

Interfaces for the production of tomorrow:

Fraunhofer IAO evaluates the HMI/SCADA software zenon from COPA-DATA for Industry 4.0 competence

On behalf of COPA-DATA, Fraunhofer Institute for Labor Economics and Organization (IAO) has assessed the HMI/SCADA software zenon in terms of important future requirements for innovative HMIs and HMI engineering tools. This rating, in the form of an expert evaluation, was made on the basis of findings from a previous study.

In the 2013-publicized trend study "The Potential of Human-Machine Interaction for the Efficient and Networked Production of Tomorrow" the Fraunhofer IAO examined what implications developments in the production environment will have on the interface between human and technology. In the study, potential of future-proof Human Machine Interfaces (HMI) were indicated from which concrete requirements and guidelines for HMI software were, in turn, derived.

COPA-DATA saw the findings from that study as an opportunity to have its software zenon assessed according to the most important identified criteria. Thomas Punzenberger, COPA-DATA's CEO, explains: "We continually invest in many different areas within research and development and, with this in mind, place great value on the opinion of independent experts. External evaluations such as these deliver an essential contribution to innovation – allowing us to continually improve our products."

Focus on the requirements of Industry 4.0

At the center of the evaluation were competencies which support current developments in regard to Industry 4.0. According to the evaluation findings, optimization potential should be demonstrated and areas for action described, in order to provide COPA-DATA with inspiration to undertake further product improvements and innovation. The following four areas were assessed: 1. Support for effective HMI development. 2. Basics of smart and context-sensitive production control. 3. Interfaces and

communications functionality, and 4. Support for new technologies. In order to be able to create a detailed analysis of the current market position, the requirements were further refined into subordinate criteria. Each of the areas was evaluated using a walkthrough and screening method based on a point system – from 0 percent (= insufficient) to 75-100 percent (= very good).

Results of the evaluation

1. Support for effective HMI development

In this area zenon attained a "very good" rating. Some of the functionalities reinforcing these results are, for example, the possibility of importing files with common pixel or vector formats into the project structure, the extensive rights administration in zenon, the individually-definable Editor profiles for positioning windows and toolbars as required, as well as a wide range of adaptable templates for different areas.

2. Basics of smart and context-sensitive production control

In this area zenon's performance was "satisfactory". The software scored plus points with the integrated and hardware-independent Batch Control solution and the freely definable messaging options (e-mail, voice, text to speech, SMS). Yet deductions were made because it is not possible to use sensor data and amendment rules for automatic adaptations, or because context recognition is not self-learning or self-optimizing. COPA-DATA is, however, already concentrating on these aspects in current research work.

3. Interfaces and communication functionality

This evaluation brought zenon the best review of the entire evaluation. The software covers virtually all areas of the automation pyramid and is equipped with a multitude of standards, interfaces and protocols which guarantee compatibility and openness. More than 300 drivers for PLC and bus systems are provided. Furthermore, a certified OPC UA server is provided and two-way communication with ERP systems, such as SAP or Microsoft Dynamics, is also possible. Upon individual request, COPA-DATA develops drivers which are currently unsupported and further

scripts can be integrated via VSTA and VBA. The varied communication modules are supplemented by the zenon Everywhere mobile solutions. Users of iOS, Android and Windows Phone can access important production data from their equipment – independent of time and place. Furthermore, COPA-DATA supports customers to create tailor-made apps on all three operating systems and offers its own app for iOS and Windows Phone.

4. Supporting new technologies

In the fourth and last area of the analysis Fraunhofer IAO experts evaluated zenon with a "good". zenon offers comprehensive native Multi-Touch support based on the interaction contexts from Windows 8. The intuitive operation provides quick and secure engineering, a high level of user-friendliness and ergonomic working. Users can also individually define touch gesture control. VSTA can additionally be used to implement Kinect connections or similar, for example. The presently missing chat support in zenon was criticized, which COPA-DATA developers have however already started working on.

Conclusion: Many future scenarios are already featured in zenon today

On the whole zenon achieved very good results in the expert evaluation. The software meets the criteria of the study for the most part and the "path to useful and future-oriented features" is clearly identified. "Industry 4.0 changes the requirements for efficient human-machine systems in production. zenon Supervisor is already equipped for this challenge. A highlight are the communication interfaces: Supporting various systems, platforms and standards guarantees a high level of flexibility and enables numerous networking and interaction scenarios," concludes Matthias Peissner, study author and Head of Competence Center Human-Computer Interaction at Fraunhofer IAO.

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On COPA-DATA

COPA-DATA is technology leader for ergonomic and highly dynamic process solutions. The company, founded in 1987, develops the software zenon for HMI/SCADA, Dynamic Production Reporting and integrated PLC systems at its headquarters in Austria. zenon is sold through its own offices in Europe, North America and Asia, as well as partners and distributors throughout the world. Customers benefit from local contact persons and local support thanks to a decentralized corporate structure. As an independent company, COPA-DATA can act quickly and flexibly, continues to set new standards in functionality and ease of use and leads the market trends. Over 80,000 installed systems in more than 50 countries provide companies in the Food & Beverage, Energy & Infrastructure, Automotive and Pharmaceutical sectors with new scope for efficient automation.

On zenon

zenon is COPA-DATA's highly versatile product family for industry-specific ergonomic process solutions: from sensors through to ERP. It consists of zenon Analyzer, zenon Supervisor, zenon Operator and zenon Logic. zenon Analyzer provides templates to create tailor-made reports (e.g. on consumption, downtimes, KPIs) based on data from IT and automation. zenon Supervisor, an independent SCADA system, allows comprehensive process monitoring and control of redundant systems, even in complex networks and with secure remote access. zenon Operator guarantees, as an HMI system, safe control of machines and simple, intuitive operation – including Multi-Touch. zenon Logic, which is an integrated IEC 61131-3-based PLC system, allows optimum process control and logical data processing. As a platform-independent portfolio for process solutions, the zenon Product Family integrates smoothly into existing automation and IT environments and provides set-up wizards and templates to enable easy configuration and simple migration from other systems. The principle of "setting parameters instead of programming" is a characteristic feature of the zenon Product Family.

On the Fraunhofer Institute for Labor Economics and Organization (Fraunhofer IAO)

The Fraunhofer Institute for Labor Economics and Organization concentrates on current questions and issues around the working person. In particular, the Institute helps companies to recognize the potential in innovative organizational forms, such as cutting-edge information and communication technologies, and supports their adaptation to their individual needs and consistent deployment. The bundling of management and technological capabilities guarantees that economic success, the interests of the employees and the social implications are always on equal footing. Through close cooperation with the Institute of Labor Science and Technology Management (IAT) at the University of Stuttgart, Fraunhofer IAO combines academic research, application-oriented science and economic experience.