

It's okay to fall | Technology push to success | A revolution in anatomical pathology | OEMs of the future | Apps must add value
The cards have been reshuffled



SOURCE OF YOUR TECHNOLOGY

Sioux Magazine 2016

source



**Progress is
founded on
courage**

courage

Our world is changing at a dizzying pace. There are enormous challenges for the future in areas such as public security, health, energy, mobility, the ecosystem and food supply. Global social and economic issues are varied and complex. In my view, they have one thing in common: their solutions are based on technological developments. This conviction is an important driving force for Sioux, in both our daily work and our strategic growth.

Sioux is an innovative technology partner that strives to make a difference by delivering the best total solutions to high-tech OEMs. You don't accomplish that by standing on the sidelines. You have to demand a place in the forefront. This requires special qualities: technological competence, integrity, innovation, decisiveness, the capacity to learn, reliability, knowing your clients, collaboration and drive. Above all, it requires embracing change – never playing it safe, but taking initiative and boldly forging ahead with technological solutions and entrepreneurial endeavours. It's the courage of Sioux and our people that makes us stand out.

This edition of SOURCE is chock-full of courage. Take for example the article about our technological and financial partnership with Philips in the development of the pathology scanner, or the article about SoLayTec's extraordinary rapid transition from promising start-up to commercial success. And read about how Sioux and NXP are working together to break new ground. I hope that these and other stories from the magazine will inspire you as much as they have me. Happy reading.



Hans Duisters
CEO Sioux Group

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SOURCE is also available online at www.siuox.eu



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SOURCE OF YOUR TECHNOLOGY



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The courage of Sioux

'DARE TO EMBRACE CHANGE'

'It's okay to fall, as long as your teeth stay in your mouth,' says **Erik van Rijswijk**, COO of Sioux Group. His statement is typical of the kind of entrepreneurial spirit he shares with CEO **Hans Duisters**. Over the past twenty years, their company has developed into a high-quality system supplier for the international high-tech manufacturing industry. That transition demanded more than just ambition and vision. 'To realise your dreams you must embrace change and be prepared to boldly forge ahead.'



Duisters and Van Rijswijk complement each other perfectly. They started with Sioux in 1996 as seconded specialists in technical software. Duisters wanted to matter: to build a company of hundreds of people working to make a difference; to add value for the client and make the world a better place. Van Rijswijk's focus was on being the best in providing technological solutions. And that mix has changed very little over the years.

Risk

'I am always bursting with ideas,' boasts Duisters. 'I go outside, see all kinds of things and I come back with my head full of plans. Speaking to Erik about it all gives me a 'reality check'. Am I on the right track, does it fit to our organisation, is it feasible, is it worth the risk? What we share is this immense ambition to continually advance the position of the company in the regional, national and international high-tech industry as a supplier who facilitates total solutions for OEMs in the fields of software, mathematics, electronics and mechatronics.'

'We also share the understanding that people add the most value' adds Van

Rijswijk. 'We have known each other since before the dot-com bubble burst, the time of giant public software companies, beasts that devoured everything in their paths. It all revolved around one thing: putting in hours and earning as much as possible. In a way, establishing Sioux was a reaction to this. Above all, we want to mean something to people, to work together, enjoy ourselves, help each other improve, to learn, grow and be there for each other. This driving force has never lost any of its power. Sioux's goal, a culture that clients can recognise and value, is the cornerstone of our success. Sioux is a healthy business, but we have never done it for the money.'

System house

Sioux has experienced remarkable growth over the past several decades. It developed from seconded ICT employees to consultants. The technical software domain was enhanced with electronics. Mathematics specialist LIME became a part of the organisation. Sioux established itself as an investor in startups such as Phenom-World and MuTracx. And recently, it acquired mechatronics specialist CCM, allowing the company to grow to approximately five hundred employees. In 2016, Sioux has become a system supplier, working together with clients on integrated solutions. ●

TECHNICAL SOFTWARE

ELECTRONICS

INDUSTRIAL MATHEMATICS

MECHATRONICS

1996
ESTABLISHMENT
SIOUX

1999
OFFICE IN
BELGIUM

2002
OFFERING
REMOTE
SOLUTIONS

2007
BACK-OFFICE
MOSCOW

2010
OFFERING
ELECTRONICS
SERVICES

2010
OFFICE IN
NORTH/
MIDDLE OF THE
NETHERLANDS

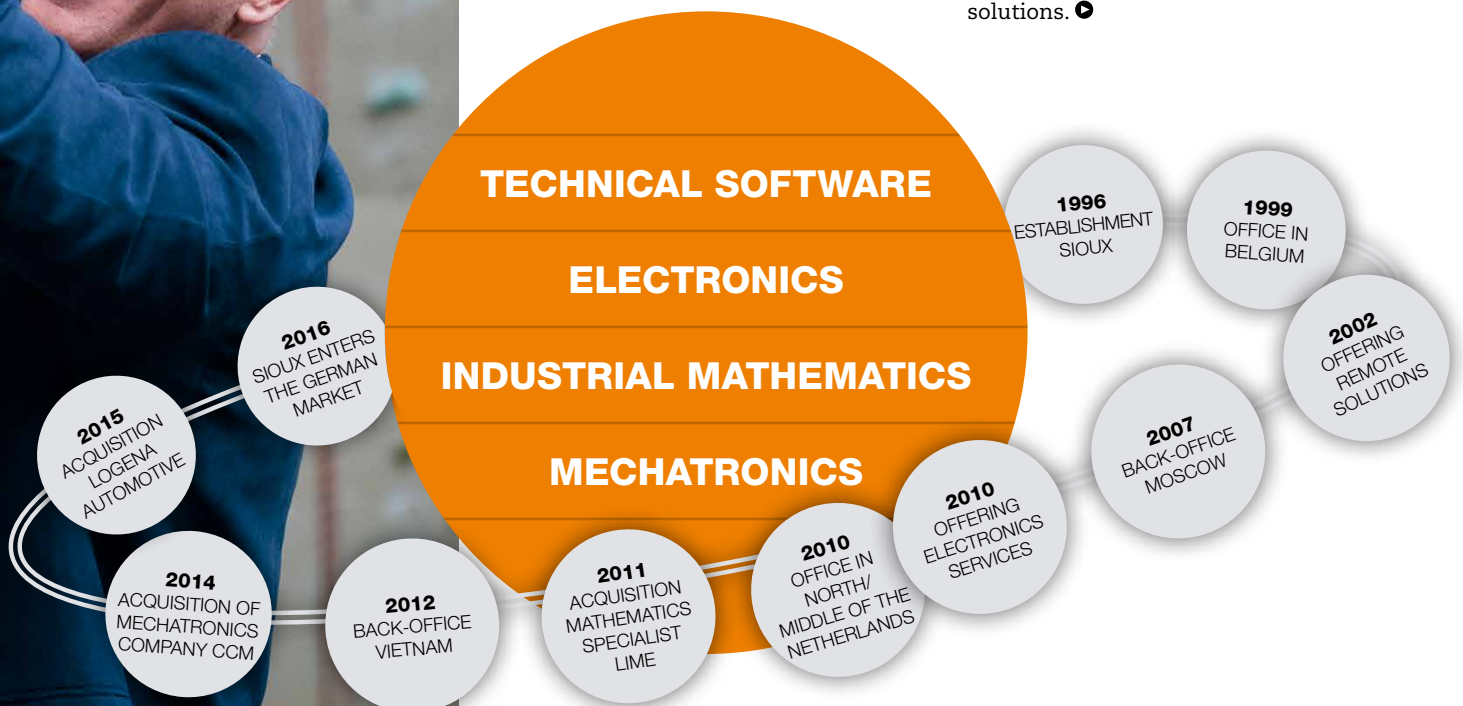
2011
ACQUISITION
MATHEMATICS
SPECIALIST
LIME

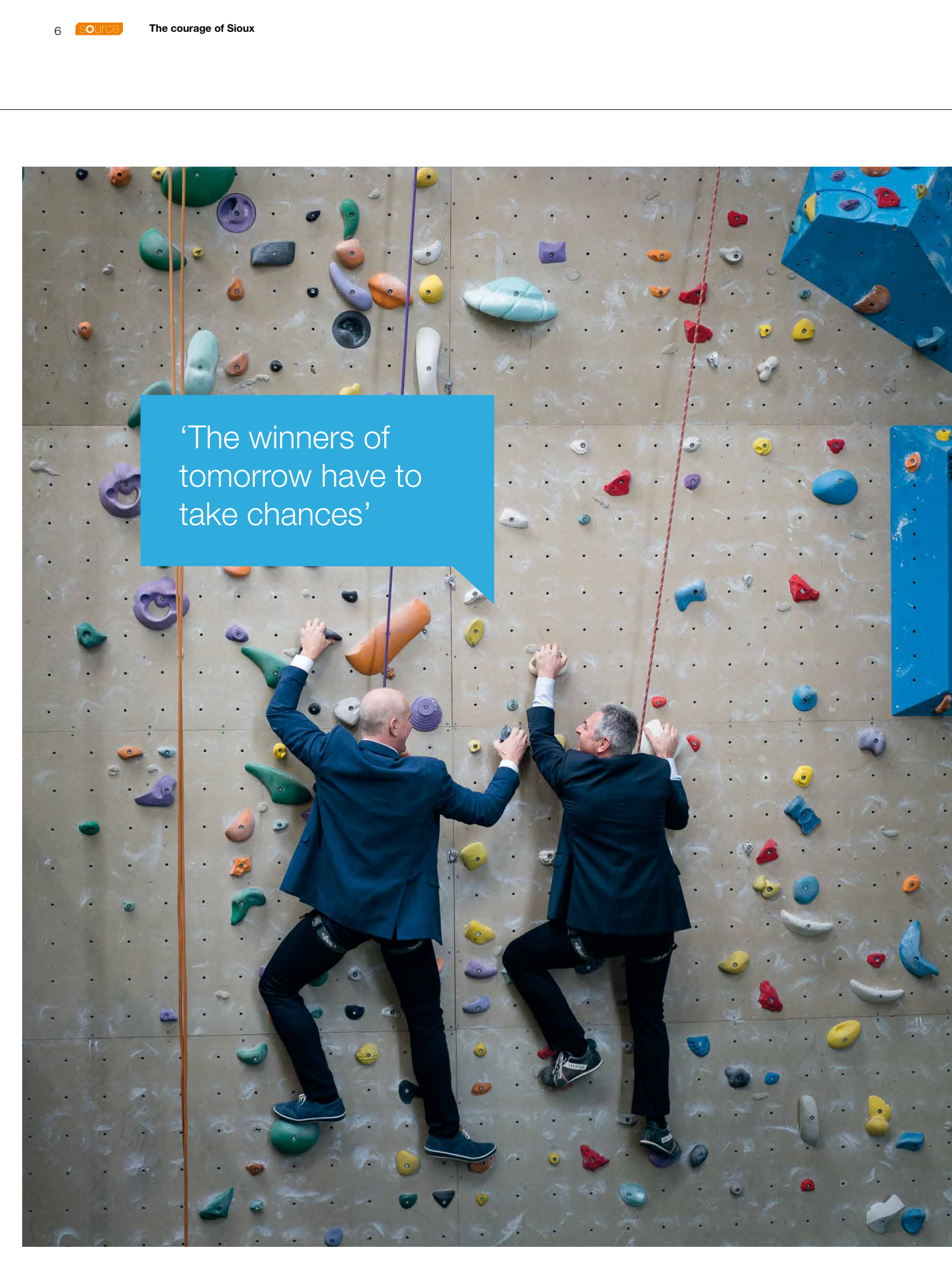
2012
BACK-OFFICE
VIETNAM

2014
ACQUISITION OF
MECHATRONICS
COMPANY CCM

2015
ACQUISITION
LOGENA
AUTOMOTIVE

2016
SIOUX ENTERS
THE GERMAN
MARKET



A photograph of two men in business suits climbing a rock wall. The wall is covered in various colored climbing holds. The men are positioned in the lower half of the frame, reaching up to grasp holds. A blue speech bubble is overlaid on the left side of the image, containing the text 'The winners of tomorrow have to take chances'.

‘The winners of tomorrow have to take chances’

At the top

Duisters: 'We want to be in the vanguard as high-tech first-line suppliers for OEMs. There's only one path forward with that kind of ambition. You have to embrace change; learn, grow and expand. We do that by acquiring companies, investing in people and constantly reorganising and repositioning ourselves. You will never get to the top by erring on the side of caution. You can't get anywhere if you are too rooted to the ground. It's the same story for software and hardware development. We often work on breakthrough technology, at the cutting edge of what's possible. Our world is changing at a pace that is truly astounding, and we are at the forefront of it all. That requires flexibility, decisiveness and innovative power. Technological skill alone is no longer enough to survive.'

DNA

For decades, the sectors that Sioux has been active in have been characterised by driving fundamental shifts. The size of the shift is determined by the OEMs, who work more closely with the end user. According to Van Rijswijk, the end of the movement is still nowhere in sight. 'Look at FEI Company, who are investing more and more in their clients' workflow. The electron microscope is part of the deal. And perhaps some parts of Philips are continuing to shift more toward the IT side. The Pathology Scanner is a fantastic device. But the actual service provided is facilitating the collection of huge amounts of data and transforming it into usable information. I think that the distance between the start and finish lines is growing for many OEMs. That is the gap that Sioux is targeting with its smart approach of taking on the responsibility of developing and building products. The more in-house competencies we acquire, the stronger our position becomes. But we also have another important advantage. As we approach new frontiers, software and mathematics are becoming more crucial. And that is exactly what we specialise in. We have proven our capabilities many times over, for example with the continued development of NXP Itec's Adat platform.'

Commitment

This rapid growth in people, companies and competencies raises the question of the risks involved for Sioux. Why have everything in-house when there is ample opportunity to collaborate with external specialists? And why the drive to invest in new companies? Is the pressure on business continuity and work quality not too high?

‘There are enough companies minding the shop fronts, but that’s not the way we like to do business’

'The rules of the game are clearly defined by our clients,' explained Duisters. 'It must be faster, better and cheaper. Achieving this requires a massive level of commitment on all fronts. Suppliers aren't always able to provide enough accountability – if they don't own the problem, they also don't own the solution. Their development is also difficult to manage. Moreover, Sioux wants to be viewed as a serious and reliable partner for OEMs. In order to do that, you have got to achieve a certain size. That doesn't mean that we have to have everything in-house. An acquisition is only considered once demand is high enough. That's why we invest in electronics and mathematics, and we outsource disciplines such as radiology and cryo. But its also about quality at the same time. When we asked clients about the added value of a mechatronics unit within Sioux, they responded, 'Great, but they've got to keep up with the best in the world'. That was our underlying reason for choosing CCM.'

Pain

The question of what investing brings to the table is more more interesting than what it costs, according to Van Rijswijk. He believes it should be viewed in broad terms. Acquisitions allow Sioux to gain not only new qualities, but also new markets. Investing in startups and new technologies strengthens the power of Brainport's high-tech ecosystem, the home region that Sioux supports wholeheartedly. Van Rijswijk: 'Whatever the reasons are, we always consider this type of decision thoroughly. But not everything that we attempt is a success. It doesn't just happen. The stress factor generally runs extremely high. The desire to achieve our ambitions is incredibly strong. There are already enough companies minding the shop fronts, but that's not the way we like to do business. We have a powerful intrinsic drive to make a difference; to dream, think and do. Dreaming is relatively easy. But how do you make it a reality? Where do you begin, what risks do you take, how do you organise it and what is needed? The most difficult part is the thought process, everything else will follow. We only truly started to understand that when we created Sioux. Now I dare to say that that we are quite adept at the process. What helps is that we know that there is no gain without pain. It's okay to fall, as long as your teeth stay in your mouth. Courage is wonderful, but so is exercising good judgement. Growth, change and innovation always go hand in hand with uncertainty. That's the path we've chosen, and it makes our lives especially interesting.' ●

Hein Gijsbers:

'WE COULDN'T DO IT WITHOUT SIOUX'

FEI Company is in a transitional phase. The global market leader in the development and construction of electron microscopes is increasingly focused on applications for clients; enabling fast analyses and generating relevant information. Software is becoming more important in determining the success of the market. As a result, the close-knit collaboration with Sioux as a partner in technology and entrepreneurship is intensifying.

'Our success stems from an enormous technological push,' says Hein Gijsbers, Sr. Vice President Operations at FEI Company. 'FEI invests more in R&D than the competition. We innovate faster and better. We reap the benefits of Brainport's high-tech network. Our location in Eindhoven is part of an ecosystem of companies and institutions with vast proficiency in micromachining, accurate positioning and technical software. On top of that, our entrepreneurial spirit is extremely high. If we see a new opportunity, we call our partners like Sioux and we can practically start with it the very next day.'

Limits

Over the past several decades, FEI Company has broken record after record. With the help of increasingly sophisticated electron microscopes, it has become possible to zoom in to the level of individual atoms. A closer look into matter has very little scientific or practical use. For FEI, that is also no longer the only way to continue helping clients. Gijsbers: 'Our company is undergoing major change. The new motto is: 'sample in, answer out'. The problems being addressed in our most important markets – semi conductors, oil and gas, life science and materials science – are becoming increasingly complex. For example, the inspection of more thinly layered semiconductors or examining proteins in medical laboratories. We can add value by

investing in the speed and quality of the client's workflow; supporting the client by conducting analyses and facilitating the generation of answers. FEI is focusing more and more on offering complete workflows. State-of-the-art microscopes are still required for this, but the focus now is more on applications.'

//////
 'There is immense mutual trust'

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Results

Sioux has been working together with FEI for more than fifteen years, and has since become a strategic partner, working at the core of the systems and taking responsibility for the results. At the Eindhoven site, various development projects run continuously within changing teams. The back offices of Sioux in Vietnam and Russia are focused on tasks such as service software and software maintenance.

'Above all else, Sioux is really a company that is characterised by entrepreneurship,' explains Wieger Cornelissen, Account

Manager at Sioux. 'We dare to invest in promising business cases. At the moment, we are working on a substantial project, upgrading the control software for 1500 Tecnai systems. This will extend the expected life time of that part of the FEI installed base. Another way we work together is through licensing. We do all of this because we are convinced that what is good for FEI is ultimately good for us.'

Strenght

FEI is a contemporary concept to distribution OEM that develops core technologies and sells end products to the clients. Everything in between is outsourced. That results in a relatively limited scope which allows for a high degree of agility and innovative power.

Gijsbers: 'We come across a lot of opportunities. We can't take them all on. Having Sioux as a development and investment partner gives us more strength. We grew together and learned together by falling and getting back up again. In the process, we have developed an immense amount of mutual trust. Sioux is incredibly close to our technology. The more FEI evolves into an application driven company, the more valuable our partnership will become. Have a look at the work from Sioux LIME. Mathematics rules the world and the world of FEI. In order to optimise our applications, complex algorithms are often necessary to convert data streams into usable information, for example with image processing. Monitoring, preventative maintenance and system updates are also becoming a more important part of our revenue model. In short, we couldn't do it without Sioux. Especially given the fact that they are a part of our software department, together with our specialists in 2D and 3D tools from FEI Advanced Software Group in Bordeaux. Our pasts and our futures are strongly interwoven.' ●



'By falling and getting back up again our relationship grew stronger'

With its examination of suspect tissues, anatomical pathology plays a crucial role in defining clinical pictures. The process involves using pigments to make cell morphology visible. This has resulted in a huge archive of books containing patterns relevant to various diseases. A more efficient process is needed now that the number of cancer cases is rising and more and more patient information is being collected.



Philips and Sioux CCM are working together on the pathology scanner

‘WE ARE CREATING A REVOLUTION’

The Philips IntelliSite pathology system represents a breakthrough in anatomical pathology. With the help of the **Ultra Fast Scanner**, the image management system and case viewer software, analyses can be conducted significantly faster and better. Philips has developed the system together with a number of high-tech companies from Brainport, including Sioux CCM. This allowed the financial risk to be shared. After years of investing, it is finally time to reap the rewards.

‘A breakthrough was necessary to significantly improve the efficiency of how pathologists work,’ says Hans van Wijngaarden, Operations Manager at Philips Digital Pathology Solutions. ‘This can only be achieved by making sophisticated information digitally accessible. That’s what the IntelliSite pathology system does. Three hundred slides with coloured tissue can be loaded continuously into the scanner. For each sample, ten gigabytes are processed within one minute, with the ability to record at resolutions up to a half micron. You can archive, retrieve, view, compare and share the information. This is creating a revolution in the workflow of anatomical histopathology.’

Pressure

IntelliSite is a product of ten years of collaborations between Philips, Prodrive, Frencken and Sioux CCM. Amongst other aspects, the latter committed to developing full-range motion by using linear motors, optical sensors, microscopic technology and control software. This is an extraordinary project for Philips. Van Wijngaarden: ‘It is a technological and financial

partnership. At Sioux they say, ‘laugh together, cry together’. Our field is beautiful. Give a handful of technologists a complex challenge and you’ve got a team. There was no shortage of expertise, motivation, openness or accountability. But there were unforeseeable problems, particularly concerning client requests and regulations. The development took more time, money and energy than was expected. The pressure was full force at times. This allows you to get to know each other quite well.’

‘It is a technical and financial partnership’

Partner

The IntelliSite pathology system has been released in Europe for use in examinations as well as regular diagnostics since October 2014. America will soon follow. ‘We took on the risk together, now it’s time to reap the rewards,’ says van Wijngaarden. ‘We have already started developing the second generation. We are also working together with Sioux CCM on a project for Genomic Health. Sioux is a reliable partner that you can trust with your turnkey projects. It’s important to have a cultural match. This leads to getting to know each other quite well.’

Nemo Healthcare

'A startup is hard work'



Nemo Healthcare intends to redefine the global standard of pregnancy monitoring. The startup developed Atlantis, a medical device that monitors the well-being of the unborn child. Founder of Nemo, **Bas Lemmens**: 'We have received proof of concept and are heading to the market.'



→ WHAT IS THE ISSUE?

← 'The current method for pregnancy monitoring has too many shortcomings. The external sensors that measure two important reference signals – the heart rhythm of the child and the contractions – give zero or incorrect information in twenty to forty percent of the cases.'

→ WHAT ARE THE POTENTIAL CONSEQUENCES?

← 'Unnecessary interventions, such as caesarean sections. Or delayed interventions. The result is that every year, one to four hundred Dutch babies are born disabled due to lack of oxygen. We believe that our device can help cut that number in half.'

→ IS NEMO GOING TO CHANGE THE WORLD OF OBSTETRICS?

← 'That is the aim. Detecting problems earlier and better and expanding access in areas like first-line health care will reduce damage to the health of mothers and children as well as save costs.'

→ HOW DOES ATLANTIS WORK?

← 'The human body releases a number of electrophysiological signals by retracting muscles and other processes. We measure the baby's heart and the uterine muscle contractions.'

→ THAT ALMOST SOUNDS EASY...

← 'It is unbelievably complicated. We have an enormous amount of knowledge in this area of application. We are pushing the limits of technology together with partners such as Eindhoven University of Technology, Maxima Medisch Centrum and Sioux. The signal from a baby's heart is quite weak. We filter out the huge amount of other electrophysical signals with the help of our unique algorithms. Sioux LIME is involved in this process. Sioux also develops the hardware and software for the base station we use to record the signals.'

→ WHEN WILL WE SEE ATLANTIS IN HOSPITALS?

← 'It is difficult to get startups like Nemo off the ground. We started with Atlantis in 2013. We have recently received a European subsidy and support from a group of investors from Brainport. Now we have the go ahead. We will soon start validity testing with six to seven hundred patients. Medical certifications and sales processes will then follow. We still have a long way to go, but we will certainly be successful.' ○



'THE BAR IS SET INCREDIBLY HIGH'

SoLayTec, the Eindhoven-based developer and builder of solar panel production machines, grew in six years from a technical startup to an OEM with its heart and soul in the international solar industry.

This remarkably fast development is not only thanks to its unique technology. 'The success of SoLayTec is an example of Brainport's valuable model of collaboration', says **Arnold Stokking**, Managing Director of TNO Industry.

In 2008, TNO scientists discovered that the yield of solar panels could be significantly increased with the addition of aluminium oxide. Two years of further research led to the establishment of SoLayTec. The decision to do so was made during a deep economic recession, at a conference table with important representatives from Brainport's high-tech manufacturing industry.

Conviction

'TNO, Sioux, NTS Group, Bronckhorst, Lamers, Frencken, TMC and Van Berlo – we all believed in the technology and the market opportunities', explains Stokking. 'But launching a new machine manufacturer for the solar industry doesn't happen overnight. You have to consider the uncertainties and bumps along the way. The belief in the necessity of a fundamental energy transition – from fossil to green – convinced us of the importance of the project. We believe that solar energy is the future. The ultimate decision was made in typical Brabant fashion: 'It is important and promising, so we just have to do it.' Moments like these bring together the best



^ Arnold Stokking and Arnoud de Geus (left to right)

Atomic Layer Deposition

The technology of SoLayTec is based on Atomic Layer Deposition. By adding a layer of aluminium oxide on the silicon solar cells of just a few nanometres, yield is increased by more than six percent. This represents a breakthrough for SoLayTec on the low-cost solar panel market. The OEM's greatest achievement is making the technology commercially viable. It can be produced very cost-effectively using an ultra-fast and reliable process.

of what this region has to offer. Tremendous ambition. World-class institutions. And the extraordinary expertise of its exceptional high-tech suppliers. There is also a strong drive to share and collaborate, in good times and in bad. SoLayTec is the product of innovative power and passion for entrepreneurship.'

Performance

Arnoud de Geus, Business Development Manager at Sioux: 'The first system from SoLayTec was launched in 2012, two years after starting. That was certainly an achievement. Wafers are moved through a machine quickly and precisely using air bearings. At the same time, various process gasses are blown through numerous chambers. All in all, we are talking about a very controlled and complex process of movement and placement. The development process required a variety of innovations in accurate positioning, handling, logistical flow, pressure regulation, thermal management, control and design. We sped up the process by directly working toward an end product. Various modules were developed within multi-disciplinary teams

working in parallel. Sioux played an important role here with its incredibly fast development of optimised designs using software simulations for various configurations. In addition, our integral commitment in the development phase established uniform terminology for the tools, further improving the efficiency of the development process.'

Sentiment

At the moment, dozens of machines from SoLayTec are operating worldwide. In the first quarter of 2016, three machines are being constructed at the same time. According to Stokking, the technology is better, more reliable and cheaper than that of the competition. For Brainport, that's one more OEM with a bright future. How different the sentiment was a few years ago, when the solar market crashed due to overproduction in China. The majority shareholder Rena, builder of production machines for solar panels, went bankrupt. SoLayTec had to make every effort just to stay operational, and was able to find a new majority shareholder in Amtech's subsidiary Tempress.

It also received the unwavering support of TNO Companies and the Brabant Development Agency (BOM).

Success

'If we had known everything in advance, then we wouldn't have taken on these types of business cases so quickly,' says Stokking. 'The path from proof of concept to a validated machine usually costs more time, energy and money than expected. Financing is always an issue. That's exactly why cooperation and courage are so important. In that light, TNO Industry plays a crucial role as the catalyst of innovation and new activity. We want to be at an average of one new OEM annually. For us, Sioux is one of a select group of partners that supports us with top-notch expertise. In addition, the company is not afraid to invest in promising propositions. It took on the risk itself for developing the control software of the SoLayTec machines. Any success for SoLayTec is a success for Sioux. And that's how it will always be.' ◉

‘Working for Sioux is an investment in myself’



Tatiana Ungureanu: 'I LEARN SOMETHING EVERYDAY'

‘Relatively few women work in high-tech in the Netherlands,’ says **Tatiana Ungureanu**, Software Designer at Sioux. ‘Unfortunately, I seem to be living in a country where the majority of the population is not interested in technology. That has to change and it begins with the younger generations. Children should experience how important and amazing it is. Sioux is investing heavily in this area and that says a lot about the company.’

About five years ago, Ungureanu graduated from the acclaimed OOTI programme offered by the Stan Ackermans Institute. She had her pick of renowned companies, and she chose Sioux. ‘It is an investment in myself,’ says the Romanian software designer. ‘When I was searching for opportunities in my field, I stumbled upon the study programme and Eindhoven. For me it is the place to be. All those impressive high-tech companies creating the most fantastic products...

After finishing my postgraduate degree, I wanted to be part of this environment. I’m in the right place at Sioux. The level of knowledge is enormous, the projects are multifaceted and varied. Things are created here, from the idea phase up until

the delivery of the product. As a software designer, you are involved in the entire process. You are given a lot of freedom, the opportunity to do things in your own way.’ Moving from Romania to the Netherlands was not an easy step for Ungureanu. She left her family and friends behind and had to adjust to a new culture, especially to the direct way of communicating. ‘Now I see it in a positive light. Direct feedback helps my development. We face big challenges at Sioux. I look up to many of the people that work here. Their knowledge and experience is immense. I learn something everyday – personal growth is proactively encouraged. At the same time I work on cutting edge technologies like the machines from ASML and SoLayTec. That gives me a great feeling of pride and satisfaction.’ ●

Appification

'It must have surplus value for the customer'

Bas van Loon is in charge of Sioux projects where apps are conceived and created. 'This is the time of appification. More and more companies are investing in apps. But if it doesn't add value, you shouldn't do it.'

Gateway engine control is easy nowadays with an app



→ WHAT IS APPIFICATION?

← 'The number of apps is increasing rapidly. Companies use them for interacting with customers, improving processes and as a functional component for products.'

→ WHAT DO COMPANIES GAIN?

← 'Apps often don't deliver on their promises. Applications that are not well thought-through can damage your reputation, disrupt business relationships, reduce efficiency... You always have to ask yourself what you want to achieve and how you plan to do it.'

→ WHAT IS SIOUX'S STANCE ON THE TREND?

← 'Apps can be a valuable part of our solutions, for example in cases concerning monitoring, maintenance or control. They must provide added value for the customer. We look beyond technology. It's about the total solution. Sioux proactively works with the customer's particular business case, the business processes and the link to and from an embedded device.'

→ WHAT ARE THE TECHNOLOGICAL CHALLENGES?

← 'First and foremost, you have to understand the customer's complex technical domains. Specific expertise and experience is also crucial. Using Xamarin, Sioux develops cross-platform apps without compromising the usability of the application. On top of that, you have to consider design quality; user experience, clarity, intuitive use...'

→ IT'S A MULTIDISCIPLINARY CHALLENGE...

← 'And that has to be organised. I am the link between the customer and our app expertise centre in Vietnam. And Sioux LIME adds value by, for example, developing mathematical algorithms for the rapid processing of the large amounts of data that will be ultimately visualised in the app.'

→ SO IT'S NOT A SIDE PROJECT?

← 'Sioux is fully invested in this. It translates into amazing results, such as the app for Heras allowing you to control gateways remotely, or the mobile application for reducing traffic congestion, or the app allowing you to control your home automation system from Niko or an app allowing you to retrieve a range of information about your car remotely.' ◉

The inspiration of Sioux

HOT-OR-NOT IS HOT



Sioux works on challenging projects on a daily basis. Gathering and sharing knowledge is an important ingredient for success. Sioux sees it in a bolder, broader sense. At the company's **Hot-or-Not sessions**, everyone with a passion for technology is invited to learn and evaluate the latest trends.

From the beginning, Sioux founders Hans Duisters and Erik van Rijswijk had a clear sense of the company's core values. It revolves around people and Sioux aims to be the best. That hasn't changed in over twenty years. Continuing to help each other by sharing knowledge, innovating and working on personal development are the building blocks of the company.

One of the unique ways this is manifested at Sioux is through the Hot-or-Not evening sessions that Sioux has been organising for the past nine years. The latest technological developments are explored during these sessions. Global thought leaders take the lead at these discussions. Promising innovative methods, tools and ways of thinking are addressed. At the end of the meeting, participants decide whether these trends have a future. Is it hot or not?

Sioux is at the forefront of the high-tech manufacturing industry, maximising support for OEMs. In-house expertise and integral access to the latest groundbreaking knowledge is crucial. The company also enjoys a strong independent drive to continually improve its solutions and productivity. The employees of Sioux are vibrant, love their work and are fascinated by new developments. The prevailing sentiment is 'that what is good for the region, our partners and our clients is good for Sioux'. That's why the Hot-or-Not meetings are free of charge and open to anyone that shares a passion for technology. ◻

2007



2008

HOT-OR-NOT WITH BIG NAMES SUCH AS ALAN COX (LINUX) AND ALISTAIR COCKBURN (AGILE)

2010

PLENTY OF COVERAGE FOR TOPICS ON THE FIELD OF TESTING



2012

DO NEW PROGRAMMING LANGUAGES HAVE ANY CHANCE OF SUCCESS? EVERYTHING IS DISCUSSED DURING THE HOT-OR-NOTS

2014

MODEL DRIVEN SOFTWARE DEVELOPMENT IS HOT!

2016



2007

SIoux STARTS ORGANISING HOT-OR-NOT SESSIONS TO GATHER AND SHARE KNOWLEDGE



2009

THE HOT-OR-NOT SESSIONS ARE VERY POPULAR, WAITING LISTS ARE NOT UNUSUAL

2011

IN ADDITION TO THE HOT-OR-NOTS, SIoux ORGANISES FOLLOW-UP HOT-OR-NOT SESSIONS ON A SMALLER SCALE

2013

SIoux STARTS WITH SPIN-OFF HOT-OR-NOT: THE NEXT GENERATION, PROMOTING TECHNOLOGY TO CHILDREN



2015

SIoux ORGANISES THE 30TH HOT-OR-NOT SESSION



In 2010, **Mario Marchi** launched the design of eleMMent, a vehicle that can function as a mobile villa, flag ship store or private jet on wheels. With this, he not only surprised the international automotive industry, but also himself, given the overwhelming number of positive responses. He was supported along the complicated journey from the design to the final product by Sioux Logena, a specialist in the development of hardware and software for automotive OEM's.

Mario Marchi and Gerben Hilboldt:

'WE HAVE BECOME FRIENDS'

Mario Marchi, CEO of Marchi Mobile Group, has been fascinated by cars since he was a little boy. He was a mechanic and driver at his father's Austrian transport company. But it was his passion for automotive design that brought him to where he is today. In 1989 he won a prestigious award for show truck of the year. Together with a business partner, who has since unfortunately passed away, he started a German mobile marketing company – currently known as mm Group Sales & Marketing. This company offers a wide range of services to reputable international parties who want to reach the world with their product or message. The promotional trailers that Marchi designs and builds have become their calling card.

Prototype

Around the turn of the millennium, his passion for ground-breaking automotive design led Marchi to Luigi Colani, the world famous designer who was responsible for introducing the principle of aerodynamics and organic shapes to the automotive industry. In 1970 he designed the so-called Colani truck, which has its roots in aeroplane and ship design.

Marchi: 'It was a vehicle of great beauty: aerodynamic, futuristic and impressive. It inspired me. When we found one of the last prototypes, the functionality appeared to be disastrous. You couldn't see a thing and nothing worked properly: the steering, air conditioning, door handles, everything. I was looking to revive it, however; to apply the design to our trailers was not an easy task. But it became a commercial success. As of 2006 we had a number of trucks on the road for marketing purposes, all of them unique.'

Backing

In 2010 Marchi took a drastic decision to start a new company: Marchi Mobile. On the internet, he presented a visionary design of a new category of vehicle – the EleMMent. The truck is able to function in various configurations as mobile villa, flag ship store or even private jet on wheels. The design combines characteristics from auto sport, yacht design and aeroplane design. The interior is modern, minimalist, and extravagant. By applying high-tech

'The manufacturing of single trucks is something completely different from series production'

engineering, the vehicle is one of a kind in terms of functionality, but also as far as price is concerned. The reactions were overwhelming: millions of clicks, hundreds of telephone calls and articles in trade journals all over the world as well as reputable newspapers such as The New York Times.

Marchi: 'But that still does not make you an OEM. Dreaming is nice, but you should also take action. The standard that we want to offer, demands perfection in all the relevant details. This requires ●

Sioux Logena

In 2015, Logena Automotive was acquired by Sioux in order to further strengthen and expand their position in the automotive market. Sioux Logena has offices in Eindhoven and the United States, and specialises in the development and integration of embedded software and hardware applications for the international automotive industry. In this manner they serve OEMs with HMI design, system integration and product development for future mobility in combination with apps. In addition, Sioux Logena develops electronics, hardware, instruments, and diagnosis tools with communication interfaces.



financial backing. As a small business we started by first securing a number of investors. You then have to develop a complex organisation in terms of design, manufacturing, quality control, sales, and service. Because of strict regulation, and because we provide a customer-specific product as far as design and functionality is concerned – there were a number of technological bumps in the road that needed to be successfully overcome. While EleMMent is still inspired by the Colani truck, it has actually been completely redesigned. Here, the cooperation with Sioux Logena was absolutely essential.'

Knowledge

Marchi produces four different trucks, for which they utilise two types of undercarriages for the American and European-Asian market, respectively. They differ completely in terms of engines and drive train configurations, cable harnesses, functions, on-board computers and electronics. The creation of the same look and feel, irrespective of the undercarriage being used, was one of the key challenges in this endeavour. In order to overcome this, you not only need expansive expertise as far as hardware is concerned, but also in terms of embedded software. It was precisely through the addition of intelligence that Sioux Logena created the necessary unity. In whichever EleMMent you

walk or ride, it is always clearly a Marchi Mobile.

'The manufacturing of single trucks is something completely different from launching a series product', according to Gerben Hilboldt, founder and International Business Development Manager at Sioux Logena. 'Reusability is a key focus in everything we do. Design, development and production are all components of an integrated overall process. You have to manage that optimally from an organisational as well as a technological perspective.'

'The cooperation with Sioux Logena is essential'

We offer the entire package to our international automotive OEMs. Our customers decide which type of expertise they would like to make use of, the same applies to Marchi Mobile, which is focused on the high end of the market. Yes, it distinguishes itself by design and customisation, but also by truly investing in technology for

example in the area of telemetry and remote diagnostics and services. Wherever their vehicles may find themselves, Marchi is interested to know in detail what their functional status is, so that they may guarantee an optimal level of service. Also at this level we provide support by bringing to the table our enormous amount of system integration expertise. In addition, we have developed many ready to use components, that we can quickly and easily apply in vehicles with minimal configurations.'

Passion

The expertise of Logena has played an important role in contributing to the quality of the EleMMent series, as well as getting from design to production in a very short time. But cooperation also involves working with people, in Marchi's opinion. 'Sioux Logena really understands our needs and then actively and proactively addresses them. Gerben and I are also just two guys who love loud rock music and share an enormous passion for cars. We have become friends and a few months from now, we will share in the pride and joy of seeing the first eleMMent make its way out of our factory, before it is to be shipped to a Turkish client.' ●





^ Janne Brok, Joep Stokkermans and Arend-Jan Beltman (left to right)

NXP Itec is unique within chip manufacturer NXP. The Nijmegen department focuses on building assembly systems for its parent company. The collaboration with Sioux is an important ingredient for success, because of the close-knit technological partnership and the good cultural fit. 'We feel comfortable with each other in every aspect,' says **Joep Stokkermans**, Development Manager at NXP.

The race of NXP Itec

'IMPROVEMENT IS ONLY POSSIBLE IF YOU TRULY GRASP THE CONCEPT'

NXP Itec develops and produces machines and equipment for the production lines of the multinational, such as wire bonders and die bonders. The focus there is clear: it must be faster, better and have the lowest possible prices. The NXP chips are mass produced. Profit margin is achieved by volume.

Ecosystems

'It's a race against time,' says Stokkermans. 'The period from product development to

market launch is consistently shortened, and the process involves complex technological innovation. The pressure is always high. And we haven't made it just because we are a subsidiary of NXP. Itec takes on the competition with external companies. Our market is especially competitive. And we are especially successful. If that weren't the case, then it's likely that we would no longer exist, considering the tumultuous years behind us. At the ▶



Market leader

Over the last several years, NXP has been working hard on its strategy, 'Secure Connections for a Smarter World', and has positioned itself as a solutions provider that truly makes a difference to its clients. And it's paying off - thanks to the merger with American company Freescale in 2015. NXP is an international leader on many fronts, including solutions for the fields of communication processors, automotive radar and safety, secure identification and Broad Based MCUs. With an annual revenue of approximately ten billion dollars, about 45,000 employees and locations in more than 35 countries, it is the fifth largest producer of semiconductors in the world. NXP invests eight hundred million dollars in innovation every year and owns more than 9000 patent families.

same time, the cards have been reshuffled. The NXP of 2016 is part of multiple ecosystems. We used to do it all ourselves. Nowadays, we truly have a more outward focus. The importance of working together with universities, governments and other companies is increasing. Our collaboration with Sioux is a good example of this.'

Multiphysics

The Adat3 platform from NXP is an impressive high-tech machine. The 'automatic die attacher' processes more than 48,000 components per hour with a positioning accuracy of five micrometres. Four rotating arms in the machine lift semiconductors such as diodes and transistors and positions them on carriers using a solder joint or adhesive bond. The fault rate is minimal. Sioux LIME's expertise in mathematics and physics was crucial for this development.

Janne Brok, Commercial Manager at Sioux LIME: 'Our collaboration with NXP began in 2008. Itec had encountered quality issues that called for a different approach. That is not unusual. When you want to realise this level of speed together with incredibly high precision, you hit the limit of what is possible. You break through by examining the issue on a conceptual level. Improvement is only possible if you truly grasp the concept. You need a fundamental understanding of the underlying multiphysics in the process; the thermal management, the chemistry, the material characteristics, to name but a few. These aspects all have complex relationships with the product's properties. We created a model of the physics of the soldering process and corrected the critical parameters. However, actual gains in quality are only achieved once this is combined with practice: targeted control and experimentation until it is perfect. To a large extent, the power of what we do lies in the collaboration between Sioux LIME and NXP Itec.'

Pace of development

Where Sioux LIME helps NXP Itec with improving the fundamentals of the production process, Sioux CCM is the development partner for optomechanics.

That requires sophisticated expertise in technology and in the organisation of the development process.

'One of the challenges with continued development of Itec's Adat platform is achieving optimised lighting and optics within a limited space,' explains Arend-Jan Beltman, CTO of Sioux CCM. 'During the process, the six sides of each 'die' have to be inspected using real time cameras at a resolution of ten microns. This requires specific high level solutions. In addition,

'You only have one chance to get it right in our line of work'

we are expected to achieve an incredibly high pace of development, also in the mechatronics domain. Excellent communication is crucial. You have to thoroughly understand each other – from a strategic level and on the shop floor. On top of that, enhancing quality and speed requires working with a degree of uncertainty, sophisticated methodologies and excellent design tools. You generally only have one chance to get it right in our line of work. Last year, we developed a new wafer change module. Itec's request came in just before summer, and within a half year we were finished. Our expertise in the area of wafer handling was a welcome contribution. For the verification process, we used a solution that did not require implementation of standard control technology. Our hardware for this platform – Smart And flexible Control Solutions, a.k.a. SAXCS – is an independent and flexible solution for the efficient development of control technology solutions for small and medium-sized production series. Modern development tools enable us to completely

simulate and verify the control design. Then, with a touch of a button, we can convert the design into an implementation.'

At home

Achieving fast processing times and being able to adapt flexibly between competencies within the project team are crucial factors in being a competitive player in the global high-tech industry. According to Stokkermans, that is the basis of the collaboration between Itec and Sioux. 'But there is more. Whiz kids with incredible talent are working with Sioux LIME. Sioux CCM has a fantastic track record in the area of product development. Sioux is developing into a system house with extraordinary capabilities, from consultancy, to mixed teams, to turn key projects. But underneath it all it's really about working with people. Having a good match culturally is very important. You have to be comfortable with each other, be open, look outward, gather and share information and dare to take ambitious steps. The people at Sioux have exactly that. Their mathematicians have a tremendous drive to realise our applications and there is a kind of natural fit between our engineering cultures. That allows us to join forces for the future. We are going to start on a production line in the low volume, high mix sector together with Sioux CCM. And in the field of numeric mathematics, new projects have started relating to vision, virtual prototyping for packaging and logistical simulations. Our collaborations are becoming more close-knit.' ●

Sioux is an innovative technology partner in the fields of technical software, mechatronics, electronics, industrial mathematics and remote solutions. Sioux supports leading high tech companies in the development and manufacturing of their products. Sioux supports or acts as the Research and Development department of her customers. With her excellent productivity, Sioux helps to shorten the development time and to create a sustainable and competitive advantage at a better price/performance ratio. In addition to development work Sioux also delivers complete products. This is achieved at the level of replacement parts and in the assembly of modules, subsystems and finished products.

For more information: www.sioux.eu.



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