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Holistic process management and network planning

IT systems for tactics and strategy

State-of-the-art software systems not only ensure that operational processes are managed intelligently. With a wide range of functions, the recorded actual data forms a reliable basis for tactical decisions in controlling and management. In addition, consistent alignment to a holistic approach and integrated simulation algorithms provide support for strategic site and network planning.

Integrated process analysis and the maintenance of a company’s agility are two of the most important challenges facing logistics in the era of globalisation. Reliable forecasts are therefore becoming ever more important for the efficient, cost-saving and resource-saving modelling of logistical networks and processes. In operations, for example, they form the basis for resource-optimised operations scheduling and process management. On a strategic level they are the foundation of the construction and expansion of networks, such as the quantity and location of sites or optimum transport network structures, for M&A measures or the development of new business processes. Key logistic

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Dear readers,

In mid-April, PSI Logistics was awarded a grant for the “Smart Logistic Grids” research project supported by the Federal Ministry of Economics and Technology. Under the leadership of PSI Logistics, the aim of the project is to develop an integrated model for strategic, tactical and operational logistics planning and management in collaboration with project partners such as the TU Berlin and Hellmann Worldwide. The support from the Federal Ministry emphasises the high level of importance that is now attached to consideration of the whole value chain in terms of resource efficiency, cost reductions and environmental protection in logistics and the creation of intelligent supply chains.

When transport logistic opened its doors in Munich in June, PSI Logistics attended at stand 321 in hall B5, presented its latest innovations – state-of-the-art software that already meets these requirements today. This latest edition of production manager will provide you with details and background information.

Furthermore, in fascinating interviews you will find out what role PSIPENTA products have to play in the fourth industrial revolution (known as industry 4.0 for short), what business opportunities result from a high level of energy consumption, and how the PSI Group has transformed itself from service provider to producer. Information on current events rounds off the variety of subjects included in this edition.

We look forward to greeting you at the forthcoming events.

I hope you find this edition an informative read.

Regards,
Wolfgang Albrecht
Managing Director
PSI Logistics GmbH
data forms the basis of process analysis and planning. For this reason, above all, a qualified database must be established for extensive process and market transparency. With intelligent preparation, this information can be used as a reliable basis for strategic decisions.

A reliable basis for decision-making

An increase in these potential benefits is enabled by state-of-the-art PSI Logistics standard software products. With their range of functions, these products control processes, tap into potential for increased operational efficiency and record, manage and archive current process performance, such as throughput or transport processes. In this way, users obtain reliable information that can be used for tactical and strategic planning and risk assessments.

Thus, high-performance software systems with integrated simulation algorithms offer functions and instruments for modelled tests. With these systems, adopted changes and developments expected in the future, such as quantity structures or labour costs, are incorporated into planning by means of mathematical processes. In the end, reliable forecasts are made available which provide a sound basis for decision-making, for necessary transport and storage resources or the required location and quantity of sites, for example.

Increasing dynamism and flexibility

This is particularly significant in the analysis of warehouse processes. The actual data recorded in the management and control of the whole process chain between the receipt and issue of goods by the warehouse management system can not only be incorporated into visualisation and finite capacity systems. Integrated planning algorithms, such as those offered by the PSIwms warehouse management system, use the data material to increase the dynamism and flexibility of operational contract manufacturing. In this way, it is possible to schedule order picking backwards on the basis of the time of the dispatch preparation. The benefit is obvious: Due to the timely, automatic initiation of sequenced picking with optimised routes, existing resources are not used until they are actually needed. In addition, optimisation modules such as the cartoning system determine the optimum type of shipping carton appropriate for the order based on order and master data. Lastly, orders are compiled by means of a case calculation so that the available cargo space is utilised optimally.

For the tactical level, these planning algorithms include options for automating time-consuming planning processes with optimum use of resources. In this way, the functional modules in the resource management...
of PSIs enable reliable statements to be made about the anticipated quantitative and qualitative personnel planning requirements. Reference applications show that over EUR 100 per employee per month can be saved on average in this way.

Controlling and optimisation options

The use of automatically calculated performance indicators produces similar results in the planning of resources in the transport network. The aim of transport management systems is to optimise the organisation and management of routes. In addition, future-proof systems such as PSIs also contain simulation algorithms that can optimise and automate the use of resources in the transport network across regions and organisations. Rather than having to overcome daily working life dealing with Excel lists manually, optimised, IT-based route planning is carried out by means of the automated recording of key data. Just a few mouse clicks are required to determine and bill freight costs and assign transport costs to the party responsible. The automated freight cost management in PSIs enables users to use the recorded actual data for assessing tariffs and other freight calculation logic or for flexible modelling using varying data. As a result, further use of the data enables users equally to tap into potential for optimisation and considerable added value for the operational and tactical divisions of their company.

The design of logistics networks

On a strategic level, planning, management and optimisation systems are continuing to increase the benefits for logistics networks. In which region is the ideal production or warehouse site located? What effects do changed structures, customer numbers or quantity structures have on the logistics network? Is it worth moving to a new site if the production costs at the new site are lower but the transport costs are higher? What effect does multimodal transportation have on the level of service, efficiency and eco-impact? With simulation algorithms and scenario technologies, strategic planning, management and optimisation systems, such as PSIGlobal, enable users to answer such questions in a target-oriented manner on the basis of real data.

The systems generate "only if" scenarios from the actual data records of various legacy systems, as well as freely definable and variable objectives. In the selection of sites and the design of logistics networks, practical solutions can be derived and alternatives compared, taking future developments and risks into consideration. Therefore, users are provided with intelligent instruments to optimise networks, analyse changed revenue and customer efficiency and ecology: The strategic IT system PSIGlobal enables logistics networks to be designed, managed and optimised, while taking into account and prioritising numerous premises.

Source: RBB
Optimisation by means of system linkage

Other benefits arise if such strategic software systems support the exchange of data with IT systems used for operational and tactical purposes via standard interfaces. The mutual exchange of complex network planning data and optimisation data on the one hand and real data recorded from operational processes on the other enables a continuous actual/target comparison of previously predicted effects. In other processes, the networks are optimised further in terms of the volume of shipments, transport means, time slots, routes and the utilisation of resources with little effort or are adapted to changed framework data. The results of planning runs are in turn directly and promptly incorporated into the design and implementation of the operational and tactical processes.

In the corresponding downstream systems, with the adoption of the modified planning results, resources are assigned optimally, competitive tariffs are arranged or the operational processes are managed efficiently. The result is continuous, sustainable optimisation of process and cost structures over the entire supply chain. The examples mentioned show that, with their various functions, state-of-the-art software systems guarantee the efficiency and transparency of operational logistics processes in logistics. The result is reduced mean lead times, balanced inventory management and improved delivery reliability. The analysis of generated actual data supports tactical decisions for comprehensive controlling and forms the basis of reliable forecasts.

Their transformation into future-proof, realistic scenarios with key prospective data is essential for holistic strategic network planning and resource-efficient network management. The linking of systems and the exchange of relevant data taps into additional potential for optimisation and equally enables continuous, automated adaptation processes to be carried out.

Thus, the software products developed by PSI Logistics provide customers with maximum flexibility and agility in order to strengthen their market position.

You would like to know what potential is in your logistics network and how you can optimise your processes? We offer you a free check up.

Register here for your individual workshop:

Information

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Interview: Detlef Schmitz, Managing Director, PSI Metals GmbH, on the subject of energy management 2.0

The higher the level of consumption, the more attractive the business opportunities

Energy-intensive sectors such as the steel and aluminium industry have been grappling with high prices for energy and raw materials for a long time. In addition to competitive pressure from Eastern Europe, there are also worldwide overcapacities and planning uncertainties due to the energy transition. But whoever is capable of responding to severe fluctuations in the markets, prices and networks with a high degree of flexibility can even profit from this, says Detlef Schmitz in the interview. The Managing Director of PSI Metals GmbH spoke with Dr. Caren Möhrke about how companies with high energy consumption can take advantage of this volatile environment in order to achieve enormous potential savings and create completely new business models. He argues for a radical paradigm shift – energy management for the next generation.

Dr. Caren Möhrke: Mr Schmitz, from 2013 energy management systems will be obligatory for energy-intensive companies in Germany if they wish to benefit from tax reductions. In your eyes, is that a good response to high energy costs and the challenges of the energy transition?

D. Schmitz: The approach is good but it doesn’t go far enough. Recruiting an energy manager who studies guidelines and standards, documents energy consumption and compiles manuals is certainly a first step. However, this rarely produces real competitive advantages. For the manufacturing industry it is crucial to use the energy factor as one of the important variables of corporate management (KPI). Let’s consider metal production; in this case for example, energy accounts for a third of production costs. So it makes less sense to speed up processes, increase throughput or raise plant capacity if energy costs can cancel out any profits made. The energy required for production is therefore one of the most important variables for savings and improved competitiveness.

What is your concept for innovative energy management in the steel and aluminium industry?

D. Schmitz: PSI defines the term energy management more comprehensively than has previously been the case because we traditionally have know-how both for production management (PSImetals) and for consumption forecasts and energy procurement (PSImarket) within the Group. With PSImetals Energy, we are combining this know-how in a holistic system and defining the energy factor as an important integral element of planning and management as a whole. This results in a high degree of flexibility and completely new opportunities to save money or even make a profit: firstly by means of energy-optimised production. Secondly, cost-optimised supply contracts can be concluded due to accurate forecasts of the demand for energy and price development. And thirdly, phases of low prices on the power exchanges can...
35,900 megawatts of electricity were generated by solar power plants and wind turbines in Germany at 12pm on 18/04/13. That corresponds roughly to energy demand on a Sunday or the capacity of 26 nuclear power plants. Prices on the electricity exchange sank from the usual 5 cents/kWh to 0.7 cents/kWh due to this oversupply.

Source: Rheinische Post, 20/04/13

be exploited intelligently. Furthermore, production can be oriented in a targeted manner towards the so-called electricity balancing market and control power market, as these markets reward flexibility. Other benefits can be achieved by bundling multiple sites into purchasing groups or coordinating production plans. You can see that the range of opportunities is broad and can be expanded further. Therefore energy management is becoming a dynamic, value-adding process.

However, that all sounds rather complicated looking forward. How does your solution work?

D. Schmitz: With PSI metals, energy optimisation is achieved by integrating production planning and implementation. By continually feeding consumption and price forecasts back from the energy procurement system PSI market I know exactly when I should produce what. It is key that we are not primarily focused on temporal energy consumption, but rather that we use product-specific energy profiles as planning criteria. This means that we analyse how much energy is actually required for the production of different product groups and then tailor production planning accordingly as far as possible so that we cover a narrow, regular energy corridor. Monitoring during production ensures, for example, that limit values are adhered to, and that penalties for peak loads are avoided.

It reminds me of the Tetris principle.

D. Schmitz: This association is fitting: We are combining energy demand profiles on a modular basis so that energy consumption has as few dramatic peaks or troughs as possible.

Production planning is constantly adapted so that I require as little energy as possible; I can optimise procurement management and conclude tailored contracts on trading platforms instead of entering into fixed annual contracts for the maximum load. Because if I don’t know my exact energy requirements, but then commit myself to a long-term contract, losses are inevitable. Due to the liberalisation of the market, energy is traded on the stock exchange; that is to say availabilities, demands and prices are changing constantly. If factors such as production processes, plant capacity or material availability determine my production planning, I have to commit myself when purchasing energy and am rarely able to avoid paying too much for energy at particular times. However, if I know my requirements and make the energy profiles of the products that I currently produce the determining factor, I can purchase the required amounts in a very targeted manner at much shorter notice and as cheaply as possible. I.e. a considerably more flexible and dynamic process. And it goes further: With PSI metals I can also plan my production in a targeted manner so that I can take advantage of low electricity prices.

Detlef Schmitz
Managing Director, PSI Metals GmbH

“With our main areas of expertise in energy supply and production management, we are combining two previously separate worlds. We are turning the energy factor into an important, if not the most important, integral part of our whole corporate management.”

You mean that production primarily takes place at night?

D. Schmitz: In principle, yes. It is also possible to coordinate energy-intensive processes with daytime fluctuations in the energy price, schedule for national holidays or take weather forecasts into account, generally times when, based on experience, electricity is simply cheaper because demand is lower. PSI market enables our customers to utilise hourly forecasts of trading prices.
Besides, it is in the interest of network providers to keep their networks stable and to reward energy consumption at the right time. With an increasing proportion of renewable energies, this control power market is becoming increasingly important and enables completely new business models to be created. Thus, energy management is being transformed into an on-going, continuously self-optimising control loop.

Does that mean that a steel works is becoming part of so-called smart grid and can thus make a profit?

D. Schmitz: Absolutely. Of course, a smart grid also means that providers and customers reach an agreement on levels of consumption and demand so that the network remains stable. A steel works always involves a large quantity of electricity, and, from the perspective of the network operator, a steel works operates not only as a customer, but also as a virtual power plant or energy store, depending on whether it consumes energy at the right time or not. In terms of a smart grid, energy-intensive companies, in particular, can contribute to network stability and are also rewarded for this with favourable conditions. However, as a plant operator, I can only enjoy these benefits if I make precise calculations at relatively short notice on the basis of product-specific energy profiles.

Can you promise your customers that your energy management system actually leads to considerable savings?

D. Schmitz: By all means. The investment payback time for a PSI metals energy project is less than a year. Additionally, our customers already have all the necessary tools, and efficient energy management ultimately "only" consists in linking the systems with the priority that energy consumption is planned constantly and precisely. However, since the first step that we are taking is an analysis of potential, the figures speak for themselves.

Does the implementation not also mean considerable structural and/or organisational changes for your customers?

D. Schmitz: Of course. An important point in this regard is the creation of transparency for all parties involved. And the energy manager has a completely new role: For example, he has to bring the corporate management, the works management and the purchasing division together more often and moderate coordination processes. This process of change is not necessarily easy, and the right incentives have to be created in order to orientate everybody towards a joint objective. What if we attempted a change in perspective and make the energy factor the pivotal point of our production management? What if energy management permeated all planning and production processes? What new business models can we offer our customers if we make reducing energy consumption as far as possible our highest priority? Companies that attempt this change in perspective are on the best path to improved revenues and new levels of competitiveness.

Thank you very much for this fascinating interview Mr Schmitz.

The interview was conducted by Dr. Caren Möhrke, specialist in innovation management and marketing in Düsseldorf. www.carenmoehrke.de

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Product report: Tackle interactions with Qualicision®

KPI-driven optimisation of production processes

Qualicision® technology is based on fuzzy logic which has been extended to complementary effect and helps to incorporate decision-making expertise into business processes in the form of software. Fuzziness in business processes is not only the result of inaccuracy regarding the process planning data used. It also results, in particular, from the variety of interactions between the options for controlling these processes and the process goals; the "key performance indicators" (KPIs) in other words.

When business processes are optimised on the basis of Qualicision®, such interaction is captured in the form of matrices (impact matrices) using the process data. These impact matrices are combined with mathematical conflict and compatibility analysis to calculate which alternatives should be selected for decision-making to come as close as possible to the process goals. In technical terms, conflict and compatibility analysis allows the so-called combinatorial variety of control options to be managed in relation to optimisation of the KPIs. Examples include optimisations of production sequences in the automotive industry and in production companies in general.

The Qualicision® Functional Decision Design Scheduling Engine (QFDDS) is a Qualicision®-based support for shop floor planning and is integrated within an ERP system. Work orders for the production process are managed in the ERP system and are made available to the QFDDS Engine for detailed planning. QFDDS generates an occupation plan according to the desired optimisation priorities or key performance indicators (KPIs) such as maximum usage, minimum stock, short lead time, minimum setup times, preference for job priorities and approaching delivery dates and makes these available to the surrounding systems for further processing at a BDE terminal, for example. To help planners find suitable priority settings for KPIs, a learning algorithm is integrated into the QFDDS, which permutes different priority settings and thus analyses optimised occupation plans according to different KPIs in order to maximise the key data generated by the system. The results of KPI optimisation can be visualised as a spider web diagram in an additional explanation facility (see red area in figure 2). The maximum characteristics (utopia points) that can be achieved for each KPI during the learning phase are shown in the red area. To help select a particular priority setting the planner can enter a preference pattern (blue area on the diagram) and is then automatically shown the best priority setting (green area on the diagram).

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(1) Planning of incoming orders: occupation plan using KPIs. (2) Results of KPI optimisation as a spider web diagram. Source: FLS
User report: Successfully tackling the high requirements of special-purpose machine manufacturing

In the language of mechanical engineering

Replacing the old, proven ERP system after 25 years requires a thorough procedure to select the new program and supplier. In the process, individual developments and specific industry requirements, such as investment security and future security, also have to be taken into account. Bahmüller has done everything correctly.

Wilhelm Bahmüller Maschinenbau-Prazisionswerkzeuge GmbH in Plüderhausen is a traditional medium-sized mechanical engineering company, a family company in its second generation of management. Originally founded as a repair workshop, the company soon offered its own machines and has developed various product ranges over the years. The company now has a market presence with three divisions in which everything is developed, produced and distributed fully.

The most profitable division is the grinding machines division, which primarily produces for the automotive industry. This is where cylindrical grinding machines, which are used to carry out internal, external and simultaneous cylindrical grinding processes on high-precision parts are produced. Another division consists of semi-automated or fully automated corrugated board processing facilities with an aperture width of up to 5.5 metres. These systems cut, fold, stamp, glue and tack corrugated board to produce packaging, which is then bundled and palletised. Traditional, customer-oriented contract manufacturing. The third segment produces Bahmüller clamping tools. Firstly, standardised tools are produced in accordance with DIN and American, Japanese or other standards. However, modular tools, including one-off special tools, are also produced.

K.O. criterion – multiple sites

From the beginning of the 1980s Bahmüller used a PPS system which operated as a hardware platform on an HP 3000. In 2006 Hewlett Packard finally announced that it would be discontinuing further development and support for the hardware. "That was a welcome motivation for us to look around for a modern ERP system", recounts CIO Marco Jaßniger. After 25 years, the weaknesses of the old system that needed improving were showing, especially in terms of the multiple plant management options. Therefore, in 2007 Bahmüller started an intensive ERP selection process with a project team of 30 key users from all departments.

Intensive introduction

In the end, two providers remained in the final selection in which the ERP standard PSI penta from PSIPENTA Software Systems GmbH was finally chosen. "The nearly unanimous vote in favour of PSI penta provided an excellent starting position for the introduction, as everybody was pulling in the same direction", comments the CIO on the result of the vote.

Bahmüller includes over 30 modules in the ERP system, thus covering all the classic matters, states Jaßniger. It ranges from sales, procurement, classic PPS, SFDC, work time logging and access controls through to EDIFACT.
and e-business, i.e. e-shop integration. The shop, especially for spare parts, is integrated directly into PSI\textit{penta} with no need for intermediate data storage. Thus, an order is generated immediately in the ERP system when a customer purchases a spare part. Software from PSIPENTA’s partner, Varial, is used in the financial accounting, and Pro.File from Procad, also a partner of PSIPENTA, is used to connect CAD to the ERP system. Another partner, intex, supplies the iCenter for automatic invoice processing and archiving.

**Know-how stays in-house**

An important criterion in the selection was the issue of multiple sites. Although the office in the USA used to have a separate IT system, all programs are now run from the German site in Plüderhausen. American and Chinese colleagues are connected and have access only. In addition to the organisational advantages in the generation and processing of customer orders, the warehouse management also feels the benefit. The article stocks of the different offices, which have their own warehouses, as well as the consignment warehouses on the customers' premises, are managed by the head office. Support and services provided between plants are also processed and settled in PSI\textit{penta}. Thus, an assembly worker from China can be commissioned directly from Germany to carry out repairs or maintenance in Thailand. "It was a strategic decision on our part to install all programs in Plüderhausen only for the purposes of data security and know-how protection", says CIO Jaßniger. The offices have their PCs or laptops on site, which are connected via access rights, and they can work using the ERP system. And everything that is entered into the system in the offices appears on the monitors at the central office. "Therefore an update is also relatively simple, and if problems arise we simply flip the switch. The office is disconnected, and the data and our know-how remain securely in-house."

**A new, practice-oriented system**

There are yet more highlights for the Head of IT: "Every company does things slightly differently, so it is essential to react quickly and flexibly to changes and adapt to current situations." With the old system several steps had to be carried out, especially for subcontracting individual operations. Bahmüller is pursuing a strategy of providing good rough-cut planning in advance, but not yet scheduling production meticulously. Production then has a time slot and carries out detailed planning at relatively short notice. If a bottleneck occurs, PSI\textit{penta} provides a convenient way to outsource the backlog that has accumulated before the work station quickly and simply.

From an IT perspective, the adaptability of the system with Visual Basic for Applications (VBA) is an additional major advantage. It ranges from minor things, such as verifying the plausibility of inputs, to complex functions with interfaces to other systems. "This ensures improved data quality and greater transparency over the whole process", acknowledges Jaßniger. For him the new system is extremely practice-oriented and speaks the language of mechanical engineering. "We construct special-purpose machines and no standard products, so we have particular requirements. Even if you have selected the right system, it is just as important to have the right partners", thinks the CIO, adding "We identify with PSI\textit{penta} and its approach and we feel understood." For this reason, several other things are on the agenda with PSIPENTA, such as the expansion of archiving with the iCenter and the greater integration of customers into the ERP system.

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**Information**
Interview with Karl Tröger, Product Manager of PSIPENTA, on the subject of industry 4.0

Flexibility required, while simultaneously conserving resources

Telecommunications, the Internet and the manufacturing industry will be more strongly linked than ever. In the factory of the future, materials will communicate independently with machines, and machines will, in turn, be constantly interacting with one another. These scenarios do not immediately make you think of enterprise resource planning or manufacturing execution systems. But PSIPENTA also positions itself in this environment. Karl Tröger, Product Manager at PSIPENTA, explains how corporate software has to change and what responses the production specialist has to the challenges of the factory of the future.

Mr. Tröger, before we discuss the specific impacts of the fourth industrial revolution on corporate software, could you describe, from your point of view, how "industry 4.0" will change the corporate landscape?

K. Tröger: If German companies are intensely committed to developments concerning industry 4.0, then it is primarily because Germany wishes and has to remain competitive as a high-wage economy. Given the explosion in demand and the efforts of companies to meet this demand, the phrase "the customer is king" has an almost literal meaning in industry. Due to the increasingly individual nature of customer requests, the range of variants is growing, meaning that the production of just a single unit is becoming more common. This has far-reaching consequences on corporate procedures, which can only be handled if processes are integrated not only horizontally, but above all vertically, except for the automation level. Extremely responsive companies are required in order to be capable of managing this broad range of variants profitably. This can only be achieved by creating smaller units and through cooperation between different companies, including on joint value creation.

At what point does PSIPENTA come into play in this? Positioning yourself as an ERP and MES specialist, how exactly will your products have to change?

K. Tröger: Due to the networking of various companies and the necessity of communication between many different software systems, the major challenges lie, above all, in the development of open interface standards, such as those targeted by the WInD research project, and, of course, in managing large quantities of data in real time. High-resolution and responsive production control systems depend on the real-time evaluation of production data. It is no longer merely an issue of establishing a reporting system and assessing a situation as almost "post mortem", as is current practice. The information gained controls and optimises production processes. Corporate software must support and simplify the required flexibility and communication between various companies while simultaneously conserving resources. This is because overcoming the complexity of this networking is simply inconceivable without IT.

Personally, I am convinced that enterprise resource planning systems will retain their role as control systems, although, besides the previously mentioned opening to external systems, even stronger integration into software systems at workshop and machine level is also required. These systems will definitely also become more responsive and flexible. The world of IT today reflects the present situation in production. We are seeing large and powerful tools with enormous ranges of functions. There will possibly be a change here towards smart software solutions with a manageable range of functions.

Quite frankly, despite everything, many "industry 4.0 scenarios" still sound rather
like dreams of the future. What milestones have you already achieved in practice?

K. Tröger: To be honest, many ideas are not really all that new. The biggest challenge of the so-called "4th industrial revolution" consists in the integration of different approaches and "milestones", as you call them. PSIPENTA is already a large step ahead, especially with regard to demand-oriented production control. Therefore, at customers such as Fibro, GEMÜ and Läpple, production control is automatically adjusted by means of changing circumstances. This reduces lead times, conserves resources, ensures maximum transparency and enables reliable delivery date estimates. The interface standards approach developed in the WInD research project, of course, also constitutes a milestone achieved on the way to improving the openness of software systems.

More than ever, the idea of "smart factories" is stirring up the old fear that humans could become increasingly superfluous to production. Also, many people associate the introduction of corporate software in a completely classic sense with cutting down jobs. Are such fears justified?

K. Tröger: No, I don't think so. In fact, "industry 4.0" should 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. But the fact is also that the growing range of variants, together with short delivery cycles and, at the same time, increasingly fewer skilled workers available, represents an additional challenge for many companies. It is also important not to forget that urban production of the future must also be moved closer to where people live. The key phrase here is "work-life balance". You can also see that people are not being disregarded, quite the opposite in fact. Their requirements must be taken into account to a much greater extent in corporate planning in the future.

Against the background of the so-called fourth revolution, where do you see PSIpenta ERP and MES in 20 years?

K. Tröger: What a truly great question! After a long look into a crystal ball, I would predict that systems will no longer exist in their current form. Even today we are having difficulties in defining the limits of ERP and MES systems and other corporate software modules. The standardisation of interactions between production systems will be at an advanced stage. Decentralised intelligence will control production. Automation technology will have far greater capabilities than current sensors and actuators with the corresponding control systems. Processes across the different levels of IT-assisted planning and management will be influenced in a different way. To a certain degree, we will find autonomous and self-regulating systems that communicate with standards via a medium, which may still be called the Internet. Just as the Internet manages without central management, future production systems, still controlled by people by the way, will also cooperate automatically to a large extent in a higher-level network. Current system concepts are completely overstrained. I predict that there will be services that are obtained and used according to demand. There is already a nice name for this: the Internet of services. Just as future companies will offer "production as a service", we will surely also offer planning and management intelligence for use as a service in the factory of the future. Then maybe we're talking about "intelligence as a service"…

Information

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Well-known brands are enticing at this age. "We actually wanted to go to Mars, the chocolate bar manufacturer, but all the spaces had already been taken", declares 13-year old Yasmin, completely openly. But PSI was then second choice, as programming a Lego robot was on the agenda in Düsseldorf. Ira Vollenberg, a PSI employee in Düsseldorf and the initiator of Girls' Day at PSI, only ended up in a technical professional environment herself because of the advice given to her by the careers service. "When I was choosing what subjects to focus on in high school I decided on biology and pedagogy, so a typical girly choice", recounts Ira in the interview. "That was actually completely unsuitable for me, but I hadn't considered a technical alternative at all back then." However, the test result from the careers service recommended her to follow an IT branch of study. A step that proved to be completely right for her. With this background, she was quickly able to enthuse the three girls in Düsseldorf, who independently set about putting the robot, christened "Roberta", into motion with their own computer program and also making her talk. All three were in agreement: "Roberta was the best bit!"

The response was unanimous in Berlin too: "IT is fun!" Just as communication is carried out across multiple sites during the day-to-day running of a project, the girls in Berlin and Düsseldorf were also able to try this out live. Via Skype, they were able to report their experiences to each other, compare the taste of the pizza and, of course, also giggled a bit. All the girls were agreed: The day at PSI had been interesting and enjoyable, and IT no longer seems so alien. See you next year!
Event: Automation-assisted simplifications

PSI Logistics presented new logistics solutions

PSI Logistics GmbH attended at transport logistic 2013 in Munich from 4th to 7th June 2013, presenting the latest modules and functions for the company’s standard products. The main focus of this trade fair appearance was on automation-assisted simplifications in planning and management processes for logistics service providers and shippers.

For the first time, the tender management in PSIglobal provides users with a flexible and largely automated calculation method for freight procurement and offer creation. In combination with the transportation management system PSItms, innovative ranges of functions for integrated freight cost management reduce the manual work required to calculate and check freight costs and performance indicators by 90%. A standard interface, which has been presented in a demo version with PSIglobal and PSItms, enables users to perform a holistic optimisation of the operational, tactical and strategic planning and management levels of the supply chain.

Furthermore, among other things PSI presented the current release version of the tried and tested PSIwms warehouse management system with multi-site capability, which contains numerous new functions and features. "Efficient resource planning and usage are among the most important parameters in the optimisation of time and cost blocks in the supply chain", explains Wolfgang Albrecht, Managing Director of PSI Logistics. "With the latest developments and functional upgrades to their standard systems, PSI Logistics is offering users high-performance instruments to enable optimisations – from tender and freight cost management through to holistic design and management of the supply chain – by largely automating time-consuming and costly processes in administrative and other existing departments." 

Invitation to the APS practice day at Siepmann
September 17, 2013
12 pm – 5 pm
at 59581 Warstein

Several times a year, PSIPENTA Software Systems GmbH invites interested companies to experience using their software in practice. In autumn, Siepmann-Werke GmbH & Co. KG will present the use of PSIpenta/APS and the associated competitive advantages under the motto "Mastering complexity – software to regulate dynamic production processes."

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MESSE STUTTGART
Interview with Dr. Harald Schrimpf, Chairman of PSI AG, in "Berliner Wirtschaft"

From service provider to producer

The restructuring of the software producer PSI has been successful. However, Chairman Dr. Harald Schrimpf wants to make the TecDAX-listed company even more profitable. The extra revenue to achieve this is expected to come primarily from Asia.

Berliner Wirtschaft: PSI produces software for the energy transition. Business should be booming, but sales are dwindling in this segment. Why is demand stagnating?

H. Schrimpf: Suppliers have no money for the investments that are required. The German energy transition is very expensive for the major energy companies – decommissioning nuclear power plants, for example, for which there is of course no compensation.

But with your software, the offer of solar and wind power in distribution networks will be coordinated with electricity demand and other generation capacities. Is that not a task that needs to be invested in?

H. Schrimpf: What needs to be done is one thing. What can be paid for is another. There is simply not enough money at the moment. However, I anticipate that we will experience an increase in demand in the medium term. There will be catch-up effects.

Will PSI benefit from this?

H. Schrimpf: We have a market share of 80% in this segment in Germany. This suggests that we will also feature in future.

At the moment you are clearly not able to convince investors completely. Why did the market price drop slightly in the spring?

H. Schrimpf: To a large extent share prices have been determined by the euphoria surrounding the energy transition. Now that the markets are registering that we won't be experiencing major growth just yet, the price is going down. But software for the energy transition only accounts for around 10% of our revenue. We are also compensating for this minor weakness with our other business areas. Overall, the increase in revenue remains constant.

Time and again there are rumours that PSI could become the target of a hostile takeover. In this respect, are you not worried about declining share prices since that will make the company cheaper for an interested party?

H. Schrimpf: (...) No, I am not worried about declining share prices. Around 40% of the shares are in steady hands. RWE is a major shareholder with around 18%. Employees hold around 15%. Harvinder Singh holds over 8%. The involvement of Harvinder Singh is an integral part of a cross-ownership. In this way, we have strengthened our market presence in Southeast Asia. (...)

You have achieved very steady growth in revenue in recent years, 9% on average. How is it that the 2009 recession passed you by so unnoticed? You even managed...
to achieve stronger growth during the downturn than during the recovery.

**H. Schrimpf:** How we came through the year 2009 delighted me too. (...) What I find interesting is that investments are made in our industrial software even during a downturn. Many companies obviously want to counter the crisis with more efficient production. But I have to add that the restructuring at PSI that I had to push-start 10 years ago had precisely this aim. I wanted to reduce susceptibility to economic fluctuations or periods of economic weakness on individual markets.

We recruit every year for exports, i.e. abroad. We currently have around 1600 employees worldwide and will probably have approximately 2000 by 2015. (...) Where do you see the biggest opportunities for growth in the future?

**H. Schrimpf:** With regard to regional markets, we have oriented ourselves eastwards within the context of the restructuring. That is also where we will continue to achieve the highest rates of growth. We have a very strong presence in Russia. (...) We are also very successful in the Gulf transport infrastructure to be high, as such solutions are needed in rapidly growing Asian conurbations. I can also see very great opportunities in the area where our revenue is highest at the moment, namely in production management. With our software, industrial companies are purchasing what makes German factories so successful, an extremely efficient production. (...) Berlin does not have so many prominent companies listed on the stock market. PSI is now listed on the TecDAX. What advantages and disadvantages does stock market listing have?

**H. Schrimpf:** Above all I see advantages, and I was very pleased about being listed on the TecDAX. Of course, this increases our perceptibility and visibility. There are far more analysts monitoring us intensely. I hold talks with around 300 investors every year. But I am happy to do so because it is always a good opportunity to reflect on your own operations. As we have now always met the objectives we set ourselves and the expectations of the analysts over a period of six years, I also sense a high degree of trust.

Dr. Harald Schrimpf
Chairman, PSI AG

"I can also see very great opportunities in the area where our revenue is highest at the moment, namely in production management. With our software, industrial companies are purchasing what makes German factories so successful, an extremely efficient production."

Is this restructuring process now complete?

**H. Schrimpf:** (...) We are in the process of further improving our software development. In a similar way to the automotive industry, we are using increasing numbers of components more than once. It will take another five to six years before we are set up as efficiently as I envisage.

Your plan involves further expansion of the export business. Will PSI also continue to grow at the head office in Berlin?

**H. Schrimpf:** (...) We primarily need around 100 to 150 employees that States, in China and in Southeast Asia – Malaysia and Thailand. We are also very confident of success in Brazil, where we are now becoming more active. We are operating rather more conservatively in the USA because there is such a large amount of competition among software companies there.

And with regard to products?

**H. Schrimpf:** Software for the energy sector – especially for the energy transition – is without doubt a growth market. I also rate the perspectives for the systems that we have for energy.
Increased group turnover in the production and infrastructure segments

PSI with strong growth in 2012

The PSI Group had sales of 180.9 million Euros in financial year 2012, an increase of 7%. The EBIT increased by 21% to 12.9 million Euros. The group net result increased by 27% to 9.4 million Euros, the earnings per share increased to 0.60 euro. The new orders were, at 188 million Euros, 8% above the previous year, the order book volume at the end of the year increased to 118 million Euros.

Energy Management was primarily carried by the gas and oil business in 2012, while in the field of electrical energy the demand backlog continues as a result of the German energy transition. Due to the fact that this cannot be completely compensated by the export business, the sales in this segment decreased by just about 10% to 62.3 million Euros. The electrical energy business invested in the improvement of the product character of its solutions and developed many new unique selling points for the management of the fluctuation of renewable energies. Encumbered by these expenses, the EBIT dropped to 3.2 million Euros.

In Production Management, PSI increased sales in 2012 by 14% to 89.4 million Euros. The EBIT increased by 20% to 6.6 million Euros. The largest contribution to the EBIT came from the metals and raw materials extraction business, followed by production planning, logistics and optimisation. Following upon the successful entry into the Chinese market in the previous year, the raw materials extraction business won a strategically important major contract from one of the largest Chinese coal mining companies.

In 2012, PSI had expenditures totalling 17.9 million Euros for research and development. The new group-wide development platform increasingly allows the strengths of all the business units to be combined and at the same time to reduce costs. In the future the new platform will also be employed more so than to date in the Energy and Infrastructure business.

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The in-depth annual report for 2012 can be found at: www.psi.de/report_2012.pdf or scan the QR code.
PSIPENTA business partners together at the Robotation Academy

25 years of the VW-PSI business partnership

As part of CeBIT, PSIPENTA invited on 6th March 2013 numerous business partners from the automotive industry to the Robotation Academy. The occasion was the 25th anniversary of the business partnership with the Volkswagen Group. Various divisions of the VW and Audi brand groups plan and manage their production processes at sites worldwide using industry-specific PSI software. This makes PSIPENTA one of the top 100 IT providers in the group of companies.

In addition to Prof. Dr. Günter Schuh from RWTH Aachen, Michael Breme, Head of Tool Manufacturing of Audi AG, and Dirk Strümpfler, Head of Component Tool Manufacturing at VW AG, made appearances as keynote speakers during the anniversary event.

Mr Strümpfler presented the Managing Director of PSIPENTA, Alfred M. Keseberg with the Braunschweig lion as a symbol of a successful business partnership.

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EVENTS CALENDAR 2013

18/06 – 21/06 ABM Logistics Seminar / Vila Santa Cecília, Brazil
19/06 – 20/06 Industry Forum 2013 / Wolfsburg
02/07 – 04/07 Aluminium China 2013 / Shanghai, China
17/09 APS practice day at Siepmann / Warstein
24/09 – 26/09 IT & Business 2013 / Stuttgart

Learn more about all the PSI Group’s events at: www.psi.de/en/events/