AUTUMN · 2020

CUSTOMER MAGAZINE OF DAREKON LTD

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GE HEALTHCARE
One of Darekon's longest-standing partners

DAREKON 35 years
renewal and progress

NEW ERP
a smooth introduction

Contents

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6 Darekon manufactures electronics and mechanics for many different products for GE Healthcare. The corona pandemic multiplied the demand for GE intensive care equipment, quadrupling the production of related parts.

10 Darekon's 35 years includes a lot of work and development. Operating as a family company, the solvent and profitable company is today known and recognised for the high quality and flexibility of its production.

12 Forty per cent of the ERP reform is the introduction of a new system and 60 per cent a process change. Most importantly, the company's operating processes are now better known and controlled.

"Challenges are made to be met."

16 The work-life effects of the pandemic have not only been negative. It is clear that people need personal contact with others, but some of those encounters can be handled in remote meetings.

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Darekon's circuit boards are used in GE's gas modules.
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Focusing on the essentials in an unprecedented year

The special year 2020 is coming to an end. We are currently creating a budget for next year and it feels more challenging than before. Plans have been made, although it is not worth relying too much on forecasts and instead focusing on doing things well and even better than before. During the current year we have developed our operational processes and now, in the autumn, we have introduced a new ERP system. This topic is examined further on in this issue.

The year has been challenging. In the spring, when corona started spreading increasingly, we increased our working from home as much as possible. The business trips ended and we focused on meeting the needs of our customers and safeguarding the health of the people of Darekon. The year 2020 has nonetheless been a top performance year from our Darekonians. Work situations have fluctuated rapidly and we have been able to react to changes with agility. The pandemic is not over yet, but there are signs in the air that we will return to normal, at least to a new normal, next year.

Darekon is now 35 years old and some of our customer relationships have lasted for more than 30 years, such as with GE Healthcare, the main story in this issue. It was then known as Datex and was part of the Instrumentarium Group. It is typical of our customer relationships that they are long-term. The relationship between the customer and the contract manufacturer is based on trust and a desire to work and develop together, which is strengthened by mutual benefit. In a world of pandemics and trade wars, reliable supplier relationships are becoming increasingly important.

Just as sun shines after the rain, then after the pandemic there will be something else and we will be even better prepared for it, whatever it will be. Finally, I would like to thank all Darekonians, our customers and our suppliers for the past year. Thank you very much!

Kai Orpo

> “A good business relationship is based on the desire to develop together.”

The automation of mechanical production continues at Klaukkala plant

In recent years Darekon's plant in Klaukkala has invested heavily in the robotic manufacture of equipment cabinets and enclosures. For this purpose a welding robot has been acquired at the facility, as well as a robot that manufactures silicone seals for enclosures and cabinet lids by extrusion. The most recent major investment this year is a grinding robot.

"After welding, the seams are sanded almost without exception, even if it is not even necessary in all cases," says **Pekka Antikainen**, Klaukkala's plant director. "After an increase in welding production enabled by the welding robot, the grinding of the seams formed a small bottleneck as expected. Thus, the grinding robot was a natural continuum for welding automation.

"Welds are traditionally sanded with a handheld grinder. It is perhaps the most unpleasant job at our plant because the job combines dust, noise and vibration. A worker performing grinding often has to wear an overpressure mask because grinding dust from certain materials is harmful. The mask may be sweaty and uncomfortable to wear, at least on hot summer days."

According to Antikainen the grinding robot is now replacing a lot of that manual work. The robot works in much the same way as a human, that is, it holds a fairly conventional grinder in its arm and works with it on the object to be ground. The grinders used by the robot are usually electric, while people prefer lighter pneumatic machines. For a robot the weight of the machine is not a problem and the electric machine is both easier to control and more energy efficient than a pneumatic machine.

The grinding robot gently works the seams of the welded cabinet tirelessly and accurately.

The workpiece is attached to a jig in the same way as in welding. Sometimes discs up to three different roughnesses are used for grinding, with the human being doing the roughest initial job. The robot then completes the largest portion of the work and the professional finishes it off with the finest grade of sanding disc. The robot is equipped with a sensitive pressure sensor that detects the force used in grinding as well as a system that detects the wear on the grinding disc. It is still up to the operator to change the grinding disc on the machine when requested by the robot.

"Despite the remaining manual steps, the grinding robot has significantly increased the efficiency of the work and removed the grinding bottleneck," Antikainen continues. "The work of the robot looks slow, but the machine does the work tirelessly and without breaks, clearly more efficiently than a human. Our enclosure and cabinet production is now in really good shape and we can offer even more production to those who need it." ■

Finnish insert press with express delivery from France to Klaukkala

The mechanical sheet metal parts manufactured at Darekon's Klaukkala plant use quite a lot of inserts, or 'nuts', which are installed in holes in the sheet. The work is done with fairly simple insert presses, and one of these machines is associated with a small story that has a happy ending.

In the midst of last summer's production rushes, the press suddenly stopped working. Such machines are very durable and designed to work for decades, but something had gone wrong. The service man quickly arrived and told the bad news: the electronics board controlling the operation of the machine was broken and the machine was so old that no spare part was available.

"We needed the capacity of the broken machine in production, so we quickly had to think about how to replace it," says Pekka Antikainen, Klaukkala's plant director. "But no machine was found in Finland for that emergency and the building of a new one would have taken too long.

"We talked to Coastone Oy from Seinäjoki, among others, and found out that one of their new servomechanical presses had just been delivered to an importer in France and it was then going to be delivered to a customer after the holidays. We were unable to try out the device but we agreed with Coastone that we would rent the machine for trial use for a year and then either buy or return it."

According to Antikainen, it took a couple of days to search for the machine and organise things, after which the device was delivered from France to Klaukkala. A week after the breakdown, the new machine was operational and the problem was gone. The French customer also received their machine as agreed, since Coastone had time to build a new one.

Haapavesi increases capacity and productivity with a new SMT line

The two 20-nozzle revolver heads working in the first placement field of the Siplace X3 machine are the key to the machine's speed.

Last spring Darekon invested in a state-of-the-art SMT placement line for the firm's Haapavesi plant. The investment was driven by rapidly growing demand for medical devices.

The new placement line includes two Siplace X-series machines. The first machine is equipped with two 20-nozzle and one 12-nozzle revolver heads. The second machine is equipped with a 12-nozzle revolver and a twin-head for larger components. The investment also includes a solder paste printing machine and a 3D AOI (Automatic Optical Inspection) inspection station.

SMT capacity doubled

The new line replaces the older assembly line and is almost identical to the line acquired five years ago. What's new in it are 20-nozzle revolvers that operate in parallel in the first placement field of the machine and alternately retrieve and place components on the same circuit board. The arrangement achieves a placement speed of up to 59,000 components per hour.

The assembly line is capable of handling components from size 01005 onwards, which means dimensions of 0.2 by 0.4mm. The placement accuracy is at best ± 22 micrometers. The line is as flexible as possible as it can be used to place virtually all relevant components.

The AOI system is a natural part of the new line. It is a 3D measuring device that profiles the card, checks the placement of components as well as soldering. With the help of precision cameras, the device recognises the moiré pattern formed by light rays from different directions and determines whether the board is exactly as desired.

Fast delivery during the corona crisis

"As demand increased rapidly, we had to make quick decisions," says **Antti Järvi-luoma**, plant director at Haapavesi. "The company's board approved the million-euro investment in record time, and the manufacturer found the right machines for our needs in Germany.

"Due to the critical situation, the equipment supplier undertook to accelerate its delivery so that we received the equipment in about 4—5 weeks, when the normal delivery time is 10—12 weeks. During the installation, we modified the arrangement of the manufacturing hall to meet the new needs. After the last boards had been assembled on the old line, the pump cart was already waiting and the equipment was moved and reorganised."

In connection with the equipment investment, about 15 more people were hired for production at the plant in April. This was successful because there were workers available in the market, such as those previously laid off. Some of them have since been taken on full time by Darekon. ■

GE Healthcare's Helsinki unit has been able to rapidly increase the production of intensive care equipment during the pandemic.

Photos: GE Healthcare

Production quadrupled in the midst of a pandemic

GE HEALTHCARE IS ONE OF DAREKON'S LARGEST AND LONGEST-STANDING PARTNERS

General Electric Company is one of the largest conglomerates in the world, whose main industries are energy production, aerospace and healthcare technologies. GE Healthcare is a world leader in medical imaging, clinical diagnostics and patient monitoring systems.

GE Healthcare (GE) and Darekon have almost always worked together. This cooperation has continued for well over 30 years since it started with Darekon's relationship with Instrumentarium Oy Datex in the late 1980s. General Electric acquired Instrumentarium in the spring of 2003, primarily for the Datex-Ohmeda unit, and integrated it into General Electric Medical Systems.

Finland is GE's patient monitoring center

GE Healthcare is a large company. It employs about 50,000 people and has a turnover of nearly $20bn. About 700 of those people work in Finland, of whom 40 per cent work on product development and 25 per cent at manufacturing. The largest product development investment in Finland is directed at patient monitoring. This includes the technological development of respirators and, for example, the development of artificial intelligence, which is carried out at the information systems development unit in Kuopio.

"The strength related to the Finnish operations is, above all, good clinical cooperation with hospitals," says **Erno Muuranto**, CEO of GE Healthcare Finland Oy. "We develop various measurement methods and devices for the use of anaesthesia, for example. They can be used to measure the effect of anaesthetics, how deeply a patient sleeps and how he or she responds to the stress of surgery-induced pain. We are able to measure the effect of the medication and define the dosage to be given to the patient.

"Finland has not been afraid to develop new things. When something new and exotic is made, not everything takes off, but some also create gems."

According to Muuranto, Helsinki is GE's most significant unit in the area of patient monitoring. The Hospital District of Helsinki and Uusimaa (HUS), on the other hand, is one of the most significant hospitals in the world in collaboration and research with GE Healthcare.

"There is a culture of speed, flexibility and responsiveness in Finland," Muuranto continues. "This was particularly evident in the response to the Covid-19 epidemic last spring. We were the fastest to respond to the epidemic and increase the production volume of equipment required for increased intensive care. We have received a lot of recognition in the world for this."

GE Healthcare and Darekon quadrupled production

Darekon manufactures circuit boards for many different products for GE, in fact more than a hundred different products. Product delivery volumes vary greatly — from one piece to about 20,000 per year.

"Gas measurement modules used in patient monitors, respirators and anaesthesia machines are one of the high-volume product groups for which Darekon manufactures printed circuit boards for us," says **Jarno Vairimaa**, product sourcing leader of GE Healthcare Finland. "The module measures respiratory air parameters especially in patients in intensive care units and surgeries, and corona pandemic multiplied the global demand for these devices."

The gas measurement module incorporates very sophisticated technology and the circuit board — smaller than a postcard — has hundreds of components. Darekon's Haapavesi plant has manufactured circuit boards for approximately 20,000 modules annually. Manufacturing involves, in addition to component placement and optical inspection at the end of the assembly line, certain programming steps and, finally, functional testing of the boards.

As demand grew, discussions between GE and Darekon led to a quick investment decision by Darekon: a completely new, complete assembly line was acquired for the Haapavesi plant, which was able to quadruple the production volume of the modules with just a few weeks' notice. Thanks to the investment and the increased number of manufacturing staff since the spring, Darekon has ben able to manufacture the module's circuit boards at quarterly volumes of 20,000 pieces.

"For our part, we hired 150 new temporary employees in the spring, besides the summer interns — a total of about 200 more people in production," Vairimaa continues. "The number of employees in our production line in Helsinki more than doubled in a short time.

"Darekon has always been an important partner for us, and the benefits of the company's locality, flexibility and adaptability have been particularly well demonstrated in increasing the production volume of the gas measurement module. Darekon's existence and continuation of operations within the current framework will remain important to us in the future as well."

> Darekon has coped well with the challenging increase in production.”

GE Healthcare has loyal customers

“In addition to purely technological superiority, we seem to have strong customer satisfaction,” says Muuranto. “Once a customer is won with GE equipment, he or she will also remain a GE customer. Obviously, we are good at maintaining a customer relationship and our customers are loyal.

“In such devices, it is typical for manufacturers to renew their products at a slightly different pace. GE customers are usually willing to wait a bit and don’t immediately rush elsewhere, even if a competitor brings something new to the market a little before us. This is based on trust in our technology expertise. Technology has been and continues to be good.

“In Finland, there is both good and bad as an operating environment,” Muuranto answers the question of what kind of a place Finland is to operate. “Good things are competence, level of education, fast handling of things and flexibility. Things are not left in the wheel of bureaucracy and people know how to take responsibility for things independently. On the other hand, Finland is a small country and Europe has been a slower growing region than Asia and the Americas — although Europe itself is a large market. Operations benefit if manufacturing and product development take place close to a large and fast-growing market.”

As an advantage for Finland — and also for Europe — Muuranto sees that the region is politically stable and it is easy to operate here. We are not involved in trade wars, and circumstances do not change as rapidly as in many other places.

The global market requires close monitoring

In Muuranto’s opinion, Finland’s location is logistically reasonably good when it comes to delivering products to Europe and Asia. To meet American demand, GE has a plant in Mexico, for example. On the other hand, GE has certain products that are manufactured only in Helsinki and are more expensive to deliver to America from Helsinki than from Mexico.

Of course, GE has contract suppliers around the world and the company also works with the largest manufacturers. The more standard the product, the easier it is to have it done in a really large subcontracting facility. Specialisation, flexibility, product changes and special technologies, in turn, require close cooperation with product development, and then more specialised partners close by are needed.

“The gas measurement module for which Darekon manufactures circuit boards is a good example,” says Muuranto. “It was making 20,000 pieces a year — and now maybe up to 50,000 are being made. It is our most difficult product to manufacture and Darekon has done it admirably. However, it is always necessary to evaluate these issues because we are in international competition.

“Especially in Asia, there are a lot of new monitor manufacturers. The theme in medical devices is exactly the same as the competition in telecommunication devices from China, for example. Cheap stuff is being made in the Far East and we, too, in the name of competitiveness, constantly have to look at where it pays off to manufacture something.”

Closeness is needed in specialised products

In Vairimaa’s opinion, the operations of a contract manufacturer that serves GE locally in the best possible way should include the elements mentioned by Muuranto, such as flexibility, speed and feedback. Product development requires closeness.

“In low volume, high mix production and especially at the start of such production, locality will be emphasised in the future,” Vairimaa estimates. “The

In the spring, Darekon made a quick decision to invest in a completely new assembly line.

coming months and quarters will show how the corona pandemic is evolving and how globalised the world will really remain, compared to 12 months ago.

"China was very close, but now it is anything but close — here the locality is emphasised. However, I would not yet dare to speculate that the procurement of higher-volume standard products would be moving, for example, from Asia back to Europe and thus to Finland. On the other hand, there are many niché-type specific products in our production. At some level, there is a demand to procure them locally."

According to Muuranto, different trends go in wave motion. He says GE used a larger partner during the development phase of a new product line and development cycles proved to be really slow.

"Would it be more sensible to develop in Finland and utilise its speed," Muuranto ponders. "We are constantly considering these cases one by one. Nothing comes for free and business must always make sense. Every day and every product at a time must earn its place."

Advanced cooperation works well

The division of responsibilities between GE and Darekon is clear: GE is responsible for the electronics design and final assembly of the equipment, Darekon for the manufacturing of circuit boards. Darekon procures PCB substrates and components and assembles PCBs. At the end of the assembly line, there is an automatic optical inspection, where machine vision ensures the quality of the soldering and the quality of the boards in all respects.

Darekon has at its disposal test equipment designed and partly built by GE, but also procured in cooperation with GE, for which Darekon also has day-to-day maintenance responsibility. Testers are used to ensure product quality. The testers also feed data directly into GE's own databases.

When the boards arrive in Helsinki, the barcodes are scanned and the traceability of components and manufacturing is transferred to the final product assembled at GE's facility in Helsinki. According to Vairimaa, product traceability is of paramount importance to GE. With it, it is possible to know to which product, to which customer and configuration the board has gone. From Darekon, GE will, if necessary, obtain information from which supplier and from which reel the components used on the board come.

"We must have accurate information about where in the world our devices are, what components they are made of and who installed them," says Vairimaa. "If something goes wrong, we can quickly contact the user of the device and make or suggest possible changes."

Darekon was rarely mentioned at spring meetings

"Throughout the spring, we had tough challenges with growing production," says Muuranto. "It was not enough to just bring more people to the factory — the biggest challenge was to get parts from the world.

"It is good to remember that the whole medical world was in the same situation as us. Competitors also increased their production in a similar way. Even if we are unique, many basic components are of the same type with all manufacturers and throughout the industry.

"We had meetings every single day in the spring where problems were solved. If the name of a partner was not mentioned in those meetings, everything was going really well. One has to wonder if there was any talk of Darekon at any point in the spring. Perhaps some small delays were sometimes mentioned. However, there were many suppliers whose problems were solved every single day. There were very few problems with Darekon, although it was quite a challenge to quadruple production in a short period of time." ■

Helsinki is one of GE Healthcare's most significant outlets for patient monitoring. The manufacturing facility employs nearly 200 people in production. In the picture are Erno Muuranto (right) and Jarno Vairimaa.

DAREKON 35 YEARS

1985
Darekon is founded at Haapavesi and training of electronics staff starts.

1991
Darekon establishes a subsidiary in Gdansk, Poland.

1996 & 1999
1st and 2nd extension of the Haapavesi plant.

35 years

1986
Darekon's first plant in Haapavesi is inaugurated. The company's founder, Heikki Orpo, is pictured making a speech.

1992
Generational change. Heikki Orpo's sons Kai and Henri become the owners of Darekon.

2006
Darekon acquires ET-Electro, located in Savonranta.

2008
Private equity investor Sentica Partners acquires a 60 per cent share of Darekon.

2012
Darekon acquires all the shares of Apelec Oy.

2015
Kai and Henri Orpo, with their families, buy back Sentica's share of Darekon.

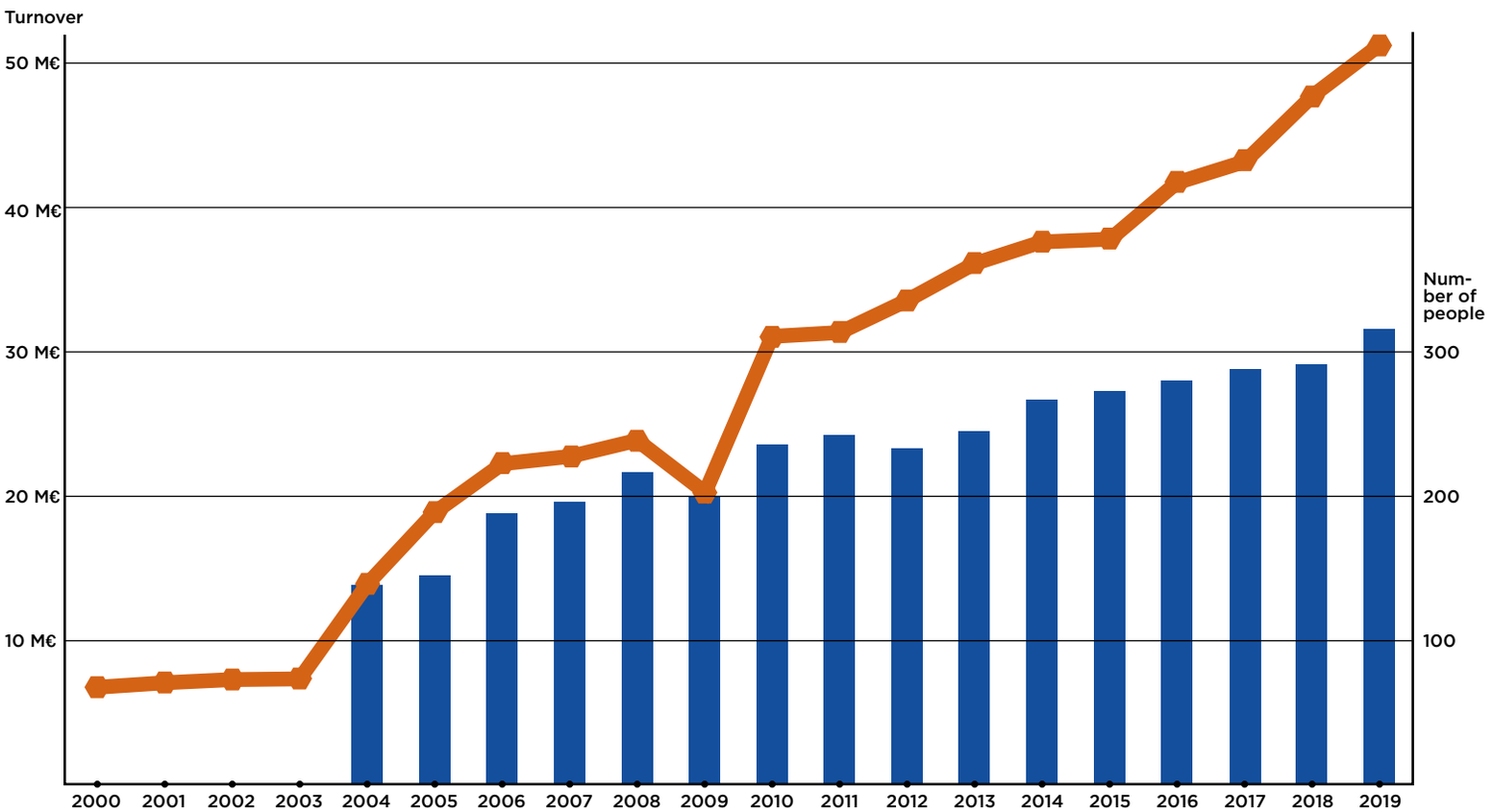
2009
Darekon acquires the sheet metal business of Mecanova in Klaukkala.

2016
3rd extension of the Haapavesi plant.

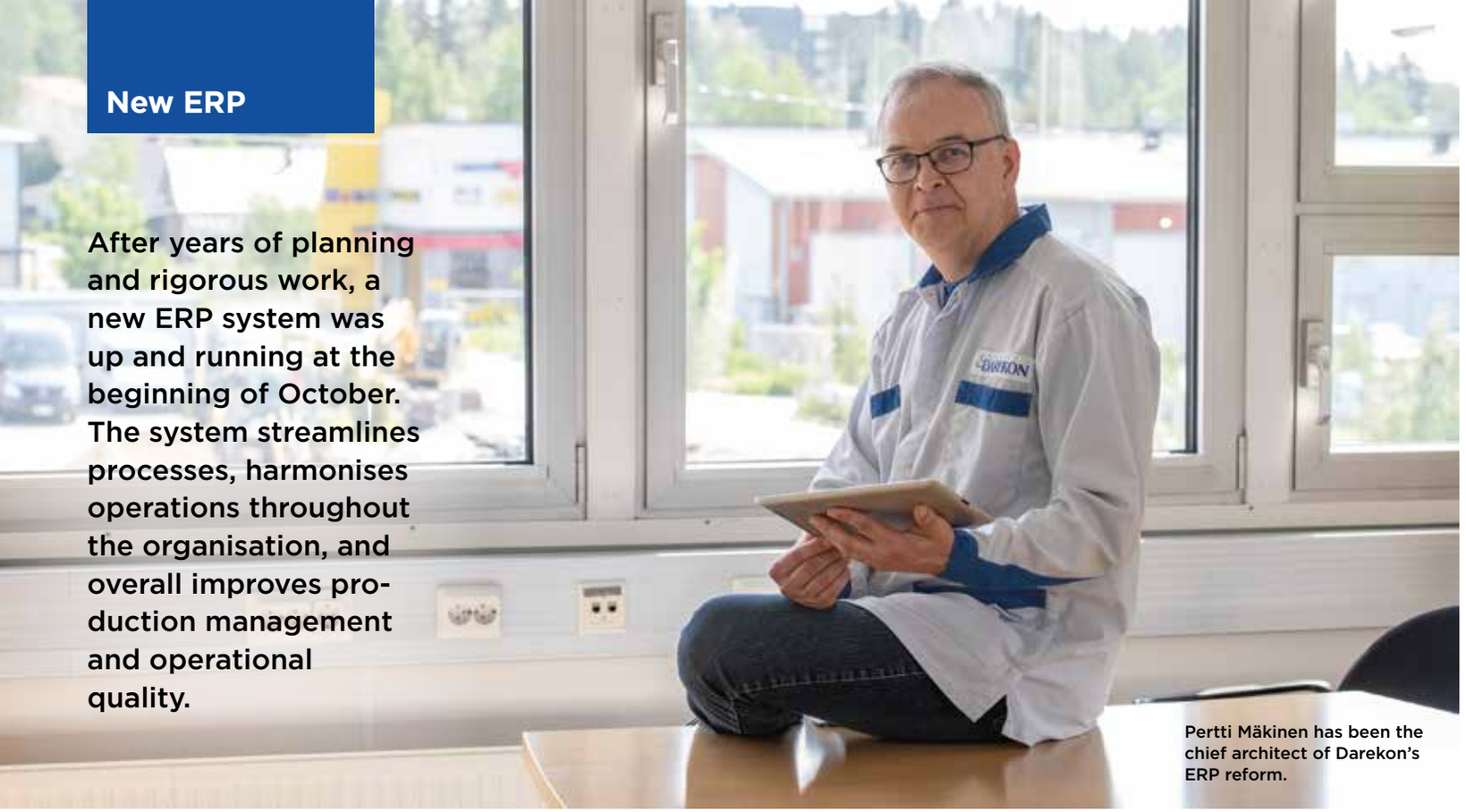
2003
Darekon moves to its own 1,500m² manufacturing facility in Poland.

2013
Darekon opens a new manufacturing facility in Gdansk.

2019
Darekon relocates from Savonranta to Savonlinna.



Development of Darekon's net sales and headcount since the early 2000s.



After years of planning and rigorous work, a new ERP system was up and running at the beginning of October. The system streamlines processes, harmonises operations throughout the organisation, and overall improves production management and operational quality.

Pertti Mäkinen has been the chief architect of Darekon's ERP reform.

Cuvaya

DAREKON'S NEW ERP IMPROVES SUPPLY CHAIN MANAGEMENT

ERP (enterprise resource planning) is an essential tool for any company larger than a micro enterprise. Typically the term ERP refers to a financial management system, but in a manufacturing company the role of the system focuses on the management of the factors of production — such as people, machines and materials.

Processes are better managed

"Last September was one of the toughest in my work history," says **Pertti Mäkinen**, Darekon's director of system development. Behind the project lies two and a half years of work. The last month of that period, at the end of September, saw intense preparation for the ERP-system exchange as staff took care of all the details involved.

"The project is now in good shape — the processes are ringing and singing — although there is still plenty to do. At this stage, all key functions are in order in the new system and the last quarter of the year is the stabilisation phase for the use of the system. Day by day, we get more out of the system and see the overall situation better than before," adds Mäkinen.

According to him 40 per cent of the ERP reform has been the introduction of a new system and 60 per cent was process change. The new system will streamline and improve Darekon's operations in many ways, but the most important thing, according to Mäkinen, is that the company's operating processes are now better known and controlled.

2.5 years of intense work

"Darekon's management already had a goal 5—6 years ago that the ERP system should provide more detailed information on customer and product-specific profitability," Mäkinen continues. "The old system did not allow for a sufficiently reliable analysis without a huge amount of work.

"This is the key thing that makes this business possible. Proper targeting of resources is essential, otherwise we will lose the opportunity to work with those with whom it makes sense to work with. Our most significant customers understand quite well that the profitability of operations is essential. Partnerships pursue the common good and this is possible when resources are directed correctly."

Two and a half years ago Darekon's management determined that an investigation project would be launched to renew the ERP system. Mäkinen set out to explore the alternatives and invite tenders for various technologies that in general meet Darekon's needs. The people at Darekon identified the key things the system needs to meet.

In the preliminary study phase, a small number of different options were selected for a more detailed comparison. After some interesting rounds, the selection ended up with Monitor ERP System's G5 system in the spring of 2019. The procurement contract was signed in June 2019. Monitor ERP has developed its system specifically with the needs of the manufacturing industry in mind.

The new ERP touches everyone at Darekon

"Since the beginning of the preliminary study phase, we have done a lot of groundwork, analysed the processes and assessed how the systems cope with their management," says Mäkinen. "For myself it has almost been my main job, and considering the work input of other people we have spent maybe 2—3 person-years on the matter, even before the actual implementation phase.

"After signing the contract we launched 'process walks', which meant concrete familiarisation with the operations of all manufacturing facilities. We went through all the processes of the different facilities with the representatives of Monitor ERP. We were three people physically visiting each manufacturing facility for 1 or 2 days per facility.

"We saw how the processes had been shaped in each unit, which parts were relevant and which needed to be replaced. The work to find the desired process models continued for a long time and was accompanied by training of key users. Process owners had to understand the lawfulnesses of their own process and connected processes, the different concrete requirements of the processes and their solutions. The training continued along the way from the end of 2019 and the key parts were covered."

End-user training was launched in August this year and, according to Mäkinen, everybody was involved because the new system affects everyone at Darekon. Depending on the task, the training was more or less intensive. For example, the start and end of work, the reporting of completed products and the recording of working time take place through the system. Similarly, entering work, having lunch and leaving for home are done by logging in to the Monitor system.

Production instructions and documents will increasingly be in electronic form and will no longer be printed on paper. This ensures that the documents are up to date. Production traceability can also be better controlled with a paper-free system.

Deployment culminated on September 25, 2020

"The training was completed by mid-September and the last couple of weeks were preparations for the H-moment," Mäkinen continues. "The key was to register the variable data related to the deployment in the new system.

"For example, the people in charge of the order backlog made the transfer and at the same time got a routine for using the Monitor. Orders in progress — or at least started — could not be transferred automatically, but had to be re-opened in the new system and registered exactly at the stage they were. Correspondingly, purchase orders and balances had to be reconciled between the starting and ending system."

The cut over period started on Friday night, September 25, 2020. According to Mäkinen, all events were kept to a minimum, i.e. as few as possible incoming and outgoing events — and thus off-line information — were generated. Some events necessarily arose because some of the manufacturing facilities were in full-scale production. Where possible, however, production was kept to a minimum.

After Friday night there was no longer permission to record any events in the old system. Saturday was used to reconcile production data and Monday the 28th to reconcile balances. The staff had been very flexible throughout the preparation phase and was also flexible in the implementation.

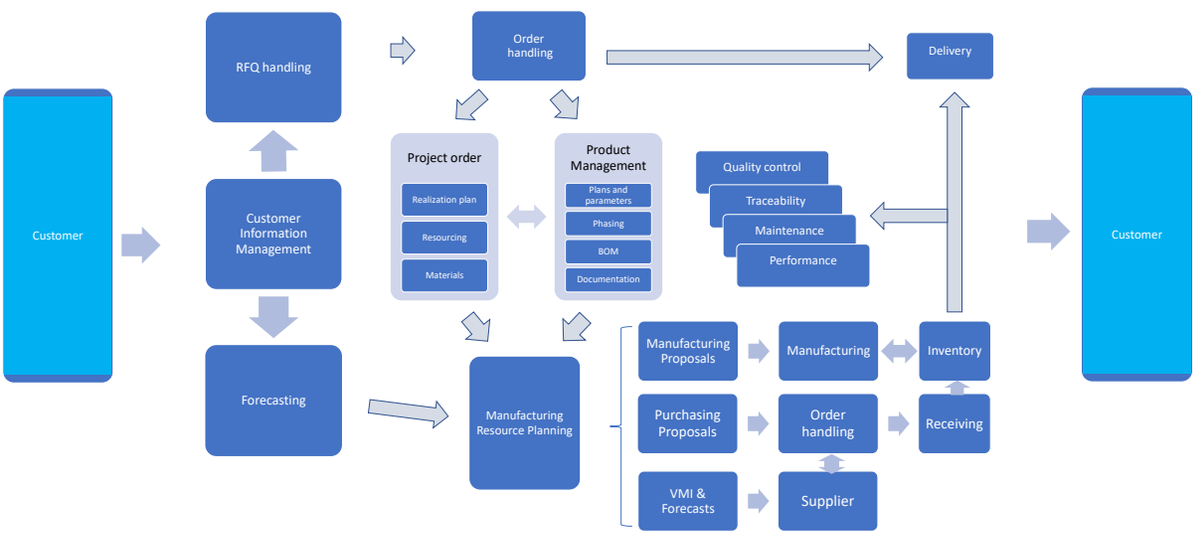
The new system was opened for production use on the 29th of September. Wednesday the 30th of September, according to Mäkinen, was already a 'normal' day of activity. The transfer was scheduled for three days and was successful in two. The new system was in use one day before the deadline.

The system rules the entire supply chain

"Now the system controls every detail of the supply chain," says Mäkinen. "We'll see right up to the last screw when something is needed. We have the right information to prepare for our needs. The supply chain is transparent throughout the entire chain controlled by Darekon and allows, for example, the release of working capital from unnecessarily large inventories.

"I cannot overemphasise that this is a major development in Darekon's history," Mäkinen stresses. "It is not just a question of a new ERP system, but of a new organisation and understanding of processes. It is a tool for globalising total understanding within a company — it creates the company's ability to operate!" ■

> Everything works, but there is still always more work to be done.



PDS (partnership with Darekon joined services) i.e. a typical interaction between a customer and Darekon, presented in the form of a block diagram.

Petri Kettunen can be met almost anywhere in Finland, but always close to customers. This year, however, he has seen less physical travelling than previously.

Cuvaya

Serene and fact-focused sales director

PETRI KETTUNEN THRIVES IN NORTH KARELIA

Petri from Joensuu has been with Darekon for seven years and almost two years as sales director. The M.Sc. in electronics production engineering has experience in his previous positions in both production and sales.

The athletic Petri is just as open and talkative as Karelians generally are. It's easy to open a discussion with him and the atmosphere is immediately comfortable and free. The corona pandemic has, of course, left its mark on all interaction this year, but with a positive attitude Petri has managed to find some good points in it as well.

A child of the 1970s

Petri can say he was born in the 1970s, albeit he just scraped in to the decade. He saw the world for the first time just six hours before the year turned over to 1980.

Petri spent his childhood and went to school in Joensuu. He also did his military service in Kontioranta, just next to Joensuu. After the army Petri moved to Tampere for four years to study at Tampere University of Technology. Petri had a distant idea back then that electronics might be a promising career. In 2004, he graduated as M.Sc. with electronics production engineering as the main subject.

A little earlier, however, Petri had already moved back to Joensuu to do his master's thesis. Old contacts with a company operating in Joensuu bore fruit and the development of new electronic products was found to be a good topic for his diploma thesis.

Then it was time for a job in the bigger pattern of life. Perlos, a leading supplier of precision plastic parts and electromechanical components, was still living the joy of Nokia's success, and jobs were easily available for a young engineer. Petri worked for two years as a production engineer for Perlos, responsible for project operations.

There was a lot to do, there was a lot of travelling and quite enough responsibility for the young man. However, bad news soon began to come when Perlos, which employed 1,600 people in North Karelia alone, began to close its facilities and shed 600 people in North Karelia in 2006. The rest is history.

At the Joensuun Kataja basketball match (around 1994), Petri (No. 14) has already learned the ways of a salesman and advises other players.

> Let's keep to what we promised."

To real electronics work

As an active and qualified man he did not have to think about his future for long, as he quickly found a job in an electronics manufacturing company. There, Petri initially worked as a production engineer and then as a project manager — and account manager — for most of the eight-years he spent at the company.

In 2013, the company faced financial challenges, initiated co-operation negotiations and reduced its operations.

"At that time, I had the opportunity to think about the future from many points of view," says Petri. "Electronics or something completely different? The time was also useful in that I had time to build the upper floor of our house."

However, the electronics industry was still attractive and the idea of law studies was set aside. He had heard about Darekon from the then sales director and had also met with Kimmo Turtiainen, plant director at Savonlinna manufacturing facility. Contact with Darekon led to a quick resolution: a meeting was arranged in Espoo and soon after that he started work at the firm.

Responsibility, travelling and variable days

"I started working at Darekon in April 2014," Petri continues. "At that time the Savonlinna manufacturing facility was still operating in Savonranta, 80km from Joensuu. In the beginning I had to get acquainted as quickly as possible with the company's operations, and I travelled daily from Joensuu to Savonranta to work.

"Soon, travelling and responsibility started increasing, so business trips and customer visits took me around the country. I took care of a few of Darekon's old customers and focused strongly on acquiring new customers.

"The operations of the Polish plant were then in a strong phase of growth and development, and I cooperated a lot with the then CEO of the plant, Kari Koponen. Pretty soon we were able to acquire new customers for the Polish plant. Poland was able to provide a high quality and at the same time very competitive service for reasonably large production volumes."

Petri has now served two years as Darekon's sales director. His new job description is pleasing. The main job is to be a key account manager, as before. It is also very important that the sales director is the first point of contact for new customers. A good sales team and independent and self-initiated colleagues all over Finland facilitate the work of the sales director.

Quite an exceptional year

"The best things at work are good — and in a certain way demanding — customers," says Petri. "I have seen the way mobile industry giants operate, when they dictated the contractors' margins. My current clients understand the principles of business. It is good to work with professionals.

"The corona pandemic has made this year very exceptional for sales people and the sales department. Personally, I like to visit my clients. Of course, things can also be handled remotely with old customers, but it is more challenging to build a new relationship through Teams."

Darekon does not have an absolute line for meetings — justifiably and of course with care, physical meetings have been possible. Petri's customers also have a very similar line.

"In the past big starts and tender negotiations were always handled in meetings, but they can also be handled remotely," Petri continues. "Of course, body language plays a very small role in remote meetings and boring numbers come to the fore.

"Unfortunately, many customers have not been visited. I haven't really even wanted to suggest it. In the summer, I had an outdoor meeting with a few clients. It worked out nicely and was a nice variation for many remote meetings."

Petri thrives in North Karelia

Petri still lives in Joensuu. The family includes a wife and three- and seven-year-old daughters. His spouse works in an advertising agency as a client manager and the eldest daughter has just started school. On May Day, the family moved into a new house, which is reportedly the family's second house-building experiment — although ordered as turn-key delivery.

An athletic fellow, Petri spends his free time mainly playing sports: basketball, training in the gym, and paddle, which is an intermediate form of squash and tennis that is usually played by four people. Petri strives to take care of his physique, so that his mental vitality is healthy.

The most important thing in Petri's life is family. As a small, positive feature of corona, he mentions that he can be more at home and can better see his first-grade daughter on the school trip.

"It is important both at work and at home to be firm but relaxed — not to get nervous. A moment of oxygen before flailing. Do and let others do what they like. My wife would probably describe me as a good and peaceful family father, and more rational than emotional, that is, the opposite of herself," says Petri with a laugh.

"At work, I want to stand out a little from 'stereotypical salespeople' — to act in the long term and humanely. No one has succeeded without desire and hard work — keeping to what we promise!" ■

AN EXCEPTIONAL YEAR HAS BROUGHT A LEAP FORWARD IN DAREKON'S OPERATIONS

Keeping safe distances in an electronics facility is often easy due to space-consuming workstations. The photo shows Darekon's Savonlinna plant. The province has been one of the safest in Finland in terms of the corona virus.

The corona virus comes to mind first when you think about what has happened in the past year. Of course, this applies to Darekon as well. However, practical operations at the firm have been more affected by the enterprise resource planning (ERP) reform that has been underway throughout the year. Major changes in the production volumes of various clients — caused by the pandemic — and other changes to the firm's organisation have also marked the year.

In the spring, the Covid-19 pandemic caused uncertainty and left firm's in a quandary. There was not yet any idea of the severity or infectiousness of the disease. There were no tests and there was no information on whether manufacturing facilities should be closed. The uncertainty and worry of the spring has shifted to practical routines and healthy caution.

Caution is wisdom — not a harbinger of harm

Following the old proverb, Darekon carefully prepared for the epidemic and thus avoided the disease it causes. A few exposures have emerged during the year, but no staff illness has been reported.

"Little was known about the nature of the pandemic in the spring and we should probably have studied virology so that we could have better understood the situation," says **Riitta Moilanen**, HR manager at Darekon. "However, the situation was brought under control fairly quickly and the occupational health and safety committees issued guidelines and contingency plans. The prompt and responsible action of the staff in this situation is really appreciated.

"In the beginning, there was a little panic in the whole of society and the authorities gave different instructions almost every day. Our first written instructions were published at the end of February and then in several stages in March and April. These guidelines and policies are still valid because the pandemic is not over."

According to Moilanen, only a small portion of the staff has had the opportunity to switch to remote working, but as far as possible this has been done. Travel has been reduced to a minimum, appointments are handled, as much as possible, in remote meetings and all official instructions are being followed. No quarantine or other radical measures have been necessary, although they have been prepared.

On the verge of change — not just a focus on corona

"ERP (enterprise resource planning) and the reform of that system, has been a strong

theme over the past year," Moilanen continues. "The issue has been on the table for years and preparation for the transition at the beginning of October has been intensive. There will, however, still be a little refining and adjustment for the rest of the year.

"ERP is much more than an information system. With the new system, the company's processes have been clarified, the roles of different people have been harmonised and the organisation has been sharpened.

"One example is 'team leaders' who have been deployed throughout the organisation. In the past, some plants had job instructors, but their roles were not very consistent. Now team leaders work on the same principle in all facilities. Depending on the task, a team can usually have three to 10 people doing the same things. The team has a leader who does not have a managerial position, but who is experienced and helps team members in their duties if necessary, and takes care that things go smoothly."

Must is sometimes the best consultant

The effects of the pandemic have not only been negative. The first instructions issued as a result of the epidemic concerned hand hygiene, for example, and recommended staying at home immediately if symptoms of the flu or influenza appeared. Cleanliness and diligence has apparently had an impact, as the number of sick-leave staff has clearly been lower than usual over the past year.

According to Moilanen, new factors have also been found for work efficiency. In the past, it was very natural to hop in a car and drive to a meeting with a partner — often over quite long distances. However, staff have frequently had to settle down for a remote meeting using teamwork software, or just manage with an ordinary phone call. Surprisingly, this has saved significant time. Similarly, working from home has saved time spent on travelling to work.

"It is quite clear that people need personal contact, but it seems quite possible to handle some of the encounters through technical aids," says Moilanen. "Body language will play a smaller role in a remote meeting than in a physical meeting, but at the same time the parties will certainly listen more closely to what the partner is saying.

"It also seems that people are preparing more carefully for remote meetings and things will be dealt with faster and more accurately. This will certainly do good for the whole economy in the long run. Here's a real 'thousand bucks place' to think about business models and streamline operations."

Investment and production growth

In many industries corona has meant shrinking production, layoffs and even bankruptcies. For Darekon, the past year has been quite the opposite in this respect, although the firm is aware that threats may be seen in the future and adjustment measures might be necessary.

For a few customers production has been rescheduled or even downsized, but for others the pandemic has meant growth — even drastic growth — as the article about GE Healthcare in this issue shows. Overall, Darekon is slightly ahead of budget this year in terms of turnover, and profitability has been maintained.

Increased demand also led to a significant investment in the spring when, at short notice, a new complete SMT assembly line was acquired for the Haapavesi plant. At the same time, more than ten new employees were hired at the plant, several of whom have been taken on for the long term. Other significant investments have also been made — such as the new varnishing line in Savonlinna, which is described on the next page — as well as the further development of Klaukkala's robotics.

One Darekon concretises and progresses

According to Riitta Moilanen, 'The Year of Great Changes' has also been a year of great development. The 'One Darekon' ethos has been a key cornerstone of the firm's strategy for a long time and the past year has taken forward the goals of this initiative in leaps and bounds.

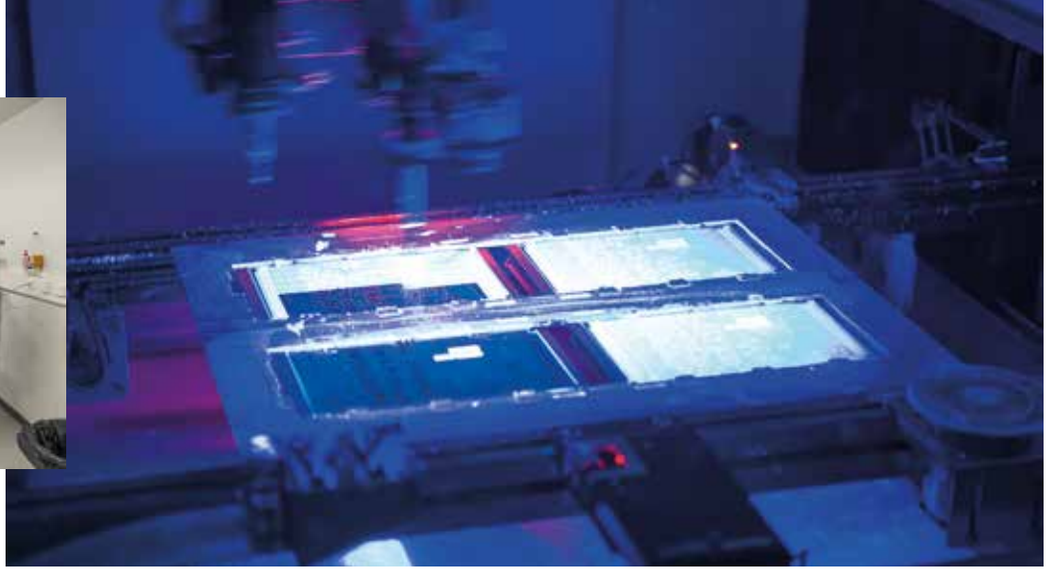
"We have been able to learn together what we can do," says Moilanen. "The common enemy — corona — has created cohesion and united things. Digitalisation has made concrete progress in our company. Project work within the organisation has become familiar and cooperation between different manufacturing facilities has developed positively.

"In the past, each plant had its own, slightly different internal operating methods. We have now been able to harmonise operations as far as it is useful and profitable. The operations are clear and structured, people have designated colleagues in other plants and, thanks to uniform operating models, people also know what is happening in other plants."

Darekon has really achieved great things and undergone great changes over the past year. Using new operating models and a refined organisation has already brought and will bring more benefits in the future when things are assimilated as a natural part of daily life. However, the development does not end there, and the next steps are already around the corner — steps that are always taken for the benefit of customers. ■

Can you really not see body language on remote meetings? Riitta Moilanen at the Teams meeting with the author.

Varnish line operator **Mika Mertanen** (left) explains to Jussi Hiltunen (centre) and Kimmo Turtiainen how the substantially reduced need for protection of circuit boards has accelerated the preparation of the varnishing.



The UV light of the varnish unit shows how the varnish spreads to the circuit board almost bafflingly quickly and accurately.

IN SAVONLINNA ALMOST ALL CIRCUIT BOARDS ARE VARNISHED

Darekon manufactures a lot of products in Savonlinna that are used in demanding conditions. A significant part of the circuit boards in production are varnished. The new varnishing line has more than doubled the varnishing capacity and met all the targets set for it.

Darekon's Savonlinna manufacturing facility moved more than a year ago from Savonranta village to more spacious premises in the city centre. After the move, operations in the new premises started quickly and without any problems.

Cooperating the move to new premises

"The relocation and start-up of operations in the new premises was actually surprisingly easy," says **Kimmo Turtiainen**, Darekon's Savonlinna plant director. "This is due to the fact that our staff largely planned the arrangement and operation of the new premises themselves. The staff essentially helped launch the operation in new premises and the need for guidance was small.

"All in all, this has been a special year. We've had the best sales ever, but the threats are sure to grow. So far, however, no information has been received on cancellations."

According to Turtiainen, one major change has been the introduction of the new ERP system a few weeks ago. The matter has been in preparation for a long time and the staff have been flexible when required and everything has gone well. Team leaders are a new part of the organisation. In the past there were job instructors, but now the title has changed and the tasks clarified. The new varnishing line has contributed to streamlining operations and reducing production pressures.

A lot of varnishing for demanding environments

Varnishing the printed circuit boards is one of the key production stages, especially at the Savonlinna plant, which manufactures a lot of products for demanding conditions.

"Last winter we varnished the circuit boards in up to three shifts," Turtiainen continues. "Our old line did not provide more capacity. We set out to explore possible alternatives together with the varnishing staff and compared 3—4 different alternatives. We also visited to see various devices at firms which manufacture electronics for their own products.

"During the upgrade of the varnishing line, all the equipment in the line was changed, except for the drying oven. The process accelerated our capacity by at least double and now we need a maximum of one and a half shifts."

Accuracy, speed and quality

"Our new Nordson Asymtek line uses film coater technology," says team leader Jussi Hiltunen, who was involved in the acquisition of the new line. "The application technology changed completely. The area to be varnished with the new line can be defined much more precisely and there is no air in the varnish shower at all. The old line used a spray technique in which the varnish was sprayed with the force of compressed air.

"The need for protection of printed circuit boards has been substantially reduced — practically by as much as 90-95 per cent — because the varnish does not spread outside the defined area. The shower is a certain width — right now 14mm — and the machine is fast. Here a line is created at 42cm per second. The varnish is the same as before, as is the thickness of the varnish. The speed can be even higher if the thickness of the lacquer layer is slightly thinned."

In addition to other functions, the varnishing line is equipped with an inverter presented by Hiltunen, i.e. a circuit board turner. This allows the board to be varnished automatically on both sides. The varnish shines in UV light and when the varnishing takes place you can clearly see how the protective layer is drawn on the board amazingly quickly and accurately. ■

LISTENING WITH A SENSITIVE EAR

CUSTOMER NEEDS ARE UNDERSTOOD AND MET

Darekon has grown year by year since the 1980s without compromising on the quality of operations. Without long-term customer relationships and knowledgeable sales work, this would not have been possible.

Darekon's four plants serve the various needs of customers in a variety of ways: Haapavesi provides top-quality SMT assembly with its modern assembly lines; Savonlinna focuses on versatile final assembly; the Klaukkala plant makes sheet metal parts and enclosures and assembly; cable series and long production batches are made in Poland.

Satisfied customers create growth

Darekon's customer base is diverse and the company's future does not depend on the success of a single individual customer. Darekon's portfolio includes both young start-ups and American listed companies — and everything in between. Common to all is the need for contract manufacturing, attentive service, flexibility and high quality.

"It is easy to recommend a high-service contract manufacturer on a sound basis to other firms. Indeed, several new customers have emerged as a result of a talk between equipment manufacturers. In a country the size of Finland, successful partnerships do not go unnoticed," says Juhani Svanberg, Darekon's key account manager.

"In our last customer satisfaction survey, we got the best result in Darekon's history. Although it is said that development ends with satisfaction, yes, but satisfied customers create growth," Svanberg continues.

Mostly with existing customers

Only a portion of the time of key account managers is spent acquiring new customers at Darekon. Most of the working hours are spent with existing customers, in discussions about new products, product changes, schedules and many other practical issues.

"For Darekon, all customers are important — large and small," Svanberg continues. "Once co-operation has been established with the customer, things must be handled, as agreed, with each one. Darekon is known and recognised for the high quality and flexibility of its production. If the customer's situation changes, we try to adapt our own operations to the new situation as much as possible.

"Sometimes customers request deliveries to take place earlier than agreed. Much then depends on the availability of components and any replacement components that may be available. In purchasing operations, the individual needs of customers are taken into account by 'earmarking' the key components at the customer's request for their use only."

Remote working through the corona crisis

The safety of staff and customers is a top priority at Darekon's operations — even during the corona period. Svanberg says he has worked remotely from home since the spring. However, the need for face-to-face meetings has not disappeared. At the request of customers, face-to-face meetings can and have been arranged but with everyone's health security in mind.

"Today's IT technology makes remote working a smooth experience. The necessary information is always available over a secure connection and the phone works just as well at home as in the office. In addition, I also have open things written on paper — in that sense I'm an old testament man," Svanberg says with a laugh. ■

> "For Darekon, all customers are important."

Juhani Svanberg thinks its best when new customer relationships arise from the recommendation of old customers.

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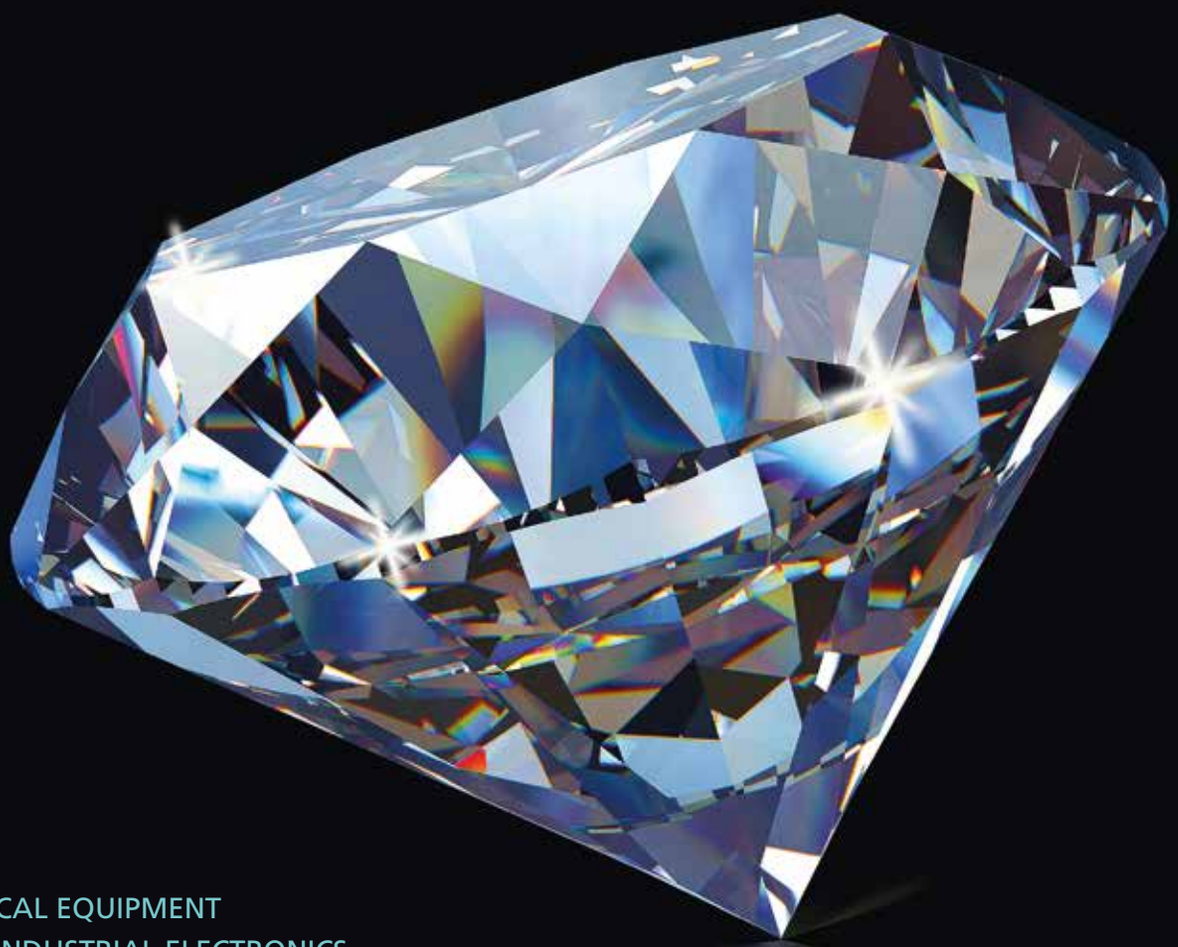

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- Comprehensive quality system
- Cost effectiveness
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