

Ideas factory

Cargo Security International visits the offices and manufacturing facilities of electronics specialist EPSa in eastern Germany

In the week that *Cargo Security International* visited the Jena and Saalfeld offices and manufacturing facilities of **Elektronik & Präzisionsbau Saalfeld (EPSa) GmbH** last year, Germany was marking the 20th anniversary of its reunification. As world leaders gathered in Berlin to mark the fall of 'The Wall', Germany's citizens reflected on how their lives had been affected by the meeting of East and West.

With reunification, the citizens of the former German Democratic Republic (GDR) were plunged into a new economic environment, where the rewards of success were much greater, but so too was the cost of failure. Newly-emancipated tyros rushed to set up their own companies, while corporate behemoths were broken up and former employees encouraged to participate in management buy-outs.

EPSa was previously a part of one of East Germany's mightiest industrial powerhouses, **Carl Zeiss Jena**, and the new company came into being following a management buyout in December 1991. While some of the new enterprises that sprung up in the early 1990s have since floundered, EPSa was particularly well-positioned – in terms of its physical location, its niche in the market, and the core skills of its staff – to succeed.

Town and gown

Surveying the future of East Germany recently, the international journal *BusinessWeek* warned that some of the rural areas were languishing under the weight of low productivity and per capita income, but Jena – where EPSa has its telematics research and development (R&D) and business unit – was singled out as a 'technology hotbed' and a 'hub of innovation and entrepreneurial activity'.

Jena's roots reach back to the 11th century. Wine was the mainstay of the local economy in the early days, but it is as a centre of learning that the town has earned an international reputation, particularly in the fields of philosophy, science and medicine. Jena's university was established in 1558 and the list of former teachers and professors includes

Gottlieb Fichte, G.W.F. Hegel, Friedrich Schelling and Friedrich von Schlegel, as well as the man, Friedrich Schiller, for whom it was renamed in 1934.

In the 1830s, a young man called Carl Zeiss came to the university and attended lectures on mathematics, physics, anthropology and – most importantly, given the future direction of his own career and the economy of Jena – optics. In 1846, Zeiss opened his own workshop in Jena and sold 23 microscopes in his first year. A modest start, but the company then began to grow steadily – especially after its other founding father, Ernst Abbe, came onboard in 1866.

There was none of the 'town versus gown' antagonism that you find in some seats of learning. The University and the town's other academic institutes were fecund breeding pools of future talent for Zeiss, while the company was a generous benefactor to the colleges and local community. Indeed, Zeiss and Abbe were remarkable pioneers in the fields of community relations and social welfare as well as optics. In 1875, for example, the company set up its own health insurance scheme, guaranteeing employees free medicare in the event of illness.

By the 1920s, more than 5,000 employees were working for Zeiss in Jena and the group also had factories in Dresden, Berlin and Stuttgart, as well as marketing branches and sales agents across the world. Zeiss was forging ahead with ground-breaking products across the optical spectrum, including binoculars and telescopes. This innovation came to the world's attention in 1930, when the Chicago businessman Max Adler founded the world's first planetarium, bearing his own name and located in his home town. A centrepiece of the Chicago planetarium was the Sky Theater, which used an optical projection device developed by the Zeiss scientific director, Professor Walther Bauersfeld, to create the illusion of a night sky.

When Germany was partitioned after World War II (WWII), the Zeiss Group was broken up, leaving **Zeiss-Opton Optische Werke Oberkochen GmbH**



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in the west, and **V.E.B. Carl Zeiss Jena** in the east (and still based in Jena). The two Zeiss entities both continued to prosper and roll out innovative products in the field of microscopy, optics, cameras, planetaria, optics and electronics. The Jena operation, for example, developed the electro-optical distance and height measuring equipment that was used in the Olympic Games of Moscow (1980), Los Angeles (1984) and Seoul (1988).

Together again

With the reunification of Germany, the Oberkochen management looked to bring the two Zeiss halves together again too. But the western company was – perhaps understandably – keen to buy only those parts of its eastern counterpart which it believed would be a good fit with its own organisation.

While Carl Zeiss Oberkochen was generating sales of more than \$2,000 million with a workforce of around 32,000, Carl Zeiss Jena was turning over less than \$400 million and supporting more than 70,000 employees. Obviously, there had to be changes.

The flagship Zeiss factory in Jena, with its arched gateway through which thousands of workers would stream at every shift changeover, was a dominant feature of the elegant town centre. Today, the building remains as architecturally imposing as ever, but it now houses a shopping mall full of smart restaurants, fashion stores and sports emporia.

Clearly, profitability – or potential profitability – would have been a key criterion in deciding which parts of the group to keep, and which to let go. But the Oberkochen management also had to make sure that it was not buying elements of the eastern operation which duplicated what it already had in the west.

It was certainly not a simple case of ‘west is best’. In many areas, the Jena operation was the dominant partner. In the field of planetaria, for example, Jena was recognised as a world leader, and the Oberkochen production team was incorporated into the eastern outfit.

One of the pieces that didn't fit in with the Oberkochen big picture was

the electronics division, based in the nearby town of Saalfeld.

The managers of the division were faced with a stark choice: close down the operation, or put their trust in the hard work and expertise of their colleagues and organise a management buy-out. They went for the second option – and EPSa was born.

The managers who organised the buy-out, Dr Dieter Simon and Uwe Schulze, are still at the helm of the company today as joint Managing Directors and owners. Simon was the head of electronics R&D at Carl Zeiss Jena, and he had also been the chief engineer for the Zeiss team involved in the development of the Edmonton Planetarium project in Canada in 1984. Schulze had been in charge of electronics product testing.

Simon, Schulze and the EPSa management team had to decide how best to use their resources. They knew that they had the Saalfeld facility, but most importantly they had innovative R&D scientists and a skilled workforce. They also knew that this talent pool could be nurtured and replenished with support from the region's excellent scientific institutes and colleges.

Although EPSa was now an independent company finding its own feet, it continued working closely with Zeiss and the Jena scientific community. The core of EPSa's business was focused on continuing to provide electronic circuitry and control systems to Zeiss. Even today, Zeiss remains one of EPSa's biggest customers. However, early in the game EPSa recognised that it had to branch out and find new customers, and new business areas.

In addition to its semiconductor division, EPSa's activities currently extend to four main application areas: automotive, aerospace, environmental and medical.

‘Our fundamental strength is our electronics capability,’ Simon told *Cargo Security International*. ‘We are a very flexible and adaptable company, working for customers in many different areas of business – but it is electronics that underpins everything we do.’



‘We develop, design and produce in-house. Everything, as far as the heart and soul of our solutions is concerned, is in our hands. This means we have a good deal of control, helping us supply a product of the highest quality’

There about 200 employees based at EPSa's 6,600 square metre (m²) Saalfeld plant, in addition to a smaller team based in the office in Jena. On our guided tour of the Saalfeld facility last year, the level of investment and expertise was very much in evidence. Saalfeld is equipped with the latest fabrication tools and technologies, but it was the personnel who impressed the most. Bringing together all the electronic components, assembling and checking the circuit boards – this takes years of training and experience.

According to Rudy Muller, business development executive at EPSa and *Cargo Security International's* host for our visit to Jena and Saalfeld: 'EPSa's greatest assets are its employees, hands down. Combine that with the integrity and vision of the management and you have a fundamentally solid company. In fact, EPSa is today one of the biggest privately-held companies, in its class, in Eastern Germany.'

EPSa has spent the past two decades building up its own range of electronics-based products as well as building bespoke systems for many different clients.

Essentially, customers will approach EPSa with the plans for a new product, and EPSa will then use its electronics expertise to make it a reality.

'We develop, design and produce in-

house,' explained Simon. 'Everything, as far as the heart and soul of our solutions is concerned, is in our hands. This means we have a good deal of control, helping us supply a product of the highest quality.'

In some cases, the customer will pay EPSa for the development and production costs and then take the product to market itself. However, EPSa can sometimes adopt a more collaborative business strategy.

Muller explained: 'There are times when a company will come to us with an idea for a new product and – if it fits within our scope and business plans – we might say: "Okay, we'll flip or share the bill, and join forces in terms of mutual product rights".'

'An example of this would be the *Ocuton*, a hand-held autometer for glaucoma patients. The patients use the device to monitor their own eye pressure and the results are also sent online to their clinic. With the *Ocuton*, the patients can adjust their own medication on a daily basis. Obviously, this is not a substitute for professional medical care but it means that the patients don't have to visit the doctor's surgery as often as they did previously and they can do more for themselves.'

EPSa won innovation prizes for its work on the *Ocuton* in 1998 and 1999,

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and the product is still an important part of the company's medical range today.

HiLocate

EPSa's willingness to take on and run with a client's good idea also led to the development of a range of products which have made the company so interesting to *Cargo Security International*.

In the mid-1990s, the telematics company **GAP AG** came to EPSa with its plans for a vehicle monitoring and tracking system. GAP developed the original *HiLocate* software. EPSa developed the *HiTrack* (first generation *HiLocate*) system and produced the hardware devices.

At that stage, EPSa already developed and manufactured portable container and trailer tracking and monitoring devices for high-value transports.

After a great deal of R&D work, GAP released the *HiLocate* telematics control centre in 2002. By 2003, more than 10,000 *HiTrack* board computers had been delivered to customers.

This was a solid start, but then GAP wanted to offload its telematics division, leaving EPSa with a big decision to make. Would it abandon the project; or would it give its full commitment to the *HiLocate/HiTrack* project, by becoming a direct player in the telematics market? In October 2004, EPSa purchased the *HiLocate* application software and took



over full and exclusive user rights for HiTrack and HiLocate. Over the past five years, the HiTrack/HiLocate installed base has been expanding steadily, with tens of thousands of units now being used to monitor vehicles and containers in Germany, Russia and worldwide.

When *Cargo Security International* visited Jena and Saalfeld, Rudy Muller chauffeured us from Altenburg Airport to the city offices in a car equipped with the latest EPSa tracking and monitoring technology.

Driving safely

As we sped through the Thuringian countryside, Muller used the technical gadgetry to show how telematics solutions have come a long way in a short space of time.

A fully-fledged system can now offer a host of applications: area geo-fencing; satellite navigation; intrusion detection sensors; special locking systems; digital tachographs; communication and display systems for load and driver management; vehicle diagnostics (checking on the fuel, speed, brakes etc.); and driver alert and communication systems.

In practice, this means that a fleet manager's control room can use satellite navigation to plan the safest, most efficient route for all their vehicles, and they will know immediately if one of their vehicles deviates from the correct route. They can then communicate directly with the driver to ascertain if there is a legitimate reason for the diversion.

When telematics first started appearing onboard trucks, some drivers were suspicious of the technology, seeing it as a 'spy in the cab'. But, as Muller pointed out, the intrusion detection sensors and vehicle diagnostics – all of which can be monitored by the control centre – are vital tools in ensuring the security of the vehicle, the cargo and the driver. The two-way voice communication system – which we tested out a few times on our



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journey to Jena – shows how a successful security programme depends on the partnership between the driver and the control centre.

Even more developments are sure to come in the future. As with any technology-based security solution, however, there will always be a game of one-upmanship between the security providers and the criminals. It didn't take long, for example, for cargo thieves to figure out that it is sometimes possible to 'jam' (or block) global system for mobile communications (GSM) signals. However, new-generation telematics devices can detect jammers.

Limited battery life, a lack of network coverage or downtime, weak signals, software incompatibility; a greater need for standards: all these have been flagged up as problems associated with telematics at some point; and all have been dealt with successfully. Muller summarised: 'There will always be room for improvement. Technology is not something that stands still, neither do we.'

As the history of HiLocate and Ocuton has shown, technology

challenges are grist to EPSa's mill.

However, while a technology company like EPSa can help to develop new ways to alert companies that their asset are in danger, the manner in which companies respond to these alerts is a separate, and more problematic, issue.

As Muller pointed out: 'Too often, there is no proper response and recovery element in place when telematics systems issue an alert.'

'Companies have to work closely with law enforcement authorities and security providers like **Continental Security Management (CSM)**, **EUROWATCH** or **Securitas**, etc. to make sure that the information about, for example, unauthorised entry, route-deviation, or driver in danger, is acted upon.'

Customer satisfaction

Clearly, there is still a lot of work to be done to build up the support and response infrastructure for telematics. Furthermore, the fact that around 70% of Europe's goods and drivers are still unprotected by any kind of tracking or monitoring technology should also be borne in mind.

In both cases, as Muller pointed out: 'There needs to be more communication between the end users and the service providers and in special cases the manufacturers.'

Muller continued: 'Although there are good providers with quality products on the market, others are simply happy to reel off the long list of "functionalities" that their system can deliver, as well as make ridiculous promises. Unfortunately, they are not always so good at listening to customers and understanding their needs.'

With its background in developing bespoke solutions, EPSa has always regarded the customer's brief as sacrosanct. Asked to sum up EPSa's business philosophy – not just on telematics, but in all its business areas – Dieter Simon said: 'We don't set the market, in fact it is the other way round. We work closely with the client to build solutions, continuously striving for 100% customer satisfaction.'