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No Cloud Cuckoo Land

Real, efficient engineering flexibility with new Cloud and app concept

The keyword Cloud is not new, and neither are apps. They are, however, in the context of real engineering. In the manner in which AUCOTEC now offers them in any case. This concept not only enables the designing of machines, plants and mobile systems without dedicated server hardware and with the required scalability in the Cloud. AUCOTEC's cooperative platform Engineering Base (EB) can also be used on any device, regardless of hardware and client installations. Thus it is possible to offer EB in-house as "Software as a Service" (SaaS).

"Cui bono?"

Who actually benefits from engineering in the Cloud and why? What about security? These questions are being asked by everyone who attaches the major importance to their data, which it has now had for some time.

"Whoever operates globally and has to master complex engineering challenges has the most

added value," said Reinhard Knapp, Head of Global Strategies at AUCOTEC. According to him, "The more differentiated the processes and the more sophisticated or complex the division of labour, the more interesting Cloud and app uses are becoming." For example, to flexibly provide EB via Cloud worldwide: virtual teams with experts from different locations can be assembled at any time, depending on the resources and expertise required. The engineers responsible are able to access and actually edit all aspects of the plant design. This is exactly as it has always been with EB's extensive front-end interface, only now it is even more flexible.

In addition, apps allow customized applications tailored to individual roles in the process, for example, for project managers who need an overview of the engineering progress. They can call their app at any time with their device, with a personal dashboard that displays the specific information required, regardless of

whether it is material data or detailed documents, the engineering status or a consumer analysis. There are many options; with EB, they do not remain as some unattainable "Cloud Cuckoo Land", but can be implemented in practice.

Without a doubt!

AUCOTEC has solved the issue of data security via Microsoft Azure from Microsoft Cloud Germany. As it is hosted by T-Systems, it provides security according to German standards and laws, which are among the strictest in the world in this area.

Inherently IoT-capable

The fact that mobile access to engineering data is possible in such an uncomplicated manner is thanks to EB's three-layer architecture. The application server between the database and client also allows the client-independent provision of information via Web services. "Such Web access would have to be completely

redeveloped and would also have to be maintained separately for a file-based system. EB, however, possesses the necessary flexibility "inherently," explained head strategist Knapp.

The Web Communication Server (WCS), which was designed to fit the concept, completes EB's openness with the access option via Web technology. It is based on globally valid standards such as WSDL, SOAP, RESTful API, JSON and WCF, thus there is no extra work involved for the IT Department. EB's business logic can be accessed directly via the WCS.

The multi-layer basic principle first opened EB for communication with other servers, e.g. of ERP or EDM/PDM systems. Thus EB was also open to other front-end applications like mobile apps – and this was already long before the idea of Industry 4.0! Today, the Internet of Things (IoT) is inconceivable without M2M communication, as offered by EB and WCS, because the essential networking needs Web technology.

[Continued on page 2](#)

Digitization: from buzzword to added value

Dear readers,

Everyone, from those in politics to economics, has been talking about digitization, Industry 4.0, the Internet of Things, etc. for quite some time now. Companies are starting projects within the context of their digitization strategy and are creating the position of Chief Digital Officer "CDO".

Nevertheless, customers from Germany to China and Korea repeatedly ask us what exactly these buzzwords mean and how they are translated into real, efficient engineering. Ultimately, only one question is always decisive: What advantages can we offer our customers to ensure their business success?

We will gladly respond to this question in detail and tailored to your needs, regardless of whether your business is a large corporation, medium-sized company or an engineering office. We will analyse your requirements and previous work methods, and show how you can use our latest technologies with digitization to optimize, change, and ultimately be more successful. For this purpose, we rely on experience from numerous projects and close cooperation with our customers and partners. AUCOTEC's Expert and Technology Days (see p. 2) provide, among other things, an opportunity for industry-specific communication and networking, from which we all benefit. You will find further suggestions and examples of how we can make you more successful in this

Info Paper or on our [website](#). Contact us as we are looking forward to your Industry 4.0 challenge!

Yours faithfully,
Uwe Vogt
Executive
Officer



sps ipc drives



Nuremberg,
November 22nd - 24th, 2016
Hall 6 / Stand 110

We are looking
forward to
meeting you!

Further topics:

PAGE 2

- > Expert talks at Expert Day
- > App mobilizes maintenance

PAGE 3

- > New synapses for the plant brain
- > Interview: A. Schiefelbein from Endress+Hauser on collaborating with AUCOTEC

PAGE 4

- > Global market leader in the cable and wire industry Niehoff
- > Gebrüder Pfeiffer mills are grinding faster

> Continued from page 1

Specific, focused, mobile, flexible

The use of apps is an integral part of the Cloud concept for AUCOTEC. They facilitate access to engineering and allow mobile data usage and data creation, which can be tailored to very different tasks. Since such tasks differ in every company, AUCOTEC offers to develop apps tailored to the needs of customers. If an

idea for an app is of interest to many customers, everyone can benefit from it of course. This is how initial apps have already been developed. They are based on HTML 5, adapt responsively to each display, and can be used with Android, Windows, iOS or in browsers. One app, for example, is tailored specifically to the information requirements for main-

tenance tasks in plants (see below). Another app is used for the mobile recording of the actual status of a plant and the transfer of this data to EB via a smartphone. The system enables you to derive where optimizations through services or plant extensions would be possible. The Sales team then makes the plant operator a ready-made offer calculated

on the basis of real engineering data.

This app was developed for an EB user who not only sells plants to his customers but, with his maintenance concept, also offers secure functionality throughout the lifecycle of the plant. With the EB app, the user was able to extend his offer – very efficiently and in very real terms.

Expert talks at Expert Day

AUCOTEC events as exchange forum for users, prospective customers and developers

There were some occasions for discussions this summer, also at AUCOTEC. However, neither the weather nor the German election campaign was on the agenda. The CAE Expert Days brought together a diverse circle of users, prospective customers and development professionals. In Baden-Württemberg's Crailsheim, in Saxony's Leipzig and in AUCOTEC's home in Hanover, the respective discussions from May to September were about further optimization of the software classics ELCAD/AUCOPLAN/RUPLAN, and about the challenges of digitization in the context of Industry 4.0. Apart from the mastering of challenges and exploitation of opportunities, the agenda included exclusive offers for the participants, but above all impressive reports from customers about their experience with AUCOTEC products.

New perspectives

Ulrich Cord from the bulk material and process engineering experts Claudius Peters, Sven Börner-Sachs from the film stretching line engineers Brückner as well as René Braun from the explosion protection equipment producer R. Stahl gave examples from their practical experience in engineering. They convincingly demonstrated how EB had accelerated their processes and opened up new perspectives for cooperation and efficiency.

EB for "Inspired Excellence"

In order to prove itself as a modern, outstanding company in the 21st century, Claudius Peters launched the innovation project "Inspired Excellence". This includes goals such as savings in costs and labour, higher quality, or increased turnover and customer satisfaction. EB is an important component of the appropriate measures. According to the company, the system

avoids data redundancies, creates consistency from mechanical to electrical engineering and allows simultaneous, rather than sequential order processing. EB maps business processes from sales to service. "For us, EB is a success story and the foundation for the transformation of our software environment," said Ulrich Cord, Group Manager Automation and Project Manager.

Consistent

Sven Börner-Sachs, Team Leader Standardization CAD/CAE at Brückner, also stressed the data consistency created by EB. According to him, it now extends from P&ID creation in mechanical engineering via detail engineering in electrical engineering to automation, with uniform designations and IEC 81346 compliance. EB's convenient ECTR-SAP link also ensures secure synchronization with the "mother of all data" at Brückner. As a further highlight, Börner-Sachs presented the Project Status Manager, a joint project of Brückner and AUCOTEC. It leads each user through its personally configurable "status network", so that no task can be forgotten.

Integration in production processes

René Braun from R. Stahl reported on his experience with EB's integration in the production processes. Not only the innovative system architecture, the openness for automated interfaces to R. Stahl's ERP environment and the avoidance of duplication, but also the partnership with AUCOTEC for decades were reasons in favour of EB according to the CAE/CAD System Consultant. The goals of integration were, among other things, the automation of pricing, production orders and name plate creation, the development and transfer of production-relevant data to the processing machines and much more. Although there were challenges, integration has been successful according to Braun's conclusion.

"Extremely exciting"

"The participants found the practical presentations extremely exciting," said AUCOTEC's Area Sales Representative for Germany, Joris Caron. The guests regarded the opportunity for networking as at least every bit as interesting. The breaks were also used extensively for this purpose. "It is important to us to frequently give customers and prospective customers the opportunity to share information directly. For this purpose, the Expert Days are ideal, as are the Technology Days, which are to some extent even more in-depth and address a slightly different audience," said Caron.



> Total concentration of guests at the CAE Expert Day

The guests confirmed this fact. "You definitely gain something from seeing what others are getting out of a system," was the feedback from one participant. Another attendee said: "I like the thinking outside the box' in particular. I'm taking a lot of things away with me for my everyday life, but even more for the future of our engineering."

Become digital, stay personal!

"We will also continue to hold Expert and Technology Days in the coming years," said Joris Caron, while emphasizing that the focus should remain on sharing information. "As much as we rely on the latest technologies and as necessary as digitization is: the personal conversation between peers is a hallmark of AUCOTEC. This will not be digitized by us."



> René Braun



> Ulrich Cord



> Sven Börner-Sachs

App mobilizes maintenance

Maintenance app allows mobile view of current plant data at any time

Two things are crucial for maintenance: up-to-dateness and mobility. Whether it is an extensive oil refinery, or widely dis-

persed wind generators: being on site rapidly AND having all the necessary data to hand without lengthy preparation is fundamental to reducing expensive downtime to a minimum. The data must map the current as-built status of a plant or machine of course.

However, maintenance experts often look for all possible plans before they go into a plant. By no means do they always know exactly what data they need or whether any further changes will be required when replacing or repairing devices. Many things only come to light on site.

Whether planned or an emergency – speed is the main thing

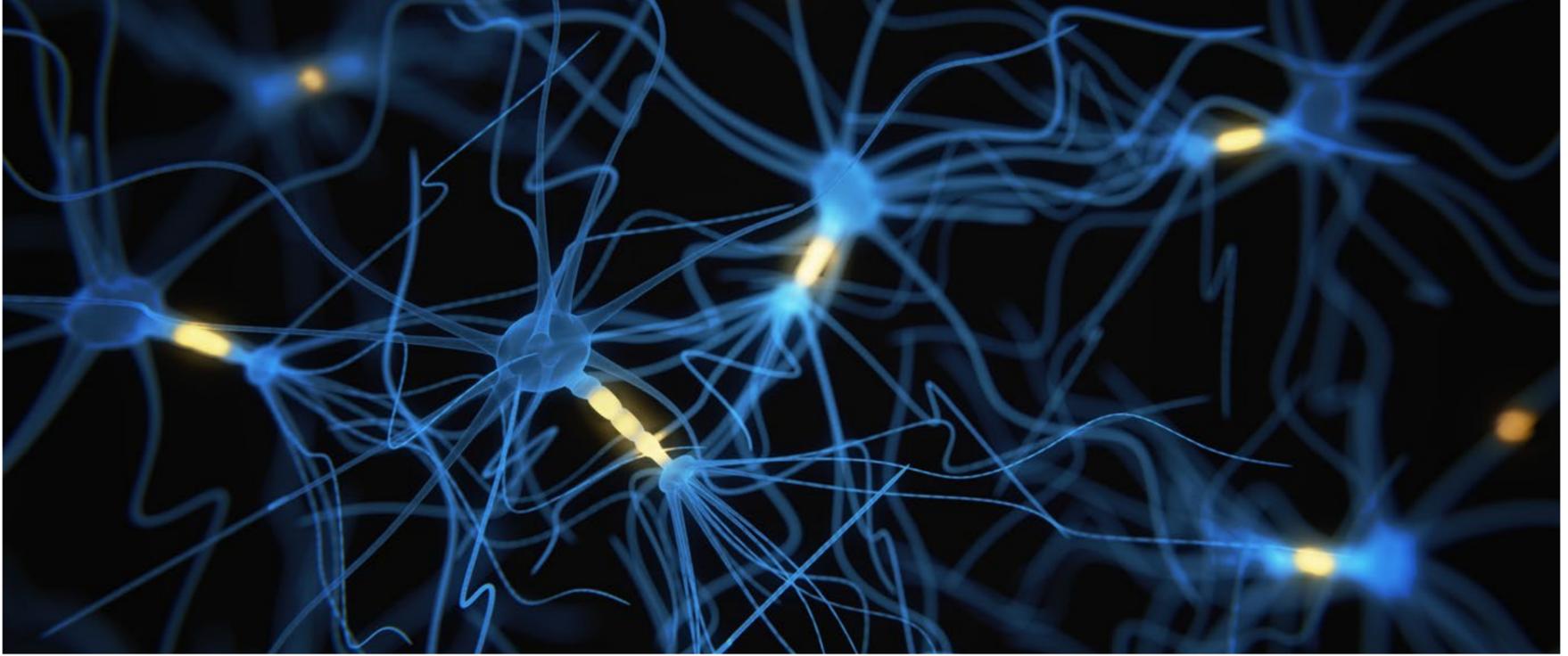
As part of the new Cloud concept (see p. 1), AUCOTEC's maintenance APP enables mobile devices to access the latest engineering data at any time. This accelerates planned services as well as the response in an emergency. This is because the maintenance employee can access the plant data with a tablet, smartphone or laptop on site, without the need for preparation or a suitcase full of folders, and can retrieve the relevant as-built information online via the Cloud, for example, details of a connected cable and destination. However, the maintenance employee may also require the next mainte-

nance date of a device or an assembly guide. The search function of the app accelerates retrieval in any case.

All released documents can be downloaded via the app to the mobile device, from P&ID via circuit diagram to worksheet. Any change information is entered directly via the device. In a later version, it will also be possible to upload photos taken on site with the smartphone in order to document the service work. The as-built status of the plant only changes, however, when a design engineer has checked and released the data. In this way, safety and quality remain guaranteed.



> Up-to-date and mobile: EB on any device at any time



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New synapses for the plant brain

AUCOTEC builds highly efficient bridge from design to automation

Control systems are the “brains” of a plant. They set it in motion, regulate the functions and collect operating data, for example, for transfer to a predictive maintenance system. The prerequisite for this is that the distributed control system (DCS) knows all the relevant parameters from the plant engineering so that it can assign the signals to the correct devices and measurement types such as temperature or pressure.

The configuration of these signals, usually thousands, is very complex. The DCS often

still receives them via self-made Excel lists or even manually. Any change in the plant also increases the complexity of the automation.

One portal for everyone

In order to significantly facilitate DCS programming, AUCOTEC has developed the idea of a DCS portal. This will enable the specifications of the plant designers to be transferred automatically and directly to DCS programming as of spring 2018. This unique bridge will lead to any automation system that is open to communication, even to several systems in parallel. It thus

particularly accelerates the work of general contractors or operators who, due to their history, have different distributed control systems in use. They each use their own programming tools and software modules. AUCOTEC’s portal can provide an appropriate container for each system in the Engineering Base (EB) platform. It is the “synapse” that transfers the data to the “brain”. The company is already working on the first containers for PCS 7 and ABB 800xA.

Fast error-free automation

If a change, whenever and wherever, has an

impact on the sensor/actuator logic, the DCS instantly detects it via the portal, without the usual transmission errors. This is based on EB’s exceptional consistency, which combines all design disciplines in a single data model from FEED (Front-End Engineering Design) to detailed wiring. This also shortens the time that the automation engineers have to wait for their data from the individual areas. No other system offers such a saving of time with this data quality.

“Easier than with any other system”

Andreas Schiefelbein from Endress+Hauser on asset management via the Web and the advantages of the engineering link



> Andreas Schiefelbein

As a process manager in the Sales department of Endress+Hauser, Andreas Schiefelbein is responsible for productive processes that not only provide further benefits to customers, but also lead to in-house optimization. The main focus is on linking the customer-specific system environments with the instrumentation engineering expertise of Endress+Hauser.

Endress+Hauser was recently selected as “Digital Champion” for products and services by Telekom and the German business magazine WirtschaftsWoche. How important is the issue of digitization for your customers?

Our customers know that the future lies in digitization, but there are only a few who now find the approach to applying IoT or Industry 4.0 to their environment. The key to success lies in finding the application which creates a benefit through networking. More productivity, less downtime and less tied-up capital can be achieved with digitization if the information also flows optimally parallel to the goods and cash.

A cornerstone of your digitization strategy is the W@M. What is that?

WAM stands for “Web Asset Management”. Endress+Hauser W@M Life Cycle Management is an open and flexible information platform with online and on-site tools. Our customers have direct access to up-to-date detailed data from the entire lifecycle of their measuring devices. This means that engineering times can be shortened, procurement processes accelerated and plant operating times increased. Together with the right services, W@M Life Cycle Management leads to more productivity in every phase.

How do users benefit from it?

Endress+Hauser retains all documents, such as instructions, attestations, certificates, maintenance logs and calibration records, for the measuring device. The customer is given access to them. The maintenance example shows that, if necessary, the user can very quickly access all documents and instructions for his measuring devices in the W@M. He can store his parameterization data and transfer it to a replacement device or order the correct successor very swiftly. Such swift maintenance ensures high availability and thus efficient production.

With the document portal, audits are also easy to manage because all certificates are available online. Huge paper trays and long searches are a thing of the past.

How has the take-up of the W@M concept been so far?

It is used more than a thousand times worldwide, with sometimes over 40,000 device records at our customers’ sites; in all industries, for end customers as well as for plant engineers and system integrators.

Recently, a mutual customer of E+H and AUCOTEC implemented a close link between Engineering Base and W@M. How did that come about?

A major southern German sugar factory has been using W@M Life Cycle Management for many years as a source of information for maintenance. Engineering Base is used in parallel. In both systems, data maintenance is performed on the plant components, often in parallel and with double the work. Our mutual customer often studied both systems to get an overview of his plant. We have shown the link from W@M to various ERP and engineering systems. The potential simplification of internal processes and the increased efficiency of production convinced the customer to test the EB link.

How does the link work and what does it contribute?

We compiled the device data for a section of the factory because we were familiar with it through participating in the construction of the plant. We were able to identify almost all of the measuring devices supplied by us via different routes and provide the data.

With the customer’s IT team, AUCOTEC ensured that Web access to the information in our W@M portal database is possible via the serial number stored in EB. The customer can now obtain from EB all information that we maintain about the devices. Redundant data storage is no longer necessary. The processes run smoothly.

How much work was involved at the customer’s site to implement the link to EB?

Endress+Hauser created the portal. AUCOTEC programmed the Internet link to it and the customer has maintained the reference between the serial number and his plant identifier/plant asset. That’s about it in terms of work!

EB was not the first system to be connected to the W@M portal. What made the EB link stand out in particular?

With the Web integration, many more links to our asset management are actually possible. Various ERP systems such as SAP EAM or IBM Maximo are already linked today, as well as other engineering systems. It is also possible to make other plant components available in W@M Life Cycle Management of course. In any case, a competent team is available to design the respective solution, including customized integrations. With EB, linking via Web link was easier and quicker than with any other system so far.

Thank you very much for this interview, Mr Schiefelbein!

Engineering that is completely on the ball

Global market leader in the cable and wire industry designs better and safer with a central data model

Founded in 1951, Maschinenfabrik NIEHOFF GmbH & CO. KG has had a decisive influence on the development of the wire and cable industry. The first multi-wire drawing machine, equipment for in-line cable production or a reusable packaging system are just some of the milestones the company has achieved. Continuous research and development in close partnership with the cable industry have made NIEHOFF the global market leader, with investments, for example, in technology and infrastructure, intended to also secure this position in the future.

Revolution in electrical design

Markus Raab, Head of Electrical Design, describes one of these investments as a real revolution: the database-driven platform Engineering Base (EB) from AUCOTEC. This not only allows you to store graphic symbols in the system as in the past, but also to store the plant objects themselves, for example, devices or con-

nections, as well as structuring objects such as locations and functions. "This is similar to the move from 2-D to 3-D design," explained Raab. According to him, the fact that all disciplines work with a common database is also revolutionary. "The engineering quality has increased significantly. The central server saves time spent on consultation, duplicate entries and sources of error"

Sameness

EB's link to SAP also led to significant error minimization, thus saving time. "In the past, circuit diagrams were created in electrical design while BOMs for cabinets, machine installation and cabling were manually developed in SAP at the same time. This was very laborious," said Raab. BOMs are now transferred directly to SAP on an order-related basis. "This ensures that the data is the same in both systems," he explained. New materials created in SAP are automatically exported to EB.

Production also benefits from automated data output, for example, device labels, directly from EB to the printers. In addition, test station employees and sales consultants have the same data quality as all others because EB's viewer shows the current original data.

Freedom

The flexibility and freedom provided by EB not only allow everyone involved to have simultaneous, cross-disciplinary access to all project information. They are also free to choose their specific approach when designing, whether graphically or alphanumerically. In addition, EB's openness ensures easy connectivity options to other external systems such as NIEHOFF's ECM tool. "With EB, we can finally design in an integrated manner and are well equipped for the future," concluded Markus Raab after the initial years of practical experience.



> NIEHOFF's wire drawing machine and assembly facility



Image: NIEHOFF GmbH & Co. KG

Gebrüder Pfeiffer mills are grinding faster

Engineering platform from AUCOTEC accelerates development processes

Gebrüder Pfeiffer SE was founded over 150 years ago as an innovative engineering plant. The company now provides state-of-the-art processing technology mainly for the cement, lime, gypsum and ceramics industry. Gebrüder Pfeiffer tech-

nology is in use worldwide whether in terms of mills, dryers, fine sieves, lime slakers or gypsum kettles. The two largest cement mills in the world are Pfeiffer mills. In addition to the German head office in Kaiserslautern with over 450 employees, a network of its own branches and collaborative partnerships creates an international presence.

Long lifecycle requires more consistency

The plant engineers specify, among other things, the latest technology, ample development capacities and high level of vertical manufacturing as key to the company's success. Operational safety, efficiency and a long product lifecycle are also important to the company. This gave rise to the engineering experts' wish for a more consistent system for creating P&IDs and flow diagrams for plant design. The previous method of opera-

tion with simple CAD designing and separate lists in XLS was extremely time-consuming and prone to errors.

"A customer drew our attention to AUCOTEC. Holcim uses the Engineering Base (EB) system not only in plant operation, but also for the tendering stage," said Wolfgang Fuhr, Head of Organisation and Data Processing at Gebrüder Pfeiffer.

New level of communication

Besides other references and Holcim's requirements, EB was impressive in its own right: "With built-in Visio, we no longer need extra CAD tools," reported Fuhr, "and linking the graphics with the database makes the resulting information extremely transparent and consistent." The improved standardisation due to EB's libraries also accelerates the plant development process.

The Department Head praised the integrated, transparent change management in particular. "This elevates communication with our customers to another level!" This is because the convenient graphic selection of changes in diagrams creates an unprecedented overview and also contributes to faster processing.

Vision of the future industry standard

The IT specialists at Gebrüder Pfeiffer have even more plans for EB for the future. "We would also like to use the system for tender preparation, which can save days of work," said Wolfgang Fuhr. An ERP interface is another optimization option. Moreover, Fuhr thinks EB will become the industry standard in cement plant construction. "It would be desirable if it materialised."



> Australia's largest cement mill

Image: Gebrüder Pfeiffer SE

And furthermore ... the following companies, among others, have recently opted for AUCOTEC:



IBE d.d.
Ljubljana | Slovenia



Kratis Mühendislik
Ankara | Turkey



LEMKEN GmbH & Co. KG
Alpen | Germany



M Plan GmbH
Bissendorf | Germany



Power System Projects
Co. (PSP)
Cairo | Egypt



Safran Engineering Services
c/o Labinal GmbH
Hamburg | Germany



Technologists Co.
Erbil | Iraq



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