

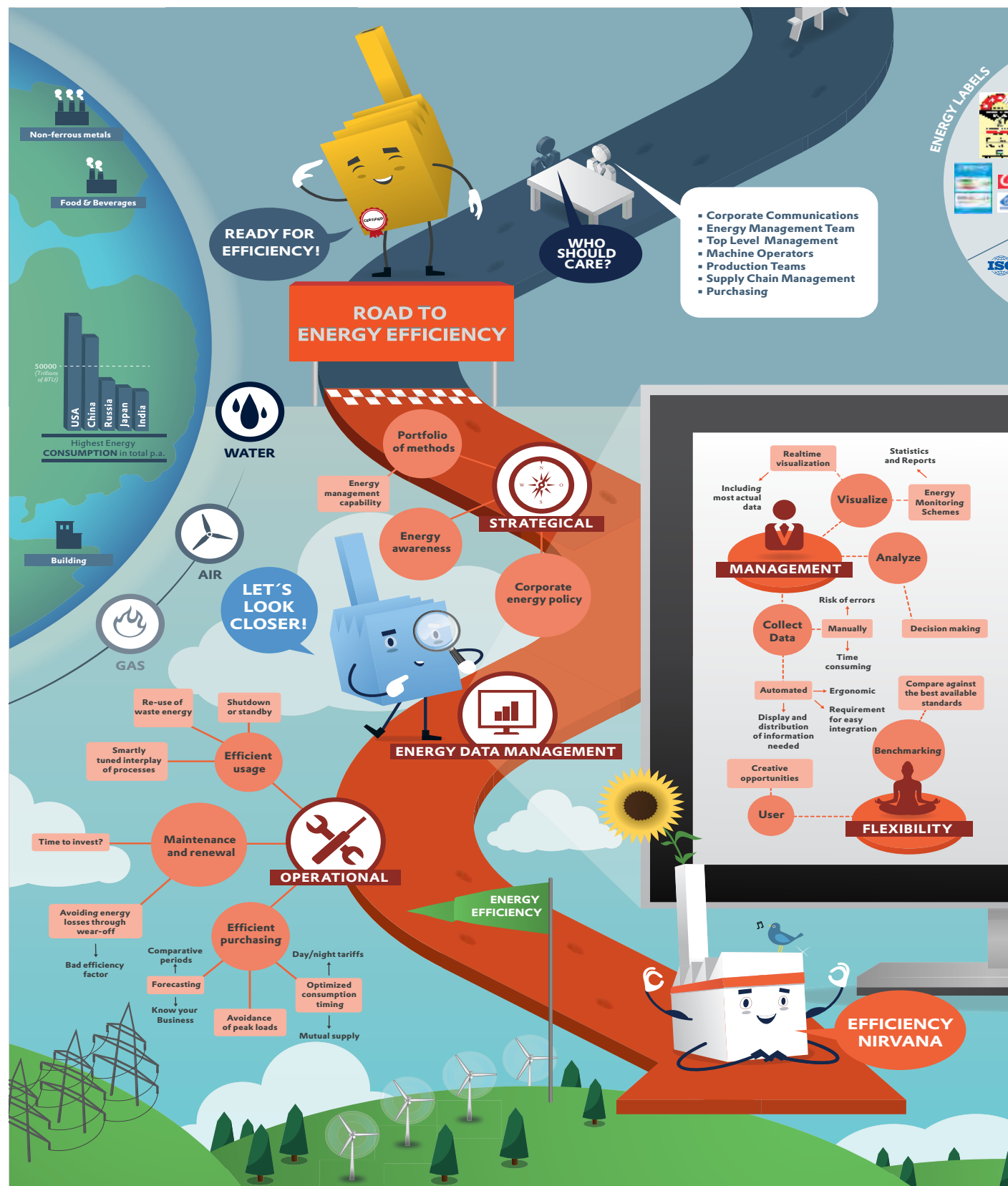
INFORMATION UNLIMITED

ENERGY MANAGEMENT

Interview with COPA-DATA's CEO

15 Years of COPA-DATA Germany

Energy Efficiency in Italy



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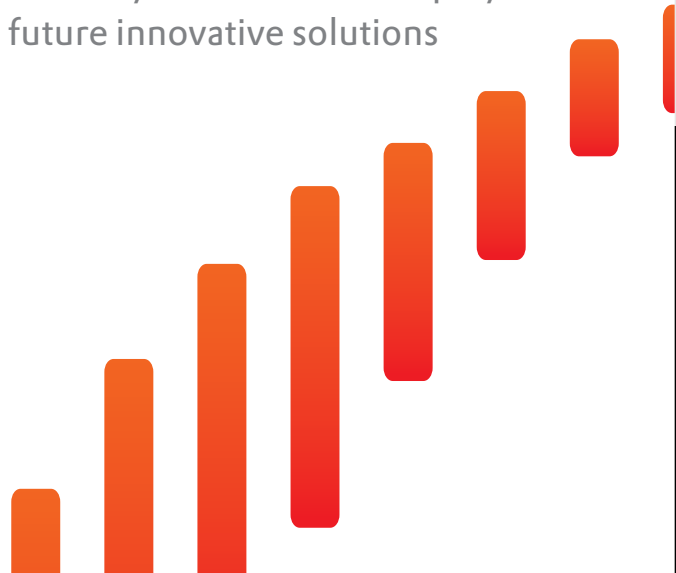


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ZENON MEETS TO A HIGH
DEGREE THE REQUIREMENTS
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MANAGEMENT SYSTEMS.**

UWE HEINZE, ENERGY SYSTEMS EXPERT
TÜV SÜD INDUSTRIE SERVICE GMBH, GERMANY

IU

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THE COPA-DATA MAGAZINE

ISSUE #25. APRIL 2014

PRESIDENT AND PUBLISHER:

Thomas Punzenberger
 Ing. Punzenberger COPA-DATA GmbH
 Karolingerstr. 7b, 5020 Salzburg, Austria
 Commercial Register Number: FN56922i
 T +43 (0)662 43 10 02-0
 F +43 (0)662 43 10 02-33
 www.copadata.com

EDITOR-IN-CHIEF: Julia Angerer

EDITORIAL TEAM: Gernot Bugram, Eva-Maria
 Oberauer-Dum, Steve Poynter, Nicola Richter,
 Esther Rutter, Phillip Werr, Bertold Wöss ART
 DIRECTOR: Eva Plainer DESIGN: Jennifer Schorn
 COPY-EDITING: Kristen Kopp

AUTHORS OF THIS ISSUE: Emilian Axinia,
 Simon Cassar, Mark Clemens, Lisette Lillo Fagerstedt,
 Susanne Garhammer, Robert Harrison, Stefan
 Hufnagl, Young Su Kim, Thomas Lehrer, Giuseppe
 Menin, Reinhard Mayr, Johannes Petrowisch,
 Magdalena Pritscher, Thomas Punzenberger, Jürgen
 Resch, Okan Sarikayalar, Martin Seitlinger, Felix
 Steinlechner, Phillip Werr

PRINT OFFICE: Offset 5020 Druckerei & Verlag
 Ges.m.b., Bayernstrasse 27, 5072 Siezenheim,
 Austria LETTERSHOP & DISTRIBUTION:
 Mailinghaus GmbH Dialog Marketing Agentur,
 Neualmerstrasse 37, 5400 Hallein, Austria PRINT
 RUN: 11,900 copies FREQUENCY: twice a year

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EDITORIAL

Dear readers,

Although the world is quite turbulent politically at this time, this year has started dynamically and has seen the development of new ideas for production that save resources. It is precisely the events in Crimea in spring that have again clearly shown our dependency on foreign raw materials. Even if we carry out our business in a stable political environment, fossil fuels have their limits. We are, of course, looking for alternative renewable energy sources, but I think that the most obvious solution is to save energy.

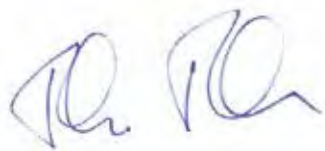
This not only helps our environment, but also aids the economic success of a company. Money that is not used for energy can be invested for example in innovations and can thus further increase our competitiveness.

zenon supports you perfectly in optimizing energy use and in implementing a process of continuous improvement in accordance with ISO 50001.

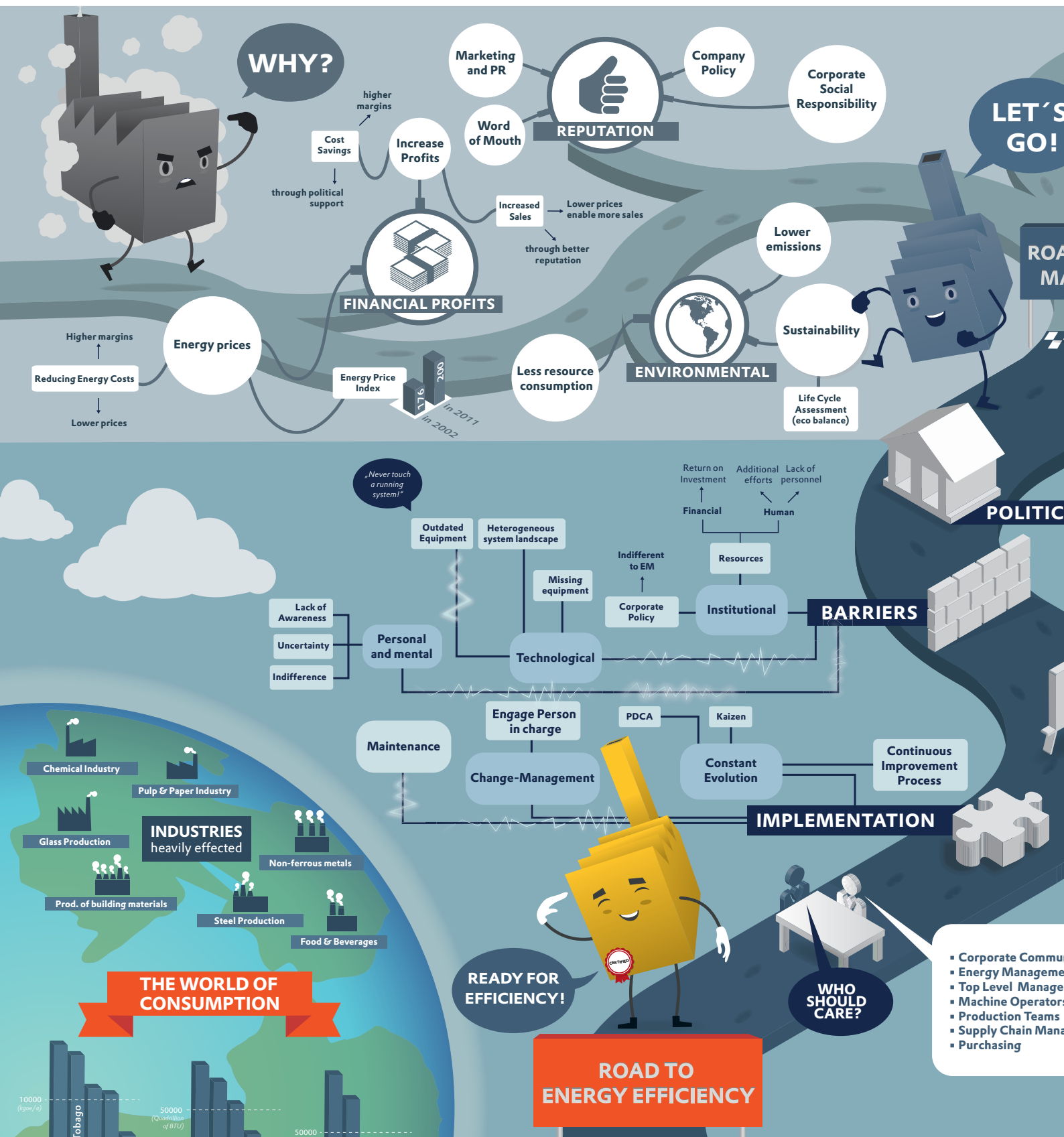
But not just there. If you analyze the consumption of resources such as water, compressed air or other factors too, you can design and optimize your production process more efficiently.

In order to do this, however, you need a tool that collects your data, prepares it accordingly and of course evaluates it efficiently. With zenon, you have all these tasks at hand.

This being said, I wish you much success in saving energy with zenon!

A handwritten signature in blue ink, appearing to read 'TP', is centered on the page.

THOMAS PUNZENBERGER, CEO





SPOTLIGHT

ENERGY MANAGEMENT

ENERGY MANAGEMENT AS A DECISIVE COMPETITIVE FACTOR?

In the search for adjustments to make in order to improve operating margins in industrial manufacturing, one topic is increasingly coming into focus: energy costs. In particular, in countries with high energy prices such as Germany, Italy or Great Britain, there is a need to optimize the energy budget. Experts predict that the ability to produce in an energy-efficient manner, will also have a decisive effect on future national and international competitiveness.

ENERGY MANAGEMENT is increasingly playing a decisive role in international competition. Especially in Europe, energy is a particularly valuable resource. Consequently, the EU sees effective energy management as an important key in securing competitiveness and optimizing the use of resources. The member states are required to promote and develop active energy management.

European companies must therefore devote more focus on energy management. This is also reflected in an international snapshot: Europe is well ahead in the issue of energy management followed by Asia, a large distance behind (see *Figures 1* and 2). Energy management is, of course, not an undisputed issue in Europe. Some fear that it is a brake rather than a boost due to many government regulations. However, experience shows that new technologies and software for energy optimization contribute decisively to the profitability of many companies – the more energy intensive, the more noticeable.

MANAGEMENT MAKES ENERGY MORE VALUABLE

Fossil fuel sources are becoming increasingly scarce and alternatives from wind to solar energy are not yet in a position to act as primary substitutes causing, among other things, rising energy prices. At the same time, environmental policy requirements are becoming stricter and stricter. Companies are increasingly under pressure to improve their energy efficiency, to reduce energy consumption and to have a keen eye on their CO₂ emissions.

The fact that it is generally European companies which dedicate most attention to the topic of energy management certainly has something to do with state requirements and incentives, but sometimes is also due to cultural roots. Energy as a valuable resource entered public consciousness in the seventies. Many managers recognize the economic potential of targeted energy management – and are happy to accept the associated positive recognition from society. However, there is still a large gap between recognition and implementation in Europe and around the world.

In a survey carried out by Economist magazine in 2010^[1] 80% of the respondents agreed with the statement that more efficient use of energy is becoming increasingly important. However, only half believed that companies also incorporated this into their corporate strategy sufficiently.

Consistent energy management offers a range of significant benefits:

PERFORMANCE IN THE WIDER ECONOMY

The implementation of an energy management system (EMS) improves energy efficiency. Energy costs are reduced, the dependency on energy prices is diminished and competitiveness increases. In addition, subsidies and other competitive advantages can be gained in many countries through documented energy management.

Europe	2212	81,87 %
Asia	408	15,10 %
North- and Central America	48	1,78 %
South America	25	0,93 %
Africa	7	0,26 %
Australia	2	0,07 %
Global	2702	100,00 %

ISO 50001 certifications worldwide

Figure 1: Number of ISO 50001 certifications of companies around the world (as of: 12/31/2013). Based on the source: Principles of Environmental Protection Standards Committee (NAGUS). DIN Deutsches Institut für Normung e.V. [German Institute for Standardization] <http://www.nagus.din.de>. Note: one certification per company was taken into account, not the certification of individual sites of the same company.

REDUCTION OF COSTS

The prices for energy and natural resources are continually increasing. Using scarce resources efficiently and reducing energy consumption is a basic method for manufacturing companies to reduce costs.

ECOLOGY

One of the objectives of energy management is the reduction of environmental damage. For companies, this means not just acting with social responsibility and investing in their social reputation. Increasing environmental damage also increases the spending of companies on preventative measures, compensation, emissions certificates and insurance. A careful eye on the environment has an effect on costs at the same time.

CORPORATE SOCIAL RESPONSIBILITY (CSR)

Climate change and the scarcity of resources are hot issues currently. Appropriate commitment increases the positive perception of a company in the public eye.

The consulting company Bain & Company assumes that a typical European or US company can save between 10% and 30% of direct energy costs within three years. The savings in indirect costs, from low maintenance, reduced material and waste costs through to reduced risk, are estimated to be up to 50%^[2].

ISO 50001:

CLEAR OBJECTIVES, NEW METHODS

There can be many forms of energy management. Standards can help to describe these methods effectively and efficiently. With EN 16001, Europe already had a standard that formed the basis of ISO 50001 for EMS, a standard that is characterized by many benefits. It is not just modern, but most of all is highly compatible with other environmental and quality standards from EN 16001 to the energy management standard ISO 14001 as well as the European Eco Management standard and Audit Scheme (EMAS). This

^[1] Source: <http://www.bain.com/publications/articles/hidden-treasure-why-energy-efficiency-deserves-a-second-look.aspx>

^[2] Source: <http://www.bain.com/publications/articles/hidden-treasure-why-energy-efficiency-deserves-a-second-look.aspx>

standards framework provides an effective benefit for companies:

For anyone who wants to implement energy management to these standards, the route to ISO 50001 might be too short. However, the standard serves not solely to create an energy management system; it can also serve to certify systems which comply with the norm.

ISO 50001 was published in June 2011 by the International Organization for Standardization (ISO). The introduction of an EMS is voluntary and there is also no obligation to obtain certification. However, many countries offer tax benefits and other economic and financial incentives to companies that can show corresponding certification. In Germany, for example, certification is one of the requirements for the partial exemption of particularly energy-intensive companies from their allocation in the German Renewable Energies Act. Since 2013, companies who wish to apply for a surplus settlement must also prove their increased energy efficiency with the help of certification^[3].

The new energy management standard is, however, markedly different to its predecessors in some aspects. It primarily relates to energy performance only, whereas ISO 14001 is aimed at the complete environmental performance. ISO 50001 is limited to a clearly-defined area. This makes it more accessible and allows it to be implemented into actual, verifiable action. For example, it prescribes that the energy-related starting basis be defined.

The recent standard brings an impetus into the handling of energy. In order to meet it, it is virtually impossible to avoid a well-developed energy data management system (EDMS). This is because much data must be collected, administered and made usable for targeted planning. At the same time, plans and procedures must be verifiable. There

are already large amounts of data in SMEs and it is not all accessible at the click of a mouse. The larger the company, the more complex the task. Excel lists can provide data in a structured and targeted form, but do not help in overcoming any issues.

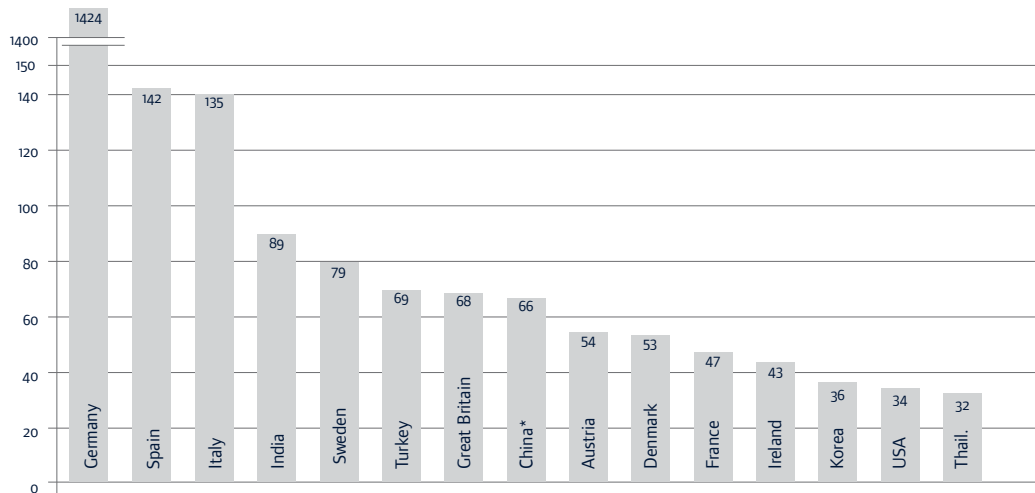
All in all, ISO 50001 offers good support for the improvement of energy efficiency, which is defined by the EU as follows: “the ratio of output of performance, service, goods or energy, to input of energy.”^[4] And it is just a small step for anyone who has already implemented other compatible standards.

EU INTEREST - THE DRIVER OF PROFESSIONAL ENERGY MANAGEMENT

The EU has set ambitious energy efficiency targets. In 2007, a decision was made to save 20% in the consumption of primary energy as compared to the projection by 2020. This is a target that has not currently been sufficiently implemented. This situation has given rise to the “Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency”. In this, the following is written in CHAPTER I, Article 1:

SUBJECT MATTER AND SCOPE

(1) “This Directive establishes a common framework of measures for the promotion of energy efficiency within the Union in order to ensure the achievement of the Union’s 2020 20% headline target on energy efficiency and to pave the way for further energy efficiency improvements beyond that date. It lays down rules designed to remove barriers in the energy market and overcome market failures that impede efficiency in the supply and use of energy, and provides for the establishment of indicative national energy efficiency targets for 2020.”



Top 15 countries for ISO 50001 certifications

Figure 2: the top 15 countries for ISO 50001 certifications (as of: 12/31/2013). Evaluated and shown as a graphic on the basis of the source: Principles of Environmental Protection Standards Committee (NAGUS). DIN Deutsches Institut für Normung e.V. [German Institute for Standardization] <http://www.nagus.din.de>. Note: one certification per company was taken into account, not the certification of individual sites of the same company

^[3] Source: <http://www.qz-online.de/news/uebersicht/nachrichten/iso-survey-mehr-zertifizierungen-von-managementsystemen-723591.html>

^[4] Source: Official Journal of the European Union from 11/14/2012, p. 10, Article 2/4 in Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC.

The EU envisages not just large companies as being under obligation, it is also targeting SMEs, which are to be supported accordingly by the member states of the EU. The following is written in the preamble, in Item 24:

“To tap the energy savings potential in certain market segments where energy audits are generally not offered commercially (such as small and medium-sized enterprises [SMEs]), Member States should develop programmes to encourage SMEs to undergo energy audits. Energy audits should be mandatory and regular for large enterprises, as energy savings can be significant.”

Article 3 defines the energy efficiency objectives that each state has set out and shall communicate to the Commission. High-quality energy audits are required to support this. Large companies are to be obliged to be audited by qualified experts by December 5, 2015 and at least every four years after the previous energy audit.

The EU has, due to its self-imposed energy saving objectives, great interest in member states and their companies improving their energy balance. Implementation in individual member states is different, but offers companies many opportunities to benefit from state support.

THE OBJECTIVE: CONTINUOUS IMPROVEMENT

ISO 50001 revisits the idea of continuous improvement and applies it in a very structured manner to energy management in companies. Four constantly-repeating steps will limit the consumption of resources and expensive waste of energy. This procedure is known as the PDCA process. P for Plan, D for Do, C for Check and A for Act.

First, there is the plan. In the first stage, the current energy status of the company is established and outlined. The primary objective is to identify those company areas that consume particularly large amounts of energy or cause high costs. It is precisely this phase that needs much care because all subsequent plans and actions are based on this data. A company's preconceived notions about its own consumption and any whitewashing would later develop into major hurdles.

In the second stage, Do, the orientation is actually focused on the future. Only now are objectives defined, then measures are developed and implemented straightaway.

Verification follows with stage three, Check. Have all the actions from Phase Two been successful? Data is collected again and compared to the planned targets. The result leads to more action in the fourth stage. The reports from the Check Phase become the basis for further improvements – and the cycle starts again.

The process of continuous improvement works in practice, but only with a system that can collect the necessary data, compress and prepare it and, ideally, also actively help with the implementation, for example, by making controlling interventions.

THE BASIS: A WELL-DEVELOPED ENERGY DATA MANAGEMENT SYSTEM

Systematic energy management has an indispensable basis: the recording of all energy flows and consumption in the company. It is therefore essential that an energy data management system can collect data from many sources and administer this.

However, it must also ensure that different sources can be compared, and that different data can be reliably integrated into a measurement system. In addition to this there are further tasks, such as the creation and output of reports and much more. However, the basic step is already a massive task for many companies. Ultimately, the desired data is usually not located at one central point from which it simply needs to be accessed. Not all energy consumers can be automated remotely and queried in a way that is useful to an electronic system. And, even if this is the case, there are often different protocol languages.

Effective implementation of energy management requires a large amount of commitment and know-how. This is not simply done with collection alone. The data must be condensed and evaluated. And somebody must also reach the correct conclusions from it and develop appropriate plans – and implement them.

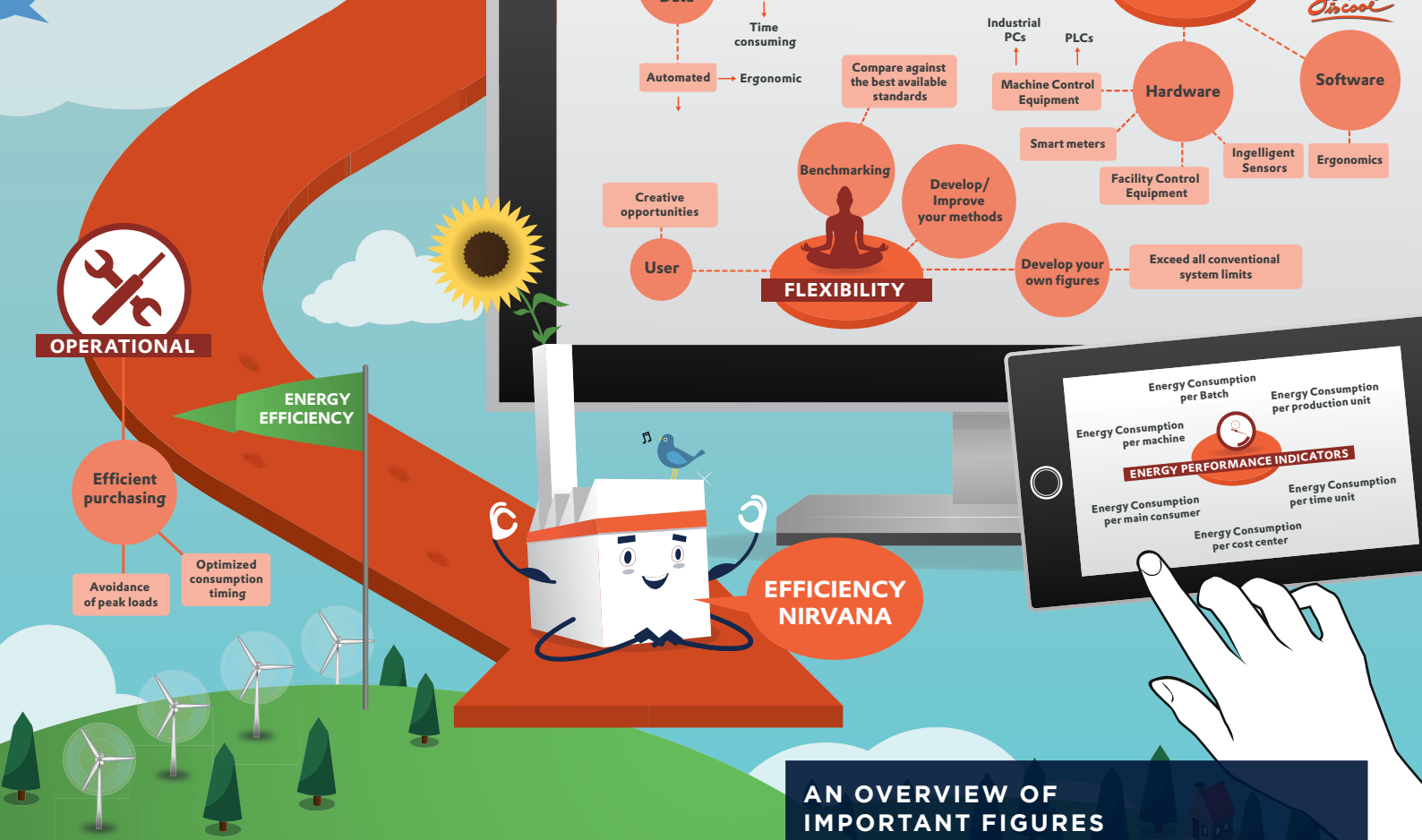
Professional systems are used for this. COPA-DATA customers already know that zenon is very suitable as an EDMS, especially in conjunction with the reporting software zenon Analyzer. This combination offers particular advantages most of all in the Check phase. However, this is not the focus of this article. In this *IU*, you can find further indepth articles about the topic of energy management and which are illuminating from a practical standpoint.

There is a full range of EDMS on the market. The first decision is a particularly important one: selection of the appropriate system. The success of the planned energy management is already decided here. When making the selection, it should not be just the individual functions that are in the foreground, but how the complete system meets the special requirements of the company. Not every operation requires the same support.

No less important is the professional and careful implementation of an energy data management system. It must be ensured that only valid data is collected and used as the basis for action plans. It is important to dedicate enough time and expertise for this. If the system has been set up once, subsequent expense for regular audits and adjustments is greatly reduced.

ENERGY MANAGEMENT AS A COMPETITIVE ADVANTAGE?

Energy management has only been in focus in the recent past. The topic has nevertheless had much influence. The fact that countries outside Europe still only have a comparatively low number of ISO 50001 certifications is hardly



a sign of a lack of international significance. It simply takes time until active energy management advances worldwide. The first steps have already been made in the USA too, and Asian countries – most of all India – have long recognized the benefits of energy-efficient production (see Figure 2).

The readiness of European countries to support energy management with subsidies can also be seen by international companies based in the EU as timely support to prepare themselves for the energy issues that will be a decisive factor for competitiveness in the next years and decades.

AN OVERVIEW OF IMPORTANT FIGURES

Number of ISO 50001 certifications	12/31/2012	12/31/2013	Relative growth
worldwide	1003	2702	+ 169 %
Germany	479	1424	+ 197 %
Spain	46	142	+ 209 %
Italy	55	135	+ 145 %
India	37	89	+ 141 %

Number of German companies as a percentage of the overall figure 52,70 % (12/31/2013)

RECOMMENDED READING:

Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC.

PAVING THE WAY FOR MORE ENERGY EFFICIENCY

FINDINGS FROM ITALY

According to a 2013 Energy Efficiency Report, Italian industry could obtain up to a 27% increase in operating margins through improvements in energy efficiency, generating an internal market for businesses in the mechatronics industry of €7.4 billion per year.

TEXT GIUSEPPE MENIN
INDUSTRY MANAGER, COPA-DATA ITALY

"HE WHO ALWAYS DOES what he can already do, will remain what he is." I believe that Henry Ford's words have never been as appropriate as they are today. In the market, in professional life, in politics or even for parents raising their children, the paradigms used to decode the world around us have changed. National and European institutions are suffering from an identity crisis. They seem to be unable to find their footing to "get a grip on" today's systemic crisis. What is certain is that all of us, like it or not, will come out of this situation somewhat changed.

Even the topic of energy efficiency is an invitation for businesses to change. This is particularly true for Italian

posited at the beginning of this article. This is an opportunity to be seized by young professionals and new start-ups in this stagnant job market.

INSIGHTS FROM THE ENERGY EFFICIENCY REPORT 2013

The time is right. The Energy & Strategy Group at the Politecnico University of Milan issued its 2013 Energy Efficiency Report in December. This report examined the topic of energy efficiency in Italy through an analysis of the market and the players involved, with the objective of identifying and quantifying the business opportunities stemming from

There is an important internal market business opportunity in the Italian mechatronics industry with increased competitiveness for manufacturing companies through energy cost reductions.

GIUSEPPE MENIN

INDUSTRY MANAGER, COPA-DATA ITALY

companies, forced to put up with 30% higher energy costs than in Germany. This is why the Italian government has given top priority to energy efficiency within its National Energy Strategy (SEN).

Relevant national standards and legislation are being stabilized and refined. On the one hand, there is the upcoming transposition of the Directive 2012/27/EU, which imposes energy audit or certification obligations for the energy management systems of all non-SME companies. On the other hand, there is the streamlining of the economic incentives for energy efficiency called TEE (Energy Efficiency Certificates, or "White Certificates").

Italy's situation is fairly clear from the standpoint of its legislation. Energy diagnoses are described in the UNI/TR 11428 standard, in anticipation of the issue of the ISO 50002 standard. The Energy Management System is defined by ISO 50001. Businesses that intend to offer energy efficiency services (ESCo – Energy Service Company) must be certified in compliance with UNI/CEI 11352. Professionals will be required to pass a certification examination in compliance with UNI/CEI 11339 (EGE – Esperto nella Gestione dell'Energia, Energy Management Expert).

Applying energy efficiency is not merely a technical issue. Of course, systems and equipment diagnoses and sizing are required. However, payback periods have to be calculated and funding sources found as well. In the end, management has to be convinced of the advantage of the investment while personnel need to be trained in energy awareness. Indeed, using energy efficiently is, above all, a cultural issue. This is why the EGE is an interesting, innovative and polyhedral position, in line with the "change"

it. These opportunities concern the big energy consumers, where any cost reduction brings an immediate increase in operating margins. These opportunities also impact manufacturers of equipment, plants and system integrators: an industry branch where Italy has a solid tradition of expertise.

The ISO 50001 certification may be seen as a dual opportunity. On the one hand, it avoids the obligatory energy audits required by the soon to be transposed 2012/27/EU Directive. On the other hand, it encourages businesses to become aware of their own energy consumption profile and to set up a strategy for continuous improvement in energy efficiency. That is why in October 2013 there were 168 ISO 50001-certified companies in Italy, as opposed to 24 in the previous year. That is a 600 % increase. Nevertheless, the gap between Italy and Germany is still huge. In October 2013 there were 2,234 ISO 50001-certified companies in Germany, also thanks to a system of incentives that provided tax breaks or energy fee discounts for certified companies. Considering the fact that Italy's Gross Domestic Product (GDP) is 40% smaller than Germany's, it becomes clear how much work there is still to do in Italy in terms of ISO 50001 certification.

That is why FIRE (Italian Federation for Energy Efficiency) has, for some time, requested targeted incentives for ISO 50001-certified businesses as a foundation for a serious energy efficiency policy that would avoid "palliative" legislative measures (such as the purported "Energy Eater Decree" of April 5, 2013) which do not address the root problem. The report estimates that ISO 50001 will create a projected business turnover of between € 50 million and € 100 million for certification support consultancy services alone.

INDUSTRY	COMPRESSED AIR	REFRIGERATION	ELECTRIC MOTORS	INVERTERS	ENERGY MANAGEMENT SYSTEMS	UPS	COGENERATION	ENERGY COST REDUCTION (%)	INCREASED MARGINS (%)
STEELMAKING	el.			el.	th. (+el.)	el.		7 %	17 %
CHEMICALS					th. (+el.)	el.		3 %	1 %
CEMENT				el.	th. (+el.)	el.		7 %	14 %
AUTOMOTIVE (*)	el.			el.	th. (+el.)	el.	th. (+el.)	25 %	4 %
AUTOMOTIVE COMPONENTS(*)				el.	th. (+el.)	el.		10 %	2 %
CEREAL FOODS	el.	el.	el.	el.	th. (+el.)	el.		10 %	3 %
MEAT PROCESSING	el.	el.		el.	th. (+el.)	el.	th. (+el.)	25 %	8 %
CONSTRUCTION MATERIALS (**)				el.	th. (+el.)	el.		9 %	19 %
PAPER	el.			el.	th. (+el.)	el.	th. (+el.)	18 %	27 %

Figure 1: Impact of efficiency interventions on energy costs and gross operating margins (EBITDA margin), considering the most energy-intensive industries.

Notes:

(*)Automotive and automotive components are the largest energy utilizers within the mechanical industries.

(**)Construction materials: ceramics, glass, bricks

el. = interventions on electrical power

th. = interventions on thermal energy

Source: Translated and re-drawn based on the Energy Efficiency Report 2013. © Energy & Strategy Group. Polytechnic University of Milan.

Omitting residential construction and concentrating on industrial applications, the report analyzes the energy features of the most important industries, assessing possible efficiency improvement interventions and their impact on margins (see Figure 1).

As is made clear in Figure 1, the report estimates that through the adoption of energy efficiency solutions, energy costs can be reduced between 3 % and 25 %, which potentially can increase margins between 1 % and 27 % depending on the industry. This is especially interesting for the paper, glass, ceramics, brick and steelmaking industries.

However, what are the expected payback periods? Payback periods are estimated depending on whether incentives will be used or not and if the replacement of existing plants is to be voluntary or forced. Figure 2 shows payback periods considering incentives, in the event of forced replacement due to obsolescence or the breakdown of existing plants and equipment.

ENERGY MANAGEMENT SYSTEMS

Among the different technologies, we will now concentrate on “Energy Management Systems”. According to the Energy Efficiency Report, these solutions enable the efficiency of industrial plants to be maximized by monitoring their consumption, production and utilization. These systems comprise specific equipment for the measurement of energy

consumption or for interface with existing devices connected to centralized data collection, processing and display units. These units display energy performance indicators (EnPIs), signal any faults and generate reports to support of management decisions. Such systems can also send commands to the process in order to optimize its operation.

A so-called EDMS (Energy Data Management System) based on zenon Supervisor and zenon Analyzer offered by COPA-DATA belongs to this category of products. It is interesting to note that the payback period for these systems is under one year. Actually, for some industries, payback comes in just a few months. According to the report, energy management systems in an industrial environment can provide energy cost savings ranging from 3 % to 10 % with cost outlays ranging from € 20,000 to € 150,000, depending on the complexity of the plant.

WHAT TURNOVER CAN BE EXPECTED FROM ENERGY EFFICIENCY INTERVENTIONS?

Considering all industrial, residential and service businesses in the mechatronics industry, the report estimates an “anticipated” potential overall annual turnover in the Italian market, from now to 2020, of approximately € 7.4 billion or about 0.4 % of Italy’s GDP. Looking at energy management systems in the industrial sector alone,

TECHNOLOGY / SCOPE OF APPLICATION	LIGHTNING	COMPRESSED AIR	REFRIGERATION	ELECTRIC MOTORS	INVERTERS	ENERGY MANAGEMENT SYSTEMS	BUILDING AUTOMATION	EFFICIENT COMBUSTION SYSTEMS	GLAZED IN ENCLOSURES	OPAQUE SURFACES	UPS	ORC (*)	COGENERATION	HEAT PUMPS	CONDENSING BOILERS	SOLAR THERMA
STEELMAKING		0,4- 0,7		2,2- 2,3	0,4- 0,7	0,1- 0,15		3,4- 5			0,3- 0,4	3-4,2				
CHEMICALS				2,2- 2,3		0,03- 0,1		3,4- 5			0,3- 0,4					
CEMENT				2,8- 4,1	0,5- 0,8	0,1- 0,15		3,4- 5			0,2- 0,35	3-4,2				
AUTOMOTIVE		0,9- 1,2		3,2- 4,5	1,5- 2,3	0,03- 0,06					0,35- 0,45		1-2			
AUTOMOTIVE COMPONENTS				2,2- 3,3	0,4- 0,7	0,1- 0,2		3,4- 5			0,3- 0,4	3,8-5				
CEREAL FOODS		0,8- 1,1	1,1- 1,7	1,6- 2,1	1,1- 1,8	0,2- 0,4					1,2- 1,8		2-3	4-6		
MEAT PROCESSING		1,1- 1,5	1,9- 2,8	2,4- 3,6	1,4- 2,2	1,2- 1,8					1,5-2		0,7- 0,17	3,5- 5,5		9-11
CONSTRUCTION MATERIALS				2,2- 3,3	1,6- 2,5	0,15- 0,35		3,4- 5			0,3- 0,4	3-4,2				
PAPER		0,4- 0,7		2,8- 4,1	0,5- 0,8	0,05- 0,12					0,3- 0,4		0,8- 1,8			
INDUSTRIAL BUILDING	0,2- 0,6						6- 9		6,5- 8	14-17				3-4,5	5-7	3-6

Figure 2: Payback periods for the major industrial sectors expressed in years.

Notes:

(*) ORC: Organic Rankine Cycle

The orange background indicates payback periods that are not very acceptable in industry. The green backgrounds are acceptable, normally less than 3 years.

Source: Translated and re-drawn based on the Energy Efficiency Report 2013. © Energy & Strategy Group. Polytechnic University of Milan.

TECHNOLOGY / SCOPE OF APPLICATION	LIGHTNING	COMPRESSED AIR	REFRIGERATION	ELECTRIC MOTORS	INVERTERS	ENERGY MANAGEMENT SYSTEMS	BUILDING AUTOMATION	EFFICIENT COMBUSTION SYSTEMS	GLAZED IN ENCLOSURES	OPAQUE SURFACES	UPS	ORC	COGENERATION	HEAT PUMPS	CONDENSING BOILERS	SOLAR THERMA
METALLURGY		16		82	25	8		77			0,4	45				
CHEMICALS AND PETRO- CHEMICALS				86	20	8		49			0,4					
CONSTRUCTION SUPPLIES				32	11	8		47			0,1	36				
MECHANICS		180		150	151	8					0,7	5	265			
AGRO-FOOD		40	11	62	45	4		74			0,7		20	23		27
GLASS AND CERAMICS				20	35	12					0,02	15				
PAPER		2		34	6	5					0,05		20			
TOTAL		238	11	466	293	53		247			2,37	101	305	23		27

Figure 3: Potential anticipated market in 2020 for macro industrial sectors in Italy, expressed in millions €/year.

Source: Translated and re-drawn based on the Energy Efficiency Report 2013. © Energy & Strategy Group. Polytechnic University of Milan..

potential sales of €53 million per year have been estimated, as broken down in *Figure 3*.

As a result, these interventions could bring 8.3 MTOE (Million Tonnes of Oil Equivalent) of final energy savings: more than half of the energy efficiency objective set by the National Energy Strategy (March 2013 SEN).

CONCLUSION

The 2013 Energy Efficiency Report presents a situation that is essentially positive. On the one hand, the legislation and government incentives could be improved and expanded, on the other, there are some very interesting prospects for diverse types of interventions that can be implemented right now, such as inverters, electric motors, cogeneration and energy management systems.

There is an important internal market business opportunity in the Italian mechatronics industry with increased competitiveness for manufacturing companies through energy cost reductions. In the end, all of this will bring reductions in atmospheric emissions in compliance with the “20-20-20 Climate and Energy Package” objectives. Let us then seize this opportunity. Let us follow Henry Ford’s suggestion quoted at the outset and learn something new. We are ready to provide support for your implementation of Energy Data Management Systems (EDMS) using zenon, which is TÜV SÜD certified in compliance with chapter 4.6.1 of the ISO 50001 standard.

The environment and our children will be thankful.



<http://kaywa.me/xCFz1>

Download this article in Italian

INFORMATION SOURCES AND FURTHER READING

Energy & Strategy Group.
Polytechnic University of Milan.
<http://www.energystrategy.it>

FIRE - Federazione Italiana per l'uso
Razionale dell'Energia (Italian
Federation for Energy Efficiency).
<http://www.fire-italia.it>

Bain & Company: Why energy efficiency
deserves a second look.
[http://www.bain.com/publications/
articles/hidden-treasure-why-
energy-efficiency-deserves-a-
second-look.aspx](http://www.bain.com/publications/articles/hidden-treasure-why-energy-efficiency-deserves-a-second-look.aspx)

INTERVIEW

Energy Management with Vision

Between 29 Pages and Successful Energy Management

SUSTAINABILITY, SAVING RESOURCES, ENERGY EFFICIENCY... these and numerous similar terms have characterized a trend that has been growing for years; namely to increase awareness of how to deal with natural resources and energy. This trend is reflected in industry in the form of familiar energy standards and environmental, such as the Eco Management and Audit Scheme (EMAS), the environment management standard ISO 14001 or energy management systems in accordance with ISO 50001.

The latter has been increasingly incorporated into management practice since its revision in 2011, starting out in Germany, and is likely to be – if it has not already been implemented – on the agenda of numerous industrial companies. This is not just due to the increased regulatory incentive (and requirement) but because professional energy management is worthwhile for industrial companies.

The international standard ISO 50001 provides companies – regardless of their size and industry sector – with a framework that defines the primary elements of corporate energy management and at the same time offers the necessary free scope for individual company demands and possibilities. The systematic recording of all relevant consumption of energy and resources, the use of this information as part of a meaningful reporting system and the cyclical evaluation of measures to increase energy efficiency are at the center of the activities.

It is a compact text – in the revised version of the international standard ISO 50001:2011, the “requirements with guidance for use” are covered in 29 concise pages – which should get you prepared to start the first and fundamental activities of your initiative. However, it is precisely here – at the start – where a number of questions arise:

- How do I ensure the committed participation of my employees in the energy management initiative?
- How can I, with a calculable expense, obtain the required information and data? How do I present this and how can I distribute it reliably to the people involved?
- How can I transfer findings and methods to different areas?
- What happens if the structures in the company change,

for example, as part of expansions or the incorporation of completely new requirements? Start again from the beginning? Or is it possible to save the acquired know-how?

This is the ideal point in time to speak to an expert in the field of energy management with many years of experience. Uwe Heinze is an expert for energy systems at TÜV SÜD Industrie Service GmbH at its site in Dresden, Germany, and here he gives us an insight into his experience in the application of energy management systems in practice in industry in an interview:

Mr. Heinze, we can see that professional energy management is widespread in companies in all industries around the world. From which industries did energy management develop originally and which companies, markets or areas of application were pioneers in this area?

UWE HEINZE: This trend is clearly evident. Firstly, there are numerous companies from all areas of industry (paper, metallurgy, chemistry, plastics, cement) that have recognized the value and benefit of implementing an energy management system in accordance with ISO 50001. Secondly, the improvement of energy-related performance as a normative primary objective can only be achieved with comprehensive knowledge of energy consumption in production and the energy infrastructure in the company. It is difficult to guess which companies were the pioneers here. From our experience, all companies that have already looked at energy issues for many years come to mind. This includes, most of all, the use of load management systems to optimize peak loads or corresponding process and building services. In conjunction with reductions in energy tax for certain energy-intensive areas of industry or for SMEs, the incentive for companies to look at this area in detail has increased.

What prerequisites are there for a company to be able to start with energy management in accordance with ISO 50001?

UWE HEINZE: The most important prerequisites are the will to save energy and an insight into the necessity of

producing sustainably in a manner that saves resources. In addition, management must be completely behind this task. ISO 50001 is an organizational standard, i.e. a standard that includes all energy-consumption-related corporate processes.

What advice do you give to companies? What procedure is suitable, from your point of view, in the early phases of an energy management initiative?

UWE HEINZE: Before the introduction of an energy management system, the first stage should be a technical and organizational analysis of the status quo on the basis of the standard. The result of the analysis of the status quo offers the chance to assess the extent to which it is currently met, the scope of activities and the project plan for implementation. The company then has the option to decide where it needs support. We therefore divided our consulting services into analyzing the status quo and the actual consultation services in relation to implementation. Only in this way can a proper offer to support the company with the introduction of ISO 50001 be created. We can, of course, support the company during the complete introduction phase.

In which corporate areas or processes can, in your experience, a high potential for saving be uncovered? Is there any certain thing that has the potential to quickly improve efficiency factors? The key phrase being "quick wins".

UWE HEINZE: It is not possible to make a general statement about that. The potential for saving depends to a great extent on the state of existing production facilities and the energy infrastructure. However, we have been able to determine relevant savings potential, even in companies with modern equipment, for example, in the field of process optimization. In addition, organizational measures can be cited. For example, the status of the person in charge of energy can have a decisive influence.

TÜV SÜD Industrie Service GmbH carries out energy efficiency analyses on site at the company with corresponding measurement systems. In doing so, it is repeatedly evident that, for example, a high and sometimes inexplicable base load occurs when production is not taking place, that leakages are not located or lighting equipment is not controlled efficiently. There is also an important savings potential with the optimum control of production processes: Other examples are drives and motors that are too large, the use of speed-regulated motors for air intakes and exhaust systems, efficient lighting and the use of existing waste heat or process heat – think about the possibilities of heat recovery – or the energy-related integrity of the building. Alternative approaches for an in-house power supply solution can offer a worthwhile approach for optimization.

A central requirement of energy management in accordance with ISO 50001 is the continuous improvement of energy efficiency. What factors must be present in a company in order to be able to meet this requirement successfully?

UWE HEINZE: The basic requirement for this is constant observation and detailed recording of the energy-consuming systems. The identification and evaluation of energy saving potential is only possible if energy flows in a company are transparent. The savings potentials must be technically and economically evaluated and the priority must be implemented. The systematic recording and analysis of energy data is, in my opinion, currently possible with the use of modern energy data management systems. Active inclusion of the energy management team by the energy manager is very important for continuous improvement of energy efficiency. This inclusion also promotes the development of energy awareness among the whole workforce.

Mr. Heinze, TÜV SÜD offers certification of energy data management systems. What benefits can be expected from this certificate?

UWE HEINZE: We certify manufacturers of such systems according to our own standard, which takes the company's requirements for energy management into account. As part of certification, the system is checked at the manufacturer and use of the system in practice is checked at the premises of a reference customer. As a result, there is illuminating evidence of, for example, the weak points that a system still has and where improvements are necessary. For the user, such certification improves the transparency and the orientation in the market.

How about the other way round: when does energy management fail?

UWE HEINZE: The introduction of an energy management system is doomed to fail if the standard is only introduced due to reductions in energy taxation. Instead of this, the continuous inclusion of energy savings potential should be in the foreground from the start. Other problems are caused by a lack of process documentation and imprecisely defined areas of validity. There is naturally a negative effect if the employees are not convinced about the issue. For this reason, company management must be completely behind the introduction of energy management and must also communicate this clearly. In addition, I would like to see the aspects of environmental protection and sustainability being focused on even more in the future.

Lastly, Mr. Heinze: Please give us three "Dos and Don'ts" in relation to successful energy management.

UWE HEINZE:

THE “DOS”:

- Record all of your energy consumption data and evaluate it.
- Get an impression of how your machinery and equipment acts when in operation and at a standstill.
- Ensure that you have reliable documentation.

THE “DON'TS”:

- Do not prioritize short-term expense over long-term saving potential.
- Do not carry out energy management as a side issue. The initiative requires a holistic and integrated approach.
- Do not give the person in charge of energy sole responsibility. Energy management is teamwork.

Many thanks for the interview.

The expert's comments confirm it: energy management is about much more than merely complying with rules and standards. Instead, it has to be a strategic initiative in the company, with several people involved, created and implemented systematically. Not every step is clear or calculable at the start; it is necessary to find the potential for increasing efficiency of which the company is not yet aware. One thing leads to another and this way the company can acquire, through precise logging and evaluations, a range of methods that lead to a real increase in efficiency.

A certain amount of vision, trust in your own commitment and the commitment of others form good prerequisites for the success of your energy management initiative – beyond 29 pages – efficiently – and soon.

THE INTERVIEW WAS CONDUCTED BY
STEFAN HUFNAGL, JUNIOR PRODUCT MANAGER
AT COPA-DATA.

ABOUT

MR. UWE HEINZE has worked as a specialist in energy systems and expert in electrical engineering and energy systems and automation for TÜV SÜD Industrie Service GmbH in Dresden, in the Energy Systems department since 2008. His tasks cover mainly the area of complex energy consulting, the recording of energy efficiency analyses and conducting energy measurements. Other aspects include the certification of products such as energy and media efficiency for machines and equipment (EME) and energy data management systems as well as performing energy audits in accordance with EN 16247. Mr. Heinze has worked as a planning engineer for electrical engineering since 1998 and has been in the field of renewable energies in particular from 2005. Mr. Heinze studied electrical engineering at Senftenberg University of Applied Sciences, specializing in energy systems and process automation. He has been a certified building energy consultant since 2007.



**ABOUT THE DEPARTMENT OF
ENERGY SYSTEMS AT TÜV SÜD
INDUSTRIE SERVICE GMBH**

The energy efficiency services for industrial companies are grouped together in the Department of Energy Systems at TÜV SÜD Industrie Service GmbH (North East Equipment Systems). The main areas of work are the creation and development of energy management systems and data logging systems, energy audits and energy efficiency analyses. Furthermore, power supply concepts are evaluated and verification services for greenhouse gas trading are offered. Experienced experts for all major areas of energy usage are employed in the department. Main customers stem from the field of energy generation and distribution, from the chemical and processing industry and from mechanical engineering and plant engineering.

A SIXTH SENSE FOR ENERGY MANAGEMENT

ON THE ONE HAND, there were energy costs of nearly 3.5 million. On the other hand, the energy management system that the management wanted. And in-between, there was Brian. But according to his management, this shouldn't be a problem for a guy like him. All the data was somehow in front of him, after all – neatly sitting in Brian's spreadsheet, which by now haunted his nights.

The catch: The score was 8-2 against him when it came to efficiency. It took 80% of his time to gather and collate the data. But Brian could only work with data he could actually see. And so, with every meter, he had less and less time for effective energy management. Brian already could picture himself drowning in a sea of data. Until, during a trade show, he found out about zenon.

A mere week after, Brian was smarter – and faster. The new software automatically collated all the required data from across the whole system. So he could put that monster spreadsheet to rest. All data was available to him all the time. With its Reporting function, zenon even fully took over calculations. All requested information was at hand within few clicks, or even automatically, and also presented in the right format.

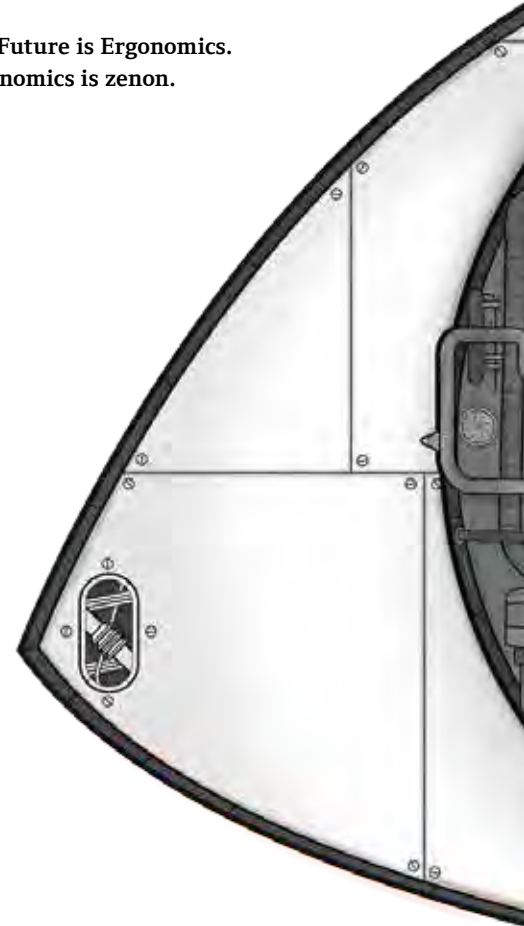
zenon became Brian's sixth sense, anticipating upcoming usage and by

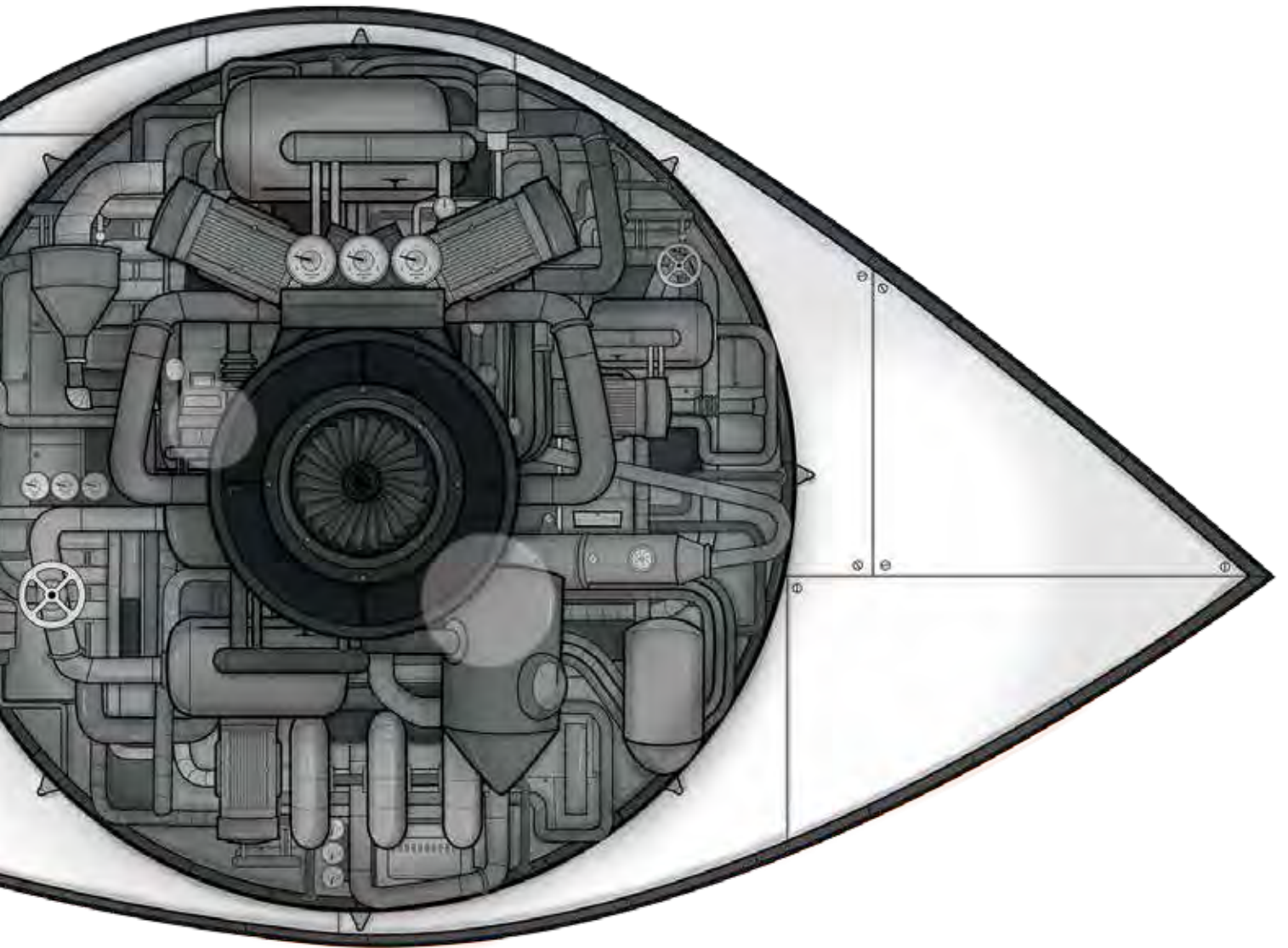
thus enabling him to act ahead of time rather than catching up. Playing with different scenarios, taking unerring decisions, based on facts. When Brian checked the score again, it was 8-2 in favor of his creative energy management. So that's how ergonomics worked. And that's how relieving it felt.

**The Future is Ergonomics.
Ergonomics is zenon.**



<http://kaywa.me/OIPcG>









PRODUCTS

&

SERVICES

zenon 7.11

Improved Ergonomics for Project Configuration and Runtime

straton – The Secret Weapon for
Business Intelligence and Big Data Applications

Simple and Efficient Reporting for
Hydro-Electric Power Plants with zenon Analyzer

Ergonomics in Industry 4.0

FAQs: Mobile Solutions –
zenon Analyzer on Your Mobile Device

zenon Training (PART 1)



zenon 7.11

Improved Ergonomics for Project Configuration and Runtime

With our new, standardized release and support cycles which we presented at the start of the year, it was clearly defined that COPA-DATA will bring a new version of each product to market each year. zenon 7.11 was therefore introduced in March in time for the release schedule of zenon in spring.

TEXT REINHARD MAYR
ZENON PRODUCT MANAGER

THIS QUICK TIME-TO-MARKET brings a new product in very short intervals. This raises the issue of users asking “Is it worth switching so soon after an upgrade of the previous version?” This article will help you make a decision, presenting some highlights of zenon 7.11 and outlining its benefits.

First things first: of course version 7.11 is fully compatible with your previous version. Existing projects can simply be transferred at the click of a mouse and without any loss of data.

NEW INTERACTION POSSIBILITIES AND USER GUIDANCE CONCEPTS

ZENON FACEPLATES

Modern end devices require modern input concepts. The zenon screen architecture uses a screen technology whereby each screen is based on a frame. In doing so, each screen can have a different functional characteristic, such as an alarm message list, recipe administration or the like. Up to and including zenon version 7.10, these screen types could not be combined. Modern operating concepts will be able to display more and more varied information for automation components at the same time. For example, the equipment operator would like to see, in an interface for a unit (such as a drive), all current process data and all alarm messages, and also the historical temperatures over a period of time.

The new zenon faceplates make precisely this compact display of different information in just one process screen possible. There is no laborious navigation or time-intensive searching for the appropriate dialogs and fields.

With the zenon faceplates it does not matter which zenon screen types are combined. Each combination or even multiple use of the same screen type in a faceplate is possible, without any problem.

THE EQUIPMENT MODEL IN ZENON RUNTIME

The zenon equipment model has been in the product line for several years. However, previously the focus was primarily on the field of engineering (i.e. structuring an HMI/SCADA project). It was already possible to use the equipment model as a filter in Runtime lists. However it was not possible to use the model for interaction. zenon 7.11 has now filled this gap. It is now possible, with a new screen type, to visualize the equipment model as a process screen.

But mere visualization was not enough for us. The equipment model should also offer possibilities for interaction. Each equipment level can thus be linked to a desired function. These can then be executed by direct selection in the new screen type.

This therefore allows new methods of operation for zenon users. Based on an equipment model (a navigation

tree) you can, for example:

- Open screens
- Acknowledge alarms
- Select recipes
- Set values
- or execute any other desired function.

Context-related interaction is thus possible for the first time – such as, for example, the acknowledgment of all alarms of a specific technological unit.

SMART DATA RECORDING AND EVALUATION

zenon has already offered valuable functions for long-term data archiving and evaluation for many years. However, the variety of options also increases the complexity for the person configuring the project and for the user operating it when it is running. It was therefore important to us to provide ergonomic solutions in this area for both user roles.

AGGREGATION PROFILES

FOR ZENON HISTORIAN IN THE EDITOR

Up to now, the creation of aggregated archives was always the responsibility of the person configuring the project and left to their expertise. Due to the many possibilities for aggregation, creating an archive structure that worked well was very laborious. In zenon 7.11, the Editor therefore offers pre-made aggregation profiles for the person configuring the project. Simple selection is sufficient and the Editor carries out the whole project configuration. In doing so, the user is free to define their own profile and to reuse this later.

AUTOMATIC ARCHIVE

CAPSULE SELECTION IN RUNTIME

Based on the data aggregation in the Editor, which is now much easier to configure, we also wanted to take away the multitude of selections the user must make in the Extended Trend in Runtime. Previously, users had to make a selection manually using the appropriate archive capsule. If a less-suitable data source is used, this has a negative effect on the switching times, system memory usage, etc. In zenon 7.11, Runtime automatically selects the most-suitable data source for the time period that is currently set. The user only decides on the desired time range; the system automatically provides the data with the appropriate quality.

DYNAMIC GANTT CHART CONTENT

The Gantt chart is also a pre-existing function in zenon. However, as a result of much feedback from projects, we have decided to implement an additional enhancement for this function. Many users would like to be in a position to carry out their analyses in the context of a lot number, job number, etc. When did production start? How long did it

ZENON 7.11 HIGHLIGHTS



Dynamic Gantt Chart content



zenon Faceplate



New Food & Beverage symbols in zenon

run and what were the parameters for a particular order? There is one thing that all these questions have in common:

- The texts to be recorded are not known at the time of creating the project; they are only later scanned or entered in Runtime.
- This data must be recorded historically, in order to allow a clean analysis, even after many years.

In order to be able to meet these requirements, zenon 7.11 allows the possibility to display data from string archives in the trend as a Gantt chart. Each text that is recorded is shown as a bar and labeled with the appropriate text. Individual text can therefore be recorded in Runtime and evaluated using graphics over a period of time. This allows flexible evaluation of data and recording, including in Runtime.

PRECISE EVALUATION WITH EXTENDED LOT FILTER

Modern manufacturing processes require flexible manufacturing and, in conjunction with this, flexible data recording and evaluation. For lot-controlled production processes in particular, equipment is generally used to produce more than one lot at the same time. zenon 7.11 provides a completely new filter concept for this. It ensures that only data that is actually relevant to the lot, such as alarms, is shown. A new lot filter, applied to all the equipment, also ensures that only data that belongs to a certain production lot is displayed. The laborious manual compiling of appropriate filters in the individual modules is no longer necessary.

OPTIMIZED ENGINEERING SAVES TIME AND INTEGRATES PERFECTLY INTO EXISTING IT INFRASTRUCTURES

NEW GLOBAL SYMBOL LIBRARY IN THE GLOBAL PROJECT

To better support central engineering approaches, a new global symbol library has been introduced in the global project. This supports all functions that the user is already familiar with from the project symbol library. In contrast to pre-existing general symbol libraries, in the global project it is possible to protect all content, save it via backups and thus easily distribute it centrally. There is no need for any manual distribution; new design templates and symbols can be distributed with ease. And, of course, individual symbols can also be updated as usual by means of XML export/import. All projects loaded in the workspace are updated automatically.

ERGONOMIC REPORT VIEWER FILE HANDLING

This is another example of the optimization of an existing tool as a result of many customer requests. The zenon Report Viewer makes it possible to create graphic/text reports on the basis of Microsoft reporting technology. In order to allow zenon users all necessary work steps when creating the *.rdl file, we have transferred all the handling of the datasets to the zenon Editor. Therefore, people configuring projects can also quickly and easily use the zenon

Report Viewer without relevant knowledge of the necessary Microsoft tool. As a result of the automated project configuration from zenon, potential errors in setting parameters are ruled out. The person configuring the project can concentrate on their core tasks again.

NEW SCRIPT LIST

Greater functional depth in the HMI/SCADA projects also allows increased project content and a greater number of elements in a project. The zenon function scripts are not an exception to this. In order to make the administration of these considerably easier, a new list-based view with sorting and filter options has been implemented. Laborious searches and pages of scrolling are now a thing of the past. In addition, a single selection of a specific script in a context menu function is sufficient for information about all places where it is used. Content that is no longer needed can be found promptly and the project content can be optimized quickly.

CENTRAL USER ADMINISTRATION THROUGH THE INTEGRATION OF WINDOWS USER ADMINISTRATION AND A GLOBAL LOGIN

Modern security concepts require closer linking between corporate IT and automation IT. User administration plays a significant role in this. Windows domain users have a number of mechanisms that are used or prescribed by a central IT unit. It was therefore evident that the direct integration of the domain users and, most of all, the administration of these in zenon should be improved. You can thus create, delete or edit a Windows user in the current version of Runtime using a dedicated screen type. All HMI/SCADA-related information is assigned to the Windows user and saved in the process. Central security rules and requirements of corporate IT can be fully implemented. Lastly, the new screen type features a new project setting. With this setting, once the user has successfully logged in to an integration project, they are also logged into all subordinate projects – without any additional engineering required.

ZENON AS A WINDOWS SERVICE

Modern and distributed infrastructures require software components such as an HMI/SCADA server to be seamlessly embedded into existing IT infrastructure. Server operating systems also have considerable advantages in the areas of maintenance and security when operating HMI/SCADA servers. However, in order to be able to use these, the application must run as a Windows service – without Windows login on the server operating system. zenon 7.11 offers the possibility to operate Runtime and all required components as a Windows service and thus meets all requirements of modern IT maintenance and security concepts.

OPTIMIZED EVERYWHERE SERVER BY ZENON

The Everywhere Server was already introduced in the previous version, zenon 7.10. Initial projects to connect smartphones to zenon as mobile end devices using apps were successful. Our experiences, as well as new requirements, have influenced the revision of zenon 7.11.

The Everywhere Server is a data service WCF (OData Service – www.odata.org) that allows connection of web-based mobile solutions to the zenon core system. The extra features include:

- An integrated security concept for mobile access through https support for the connection, an encryption of the data to be transferred via TLS and user authentication for external access.
- Expanded access to core system data:
 - zenon equipment model
 - zenon variable and its online values
 - alarms and events (also including access to groups and classes)
 - zenon Historian values (historical process values)

The Everywhere Server can be used directly via the existing COPA-DATA apps in the app stores, but is also freely available to all people configuring a project who want to access the zenon data model by means of their own solutions and tools. The development of tailor-made apps or the integration of web-based solutions on the basis of zenon is thus easily possible.

UPGRADE NOW!

Even more integrated, more secure and more efficient – the optimizations in zenon 7.11 described here will enhance every project. Contact your sales adviser to find out more about the new version and your upgrade possibilities: sales@copadata.com.

straton –

The Secret Weapon for Business Intelligence and Big Data Applications

straton is a flexible and powerful IEC 61131-3 environment. Many hardware manufacturers and system integrators rely on it to engineer great automation solutions and equipment. It is not a secret that straton shows off its strong points particularly in combination with zenon. What is not so obvious, however, is that straton is an excellent tool for Business Intelligence and Big Data applications. This article will show you how excellent.

STRATON AND ZENON – POWER PLAY FOR BUSINESS INTELLIGENCE

Business Intelligence Solutions depend on having the right data available. As a basis for reliable analyses this data needs to be correct, complete and consistent. In industrial and infrastructure environments, this data originates on the sensor level. Through PLC systems this data can be communicated onwards through SCADA or gateway levels to finally end up in an archive or a database. When stored properly the data is retrievable and available for business intelligence tools (like zenon Analyzer) or for Big Data applications.

EXTENDED DATA SETS FOR BIG DATA APPLICATIONS

Traditional Big Data applications most often look at data sets ranging from ERP, CRM, Web 2.0 and market data to generate relevant insights. Including data sets from manufacturing and infrastructure (e.g. electrical grids, water supply and transportation) can substantially increase the power of Big Data analyses.

REAL-TIME DATA FOR REAL-TIME DECISIONS?

When a PLC engineer and a C-level executive talk about real-time data they often have completely different things in mind. In the world of PLCs, the most common unit in this context is milliseconds. For a manager, 'real time' can mean having data from last week's production available within a few days.

How can we match these two mindsets and deliver real-time data about production and infrastructure to Business Intelligence levels?

With straton and zenon you can easily realize architectures which allow you to obtain data from sensors at high speed. In practice, this means you can have critical information at the IT tier within seconds after it originated on the sensor.

HIGH QUALITY DATA FOR HIGH QUALITY DECISIONS

Not only the speed of information is crucial, but also the quality of the data provided. Without guaranteeing a certain level of data quality, Business Intelligence is, in the best case, untrustworthy. Worse, it could lead to the wrong decision. Strategies to ensure high quality data start at field level, where sensor data is acquired.

Three criteria for data quality:

1. Enough, but not too much

Yes, the amount of data is a factor in data quality. Even if analytical tools are constantly evolving and in cloud applications hardware power is easily scalable, it is a lot easier to find the needle if you remove the haystack first.

2. Consistent and complete

Applications in quality control are a good example for the importance of data consistency, whether in manufacturing, disaster prevention or electrical grid control. Reports may look fine, even when a critical value which, by chance, is out of range and is exactly the one missing from the database.

3. Correct

It nearly seems too obvious to mention that data needs to be correct to serve for correct analyses. Often it is a quite complex challenge to deliver correct data from field level systems. Especially when underlying data is already a

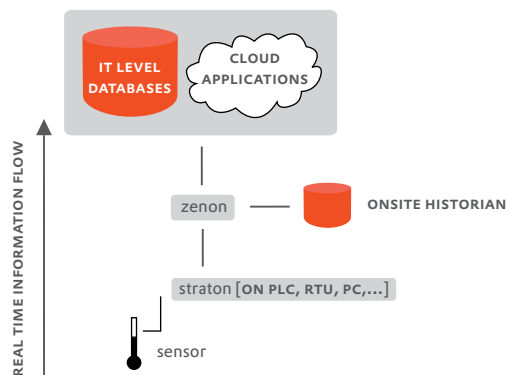


Figure 1: Seamless upstream data communication across the entire architecture.

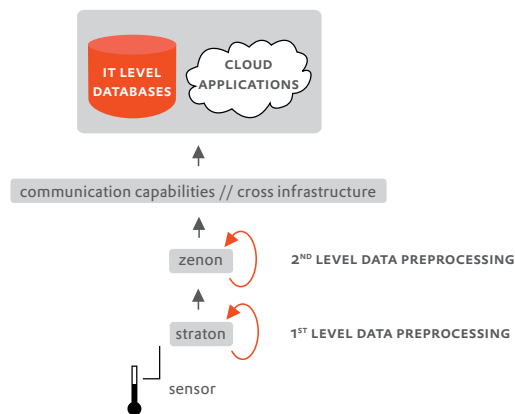


Figure 2: With zenon and straton, on-the-fly data preprocessing is being performed on different levels.

derivative of primary data, like availability times of production equipment or infrastructure components.

To ensure data quality, straton and zenon offer a wide range of capabilities for on-the-fly data preprocessing. Data is being checked and processed on different levels while it is being moved upstream.

STRATON SUPPORTS ONE OF THE MOST CHARMING PCs – THE RASPBERRY PI

In addition to custom integration, straton is already available for the most important industrial open controllers, such as SIEMENS S7 Mec EC31 or Mitsubishi Q-Series C-Controller, and many others.

It is great news that straton is now also available for the Raspberry Pi. The award-winning tiny computer, which sold over 2 million units in a very short time, is a minimalistic yet powerful hardware platform. Initially designed as tool to introduce kids to programming easily, the Raspberry Pi has found many fans from very different fields. With straton on it, you can use all the capabilities of the industrial IEC 61131-3 environment. If you enjoy blending work and play, you should definitely check this out!

PHILLIP WERR
MARKETING MANAGER



Figure 3: Raspberry Pi with straton. Picture taken at COPALP booth at SPS/IPC/Drives trade fair in Germany, November 2013.

RASPBERRY PI RAFFLE

We are giving away five Raspberry Pi starter kits with a straton Runtime on each. If you want to win one of them, take part in the raffle here*:



<http://kaywa.me/YAG90>

*TERMS AND CONDITIONS

No entry fee required. One entry per person permitted. Employees of COPA-DATA and local COPA-DATA Sales Representatives (Subsidiaries, Distributors and Sub-Agents) and their relatives are not allowed to participate in the raffle. The raffle is operated without possibility of recourse to legal action, and winnings cannot be redeemed in cash. The raffle is open until June 30, 2014. Winners will be contacted by COPA-DATA via e-mail. Winners must respond to the message within a period of seven (7) days or a new winner will be drawn. By taking part in this raffle you are agreeing to receive further information on straton and that the winner will be announced in different COPA-DATA and COPALP marketing channels. If you have any queries, feel free to contact us at sales@copadata.com.



ERGONOMICS IN REPORTING

Simple and Efficient Reporting for Hydro-electric Power Plants with zenon Analyzer

THE INITIAL SITUATION

In times of increasing energy consumption and high burdens being placed on the environment, the generation of power from renewable energies is increasing in importance. Depending on the country and the region, different priorities are set and different technologies used. In Austria, electricity from environmentally-friendly hydro-electric power dominates. The technology has now been developed for a long time and major advances, such as photovoltaics, are no longer conceivable. The investment in hydro-electric power plants is initially relatively high in comparison to other power plants. Only when the long lifecycle of hydro-electric power plants is taken into account does the investment start to make financial sense.

Meaningful reporting aids in realizing the return on investment as soon as possible. Energy reports on the production and consumption of power, as well as maintenance reports that are used for the optimum planning of maintenance, contribute to recouping investment as soon as possible. They also help to design the work more effectively and make it easier.

THE CHALLENGE

The introduction of efficient reporting presents power plant operators who already use zenon with an interesting challenge: the pre-existing zenon project they use for the automation of their power plant is fully developed, works reliably and should not be changed for reasons of stability and security.

In addition, these power plants have generally been in operation for many years and there is a high degree of automation. Much data has already been recorded over a long time period and saved in archives or Chronological Event Lists (CELs). If a new reporting system is put into operation, operators will also want to include the data from previous reports going back years and have access to more than just the data that has been collated since the implementation of the reporting system. With the original conception of the archiving and saving of data, it was of course not yet possible to take a future reporting solution into account. The data is therefore not in optimal format and can comprise of enormous amounts of data, often many gigabytes. At the same time, the reporting should not hinder the current system.



THE SOLUTION

For reporting, there is zenon Analyzer, which is already excellently equipped to work in conjunction with zenon and can automatically take on much data. Certain data, such as the servicing of a generator or the successful replacement of a circuit breaker, must nevertheless be logged manually. Because it is not desirable to change the existing zenon projects, you only need to add an additional zenon Runtime as a client which carries out this task. As a result of this, the expansion can be implemented during ongoing operation, non-invasively. Existing projects are not affected. In addition, the SCADA Runtime Connector is installed on this computer, allowing zenon Analyzer to have access to stored archive data, the CEL or the Alarm Message List (AML).

There is also an elegant solution for the inclusion of historical data that goes back over many years and comprises an enormous amount of data: archive emulation in zenon Analyzer. It is able to search data according to certain, self-selected criteria and, on the basis of this, to create new archives and variables and fill these with data. The data is prepared as required for optimal use in the reporting system. Archives, CEL and AML can be used as a source of data for archive emulation (see Figure 1).

ARCHIVE EMULATION IN DETAIL

The emulated archives and emulated variables are defined in the zenon Analyzer Management Studio (ZAMS). The archives are defined in the same way as in zenon Editor.

There is a particular feature with variable definition which recognizes nine different counter types:

- Absolute time counter ($0-\infty$)
- Relative time counter (restarts at 0 after each cycle)
- Absolute event counter ($0-\infty$)
- Relative event counter (restarts at 0 after each cycle)
- Difference counter
- Sum
- Maximum
- Minimum
- Time-corrected average value

For each variable, it is possible to define which triggering event starts the time calculation and which one stops the time calculation. The result is written in the virtual variable for each archive cycle.

Example: The variable “b_machine_ON” = 1 is set for a machine if it is switched on. If the machine is switched off, the variable “b_machine_ON” = 0 is set. Both events are written to the CEL. With the archive emulation, we now read the statuses of the variable “b_machine_ON” from the CEL and determine for how long the variable was 1, i.e. until it was set back to 0 again. The result is saved in the emulated variable.

This data is collated in a cycle that can be set and can also process historical data that goes back over many years. In doing so, the data can appear in the Runtime project as a zenon archive, AML or CEL data or also be evacuated to external SQL servers.

THE IMPLEMENTATION

The implementation of the reporting solution can be fundamentally broken down into three steps:

- Creation of the zenon Runtime client
- Setting the parameters of archive emulation
- Setting the parameters of the report templates

Because no programming work is necessary in any of the stages, the reporting system can be implemented quickly and without programming knowledge.

In the first stage, the new zenon Runtime client is created to log servicing and the replacement of components. After this, the archive emulation is configured for the desired reports and the parameters for the report templates are set up in ZAMS. Special report templates for hydro-electric power plants are already pre-defined and included with zenon Analyzer.

These include:

- Operating time per operation mode and machine component report
- Operating time per power range report
- Power line frequency report
- Active and reactive power counters report
- Circuit breaker switching cycles report
- Machine event counters report

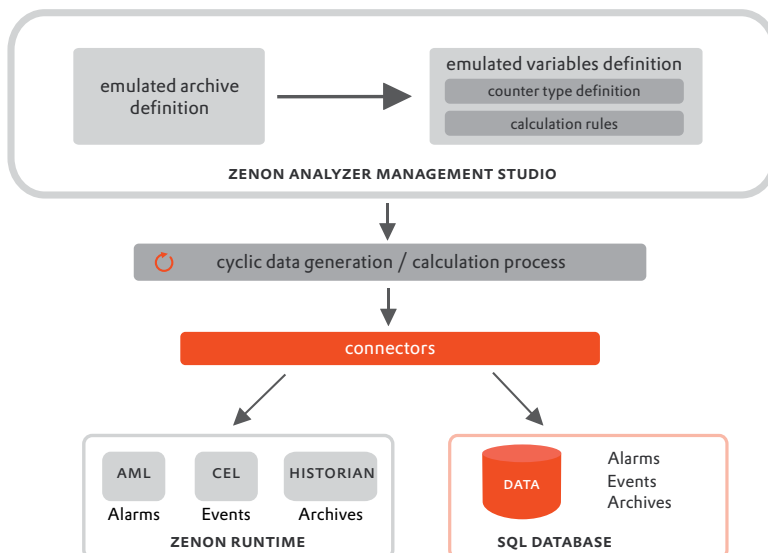


Figure 1: Archive emulation in zenon Analyzer

The individual reports are configured by simply setting the parameters.

OPERATING TIME PER OPERATION MODE AND MACHINE COMPONENT REPORT

In this report, operation modes (primary operation, etc.) and the operating hours of machine sets, their components (generators, excitation systems, turbine and auxiliary systems) or subcomponents (such as the lamination pack of a stator) are recorded and compared with one another.

The circuit breaker of the machine is logged in the CEL. From this data, absolute and relative time counters are derived via archive emulation. In addition, the operation mode of the machine is recorded in the CEL, from which a relative time counter is then derived for each operation mode.

In the next step, the parameters for the corresponding report template are set up in ZAMS. In doing so, it is primarily a matter of allocating the correct variables to the report and selecting the graphical display form.

Because the inspection and replacement events can be logged in the zenon client, the report can be calculated using this data and displayed in a table or as graphics.

OPERATING TIME PER POWER RANGE REPORT

In this report, the amount of hours a machine has been operated and the power range at which it was operated is shown for generator and/or pump operation. The power ranges can be divided into active and reactive power.

The active and reactive power is already logged and written to an archive in the power plant project. From there, the archive emulation reads the data and calculates the operating hours for the desired, freely-selectable active and reactive power ranges. To do this, relative counters are defined in the desired scale in the archive emulation. In the next step, corresponding parameters are set in ZAMS and the corresponding variables are allocated.

POWER LINE FREQUENCY REPORT

In this report, the operating hours for freely-definable power line frequency ranges are shown.

The current power line frequency is logged in the power plant project and written to an archive. From there, the archive emulation reads the data and calculates the operating hours for the desired frequency ranges. The variable allocation for the report template is defined in ZAMS only.

ACTIVE AND REACTIVE POWER COUNTERS REPORT

In this report, the production and consumption of active and reactive power is shown.

The counters for the production and consumption of active and reactive power are logged in the power plant

project and recorded in an archive. In ZAMS, the counters that provide the corresponding data for this report template are defined. The report aggregates the counters and displays this in a table and as graphics.

CIRCUIT BREAKER SWITCHING CYCLES REPORT

In this report, the switching cycles of circuit breakers are shown, taking into account inspection and replacement. The switching processes are recorded for every circuit breaker in the CEL. With archive emulation, relative event counters can be derived from these entries.

Inspections and replacements are logged manually in the zenon Client and recorded in an archive. Then, the parameters for the corresponding report template are set up in ZAMS and the corresponding variables are allocated. The counter of the respective switch is calculated in the report as a summation of the respective relative event counter since the time of the inspection or replacement.

MACHINE EVENT COUNTERS REPORT

In this report, the frequency of certain events for a machine set are shown in order to analyze which loads a machine set is subjected to. The number of starts/stops, changes to set values, types of turbine operation, excess rotation speed and loads being switched off are shown.

Switching on and off, changes to set values, modes of operation and circuit breaker switching are recorded in the archives of the power plant project. In ZAMS, in the corresponding report template, the active power ranges and turbine speed ranges are shown dynamically, the parameters are set and the variables that contain this information are allocated all according to the user's wishes.

THE ADVANTAGES OF THIS SOLUTION

The introduction of a reporting system should constitute an evolution and expansion of the existing automation project. Ultimately, operation should also continue unaffected during implementation. The simplicity of report creation is primarily based on two aspects: (1) Archive emulation, which prepares the data, and (2) the pre-defined report templates in ZAMS, which only need to have the parameters set. In doing so, reports from power plants through to power plant groups can be displayed, and can be expanded dynamically with turbines, power plants, etc. at any time.

Operators of hydro-electric power plants benefit from the combined use of zenon as a visualization and control system and zenon Analyzer as a dynamic reporting system. It is an ergonomic complete solution which supports you in optimizing your operation on an ongoing basis and to quickly recoup your investment.

THOMAS LEHRER
TECHNICAL CONSULTANT

ERGONOMICS IN INDUSTRY 4.0

The role of the human in the networked production of tomorrow

THE MORE COMPLEX THE TASK,
THE MORE IMPORTANT THE HUMAN.

The production of tomorrow will be more complex than today. Increased networking, increased communication between items of equipment, machines and components, and increased intelligence from the sensor through to superordinate systems. This provides greater challenges for the people who want to control, monitor and optimize production.

Humans will, even more than they do now, act as sensors. This means manual input of information which, due to its technical nature or complexity, cannot be recorded automatically. Your role as a decision-maker in a dynamic and more flexible production process will also become much more important. Decisions are made on the basis of growing amounts of data. In doing so, real-time data also has important functions such as aggregated and contextually-prepared historical data. At the same time, humans will also remain the main instigators in production in the future. However, the typical range of tasks is moving away from automatable routines to complex and constantly-changing tasks. In addition, effective communication and close cooperation between teams (from different departments) is increasing in importance.

In order for humans to be able to fulfill their production tasks optimally, the need for support systems such as the zenon software is growing. Ergonomics as a central concept is continuing to increase in significance.

Against this backdrop, we are engaging in research and development on an ongoing basis, including the things that users of zenon will expect in the future. In addition to the expertise of our own professionals, we asked the

independent experts from Fraunhofer IAO to assess zenon in terms of the requirements of future production scenarios. You can read the result here:



<http://kaywa.me/3U6Si>

Review of zenon
Supervisor software

IN BRIEF: ERGONOMICS WITH ZENON MEANS

- a significant reduction in stress
- efficient work guaranteed
- less effort – and a better result

zenon therefore becomes a primary key to keep the experts who have a decisive effect of the success of production capable and motivated on a long-term basis.

PHILLIP WERR
MARKETING MANAGER



Industry 4.0 changes the requirements for efficient human-machine systems in production. zenon Supervisor is already equipped for this challenge. The communication interfaces are a highlight: supporting various systems, platforms and standards guarantees a high level of flexibility and enables numerous networking and interaction scenarios.

DIPL. PSYCH. MATTHIAS PEISSNER

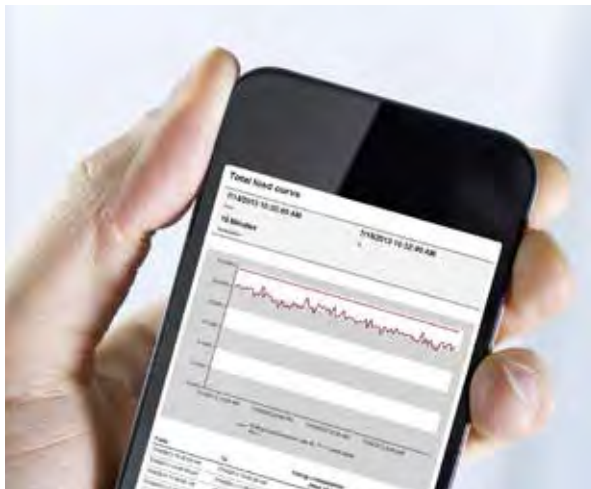
HEAD OF COMPETENCE CENTER
HUMAN COMPUTER INTERACTION

FRAUNHOFER INSTITUTE FOR LABOR ECONOMICS
AND ORGANIZATION (FRAUNHOFER IAO)

FAQs

Mobile Solutions – zenon Analyzer on Your Mobile Device

Essential Information at your fingertips



ENJOYING A COFFEE after lunch on the first day of the conference, I talk to my neighbor at the coffee table. “Just a few days ago, I got a last minute invitation to attend this conference. Now I’m happy that I took the time to attend; the presentations are really valuable.”

“I agree,” says my neighbor, “but you still seem a bit worried, what’s the matter?”

“Excuse me, I didn’t realize it was that obvious. I’m a bit preoccupied with matters back at the factory. I’m worried about the last batch that needs to be finished and shipped by tomorrow, before the Easter break. Following the last planned maintenance during the Christmas break, there were a few issues that resulted in the reduced availability of production. Over the last few months, most of the issues have been ironed out, except for one sporadic issue.”

“No wonder you’re worried, especially when you can’t check how your production is running,” sympathizes my neighbor.

“Well, as a matter of fact, I can,” I smile, pleased to have an excuse to check up on performance. I launch the browser on my tablet, log in, and call up the current production reports. Relieved, I show the report to my neighbor: “Here, have a look. The line is running smoothly and the batch should be finished within the next two hours, even slightly

ahead of schedule. It seems the repair between the last two batches has paid off and finally the line is running smoothly again. In fact, it seems with an even higher OEE than before Christmas!”

“Those are some impressive OEE numbers. It must have taken you quite some time to optimize to that level of perfection in your production. How did you achieve it?”

“Well, even a year ago, without zenon Analyzer I would never have believed it possible; such a detailed analysis of our process wasn’t available. The information it gives us really enables us to see where we need to focus our efforts and now it is a service that we could no longer do without in our company. The investment will be paid off this year. For me, it means that I can actually spend the time at this conference to prepare and plan for future technologies to come.”

**THINK YOU TOO COULD
BENEFIT FROM ZENON ANALYZER?
READ ON FOR MORE INFORMATION HOW
YOU CAN USE ZENON ANALYZER ON YOUR
MOBILE DEVICE AND HOW TO GET THE BEST
EXPERIENCE.**

Does it need an App?

The zenon Analyzer reports are accessed directly from the web browser. Currently there is no specific mobile App for the zenon Analyzer.

What do I need to consider for a zenon Analyzer installation?

There are no additional requirements to be considered for a zenon Analyzer installation. Access using a mobile device to the zenon Analyzer will work straight out of the box. As with a normal browser on a PC, you may want to activate the compatibility mode in the browser for the best experience.

Which mobile devices are recommended?

The best experience is delivered by mobile devices that use a Microsoft browser. There is limited access using Apple mobile devices: the Report Manager is not supported on iOS.

Users with Android devices unfortunately are out of luck. Microsoft SQL Server Reporting Services (SSRS) do not support Android.

Does my mobile device need to be a high-performance device?

No, all the hard work is done on the zenon Analyzer server; the mobile device just needs a browser.

How do I connect from my mobile device?

As with a normal PC, you can use your browser to navigate to the starting page of the zenon Analyzer: e.g. http://<server-name>/reports_za2/Pages/Folder.aspx

What do I need for external access?

A VPN connection is recommended for external access. From a security perspective, it is not recommended to use http (rather than https) with port forwarding configured without a VPN connection.

Does it require special reports?

It is not necessary to create special reports for the zenon Analyzer for access on a mobile device. For a more ergonomic experience on your mobile device, however, you may want to optimize existing reports for use on devices with a smaller display.

How can I optimize my reports for best operation on a mobile device?

A new feature in the zenon Analyzer 2.10, which is useful beyond reports on mobile devices, is its implementation of default parameters. Instead of opening a report and then defining the filter before the actual report is displayed, you can now define default parameters for each report. For every filter parameter, you can choose a fixed value. If desired, you can also completely hide the filter parameter. In this way, you can create multiple reports (e.g. for each project) that will display the data immediately, rather than selecting the project in the filter parameter first.

How can I easily adapt the design without using the Report Builder?

A new feature in zenon Analyzer 2.10 can give you a better experience. Color schemes can be used to define different colors and also different fonts and font sizes. You can define, for example, a specific color scheme for mobile devices in the zenon Analyzer Management Studio, with larger fonts and different graphics and perhaps larger texts for the heading. The active color scheme in the zenon Analyzer Management Studio is applied to the report when it is deployed and, from that moment, is immediately available.

How can I further enhance the user experience?

Consider using direct links to reports as favorites or perhaps

as a tile on your Windows Phone device on your start screen. This won't be a live tile, but it will show you a preview of the report for easy recognition and access.

Is ZAMS available on my mobile device?

The zenon Analyzer Management Service is not available on mobile devices, except for tablets running a full version of Windows.

Can I edit reports on my mobile device?

The Report Builder cannot be started on a mobile device that does not run a full version of Windows.

What other options do I have?

You can configure subscriptions to have a report delivered by e-mail, as a pdf or excel attachment.

What license does a mobile device use?

Like a normal client, a mobile device also uses one license, based on the user credentials. If access to the zenon Analyzer is critical, consider adding a dedicated license for a specific user. This will ensure access, whether the user logs in from a normal PC or from a mobile device.

Where to go from here? What if I have concerns, questions or would like to see more functionality?

For further information, please have a look at our Documentation, Knowledge Base or Forum at www.copadata.com/support or contact your local COPA-DATA support representative.

MARK CLEMENS
SENIOR CONSULTANT



ZENON TRAINING

Learning zenon as quickly as possible in order to be able to use it for your automation – this is the objective of the COPA-DATA training courses. You have the freedom to go your own way, while adhering to all necessary standards at the same time, in line with our motto of “do it your way”. All our speakers are trained in the COPA-DATA internal Train the Trainer program so that not only the content of the information is correct, but the soft skills too. Joint learning with zenon is therefore enjoyable. Starting with this edition of *IU*, we will be presenting you with individual training sessions from our program. We are sure the right training is available for you whatever your needs.

TEXT MARTIN SEITLINGER
DEVELOPMENT OF COMPETENCE



zenon Supervisor

STANDARD TRAINING

LEARNING OBJECTIVE

The participants have an overview of the range of functions and the philosophy of zenon. They are familiar with the basic structures of the development environment and can use them with confidence.

CONTENT

The first three training days are devoted to basic topics such as set-up, licensing, visualization, event handling, operation and the network. The basic structure of a project is covered, including details such as data types, variables, frames, screens and much more.

OTHER TOPICS

- System messages and alarm management
- Recipe administration
- Production & Facility Scheduler
- Distributed engineering
- zenon network and Remote Transport
- Integrated solutions with zenon Logic

On the last two days, the focus is on optional modules such as Reporting or Message Control with zenon Supervisor.

Duration: 5 days
Recommended max. number of participants: 8



zenon Logic

STANDARD TRAINING

LEARNING OBJECTIVE

The participants are familiar with the basic structures of zenon Logic, have an overview of the range of functions and possibilities for use and can implement an integrated solution with zenon Supervisor.

REQUIREMENTS

Existing basic knowledge of zenon, for example by having completed zenon Supervisor standard training.

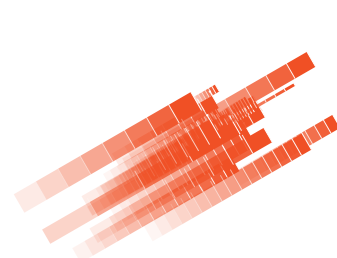
CONTENT

Participants get to know and understand the structure of the zenon Logic Workbench (development environment):

- Creation of projects, programs and variables
- Writing applications
- Offline simulations
- zenon Logic / zenon Supervisor communication (embedded symbols, driver configuration)

In order to be able to implement the system optimally, the training also includes details on the configuration of zenon Logic Runtime, working with local and distributed systems and the international standard IEC 61131-3.

Duration: 2 days
Recommended max. number of participants: 8



zenon Analyzer

STANDARD TRAINING

LEARNING OBJECTIVE

The participants of the zenon Analyzer training are familiar with the basic functionality and the interaction of individual modules and can administer, create and modify reports independently.

REQUIREMENTS

Basic knowledge of zenon, for example by having completed zenon Supervisor standard training. Detailed knowledge of the field of equipment modeling is advantageous.

CONTENT

Participants get to know and understand the structure of the zenon Logic Workbench (development environment):

- Transfer metadata with the zenon Analyzer Export Wizard
- Administer and create reports with ZAMS (zenon Analyzer Management Studio)
- Effective use of the Analyzer Manager, the zenon Analyzer user interface
- Design the appearance of reports with Report Builder standards
- Install and license zenon Analyzer

Duration: 2 days
Recommended max. number of participants: 8

You can find further information on zenon training and the next dates in your area at www.copadata.com/training.





INDUSTRIES & SOLUTIONS

FOOD & BEVERAGE

ENERGY & INFRASTRUCTURE

AUTOMOTIVE

PHARMACEUTICAL

The Ergonomic Food & Beverage Factory

POWERED BY ZENON

Do you, from time to time, go shopping in food & beverages stores?

For most of us, the answer is probably "yes". Looking at the shelves of these stores, one always discovers new food products or drinks.

For instance, this one is low calorie, this one is organic, this has better-looking packaging, this one is now lighter to carry. It is tempting to test and simply enjoy such new developments which claim to directly improve our lives.

MORE OR LESS CONSCIOUSLY, we all are making the food & beverage industry extremely dynamic. Despite the tough competition, innovative food & beverage suppliers are able to survive and grow. There are many aspects impacting both production plants and their suppliers of equipment and technology. A high level of the product quality is always a focus in the food & beverage industry. No matter if a plant is an independent one or part of an international group, from a financial perspective an increased return on investment and a reasonable cost of ownership are a must; therefore they face permanent pressure to increase productivity and optimize production costs.

Behind our often exciting discoveries on the shelves of the food & beverage stores, production teams are dealing with numerous challenges. They are continuously improving their plant and their processes. Exactly in the middle of this demanding production environment, industrial software in general and the entire zenon Product Family in particular are playing an essential role. Today, we find zenon fulfilling numerous and various tasks across the entire plant, being a powerful platform which makes life easier for every member of the production team. It is all about enabling stress-free top performance, in a working environment we like to call the ergonomic factory.

How does the zenon product philosophy empower the ergonomic factory? Let's have a look at some examples, based on typical applications of zenon in the food & beverage industry.

PROCESS CONTROL: SIMPLY RELIABLE

In the automation puzzle of production equipment, zenon takes its role seriously: friendly in communicating with every kind of hardware; trusty in rapidly and accurately delivering any piece of information; robust and always

available. A sophisticated Batch Control technology perfectly rounds off the rich toolbox that is zenon: prepared to fulfill industry-specific demands, from alarm and recipe management to complex real-time evaluation of process quality and integration with other software systems.

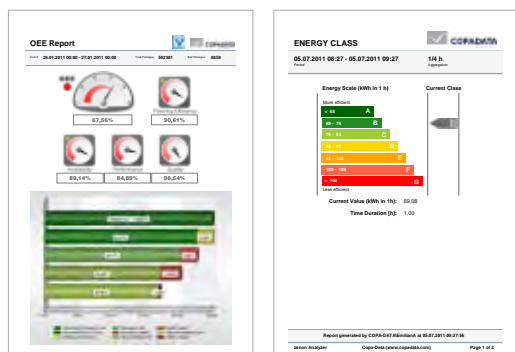
On the plant floor, the operator is the one challenged to ensure fast and error-free interaction with complex processes, regardless of his experience, level of education or age. How easy is it for him to contribute to plant performance? What about remaining motivated and healthy?

zenon addresses such critical topics by ensuring the equipment produces the technological power and the freedom to implement user-centered concepts. Clear, intuitive and modern user interfaces reduce learning time, bring comfort and safety. They are also pleasant to work with. Adequate reactions to any process events, supported by prioritized and localized information, reduce downtime and increase Overall Equipment Effectiveness (OEE).

CONTINUOUS IMPROVEMENT: DOMINATING COMPLEXITY

In the food & beverage industry the efforts towards top performance are mainly based on the continuous improvement of the processes, for instance in the context of standards such as ISO 22000 and ISO 50001. Industry dynamism brings much variability in product design, packaging, process or production equipment. However, the plant managers, production supervisors, brew masters, packaging managers or process specialists are challenged to constantly keep alive the appetite for sustainable business, better performance and reduced costs.

How does zenon make the way to high performance easier? zenon's core competencies are covering the complete information flow across the ergonomic factory.



Top performance made easy with zenon.

Valuable and complete visualization and analysis is possible only if data is collected from every relevant source. The time saved with less manual data input can be invested in optimization initiatives. Robust and fast data communication is the decisive base for real-time automatic calculation of key performance indicators such as OEE and Energy Performance Indicators (EnPI). Production teams with clear insight on current results can react quickly in order to ameliorate process issues. They are in control and confident with their decisions.

zenon offers much more. The archived plant production data is subject to further analysis to highlight improvement potential. Filter mechanisms and top-down interaction approaches ensure an always clearly contextualized focus on management information. Performance indicators aggregated in reports help to identify improvement measures. Where can we further improve the costs per mineral water bottle? What are the most important performance losses in our packaging area and how do we deal with them? Production management faces many such questions. zenon processes the necessary amount of data in order to deliver business-relevant answers. In an ergonomics-based approach, this support for optimization has to be available any time for every involved team member, no matter where. PCs, panels, mobile devices or smartphones – all can become an access point to the plant optimization software tools, due to zenon's software technologies such as Client-Server, Web Server, Message Control and zenon Everywhere.

The ergonomic factory doesn't keep secrets from managers and production supervisors. Through openness and flexibility, zenon reduces routine work, encourages creativity in respect to improvement methodologies and secures a successful path towards top performance.

APPLICATION ENGINEERING: COST-EFFECTIVE FLEXIBILITY

The automation and IT infrastructure of an ergonomic factory cannot remain "untouched" by the demands of the dynamic food & beverage market as well as internal improvement cycles, such as the Plan-Do-Check-Act. An energy data management system, for instance, needs to be adapted quickly to the realities of the plant: new equipment, new meters for various media (electricity, water, compressed air etc.). The energy manager and his colleagues can continually raise the requirements at different levels

of the system. How to better involve the operator through local EnPIs? Which new analysis should be implemented through new energy reports? Which supplementary correlations between production and consumption indicators are needed?

A system which is the subject of such frequent changes should be, of course, based on a technology which is strongly built on principles such as: modularity, open communication in all directions, easy networking, extensibility scalability, and reusability. These characteristics are at the heart of zenon's specialties, empowering the system integrator when using the zenon development environment. As a result, automation and IT specialists cannot fail to assure an always up-to-date and functional work environment for production people. In the ergonomic factory, reliable and secure systems can be integrated and maintained even under time pressure, and with far less stress.

zenon makes high technology available for easy and fast integration, through a standard and internationally-used software package. The result is that increased flexibility is no longer associated with constrictive business dependencies and high costs. The ergonomic factory is always ready to adapt to dynamic market requirements and is always in a leading position.

EMILIAN AXINIA,
INDUSTRY MANAGER FOOD & BEVERAGE

What is your perspective on ergonomics in a food & beverage factory? We'd love to continue the discussion with you on this exciting topic.

EmilianA@copadata.com



Find out how this continues in the next issue of the Information Unlimited (Fall 2014):
Implement automated substations ergonomically, with zenon.

The Automated Substation

[PART 1]

ERGONOMIC ENGINEERING

In this new three part Energy topic series we will be covering automated substations. Our zenon Energy Edition offers a complete range of functionalities which are necessary to plan an automated substation (part 1), to implement it (part 2) and to guarantee smooth operation (part 3). We would like to show you how you can particularly benefit when ergonomic operation is the common thread running through each of these project phases.

The starting point is ergonomic engineering.

TEXT JÜRGEN RESCH
INDUSTRY MANAGER ENERGY & INFRASTRUCTURE

THE CREATION of a local control system for a substation must be a simple and rapid process. Depending on the purpose of the local control system (from simple operation during communication breakdown, right up to the control points for luxurious operating and analysis) zenon can be assembled with various modular components in order to fulfill the network operator's requirements.

ERGONOMIC VISUALIZATION THROUGH REUSABILITY

Drawing feeder and transformer bays is a recurring task in the creation of one-line diagrams for the local control

group and then make them available to the user via a pop-up window or context menu.

DISTRIBUTED ENGINEERING

The best scope for efficient work distribution during the creation of SCADA applications in substations lies in the distributed engineering functionality. Tested processes known in software development, are also available in zenon. Checking-out project sections prevents changes from taking place while an engineer is working with it. Only through the subsequent insertion into the complete work is it released for other engineers, so they can see and use the

I set up the 61850 driver, imported variables through the driver and browsed for RCB like the help files described. 2 minutes later we had the variables working spontaneously, only polling one variable.

FREDRIK VELIN

TECHNICAL CONSULTANT, COPA-DATA SCANDINAVIA

system. For this zenon offers a pre-defined library of graphical objects which can be pulled into the screen per drag-and-drop and substituted with the corresponding variable. The clear advantage: central object management delivers rapid results and eases maintenance considerably.

The excellent reusability of graphical objects, screens or entire projects, allows for extremely quick generation of follow-up projects. Furthermore, screens can be saved as templates in the zenon Editor (development environment). For complete automation of the project creation process, so-called Wizards can be programmed which can then automatically generate entire projects or parts of it.

CONFIGURATION OF CONNECTIONS

In order to speed up configuration of connections based on e.g. IEC 60870, DNP3 or IEC 61850, data points can be easily imported online (from the connected device) or offline (from a description file) in zenon.

INTERLOCKING CONCEPTS

For a proper local-remote concept, a system is needed which can influence the power of control for equipment parts or the entire plant. A well-conceived and consistently integrated interlocking concept which can also be combined with the user administration, offers maximum freedom for the realization of equipment according to the requirements of the plant operator.

COMMAND INPUT

The engineering of the command input is both simple and fast. Whether double, single, pulse or any other special command is needed, the zenon command input covers every request. It is quick to compile sets of commands in a command

changes in the project. Associated with this is the seamless logging of the carried-out work and version management.

ZENON AS A GATEWAY

zenon's own gateway function enables the transmission of data or the receiving of commands from a superordinate level (e.g. control center). This software-based solution can serve as a replacement for a specifically installed RTU (Remote Terminal Unit). The gateway function can also be installed on redundant zenon servers for critical substations.

FAST FACTS

- integrated command input
- all standard protocols (e.g. IEC 60870-5-101, 103, 104, DNP3 oder IEC 61850, GOOSE)
- topological coloring
- import mechanism
- automated project creation
- interlocking and user administration are combinable
- distributed engineering
- replace screens and symbols
- structured text and CSV variable import
- DNP3 device profile and variable import
- Gateway function for soft RTU



A QUIET ACCELERATION

KOREAN AUTOMOTIVE MANUFACTURERS
ARE HOT ON THE HEELS OF GERMAN BRANDS

The South Korean Automotive industry is the fifth biggest in the world – behind only China, USA, Japan and Germany. The sector saw a quiet acceleration in the five years up to 2012; growing both overseas and domestic production.

TEXT YOUNG SU KIM
DEPUTY MANAGER, COPA-DATA KOREA

ASIAN TIGER

South Korean GDP is the 13th largest in the world – standing at \$1.666 trillion in 2013^[2] and earning South Korea a place in the G20^[3]. It is the only developed nation to make it onto the Goldman Sachs Next Eleven list of high-performing BRIC-like economies^[4]. Growth has been export-fueled. The major economic output is technology product exports: automotive, telecommunications equipment and semi-conductors. In 1988, automotive production in South Korea exceeded 1 million units for the first time. By 2012, domestic and overseas production by Korean automotive manufacturers had surpassed 8 million units. The importance of the sector to the South Korean economy exceeds its direct manufacturing output. Its success has created a multiplier effect in other adjacent industries both upstream (such as financing companies) and downstream (such as steel production).

DOMESTIC AND OVERSEAS DEMAND

In 2000, there were 12,059 registered motor vehicles in South Korea. This figure has risen steadily to hit 18,871 in 2012^[5]. However, in 2012, domestic auto sales contracted 4.3%. As the price gap between imported and domestic cars narrows, domestic demand is changing to accommodate an increasing number of imported cars.

This recent trend has been off-set by global sales, which are increasing. South Korea's top five vehicle manufacturers sold a combined 8,605,654 vehicles globally in 2013, which represents a 5% increase from 2012^[7]. Strong growth in China and North America in particular helped to drive global volumes higher last year. In addition, there is increasing demand for luxury models^[8], which has lifted export prices. Auto exports by the country's five carmakers, Hyundai, Kia, GM Korea, Renault Samsung and Ssangyong, reached a new high of \$4.65 billion in October 2013, according to the Ministry of Trade, Industry and Energy (MOTIE). The average cost per vehicle was \$14,400 during the January-September period of 2013, up from \$12,119 in 2010.

Country	Cars	Commercial Vehicles	Total	% Change
China	15,523,658	3,748,150	19,271,808	4.6%
USA	4,105,853	6,223,031	10,328,884	19.3%
Japan	8,554,219	1,388,492	9,942,711	18.4%
Germany	5,388,456	260,813	5,649,269	-8.1%
South Korea	4,167,089	394,677	4,561,766	-2.0%
India	3,285,496	859,698	4,145,194	5.5%
Brazil	2,623,704	718,913	3,342,617	-1.9%
Mexico	1,810,007	1,191,967	3,001,974	12.0%
Canada	1,040,298	1,423,434	2,463,732	15.4%
Thailand	945,100	1,484,042	2,429,142	66.6%

Figure 1: Top 10 car manufacturing countries according to 2012 automobile production statistics^[1].

TWO MAJOR PLAYERS

The Hyundai Motor Group became the world's fourth largest automaker in 2009, behind GM, Volkswagen and Toyota. In 2013, the Hyundai brand accounted for 55% of the top five South Korean automakers' global sales – some 4,721,156 units^[9]. This represented a 7.3% increase on 2012 sales. The Kia brand accounted for almost 33% of South Korean automakers' global sales in 2013^[10]. Kia's sales climbed by 3.9% from 2012, to 2,827,321 units.

Kia now has facilities in Malaysia, Slovakia, China, Vietnam, Russia and the United States, and Hyundai has invested in manufacturing plants in the USA, India, the Czech Republic, Pakistan, China and Turkey. The locations of these facilities illustrate a strategic decision to target markets in the fastest-growing BRIC economies.

INCREASING BRAND AWARENESS

International sales do point to a greater willingness by global consumers to hold Korean brands favorably. Indeed, some commentators have argued that "South Korea's great dilemma – or so it's often said – is that it falls short of Japan on quality and can't hope to match China on price. And yet South Korean producers' performance in the wake of the financial crisis suggests the middle ground may offer advantages. In the post-crisis era, consumers the world over have turned cautious. The new mantra is value for money. South Korean companies are well positioned to capitalize on that new ethos with products that optimize the quality and price trade-off. South Korean exporters have, in fact, gained market share during the crisis^[11]."

This notion is backed up by statistics from Interbrand, the world's largest brand consulting firm which in 2012, for the first time, ranked three South Korean companies on its Top 100 Brands list^[12]: Samsung Electronics (9th), Hyundai (53rd) and Kia (87th). Kia was a new entry to the top 100, posting a brand value of \$4.089 billion, up 50% from the previous year. Given that the values of the

2010 Rank	Global Parts Sales
9. LG Chem	\$15.5 billion (estimate)
10. Hyundai Mobis	\$14.43 billion (fiscal year estimate)
45. Hyundai-WIA	\$3.83 billion (fiscal year estimate)
53. Mando	\$3.29 billion (fiscal year)

Figure 2: Domestic sales and exports by local automakers^[6].

	2009	2010	2011	2012	2013
Domestic Sales	1,394	1,465	1,475	1,411	1,400
Export	2,149	2,772	3,152	3,171	3,300
Production	3,513	4,272	4,657	4,562	4,700

Figure 3: Korean powers. South Korean companies on Automotive News' list of top 100 global suppliers^[15].

13 automobile brands included on the Top 100 Brands ranking rose by 11.2% from the previous year, Kia posted remarkable growth. In Interbrand's 2013 Top 100 Brands list^[13], Kia's rise continued – seeing it place at 83 on the list. Hyundai also added 20% to its brand value, according to Interbrand, climbing to 43rd place in the 2013 list.

PARTS SALES AN IMPORTANT PART OF THE PICTURE

Global parts sales have a similarly impressive showing. South Korea boasts 4 of the Top 100 Global Suppliers: LG Chem, Hyundai Mobis, Hyundai-WIA, and Mando.

Companies outside the Hyundai-Kia group accounted for just 0.6% of Hyundai Mobis' sales back in 2005. Today they account for 10%, with plans to increase that share to 20% by 2020^[15]. It now supplies Mitsubishi, Subaru, Chrysler, GM and Volkswagen AG. In all, South Korea's auto parts exports have nearly quadrupled since 2004, when Korean suppliers shipped only \$5.9 billion in parts overseas.

ENHANCING GLOBAL COOPERATION

South Korea signed free trade agreements (FTAs) with the USA on April 1, 2007^[16] and the EU on October 15, 2009^[17], which should further strengthen trade and investment.

Government commitment to support and direct investment to the sector was demonstrated by the development of The First Automotive Policy Master Plan (2012-2016), which was initiated in 2011 by the Korean Ministry of Land, Infrastructure and Transport (MOLIT). This deals with safety and investment in the development of 'future vehicles', particularly eco-friendly and electric vehicles.

South Korea has already demonstrated it is willing to invest: the gross domestic expenditure on Research and Development as a proportion of GDP stands at 3.2%^[18] – a bigger percentage of GDP spent on research and development than in Germany, the United Kingdom, or the United States.

All the signs are looking good for Korean Automotive Manufacturing, and COPA-DATA Korea is hoping to match the sector's quiet acceleration. Sung Ho Ryu, Managing Director at COPA-DATA Korea, enthuses: "With our strong record in the automotive sector, our history of technological innovation and our global reach, we are well placed to support innovation and drive production efficiency for all Korean automotive manufacturing operations. In addition, research into control systems for the car production of the future offers some incredibly exciting opportunities for collaboration."

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**“Life is Time,
and Time is Gold”**

ULTIMATE PERFORMANCE IS NOT
GUESSWORK. IT TAKES SCIENCE,
CULTURE, AND TECHNOLOGY.



Analysis where you need it.
Gain instant insight into Critical Quality Attributes or KPI's.

QUESTION: If you were driving down a perfectly straight six lane highway at 100 km/h, a long road with no other vehicles, would you drive blindfolded? The answer without doubt is “No!”.

So why are there so many examples of production in pharmaceuticals (and related industries) operating in the dark? This is not a blindfolded walk through life: we have science providing answers, in a community of different intelligent people. Increased use of technology is the solution that brings it all together.

Let's get straight to the point. What role does manufacturing have? Well, manufacturing finds itself at the junction of four key business processes:

1. MANUFACTURING SUPPLY CHAIN

The manufacturing supply chain includes the entire execution of current business. Information is shared along the length of its chain, individual elements and goals must consider the whole chain.

2. OPERATION STRATEGY AND DEPLOYMENT

This area concerns initiatives that achieve the priorities and business targets. Here, we develop manufacturing capabilities in the equipment, people and process.

3. NEW PRODUCT DEVELOPMENT

This comprises activities which improve the company's current catalogue of products and services. Competitive markets demand new products and upgrades of existing ones.

4. NEW PROCESS DEVELOPMENT

This area focuses on the improvement of current production processes and activities. Industry best practices age

over time, continuous improvement retains the competitive edge.

The high revenue 'Blockbuster' drug era is in its twilight and pharmaceutical companies find themselves in a transition period to the next era of 'Flexible & Agile' facilities and increased global competition.

The perfect storm has hit! The global financial crisis, competition, and pharma's specific patent cliff, have ignited interest in the manufacturing part of the business supply chain. It must be 'faster', 'less cost', and meet 'increasing quality requirements'. The next five years will determine the winners and losers; now production costs count and manufacturing efficiency is being calculated.

Operational Excellence (OPEX) has at its core: Organization, Communication, Visibility, People, Process, and Equipment. It touches on all aspects of an organization, requiring strong commitment from higher management and business leaders. OPEX in a company has many subsystems: each subsystem is critical, with each element reinforcing the other.

Toyota, with its pioneering work on organizing production to obtain brilliance, employed technical toolkits such as Just In Time (JIT), Total Productive Maintenance (TPM), and Total Quality Management (TQM). Toyota found that success needed something deeper than a technical toolkit. TPS (Toyota Production System) embraces the social and cultural management of quality and work organization. Support, encourage, continually improve processes and people is its focus.

OPEX, therefore, is not a one-size-fits-all shopping trip. Sometimes the mission and focus of the manufacturing facility has to be on management practices rather than technical procedures.

In pharmaceutical manufacturing you can't go very far without addressing regulation. Regulations do provide constraint, but there is more than enough room for life science manufacturing to improve on all four key business processes. Remember OPEX is about organization, visibility and communication. Ergonomics swings data around; focusing knowledge on specific driven needs.

zenon Analyzer is a gift to production agility, supplying much more than vision alone. From production, a single version of the truth is presented individually to different focus groups. Engineering needs information on plant running conditions, early indicators of equipment wear out, root cause analysis.

Quality needs real-time CQA (Critical Quality Attributes) to be communicated before violations are compromised, process variation analyzed, for fast and accurate automated batch analysis, and succinct post-production analysis, as for example, with Report By Exception (RBE) reports.

Operations need availability, batch reports, information focused on daily improvement. Dime and Dollar figures are the underlining motivation for higher Management to show processes on these terms. People need the confirmation that their actions are beneficial; live accurate information keeps a strong heartbeat running through the organization.

New Process Development and New Product Development have a hard time in regulated environments without Batch Control. Flexibility and agility require an ability to perform process changes quickly. Batch Control manages these processes and equipment structures through recipes, thus allowing for easy process flow modifications and equipment usage. A batch recipe cannot violate predefined equipment performance, therefore each recipe is deterministic, and with no change to the compliant production equipment new process flows can be validated efficiently.

'Paper on Glass' transforms a paper-based production system into something quite remarkable. Without change to any production equipment, automating the operator and production reporting means post-batch analysis is reduced to an absolute minimum; releasing stock to market weeks in advance of older paper-based systems. Quality is optimized and risk is mitigated as production flows are consistent between batches, execution is strict, no information is missing from the record, and errors in recording information are as far as humanly possible eliminated. Business management is happy on many fronts as costs are avoided, no paper needs to be generated, and there are no mountains of paper to store in secure locations. Instant batch analysis means instant revenue, production activities are aligned in real time to the gravity of business.

Visibility is more than knowing what is happening now. At all levels, across functions, people know what the processes are doing, they know the choices they can make when it matters, they know what is next in the OPEX initiative and, importantly, they know how they have made a difference.

The wind of change is now to your advantage: leverage technology to gain strength, remove the blindfold and realize optimum performance. Sail your own destiny!

ROBERT HARRISON
INDUSTRY MANAGER PHARMACEUTICAL

zenon – smart solution, consistent production

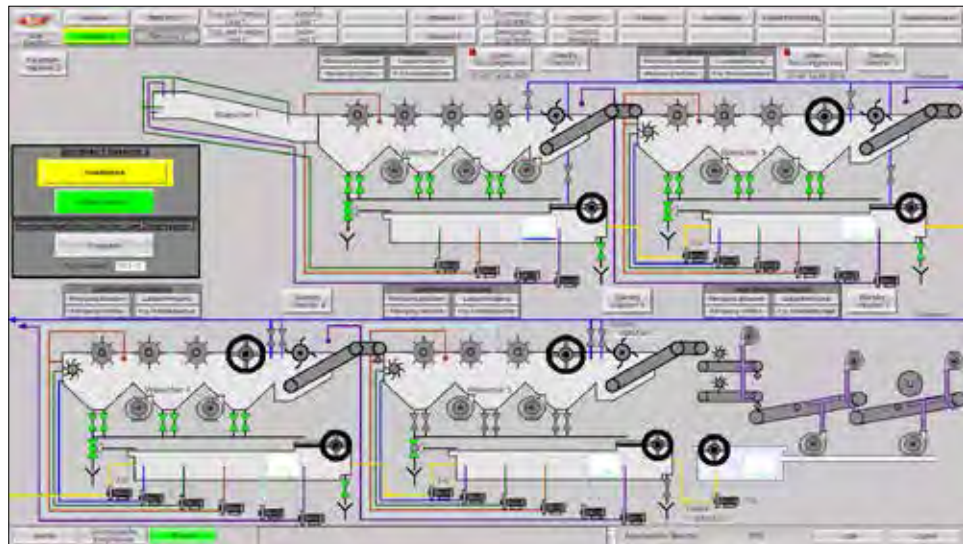
IGLO RELIES SYSTEMATICALLY
ON COPA-DATA'S HMI/SCADA SOLUTION



TEXT SUSANNE GARHAMMER

FOTOS IGLO GMBH

For decades iglo has been the epitome of high quality frozen food. Consistent production is essential to ensure food quality. The Münsterland (Germany) food manufacturer processes spinach and other vegetables from the raw goods phase through to the packaged product within three hours, ensuring consistent high quality and limited vitamin loss. A stable basis for production processes is established by the HMI/SCADA solution zenon from COPA-DATA.



The vegetables are washed in several steps. Pump status and valve positioning are important parameters here.

THE IGLO PLANT in Münsterland manufactures spinach, mixed vegetables, herbs and frozen convenience foods, with an output of around 97,000 tons a year. The food manufacturer obtains vegetables from over 100 local growers, who cultivate spinach, herbs, leeks and different cabbage varieties on many thousand hectares of land. The operation consists of around 500 employees on over 14 production lines, which are in operation 5 days a week – rising to 7 days a week in the peak season, in three shift modes. Furthermore, Europe's largest frozen storage area, with 57,000 pallet spaces, is found there.

SCALABLE SOLUTIONS FROM PANEL RIGHT UP TO SCADA LEVEL

Before iglo decided on zenon from COPA-DATA, the food production company was using various tools from different manufacturers. A discontinued software and a manufacturer's restrictive product and license politics gave iglo the opportunity to introduce a new standard HMI/SCADA solution. It was the company's goal to have a single solution which could be used consistently – from the field level right up to the control room, in order to focus the expertise within the company on one solution, to minimize effort and to keep the management of the solution as simple as possible. The new solution should be able to provide platform-independent operation, scalability and high performance, as well as offer optimum cost efficiency. "This marked the birth of zenon in our company," explains Robert Mecking, Director of the Electrical Workshop/Technology Center at iglo GmbH. "zenon is not only strong in performance but also scalable from panel right up to SCADA system. At the

same time, COPA-DATA stands for clear and consistent licensing." All of our zenon-based applications are used by Robert Mecking and his team in their own offices – without additional external support. This makes it simple for production experts to connect new machines with existing equipment and enhance and adapt application to accommodate the new requirements: "Furthermore, we particularly value the reusability and consistency that zenon offers. This guarantees quick and efficient engineering, and easy handling," explains Nico Nordendorf, Control Programmer in the Technology Center at iglo GmbH, "This is especially important as our equipment is continuously being enhanced and changed. Thanks to zenon, this is where we can save time and money."

ZENON AT IGLO - WELL THOUGHT-OUT, FLEXIBLE AND FULLY INTEGRATED

Today, the zenon-based application in the control room uses 35 different production programs for central monitoring and control, as well as 65 cleaning programs. The application is built upon an integration project with four sub-projects and 243 screens. The alarm administration processes 4,280 different alarms. Today, a total of 45 trend evaluations are also provided. Included in the trend evaluations, is not only typical production information such as tank levels or pressure, but also the evaluation of energy use, such as water consumption. For those running the production, the equipment supervision and the management, all trend analyses are also available via the zenon Web Client. "Another plus point of zenon's is that the software can be vertically integrated into our IT environment. We can thereby

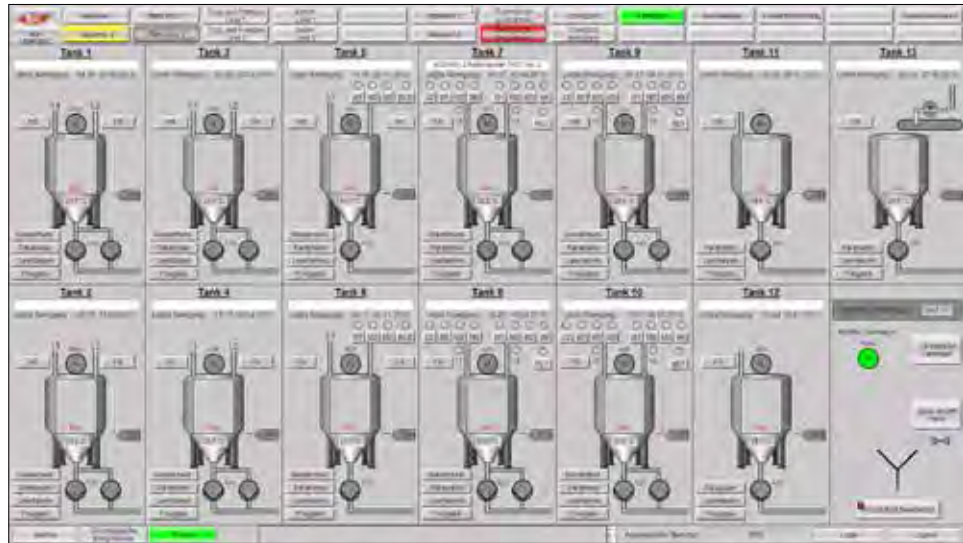


guarantee information exchange with superordinate systems such as MES or ERP," Nico Nordendorf from iglo adds. For example, production employees thereby receive manufacturing recipes from the SAP system and the specification system SIMATIC IT Interspec. Among other things, details are provided about the exact components of a recipe and how much time is planned for each individual process step, such as the stir or mix process. zenon then uses this data and recipe information in production and, in turn, provides other systems with the data gathered from the production for further processing.

ZENON: FROM THE RAW GOODS TO THE PACKAGING

After the raw goods have been delivered and the first quality inspection has taken place, the spinach and other vegetables and herbs are washed in the two wet lines. Here, zenon visualizes five washers of a wet line and monitors, among other things, parameters for the target water temperature, the chutes of vegetables and the water consumption. Then on to the blancher and the passing machine. The vegetables are now blanched and then chopped up to the desired size. Here, the temperatures and the blancher running times are particularly important parameters for the overall monitoring. There are also further parameters that need to be observed such as water levels, velocity (of the drive system/main driver), speed, and pressure. zenon clearly visualizes steam systems, heat exchangers, intake and outlet of water, drivers, operating mechanisms, rollers and passing machines in the overview window. The shred-

ded spinach is then forwarded through the cooler. During this time, data regarding flow rate, pressure and any downtime of the pumps is recorded. Apart from the flow rate, it is also of the utmost importance here to measure and record process temperatures. After the cool phase the product is pumped into the raw goods tank of the tank farm, where the fill levels of the tank and temperatures are measured and recorded. With the help of the zenon-based visualization, production employees can gather an overview of the tanks with information regarding the respective product, and the status of the last cleaning of every tank is also visible. iglo produces the sauces for the vegetables in parallel running processes. Here, it is particularly important to monitor the dose size, cooking times and temperatures. During sauce production drying agents, such as herbs, and liquids, such as cream, need to be weighed, and their set and actual values compared, before the components of the sauce are joined in the premix process. The raw goods are pumped from the raw goods tanks in the tank farm to the mixing plant. The mixing plant ensures that raw goods and sauces are mixed in the desired proportions. Here, production employees need to pay particular attention to the mix proportion (the amounts), the temperatures and the pressure. The product is then transported to the finished goods tanks. The finished goods are then distributed across a pipe system, over so called "cross points" (crossing elements, connecting elements) to the individual processing lines, whereby zenon monitors the pressure as well as the downtimes of the pumps here. The product is shock frozen in the processing lines and then goes to final packaging.



The zenon-based application provides employees at the iglo plant in Reken, Germany, with an overview of the tanks and their fill levels.

zenon visualizes and monitors the flow rate of the product, the temperatures, the output and the fill levels. The bundle packing machine packs the products into sales units. These units are then transported to be palletized.

GUARANTEED HYGIENE IN FOOD PRODUCTION

In order to guarantee the shelf life of the product and therefore also the health of the consumer, hygiene must be flawless in the production plants. iglo fulfills the highest quality requirements in this respect and, by means of sophisticated cleaning cycles, guarantees that all machines and equipment components involved in production processes, such as tanks and pipe lines, remain sterile and clean. iglo has a total of 65 cleaning programs which lie within the zenon-based application. The company maps all of the cleaning cycles in zenon and can therefore monitor and control the flow and the concentration of the cleaning agents, the temperatures, and the cleaning times.

SEAMLESS DOCUMENTATION AND MAXIMUM SECURITY

In order to clearly display vital production metrics and to archive process data, iglo makes use of the Chronological Event List in zenon. The food manufacturer also utilizes the integrated user administration found in zenon, which enables each production employee to be assigned selective access rights. Every access can therefore be logged and tracked by means of a user signature. "We record all relevant process events and user activities in our Chrono-

logical Event List. This not only offers us the security of being able to track all production processes, but also guarantees that we can fulfill legal requirements and guidelines," Robert Mecking from iglo comments. This covers, among other things, process events such as value changes, exceeded limits or even network events. For example, iglo documents the cleaning and related data, such as cleaning temperatures or the cool temperatures of the goods themselves. The company can also archive this information according to different criteria, and evaluate and compare it at a later time. All data is protected from subsequent changes and is thereby tamper-proof. iglo therefore fulfills all standards for the Food & Beverage industry, such as FDA 21, CFR Part 11 or the International Food Standards (IFS) and the HACCP concept (HACCP: Hazard Analysis and Critical Control Points).





AROUND THE WORLD

15 Years of COPA-DATA Germany

Who is Who

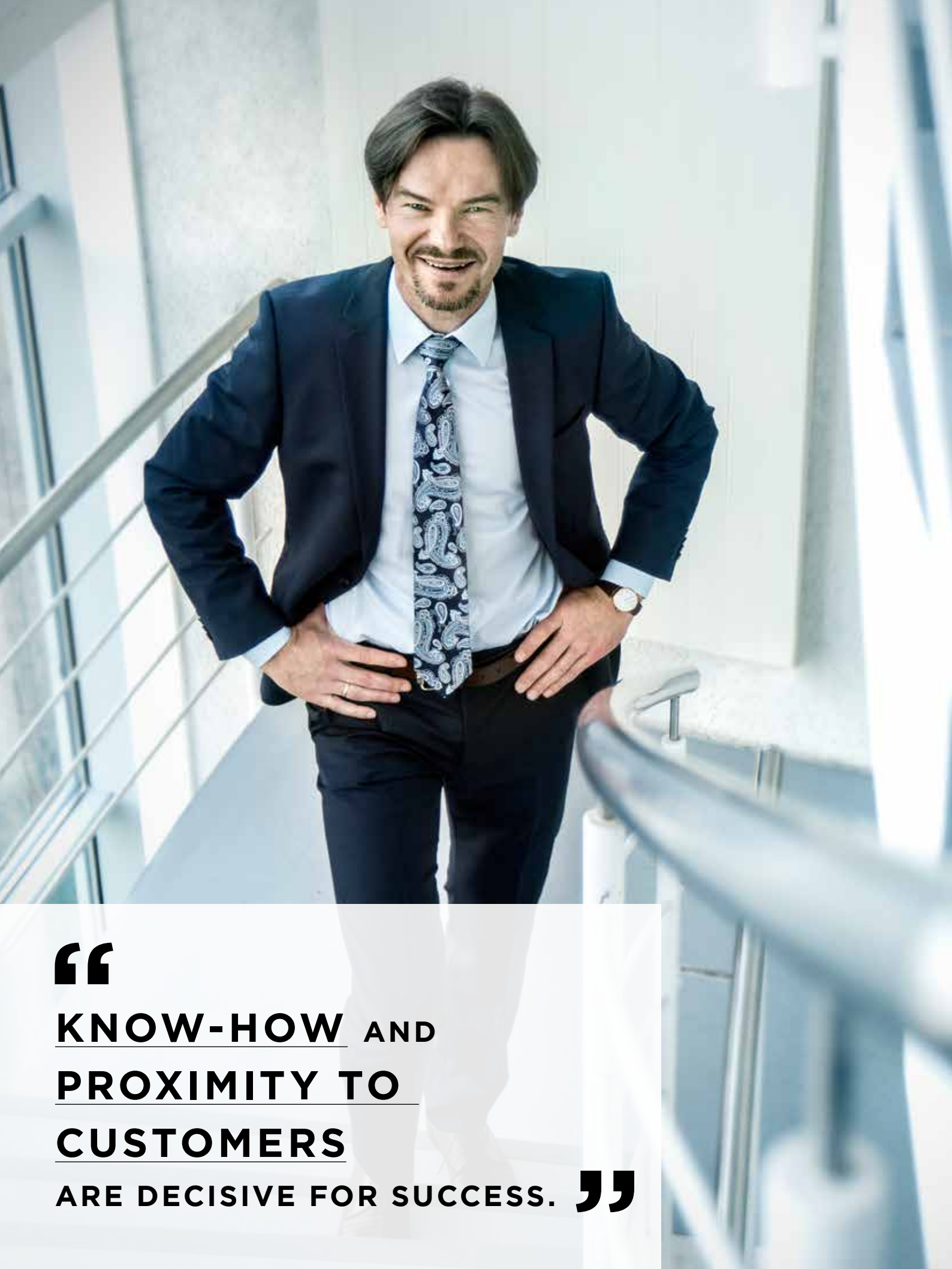
zenon powered by: SGE Mühendislik

CEO Interview:

“Our business and partner model is different.”

COPA-DATA Partner Community

Quiz: zenon Challenge 2014



“

**KNOW-HOW AND
PROXIMITY TO
CUSTOMERS**

ARE DECISIVE FOR SUCCESS. ”

15 Years of COPA-DATA Germany

Managing Director Jürgen Schrödel is taking stock in an interview with *Information Unlimited* and casting an eye to the future.

PHOTOGRAPHY LUIGI CAPUTO

When you started as Managing Director in Germany 15 years ago, what was required? What objectives and ideas did you have?

JÜRGEN SCHRÖDEL: I recognized the market potential of zenon before I started working at the company. My objective from the start was therefore to address the most important companies in the markets of Automotive and Food & Beverage and to acquire them as customers. We have achieved that. Today we are often setting the trend for innovations in our target markets.

How do you position yourself nowadays?

JÜRGEN SCHRÖDEL: We are a leading provider of complete solutions for machine & equipment visualization and process control. COPA-DATA positions itself as an independent growth company and as a competent partner; in Germany, this is in the core industries of Automotive and Food & Beverage in particular. Despite recessive or stagnant phases of economic development in equipping facilities, we have been able to double our revenues in the last four years.

What makes COPA-DATA Germany so successful?

JÜRGEN SCHRÖDEL: Our know-how and proximity to customers are decisive success factors. We are thus in a position, in conjunction with our partner companies, to provide our customers with ideas and give them concepts, methods and tools to enable them to set up their production with our product family more efficiently, to manage their infrastructure, to optimize their energy management and to convert any data obtained into meaningful information with the zenon Analyzer – with a complete platform. We enable our customers to implement concepts, implement innovative solutions and to administer, maintain and expand their systems themselves. This way they have the competence and expertise in house and can act themselves,

autonomously and independently – and they can make their own success.

What is characteristic of COPA-DATA Germany?

JÜRGEN SCHRÖDEL: We are a committed and strong team. Our spirit and motivation to continue to increase our market share significantly and to be better than our competitors in the market characterize us. Our objective is to support customers with their challenges in such a way that they work with complete solutions more quickly and safely, can act regardless of location and can make well-founded decisions. With our solutions, you can reduce costs overall and increase your profitability.

What trends will be evident in industrial automation in the coming years? What requirements and expectations do customers of today and tomorrow have of industrial automation?

JÜRGEN SCHRÖDEL: The market is constantly in a state of change. The variety of promising technologies and also the variety of end devices to be integrated is increasing. zenon provides the ideal platform for this. Our product family already allows manufacturer-independent cross-system networking in the digital factory and can provide all important key figures at any time and everywhere. In doing so, zenon, as a central and redundant client/server solution, records all relevant operating data, aggregates this very effectively and provides it capably and securely to stationary native control panels, mobile end devices or web clients – individually, depending on the role and task of the user, and in real time. In our Competence Centers, we are working on modern methods of mobile data & communication technology, ergonomics and security. We are therefore in a position to be able to integrate these different platforms and devices securely into the zenon

My objective from the start was to address the most important companies in the markets of Automotive and Food & Beverage and to acquire them as customers. We have achieved that. Today we are often setting the trend for innovations in our target markets.

JÜRGEN SCHRÖDEL
MANAGING DIRECTOR,
COPA-DATA GERMANY

network. Customers now expect, more than ever, a competent partner that both provides innovative technologies and also works together with them to develop concepts for solutions and supports them responsibly with the implementation.

What services do you offer your customers? How are you different from the competition when you work with customers?

JÜRGEN SCHRÖDEL: We form – from our three sites Germany – teams of experts who can combine their knowledge on certain topics, such as energy management for example, with their industry expertise. Powerful synergies are created as a result of this. Our “Automotive”, “Business Intelligence” and “Mobile Solutions” Competence Centers also have this background: we are strengthening our presence as a customer-orientated partner and can support customers optimally thanks to our comprehensive know-how and our well-thought-out project experience. The services that our Competence Centers offer, together with our experienced and highly-qualified partner companies cover the complete project cycle – from creating the requirement specification and conceiving the solution, through support with the implementation and putting into operation, to training and support.

Can you explain that in more detail?

JÜRGEN SCHRÖDEL: We support our customers when finding the correct architecture for their solution, trying out suitable infrastructure in order to ensure the performance and ease-of-maintenance of their application – and thus creating sustainable production facilities. We accompany our customers and create the system design and usability concepts together with them. We ensure that our customers can create solutions that ensure the flow of data throughout all end devices and that they can work with a complete, secure and reliable platform from recording the data through to analysis and evaluation of information.

What plans do you have for the coming years?

JÜRGEN SCHRÖDEL: We have developed a sustainable growth strategy titled “Change, Vision, Values” in order to guarantee above-average growth in the coming years. This growth strategy primarily serves for the continuous promotion of a values-orientated culture of innovation and a needs-based individualization of the solutions conceived. It is based on the idea of the cluster method. Along the production value-added chain, we are providing customers and interested parties with quick-reacting expert teams in the presales process, so that they can engage in dialog together to conceive solutions that can be implemented securely, quickly, effectively and easily. We will also continue to dynamically expand the business in our core sectors and ensure sustainable growth with needs-based concepts. Physical proximity also promotes dialog with interested parties and customers. Therefore a fixed part of our growth strategy is – in addition to further expansion of the German headquarters in Ottobrunn – targeted expansion of our sites in Ludwigshafen and Cologne. There will be experts available for interested parties and customers in all important economic regions, in order to continue to expand the transfer of expertise. In addition, we also have new areas of application in focus, which will round off our portfolio. This includes, for example, company-wide solutions for complete and secure data processing of material-intensive and energy-intensive manufacturing companies.

What challenges will your customers face in the coming years?

JÜRGEN SCHRÖDEL: Our customers face the challenge, now and in the





future, of increasing the variety of the product and the product variants. In addition, many companies need to get by with increasingly reduced staffing resources. At the same time, the tasks and also the technical infrastructure is becoming increasingly complex in manufacturing companies. The technical solutions with which employees work on a daily basis must therefore offer perception-orientated user guidance and task-orientated work. Another challenge for our customers is getting the cost of consumable resources under control and reducing them on a lasting basis. More and more companies are therefore seeing the necessity of investing in an energy management system and are having themselves certified in accordance with ISO 50001. With certification in accordance with ISO 50001, companies can – at least in part – free themselves from their share of costs due to the German Renewable Energy Act and can expect some relief from power and energy taxes.

How do you support your customers in overcoming these challenges?

JÜRGEN SCHRÖDEL: We offer our customers products with which they can overcome the challenges they face. With zenon, they can set up ergonomic process solutions, operate and control machines easily and intuitively, monitor their consumable resources and optimize the use of these. zenon makes it possible for you to analyze all data obtained from all processes and to improve your production on a lasting basis with this information. And this all with a uniform, consistent platform – throughout the network, across all devices, securely and without any disruption of media.

15 years of COPA-DATA Germany. Where are we going?

JÜRGEN SCHRÖDEL: We would also like to gain market share and grow considerably faster than the market. We will also continue to expand on our leading role as a reliable partner. The basis for this is, among other things, our values-orientated innovation program – and not least our high motivation to achieve these objectives. We want to turn interested parties and our customers into our brand advocates. Customers come and go. True advocates stay!

CONTACT**Ing. Punzenberger COPA-DATA GmbH
Head office Germany**

Haidgraben 2
85521 Ottobrunn
t +49 (0)89 66 02 98-90
f +49 (0)89 66 02 98-99

**COPA-DATA Branch office
Cologne**

Ettore-Bugatti-Str. 6-14
51149 Cologne
t +49 (0)2203 909 59-00
f +49 (0)2203 909 59-99

**COPA-DATA Branch office
Ludwigshafen**

Bismarckstr. 112
67059 Ludwigshafen am Rhein
t +49 (0)89 66 02 98-90
f +49 (0)621 68 56 35-21

www.copadata.de
sales@copadata.de



WHO IS WHO

We are great fans of personal business relationships.

Because those who know their counterpart well will understand which needs, wishes and ideas are most important to them. And can react more quickly and efficiently if confronted with concerns or worries. Often giving a face to the name, hearing a funny story from everyday working life, or a small anecdote from private life, gives us a glimpse of the person who is our business partner. What do you like to do in your spare time? Which professional responsibilities do you have? What inspires you and what do you dream of doing? We pose these and similar questions to our colleagues. So that you, dear readers, can have the chance of getting to know us (even) better.



Simon Cassar

SALES MANAGER

COPA-DATA UK

AT COPA-DATA SINCE: 2011 **RESPONSIBILITIES:** Targeting key specific accounts and end users in defined market sectors and establishing the UK's first system integrator channels. **MY VIEW OF COPA-DATA:** Somehow I always knew I would work for COPA-DATA. Throughout my many years of experience at different big-name automation companies, I haven't worked anywhere until now that takes so much pride in its product family and treats its employees as an extended family. Being part of the family now, I really want the best environment for myself and my colleagues and to share the equity of my experience to help build our brand, our success and customer base. The proud smile that permeates throughout COPA-DATA is evident in everything we do – COPA-DATA just makes automation software look cool! **I GET MY INSPIRATION FROM ...** everyday challenges and the positive people in my life. **IF I COULD DO AS I WANTED, I WOULD ...** go to university to study physics, maths and astronomy to become an astrophysicist.

You can reach me at:
simon.cassar@copadata.co.uk



Magdalena Pritscher

INTERNAL SALES

COPA-DATA GERMANY

AT COPA-DATA SINCE: 2012 **RESPONSIBILITIES:** My responsibilities at COPA-DATA are sales support for the entire sales team in Germany. I look after customers and potential customers, assist them with support during running projects and I am their first point of contact for all sales matters – be it the submission of offers, upgrades or service level agreements. I also maintain and update our CRM system, organize and coordinate meetings for my colleagues, keep an overview of offer statuses, and keep a close eye on individual projects during decision-making phases. **I GET MY INSPIRATION FROM ...** long walks with my dog, Emma. Nature makes it easy to unwind, burn energy and enjoy myself. **IF I COULD DO AS I WANTED, I WOULD ...** live in an old farmhouse with creaky wooden stairs, have fruit trees in the garden, beehives and a donkey.

You can reach me at:
magdalena.pritscher@copadata.de



Felix Steinlechner

TECHNICAL CONSULTING/TRAINING

COPA-DATA CEE/ME
AT COPA-DATA SINCE: 2013 **RE-**

SPONSIBILITIES: Coordinate and conduct training courses for Central and Eastern Europe as well as the Middle East; assist with projects such as the implementation of business intelligence solutions with zenon Analyzer; user support. **I GET MY INSPIRATION FROM ...** my children. Their ability to appreciate things without prejudice impresses me. They inspire me in the way they confront tasks outside their familiar sphere and find innovative solutions. **IF I COULD DO AS I WANTED, I WOULD ...** sail around the world in a two-master, get to know new countries and cultures and take in the endless impressions our world has to offer.

You can reach me at:
felix.steinlechner@copadata.at



ZENON POWERED BY ...

SALES REPRESENTATIVES

COPA-DATA and zenon worldwide – that also stands for the many active and committed sales partners that present the zenon Product Family in their respective markets, looking after customers and contributing to the continued development of zenon. Under the title *zenon powered by...* we invite our Sales Representatives to take the stage – as we believe that the readers of *Information Unlimited* should also gain an insight into their valuable work. In this edition, SGE Mühendislik from Turkey introduces itself.

SGE Mühendislik

YOUR ZENON SALES
REPRESENTATIVE IN TURKEY



Successful with zenon in Turkey: The team from SGE Mühendislik under the management of Okan Sarikayalar (center of picture) and Murat Gul (fourth from right).

SGE IS AN ENGINEERING COMPANY, founded in 2007, focusing on energy management and control for industrial and utility companies. We offer protection relays, panel equipment, power quality meters and advanced SCADA automation solutions. In order to be able to execute projects according to our company strategy, all our employees are engineers. Murat Gul and Okan Sarikayalar are responsible for sales management whereas Fadi Jerji, Ahmet Sagir and Cemil Yigit take care of the integration and design of SCADA applications.

We have worked with COPA-DATA since 2011. Back then, we were looking for a new business relationship to provide advanced SCADA control solutions to our clients. We found other SCADA systems had limitations, particularly during complicated projects involving many communication protocols or where there was a requirement for full working redundancy.

We cooperate with COPA-DATA because of its independence in the sector for more than 25 years, and because we have the ability to develop our market in the same way. COPA-DATA is a customer-oriented company where we can get immediate response for difficult individual project needs.

We choose to market and sell zenon as it offers advanced solutions for complex requirements, reduces project development times, and delivers maximum flexibility. With previous systems, we had to cope with hurdles, and limitations to the free operation of projects which have more than 100,000 tags to monitor.

Since 2011, we have been establishing system integration partners in Turkey, and have achieved significant success stories in the market. Furthermore, we offer training courses to increase zenon utilization and know-how. End users like CarrefourSA, Sakarya Industrial zone, Kırklareli Industrial zone, Karabuk University, Turgutlu Hospital, Kilim Group, Sarkuysan, Sonelgaz (Algeria) and many others already rely on zenon SCADA.

YOU CAN REACH US AT

SGE Mühendislik
Elektrik Otomasyon Ltd Sti
Atakent Mah. Mithatpasa Cad.,
Princess Plaza No. 116, Kat 3
Umraniye 34760
Istanbul, Turkey
t: +90 216 481 43 62
f: +90 216 481 78 04
info@sge.com.tr
www.sge.com.tr

CEO INTERVIEW

Our business and partner model is different

PHOTOGRAPHY LUIGI CAPUTO

On the occasion of the company takeover of Invensys plc by Schneider Electric we asked COPA-DATA's CEO, Thomas Punzenberger, what repercussions can be expected in the market and, in particular, the effects on related partner structures. In the following interview with the editorial staff from *Information Unlimited*, Thomas shares his view on things and reveals why he has a different business and partner model in mind.

On January 17, 2014, the French electrical engineering company Schneider Electric completed the acquisition of the British technology business Invensys for almost 4 billion euro (3.4 billion pounds). Mr Punzenberger, how do you assess this company takeover and, in your opinion, which effects can be expected in the market and the competitive situation?

THOMAS PUNZENBERGER: Invensys consists of many individual companies; with some of these, we have less contact. Looking at it from COPA-DATA's perspective, the most interesting aspect of the company takeover is definitely Wonderware as, among other things, we compete with products in our business environment which until now have come under this brand. For the time being, we

will wait to see how Schneider will position itself. Today, the company already has several equivalent products in their portfolio, such as "ClearSCADA", "CitectSCADA" or, more recently, also "InduSoft Web Studio" and "CE View". It will be interesting, therefore, to follow which strategy Schneider will choose in regards to the "InTouch" product acquired with Wonderware, as "InTouch" lies in direct competition with other products in the Schneider portfolio. So it remains exciting.

A company takeover of this size often leads to uncertainties regarding future developments among those concerned. According to media reports regarding the takeover of Invensys by Schneider



Electric, experts warn of job losses in the UK ^[1]. How does COPA-DATA approach such uncertainties? What precautions have you taken for your company?

THOMAS PUNZENBERGER: First, we follow a very different business model than that of the Invensys group. We strive to develop the COPA-DATA company in a very sustainable way. This means we invest in a long-term strategy with the development of reserves and a high equity ratio. This is how we can be prepared for crisis situations and fall back on reserves if necessary, in order to continue our course. Second, we rely on a strong partner network. Our partner companies bring a great deal of know-how and experience to our community and complement our business activities. Furthermore, COPA-DATA is 100 percent family-owned, and will continue to be so in the coming years. As a family business, we are independent in our decisions and can act with flexibility. For instance, as CEO, the area of research and development is of particular importance, which is why we invest 25 percent of our annual turnover every year here. In my opinion, this is the best assurance for us and our partners in order to be able to continue to offer a competitive product in the future. As I already mentioned in 2012 at the anniversary celebration of our 25 year company history, we plan to continually expand our business and partner model and will therefore continue to successfully grow in the coming 25 years.

Mr Punzenberger, what implications do such company takeovers normally have on the affected partner companies in particular?

THOMAS PUNZENBERGER: Partner companies are often companies which either resell products or offer additional 'added value products'. Today, the Schneider corporation already offers a very complex product portfolio including a comprehensive range of services. It can therefore be assumed that it is particularly difficult for partners to continue to prove themselves in this environment. The purchase of Invensys was certainly a very strategic decision – among other things, Schneider can now offer increased turn-key projects. What is questionable is how much room their partners will have in their overall concept in the future.

Which business model does COPA-DATA pursue in order to guarantee its partner companies a profitable and fair business relationship?

THOMAS PUNZENBERGER: With the zenon Product Family COPA-DATA offers a competitive software platform for project implementation in the automation industry. In order to offer complete solutions including comprehensive services, we need reliable partners. We don't follow the path of offering projects ourselves, instead we concentrate on continuing to expand our partner network. Therefore, all of those involved can profit equally: we deliver efficient,



COPA-DATA CEO, Thomas Punzenberger, in an interview with Julia Angerer.

modern software and our partners deliver additional value in the form of expertise, years of experience and advisory services for our core industries and the corresponding solutions. With this philosophy as a basis, we can jointly offer our customers the maximum advantage.

Where do you see the COPA-DATA Partner Community in five to ten years? What can existing and potential partners expect from your partner program?

THOMAS PUNZENBERGER: I am convinced that the Partner Community will also continue to show strong growth in the coming years. It is important to see that our partners remain leaders in their fields and continue to expand their competencies around zenon. We therefore will continue to develop our training range and ensure that our partners are provided with information in good time. With new products and increasing software functionalities our demand for additional partner organizations obviously increases. It is also possible that we may expand our core branches with some additional key industries in the future, whereby new synergies will again develop with partner companies. Existing and new projects in the area of research and development have positive repercussions on the network, and have enabled us to welcome an increased number of educational institutions such as universities and universities of applied sciences, to the Community. For all growth the focus remains on 'class not mass'. This orientation will also stay in place in the coming years.

[1] Source: The Guardian. <http://www.theguardian.com/business/2013/jul/31/invensys-sold-to-schneider-electric>.



COPA-DATA PARTNER COMMUNITY

The COPA-DATA Partner Community keeps on growing and prospering!
With the never-ending focus on the quality of the partner program,
we are now looking into new ways of interacting with our partners to
create even stronger collaborations and further benefits, always with
the common goal of achieving the best for our end-customers.

THIS IS AN EXCITING TIME with the constant addition of new partners as well as partners upgrading to Qualified and Expert level within the COPA-DATA Partner Community. In 2013, we had a strong growth by more than doubling the number of partners, at the same time covering additional countries around the world, such as France, India and the USA. We see that the interest for zenon, COPA-DATA and the COPA-DATA Partner Community is continuously growing.

NETWORKING AND INTERACTION: GLOBAL PARTNER ACADEMY 2014

As a further step to promote interaction with our partners, we launched the Global Partner Academy 2014 (GPA 2014), taking place from June 4 to 5 in Munich (www.copadata.com/GPA2014). The Global Partner Academy is an exclusive event for all members of the COPA-DATA Partner Community. It is held every second year and consists of a variety of

*Our partner companies bring a great deal of
know-how and experience to our community and
complement our business activities.*

THOMAS PUNZENBERGER, COPA-DATA CEO

PARTNER EXPERTISE + ERGONOMIC SOFTWARE = POWERFUL SOLUTIONS

The COPA-DATA Partner Community consists of a broad variety of partners from different countries, focusing on different industries. With their expertise and our ergonomic software, zenon, we provide powerful answers and give our end-customers the best possible solutions on the market. Take HEITEC in Germany, for example – their commitment and engagement has opened up numerous opportunities within the pharmaceutical industry. After many years of working with zenon and continued close contact with COPA-DATA, they became an Expert Partner in 2013. With HEITEC's focus on the pharmaceutical industry, they were also a strong contributor in the development of the zenon Batch Control module. We are continually looking into new possibilities of working together.

different sessions, interactive workshops and one-on-one meetings. Energy data management, reporting and the integrated solutions with straton and zenon Logic are some of the topics that will be covered this year. During the second day there is also a full-day workshop focusing on how customized zenon Everywhere Apps can be made. The GPA 2014 is the perfect opportunity for our partners to gain direct insights about the latest zenon technologies and to see what COPA-DATA has planned for the future. What is more, this is also a great occasion to offer direct input which might influence future product development.

With a gathering of key COPA-DATA employees and a variety of our partners worldwide, we are looking forward to two days of valuable information circulation as well as active interaction and networking with our partners. And, with an exclusive evening event at the magnificent Allianz



HEITEC AG EXPERT PARTNER

HEITEC has represented solution, engineering and industry competence in the software, mechanics and electronics fields for 30 years. As an integrated industrial solutions provider, HEITEC offers solutions for various fields such as automation, production systems, measurement technology, test engineering, electronics, software solutions, documentation and information management. More than 950 employees in 18 German subsidiaries and numerous other global sites guarantee excellent industry knowledge in close proximity to the customer.

VISIT WWW.COPADATA.COM/PARTNER OR
WWW.HEITEC.DE FOR MORE INFORMATION.

With the upgrade to Expert Partner within the Partner Community we are affirming our commitment, and our acquired zenon expertise as demonstrated by numerous successfully implemented projects. We are looking forward to advancing the longstanding and valuable partnership with COPA-DATA and to continue developing ergonomic as well as innovative customer solutions together.

WALTER BECK
HEAD OF TECHNICAL SALES
HEITEC AG, GERMANY

Arena – home of the renown FC Bayern München football club – we also look forward to an enjoyable and unique experience. The GPA 2014 is key for us, for our partners and for our end-customers when it comes to knowledge growth and future innovations.

FUTURE-ORIENTED AND INNOVATIVE

Areas we are also strongly focusing on within the Partner Community are Educational Institutions and Research Facilities. The reasons for these collaborations are manifold – but primarily it is about being future-oriented and innovative. Educational Institutions – whether private or public universities, technical colleges, high schools or others – and Research Facilities are always eager to explore and work with the latest technologies and to experience future trends and opportunities. By engaging together in different research projects we actively work on maintaining our position as technology leader in the industrial automation software industry. Together we can set future trends – keeping us a big step ahead of our competitors.

FIRST UNIVERSITY TO JOIN IN 2013: SALZBURG UNIVERSITY OF APPLIED SCIENCES

A strong relationship was established with the Salzburg University of Applied Sciences (www.fh-salzburg.ac.at). The collaboration began already in 2002, and in 2013, they became the first university to join the COPA-DATA

Partner Community. This cooperation has led to many research projects, master theses and internships. One very successful research project, for example, is the FFG (Austrian Research Promotion Agency) subsidized research project SCADA::GIS (www.copadata.com/scada-gis), where a connection between process monitoring and control and geoinformation is being established.

“We have been working in close collaboration with COPA-DATA since 2002 and are very happy to be a member of such an innovative and promising community. The collaboration with the highly innovative SCADA software organization is ideal for the study path, as the COPA-DATA customer landscape covers many application domains and complex research issues”, explains Thomas Heistracher, Head of Research for the Information Technology & Systems Management study path (ITS) at the Salzburg University of Applied Sciences.

ZENON CHALLENGE 2014

In 2012 our first zenon Challenge took place – resulting in more than 10,000 votes. It was an innovative and fun experience for our existing and potential partners and also proved to be mind-bending and challenging. Just as a challenge should be. The zenon Challenge 2014 is already up and running, but for the final videos and voting we have to be patient and wait until the fall of this year. In October 2014 the videos will be released to the public and voting begins. In addition to the online voting,



there are other factors which influence the final result of the challenge. A jury will judge the engineering, usability and creativity of the submitted projects. Also, participants can gain some extra points by completing several further steps to success during the competition. There is no need to wait until October for the online voting; you can already follow the participants now at www.zenon-challenge.com and subscribe to the zenon Challenge newsletter in order to stay tuned in.

THE POSSIBILITIES ARE ENDLESS

The COPA-DATA Partner Community consists of a dynamic program, interactive partners and innovative solutions. With these ingredients we strive to continuously improve the long-term commitment to our partners. However, we know that the challenge is always ahead of us. Therefore, we are continually looking for further benefits within the partner program, new ways of working together with our partners and new, innovative solutions for our end-customers.

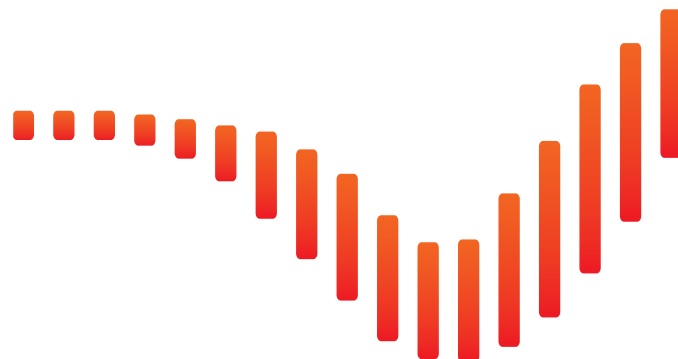
We know that the possibilities are endless and we are eager to work on whatever the future holds.

Looking for a partner in your region?
Visit **www.copadata.com/find-a-partner**.

Interested in becoming a partner? Contact your COPA-DATA sales representative or send an e-mail to partner@copadata.com.

LISETTE LILLO FAGERSTEDT
PARTNER PROGRAM MANAGER

JOHANNES PETROWISCH
PARTNER ACCOUNT MANAGER



QUIZ

TEST YOUR ZENON CHALLENGE KNOWLEDGE

Take a tour back in time and see what you remember about the zenon Challenge 2012 – and get the opportunity to win a nice LEGO Mindstorms® Kit (the new generation) complete with the latest zenon Science Package – the full COPA-DATA automation toolset for LEGO!

Go online and submit your answers before June 2, 2014. The final drawing from the correct answers received by that date will take place on the June 3, 2014 and the winner will be contacted via phone or mail within two weeks from the drawing. A little insider tip: if you don't find the answers in this magazine, you can also take a look in *IU Magazine* #24.



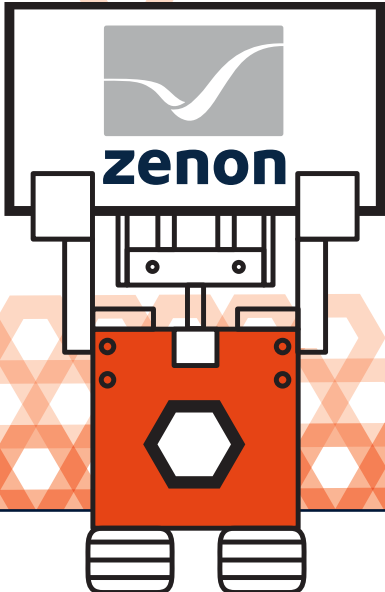
Enter the Quiz

<http://kaywa.me/Dqf7m>

TERMS AND CONDITIONS

No entry fee required. One entry per person permitted. Employees of COPA-DATA and local COPA-DATA Sales Representatives (Subsidiaries, Distributors and Sub-Agents) and their relatives are not allowed to participate in the quiz. The quiz is operated without possibility of recourse to legal action, and winnings cannot be redeemed in cash. Winners will be contacted by COPA-DATA via e-mail or phone. Winners must respond to the message within a period of seven (7) days or a new winner will be drawn. By entering this quiz you are agreeing to receive further information about the zenon Challenge and that the winner will be announced in different COPA-DATA marketing channels. If you have any queries, feel free to contact us at zenon-challenge@copadata.com.

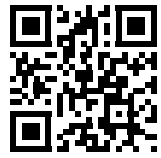
- 1 What was the name of the winning project of the zenon Challenge 2012?
A A.W.E.S.O.M.E.
B MINDSTORM CABLE CAR
C SYNERGY RGB
- 2 What is the name of the new generation LEGO Mindstorms?
A EV3
B N3XT
C NGT
- 3 When does voting for the zenon Challenge 2014 start?
A April 2014
B October 2014
C January 2015
- 4 The 1st and 2nd place winners of the zenon Challenge 2012 came from which countries?
A Germany & Spain
B Spain & Poland
C Poland & Germany
- 5 What would you create if you participated in the zenon Challenge 2014?



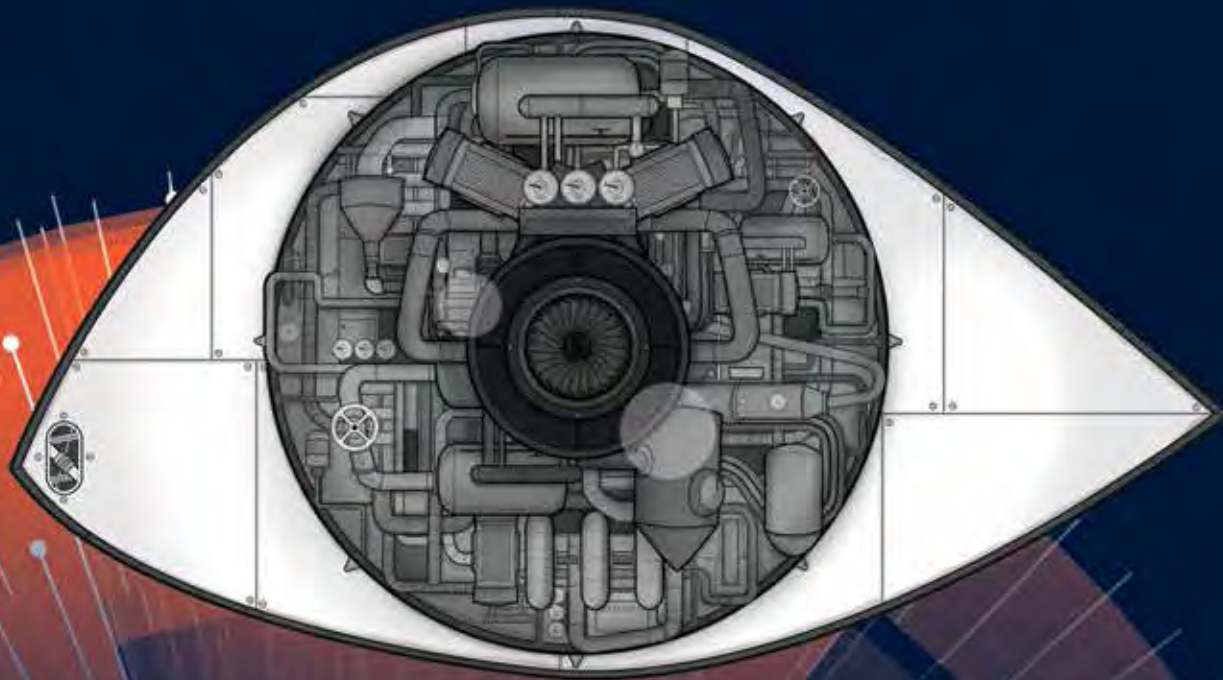
zenon Challenge 2014

Find out more at
www.zenon-challenge.com
The Challenge is on!

A sixth sense for energy management.



<http://kaywa.me/ZJF6Y>



On the one hand, there were energy costs of nearly 3.5 million. On the other hand, management called for energy management. And inbetween, there was Brian. No problem, in theory. All the data was there in Brian's spreadsheet, which by now had started to haunt his nights. Because 80% of his time he spent only gathering data rather than calculating.

But then again, Brian could only work with data he could actually see. With less and less time for effective energy management, Bernd already pictured himself drowning in a sea of data. That's when he found out about zenon.

Soon, Brian was smarter – and faster. The new software automatically collated all the required data from across the whole system, taking over reporting and calculations. All information was available at all times, also for the management.

zenon became Brian's sixth sense, anticipating upcoming usage and by thus enabling him to act ahead of time, taking unerring decisions. The time ratio changed to 8-2 in favour of his creative energy management. So that's how ergonomics worked. And that's how relieving it felt.

The Future is Ergonomics. Ergonomics is zenon.

www.the-future-is-ergonomics.com



COPADATA
do it your way