INFORMATION UNLIMITED

THE COPA-DATA MAGAZINE #46|2026 EN



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EDITORIAL



"Being sovereign means being able to make a decision independently and having the final say." This is how the political scientist Mario Wintersteiger explains a concept with a long history. Today, "sovereignty" is on everyone's lips around the globe. "Digital sovereignty" is different – the term has largely been shaped within the European Union (EU). Nevertheless, the concept behind it is known throughout the world: it is about digital freedom, self-determination, and independence.

Digital sovereignty affects companies today more than ever. It's about the ability to shape the digital future autonomously – with control over one's own data, technologies, and processes. It is a topic of fundamental economic and social significance, which is why we explore it from various perspectives in the 46th issue of Information Unlimited (IU).

Read about the history of the term in the article "What is (digital) sovereignty?" starting on page 8. In the interview "Digital sovereignty: different markets, different debates" (page 12), four of our Managing Directors share their experiences with digital sovereignty in their respective markets. You can also learn how our zenon software platform can help you achieve digital sovereignty – for example, in Lukas Punzenberger's article "Data sovereignty: freedom vs. paying twice" (page 20). As our Director of Product Management, he understands the importance of software for data sovereignty.

What are your thoughts on digital sovereignty? What experiences have you had, and what do you expect from the future? Our editorial team, which is always interested in industry developments, looks forward to hearing from you at iu@copadata.com.

I also highly recommend the article "Customer services: your issue is our mission", starting on page 65. Our 160 specialists are here to assist you with any questions you may have about zenon.

I hope you find this issue informative.

Thomas Punzenberger

THOMAS PUNZENBERGER
CEO

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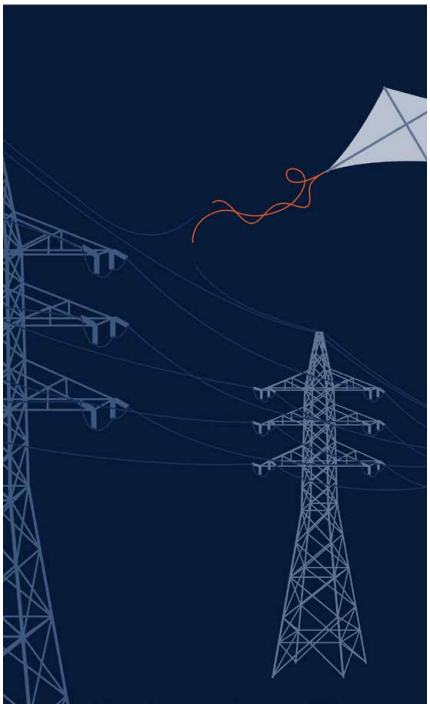
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IU

WHAT IS (DIGITAL) SOVEREIGNTY?

The ability to make autonomous decisions about technology, data, and infrastructures has become mission critical for businesses. Only businesses that can act independently are truly sovereign. But what lies behind the concept of "sovereignty"? Let's look at the long history of a concept that is critical in today's digital world.

The concept of digital sovereignty is associated with Europe. Although it emerged in the early 1990s at the dawn of the internet, it has been used more frequently since around 2015. By 2020, at the latest, digital sovereignty had firmly established itself in the areas of politics, research, and business. For example, the Declaration for European Digital Sovereignty, a joint political statement by the 27 European Union (EU) member states, initiated by Austria, was signed at the end of 2025. Essentially, it aims to ensure that Europe can remain independent and act autonomously in the digital realm. Achieving this requires a political framework for action. Gaia-X, an initiative for sovereign data and cloud infrastructure, was also launched in Europe (read more in the info box on page 11).

GLOBAL CONCEPT

It is hardly surprising that the general public around the world associates the term digital sovereignty with the EU. Nevertheless, the underlying idea is by no means exclusively European. In fact, the concept of maintaining control over (digital) technology, data, and infrastructure is found worldwide. Self-determination and independence are values to which many countries aspire, both in Europe and beyond. In addition, many languages have a term for sovereignty – ranging from the French "souveraineté", Polish "**suwerenność**", and Arabic "السيادة" to the Korean "**주권**" and Amharic "**ሉዓላዊነት**".

AT THE TOP

The modern Western understanding of sovereignty has been shaped largely by the European history of the state and intellectual history. "The history of this concept has always centered on the question of who holds ultimate authority. Is it God, the king, or the people?" explains Mario Wintersteiger, a political scientist specializing in the history of political ideas at the University of Salzburg. The roots of the concept of sovereignty lie in medieval France, where the sovereign was the one "at the top". In other words, the ultimate decision-maker in the respective role – such as God or the high priest and, later, the king or the supreme judge. The first political connotations date back to the 13th century.

THE FINAL SAY

In the 16th century, sovereignty became a key legal concept in political theory, specifically as the modern state began to emerge. Who makes the rules? Who can break them? Back then, it was the absolutist king. Possessing the authority to rule, he held the highest rank in the state and acted independently. "Being sovereign means being able to make a decision independently and having the final say", says Wintersteiger. "The crucial question regarding sovereignty is: who decides the rules and who can make an exception?"

THE PEOPLE AS SOVEREIGN

From the 18th century onward, democracy as we understand it today gradually developed in the Western world. The aim was to transfer sovereignty to the people, who would then become the source of all authority. State sovereignty implies that the state can determine matters regarding its own territory independently as a sovereign entity and make its own rules. Thus, there is "internal sovereignty" (supreme authority in a state) as well as "external sovereignty" (independence from other states).

FROM PHILOSOPHY TO TECHNOLOGY

Sovereignty, then, is both a political and a legal concept. However, it can also be applied to other entities with the underlying idea remaining the same. Sovereignty appears in a wide range of disciplines – from philosophy, sociology, and history to economic and technology research. Businesses also seek to act with sovereignty, for example, when they operate autonomously, make decisions independently, and retain control over their resources and processes. This is where digital sovereignty comes into play…

RESPONSIBILITY AND ETHICS

Digital sovereignty is a prerequisite for determining how a business uses its data, artificial intelligence, and infrastructures – and it is the foundation of our future. It ensures that nations, businesses, and citizens are not only able to use the digital world securely and independently but are also able to shape it autonomously in line with their own values. "It is primarily about the responsible development of technology", emphasizes Helmut Leopold, Head of the Center for Digital Safety & Security at the AIT Austrian Institute of Technology. "We have to incorporate basic ethical values into technology solutions."

> "Being sovereign means being able to make a decision independently and having the final say."
>
> Mario Wintersteiger, political scientist

THE DIMENSION OF INDEPENDENCE

What are the requirements for digital independence? The following aspects should be considered when answering this question.

- **Technology independence:** This refers to reducing critical dependencies on individual vendors and proprietary technology.
- **Digital resilience and cybersecurity:** Uncompromising protection of our vital digital systems against outages and threats from cyberspace is essential.
- **Sovereign data management and data sovereignty:** Sovereignty over data not only safeguards privacy and democracy but also protects free markets from data monopolies – and ensures economic viability. At stake are issues such as controlling where data is stored, deciding who can access it, and defining how it may be reused. These are the key aspects of data protection that are essential for upholding fundamental democratic principles. In the future, however, the focus will increasingly shift to maintaining business viability in sectors driven by data. After all, anyone who has monopolistic control over data has an incentive to stifle competition.
- **Digital maturity:** Individuals should be able to navigate the digital world confidently, competently, and securely. They should learn to use digital media and applications critically in their daily lives and receive support in doing so.
- **Information integrity:** It is essential to provide transparent and fact-based media landscapes and clearly distinguish between opinions and facts as a shield against disinformation.
- **Responsible digital transformation:** Ultimately, it is about implementing digital innovation but, above all, about ensuring a responsible digital transformation that firmly incorporates ethical values in the design and application of digital solutions. This requires access to the technology and skills needed to further develop and transform

them; this is the only way that fundamental ethical principles and values can be integrated inextricably in technological transformation.

> "We have to incorporate basic ethical values into technology solutions."
>
> Helmut Leopold, expert in digitalization

DIGITAL SOVEREIGNTY STRATEGY

The process of achieving independence has multiple dimensions, but what are the elements of a long-term digital sovereignty strategy?

- **Effective R&D:** This is the foundation for a successful digital transformation. Highly competent research institutions in Austria and across the EU are leading the way.[1] Funding programs are making it possible to accelerate innovation partnerships between the research community, the business sector, and public authorities.
- **Improving cybersecurity resilience:** Due to the latest developments in the threat landscape and changes in the global security situation, businesses are having to radically rethink their approach. Cybersecurity should no longer be viewed as an unnecessary cost but rather positioned as a key factor in increasing competitiveness. In addition to basic cyber hygiene, the effective implementation of new regulations designed to enhance cybersecurity, such as NIS 2 and the Cyber Resilience Act (CRA), should be a matter of course – rather than being seen solely as cost drivers or obstacles to innovation. In this context, the use of smart solutions derived from national and EU research represents an important approach to achieving sovereign systems.
- **Open standards, global standardization, and open source:** The debate around digital sovereignty is all too often misunderstood as a retreat into digital nationalism. Yet genuine technological self-determination is achieved not through isolation but instead by consistently using open standards and participating in shaping global standardization to counteract potential "vendor lock-in" effects. Relying on proprietary software with no alternatives and on closed ecosystems creates a state of fundamental dependency, often making it financially and technically impossible to switch to other providers or alternatives. Open-source solutions therefore represent a vital approach, enabling companies to respond more quickly to market developments and pursue alternative solutions.
- **Data sovereignty:** Trustworthy, sovereign, and federated data spaces based on Gaia-X concepts represent the technological, organizational, and economic counter-model to the currently ubiquitous centralized, monopolistic platforms and systems. Sovereign data spaces enable organizations within large ecosystems to utilize data and IT services securely, efficiently, transparently, and under their own control, while adhering to defined, verifiable rules, without having to aggregate data centrally and without data owners losing control of it. The evolution of today's internet into sovereign, distributed data spaces could mark the next major stage of development, bringing enormous disruptive effects for technology platforms, business models, and entire digital ecosystems. Engaging with digital transformation is a must for every company.
- **Tools and skills to effectively combat disinformation and fake news:** In the digital age, tools to combat disinformation are key to maintaining social cohesion and trust in democratic institutions. Given the rise of AI-generated deepfakes and automated bots that disseminate or reproduce news at will, a purely reactive legislative approach is no longer sufficient. Instead, long-term safeguarding against digital manipulation requires a finely tuned combination of technology tools, regulatory frameworks, and the fostering of digital sovereignty through media literacy.
- **Professional development:** Ongoing digital transformation and the rapidly escalating threat landscape in cyberspace make one thing unmistakably clear: technology is only as secure as the people who operate it. The acute shortage of skilled professionals in the IT and security sectors has been a strategic risk for business and public administration for a while. Against this backdrop, professional development and targeted upskilling activities are taking on new significance. Initiatives aimed at developing specialized cybersecurity skills for operators of critical infrastructure and public authorities[2] represent important steps toward ensuring sustainable digital sovereignty.

COMPETING GLOBALLY

"The EU is addressing digital sovereignty through dedicated innovation and research programs", states Leopold. "It is about strategic technologies and capabilities, such as AI, cybersecurity, quantum technologies, and microchips, in order to remain globally competitive." In addition, the EU is pursuing a new data strategy and establishing clear rules of the game through regulations, such as the Data Act, Data Governance Act, and AI Act, to ensure transparency, sovereign data processing, and fair data exchange. There is also growing momen-

[1] This refers to the national security research programs KIRAS, KPass, and FORTE, as well as corresponding funding programs at the EU level.
[2] Examples of this include the collaboration between the Center for Digital Safety & Security at the AIT Austrian Institute of Technology and the International Atomic Energy Agency (IAEA), and the founding of an EU Cyber Skills Academy with the participation of several Austrian stakeholders.

tum toward the wider adoption of open-source technologies, whether created collaboratively, publicly funded, or industrially developed, across businesses and public administration.

SOVEREIGN DATA MARKETS

Driven primarily by EU industry, the open-source and standardization initiative Gaia-X is laying the groundwork for establishing new sovereign data markets in a global context. Leopold notes, "It is based on distributed data storage and enables secure, trustworthy data exchange". Drawing on concrete approaches from research, policy, and practice, the initiative addresses questions such as how Europe can not only keep pace with global competition but also set its own standards through responsible digital transformation. Ultimately, however, this is an issue that affects not just Europe but the entire world.

THE GAIA-X DATA INITIATIVE

Gaia-X is an initiative launched by European industry in 2019 for a sovereign, secure, and interoperable data infrastructure. It provides specifications, architectures, standards, and open-source solutions. This enables companies to use cloud and data services from various providers with sovereignty and without losing control over their data. The result is a shared framework.
gaia-x.eu



MARIO WINTERSTEIGER
Political scientist

An expert in political theory and intellectual history, Mario Wintersteiger is a Lecturer at the University of Salzburg. He also teaches regularly at the American Institute for Foreign Study (AIFS). In addition, he is the Editor-in-Chief of „pro zukunft", a magazine for books and groundbreaking debates published by the Robert Jungk Library.



HELMUT LEOPOLD
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An expert in digitalization and innovation, Helmut Leopold has built the Center for Digital Safety & Security into a globally renowned technology leader. He oversees international initiatives and regularly publishes on topics related to the secure and responsible use of digital technology.

www.ait.ac.at



IU

DIGITAL SOVEREIGNTY: DIFFERENT MARKETS, DIFFERENT DEBATES

Governments around the world have taken varied approaches to digital sovereignty, especially in relation to data governance and privacy. Today, AI innovation is adding greater urgency to the debate. As approaches diverge, the debate around digital sovereignty is getting louder – touching on cybersecurity, technology, data, entrepreneurship, and how innovation is pursued and funded.

What does this all mean for industrial and energy businesses as they struggle to control their digital destiny, maintain resilience while growing digital capabilities, meet regulatory requirements, and avoid the fragmentation of technology ecosystems? We asked **Olov Emås,** Managing Director at COPA-DATA Scandinavia; **Martyn Williams,** Managing Director at COPA-DATA UK; **Klaus Rebecchi,** Managing Director at COPA-DATA Italia; and **Johannes Wolf,** Managing Director at COPA-DATA Central & Eastern Europe and the Middle East (CEE/ME), to share their thoughts.

What does digital sovereignty mean in your market?

Olov Emås: For me, it is mainly about control and freedom of choice.

Johannes Wolf: For industrial companies, digital sovereignty means being able to run IT infrastructure, process data and build key technologies in a self-determined, secure, and independent way – minimizing dependency on individual vendors. It's about control over data, cybersecurity, and technological freedom.

Klaus Rebecchi: In Italy, I see the issue of digital sover-

eignty as divided into two areas: data sovereignty and technical and operational sovereignty. Data sovereignty in an industrial context means using systems that allow organizations to decide for themselves where and how data is stored. Technical and operational sovereignty, on the other hand, is about being able to replace, adapt, or expand IT systems independently.

Martyn Williams: Beneath the jargon, there's a genuine issue: who actually controls your data, your infrastructure, and your ability to change direction when you need to.

Is this a global issue? Or are certain regions or countries more affected?

Johannes Wolf: Every region is trying to be as resilient as possible, but the topic is by far the most visibly debated in Europe.

Olov Emås: The issue is global, but I think it has a particular relevance in Europe. Europe is a highly digitalized, but at the same time we rely heavily on technology developed and controlled outside Europe in a number of important areas.

Klaus Rebecchi: Italy is still lagging behind somewhat by European standards, but efforts are already being made to address this situation. The issue of digital sovereignty is set to become increasingly important. We are only at the very beginning and in the process of raising awareness.

Johannes Wolf: We can see that Europe is trying to reduce its reliance on Chinese and US technology providers. The race for AI dominance is between China and the US, with very big investments being made in the underlying infrastructure, such as datacenters.

Looking at the Central and Eastern European and Middle East region, there are huge differences. In the Middle East, digital sovereignty is not really a topic of discussion. Quite the opposite: hyperscalers are building numerous datacenters in the Middle East. Why? Because of access to cheap energy.

Olov Emås: The global geopolitical situation has clearly changed over the last few years – and this is where the "Made in Europe" discussion fits in.

There is a risk here that digital sovereignty gets reduced to simply "buy European". For me, this misses the point. A European solution that locks a customer into one closed ecosystem doesn't automatically give them more sovereignty. Where the technology comes from matters more than before – but openness, interoperability, access to data, and the ability to change direction remain at the heart of this issue.

That doesn't mean Europe should turn away from global technology. We depend on international innovation and competition – and that is a good thing. Industrial systems today are built on a global technology ecosystem. But companies do need to understand what dependencies they have and whether they have realistic alternatives if something changes.

There is now more awareness of where critical technology comes from and what strategic dependencies come with it.



Olov Emås, Managing Director at COPA-DATA Scandinavia

Johannes Wolf: If Europe wants to get out of this dependency, especially on US tech companies, it clearly needs to debate this topic – and take action.

Olov Emås: Europe is certainly pushing the discussion very hard, especially through regulation and public policy. We have seen that with GDPR, and now with NIS2, the Cyber Resilience Act, the Data Act, and other initiatives. But regulation on its own is not enough.

Europe cannot regulate its way to digital sovereignty. We need European technology companies that customers want to buy from because their technology is competitive, open, and secure, and creates long-term value.

Do you think the debate is being driven by customers, vendors, regulators, national governments, or something else?

Johannes Wolf: From my personal point of view, the debate has political roots, given the geopolitical shifts. Now, regulations are driving customers and vendors to prioritize digital sovereignty.

Klaus Rebecchi: I believe this debate is being driven forward primarily by national authorities. Indeed, Italy signed the Declaration for European Digital Sovereignty in 2025 to ensure it can act autonomously in relation to technologies and data in critical infrastructure. The aim is not to shut ourselves off from the world but rather to work with partners who share the same values.

Olov Emås: I would say regulators and geopolitics have accelerated the debate, but customers are now turning it into practical requirements.

Customers are looking at supply chains, cloud dependency, data ownership, technology origin, and geopolitical exposure. A few years ago, most of these discussions were around cybersecurity and data protection. Today the scope is broader.

How does digital sovereignty affect your market?

Martyn Williams: Across UK manufacturing and energy, organizations are under real pressure to modernize,



Klaus Rebecchi, Managing Director at COPA-DATA Italia

improve resilience, and get more out of their operational data, while also protecting decades of investment in infrastructure that continues to perform well.

Regulation and cybersecurity requirements are evolving too. If you're locked into technology that can't adapt when those requirements change, you have a much bigger problem.

Johannes Wolf: Given the current geopolitical dynamics, it is a very big topic in Europe – but not so much in the Middle East. In Europe, digital sovereignty is seen as a central precondition for Europe's competitiveness; Europe needs to actively shape technological development rather than only reacting to solutions created elsewhere.

Klaus Rebecchi: In any case, cooperation with the EU is of paramount importance for Italy. This challenge can only be overcome through dialogue with other EU countries and through joint strategies on digital sovereignty.

Olov Emås: What I find interesting is that this is no longer only a policy discussion. We are starting to see it in actual business decisions.

In two recent procurement processes involving wastewater supervision in Scandinavia, we were specifically asked where the software was developed and from where it was supported. Geopolitical risk was included as part of the evaluation. That caught my attention, because I don't think those questions would necessarily have been asked a few years ago.

Of course, customers still look at functionality, cybersecurity, lifecycle, and cost. But there is now another question in the room: where does this technology come from, who ultimately controls it, and what kind of dependency are we creating?

How are your customers dealing with it, and what impact does it have on businesses?

Olov Emås: Most customers don't necessarily use the term "digital sovereignty" in everyday discussions. But they are absolutely talking about the issues behind it.

These discussions are beginning to change how technology decisions are made. An industrial system may stay in operation for 15 or 20 years, sometimes longer. So the question is not only whether a product does the job today. Customers also need to ask what kind of position that decision puts them in 10 years from now.

Martyn Williams: There's a growing tension between the lifecycle of industrial technology and the timeframe in which investment decisions are being made. Infrastructure might remain operational for decades but the pressure to demonstrate performance is increasingly immediate, often driven by stakeholders looking for results now.

Very few of our customers want to remove existing infrastructure and start again. That's the right instinct, in my view. Most are taking a more considered approach: modernizing progressively, building on what already works, and introducing new capability where it delivers genuine, demonstrable value.

Klaus Rebecchi: Most customers in the industrial sector do, after all, store all their data on local servers, which generally ensures data sovereignty. When it comes to technical and operational sovereignty, end customers are increasingly taking care to ensure that they can remain independent and autonomous when making decisions.

Johannes Wolf: If companies build sovereignty consistently across both IT and OT, this becomes a foundation for economic resilience, industrial strength, and global competitiveness.

What challenges are associated with this topic?

Martyn Williams: Industrial environments must balance innovation against continuity. Production lines can't stop, substations can't go offline, and critical infrastructure has to remain available. The real challenge is introducing capability without adding unnecessary complexity or risk. Businesses need solutions that work alongside their existing infrastructure and support gradual modernization, rather than forcing costly, disruptive transformation programs.

Johannes Wolf: Digital sovereignty does come with a cost – and an actual switch brings technical, organizational, and financial challenges.

IT landscapes have been built around major providers for years or decades, employees are trained on them, and long-term contracts exist. These providers also offer broad, deeply integrated portfolios that alternatives don't always match in scope or maturity. And companies worry about compatibility and migration effort.

Klaus Rebecchi: Challenges lie in the transfer of know-how and in human resources. Digital sovereignty means that specific skills and know-how are required in order to use technologies safely. At a time when specialists are in short supply, this certainly poses a challenge for businesses.

Olov Emås: The main challenge is probably to keep the discussion practical. Complete technological independence sounds good in theory, but it is not realistic.

Do you think some parts of your market are affected more than others? Are there differences across industries?

Johannes Wolf: Yes, I'd say that within critical infrastructure and the energy sector, digital sovereignty is currently among the top three priorities – especially given the rising regulatory demands of NIS2 and CRA. The entire OT landscape is being reviewed. In many cases, this results in requirements within public tenders, harmonization of the OT system landscape, and focusing on suitable and trustworthy vendors.

Klaus Rebecchi: The issue of digital sovereignty is important across all sectors of industry. However, customers in the energy and infrastructure sectors in particular have specific requirements in this regard, as data and operational sovereignty are crucial to national security. In today's geopolitical climate, energy and infrastructure systems are increasingly becoming targets of attacks – and this also puts the data and digital systems that control them at risk.

Olov Emås: I agree that the discussion is more immediate in energy, water, and other critical infrastructure. If you operate an energy network or wastewater infrastructure, you are running something society depends on. That changes the level of risk and the consequences if something goes wrong.

What makes the issue very concrete for me is what we have seen in procurement here in the Nordics. When a wastewater operator asks where software is developed and supported and evaluates geopolitical risk as part of their purchasing process, then this is no longer just a discussion happening in Brussels. It has reached the people making long-term technology decisions for Scandinavian infrastructure.

Manufacturing has many of the same concerns, but the perspective is often slightly different. There, it can be more about protecting production data and intellectual property, managing supply chain risk, and avoiding too much dependency on one equipment or automation supplier.

Martyn Williams: Manufacturing businesses have more options, and that creates a different kind of pressure. If costs rise or another market can deliver the same output more competitively, investment and production can move. That makes flexibility particularly important for UK manufacturers, who need to keep improving performance and competitiveness. Energy faces different pressures but both ultimately need technology that can adapt as their operating environment changes.

Olov Emås: The common issue is really resilience and keeping options open.

What role does zenon play in digital sovereignty?

Olov Emås: zenon's role is quite practical. It gives customers choices.

One example is hardware independence. zenon can communicate with a very broad range of industrial equipment and technologies, so customers don't have to build everything around one hardware supplier.

The same applies to system architecture. Customers have a lot of freedom in deciding how and where systems are operated and how existing installations are combined with new technology.

Martyn Williams: I've always believed industrial software should expand a customer's options rather than restrict them – and that principle has been central to zenon from the outset. zenon has been built around open standards, encouraging collaboration and interoperability in an industry that has traditionally relied heavily on proprietary systems and vendor lock-in. Our customers don't operate single-vendor environments – so we shouldn't either.

zenon is designed to integrate with a broad range of industrial technologies and over 300 native communication protocols. That gives businesses genuine flexibility to modernize at their own pace, protect prior investment, and introduce new technologies without being forced down a particular technology path.

Olov Emås: Here in the Nordics, there is also something else that has become more relevant lately. zenon is developed in Europe by an independent European software company, with product development, competence, and support established here. A few years ago, that might just have been background information about COPA-DATA. Today we are seeing customers ask about it directly. That is a real change.

How might this topic develop in the future?

Johannes Wolf: I do see digital sovereignty as a lasting competitive factor, not a short-term cost. Companies that steer dependencies deliberately will make better decisions and innovate faster. We will definitely see investments in this space and business continuity plans put in place for different scenarios.

Martyn Williams: I don't think "digital sovereignty" will remain a distinct conversation for much longer.



Johannes Wolf, Managing Director at COPA-DATA Central & Eastern Europe and the Middle East (CEE/ME)



Martyn Williams, Managing Director at COPA-DATA UK

Like most terms that describe good practice rather than a passing trend, the label will fade once the underlying discipline becomes standard.

What will endure is the substance behind it: who owns operational data, who can act on it, and whether a business retains the freedom to change direction without depending on a single vendor's terms.

Olov Emås: I agree that digital sovereignty will become a much more normal part of technology procurement and risk management. Cybersecurity has already taken a similar trajectory. It used to be mainly a specialist issue. Today it is discussed by management, boards, and procurement teams. I think technological dependency and geopolitical risk are heading in the same direction.

The fact that geopolitical risk is already appearing in procurement evaluations tells me that this development is not something far in the future. It has already started.

What advice would you give organizations on how they should approach this topic?

Johannes Wolf: Digital sovereignty is not about full isolation from international technology but about risk management. In which areas can I take risks? And to what degree?

From a European perspective, it's about highlighting capable alternatives or developing them. But the goal is genuine choice, not replacement. Competition drives innovation and resilience.

Martyn Williams: If there's one point I'd want people to take away, it's that flexibility is rarely regretted. I've seen businesses come to regret a rushed, poorly timed replacement program. I've seen others regret standing still for too long and losing ground to competitors. What I have never encountered is a business that regretted building in the flexibility to change course when circumstances demanded it.

Johannes Wolf: I do see digital sovereignty as a management-level, cross-departmental responsibility, requiring interoperability, open standards, and vendor-independent criteria to be built into procurement and project decisions.

Olov Emås: For an industrial company or infrastructure operator, the questions are quite straightforward: where is my data? Who has access to it? What happens if we need to change suppliers? Can we access and move our data? Where is the technology developed and supported? Can we keep operating if an external service is unavailable? Can we integrate equipment from another supplier? Can we migrate in the future? And what happens if the geopolitical situation changes?

A few years ago, that last question probably sounded theoretical. Today it doesn›t, and that is one of the biggest changes I see. Geopolitical risk is starting to become another technology risk, alongside cybersecurity, lifecycle, performance, and cost.

Martyn Williams: Businesses that prioritize flexibility now will be far better equipped to respond to whatever the next decade brings.

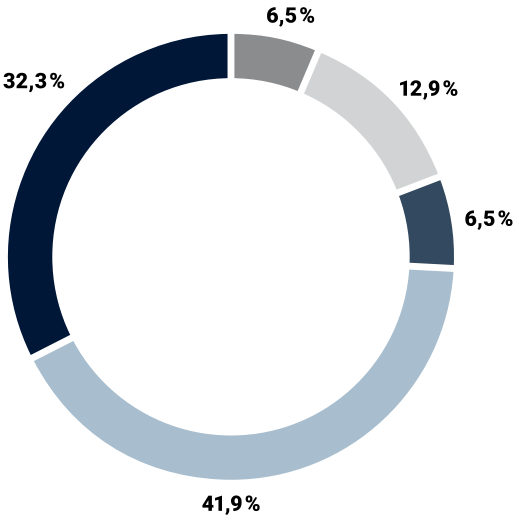
Johannes Wolf: In the meantime, I'm glad that – at COPA-DATA – we can enable all organizations to prepare themselves for any future development, making them more resilient, independent, and competitive.

SPOTLIGHT SURVEY

Digital sovereignty refers to the ability to shape the digital future on one's own terms – with control over one's own data, technologies, and processes. But what does that mean for businesses? To find out, we asked people in our network as part of our Spotlight survey. Read the results here.[1]

QUESTION 01
WHICH INDUSTRY DO YOU WORK IN OR WITH?

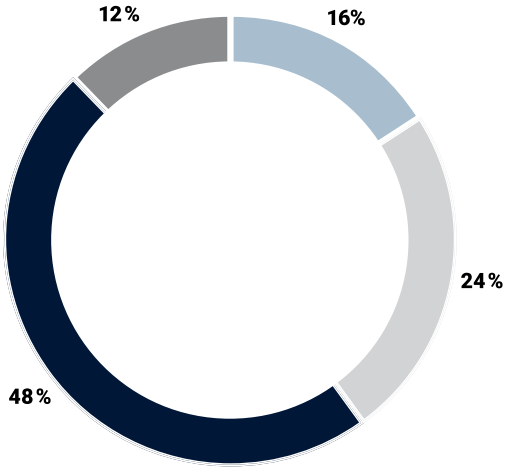
- Manufacturing – Life Sciences
- Manufacturing – Food & Beverage
- Manufacturing – Automotive
- Energy & Infrastructure
- Other



> "By putting digital sovereignty into practice, we are helping to ensure Europe's competitiveness."
>
> Survey participant

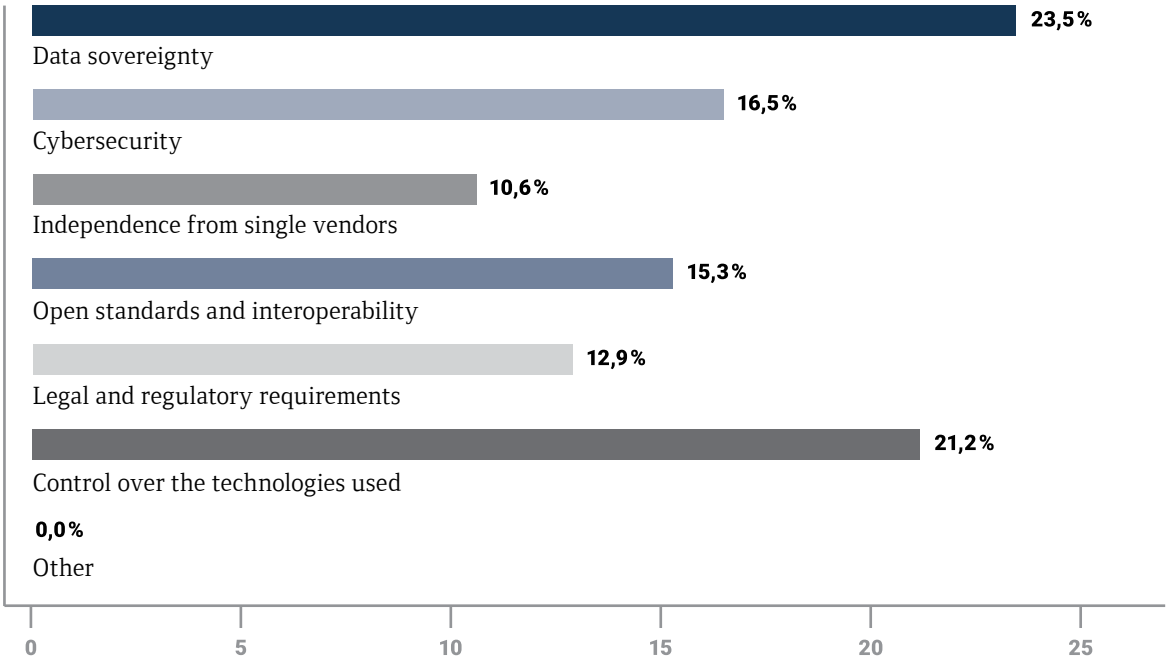
QUESTION 02
HOW FAMILIAR ARE YOU WITH THE TERM "DIGITAL SOVEREIGNTY" OR THE CONCEPT IT REFERS TO?

- Very familiar
- Somewhat familiar
- Not familiar at all
- I have heard of it but I am not sure what it means



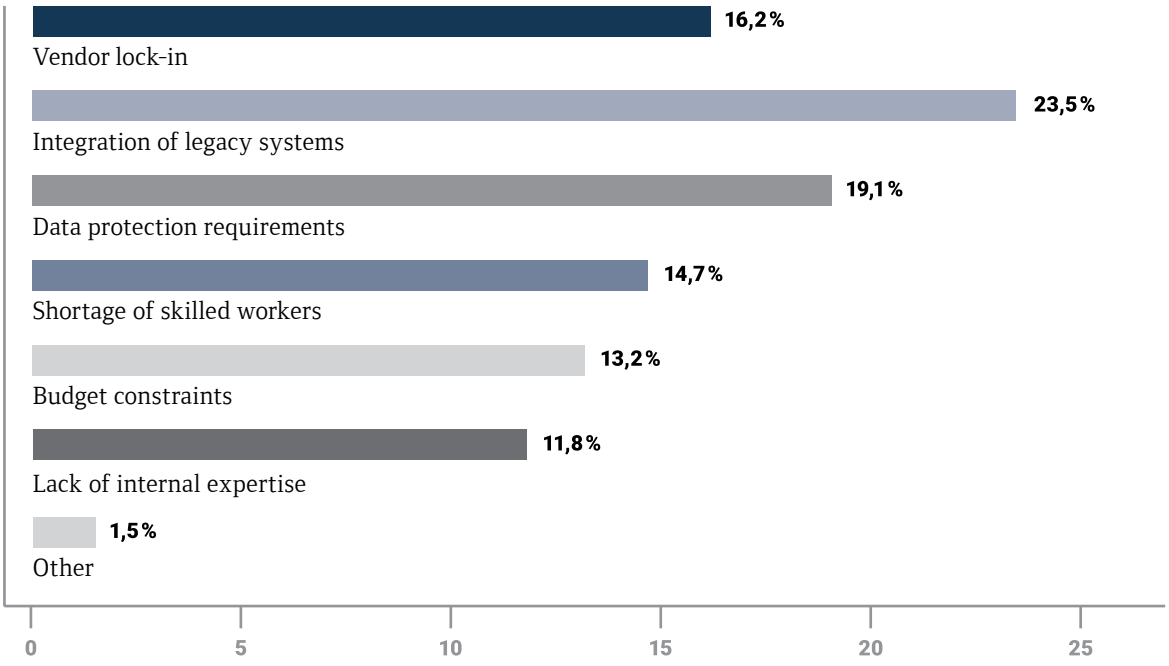
[1] Participants: 25. Multiple answers were possible for questions 1, 3, 4, and 5. The survey was distributed globally, with 22 responses from Europe, two from Asia, and one from North Africa and the Middle East. This reflects the fact that the term "digital sovereignty" is more firmly established in Europe.

QUESTION 03
WHAT DOES "DIGITAL SOVEREIGNTY" MEAN TO YOU?

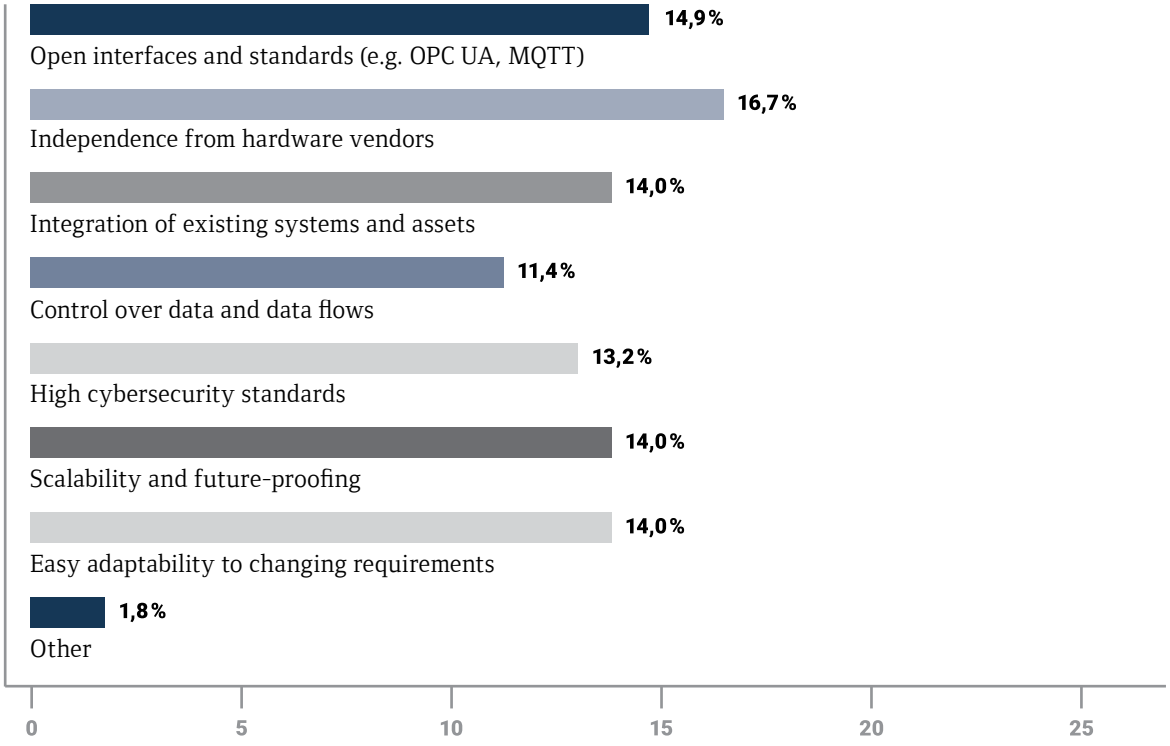


> "If digital sovereignty cannot be fully achieved within one's own company, collaborating with other stakeholders can help."
>
> Survey participant

QUESTION 04
WHAT ARE THE BIGGEST CHALLENGES YOUR COMPANY FACES IN ACHIEVING DIGITAL SOVEREIGNTY?



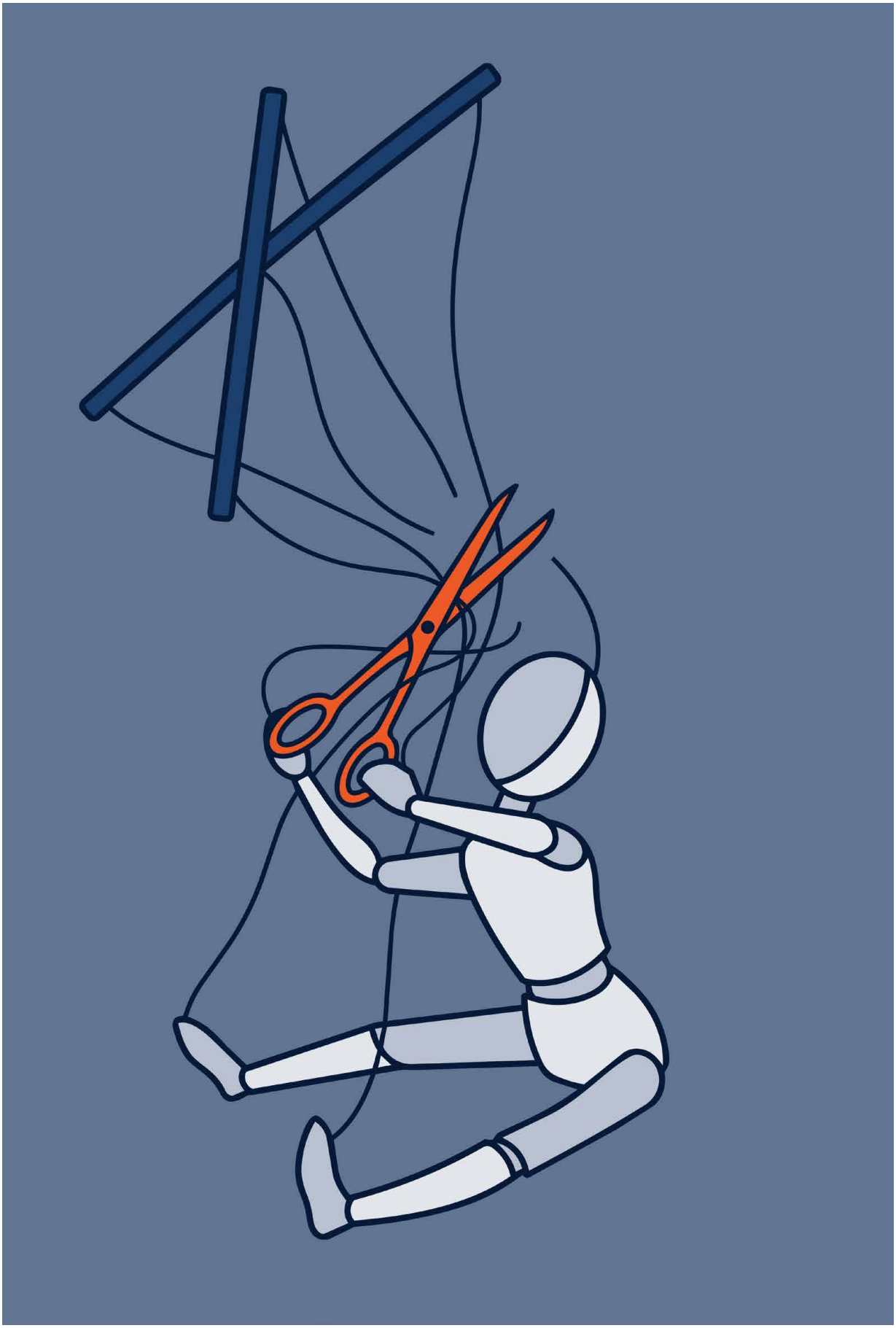
QUESTION 05
WHICH CHARACTERISTICS ARE PARTICULARLY IMPORTANT TO YOU WHEN SELECTING AN AUTOMATION PLATFORM?



> “When integrating new platforms, we take into account whether they are European-owned. As a young company, we are agile. However, we are not abandoning existing non-European solutions.”
>
> Survey participant

QUESTION 06
HOW WILL THE IMPORTANCE OF DIGITAL SOVEREIGNTY DEVELOP BY 2030?





DATA SOVEREIGNTY: FREEDOM VS. PAYING TWICE

Data sovereignty describes the power to decide how, and by whom, the data a company possesses or produces is used. It covers all aspects of using, sharing, deleting, and learning from this data. The principle of data sovereignty becomes more and more important in an environment beset both by global crises unfolding at an unprecedented pace and increasingly accelerating revolutions of technology advancement. In such an unpredictable environment, domain know-how becomes crucial. And software that empowers organizations to protect their data sovereignty is vital for resilience.

Data sovereignty concerns the ability of a legal entity – whether person or organization – to control the conditions under which their data is shared and how that shared data is used, especially in the context of it being an economic asset.

In today's world, this kind of sovereignty is becoming critical. In Information Unlimited 43, we highlighted the importance of data in terms of its potential for competitive advantage and revenue gain. Since then, the potential of data, and the speed at which information can be retrieved from it, have changed dramatically. AI models are released on a near-weekly schedule with no plateau in sight. Retrieval of information from data becomes more sophisticated by the day. Simultaneously, in this fast-changing global environment, the development of frontier AI models is limited to very few providers; those who have the resources to develop these giant models. And that dependency has been highlighted[1] by recent global political crises that have put pressure on supply chains, impacted regulations at a global level, and disrupted stock markets. To succeed in this volatile environment, agile planning and resilient supply chains become ever more important – including when it comes to technology providers.

One of the few levers organizations can still fully control is their own data and the way it is managed, protected, and leveraged. In industrial automation, this means choosing platforms that do not lock users into a single hosting model or data path. Instead, a platform should give you the freedom to decide where your data resides and how it is used. The zenon software platform is designed to provide exactly that freedom of choice, supporting on-premise, private cloud, public cloud, and hybrid deployments. This way, automation solutions can boost – rather than constrain – data sovereignty.

DATA SOVEREIGNTY IN INDUSTRIAL AUTOMATION

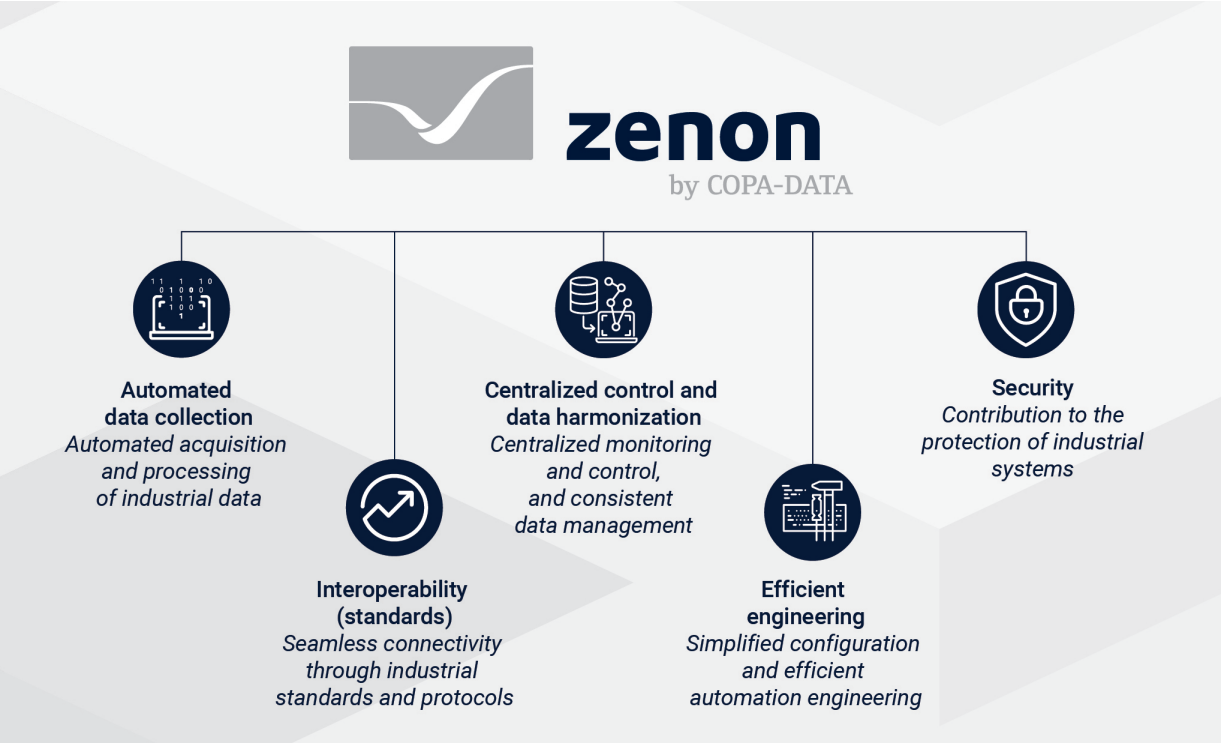
In the context of industrial automation, data sovereignty is a very exciting topic. It combines the fields of control theory, process, and domain knowledge with legal considerations. Domain knowledge is a valuable asset in a data-driven world. Industrial automation is full of process know-how from different fields, including chemistry, electrical engineering, physics, and more. It also involves many machines, most of which behave slightly differently because they have been adapted to a specific plant. Data about these processes is stored according to legal or regulatory needs, such as FDA compliance. It's also stored to fuel initiatives focused on improving efficiency, resilience, and competitive advantage.

Even though there have been tremendous advances over the last few years to standardize information models and protocols within the OT landscape, it remains rather fragmented and siloed. This makes it challenging to extract the full value from stored data. Yet this type of data generation can be very valuable – for the company that produced it and for the whole industry. That's because it is rooted in years of expert domain experience and knowledge, and it describes the details of operational reality, which is not found in books.

In this context, ensuring sovereignty over industrial data means having the ability to define the full framework under which that data exists and creates value. Companies must be able to determine where data is stored – whether onsite, in a datacenter or in a selected cloud region. They must decide who is allowed to access it: is it for plant operators, engineers, external partners, or service providers? And they must remain in control of how the data is used, whether for analytics, optimization, reporting, or deletion.

For industrial automation, data sovereignty is much more than a compliance issue. It becomes the foundation for protecting process know-how, meeting regulatory obligations, and preserving the freedom to choose tech-

[1] In mid-June 2026, the US government ordered Anthropic to block non-US nationals from using its most powerful AI models, Mythos 5 and Fable 5, citing national security." techjournal, June 24, 2026. https://techjournal.org/us-ai-export-controls-anthropic-ban-2026



nologies and partners without losing control over the information that makes a company competitive.

CHALLENGES IN AN EVER-EVOLVING WORLD

Companies face several looming uncertainties that make data sovereignty simultaneously harder to maintain and more important.

The first challenge is complexity. Production systems are distributed across sites, suppliers, and service organizations. Machines come from different vendors, communicate using different protocols, and generate data in different formats. Valuable information is, therefore, often trapped in fragmented systems. Even though standardization is the unanimous goal within an organization, it often does not reach every data system.

The second challenge is speed. Markets, supply chains, and regulations are evolving faster than before. Companies need to react quickly, but fast decisions require reliable access to the right data. If data is locked into proprietary systems or can only be accessed via manual intervention, flexibility and speed are compromised.

A third challenge is presented by the rise of AI. AI can create enormous value by extracting patterns, recommendations, and predictions from industrial data. It will most likely create huge value from the vast amount of data that industrial companies hold. But it also increases the importance of controlling both the raw data and the knowledge derived from it. Satya Nadella, CEO of Microsoft, recently wrote about the importance of protecting a company's intellectual property. He pointed out that in the current business model of frontier large language models (LLMs), the user pays twice: first by paying for the tokens consumed, and second by handing over the value of the data and context shared with the LLM. His comments highlight the importance of controlling data sovereignty and understanding how data flows when these very powerful tools are used – and the risk that valuable expertise could leave the organization covertly.

Finally, there is the challenge of trust. Data sovereignty is not achieved by storage location alone. It depends on secure authentication, role-based access, and auditability – the ability to prove who accessed which information and for what purpose. For industrial operators, sovereignty is always a combination of technical architecture, governance, and operational discipline.

ZENON SOFTWARE PLATFORM: A FOUNDATION FOR DATA SOVEREIGNTY

The zenon software platform plays a central role in meeting these challenges for industrial businesses. zenon is designed as an industrial software platform for automation, visualization, connectivity, and data handling. Most importantly in this context, it does not force customers into one predefined infrastructure model. Instead, zenon supports different deployment approaches, allowing customers to decide which architecture best fits their legal, operational, and strategic needs best.

zenon components can be operated onsite in the plant, in a customer-owned data center, in a private cloud environment, or in public cloud infrastructures. Hybrid architectures are equally possible. For example, critical control and high-resolution process data can remain local, while aggregated information is provided to central systems for reporting, optimization, or bench-

marking. This flexibility is one of the key prerequisites for sovereignty – because it allows customers to define the trust boundary themselves.

At the same time, zenon connects the fragmented OT world. Through broad connectivity to controllers, field devices, and higher-level systems, zenon helps overcome silos. Simultaneously, it creates a consistent basis for data use. This is essential because sovereignty is only meaningful if data can actually be accessed and governed in a structured manner. Data that is held but cannot be integrated, contextualized, or evaluated has little to no value.

The whole of the zenon software platform should be leveraged to finely control and manage collected data and turn it into valuable information. zenon Service Engine retrieves, visualizes, and controls data. zenon IIoT Services store it and enable it to be managed. And users retain the option to use zenon reporting services or to connect to third-party systems via an API.

CONTROLLING DATA FLOWS WITH ZENON

For data sovereignty, it is not enough to know where data is stored. It must also be possible to define how data flows through the system. zenon supports this by giving customers the ability to flexibly structure architectures according to operational and legal requirements.

A local zenon installation can collect and process data directly at the machine or plant level. This supports low latency, high availability, and local autonomy. At the same time, selected data can be forwarded to central systems in a controlled way. This means that companies can decide which values remain onsite, which are aggregated, and which are shared across sites via zenon IIoT Services.

This selective handling is especially important when different categories of data are involved. Raw process values, quality records, audit trails, or recipe information may require stricter protection than aggregated KPIs for management reporting. With zenon, such distinctions can be reflected in the architecture and configuration within services. Sensitive operational data can stay within the plant boundary, while less critical information can be synchronized for cross-site visibility or advanced analytics.

zenon also supports the organizational side of data sovereignty. Role-based access concepts, user authentication supporting biometric identification, and user logging help define and control who is allowed to view, modify, or export data. In regulated industries, this is crucial for security, compliance, and traceability. The same applies to integration with existing IT and security infrastructures. A sovereign setup is rarely isolated; it must fit into the wider governance model of the company. Otherwise, it simply creates yet another silo.

In the context of AI, this approach becomes even more relevant. If industrial companies want to use AI services, it is essential that they have the ability to control and decide which data sets, prompts, or contextual information may be shared externally and which must stay in-house. A flexible platform like zenon can provide the operational data foundation for AI-enabled decision-making. It enables architectures in which AI can be used where it creates value, while the customer remains in charge of the data and knowledge flows behind it. So when you use those AI services, you do not pay twice.

CONCLUSION

Data sovereignty is becoming a strategic requirement for industrial companies. It is driven by regulation, by the economic value of process and domain knowledge, and by a volatile global environment in which dependencies on technology providers must be considered carefully. In automation, sovereignty means deciding where data is stored, who can access it, and how it may be used – but it also means keeping control over the knowledge derived from that data.

The zenon software platform supports exactly this goal. By offering freedom of deployment, strong connectivity across fragmented OT systems, and the ability to control data flows in a granular way, zenon gives customers the foundation they need to implement their own sovereignty strategy. Instead of locking users into one model, zenon enables choices. And in a world where data is both an operational necessity and an economic asset, that freedom of choice is what makes sovereignty possible.

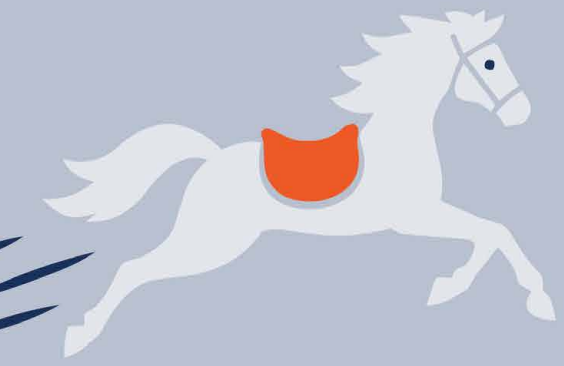


LUKAS PUNZENBERGER
Director of Product Management

Lukas Punzenberger, in his role as Director of Product Management, leads a team of technical specialists to drive the central roadmap and strategy for zenon development.

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DIGITAL SOVEREIGNTY WITH ZENON: STAY IN CONTROL

Digital sovereignty is not about isolation. It is about retaining control over technology, data, identities, and operational know-how as production becomes more connected. With the zenon software platform, COPA-DATA provides a modular, hardware-independent, and security-conscious foundation that connects engineering, OT, edge, and IT in one consistent environment.

AUTHOR: FALK PLONUS, HEAD OF PROFESSIONAL SERVICES, COPA-DATA GERMANY

For industrial companies, digital sovereignty is becoming a strategic capability. The question is no longer only whether a machine is automated. Companies also need to know where their data flows, who can access systems, how changes are introduced, and whether an architecture can evolve without creating new dependencies. This is precisely where a software platform can create value: by reducing isolated solutions and establishing a consistent digital layer across the industrial environment.

ONE SOFTWARE PLATFORM INSTEAD OF NEW SILOS

zenon is designed as an interdisciplinary software platform for industrial and energy automation. It combines visualization, control, data acquisition, alarm management, reporting, workflows, and connectivity in a common environment. More than 300 drivers, gateways, and APIs help integrate heterogeneous machines, controllers, databases, and higher-level systems. Existing assets can, therefore, remain part of the architecture instead of being replaced simply because a new digitalization project has begun.

This openness is a core element of digital sovereignty. Companies retain the freedom to select hardware and technologies that fit their application while using zenon as the consistent software layer above them. The same platform can span production, utilities, energy management, and building automation, and it can exchange information with MES, ERP, and IIoT applications. Instead of creating another information island, zenon helps connect previously separated information spaces.

STANDARDIZED ENGINEERING PROTECTS KNOW-HOW

Sovereignty also means reducing dependence on individual experts and manually maintained project knowledge. zenon Engineering Studio supports this with a low-code approach, reusable Smart Objects, templates, and automation interfaces. Tested structures for drives, valves, production modules, alarms, or user interfaces can be created once and reused across projects and sites. This shortens engineering time, improves consistency, and reduces the risk of manual configuration errors.

zenon Orchestration Studio takes this principle further. Based on modular concepts such as MTP and OpenDCS, standardized device templates can describe HMI elements, functions, alarms, and communication. Engineers can model the process rather than manually configure every individual zenon element. From this model, the platform can automatically generate the required zenon project components, including Smart Object Templates, drivers, variables, archives, and batch configurations. The result is faster engineering with repeatable quality – and corporate know-how that remains embedded in reusable models instead of in personal workarounds.

FROM THE EDGE TO IT: CONTROL OVER DATA AND DEVICES

Digital sovereignty does not stop at the HMI or SCADA layer. zenon extends from the field level to the edge and higher-level IT architectures. zenon Service Engine can run on conventional systems as well as Linux-based and containerized environments. At the edge, zenon can collect and contextualize operational data and provide it to higher-level services without requiring every field device to communicate directly with enterprise or cloud systems.

zenon IIoT Services provide what modern distributed architectures need. Identity Service provides central authentication and integration with external identity infrastructures. Device Management supports central onboarding, monitoring, and controlled deployment of projects and software packages to connected systems. zenon Data Storage and APIs make operational information available for analytics and other applications, while components such as Historian 360 and zenon Automation Integration Layer help bridge operational and enterprise data. This creates a managed path from OT to IT instead of uncontrolled point-to-point connections.

SECURITY BY DESIGN ACROSS THE LIFECYCLE

Control over technology and data is only sustainable when security is part of the architecture. COPA-DATA develops zenon within a secure development lifecycle certified according to IEC 62443-4-1. The platform itself provides a broad range of security functions, including signed product files, encrypted and authenticated communication, OPC UA security mechanisms, configurable communication ports, central user administration, project versioning and comparison, backups, redundancy, and dedicated hardening guidance.

During operation, zenon also provides the context that industrial security needs. zenon Alarm Message List and zenon Chronological Event List make process events and user actions traceable. Diagnostic information and central logging via mechanisms such as Syslog can be integrated into wider monitoring strategies. Instead of competing with established firewalls, endpoint protection, or SIEM platforms, zenon complements them with valuable OT context: what changed, when it changed, which user was involved, and what happened in the process.

DIGITAL SOVEREIGNTY AS A PLATFORM CAPABILITY

Digital sovereignty is not created by disconnecting production or by replacing every existing system. It is created by maintaining the ability to choose, integrate, understand, and manage technology throughout its lifecycle. This is where zenon's platform approach pays off: hardware-independent connectivity, automated engineering, modular orchestration, edge deployment, identity, data services, device management, traceability, and security by design.

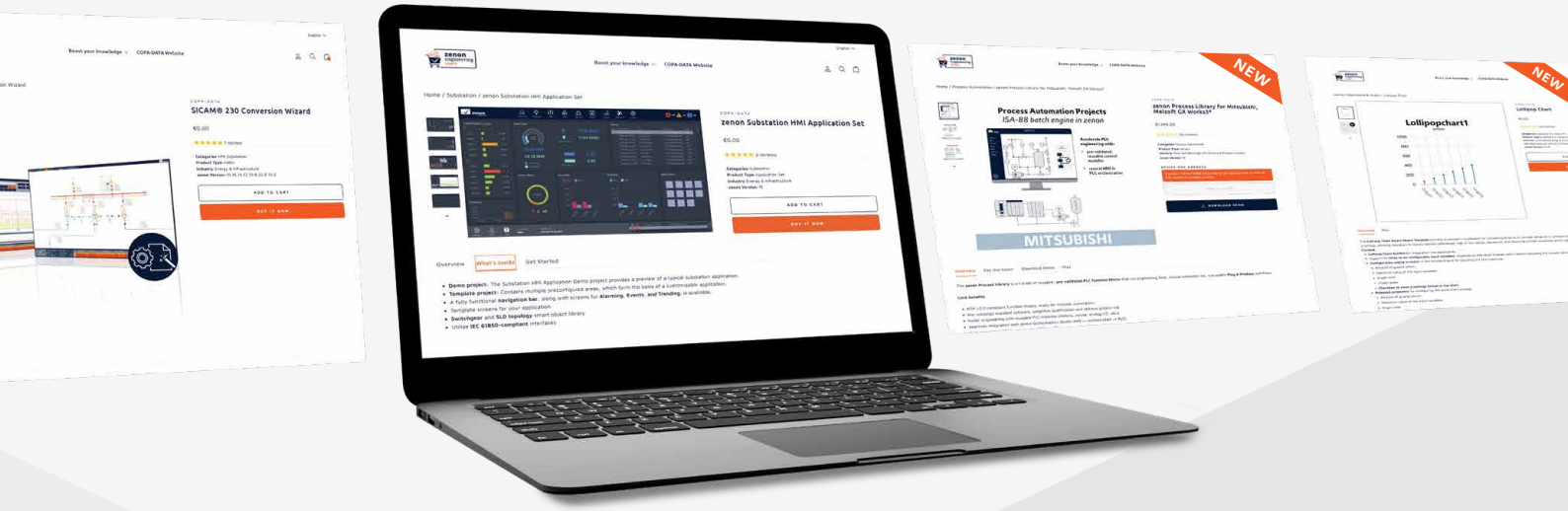
zenon capability	Value for digital sovereignty
Engineering Studio & Smart Objects	Standardize engineering, reuse validated know-how, and reduce manual configuration across projects and sites.
Orchestration Studio, MTP & OpenDCS	Model modular plants and generate consistent projects with less dependence on device-specific engineering.
Service Engine & zenon Logic	Run visualization, control, and automation close to the process – including Linux and containerized edge scenarios.
IIoT Services	Manage access, devices, and data flows centrally withUser Identity Service, Device Management, Data Storage, and APIs.
Historian 360 & Automation Integration Layer	Connect operational and enterprise information and create a consistent data foundation for analytics and higher-level applications.
Security & resilience	Benefit from IEC 62443-4-1-certified secure development, signed files, authenticated and encrypted communication, redundancy, auditability, and hardening guidance.

zenon for digital sovereignty: at a glance

With zenon, companies can connect OT and IT, modernize brownfield environments, and scale from individual machines to distributed sites without giving up control over their industrial architecture. Automation makes production efficient, while zenon keeps digital transformation controllable, scalable, and sovereign.

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  Cleaner user interface for key spec spotlight and faster browsing
- **APP SETS & DEMOs**
  Cut setup time with off-the shelf component packages
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  Apply design in minutes with custom charts and displays



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LINUX FOR DIGITAL SOVEREIGNTY IN AUTOMATION

Linux is transforming industrial automation and leading the way to digital sovereignty. Expanding on our previous article "Linux in the world of automation software" in Information Unlimited 44, here we show how zenon, running on Linux and also in hybrid Linux/Windows architectures, is helping users to keep control of their technology, data, and long-term decisions.

Digital sovereignty is becoming a strategic requirement in automation. Companies want to decide for themselves which platforms they use, how their automation software is operated, and when to modernize – without being dependent on a single manufacturer or operating system. And Linux is playing a key role in this development.

LINUX AND DIGITAL SOVEREIGNTY

Linux originated in the early 1990s as an open-source operating system modeled after UNIX, and it continues to be developed by a worldwide community. Openly accessible source code, collaborative development, and high adaptability to different hardware platforms are the core elements of the Linux philosophy.

For industrial automation, this means companies can assess their technology foundation instead of blindly investing in closed systems. They can make hardware and distribution changes without having to completely rebuild projects, and they retain long-term control over their technologies. Thanks to these developments, Linux has become a key building block for digital sovereignty.

WHY LINUX FOR AUTOMATION?

In practice, Linux is particularly compelling due to its stability in continuous operation, its security model with rapid error resolution, its efficient resource management, and the avoidance of traditional operating

system licenses. Additionally, Linux can be tailored precisely to specific devices and industries and also provides a mature container ecosystem.

These are very strong arguments for its use in critical infrastructures where systems have to run 24/7 and hardware costs and energy consumption play a major role. For this reason, many users are choosing Linux as their platform for running SCADA systems, HMI solutions, and edge computing.

ZENON ON LINUX AND HIGHLIGHTS OF VERSION 16

COPA-DATA has been investing in Linux support for zenon for many years. zenon Service Engine for Linux has been available since version 12 and its functionality has been expanded with each new version. zenon 16 introduces, for example, two features that are very important for sovereign and highly available architectures.

First, zenon now supports network redundancy under Linux. Redundant zenon networks ensure that critical systems continue to run even if a server instance fails – this is a key aspect for ensuring a high level of uptime in control and automation systems.

Second, remote transport is also available under Linux. This allows projects and configurations to be transferred from Engineering Studio to Linux-based Service Engines in a controlled manner. In distributed or containerized infrastructures, this significantly simplifies rollout, updates, and system maintenance.

For the current functional scope of zenon on Linux, please see the info box on page 31. What's more, the supported Linux features continue to expand, enabling more and more core automation tasks to be implemented on an open and flexible platform.

LAYING THE FOUNDATION WITH CONTAINERIZATION

Another important building block for flexibility and, therefore, digital sovereignty is the use of containers. They bundle applications and all the requisite components into isolated, portable units. Linux is the standard platform for containers, making it an essential part of modern, software-defined automation.

zenon follows the standards of the Open Container Initiative (OCI). This allows zenon containers to be run on various runtime environments, such as Docker or other OCI-compliant platforms. Application logic, SCADA functionality, and IIoT Services can thus be deployed reproducibly from the test environment to the field, without being tied to specific device models.

When zenon is run in containerized Linux environments, SCADA systems, soft PLCs, and IIoT Services can also run directly at the edge. This strengthens digital sovereignty: because the software becomes independent of specific hardware generations, it can continue to operate and be migrated over the long term.

FROM CONCEPT TO REAL-WORLD APPLICATION

The benefits of Linux and hybrid architectures become particularly evident in real-world projects. The following scenarios provide an overview of two already implemented projects and their backgrounds.

Scenario 1:
Software-defined automation at the edge

There was a need in a regulated production environment to reduce dependence on proprietary controllers and a central Windows SCADA station. The goal was to map as much functionality as possible directly onto standardized edge devices, strengthening the software-defined approach to automation.

For this purpose, the zenon Service Engine was deployed in containers on Linux-based industrial devices. Control tasks now run directly on these devices as a soft PLC using zenon Logic while, at the same time, they handle SCADA functions such as alarms and archiving. Process data is then transmitted to higher-level systems via process gateways and IIoT Services.

The legacy environment, which consisted of different PLC types and a separate SCADA PC, has been replaced by standardized Linux edge devices running containerized zenon applications. This step has reduced hardware costs and complexity. It also gives the operator more freedom when choosing devices and operating systems.

Scenario 2:
Networked substation system – migrating critical components to Linux

As part of a multi-site project in the energy sector, the plan was to migrate substations to a more stable and secure platform. The systems needed to have a high level of uptime with long lifecycles, which made the choice of operating system especially important.

The long-term goal was for the entire project to run on Linux. Initially, a hybrid architecture was implemented: central automation tasks, including data acquisition, logic, archiving, and communication, ran on Linux servers with zenon Service Engine while, the user interfaces and visualization remained on Windows clients connected to the Linux process servers via the zenon network.

This allowed critical services to be removed from the Windows environment while the familiar HMI could continue to be used. At the same time, the architecture was designed so that the HMI could later be migrated to Linux.

HYBRID ARCHITECTURES – THE BENEFITS OF ZENON

Digital sovereignty doesn't necessarily mean completely replacing Windows with Linux. Often, a hybrid architecture is the most pragmatic approach: both systems are used, and each company decides for itself how far and how quickly it moves toward Linux.

zenon supports this approach particularly well. An engineering project designed with Linux compatibility in mind can run under both Windows and Linux. A Linux-based process server supports Linux and Windows clients at the same time on the zenon network. With network redundancy under Linux (version 16 and higher), the solution also provides high availability, while remote trasnport ensures efficient deployment on the Linux side. Containerized Linux installations can be run in parallel with conventional Windows installations, while maintaining a consistent engineering view.

This creates flexible migration paths – from the gradual relocation of individual services to largely Linux-based systems. zenon projects are not tied to a single operating system and that strengthens zenon users' long-term independence.

OUTLOOK

Linux's open, community-driven development model is well suited to the long lifecycles, security requirements, and flexibility needed in industrial automation. With each new zenon version, more functionality – from edge containers and redundant networks to efficient remote transport – can be migrated to this open platform.

Future developments will focus, in particular, on expanding visualization and UI capabilities under Linux and further refining hybrid scenarios. In a world where digital sovereignty is becoming increasingly important, pairing Linux for automation use cases with zenon's multi-platform strategy offers a toolkit that makes companies independent, adaptable, and free to act over the long run.

FUNCTIONAL SCOPE OF SERVICE ENGINE ON LINUX

The following functions are supported by zenon Service Engine (version 16) for Linux operating systems:

- Service Engine
  - Read values
  - Write values
- Logic Service
- Equipment modeling for the supported services
  - Filtering of alarms and events
- Alarm administration
- Historian
- User administration
- Chronological Event List
- Selected functions and scripts
- Selected system driver variables
- Selected zenon drivers, zenon Logic fieldbus drivers, and Process Gateway
- Redundant zenon network for Linux container-supported services (NEW in zenon 16)
- Remote transport for transferring and retrieving zenon project data to and from Linux containers and Windows clients (NEW in zenon 16)
- Variable identification for Smart Objects (NEW in zenon 16)
- Reaction matrices
  - Limit value breaches via reaction matrices
  - All types of reaction matrices (multi and "simple")
- Allocations
- Simple client-server model in the zenon network for Linux-supported services
- All the services that are part of zenon IIoT Services
- Device Agent
- Diagnosis Server



DOMINIC VOITHOFER
Product Manager

Dominic Voithofer has been with COPA-DATA since 2024. In his role as product manager, he works with his development team to add and enhance features in Service Engine, particularly for Linux systems.

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MY DATA. MY DECISION!

Digital sovereignty starts with your own production data. It is a valuable asset – as long as the data is accurate, secure, and usable. With zenon, your business decides where data is stored and how it is used – whether locally on your own network, via cloud-enabled technologies on your own Linux server, or in a private or public cloud. Wherever it is kept, it is protected by state-of-the-art security.

WHOEVER OWNS THE DATA OWNS THE CHOICE

Digital sovereignty starts with one's own data. In industrial automation, vast amounts of process, alarm, and event data are generated daily. Some information is only needed for current operations, while other data has to be accessible for years, for example, for quality assurance or to compare different production periods. As a result, requirements for data storage vary. The good news? zenon does not require a specific storage model. Customers decide for themselves which data storage solution best suits their application, infrastructure, and security requirements.

FREEDOM TO CHOOSE THE STORAGE LOCATION

zenon offers several options for recording and storing process-related data.

- Local binary files: For local applications, zenon can store process data in high-performance binary files. This storage method is efficient and does not require an additional database system.
- Company SQL server: Alternatively, data can be stored on a company's own SQL servers, meaning its own IT department is responsible for operation, maintenance, and security.
- zenon Data Storage: Available for centralized or multi-site data storage, it can run locally as a Windows service or in a containerized format using cloud technology on the company's own Linux servers or in private or public cloud environments. Container-based deployment using Docker is recommended, as it enables flexible, scalable architectures and supports orchestrated operation in Kubernetes clusters.

These options can be combined, for example, so that detailed production data remains local while selected information is centralized in zenon Data Storage and used for reports and analytics across sites.

DATA MUST BE COMPLETE AND ACCESSIBLE

Freedom to choose the storage location is not enough. Data is valuable only if its integrity is guaranteed and it is permanently accessible. In other words, it must be accurate, consistent, and usable at any time.

zenon supports consistent data acquisition, even during disruption. For example, if the connection to the central database server fails, data is cached and subsequently updated once the connection is restored. Network redundancy using a standby server allows recording to continue even in the event of a server failure. Missing values or values that cannot be correctly assigned in time can distort reports and

analyses. Data integrity is, therefore, an essential prerequisite for being able to use data with confidence.

FREEDOM NEEDS PROTECTION

Data sovereignty also requires data to be protected as it travels between machines, servers, and storage. To achieve this, zenon deploys state-of-the-art security technologies. Certificates enable the reliable verification of the participating systems' identities and the establishment of trusted connections. TLS-encrypted transmission protects data against unauthorized interception and tampering. This is particularly important when data is transmitted across network or site boundaries, for example, to a cloud environment.

CONNECTING AND CONTEXTUALIZING DATA

A single measurement value often reveals little on its own. It only becomes meaningful when linked to other information. To which machine does the value belong? In which batch did a nonconformance occur? Which alarm was triggered? And what was the reason given? zenon links process data with technical and operational information, such as variable metadata, batch and shift details, alarm groups, or causes of recorded alarms. In this way, an anonymous temperature reading becomes the temperature of a specific piece of equipment during a particular batch – enabling data to be filtered and analyzed selectively.

FROM STORED DATA TO MEANINGFUL INFORMATION

Stored and contextualized data provides the basis for trends, reports, and advanced analytics. It helps to uncover previously unknown relationships: why is a production line's energy consumption rising? Under what conditions do deviations in quality occur? Is there a recurring alarm pattern?

To this end, zenon provides current and historical process data, alarms, events, and metadata. zenon applications and third-party systems can selectively access the information required via standardized interfaces, such as REST or GraphQL.

Companies also retain control over the use and sharing of data. They decides which information remains internal, which is made available across locations, and which is released to external systems. Open interfaces facilitate integration with existing system landscapes and help reduce dependency on individual platforms or providers.

Data analytics and reporting turn stored data into valuable resources for decision-making. zenon Trend Visualizer enables users to create interactive analyses of trends over time, correlations, and nonconformances. zenon Report Engine prepares information tailored to specific target audiences, such as detailed production analyses for production managers, quality reports for quality management, or KPI reports for senior management. This transforms stored data into reliable, reproducible information.

THE DECISION REMAINS WITH THE BUSINESS

Digital sovereignty does not mean having to operate all infrastructure in-house or doing without cloud technologies. It means being able to make informed choices – even as data volumes grow, new locations are added, or technical and legal requirements change.

In this spirit, zenon provides businesses with an end-to-end data environment that spans the entire process – from data collection on the production floor through long-term storage and contextualization to visualization, analysis, and reporting. Local and centralized solutions can be combined, as can on-premises infrastructure and cloud environments.

The company decides for itself which architecture to use and who is authorized to access the data. This ensures that the key decision remains where it belongs: with the company that owns the data.



THOMAS LEHRER
Product Manager

Thomas Lehrer has been with COPA-DATA since 2011. He initially worked in consulting before moving to product management, where he is responsible for developing Report Engine, parts of IIoT Services, and the setup program. In addition, he is currently the product owner for several new development projects. True to the saying, "If you want to reach the horizon, you have to leave the familiar shore" (author unknown), Thomas loves embracing new challenges.

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SOFTWARE-DEFINED EVERYTHING

Another buzzword to catch your attention? Could it be that everything is shifting to "software-defined"? What about an electrical substation? And for what purpose? We've talked a lot about virtualization over the past few years – how does that relate to being software-defined?

I confess: I love cars. If you are also a car enthusiast, you probably caught the recent announcement from Volvo. It's the first legacy carmaker to reach the highest level of software-defined vehicle capability. This strategy enables the company to provide continuous improvements over the whole of the vehicle's lifecycle while maintaining control and ownership over the core of the machine. The equipment remains the same, but the behavior can be adapted. Perhaps a new algorithm is released for better detection of pedestrians, or a cybersecurity update to prevent hacking. Everything can be updated continuously and remotely. Despite possible concerns about reliability and privacy, the potential advantages are huge.

VIRTUAL OR SOFTWARE-DEFINED?

Software is used to communicate and execute functions on hardware. For example, the straton software-based programmable logic controller or soft PLC – also known as zenon Logic – enables users to implement automation capabilities on any electronic device. Let's imagine, you have your own equipment, with inputs (buttons, etc.) and outputs (LEDs, relays, etc.). You put the software on it, and it becomes a PLC. This magic has taken place since 2002!

If you abstract the hardware hosting the software – which can be a Windows PC or any electronic card with memory – what is running on the machine can be a virtual PLC, a virtual RTU, a virtual IED, or a virtual version of whatever is functionally required.

Virtual substations follow the same principle. Many articles have already been published about this, often linked to the concept of software-defined substations. This isn't a change so much as an evolution – a broader way of thinking. While software has been used to virtualize specific functions, as we progress to software-defined substations we can now view it as akin to the overall system's brain. It's not only managing a part of the substation functionalities but orchestrating it; analyzing its environment and taking appropriate decisions. Simply put, software brings intelligence to machines.

HUGE POSSIBILITIES, YOU SAY?

Most physical devices can be virtualized through coding and algorithms: sensors, actuators, devices executing specific functions, and so on. Once a digital twin is ready, developments, testing, and validation can be run in laboratories, saving space, hardware costs, traveling, and a lot more!

After the system is commissioned, as technologies and techniques evolve, new updates can be developed, validated, and deployed remotely, either to the whole the software or, even more efficiently, to just parts of it. An update could be a new algorithm to reduce energy consumption, optimizing and securing the way the system works. Perhaps it closes a recently detected vulnerability. Or it might bring new features to pre-existing hardware interfaces.

When it comes to hardware malfunction, the software – or a part of it – can be automatically isolated and transferred to backup hardware. This enables continuous operation while maintenance is carried out. Finally, well-made software will be hardware-agnostic. This

pays dividends when migrating to another hosting machine or connecting to external resources. If it happens to be the case that physical devices are no longer available or need upgrading, "the brain" can be migrated more easily, without the need to restart the whole project.

KEEP ON RUNNING

Having a software-centric approach enables continuous updates, so systems can keep pace with quickly evolving technologies. This also results ub shorter deployment cycles.

The combination of rapid deployment and the option for continuous updates presents an opportunity to extend the overall product lifecycle indefinitely. The software can be updated whenever it needs to be and, when it comes to the hardware, virtualized functionalities can be isolated and duplicated on replacement hardware, allowing operational continuity without disruption. It›s like changing your phone: you simply reconnect to your account and sync everything to the new device. A much quicker and easier experience – and an ecosystem built to last forever.

DIGITAL SOVEREIGNTY

Often, software is installed on machines that are sold as black boxes with few possibilities for custom programming and extensions. Perhaps this is done to drive "loyalty", but it also creates built-in obsolescence. For hardware manufacturers, the ideal world is to have all the source code necessary to build the software running on the machine, allowing maximum adaptability to users' needs. For software users, flexibility, versatility, and openness are priorities.

This is where digital sovereignty becomes important. And it can only be achieved through versatile, open, adaptable tools. Ideally, they should be designed for diverse industry sectors and support standard languages such as IEC 61131-3 or Python for programming, standardized configuration files like SCL, and widely used communication protocols including IEC 61850, IEC 60870, OPC UA, Profinet, and Modbus. Open standards create the right conditions for greater digital sovereignty, more flexibility, and increased customer choice.

NEXT-GENERATION SYSTEMS

While legacy systems were built to last for decades with only hardware maintenance, new systems aim for unlimited evolution. Phones, cars, trains, PLCs, RTUs, SCADA systems, firewalls, electrical substations – all should evolve. Today it's rare to find systems stuck on a particular version, requiring users to swap them out completely if something goes wrong. User expectations have changed.

"Software-defined" is not just another buzzword. Along with digital sovereignty, it is essential for the future.

PS: Hardware, I still love you! Like a car's operating system, software cannot live without a host, appropriate power, functionality, and interfaces.

ABOUT STRATON

straton is a hardware-agnostic solution that brings automation and communication functions to any electronic platform. Thanks to this capability, straton Runtime is often linked to a soft PLC or virtual PLC, transforming a standard system into a programmable logic controller. The application is coded in the straton IDE, using IEC 61131-3 or Python languages, while communication is carried out via protocols such as Modbus, Profinet, OPC UA, IEC 61850, or IEC 60870.

Over time, straton has evolved into a more general-purpose automation solution, implemented not only in classic PLCs but also RTUs, embedded systems, intelligent controllers, edge devices, and even digital substations!

Find out more about straton at:
https://www.straton-plc.com/en



ANTHONY BURILLE
Managing Director
STRATON AUTOMATION

Anthony Burille leads the company responsible for the development and sales of straton worldwide. With over 70 active customers, straton is used across a wide range of industries and countries. By bringing the „Logic" part to zenon, straton makes the software platform a unique solution on the market.

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MEET OUR ZENONEERS

Who are the people using zenon to create outstanding projects in a range of industries? In this series, COPA-DATA introduces them. One of these zenoneers is the electrical engineer Herbert Schrobenhauser, who is responsible for control and process automation technology at Adelholzener Alpenquellen GmbH. He has been with the company since 1990 and has been working with zenon since 1995 – or, in zenon terms, since version 2.20.





ABOUT HERBERT SCHROBENHAUSER

Mr. Schrobenhauser, what is your area of expertise that your colleagues value you for?
Clearly, my years of experience and background knowledge. Many pieces of equipment were purchased when I was already with the company, so I know every pump and every valve. When the pressure is on, younger colleagues, in particular, appreciate my extensive knowledge.

What does your typical workday look like?
Thanks to my long tenure with the company, I've become an all-rounder over the years. As a result, I might get a last-minute call to fix problems on short notice.

My main job isn't actually to configure zenon but rather to optimize and troubleshoot our production systems; the goal here is to create transparency. This is where the integration of production and consumption data into zenon comes into play: I get inquiries almost every day about which production values and consumption data are available and where the data can be accessed. People also frequently ask whether this data can be processed or aggregated and whether additional data sources can be integrated in zenon.

ZENON IN ACTION

What is zenon used for at Adelholzener Alpenquellen?
zenon is used as a SCADA system across a wide range of areas, from wells and line management to wastewater treatment plants and building management. Here, variables are most often configured for monitoring heating, ventilation, and compressors; switches can be operated remotely; and consumption data can be retrieved right down to the machine level.

Can you describe the project in terms of numbers?
We have configured a total of seven zenon servers; these are integrated in a virtual machine (VM) environment. We run a zenon Smart Server Pro for 50 users, allowing 50 clients to access the system simultaneously. Across the seven projects, a total of approximate'y 50,000 data points have been added. Line management

currently includes nine filling lines: three each for glass, single-use PET, and reusable PET.

When did you first encounter zenon and what did you like about it initially?
We first heard about COPA-DATA by word of mouth. In 1995, the most important selection criterion was that zenon ran on Windows, as comparable systems at the time still ran on DOS. Proximity was also important to us.

And today, what do you like about zenon and working with COPA-DATA?
The family business's flat hierarchies and excellent support. The team is quick to respond when finding solutions or dealing with issues, although such issues rarely arise.

How does zenon make your everyday work easier?
In our case, zenon could be described as a "data collector". Data can be retrieved directly in zenon or analyzed using higher-level systems, for example, for ERP or wastewater treatment plant documentation. This allows all teams, including maintenance and controlling, alongside production, to benefit from the data collected.

What is your favorite feature in zenon?
For me, it is clearly the speed at which archive data can be accessed. It makes no difference whether the data is offloaded to SQL or not. I can instantly and easily find out what happened yesterday, last week, or last month.

Which solution have you implemented using zenon that you are especially proud of?
Last fall, we upgraded all applications from zenon 12 to version 15. The changeover took place on a single weekend. By Monday morning, the applications were fully operational again. Production operations remained unaffected, meaning we are now ready for new zenon features, such as the IIoT Services, which we plan to implement in the future.

What are you currently working on with zenon?
We are currently working on a redesign of all seven server projects to give them a consistent look and feel. Another goal is to enable users to access the specific information they need on screen with just three mouse clicks. This aims to make the project, which has grown over the years, even more user-friendly.

What is your advice for other zenoneers?
We do not work with a system integrator. Instead, we handle the project planning ourselves alongside our other work. This approach succeeds because a well-designed foundational structure makes adding extensions relatively easy. If the project is set up properly from the start, using a consistent basic structure, many tasks become much easier later on. Standardized templates, a clean menu layout, and consistent naming conventions for variables, functions, etc., are helpful later when the project needs maintenance or has to be expanded.

ABOUT ADELHOLZENER ALPENQUELLEN GMBH

Based in the Bavarian Alps, Adelholzener Alpenquellen GmbH provides mineral water and numerous soft drinks under the Adelholzener and Active O2 brands. With a workforce of around 750 employees, the company ships approximately 709 million bottles of mineral water and soft drinks annually. It is wholly owned by the Congregation of the Sisters of Charity of St. Vincent de Paul. Given this background, sustainability has long been an integral part of the company's operations.[1]



[1] Read more: https://www.adelholzener.de/unternehmen/

CLEMENS CONNECTED

WHEN YOUR ANALOG DATA BECOMES DIGITAL



MARK CLEMENS
Product Manager
Connectivity

Mark Clemens has been at COPA-DATA HQ since 2002. In his current role, he is a Product Manager for connectivity topics. As an expert in cybersecurity, he helps connect IT, OT, and IIoT while keeping security in check. As a frequent IU author, he shares his views on the buzzwords of our time.

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If you find yourself having trouble wrapping your head around the concept of digital sovereignty and what it means for your business or your personal life, you are not alone.

Imagine two growing teams in one company working together on the challenge of improving communication, transparency, and collaboration toward common goals. Team members come from different countries. The two teams get together in a nice physical location outside the work environment to participate in a focused workshop.

To enable a structured and effective brainstorming session, traditional frameworks are used. Ideas are collected individually using classic tools like notecards and markers. The cards are posted on pinboards or whiteboards to make clustering and prioritization easy. Individual team members may also take their own notes on the notepads provided. To avoid bias and facilitate effective organization, the workshop is facilitated externally by several people from a company with offices in three different countries.

WHAT IS DIGITAL?

The "work produced" at the workshop – clustered ideas, summaries, key learnings, action items assigned to different people – at this point is not digital. Ink on paper lacks a digital representation.

In its legislative drafting guidelines, the EU does not directly define the term "digital" as a standalone term. It is rather used as a descriptive adjective, as in "digital content" or "digital services". The EU Data Act (EU 2023/2854) defines data as "any digital representation of acts, facts or information and any compilation of such acts, facts or information, including in the form of sound, visual or audio-visual recording". Under this definition, the work produced is not even considered data.

WHAT IS SOVEREIGNTY?

When the work produced takes the form of handwritten records, it must be considered under analog data sovereignty. Its jurisdictional bounds are the local laws of the room, building, or country where it resides. There is absolute physical control over how the analog data is stored, accessed, moved, and governed. The only legal controls that are likely to apply are the conditions of any NDAs that have been signed or terms of employment.

Physical control changes, however, if the two teams fail to collect the work after the workshop. The external company running the workshop may collect the handwritten records... and take them across a border into a different country, affecting the analog data's sovereignty. Or the location hosting the workshop may take possession of the work left behind and dispose of it at an unknown location. Team members traveling back to their home country may also take their handwritten notes across borders into a different jurisdiction. Through all this, only analog data rules apply.

THE PHOTO PROTOCOL

Things change if the external company facilitating the workshop takes photos of the work using a digital camera (for our younger readers: there used to be analog cameras!). The "photo protocol" now comes into play.

The digital camera – perhaps housed in a smartphone – provides convenient features. It may append GPS coordinates to the photo metadata. It may allow for an automatic upload for backup purposes. It may perform text recognition, so that the moderators don't have to transcribe the text captured in the photo for themselves. An LLM might be used to create automatic summaries of the recognized text and produce digital tasks for action items. And a group photo of all the participants from the two teams, taken during the workshop, may be subject to some automated form of facial recognition.

Suddenly, jurisdiction and sovereignty become much more complicated. The work produced has become "data". A digital photo is not "just a photo". An automatic backup may end up in cloud storage somewhere. Value-adding smart features are not executed on the smartphone itself, but on third-party cloud computers. What is retained after this processing? Where is it stored? LLMs processing the text may use it for training purposes. Team members may have taken photos of the work produced using their private smartphones – complicating matters further. The photo metadata with the location information and the IP address from which the photo was uploaded, combined with facial recognition and publicly available company photographs, enables a direct link between the work produced and the company that held the workshop.

Of course, we know all this – but tend to think little about it. We may consider ourselves "paranoid" if we give it too much thought. But it doesn't take much to imagine an agentic AI recognizing the brilliance of the work produced and automatically filing a patent on the idea on behalf of its owner or itself! Or search engine results or social media feeds changing their output for individuals recognized in the workshop. Or recruiting agencies providing tailored offerings for particular participants based on the content and context of the workshop…

WHEN ANALOG SIGNALS BECOME DATA

Taking off the tinfoil hat does not mean that we don't have to care about our data. And this is true of our other working environments too.

In industrial environments, analog-to-digital converters – typically housed in semiconductor integrated circuits – turn voltage levels into a digital zero or one for an input or sample signals to produce analog inputs. Further digital components with corresponding configuration and communication are required to make the digital information available to other components, such as a (virtual) PLC, HMI, SCADA system, or historian. This data often does not leave the building. In this context, data sovereignty and digital sovereignty mean owning and controlling the signals of your industrial process, and being able to control access and choose which data may be shared with other components. But it also means vendor independence and open access, to ensure you keep your data when the contract with the vendor ends and you switch to a different provider.

Like smart whiteboard markers that support the digitization of text as you write, the products that we use for our automation needs will become even smarter in the future. We need to think consciously about how we use their capabilities and root our practices in good data governance and compliance with applicable laws and regulations.







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DEGREES OF FREEDOM FOR ENERGY AUTOMATION

How do energy companies achieve the flexibility needed to build, modernize, and expand their assets and systems? Learn about the key factors that help them maintain sovereignty.

NAVIGATING THE INDUSTRIAL LANDSCAPE

Against a complex backdrop shaped by geopolitical dynamics, the energy transition, and socio-economic upheavals, energy companies face the challenge of modernizing and expanding grids and systems, as well as maintaining and improving service quality and availability. The signs of strain are clear to see: grids at capacity, long wait times for grid connections, and the high cost of building and maintaining expanding fleets of facilities, to name just a few examples. Added to this are the ever-increasing regulatory requirements for new applications and markets, as well as the emergence of new technologies and new value chains.

IDENTIFYING AND REMOVING DEPENDENCIES AND OBSTACLES

Energy companies, therefore, face a particular challenge in investing their funds and resources in the right initiatives while anticipating and de-risking a range of variable factors. The initial concept is rarely the one that ultimately prevails. Often, assumptions must be revised, new circumstances and lessons learned must be accommodated, and models may have to be redesigned entirely. Ensuring that an organization has the degree of freedom needed to actively adapt under these conditions is a strategic task. And it presents those responsible with a wide variety of questions:

- How can I avoid or resolve dependence on a single supplier?
- How can I reduce the onboarding time for my tech team?
- How can I avoid the loss of critical know-how?
- How can I use standardization effectively to optimize costs and processes? Where are the limits?
- How can I shorten the implementation time for necessary enhancements?
- How can I develop new approaches and test them effectively under real-world conditions?
- How do I maintain control over my data and processes?
- How can systems be kept up to date with the latest technology?
- How can I increase my options regarding technical alternatives?
- Make or buy? What is the best solution?
- How can I ensure, on a technical level, that I can systematically expand my business?

Arriving at answers to these questions requires a systematic analysis of the entire corporate mission – and an understanding of how far obstacles and dependencies could jeopardize it.

STRATEGICALLY ENSURING FLEXIBILITY WITH ZENON

Independence is a core value of the COPA-DATA community. For almost 40 years, we have supported energy companies navigating the complex interplay between 24/7 availability and modernization. This independence is reflected in many aspects of the zenon software platform.

- **Technology-agnostic connectivity**
  The zenon software platform provides a universal networking solution with over 300 natively integrated communication protocols and open interfaces for application-specific integration with third-party systems. Both field devices and higher-level systems, such as control centers, central enterprise applications, or web and cloud services, can be flexibly integrated.
  zenon benefits at a glance:
  At no point during the plant lifecycle will there be a one-sided manufacturer or technology lock-in. Supplier selection is not based on history but on relevant technical and commercial parameters. When expanding operations, new devices and systems can be integrated seamlessly in existing applications. Both hardware-based and virtualized concepts can be integrated flexibly.

- **Platform-independent hosting**
  Modern energy applications need to map to different levels of the technology stack. This is where numerous technologies come into play. While deterministic, tightly integrated ("embedded") solutions still dominate at the lower end, virtualization has long since taken hold at higher levels. The field of software-defined automation, in particular, is highly dynamic, with multiple providers. With zenon, companies keep all options open to and can leverage the strengths of a wide variety of hosting and operating system providers.
  zenon benefits at a glance:
  zenon provides a platform-neutral portfolio of solutions at all levels. zenon Service Engine, zenon Logic, and zenon IIoT Services can be operated modularly on Windows and Linux-based hosts. Whether on-premises or cloud-native, all components can be placed where they best contribute to the stability and availability of a solution within the architecture. In addition, zenon is developed according to the criteria of the Open Container Initiative (OCI), thus adhering to the standardization of important container formats and operating systems. The main focus here is on independence from hardware or operating system manufacturers, cloud providers, and hyperscalers. Both architectures and engineering content can be transferred and extended to any supported operating system platform without additional cost.

- **Open standards and data models**
  Standards provide guidance for users and manufacturers, laying the foundation for cross-manufacturer solutions. Depending on the type of standard, specialized tools are built to simplify the development and maintenance of a system. A particularly important example is the IEC 61850 series of standards for digital substations. Through consistent standardization and application-oriented design of communication protocols, data models, and functions, systems can be efficiently designed and implemented. Tools from various manufacturers use the same model for different tasks during development, testing, and operation.
  zenon benefits at a glance:
  zenon supports key standards in energy automation, including IEC 61850 for digital substations and SunSpec for renewable energy plants. This includes not only connectivity but also the ability to use data models to automate the engineering process and to organize and contextualize unstructured data. This simple and open approach to standards enables you to optimize automation solutions more flexibly.

- **Compatibility, modularity, and scalability**
  Conventional automation software often struggles to meet today's demands for flexibility and scalability. As a result, overburdened development teams eventually find themselves focused solely on maintaining operations. Engineering data often has to be abandoned. In this environment, the idea of expanding systems and introducing new solutions becomes incredibly difficult, and innovation stalls. It's here that the zenon principle of "there must be an easier way" truly comes through for customers.
  zenon benefits at a glance:
  zenon Engineering Studio enables customers to manage multiple projects based on different versions centrally in one workspace. Depending on the installed base of zenon Service Engines, projects are compiled and transferred in the most recent compatible version. At runtime, different versions of zenon Service Engine can interact with each other as servers or clients. This allows selected parts of an architecture to be updated and extended while leaving other parts untouched. In addition, functional areas can be designed separately, and extensions can be developed and deployed independently. Flexible multi-server/multi-client networking and the integration of IIoT services enable the efficient setup and scaling of end-to-end solutions.

- **IT/OT integration and cybersecurity**
  Increasing digital integration and networking, coupled with growing fleets of equipment and the dynamic adaptation of systems, call for new management methods. The IT department can play

a leading role in meeting this challenge. To support an energy company's growth, modern automation systems must be integrated as effectively as possible with existing IT administration and security tools.

zenon benefits at a glance:
Both zenon Device Management Service and zenon Engineering Studio enable customers to integrate a wide variety of solutions into established IT operations. In addition, zenon supports efficient zero-touch deployment to set up geographically distributed applications easily and securely. With SNMPv3 support, not only can customers integrate zenon with existing IT network monitoring systems, but they can also use zenon to monitor devices on a local network. Supporting certificate-based encryption and authentication according to IEC 62351, zenon offers state-of-the-art security methods. Support for TLS 1.3, starting with zenon 16, already protects solutions against the predicted performance demands of quantum computing for data decryption. Moreover, zenon supports the operation of a central security information and event management (SIEM) tool by, for example, reporting relevant events via a SYSLOG gateway.

– **Complex systems and human enablement**
Applications are becoming increasingly complex in all industrial sectors. Solutions for renewable, grid-connected energy systems must be able to effectively manage the interplay between generation, storage, and grid feed-in. For substations, the challenge is to continue to manage existing brownfield components while introducing digital and virtual systems. In these hybrid applications, development and operations teams are faced with managing a wide range of systems and technologies.

zenon benefits at a glance:
zenon integrates the widest variety of systems seamlessly. Thanks to end-to-end connectivity and the ability to quickly visualize any processes, customers can implement energy and infrastructure solutions without in-depth prior knowledge. For the user, this results in a consolidated front end. No special programming skills are needed to customize and extend applications. This eliminates unnecessary barriers to implementing ideas and suggestions from live operations directly in the application. It also prevents the formation of knowledge silos and developer monopolies. zenon frees developers and operators to actively add their knowledge across disciplines to further develop solutions in line with the company's vision.

The examples above show some of the factors that can lead to a real flexibility problem for energy companies over the long term – and how zenon helps to overcome them. It is important to address these factors effectively to ensure the chosen solutions provide the freedom needed for real innovation.

SOVEREIGN – WITH ZENON

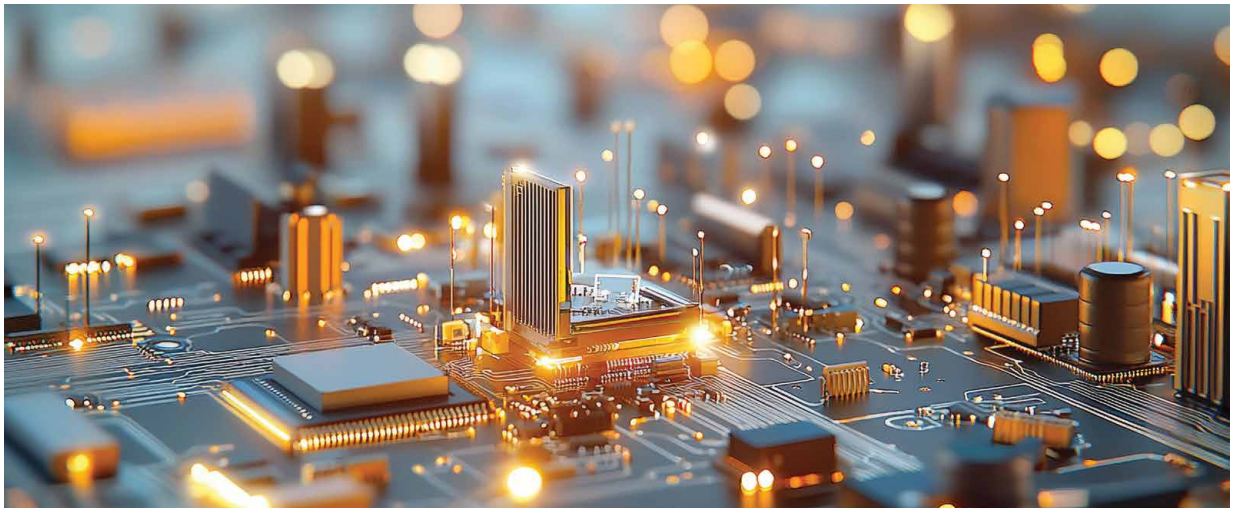
Investments should be used for more than maintaining existing patterns. Rather, they should facilitate new concepts and solutions. The zenon software platform supports you in many ways, helping you to stay independent and hold on to the freedom you need to achieve your vision and objectives with confidence.



STEFAN HUFNAGL
Industry Specialist Energy

Industrial automation is the central focus of Stefan's professional career. After several years as an application engineer, he moved into innovation and product management. Stefan has been part of the COPA-DATA team since 2013. As a member of the Energy Industry Team, he deals intensively with the trends and challenges in this industry.

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WHO WILL BE IN CHARGE TOMORROW?

Digital sovereignty does not depend on whether technology comes from the cloud or from a control cabinet. What matters is who controls the hardware, software, data, and interfaces. Open architectures provide freedom of choice for manufacturing, energy, and plant infrastructure.

WHO WILL BE IN CHARGE TOMORROW?

The plant is running reliably, production is stable, room temperatures are correct, the substation is performing as required, and conditions in the laboratory areas are within specification. Digital sovereignty is the last thing on anyone's mind during these trouble-free day-to-day operations.

The importance of digital sovereignty doesn't become apparent until conditions change, for example, when hardware is discontinued, supply chains falter, new security requirements come into force, systems need to be more closely networked, or data is to be used for new applications.

Then, technical architecture becomes a strategic management issue. How many decisions can a company make for itself? And how many are dictated by its technological ecosystem?

Digital sovereignty does not mean developing every component in-house. It means being able to make technological decisions independently, today and tomorrow. If you do not control your architecture, you will not control your digital transformation in the long term either.

FREEDOM OF CHOICE BEGINS WITH DECOUPLING

A key starting point is the decoupling of software and hardware. Through software-defined automation, control functions are increasingly being separated from dedicated devices. OpenDCS (= Open Distributed Control System) and OpenBMS (= Open Building Management System) initiatives bring this transformation to life by moving away from rigid, vendor-specific structures toward modular, open, and interoperable architectures.

Virtualization and containerization open up new possibilities in this regard. Depending on the use case, automation software can be run on embedded controllers, industrial PCs, standard servers, virtual machines, or in containers. Containers encapsulate the application and its dependencies while utilizing the host operating system's kernel. As a result, they require fewer resources and simplify deployment across different platforms.[1]

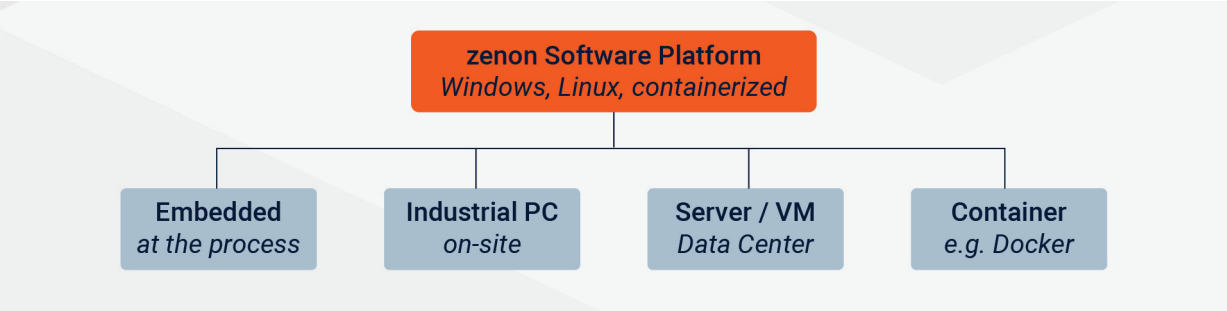
zenon follows this principle. In zenon, projects with components that are compatible with the Linux feature set can be deployed on both Windows and Linux using the same engineering files. At the same time, zenon supports containerized environments such as Docker.[2]

With zenon, the choice of operating system or hardware is far less critical. True flexibility arises where the choice of OS can be changed tomorrow without having to rebuild the entire automation solution from scratch.

OPENNESS REQUIRES A COMMON LANGUAGE

Hardware independence alone does not prevent lock-in. If data and functions can be exchanged only via proprietary interfaces, the dependency shifts from the hardware to the software level.

[1] IU44, „Linux in the world of automation software", pp. 27–28: containerization and resource requirements.
[2] IU44, ibid., p. 28: shared engineering files for Windows and Linux, as well as Linux/Docker support.



„Freedom of choice begins with decoupling“: software layer vs. hardware layer, with the options (Embedded/Industrial PC/Server/VM/Container) as interchangeable building blocks below.

That is why open standards are a fundamental component of digital sovereignty. The Module Type Package (MTP) describes building system modules in a manufacturer-neutral and standardized manner. Data objects, services, and visualizations are provided in a uniform manner and can be integrated into a higher-level control system.[3]

OpenBMS is also built on this concept. Existing and new building systems are brought together in a cross-disciplinary, open, and flexible manner. The aim is not to radically replace existing technology but to create an architecture that integrates with what already exists and leaves room for future requirements.

Autonomy does not arise from using as few technologies as possible. It arises from the ability to combine, replace, and further develop technologies from different manufacturers.

MULTIPLE INDUSTRIES, SAME CHALLENGES

In manufacturing, freedom of choice is a prerequisite for flexible production. New machines, existing plant, and components from different manufacturers must have the capacity to integrate quickly. Standards such as MTP and OPC UA, as well as software-defined and containerized runtime environments, help to decouple automation functions from individual hardware platforms and bring together heterogeneous plant landscapes.

In the energy sector, the basic principle is the same. Substations remain in operation for decades, while grid expansion, decentralized generation, and the move to digital systems are changing the requirements. Protection and control functions can be virtualized and decoupled from dedicated devices. This creates potential for better scalability, more flexible reconfiguration, and more efficient spare parts management. IEC 61850 provides a standardized framework for this.[4]

Plant infrastructure faces the same challenge. Buildings, laboratories, and utility systems must be modernized without unnecessarily disrupting day-to-day operations. Energy efficiency, operational safety, and regulatory requirements are driving this development. Existing facilities, different protocols, and heterogeneous hardware must be gradually transitioned into future-proof structures.

Whether it’s a production line, a building, a laboratory area, or a substation, the technology may vary, but the strategic question remains the same: how much freedom of choice does the operator retain when requirements change?

DATA SOVEREIGNTY MEANS BEING ABLE TO MAKE DECISIONS

Digital sovereignty does not end with hardware and software. Equally crucial is who controls a system’s data and where it is processed.

Data sovereignty does not mean storing all information locally or ruling out cloud technologies. What is important is that the company can decide where data is collected, processed, stored, and shared, and which functions are deliberately kept close to the process.

An industrial-control-as-a-service concept described in IU43 illustrates this idea: components can be organized centrally or in the cloud, while critical functions run locally on an edge device. If external communication fails, the critical control logic can continue to operate using local computing resources.[5]

This means the question is no longer “cloud or on-premises?” but “which function belongs where?” Cloud use and data sovereignty are not mutually exclusive. Dependency and digital sovereignty, on the other hand, are.

RESILIENCE BECOMES PART OF THE ARCHITECTURE

As connectivity increases, cybersecurity becomes more important. IT and OT converge while remote access and cross-system data flows become the norm. This creates new vulnerabilities, particularly in facilities where availability is non-negotiable.

Regulatory developments such as NIS2 and the Cyber Resilience Act are increasing the pressure to take cy-

[3] IU44, “Belimed Life Science: plug and produce for sterilizers“, pp. 48–49: MTP as a vendor-neutral standard and integration into zenon POL.
[4] IU44, “Virtualization of substations“, pp. 40–42: virtualization, hardware independence, and IEC 61850.
[5] IU43, “Industrial control as a service”, pp. 28–30: local critical functions in centralized or cloud-based architectures.



„Several industries, one question“: the pillars of our industries, all converging.

bersecurity into account throughout the entire lifecycle of systems and products. Security must be integrated into the architecture from the outset – not tackled as an afterthought.[6]

Open architectures do not automatically ensure security. They do, however, improve the conditions for replacing components in a controlled manner, fixing vulnerabilities, making data flows traceable, and responding to new requirements.

Sovereignty and cyber resilience therefore, pursue the same goal: preserving the ability to act even when conditions change.

ZENON AS A PLATFORM FOR FREEDOM OF CHOICE

For COPA-DATA, digital sovereignty is not a single feature. It stems from specific architectural decisions: open standards, hardware independence, controllable data flows, and flexible deployment models.

zenon combines traditional and software-defined automation. The platform supports the Windows and Linux operating systems, as well as physical, virtual, and containerized environments. At the same time, it enables the integration of established industry standards and heterogeneous hardware landscapes. Existing infrastructure can continue to be used while new technologies are introduced gradually.

Companies do not have to make a definitive decision today on what their automation architecture will look like in 10 years' time. Instead, the gold standard is to create a foundation keeps their options open for the future.

DIGITAL SOVEREIGNTY IN PRACTICE

Digital sovereignty is already evident in day-to-day operations. In an OpenBMS environment, zenon can serve as a unifying platform for the gradual modernization of sites. Existing PLCs can continue to be operated while older components are replaced in a planned manner or new embedded Linux controllers are added.

Not every system needs to be brought up to the same technical standard at the same time. Legacy systems can be connected via suitable interfaces, new controllers can be introduced in a targeted manner, and existing engineering expertise can continue to be used. This makes modernization more predictable, safeguards investments, and minimizes disruption to day-to-day operations.

Digital sovereignty is not a state that a company achieves on a specific date. It is the result of many architectural decisions. Companies that rely today on open interfaces, cross-platform solutions, flexible deployment models, and hardware-independent software keep their options open.

The crucial question is no longer "Which technology is the right one today?" but "How many alternatives will our architecture allow tomorrow?".



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[6] IU44, "Software-defined automation as the key to digital transformation", pp. 12–15: cybersecurity, NIS2, and the Cyber Resilience Act.

SUSTAINABILITY COLUMN

SUSTAINABILITY CALLS FOR FREEDOM OF CHOICE

Sustainability means making the right decisions today – and continuing to have the freedom to do so tomorrow. Read on to learn why digital sovereignty is an important prerequisite for sustainability – and why this goes beyond technology.

Manufacturing companies today face a twin transition. On the one hand, businesses need to make their production activities more sustainable. On the other, digital transformation is advancing rapidly. Both developments offer massive opportunities, but they also add complexity to the picture. Cloud or on-premises? Windows or Linux? Proprietary solutions or open standards? AI or traditional optimization?

The good news is that companies do not have to choose a single technology path. This idea is at the heart of digital sovereignty: to allowing businesses to make technology decisions independently and keep all options open for the future.

DIGITAL SOVEREIGNTY STARTS WITH DATA

When it comes to energy efficiency and the environmental impact of their operations, companies need to understand where energy is consumed, where emissions and waste are generated, and, above all, which improvement measures are effective. Sustainability always begins with this transparency. In fact, only what can be measured can be continuously improved over the long term. However, merely collecting data does not improve sustainability metrics; the crucial step is deriving concrete measures from that information.

Digital sovereignty creates the conditions for this. Those who maintain control over their data can be more creative in how they analyze it. Production and energy data can be combined, for example, to determine energy consumption per unit produced, to calculate the CO_2 intensity of individual products, or to align the operation of energy-intensive processes with the availability of renewable energy.

On this basis, it also becomes possible to identify opportunities for optimization, prioritize investments strategically, and objectively evaluate improvements. Sustainability thus shifts from a retrospective reporting obligation to a process of continuous improvement.

DIGITAL SOVEREIGNTY NEEDS OPEN SYSTEMS

Production facilities often consist of equipment and systems from a variety of manufacturers that have been production facilities have often been expanded and partially modernized over decades, and consist of equipment and systems from many different manufacturers. This diversity can present challenges for businesses. Sustainability information is often either unavailable or scattered across disparate applications, formats, and databases. Even when the data theoretically exists, companies cannot necessarily access it easily. Typically, machines and their associated data form a closed system that is difficult to access without the manufacturer's help. This not only makes it hard to integrate new technologies but also hinders the long-term sustainable use of existing equipment.



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Digital sovereignty hinges on interoperability. Open standards and vendor-independent interfaces enable users to consolidate data from a wide range of sources and put this data into a common context.

Only then does a complete picture of production emerge – ranging from energy and utility consumption and production metrics to quality and maintenance data. Linking this information reveals new insights and optimization opportunities that would be virtually unattainable with isolated data silos.

At the same time, openness reduces long-term dependencies. Businesses remain flexible and able to continue using existing equipment and systems while more easily integrating future technologies. This makes sense not only from a financial perspective but also in terms of sustainability. After all, sustainability is not only about using energy more efficiently. It is also about making meaningful use of existing investments for as long as possible. Open systems help companies upgrade their machinery and equipment over the years, rather than having to replace them too early. The most sustainable machine is usually the one that is already installed.

DIGITAL SOVEREIGNTY MEANS FREEDOM OF CHOICE IN INFRASTRUCTURE

Until a few years ago, many industrial applications were operated exclusively on-premises. Today, virtualization and cloud architectures have joined the mix and more technologies will follow in the future. A sustainable digital strategy, therefore, does not mean committing to a specific infrastructure. It means keeping the freedom, even in the future, to choose the infrastructure that best meets the specific requirements of a business. Depending on the application, this could mean Windows or Linux, public cloud or an in-house data center, containers or traditional installations, edge computing or the cloud. It is not a case of one infrastructure being inherently better than another; different requirements call for different solutions, and these requirements are constantly evolving. Sustainability means having the ability to respond to these changes.

However, sustainability and digital sovereignty do not always go hand in hand. While local edge-based processing reduces reliance on external data centers and providers, highly utilized hyperscale data centers with optimized cooling usually hold the advantage from a purely energy-efficiency perspective. The real benefit of local processing can be found elsewhere: in resilience against outages of external services and internet connections, as well as in independence from the short-term strategic shifts of individual providers.

DIGITAL SOVEREIGNTY CREATES FUTURE FREEDOM

Sustainability requires long-term thinking. Digital sovereignty also has long-term consequences. Both pursue the same goal: to maintain the ability to act and remain flexible.

The twin transition is characterized by constant change: new reporting requirements, new technologies such as artificial intelligence (AI), new regulations, constantly changing energy prices, alternative energy sources, and so on. Only those who are able to maintain control over their own digital transformation will have the flexibility needed to navigate this continuous process of change.

Openness will become even more important in the future. Technologies such as AI provide the greatest benefits where high-quality, standardized, and freely usable data is available. Paired with such data, AI can help forecast energy consumption, avoid peak loads, optimize production parameters, and much more. To set the course for this future, businesses must now invest in standardized data and open interfaces.

The twin transition is an ongoing process. No one knows today which technologies will shape industrial life in 5, 10, or 20 years. For this reason, it is essential to make decisions today that will not limit you tomorrow.

Sustainability means keeping options open for future generations. Digital sovereignty follows this same strategy in the digital realm, applying it not only to energy sources or production processes but also to data, standards, and digital infrastructure. As a result, technology independence becomes one of the most important prerequisites for sustainable industry.

DIGITAL SOVEREIGNTY AS THE FOUNDATION OF SUSTAINABILITY

Sustainability is often viewed solely as an environmental issue – for example, reducing CO_2 emissions, conserving resources, and minimizing waste. However, a closer look reveals that without control over IT and automation infrastructure, software, and data flows, any climate strategy remains incomplete. To be able to optimize, you must be able to measure. Data can lack reliability if held only in closed ecosystems to which businesses do not have unlimited access.

It is for exactly this reason that technology independence has become a prerequisite for sustainable activities. Only when businesses are able to use their data, systems, and infrastructures independently do they retain the freedom to continuously develop their sustainability strategies.



THE NEW IEC 61850 CONFIGURATOR IN ZENON 16

Less configuration, faster automation. The IEC 61850 Configurator in zenon 16 reduces engineering effort and supports top-down engineering. Read on to find out how.

AUTHOR: JÜRGEN RESCH, DIRECTOR OF INDUSTRY MANAGEMENT ENERGY

With zenon 16, COPA-DATA is introducing a completely redesigned IEC 61850 Configurator. The new wizard replaces the previous IEC850 Driver Configuration wizard, which will no longer be part of the product from version 16. The goal of this new development is to significantly reduce engineering effort and provide users with even more efficient support when configuring IEC 61850 communication.

Featuring a modern HTML-based user interface, the Configurator has been redesigned from the ground up. The focus is on consistent support for the IEC 61850 top-down engineering approach, without restricting the classic bottom-up workflow. Users can still manually create a driver and subsequently browse the data model of a connected IED or import ICD, CID, and other SCL files. This ensures that the familiar flexibility of existing workflows is fully preserved.

The greatest strength of the new Configurator lies in top-down engineering. Ideally, an SCD file containing all information about the system is available for this purpose. Alternatively, IED-related file types (CID, IID, etc.) can be used; in this case, only a few additional user inputs are required.

THE MAGIC OF CLIENTLN

The real added value and key innovation of the new Configurator come into play once an SCD file has been imported. The wizard automatically detects the ClientLNs. These are commonly used to establish a clear, static association between a server report and a specific IEC 61850 client such as the HMI. If one or more ClientLNs are present, the user can select the appropriate one(s). This prompts the automatic identification and preselection of the Report Control Blocks (RCBs) intended for the IEC 61850 client, which eliminates a significant portion of the manual configuration process previously required. If no ClientLN is present, the desired RCBs can be selected conveniently from the available RCBs. Redundant communication concepts are also supported as the wizard allows the selection of corresponding RCBs for the secondary connection. This step was overhauled completely in the new Configurator and developed together with user interface designers to ensure the behavior of the wizard is intuitive, stable, and transparent. This provides users with clarity and confidence during the configuration process.

INTEGRATED ZENON BEST PRACTICE

Even before the RCBs are selected, the Configurator follows a proven best-practice recommendation from COPA-DATA. A dedicated driver instance is created automatically for each connection. This concept has proven particularly effective in larger projects. If an error occurs on a connection, the affected instance can be isolated and investigated without affecting other communication connections. This approach is made possible by the parallelization of processes, a feature available since zenon version 8.

Once the RCBs have been selected, their properties can be configured directly in the wizard. This includes, among other things, trigger options and the definition of the source from which the respective RCB confi-

guration is to be adopted. This allows project-specific requirements to be taken into account during the engineering phase.

The next step involves selecting the process variables. Here, too, the new Configurator significantly reduces the effort required. Unlike the bottom-up driver import method, which presents the entire IEC 61850 data model, the top-down approach offers only those variables that are actually part of the previously selected RCB data sets. This eliminates the tedious task of searching for relevant signals. A powerful, high-speed filtering tool further enhances this step, allowing even large-scale systems to be managed with ease.

USEFUL VARIABLES ARE GENERATED AUTOMATICALLY

A proven feature from the previous wizard has been retained. Variables for monitoring communication failures can be generated automatically as an option. At the same time, the Configurator creates the corresponding reaction matrices. These variables allow communication states to be easily displayed and logged.

Once configuration is complete, the wizard automatically handles all remaining engineering steps. It creates the required driver instances, sets up and configures communication connections, generates the necessary RCBs and reaction matrices, and creates all selected variables. This establishes the application's complete communication foundation – allowing work on the rest of the project, such as visualization, alarming, and process logic, to begin immediately.

The Configurator remains a valuable tool even after initial commissioning. For instance, if the SCD file changes during the course of a project or if not all required elements were selected during the initial run, the wizard can be run again at any time. It automatically distinguishes between existing and new elements, allowing changes to be applied selectively without needlessly recreating existing configurations.

SUMMARY

With the new IEC 61850 Configurator, COPA-DATA marks another milestone in engineering for power automation systems. The wizard combines modern user guidance with intelligent automation mechanisms and fully leverages the capabilities of the IEC 61850 top-down engineering approach. The result is shorter engineering lead times, fewer manual configuration steps, and a significantly lower risk of error.

The new Configurator is a reliable engineering partner for projects of all sizes. It enables engineers to focus on the actual automation task rather than spend valuable time on repetitive configuration work. With zenon 16, COPA-DATA once again underscores its commitment to providing practical tools that sustainably simplify daily workflows in energy automation and further boost the performance of modern IEC 61850 projects.





ELEMENTAL STRATEGIC METALS BUILDS A NEW ENERGY STORAGE FACILITY

Elemental Strategic Metals Sp. z o.o. specializes in the recovery of strategic industrial and precious metals. At its state-of-the-art facility, the company combines innovative processing and refining technologies to recover metals from lithium-ion batteries as well as from automotive and industrial catalytic converters. It focuses on recovering valuable raw materials, such as lithium, cobalt, nickel, manganese, platinum, palladium, and rhodium, thereby supporting the development of sustainable industry. Elemental Strategic Metals implemented the zenon software platform to control a new local mega battery storage facility. This has optimized energy storage, grid stability, and the integration of renewable energy sources, while also yielding significant cost savings.

As a leader in the recycling of valuable raw materials, Elemental Strategic Metals exemplifies a responsible approach to environmental protection, emphasizing energy efficiency and waste minimization. A sustainable modern production system is necessary in the transition to an economy based on renewable energy sources. By integrating solar energy with energy storage systems, industrial facilities can generate their own power, use it to fuel production, and store excess energy for later use. This model not only helps reduce energy costs and risk, but it also minimizes the environmental impact of manufacturing operations. At Elemental Strategic Metals, the ability to store excess energy supports the transition toward more environmentally friendly and stable energy systems, while reducing CO_2 emissions.

MEGA BATTERY: A MODERN ENERGY STORAGE SYSTEM IN POLAND

One of the most modern battery energy storage facilities in Poland – and Europe – has been built in Zawiercie at the Elemental Strategic Metals premises. Thanks to the lithium-ion technology used, the energy storage facility has an impressive capacity of 14 MWh and a power output of 7 MW. The system consists of seven containers equipped with lithium iron phosphate (LFP) lithium-ion batteries. These provide efficient energy storage and improve the plant's energy stability. The newly constructed energy storage facility will optimize the factory's energy efficiency and generate significant savings, which Elemental Strategic Metals expects to amount to between PLN 2 million and 5 million annually.

OVERCOMING SYSTEM INTEGRATION CHALLENGES

One of the main challenges in implementing the energy storage system at Elemental Strategic Metals was adapting the energy management system (EMS) to the plant's existing infrastructure. A key element of this process was the development and implementation of an advanced Energy Management System (EMS). The EMS was designed and integrated by Elsta, a system integrator specializing in the fields of electrical engineering, automation, and power engineering. Since 2018, Elsta has been implementing systems based on COPA-DATA's zenon software platform. Elsta is an experienced partner in the implementation of modern solutions that support the digital transformation and optimization of industrial processes. The system at Elemental Strategic Metals was implemented in collaboration with Vast Energy and Integrale IT, using zenon.

The EMS covers the plant's entire electrical infrastructure. It is responsible for the comprehensive control and monitoring of a 12 MWp photovoltaic plant, covering an area of 9.6 hectares and equipped with 32 inverters and two transformer stations. In addition, the system manages a 7 MW battery energy storage system (BESS) with a capacity of 14 MWh, consisting of seven containers, 35 inverters, three transformer stations, and low- and medium-voltage switchgear. All infrastructure components have been integrated in a way that enables the effective management of electricity flow between the photovoltaic system, the energy storage facility, and the plant›s demand, while meeting a "zero export" requirement. This means that the energy generated on-site is used entirely locally, without selling any surplus to the power grid.

THE ROLE OF ZENON IN ENERGY STORAGE OPTIMIZATION

The zenon-based EMS plays a key role in optimizing the energy efficiency of the plant. zenon enables the automatic management of functions such as peak shaving, load shifting (shifting load from periods of high energy demand to off-peak periods), and time shifting. These native features enable significant improvements in energy efficiency and a reduction in operating costs. One of the system's standout features is its advanced reactive power compensation, which has been reduced to nearly zero. As a result, the plant has achieved greater energy stability, and its dependence on external energy suppliers has been significantly reduced.

zenon can operate in fully automatic mode, which minimizes the need for ongoing supervision. However, it can also be controlled manually from the operator console. This flexibility enables efficient energy management with minimal involvement from maintenance staff.

The high flexibility zenon offers made it easy to integrate devices of various types from different manufacturers throughout the production facility. zenon supports over 300 native, built-in communication protocols. These include IEC 60870-5-101/-104, IEC 60870-5-103, IEC 62056-21, DNP3, S7TIA, S7TCP32, Modbus TCP/IP, and RTU. As a result, the system can be expanded in the future regardless of manufacturer.

In addition, the use of redundant Ethernet rings and fiber-optic infrastructure ensures the continuity and reliability of data transmission. The company's team is also very satisfied with its collaboration with COPA-

> "The implementation of a zenon-based SCADA system at the facility has given us full control and transparent monitoring of the energy storage facility, the solar farm, and the medium-voltage switchgear. Thanks to the system's advanced features, we have a real impact on the operating parameters of the energy infrastructure and the ability to optimize operating schedules based on day-ahead energy prices. This translates into cost efficiency and increased process reliability."
>
> Wojciech Sorek, Industrial Automation Specialist, Elemental Strategic Metals



Left: The EMS system screen displays an overview and the operational status of three BESS sections along with their power converters in on-grid mode. Right: A chart showing the operation of the PV system and BESS provides a comparison of the active power of the sources and the batteries' state of charge on a daily basis.

Data, particularly the high level of technical support, which has enabled the optimization of trend charts on zenon Extended Trend screens. Thanks to the modifications made, the system operates intuitively, enabling real-time and historical analysis of the entire system's performance.

ECONOMIC AND ENVIRONMENTAL BENEFITS

The battery energy storage system (BESS) installed at Elemental Strategic Metals delivers tangible economic benefits in the form of savings amounting to PLN several million PLN annually. It also supports the company's sustainable development. Integrating energy storage with renewable energy sources, such as the photovoltaic system, allows for the efficient use of locally generated energy and minimizes the environmental impact. The energy storage facility can also be used to stabilize grid parameters, which improves power supply reliability and supports carbon neutrality goals. The benefits of the implementation are evident in both operational and financial terms.

Wojciech Sorek, Industrial Automation Specialist at Elemental Strategic Metals, explains, "The implementation of a zenon-based SCADA system at the facility has given us full control and transparent monitoring of the energy storage facility, the solar farm, and the medium-voltage switchgear. Thanks to the system'›s advanced features, we have a real impact on the operating parameters of the energy infrastructure and the ability to optimize operating schedules based on day-ahead energy prices. This translates into cost efficiency and increased process reliability."

In the future, similar solutions could serve as the foundation for building more sustainable and resilient industrial systems in the energy sector.

PLANS FOR THE FUTURE

Elemental Strategic Metals is already planning the next phases of its energy infrastructure development. Plans include the expansion of the existing energy storage facility, as well as the construction of a wind farm to further increase the share of renewable energy sources in the energy mix of the plant. The company also plans to connect the warehouse to the national power grid and to build a new facility – a copper smelter – which will significantly expand the its operations and production capacity.

Employees at Elemental Strategic Metals have completed zenon training to enable them to make even better use of the system's capabilities and tailor it to the plant's specific needs.

The company is continually expanding the system'›s functionality, with a particular focus on enhancing reporting (including the planned implementation of the zenon Report Engine, which will enable the integration of various data sources into a single, easy-to-read report) and on further increasing the flexibility of energy management.

The modular and scalable architecture of the zenon software platform aligns perfectly with Elemental Strategic Metals' strategy – enabling both horizontal and vertical expansion of the system, in line with the company's growing operational and production needs.

HIGHLIGHTS

The zenon-based EMS optimizes the flow of energy between the facility, the photovoltaic system, and the energy storage system:

- Integration with the plant's power system
- Control and monitoring of 14 MWh energy storage system with a power output of 7 MW
- Control and monitoring of a 12 MWp solar farm
- System flexibility and scalability
- Communication via zenon's built-in native communication drivers, including IEC 60870-5-101/-104, IEC 60870-5-103, S7TIA, S7TCP32, Modbus TCP/IP, and RTU
- Capability to operate in both off-grid and on-grid modes
- Implementation of peak shaving, load shifting, and time shifting functions
- Peak power reduction feature
- Estimated savings: 2 to 5 million PLN per year



POWER-ON IS NOT THE FINISH LINE

As governments and technology giants race to build new data centers to keep up with AI demand, data center power is emerging as one of the most important stories in energy – and in wider society – right now. How can operators safely bring new capacity online fast enough?

A SURGING DEMAND

AI data centers require immense amounts of energy to run the calculations behind AI systems and services. In the US, power availability is now one of the first questions in site selection. Projects that once began with land and fiber now often begin with a question for the utility: how much power can be delivered, and when? Demand remains intense in established hubs such as Northern Virginia, while development is spreading to markets with more available land and power. Long planning and grid-integration timelines are also pushing developers to reserve power earlier, consider dedicated on-site generation, and look beyond traditional data center hubs.[1]

In Europe, meanwhile, AI demand is driving record data center development[2] across the continent. AI-focused capacity reached 420 MW in the first half of 2026, up from 89 MW in the same period the previous year. The power concerns that accompany this high demand are leading developers to look outside the usual tech hotspots of London, Amsterdam, and Frankfurt. Southern Europe locations like Spain are favored for their cheaper, abundant renewable energy. Northern and Eastern Europe, including Finland, Estonia, and Poland, are also being prioritized for their abundant renewable energy and cooler climates better suited to cooling massive process loads.

In the race to bring AI capacity online and secure the electricity to power it, two challenges emerge. The first is the need to bring new capacity online securely but quickly, while optimizing operations to minimize their impact on already scarce energy and water resources. The second is to build operating models that can be repeated across future sites. Power-on is not the finish line. Business value is realized when capacity can be operated, trusted, and repeated.

FROM POWER-ON TO CAPACITY-READY

Data center power systems include many kinds of equipment: electrical switchgear, meters, UPS systems, generators, batteries, facility and building management systems, and supplier platforms. During design and configuration, teams must connect, secure, monitor, and control this diverse environment.

During commissioning, the customer and operator need to know that the power path is visible and alarms are working. Records must be available, access controlled, and the operating team ready to run and support the facility.

Power-on is an engineering milestone. Capacity-ready is the business milestone. A site becomes capacity-ready when the customer and operator can rely on it, not simply when electricity reaches the equipment. That transition has real economic value. The time between power-on and capacity-ready matters. For a large 50 MW expansion stage, even one month of delay can push back roughly USD 9 million in lease revenue.[3]

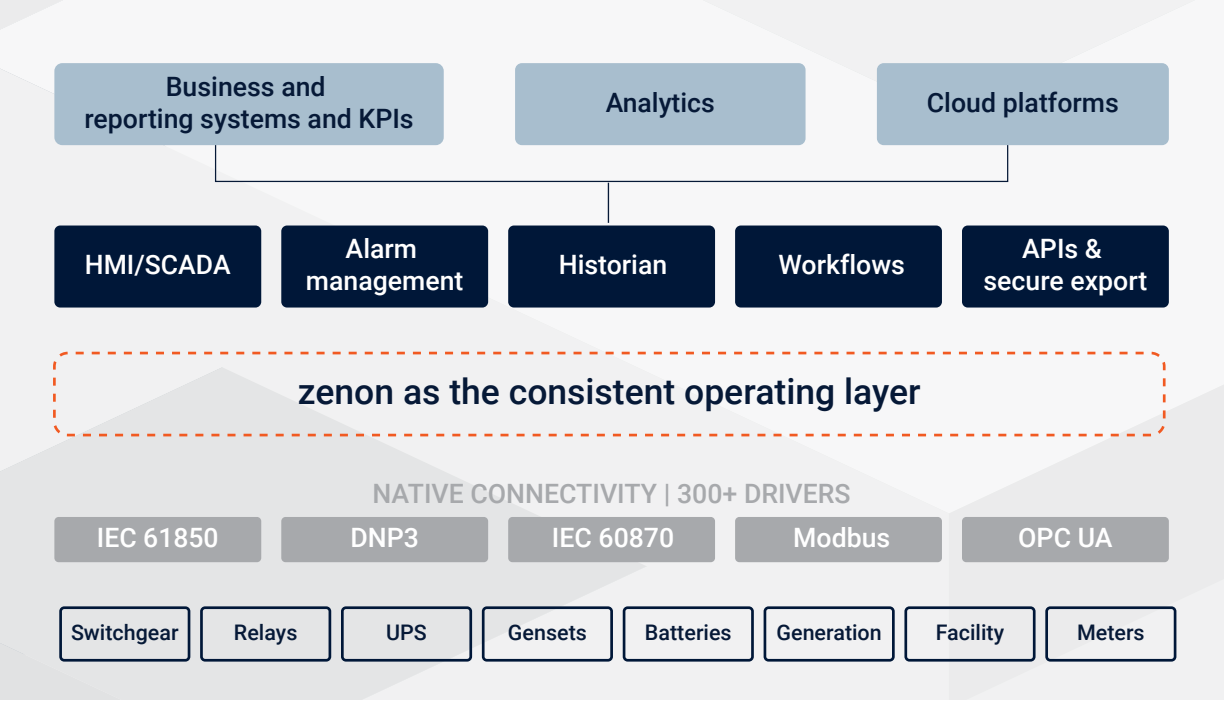
If that same capacity is used to run a company's own cloud services, the delayed revenue can be much higher, potentially in the range of USD 50 million to 70 million or more.[3] The exact number depends on utilization, workload mix, pricing, and customer commitments. The message is clear: delay has a serious commercial impact.

STANDARDIZE FOR SPEED, SECURITY, AND SUPPORT

When time pressures come into play, standardization becomes even more essential. Yet it is often the first casualty.

Decisions that seem pragmatic under pressure can create long-term limitations. A local team moves fast, so documentation is shortened. Operator screens are built from supplier HMI templates because they are already available. Reporting is added piecemeal in response to

[1] CBRE, North America Data Center Trends H2 2024: https://www.cbre.com/insights/reports/north-america-data-center-trends-h2-2024. The report identifies power as the leading greenfield site-selection priority, notes extended timelines caused by power constraints, and reports an average asking rate of USD 184.06 per kW/month. At 50 MW, that rate equates to approximately USD 9.2 million per month before business-specific adjustments.
[2] CBRE, AI Demand Drives Record Data Centre Signings Across Europe: https://www.cbre.co.uk/press-releases/ai-demand-drives-record-data-centre-signings-across-europe.
[3] The cloud-capacity estimate is an illustrative model, not a published market rate. It assumes roughly USD 1.0 to 1.4 million of cloud-service revenue per MW per month, derived from public cloud revenue run rates divided by estimated operational data center capacity. Actual impact varies by operator, utilization, workload mix, pricing model, geography and accounting treatment.



zenon sits between business systems and physical equipment, providing one operating layer that connects, standardizes, and secures data.

user requests, rather than designed as part of a common standard. Cyber evidence is gathered close to handover because approval is urgent.

Each decision helps the current project. But data center builds are rarely one-off projects. They sit within portfolios of sites, expansions, and retrofits.

On the next build, local decisions and exceptions from the previous project often get carried forward. The next team depends on people who know the screens, alarm priorities, naming conventions, reports, access rules, evidence packs, and local exceptions.

In other cases, the next project starts over and learns little from the last one. Automation debt mounts when every site answers practical questions differently and the fleet lacks a common way to operate, document, and support them.

Automation debt does not appear as one clean budget line. It appears as site-specific training, repeated tests, longer cybersecurity reviews, slower handovers, and growing dependence on local experts. The organization pays for those differences again and again.

A better approach preserves equipment choice while standardizing the behavior that matters. Good standardization begins before work starts on the first site. When a site works, its screens, alarms, reports, evidence, and procedures should become standards for the next one. Common screens, alarm rules, event records, workflows, access evidence, and operating procedures become part of an owner-defined operating model. Site two should be easier because site one taught the business something. This is not bureaucracy. It is speed with control.

THE SITE WORKS. THE FLEET DOES NOT.

Imagine a company operating several data center sites. On paper, every site is operational. Power is connected. Milestones have been met. Capacity has been allocated.

Then an incident occurs. A protection device trips during a switching event. The operations center tries to understand what happened, but the on-site event record is incomplete. Cross-site learning becomes difficult because the sequence cannot be compared easily with the rest of the fleet.

A local engineer who knows the site may resolve the issue, assuming that person is still in the role. But the business has a fleet-level problem. It cannot quickly explain what happened, compare sites, or turn the incident into a reusable lesson for the next project.

The same problem appears in data. Data centers generate information from many sources: electrical systems, cooling systems, meters, batteries, generators, and many others.

If every reporting need is solved with another one-off connection, the organization gains short-term visibility but creates long-term complexity. Soon there are duplicate tags, inconsistent names, unclear meanings, and new security questions. Analytics teams receive data, but not always useful context.

Accurate, consistent, and comparable data is the foundation for future optimization. Without it, improvement work becomes slower, more manual, and less reliable.

A stronger approach organizes data through a governed site model. Tags and alarm meanings become consistent. Events are stored with context. Reports can be reused. Data can be shared with business and analytics systems through controlled interfaces.

This creates a trusted basis for both operations and optimization. Operators trust the alarms. Cybersecurity teams trust the evidence. Business leaders trust the readiness claim. Customers trust the capacity commitment. The same data can then support continuous improvement. Teams can adapt to new operating conditions, reduce resource consumption, and improve the next build.

WHERE ZENON FITS

In this story, the software is not the hero. The repeatable operating model is.

But that model needs a practical foundation, especially in data center environments where power, facility, and monitoring systems come from different suppliers. As a vendor-agnostic software platform, zenon can sit above mixed equipment and create one consistent operating layer.

It connects systems, provides a common view, manages alarms, records history, supports workflows, generates reports, and shares data securely. Native support for more than 300 drivers and protocols, including the IEC Suite, helps reduce the engineering needed to connect diverse power systems.

With zenon, operators can preserve choice at the equipment level while creating consistency in how sites are monitored, documented, and supported. zenon does not replace proper electrical design, commissioning, cybersecurity architecture, or time synchronization. Those fundamentals must be engineered correctly. zenon can then help make the resulting operating model more visible, consistent, and reusable across multiple sites.

Competitive advantage comes not only from turning power into usable capacity quickly, but also from repeating that at the next site. Winning in the AI era will not be only about which data centers secure power first. Speed creates short-term value. Consistency and repeatability drive long-term operating excellence. Power-on is not the finish line.

Learn more about zenon for data centers:
www.copadata.com/contact

WHAT ONE MONTH CAN COST

Large leased 50 MW capacity block:
about USD 9 million in delayed monthly revenue.

Cloud capacity at scale: potentially USD 50 million to 70 million or more in delayed monthly revenue.

These are order-of-magnitude estimates. Actual impact depends on utilization, workload mix, pricing, and customer commitments. The gap after power-on is a business issue, not only an engineering issue.



JOE SALAMON
Managing Director
COPA-DATA USA

Joe Salamon is Managing Director, Americas, at COPA-DATA. He has led industrial automation, data, analytics, and digital transformation businesses across energy, life sciences, manufacturing, data centers, and critical infrastructure, with a focus on turning technology architecture into operational and commercial outcomes.

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COPA-DATA PARTNER PROGRAM RELAUNCH

It's the dawn of a new era for the COPA-DATA Partner Community (CDPC). An updated structure and sustainable revenue thresholds are creating new opportunities for successful partnerships. These updates will make it easier for end customers to choose the right system integrator based on quality and implementation expertise.

The Partner Program has been a key factor in COPA-DATA's success for 15 years. With this relaunch, we are simplifying access to information and resources while simultaneously increasing the value we deliver to all partner companies. Key updates include sustainable revenue thresholds for Silver and Gold Partners, expanded training requirements, optimized partner benefits, and the transition from the COPA-DATA Developer Network (CDDN) to the new Engineering Studio Subscription.

Exclusively for Gold Partners, we are introducing an annual interactive session with our industry and product management teams. This new platform for direct, high-level exchange will facilitate a mutual transfer of knowledge regarding the practical application of zenon in automation projects worldwide.

To ensure a sustainable and future-oriented partner structure, the revenue thresholds for Silver and Gold partners are being adjusted:

- Gold Partner: reduced to EUR 120,000
- Silver Partner: increased to EUR 50,000

In addition, we are introducing a hybrid points system that applies when partners are unable to fully meet the required revenue target. To attain and keep their status, partners must now generate minimum annual revenue from zenon projects of EUR 30,000 (Silver Partners) or EUR 80,000 (Gold Partners). Points can also be earned through various activities in the Partner Community, with 10 points corresponding to a revenue equivalent of EUR 10,000.

Alongside adjusting revenue thresholds and introducing a hybrid points system, we are making changes to our training requirements. These adjustments will strengthen technical expertise when working with zenon, so we can ensure quality in the implementation of customer projects. These changes apply to partners with Bronze status or higher.

Partners will be expected to master key topics, including zenon architecture, communication and different communication protocols, data management, and error analysis. This ensures that all partners have a consistent and solid technical understanding of the zenon software platform.

The new training program combines mandatory and recommended modules to offer a clear structure alongside flexible development opportunities. All training courses are being developed in collaboration with the Education Services team and will soon be available via the zenon Academy. Our phased rollout will ensure training is integrated smoothly into daily operations. Existing partners will be required to complete the new courses within a specified period of time.

THE NEW ENGINEERING STUDIO SUBSCRIPTION

In conjunction with the new training requirements, the licensing framework is also changing. The definitions for the COPA-DATA Developer Network (CDDN) have been updated to better support your requirements during the project development phase while ensuring

	PARTNERS	
	Silver	**Gold**
Total points required	**50 Points**	**120 Points**
Turnover 10 K = 10 Points	**EUR 50,000.–** Points made with turnover needs to be minimum 30 Points	**EUR 120,000.–** Points made with turnover needs to be minimum 80 Points
Activity points	**Max. 20**	**Max. 40**
Face to Face Trainings (F2F) *(per Day / per Person -> 5 Points)*	5	
Joint Webinar	10	
New Technologies used *(e.g. first project using MTP, Historian 360, etc)*	5	
Co-Exhibition at Fairs	5	
Success Story with End Customer	15	
New Certifications earned *(5 points per certification,. Certifications in addition to minimum requirements in this area)*	5	
Customer Acquisitions *(Partner initiated contact, suggested zenonfor new project with EC -> decision was mainly influenced by Partner)*	10	
Active zenon Promotion *(Postings on LinkedIn, Feature in Newsletter, Promotion of zenon on Partner Website, ...)*	2 per activity	

consistent alignment with the established Service Level Agreement (SLA) model.

The CDDN name is being phased out. From 2027, it will be replaced by the name "Engineering Studio Subscription". This will be available in various package sizes and includes both Engineering Studio licenses and support services. CDDNs that have already been purchased and are active for 2026 will remain valid for the current subscription period.

Initial measures to improve the Partner Program have already been implemented, including the introduction of industry and application expertise for Silver and Gold Partners in the Member Directory on the COPA-DATA website. This feature makes it easier for end customers to find the right system integrator. End customers now have increased visibility of qualified partners and the ability to filter results by expertise.

If you have any questions about the Partner Program, write to us at **partner@copadata.com.**

The new **Member Directory** with industry and application expertise is available here:
www.copadata.com/en/partner-community/members

Visit our **zenon Academy:**
www.zenon-academy.com/MagnificentCatalog

To learn more about an **Engineering Studio Subscription,** go to:
www.copadata.com/en/support-services/support-plans



COPA-DATA PARTNERS

The COPA-DATA Partner Community brings together and certifies zenon experts worldwide for system implementation and maintenance. Here are two outstanding examples:

ROVISYS
USA

GOLD

ABOUT ROVISYS
Founded in 1989, RoviSys is a leading global independent system integrator with over 2,000 engineers and technical professionals across 24 locations. RoviSys stands for comprehensive engineering expertise, proven solutions, and vendor independence.

ROVISYS SOLUTIONS WITH ZENON
RoviSys supports life sciences companies, particularly with the planning, integration, and implementation of zenon solutions. Its service portfolio includes FEED studies, connectivity analyses, license planning, Smart Object templates, tag mapping, and system interfacing, as well as BMS, EMS, and PCS integration. Additionally, RoviSys offers Historian and PAS-X MES integration, zenon add-ins, visualizations, dashboards, reports, and training. For the regulated life sciences industry, RoviSys also provides system design and validation services, including URS, FS, DS, CS, and test scripts.

PARTNERSHIP WITH COPA-DATA
RoviSys and COPA-DATA share a strong partnership, particularly in the US life sciences market. Together, they provide high-quality solutions and support long-term customer success.

ROVISYS CUSTOMER PROMISE
Drawing on its engineering and industry expertise, RoviSys helps companies improve performance, reliability, and sustainability. Together with COPA-DATA, the company creates scalable solutions that deliver long-term value.

ROVISYS
Automation & Information Solutions

WWW.ROVISYS.COM

PAVIS
Germany

SILVER

ABOUT PAVIS
PAVIS Engineering is an independent full-service provider of comprehensive automation solutions, supporting industrial projects from planning, electrical design, and software development through to commissioning. As an experienced system integrator for zenon, PAVIS develops tailored solutions for the biopharmaceutical, food and beverage, and other batch process industries.

PAVIS SOLUTIONS WITH ZENON
PAVIS uses zenon as a central integration and orchestration platform for modular automation solutions. The FLOW2MTP concept digitizes and automates engineering processes, ranging from process planning to commissioning. Functional descriptions, MTP modules, and engineering data are generated based on P&IDs. zenon handles the integration and orchestration of modular production units and enables these to be incorporated efficiently into higher-level process control systems.

PARTNERSHIP WITH COPA-DATA
PAVIS and COPA-DATA work closely together on sophisticated automation projects. Together, they develop and implement solutions for process integration in the biopharmaceutical, dairy, and beverage industries, as well as in building management systems.

PAVIS CUSTOMER PROMISE
PAVIS stands for quality, reliability, and collaborative partnership, supporting customers with a comprehensive approach that spans everything from consulting and planning to engineering and software development, as well as commissioning and qualification.

PAVIS
ENGINEERING GMBH

WWW.PAVIS-ENGINEERING.DE



CUSTOMER SERVICES: YOUR ISSUE IS OUR MISSION

As the saying goes, there is a certain magic in every new beginning – and the Customer Services team was no exception. Established in 2011 as a firefighting unit to handle special customer requirements, the team has since grown to include some 160 technicians deployed worldwide to support our customers. Read on to discover how the CS team has grown and learn about the benefits this development holds for you.

It began with an idea – a small team of experts was asked to develop customized solutions for the zenon software platform, in order to meet customer needs beyond standard support activities. This initial unit, originally known as Technical Services, forms the core of today's Customer Services division. Over time, the team grew steadily, and the ever-expanding service portfolio led to the creation of specialized sub-teams. In addition to specialists in code development, the department now includes experts in intuitive user interface design, a team dedicated to creating training and educational content, support staff, and the TCT team, which focuses on expanding the help resources for the zenon software platform. What all these sub-teams share is a commitment to the continuous improvement of their respective areas, aiming to make problem-solving and the implementation of new features in zenon as straightforward as possible. Team members benefit from regular professional development and the opportunity to gain experience in other areas of the CS team, allowing them to constantly broaden their horizons and keep up with state-of-the-art solutions.

Currently, the Customer Services team at COPA-DATA headquarters is composed of the following areas:

- **Internal Automation Service:** Development and maintenance of internal software applications
- **Professional Services Development:** Implementation of customer-specific requirements
- **Professional Services Content & Templates:** Support for all GUI-related matters
- **Service Alliance:** Networking and coordination of global CS teams
- **Support Services:** Customer support for issues
- **Technology Excellence:** Solving complex customer requirements
- **Technical Content & Translation:** Authoring and maintaining the online help for the zenon software platform
- **Education Services:** Creating and maintaining training courses, including those in the zenon Academy

In addition, other CS colleagues at our subsidiaries are available to address specific customer requirements. To strengthen global networking and collaboration within Customer Services, Global Customer Services Alliance events are held twice a year. These take place alternately in Salzburg and other cities (such as Barcelona and, this year, Berlin – see header image), fostering intensive exchange among colleagues. Following two days of workshops, short presentations, and discussions, a third day is dedicated to team building and exploring the sights and unique characteristics of the host city and its culture. This process helps the team bond and enables them to tackle future challenges more easily and quickly, as the specialists are connected and know exactly where to find the information they need. Additionally, Service Alliance participants benefit from workshops and the associated tasks. Following the event, these are organized into work packages that provide a basis for further improvements to processes and procedures. Thanks to CS staff at our subsidiaries, you have access to specialists for specific tasks in your region, wherever you are in the world:
https://www.copadata.com/en/contact

CUSTOMER SERVICES IN PRACTICE

Collini's core business is the surface finishing of base materials via coating. It operates more than 100 production facilities worldwide. To implement a comprehensive HMI concept spanning multiple zenon projects, the company worked closely with the Customer Services team at COPA-DATA headquarters.

INITIAL SITUATION

In a production landscape that has evolved over many years, featuring a variety of equipment types and systems, challenges frequently arise regarding operation, training, and standardization. As a result, the company decided to create a consistent platform structure capable of integrating various equipment concepts.

IMPLEMENTATION

Requirements were gathered and concepts developed for a modern, user-friendly interface during joint workshops, incorporating insights from various areas of the company. Particular emphasis was placed on a clear structure, consistent design, and ease of use.

RESULTS

Close collaboration among all parties involved resulted in a flexible, future-oriented solution that supports more consistent equipment operation. The modular design facilitates adjustments and expansions, creating a solid foundation for the further development of the system landscape. Additionally, training requirements can be reduced and operational processes simplified.

> "At no point did we feel we were simply getting an off-the-shelf software solution. The PS Content & Templates team, led by Damian Kronawitter, understood our ideas, approached them critically, and worked with us to develop them. The key to our success was this collaborative exchange that combined our hands-on expertise with COPA-DATA's know-how around zenon. The result is a solution that both resonates with our employees and provides a solid foundation for future systems."
>
> Manfred Huber,
> Head of Corporate System Engineering,
> Collini

> “For customers worldwide, our Customer Services team is the go-to contact for all technical questions regarding the zenon software platform. We offer extensive personalized service alongside a 24/7 Self-Service Portal that features a wide range of helpful tools, including complete user documentation, the zenon Engineering Assistant, and a comprehensive training program. We are especially proud of the results from our biennial customer satisfaction survey, in which we achieved a score of 4.3 out of 5. This demonstrates that we understand the market and are providing our customers with excellent support.”
>
> Markus Helbok, VP Global Customer Services

Customer Services – always at your service! In addition to addressing often time-critical customer requirements, the CS team focuses on expanding resources that empower users to help themselves. After all, every project is unique, and ultimately, you know your project best! That is why a wide range of tools is available to support you in tackling your challenges:

- Broaden your horizons by accessing the **zenon Academy** at any time. Stay up to date on industry-specific innovations in zenon through relevant courses, and earn points toward your personal certificates along the way.
  https://www.zenon-academy.com
- Use the **Self-Service Portal** to benefit from knowledge base entries, the community forum, and FAQs. Additionally, it provides access to previously resolved support tickets and related articles.
  https://selfservice.copadata.com/portal/en/home
- Check out **zenon Online Help,** even if you haven’t launched a project. The help content is available without access restrictions for various zenon versions in both German and English. Simply open the version you need and get started!
  https://onlinehelp.copadata.com
- When all else fails, ask the **zenon Engineering Assistant** to find answers to your current questions. Simply enter your prompt, and the zenon Engineering Assistant will reply in the language you used for the query, eliminating language barriers entirely.
  https://engineering-assistant.copadata.com

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Be your own support engineer!



MARKUS HELBOK
VP Global Customer Services

Markus Helbok heads the Customer Services team. He has played an important role in the development of the zenon software platform over the past 27 years, serving in a wide range of positions. He has always been deeply committed to the customer perspective and the goal of providing the best possible support. In Customer Services, he leads a team of specialists that combines all the expertise needed to resolve the challenges faced by customers.

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ABOUT US

In every issue, Information Unlimited puts the spotlight on selected employees to help you get to know our company better. Our employees featured here talk about their professional workday and personal interests.

SHAYDE BAIN

Marketing Manager
COPA-DATA UK
At COPA-DATA since 2022

I turn vague ideas into successful events and campaigns – from first sketch to final report. With a cup of coffee I conjure HubSpot magic, and when someone asks, "Can marketing just…?" I happily become a jack-of-all-trades. I focus on pragmatic execution, clear priorities, and keeping stakeholders on course. I love teams that don't take themselves too seriously: laugh often, challenge ideas respectfully, and switch in an instant from shop talk to debating whether cereal counts as soup.
In my free time, I'm improving my Chess.com Elo, starting endless craft projects, traveling to wherever my partner plays rugby, and spending time with friends.

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JACOB TRUMMER

Team Lead Global Business Development | Manufacturing
COPA-DATA Headquarters
At COPA-DATA since 2025

My focus in business development is on manufacturing, with an emphasis on solutions for modular production, OpenDCS, and Automation Integration Layer. I translate customer requirements into actionable solutions and work closely with product, engineering, and sales teams to develop concepts and support pilot projects. Open, respectful, and constructive collaboration, as well as the exchange of knowledge, is important to me: I appreciate different perspectives and prioritize clear, pragmatic decisions that allow everyone to contribute their strengths. What excites me about my job is the mix of forward-looking topics, diverse customer requirements, and international collaboration – this constantly generates new ideas and learning opportunities.

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FERYAL HONARMAND

Senior Technical Editor
COPA-DATA Headquarters
At COPA-DATA since 2020

Together with the Technical Content & Translation team, I ensure that zenon's documentation remains easy to understand, terminologically consistent, and user-focused. My areas of expertise include the zenon Online Help, terminology issues, and components such as zenon IIoT Services, Dashboard Service, and IoT Edge. I work closely with the related Scrum teams. Respectful collaboration, flexibility, and a solution-oriented mindset are particularly important to me. That's why I'm also involved as a retro-coach within the company.
I value people who are open to new ideas and contribute their own insights. In my free time, I enjoy creative writing and historical research. I listen to and create podcasts, do CrossFit, and love embroidery.

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STEPHAN RAFF

Global Director Information Security
COPA-DATA Headquarters
At COPA-DATA since 2025
(previously 2012 – 2019)

I am responsible for information security across the COPA-DATA Group – from our security processes to our locations worldwide. My mission: to strengthen our business resilience. To this end, we are implementing a global ISMS in accordance with ISO 27001 and TISAX requirements. We assess risks, define appropriate protective measures, and manage structured incident response procedures in the event of an emergency. Whether it's security policies, data classification, or emergency plans, I'm the first point of contact.
Open communication and trust are important to me. Security can only be achieved together: through clear communication, short decision-making paths, and a culture where concerns can be voiced at any time – both within the company and in our external collaborations.
I'm inspired when our security efforts translate into tangible trust from our customers. Every day, processes, technology, people, and strategy come together, which is why my work never becomes routine.

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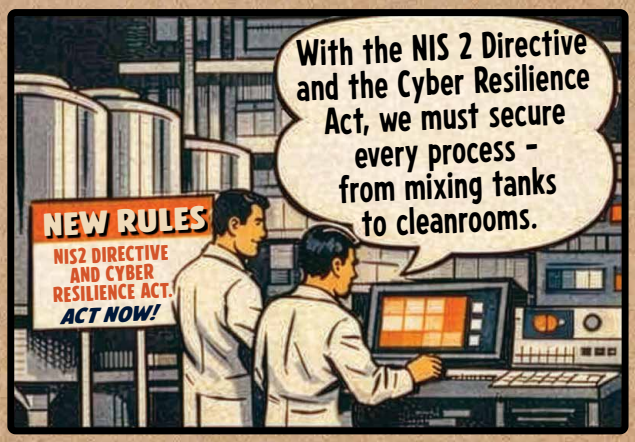
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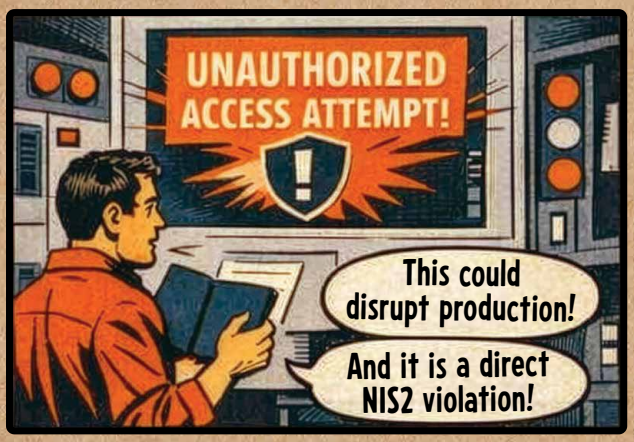
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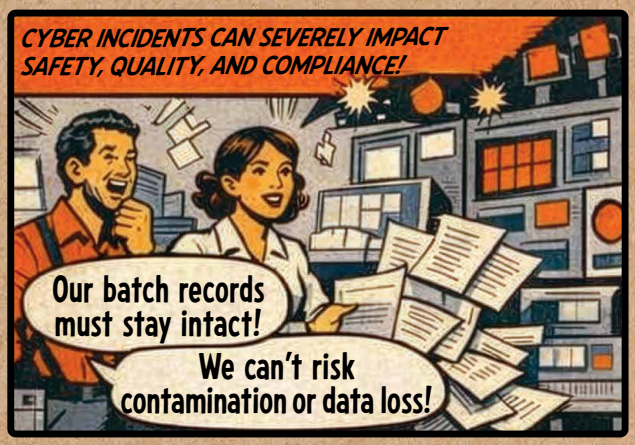
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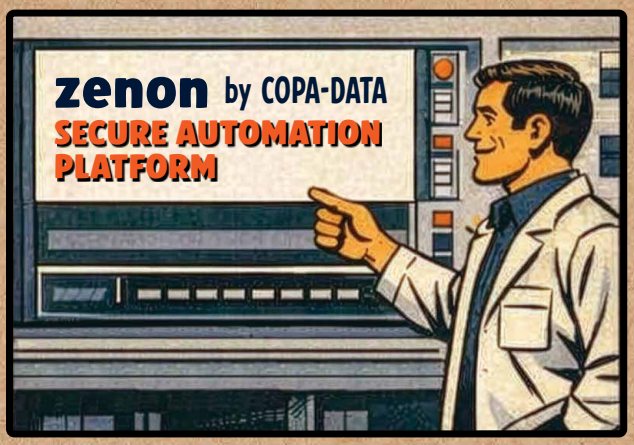
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