises PSIPENTA Managing

Director Alfred M. Keseberg. Audi, Volkswagen and Skoda have been working with PSI software in the fields of tooling, special vehicle production and maintenance and the foundry for 25 years. Along with German plants, international users in Poland, the Czech Republic, Hungary and Portugal and Brazil also belong to the growing circle of customers in the VW Group.

Visitors from the partner country Poland will be competently hosted in their mother tongue at the PSIPENTA stand by colleagues from the Polish PSI office. "As in the past, we are placing a lot of value in 2013 in doing justice to the CeBIT partner country," states Keseberg. Alfred M. Keseberg welcomes the opening of this year's CeBIT by the EADS CEO Tom Enders. "It is important to focus on software users, and therefore the importance of IT for innovative industries. PSIPENTA includes many companies from the aerospace industry amongst its ERP customers, amongst others SR Technics, E.I.S. Aircraft GmbH or Groth Luftfahrt- und Systemtechnik GmbH & Co. KG. ☺

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Our thank-you for visiting our stand!

Visitors to our stand will receive a screen-printed glass produced on the KAMMANN machine as a token of our thanks.



Events in the framework of CeBIT 2013

06/03/2013, 11.00 am - 4.00 pm
**25-year partnership
Volkswagen-PSI**

06/03/2013, from 6.00 pm
Booth party

07/03/2013, 10.00 am - 6.00 pm
automotiveDAY

Detailed information and free entrance tickets are available from our homepage or by scanning the QR code.

<http://www.psipenta.de/en/events/>



Event: Get your hands on the StreetScooter electric car at the stand

PSIPENTA presents ERP/MES integration at a new level

Production specialist PSIPENTA Software Systems GmbH will be presenting a new interface standard developed under the WInD research project at the Digital Factory show at the Hanover Fair (Hall 7, Stand A18) from 8–12 April 2013.

The integrated ERP-MES-CAD scenario is characterised by brand-new, standardised interfaces which can be used throughout the process environment of a company. Standardisation of the interfaces is a result of the WInD research project entitled “Versatile production systems through integrated IT structures and decentralised production planning and control” of the Institute for Industrial Management (FIR) at the RWTH Aachen. The new standards aim to simplify corporate processes and link up different IT systems without problems. In the scenario it has developed for the fair, PSIPENTA will demonstrate the integration of a CAD system in PSIPenta/ERP and PSIPenta/MES, including a connection to the myOpenFactory EDI standard as a neutral communication platform between the supplier and customer.

Supporting programme at the Hanover Fair

At the Industrial IT forum, experts from different industrial concerns will discuss how far autonomous production control should go in the context of the fourth industrial revolution and what limits should not be exceeded here.

StreetScooter research alliance

PSIPENTA will also be informing visitors about its activities in the

research organisation StreetScooter GmbH, which has developed a completely new class of vehicle with the electric StreetScooter runabout. The role of the software specialist from Berlin on this project is to provide the IT basis for order management, production planning and control, in addition to concepts for optimising the supply of power to the manufacturing processes. At the fair, StreetScooter GmbH will be making a StreetScooter chassis available to PSIPENTA so visitors can “get their hands on” the vehicle. ☺

PRESENTATIONS AT HANOVER FAIR

MES Conference

10/04/2013

Dirk Festerling, CIO of PSIPENTA customer Hotset

"Production-related IT in the Hotset GmbH Group"

Industrial IT forum

11/04/2013, 2.00 - 4.00 pm

Karl Tröger, Head of Production Management

Panel discussion: Who manages production IT?



PSIPENTA in Hall 7, Stand A18
Free admission at
<http://www.psipenta.de/en/events/>



Digital
Factory



The PSI Group is once again on board.

Numerous Berlin-based companies from a wide range of sectors will be introducing their business on 15 May 2013 and showing the benefits they have to offer as an employer. Participants of the tours will get a fascinating look behind the scenes of the individual companies and will be provided with a great deal of exclusive information. The PSI Group will also be presenting its portfolio of solutions at this event, putting a focus on a range of different branches.

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Harald Fuchs joins Group’s Management Board

Change in Management Board at PSI AG

Effective 1 July 2013, Harald Fuchs (48) has been named to the Management Board of the PSI AG. He will follow Armin Stein (61), who is resigning from the company with the end of his contract on 30 June 2013. At the same time, Dr. Harald Schrimpf (48) has extended his contract for another five years until 30 June 2018 and has been named the Chairman of the Management Board.



Harald Fuchs

Harald Fuchs, as the Head of Finance and Controlling, has been active in the business unit Electrical Energy of PSI AG since 2011. Prior to that he held a number of senior commercial positions in the RWE, Continental and Alpine Energy Group within Germany, the USA and Austria. Harald Fuchs studied business management in Germany, the United Kingdom and the USA.

Prof. Dr.-Ing. Rolf Windmüller, Chairman of the Supervisory Board, is grateful to Armin Stein for his commitment to the company. “PSI AG owes a lot to Armin Stein. His personal engagement in the last twelve years has contributed much to the PSI success story: restructuring of the company, making it able to offer a dividend, being included in the TecDAX are

only some of the milestones. Seldom have I met a business leader who has so successfully managed the strategic and performance-based development of a company as has Armin Stein. He will remain associated with the company beyond the 30th of June 2013 and the Supervisory Board is grateful for that.”

“The Supervisory Board extended the contract with Dr. Harald Schrimpf in recognition of his performance for PSI in recent years, but as well for its confidence in his future engagement for the company,” says Prof. Dr.-Ing. Windmüller. “Along with the change in the Management Board Dr. Schrimpf will be named the Chairman of the Management Board. In this manner, the Supervisory Board foresees the continuation of the strategic and economic development of the company. We look forward to the continuing cooperation with Dr. Schrimpf and welcome Mr. Fuchs as a new member of the Management Board.”

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Activities stepped up in South America

PSI finds subsidiary in Brazil

At the beginning of 2013 PSI Metals GmbH founded PSI Metals Brazil Ltda. in Rio de Janeiro/Brazil, thereby stepping up its activities in the South American market. The new company is to look after existing PSI customers while developing its regional sales operations at the same time.

PSI Metals has already operated in Brazil for over ten years with the support of local consultants. By founding this new firm PSI is strengthening its regional presence in the strategically important, growing market of South America. Besides looking after existing customers such as Villares Metals, Vallourec Sumitomo Brazil, ThyssenKrupp CSA, Tenaris, Ternium, ArcelorMittal, AHMSA and Sidor,

the company will focus on developing the current sales organisation so it can offer the extensive range of PSI Metals solutions to all steel manufacturers with a local service. 

ADDRESS:

PSI Metals Brazil Ltda.

Avenida Presidente Wilson

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Rio de Janeiro – Brazil



2013 EVENTS

05/03 - 09/03	CeBIT 2013	Hanover, Germany	www.cebit.de	PSIPENTA & PSI Logistics Hall 5/Booth E16
07/03	automotiveDay	Hanover, Germany	www.http://automotiveday.automotiveit.eu/	PSIPENTA as sponsor
13/03 - 14/03	5. Aachen assembly conference	Aachen, Germany	http://www.wzlforum.rwth-aachen.de	PSIPENTA Presentation
13/03 - 14/03	16. Aachen service forum	Aachen, Germany	http://veranstaltungen.fir.de/dienstleistungsforum/	PSIPENTA as an exhibitor
03/04 - 05/04	Made in Steel	Milan, Italy	http://www.madeinsteel.it	PSI AG
08/04 - 12/04	Hanover Fair	Hanover, Germany	http://www.hannovermesse.de/	PSIPENTA Hall 7/Booth A18
10/04 - 11/04	5th MES conference of VDMA	Hanover, Germany	http://www.hannovermesse.de/de/ueber-die-messe/programm/veranstaltungen/mes-tagung	PSIPENTA Customer presentation
16/04	Campus Careers 2013	Aschaffenburg, Germany	http://www.h-ab.de/unternehmen/career-service/campus-careers/	PSI AG Booth 44
06/05 - 09/05	AISTech 2013	Pittsburgh, USA	http://www.aist.org/aistech/	PSI Metals Booth 653
04/06 - 07/06	transport logistic 2013	Munich, Germany	http://www.transportlogistic.de/	PSI Logistics Hall 5/Booth 321

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