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A digital scaffolding card for construction sites **p. 7**



HOME OF ENGINEERING & EXPERTISE

EDITORIAL



HOSE VALVES are one of Flowrox's products. They are suited for locking and regulation applications that are used to process erosive and corrosive sludges, powders and coarse substances.

Digital technologies have added intelligence to machines and devices, changed internal company processes and created new business.



A DIGITAL SCAFFOLDING CARD - A new generation's solution for scaffolding inspection.

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omatec Group's vision is to become the "most wanted planning and project management partner in the technology industry". This aim has been guiding the company throughout its history of over 30 years. Only now, however, has it been formulated into a clear strategy that contains practical goals and development actions for the next three years. When setting objectives and business targets, the entire management and staff must commit fully to the goals and changes. After everything is said and done, a company's success depends on understanding customer needs.

Comatec's history has been, without a doubt, a success story with its ups and downs. It is always a challenge to maintain that success in the future. When a company reaches Comatec's dimensions, the owners' or management's ideas alone are no longer enough. The situation calls for an enhanced strategy and action plans that can be communicated clearly to staff and other stakeholders. In preparing for the future, innovation and communication will be the planning framework for the years to come.

Soon after 2010, Comatec launched an internal development project called NewCom to explore future directions. Some of the goals were to present Comatec as a competent and trustworthy partner, to promote Comatec as a preferred employer, to support business with functional processes and to allow continuous development through leadership. When this is augmented with the owners' will to grow profitably, the result is a business plan formulated into practical goals.

The idea of forecasting is to perceive trends and reflections of the future over different time spans. Forecasting can be done on a short-, medium- and long-term basis. Comatec's

Success is measured by achieving goals

success is built on competence, reliability and customer added value, such as time, quality and profit responsibility. These aspects develop over a long period of time, and the importance of business planning and focusing grows with them. In addition, a company needs sensitivity and agility to react when change requirements arise. This is why one of the driving forces in Comatec's business is sufficient investment in manager training.

Innovation and solving customer problems have been added as one of Comatec's strategic service models, alongside expert and project services. The delivery of solutions is based on technology expertise in selected subareas. This brings significant added value to the customers' businesses. Communication in its different forms is crucial when supporting the company's own staff and key customer people in their commitment to common business goals. Various development and project teams have proved to be efficient communication channels and sources of innovation.

There is a planned path to profitable growth and success. However, there is a lot of development work and expertise building ahead. Part of development program are internationalisation, increasing automation business as well as increasing project and technology expertise. When I leave Comatec's board this spring, after more than 10 years, I can feel satisfied that the company is ready for future challenges. Success is measured by the achievement of set goals.

Tuomo Nevalainen Chairman of the board

Lo M2

No shortcuts to digitalisation

Digital technologies have added intelligence to machines and devices, changed internal company processes and created new business. Digitalisation has given rise to great expectations, but also great insecurity. One thing is for sure - you can't avoid digitalisation.

TEXT Marianne Valta PHOTO Okko Sorma





Sommarberg, says we should calm down about digitalisation. According to him, digitalisation is fundamentally similar to any other technology.

"Digitalisation in itself is of no use to anyone. The question is how and why digital technologies are implemented. Digitalisation has been a hot subject around ten years, but in reality, digital technologies have existed for more than 50 years already."

NEW IMPETUS FOR INNOVATION Industrial and technology

companies have moved into a whole new era with digital technologies. However, the objectives pursued with digitalisation are basic operation principles. Companies aim to do things faster, more cost-effectively or to focus more on quality. In the beginning, digitalisation meant simply replacing the drawing boards of designers with computer-aided design programs (CAD).

"Nowadays, the possibilities offered by digital technologies have almost no limit. Modelling according to system design principles, for example, enables the simulation of device operation before those devices even exist. The durability of components, future maintenance

needs and the device's lifecycle can all be forecasted in the planning phase," says Sommarberg.

With digitalisation, planners can utilise innovations such as the socalled swarm intelligence:

"VR/AR technologies, for example, allow the participation of maintenance personnel and machine operators in product development. Visual models also enable other people than the designer to understand the device being designed," says Sommarberg.

DIGITALISATION AS A PART OF STRATEGIC MANAGEMENT

When the conversation turns to digitalisation as part of a company's strategy, Sommarberg gets very excited. As an example, he mentions a model where business is managed

The three horizons model as a part of strategic thinking

Horizon 1: Business operations will be developed to maintain the current market position.

Horizon 2: Development of new business operations. For example, utilising maintenance data for new services via the Internet.

Horizon 3: Investing in risky future possibilities, for example, the use of artificial intelligence.

(Adapted: Baghai, Coley & White. The Alchemy of Growth. 1999.)

according to three horizons.

In the first horizon phase, the company works to maintain its current core business. In the second horizon phase, the company invests in new upcoming business functions. The third horizon is about creating a foundation for radical innovation, even when it comes

with uncertainties.

"The key to horizon thinking is that a company should be managed in all three horizons. In reality, over 80 percent of all activity falls easily into the first horizon and the rest, all too often, into the second. The third horizon tends to be forgotten altogether. This also applies to the

utilisation of digital technologies in companies."

"The winners of the future will be those who work towards success taking a conscious risk, but maintaining consistence," says Sommarberg.

"Operating in the third horizon comes naturally to innovative companies. Research cooperation with universities, for example, is an excellent way to support a company's innovative activities, because

producing new information is one of the universities' core missions. Through this kind of cooperation, a company can also build thought leadership in its own industry," notes Sommarberg.

ACIPLE fioldingicar

caffolding at construction sites has been inspected for decades to ensure occupational safety. In the past, this was done using a paper based system. When something bad happened, it was hard to prove that the scaffolding was without fault, because the notes may have been lost. Large construction sites contain numerous scaffoldings, and they also disappear without a trace sometimes. It has even happened that a lost scaffolding has been found years later in a silo during maintenance work.

DIGITAL IMPLEMENTATION

Joni Mäkelä, who is responsible for the Cronos' HSE supervisor service, had an idea about making scaffolding inspections digital at the construction site. Managing Director Jarkko Tiihonen presented the idea to us at Microteam, says Patrik **Ljungqvist**, who is in charge of IoT Systems.

"We planned to deliver the digital scaffolding card system with its devices as a turnkey package."

"The planning phase involved the

device's mechanical, electrical and production design. In addition, the project included the development of an Android-based mobile application, a cloud service and a browser interface for it. The delivery consisted of the device and software. delivered to the customer as a complete product."

A new generation's solution for scaffolding inspection

TEXT Taina Syrjänen PHOTO Cronos

"The cooperation with Microteam has been very pleasant, and it's been great to build a unique product with them. The system is easily transformed to almost anything, and we are able to develop similar devices and systems for dozens of different sites. The customer's imagination is practically the only limit. In our work up to this point, Cronos and Microteam have been able to tackle any obstacle that we come across," Jarkko Tiihonen concludes.

HOW DOES DIGITAL INSPECTION WORK?

The inspector opens the application on his phone at the worksite and logs in with his credentials. This is done to identify the inspector. The inspector

uses the application to scan the NFC tag on the digital card attached to the scaffolding. This works in the same way as a contactless payment does in shops. Scaffolding must be inspected at seven day intervals. The digital scaffolding card's numeric display shows how many days there are until the next inspection. When the time is exceeded, the device blinks to signal that the use of the scaffolding is prohibited.

The inspector can approve, reject or comment on the information. All the data is stored in the cloud, and it is easy to read later by pressing a button in the browser interface. The cloud provides detailed information about the performer of the inspection, the inspection time and the scaffolding, including its type, weight category, photographs and location. The location is obtained by positioning. This way, the scaffolding will no longer be misplaced.

BENEFITS

The digital scaffolding card system improves occupational safety by removing chances of malpractice. Responsibility issues are unambiguous, because the identities of the perpetrators and the timing of events are stored in one verified system. Work monitoring becomes more efficient, and all actions relating to occupational safety and invoicing leave a trace in the real-time system.

"The device is able to verify the inspection data with an accuracy of one percent, which is why insurance companies have been very interested in the device," Jarkko Tiihonen says.

"We have received many inquiries about the device, even from abroad. We are already designing the next device for a large publicly listed Swedish company.

For companies renting out scaffolding, there are new business opportunities in invoicing and other applications, when invoices can be created according to use. In addition, losses are reduced as the location of the scaffolding is known. Contractors can easily track what scaffolding has been built, what is in the warehouse and how much has been charged for built scaffolding."

Continues from page 5.

THE KEY TO SUCCESS: WORK

Despite all the hype, digitalisation is not a magic wand that opens the doors to success. On the contrary. "I believe that a company must work really hard to get the best benefits from digitalisation. To achieve success, we must understand the basics of digital technologies and their use to a certain extent. Most importantly, however, we must identify the things that can be achieved in business operations," says Sommarberg in summation. In addition to sufficient insight, this requires the ability to take risks

and let loose.

"An important dimension of digitalisation is definitely the culture of experimentation associated

MOORE'S LAW AND CLOCK SPEED

To the general public, digitalisation is a modern phenomenon, but actually it has existed for decades already. The expansion of digital technologies is not a coincidence, either. Instead, it is based on laws proved by economics.

"When talking about digitalisation, the development of technical properties should obviously not be underestimated, but in addition to them, the most important explanation for the expansion of digital technologies is the so-called Moore's law. According to this, performance grows exponentially as the price diminishes. What used to be possible only for large companies is now within everyone's grasp," Sommarberg says.

A practical example of Moore's law in action are smartphones. A computer that used to fill an

with it. When implementing new technology, it must be accepted that the impacts have to be clarified by testing them. On the other hand, a culture of experimentation leads to better understanding of digital technologies in the organization as a whole. You learn more by getting your hands dirty than by sitting at seminars."

Sommarberg points out that there are no shortcuts.

He says, "There is no such thing as succeeding overnight. Success is always preceded by years of work. In one night there is only enough time to tell the world about your achievement and maybe gain an important competitive advantage in the industry."

entire room and cost a fortune, now fits into anyone's pocket. "At the moment, it's

interesting to see how artificial intelligence integrates slowly into devices as technology prices go down."

Another concept relating to digitalisation is clock speed and its change.

In the past, it took decades to transfer modern technology from one industry to another - the properties developed for formula cars, for example, expanded slowly to regular cars and then to trucks and working machines.

"Nowadays, the clock speed of technologies is on a completely different level. Technology developed for consumers can expand directly to industrial applications, such as game technologies. Science fiction is no longer fiction," Sommarberg says.

E2 challenges leading brands' electric motorcycles

When Teemu Juvakka answered a guestionnaire about the stress calculation of motorcycle frames, he had no idea what he was getting into. A few years later, a company was formed around this cooperation. It is developing a Finnish serially manufactured electric motorcycle, and the first motorcycles are estimated to reach buyers, ready to ride, in the beginning of 2020.

TEXT Maria Uurto PHOTOS RMK Vehicle Corporation Oy

FROM CONCEPT TO PRODUCTION **IN LESS THAN TWO YEARS**

The father of the idea is **Teemu Saukkio**, whose original goal was to fulfil a challenge thrown his way and build a self-made electric motorcycle. At this point, Teemu Juvakka's help was needed to calculate and model these ambitious to get plates for the prototype and ideas into a feasible product. The first self-made version, E1, was built as a hobby and presented at the Motorcycle show in 2018. The

concept attracted a lot of attention, and both the development of the product and the business surrounding it have leapt forward in a short time. Several dozen preorders are waiting.

Right now, they are working on the bike's next phase, E2. The aim is test drive it in the spring of 2019. The production of a small series of the bikes should start at the end of 2019, and the first deliveries should

hopefully happen at the start of 2020.

The Finnish challenger is entering intense markets where leading brands already have their electric bikes. As far as we know, Harley Davidson's LiveWire will be launched in August, but its capacity is much smaller than the E2's. In addition to its Finnish design, the E2 challenges well-known competitors with the great efficiency of its motor.

ALMOST 100 % SELF-MADE DESIGN

According to Teemu Juvakka, the E2 is a fair-priced, serially manufactured electric motorcycle that represents the best Finnish expertise, innovative solutions and modern standards and production methods, and is truly "Made in Finland".

One of the main properties of the model being developed right now is a technically sophisticated motor solution, with the motor integrated into the back rim. This allows building the motorcycle without any mechanical power transmission from body to back yoke. This way, the finished bike has fewer parts, requiring less maintenance from the customer.

"We also don't want the customer to pay an arm and a leg for Finland's first electric bike. Instead, we want both to be a pioneering company and cover the costs. For this reason, we have designed almost everything in the bike ourselves."

When the goal is an almost completely self-made product, there are also challenges ahead. Teemu Juvakka doesn't admit to encountering major troubles during the design phase, but the back yoke's structure and body have caused some challenges.

"We haven't used commercial bearings, but instead, designed them ourselves. We plan to keep developing the yoke and remain at the leading edge of technology," Juvakka concludes.

"Another challenging area has been the body." The concept planner and designer create a certain shape, and the mechanics must be built

according to that shape. Getting them to match has required a little more work.

The aim is to start small series production during the latter half of the year. Until then, they will focus on eliminating small faults that have come up. Next on Teemu Juvakka's list is the placement of electronic parts into the body. He needs to solve how the parts will be arranged and how the cables should be routed into the body.

COMATEC BEHIND THE BACK **YOKE'S MECHANICAL DESIGN**

Even though the aim is to keep the designing work inside the company, the most urgent phases have required outside help.

"In the summer of 2018, the situation got a little tough, when all kinds of things had to be planned in a very short time. At this point, we turned to Comatec for help in designing the back yoke. In practice, we needed the model and drawings in less than a month. It's a tough spot for any engineering company, but we got results as agreed," Teemu



COMATEC CREATED 3D models and drawings for the back yoke of the E2.

WHAT IS THE E2

The first Finnish electric motorcycle

Power: 50 kW

Torque: 320 Nm

Top speed: 160 km/h

Range: 200-300 km

Charging type and time: Type II plug at the front of the saddle. The charging time is estimated to be around 2 - 3 hours with one phase and 1 - 3 hours with three phases. The aim is also to achieve a quick charging function of 15 - 30 minutes.

Price: 24 900 €

Company: RMK Vehicles Corporation Oy

Juvakka says.

At Comatec, the need was addressed in the midst of the hottest summer period.

"The customer gave us a 3D model, created by the designer. We needed to use that as a housinglike, bendable and weldable back yoke structure and create part and manufacturing drawings for building a prototype," describes Engineering Manager Raine Corell.

"It was challenging to determine how all the edges could be bent, where the welding seams should be placed, and what parts should be used to assemble the structure. We were, however, able to deliver both the 3D models and drawings to our new customer in less than a month from the order. In my opinion, this is proof of our flexibility and serviceminded attitude.

The back yoke is also on our list for further development. Next we need to figure out how to make the back yoke lighter and still keep the structure strong enough," Juvakka concludes.

Speed, safety and structural changes to the flange perforating machine

XO8/AD

The family-owned company Flowrox Oy in Lappeenranta manufactures flow regulating and control devices for industrial use. The company needed to replace the old machine that was used to make holes in the hose valve flange with a new one. Comatec Group's subsidiary Insinööritoimisto Metso designed a new device that brought significant advantages compared to the previous one.

TEXT Taina Syrjänen PHOTOS Esko Seppänen and Flowrox Oy

THE PERFORATION of one hose is now 16 seconds faster. The number of valve hoses manufactured each year amounts to 18.300, so this saves a lot of time. At the moment, it takes 3.9 minutes to perforate one hose. However, the new machine's best characteristic is reliability of operation.



lowrox has over 40 years of experience in elastomer technology relating to industrial valves, pumps and systems. Flowrox's products are environmentally friendly and cost efficient solutions for demanding shutdown, adjustment and pumping uses.

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Hose valves are one of Flowrox's products. They are suited for locking and regulation applications that are used to process erosive and corrosive sludges, powders and coarse substances. The hose valve structure includes three parts: the valve hose, the body and an actuator. The valve structure and hose material are customized according to the customer's process environment.

The hose itself has a hose part and flanges at both ends. The flanges have holes that fit into the tube's matching holes for installation purposes. If the holes of the hose and the tube don't align, installation is not possible. Because of this, it is of utmost importance that the perforating machine works flawlessly.

TURNKEY DELIVERY

"We had an old machine that was at the end of its life cycle. We couldn't really get spare parts for the old machine, it didn't function reliably anymore and we needed to replace it with a new, modern machine," says

Flowrox's Sourcing and Procurement Manager Toni Turkkila about the assignment's background.

"We chose Insinööritoimisto Metso Insinööritoimisto Metso Oy

to be our design partner in this project through a call for tenders. We have cooperated with them for a long time in designing our products, so we believed the cooperation would be flexible also in this case. They already know us and our products, and they know how to use this machine. They were located close by, and of course, price was one factor in the call for tenders," says Toni Turkkila. designed a hose valve flange perforating machine for Flowrox on a turnkey basis.

"The planning work involved the design of mechanical, electronic and pneumatic parts. We also carried out installation supervision of the mechanics. For electrical contracting, we requested quotations and monitored electrical installation work. The project also included logic programming, implementation and user training, says Insinööritoimisto Metso's Managing Director, Esko Seppänen.

"Our mechanical designers started planning from zero. We planned the machine, its movements and its structures exactly as specified in the starting values."

THE ELECTRICAL, AUTOMATION AND **APPLICATION DESIGN** was started

once the mechanics plan created using Solidworks had been completed and saved into the Flowrox system. The circuit diagram was created with Autocad. The application design, as well as the user interface, was realised via Siemens' TIA portal. The control panel is operated with a touch screen and was built as an HMI solution that can be implemented exactly as desired.

"Application design played a major role in the planning. Nowadays, it can be combined with machine safety issues. This way, it can be controlled with the same system," says Engineering Manager Antti Lautamies.

SAFE MOVEMENT CONTROL

The movement control of the hose perforating machine consists of four servo shafts. Every shaft is controlled by a servomotor. In use the shafts are run to the hole's perforation location according to the table. Feedback has been implemented using absolute encoders.

Regular and safety logic have been combined into the same control device. This makes planning and implementation easier. It is an integrated and efficient method for controlling motors, for example, when a certain process safety level is required.

Safety messages are transferred to

the frequency converters through a bus. This way, emergency stops and the like can be handled without a relay-based emergency stop system. The system automatically detects disturbances or faults that require stopping the machine. Torque limits, for example, allow the machine to detect objects that might get between the shaft. In this kind of situation, the safety logic stops the machine.

"When safety and control are combined into the same control logic, fault situations are easier to solve with diagnostics. The fault is very easy to locate," says Antti.

"Servo shafts are controlled by servo control devices that have been built with the Siemens S120 servo control system. This has been connected to the control logic with a Profinet fieldbus. Safety stops are transferred through the Profinet bus via Profisafe messages.

The machine contains, for example, one safety door and four emergency stop buttons. The door only opens when the process has been halted in a safe mode. At the same time, all four servo shafts are stopped, which means their accidental start is prevented. That is the largest risk factor of these machines, when we look at accident statistics." Antti concludes.

A SIGNIFICANT IMPROVEMENT from

the previous similar machine is that we solved a structural problem, and the holes are created in both ends of the hose at the same time. This way. their location is exactly the same on both flanges, which improves the quality of the hose valve significantly.

Holes in hose valves of different sizes are not identical. Because of this, the machine includes a cassette with six die cutters of different sizes. The standard defines the required hole size according to the size of the hose. The cassette moves to the right location based on the values given by the user in the user interface. A tie rod ensures that both hose ends have the correct die cutter, at the right location.

"The device is also twice as fast, because it processes both sides simultaneously, automatically and independently. It doesn't need to be used manually," Esko says.

"The perforation works safely in a closed space. No one needs to work close to the machine, and the operating safety is improved in this way.

The safety logic monitors the door and makes sure it is closed and acknowledged. It is impossible to open the door bypassing the safety logic. "The device is completely foolproof from the security point of view," Antti savs.

"USER TRAINING was very easy on both instructor and students, thanks to a user-friendly control system," says Antti, who was responsible for training the users.

"I had built a very simple user interface, so the user training didn't take long." The user interface has very clear options. The operator's console has a few buttons, and the entire layout is user-friendly. Anyone is able to learn quickly how to operate the machine.

"The holes perforated in hose flanges are specified in the valve standard according to hose size. There are over a thousand of them. They have all been pre-entered into the machine's control system. All the shaft values and parameters are predefined. The user only needs to enter the correct table value and press a button. The machine will automatically perforate the right number of holes at the correct locations."

WE GOT WHAT WE WANTED

"We were hoping to get a new machine as quickly as possible, because the old machine was already living on borrowed time. We didn't expect the new machine to be a copy of the old one, but instead something new and more efficient. Now we have a machine that corresponds to today's requirements. We got what we were looking for. The machine is now in use and still under development," concludes Toni Turkkila.

RISTO MURTO, the Managing Director of Varma **Mutual Pension Insurance** Company, visited us.

Many uncertainties in the global economy - Finland well equipped to handle future turbulence

The managing director of a pension insurance company must often act as one of the nation's official oracles. Varma's Managing Director Risto Murto ended up predicting the future also when visiting Comatec at the end of January.

TEXT Maria Uurto PHOTO Taina Syrjänen

Fiewed from a pension insurance company's perspective, the most significant signals at the beginning of 2019 were already familiar from the headlines at home and abroad. The economic boom is behind us, and especially Germany and the Euro region are experiencing less growth. The trade war and Brexit are bringing their own uncertainties into the economy. However, there is no talk of recession, and interest doesn't appear to be on the rise.

China is a question mark for everybody, and the U.S. is awakening to change

According to Murto, the situation in the Chinese economy will have a global impact, although no one knows exactly what kind of impact. China has had a current account surplus compared to other countries. However, in recent years, this surplus has melted away. Nevertheless, China has not incurred net debt, and the investment rate is still high. The direction is downwards, but not as steeply as normally in this development phase. Some sectors have a lot of debt, and the gross debt of the national economy is high.

"All this is known, but it's very difficult to say when China's eventual bubble will burst." "This has always led to some kind of hangover in the past. People keep investing and taking The atmosphere is still quite different in the United States. The industry is in decline, but "Trump has been tweeting as a president for two years, but that has had very little real

internal loans. It is clear that the growth will stop at some point. The structures have been finished. But will it take five or ten years? According to Murto, this is impossible to predict." thanks to massive tax breaks, the economy and especially consumers are still going strong. The trade balance deficit is large, however, and the United States is in a politically unclear situation. impact. The next years are unclear, however, and the aftermath of Trump's departure could affect the situation for a long time. It takes time for a country of America's size to deal with this kind of turbulence."

Even though there are trends that should give rise to caution throughout the world, Murto doesn't see Finland's situation as being so bad.

"Finland's industrial task force is well-managed and going strong. There will be changes, but Finns are winners for sure. There is no reason to be pessimistic. The structural profitability of industries is on an entire new level compared to previous years, and this affects the ability to face challenges directly. We also have several blooming domains that grow regardless of economic trends."

Technology and innovation are the future of engineering companies

An engineering company is not traditionally seen as a technology pioneer or innovator. This is the customer's territory, and an engineering company focuses on supporting the customer in projects relating to their technology and products. Digitalisation, the development cycle of various technologies and other turning points in society require renewal from all stakeholders regardless of their industry.

TEXT Maria Uurto PHOTO Taina Syrjänen

HOCKEY PLAYER Kimmo Nurminen is responsible for developing Comatec Group's technology and innovation activities.

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omatec has recognised the change both from the customers' and the suppliers' point of view. Comatec wants to break traditional ideas about

an engineering company's role and find its own place in the field of digitalisation and technology, without competing with the customer. At Comatec, this work is led by Technology Director **Kimmo Nurminen.**

Technology at Comatec

When Kimmo Nurminen is asked about technology and how it relates to an engineering company's daily operations, he starts an extensive philosophical deliberation.

"In discussion, people easily confuse technical objects and technology. Many people talk about technology, but what they really mean are technical devices. To sum up, technology means new solutions and applications that utilise the results of the most advanced know-how and science. Usually these results include devices, methods, processes or competence development.

As part of technology-related activities, we develop products, methods or services that we have industrial property rights for. In these cases, we can use them, for example, in another project implemented for the customer.

However, we do not want to compete with the customer. The solutions we make relate mostly to the customer's products. The customer gets added value by using tested Comatec solutions to improve their own customers' experience," describes Nurminen.

"Mostly it's about a new way of thinking. About how an engineering company can commit more to research and innovation.

Our staff need to understand the possibilities of technology well enough to be able to react to customers' changing requirements in an ever-changing operating environment. In addition, we have to develop our own processes to encompass constant learning and explore new technologies in cooperation with our partner network."

Focusing on research

The cooperation with research institutes and educational establishments allows the studying and developing of technology. Comatec's network partners have the tools and staff for research, and Comatec knows the subject areas to study. The results of this research can be used in customer projects. As an example of potential projects, Kimmo Nurminen mentions the use of artificial intelligence in product development and software robotics planning.

"We examine how existing data could be used more efficiently in design work. By combining information from various data sources, we are able to find completely new ways of making the design process more efficient and improving it. The results of this kind of study can then be implemented in a customer project.

We do have ambitious visions for the future. The engineering company business is still very conservative, even though the world is largely digitalised already. We could use it more starting from basic functions. 20 years ago, the most successful companies were those manufacturing products, but nowadays it's the digital service providers, such as Facebook and Amazon, that hold the power. These companies are characterized by an excellent service experience, the courage to grow and innovation. We learn from these and remain open to new applications and portals that support our operations," envisions Nurminen.

TERMS IN A NUTSHELL

Technology-related activities ensure that the subjects of technological development programs, projects and teams are centralised as a whole and that the activities have sufficient impact to support and improve Comatec's technological position in its target markets.

Innovation activities are based on known technological development needs and customer demand. The goal with innovation activities is to cooperate with internal business units, foreign operations, innovators, employees, and external stakeholders, such as customers, research institutes, universities and public administration.

KIMMO NURMINEN

Education: Bachelor's Degree in Automation Engineering (Tampere University of Applied Sciences, 1997)

Comatec 2000-2002, 2016-> when Cadring was integrated into the Comatec Group

Cadring 2008-2016. Head of Business Unit, Country Manager in Sweden, Director of Global Operations

Microteam 2010-2012. Head of the Electronics Unit, Sales Manager

Volvo 1998-2000, 2002-2008. Electrical Engineer, Engineering Manager, Trainer

Interests: Hockey, motorcycles, road cycling



SHALL WE MEET?

WE WILL PARTICIPATE IN THE FOLLOWING FAIRS AND EVENTS IN 2019:



IoT Lab 2019 9-10th April 2019 Kattilahalli, Helsinki



Industry Summit 14-15th May 2019





Alihankinta 24–26th September 2019 Tampere Exhibition and Sports Centre, Tampere



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