

ensto today

STAKEHOLDER MAGAZINE 2018

60

Years. Better life.
With electricity.

CELEBRATING
60 YEARS!

DISRUPTING
**A MEGA
INDUSTRY**

PAGE 18

MAXIMUM POWER,
**MINIMUM
LOSSES**

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FIRST WE TAKE
THE NORDICS

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ensto today

Ensto Today is the voice of Ensto Group.

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Cover: Ensto Celebrating 60 years



From the Editor

Happy birthday, Ensto!

This year we celebrate Ensto's 60th anniversary, and this issue of Ensto Today is full of the memories of employees and customers. I've also had the pleasure to be part of the Ensto team for over two decades, to personally watch Ensto grow and succeed.

On the occasion of our birthday, we also celebrate the succession of Ensto ownership, as the third generation of the Miettinen family joins the ownership team of the company.

This issue has a story about how I finally took my giant mental leap and leased a full electric vehicle. I learned a lot on my successful summer road trips, not least of all that I am now a committed EV owner – I wouldn't go back to a combustion engine for anything!

In our previous issue we introduced Ensto's new strategy – our approach to making life better with electricity. In this issue you'll begin to see some of the fruits of that labor – we profile our new smart digital services and solutions, as well as how some of our outstanding customers are breaking new ground with electricity!

Pia Hänninen
Director
Brand and Communications

Ensto rides the winds of megatrends in its transition from a manufacturing company to a technology company.

✍️ Ari Virtanen 📷 Oscar Lindell



RUNNING DOWNWIND WITH MEGATRENDS



NO ONE CAN CHANGE THE DIRECTION OF THE WIND, BUT WE CAN POSITION OUR SAIL SO THAT OUR BOAT MOVES IN THE RIGHT DIRECTION.

ARI VIRTANEN, CEO

No one can change the direction of the wind, but we can position our sail so that our boat moves in the right direction. I like to think of the megatrends as winds we cannot change.

People are moving to bigger cities, living and working in smarter buildings and using transportation in completely new ways. New buildings are becoming digitalized, becoming more human-centric. Transportation is moving towards electric vehicles with zero emissions. Electrical grids are becoming smarter. People are choosing to consume sustainably, many preferring sharing over ownership. All these trends, these winds, support electricity as the basis of the modern way of life.

Last year, Ensto announced its new strategic direction, and we have begun to work toward that. We've worked hard to understand the megatrends and how to position our company, our sailboat, if you will, in order to take advantage of them. In this new smart city environment, Ensto has two key focuses: smart grids and smart buildings.

THE SMART GRID

People take electricity distribution for granted - they assume there'll be a sufficient supply of electricity, regardless of how much they consume. But balancing supply and demand is a lot more complicated than people realize. Huge amounts of intelligence are required to keep the network in balance and power quality at a high level - with new networks required to increase capacity.

Imagine smart, consumption-side solutions, like electricity taken from car batteries to supply the network during periods of peak load. Imagine island networks using low voltage direct current solutions (LVDC) that make it possible to balance local production and consumption, and sell local electricity production to the grid during surplus periods.

SMART BUILDINGS

We often talk about smart buildings, but not a single true smart building has yet been built. There are buildings with massive amounts of technology, but the systems are siloed and humans are adrift, trying to learn how to

use them. A truly smart building will place users in the middle and implement technological solutions around human needs. To create these use-case-driven solutions requires tech solutions to be integrated, and this is the promise of digitalization. It's happened in the telecom industry, for example, yet the construction industry is mostly untouched by digitalization. The challenge is to change the dynamic of this business. (You can read about some of these technologies in this issue of *Ensto Today*.)

REORGANIZATION

Sailing 180 degrees off the wind - sailing in the same direction as the wind - is termed "running downwind" by sailors. So that Ensto may run downwind, we've made some changes in our organization and now operate three business units.

Ensto Utility Networks is one we're all familiar with and it continues as before. Our second business unit, Ensto Smart Buildings, combines electrification, lighting, and the electric vehicle charging businesses. This unit is designed to address the integration of systems in the domain of smart electricity, and we want to be in the lead in the creation of the smart building ecosystem.

The third unit, Ensto Digital Solutions (DS), recognizes that future businesses will be driven by data, connectivity, and IoT architecture. DS brings together our cloud-based platform and service portfolio development. It's a digital transformations business unit, creating new solutions for the whole lifecycle of both buildings and electricity distribution networks. Another important role for DS is to accelerate collaboration with third parties. Most of the innovation taking place in the world is happening outside our doors, and so we need solutions which are based both on our own products as well as our partners' products.

ART AND VALUES

Each year representatives from every Ensto country gather for a meeting of what we call the Ensto Council. For the past three years we have created artwork which expresses the values of Ensto.

The painting called "Winning Together" was created by the Council in 2016, and it shows Ensto solutions, with arrows of how they're combined and integrated for ▶



"Trust Capital" (2018) is a mobile expressing the behaviors we want to keep in mind when it comes to trust.

ART & VALUES

For the past three years Ensto representatives have gathered from around the world to create artwork that expresses our values. They're all on display in our Porvoo headquarters.



ALL THESE TRENDS, THESE WINDS, SUPPORT ELECTRICITY AS THE BASIS OF THE MODERN WAY OF LIFE.

ARI VIRTANEN, CEO

a better future. It's all about how collaboration and in-depth understandings of our customers' businesses lead to mutually profitable growth, or winning together. In 2017, we created a cityscape called "Creativity," which shows the context of our strategic direction. There's a smart building in the middle, and all the megatrends and ecosystems Ensto focuses on are represented. This year, we created a "Trust Capital" mobile. It's an artistic expression of the behaviors we want to keep in mind when it comes to trust.

At Ensto we are always discussing our values, behavior, and culture, and now we have permanent art pieces representing them. The art is on display at our headquarters in Porvoo, Finland. In fact, they're right in the lobby where customers and employees will see them, where they're part of our everyday life.

ENSTO: A TECHNOLOGY COMPANY

The journey from being a manufacturing company to a technology company will be long. Of course we'll always be a manufacturing company, but more and more we'll add new technologies from partners. It's not an either-or proposition, but rather becoming a technology company requires that we renew our mindset in many ways.

This year Ensto celebrates its 60th anniversary. We've enjoyed 60 years of enabling better and smarter uses of electricity while always creating more sustainable solutions. Today, Ensto is an international electrical solution provider with 1,600 employees.

If we are able to rig our canvases correctly and continue to sail downwind, we will likely grow to significantly greater size. But no matter how we grow, I hope that we will always bear in mind that our most important asset is still trust, and that our purpose is a better life with electricity. ♦



"Winning Together" (2016) shows solutions integrated - marketplace collaboration leading to mutually profitable growth.



"Creativity" (2017) demonstrates the context of our strategic direction, a smart building surrounded by the ecosystems that are our focus.

‘CAN WE GO FAR ENOUGH, FAST ENOUGH?’

It's a new, digital world. To help Ensto navigate it, the third generation of the Miettinen family has been added to the ownership group. Marjo Miettinen, Chairman of the Board of Ensto, discusses Ensto's place in this future.

📷 Scott Diel 📷 Oscar Lindell





Ensto proceeded with a process of succession in ownership in April of this year. Can you tell us more about this?

Ensto Invest Oy now controls Ensto and there are ten owners in the group.

The positive thing is that we have now eight new owners in Ensto Invest and a lot of new ideas. Ensto was the business the new generation wanted to ensure remained a family company. Of course, it's important to point out that this process of readying the third generation for ownership was not something that happened overnight. The process was activated about five years ago.

And the Stairway to Success is part of that process?

Stairway to Success is one part of the process. I've always been mindful of the fact that it's easy to give money or shares to the next generation, but it is not easy for them to take responsibility and lead — and these are things that are not easy to give up, either. [See illustration on next page]

Stairway to Success is a result of a questionnaire and a half-day workshop facilitated by Rokmind consultants. The exercise was done in order to understand our (the owners) values and the way we think about the family business. This exercise was the beginning of an owners' strategy that we will do together as a team.

Ensto values are great: trust capital, creativity and winning together. The third generation was already involved in formulating the company values, and therefore there was no need to make separate owners' values. The best result from the workshop was that we together discovered that there were no major disagreements, and we all had rather similar ideas about the future. We all agree on trust, creativity, and that we want to develop Ensto as a family business together.

If you had to explain the illustration in just a few words, what is most important to take away from it?

Most of the discussion we had was about sustainability. The millennials have a very keen interest in this from the standpoints of climate change and social change. Climate change is of course understood, but I think our workshop was the first time that I myself have understood some of the social aspects of sustainability. We literally have four generations working together at Ensto, some people over 65, some under 20 years of age, and of course those in between. The younger people value different things. They are much more team oriented, and it's critical to them that the team gives them positive energy. They're moving to cities yet they value nature. They value travel and holidays — experiences and different cultures — above material things. They're not interested in big houses. They don't work eight a.m. to four p.m. like my generation. They're digital natives used to working anytime anywhere.

But the core values are the same. We share a vision in Ensto as a company: "Better life. With electricity." The owners' vision is taken from that and it is "Better future. With family." And that starts with a commitment to the family business.

Who are the new owners? And are you stepping back?

I remain an owner, and I will continue to be involved on the boards of Ensto Invest and Ensto for at least the next five years if the new owners agree with me. My sister, Taru Kokkomäki, also remains as an owner and board member. From the third generation there are eight new owners: Anna [Miettinen], Iida [Miettinen], Lari [Raitavuo], Samu [Raitavuo], Jenni [Raitavuo], Miikka [Valsta], Emilia [Valsta], and Matias [Oksanen]. They are all between the ages of 19 and 37. It's important to note that Timo Miettinen's daughter Anna is also on the boards of both companies and also has been working in the company. Samu and Jenni are also working in the company and all of them have worked as summer trainees.

As an owner, and perhaps speaking for all the owners, what is it you are looking for out of the business? What are the types of conversations that you have about this subject with Ari Virtanen [CEO]?

I am happy, very happy with Ensto's new strategy. The organizational restructuring into our three business units make sense, as well. But our transition from a manufacturing company to a real technology company will not be a fast one. We are still too product-oriented, and what we are facing just now is a big cultural change. We will need new and different types of competencies inside the company — software engineers, for example. But this is something every company in every country is facing just now.

We are committed to grow. But we haven't assigned numbers to it. We have a great number of products and solutions in the company, and we must carefully examine them and make tough decisions keeping our strategy in mind. We've been very flat in terms of growth for many years, and I'd like to see some action! Of course, I must temper that by saying that for me as an owner it means profitable growth.

Ensto's third generation should then be critical in guiding the transition to a technology company?

We see product advances like AI systems available in Ensto's lighting business, for example, and we're now beginning to understand what these changes mean for the whole of Ensto and what the impact is on every employee. This is why we have ongoing programs inside the company to develop our employees. The third generation of owners understands what's going on in this area much better than my generation.

They were very active at the recent Ensto Invest board meeting. The third generation asks excellent questions. They come at problems from a different direction. They bring a way of thinking from the startup world and from totally different sectors. They are amazing networkers. They suggested a lot of possible partners, new opportunities, and ideas.

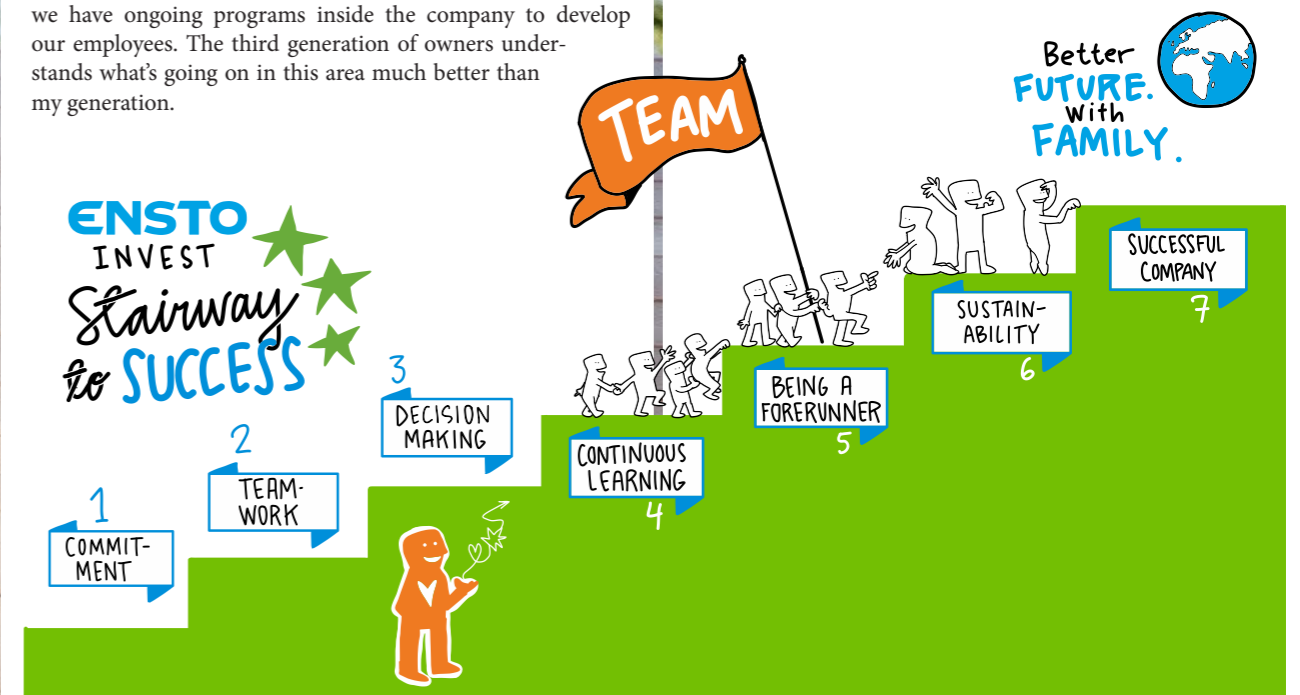
A report was recently published in Finland about how digital-world knowledge is going to affect change. I'm not a digital native, but I know that if you start at the right time then you can change. The banking sector, for example, is moving quickly to digital. Thousands will be without jobs if they don't figure out how to develop themselves. Our team of owners is committed to making sure Ensto doesn't fall into that trap. We are committed to developing ourselves and developing the company, and then it is only a question of whether our employees will have the same commitment.

What's your crystal ball say about developing the company?

With the new owners we've been discussing what will happen in the next ten years and trying to understand what the environment will be. Of course, that's quite difficult, but that's part of our role. I think we should all ask ourselves: What is it that I can do better today than yesterday? Will that skill still be valid after ten years? If it won't, then I need to start now to retrain myself.

I think that we'll need to retrain ourselves to make decisions faster in the company. Speed is important in gaining digital competencies, but it also matters in decision making. We also can't see ourselves as Finnish — we are an international company and our employees come from 20 countries.

In my discussions with Ari [Virtanen], I often ask him if we can go far enough and fast enough when it comes to digital and technological change in the company. We have to be able to keep up with our partners and our customers! It's such a challenge, because it's a balancing act. Robotics, AI, VR, what have you — we've got to understand a lot of new things. But of course we don't have to necessarily be first — you can lose money if you go too fast. ♦





📷 Noora Geagea

MEET ENSTO'S OWNERS



From left to right: Taru Kokkomäki, Marjo Miettinen, Samuel Raitavuo, Miikka Valsta, Iida Miettinen, Emilia Valsta, Anna Miettinen, Lari Raitavuo, Jenni Raitavuo and Matias Oksanen

The third generation of the Miettinen family joined the ranks of Ensto owners this year. We asked them about their history with Ensto, their best memories, and what greetings they might like to send on the occasion of Ensto's 60th anniversary.



Anna Miettinen

Currently I am one of the owners and members of the Ensto and Ensto Invest boards for our family company. With my sisters, we also have a company called Sewatek, which manufactures service penetration units for piping. In my youth, I worked at Ensto for many summers, and after graduating with my Master of Science (Technology) I worked at Ensto for three years in Human Resources. In addition to the family businesses, I currently work as a freelance culture producer. From my childhood I remember visits to Ensto factories – especially the time I received a freshly injection-molded

lighting dome, which I used at home to store colored pencils. The best memory from my time working at Ensto has to be my closest colleagues in the Human Capital Management team and all the other friendly Ensto people. I took a lot of satisfaction in my job when I could support Ensto employees in their jobs. A big milestone for me was my appointment to the Ensto Board of Directors last year. In this position, I am able to examine and develop the company from a new perspective. Now in Ensto's 60th year, I would like to, of course, thank all the Ensto employees for their work and input in developing the company. Let's continue together with our daily work which benefits society, our customers, and us as Ensto employees.



Iida Miettinen

Since my high school days, I have worked at Ensto in a variety of different positions. During summer breaks when I was younger, I worked in Ensto production as well as in communications. After my business studies, I began work in the Ensto Building Technology business unit's marketing team. I supported our marketing team mainly in domestic marketing and communications duties, but I also took part in the Ensto Intro wiring accessory launch. I have also worked at other companies outside Ensto in marketing roles, which has greatly informed the way I think about Ensto. My last position at Ensto was with the customer experience team, but it was unfortunately cut short by a very serious accident and injury that followed. Currently I am focused on ownership-related tasks and rehabilitation. There are multiple unforgettable and important memories related to working at Ensto, but the most significant

has to be the way in which all the Ensto people accepted me and took me in with an open mind, despite my young age. The way they challenged me to see our business from different points of view was invaluable. As a young girl, I was quite nervous to come to work at Ensto, partly due to being a child of the owners, but it was really great to discover that I could immediately get straight to work in a relaxed, fun environment and also grow into the company through continuous learning. Even during the Ensio era, I felt like there was no need to appear self-important at Ensto. Instead, we aimed at supporting each other's growth. This has always been our company culture and it has been personally significant for me in becoming an Ensto owner. It is with great honor and joy that we, the third generation, have been able to become Ensto owners. I wish to extend a big thank you to all Ensto people for making this 60-year journey possible. It is a good point from which to move forward towards a better future together. ▶



Samuel Raitavuo

I have worked summers at Ensto since I was 15 years old, mostly at the Porvoo factory and head office. During 2010, I was an intern for four months at Ensto Stockholm office. In 2011, I began work as a full-time employee in the Ensto Industrial Solutions business unit as a business analyst.

This was the beginning of my Ensto career, and I've worked in a variety of positions from marketing to sales. Currently, I work as a Project Manager for Ensto's Must-win Battle development programs.

I have many great memories! The greatest memories always involve meeting interesting people and hearing their stories. But of course my time in Stockholm is something very special to me, and I fondly reminisce about all my colleagues there.

Thank you to everyone for the effort so far! You all are the reason Ensto is what is today, and hopefully the story will continue for at least another 60 years. Thank you also for all the support and warm welcomes during our interactions. Remember that the world is always changing and we need to change with it!

”
**THANK YOU TO EVERYONE
 FOR THE EFFORT SO FAR!
 YOU ALL ARE THE REASON
 ENSTO IS WHAT IS TODAY, AND
 HOPEFULLY THE STORY WILL
 CONTINUE FOR AT LEAST
 ANOTHER 60 YEARS.”**
 SAMUEL RAITAVUO



Lari Raitavuo

Currently I am not employed at Ensto. I have, however, worked there in various positions, during summers at the factory, for example. From a young age I've become very familiar with Ensto's staff and culture – during the summer jobs I learned a lot about Ensto people, and I gained skills that I would not have learned elsewhere.

Right now, I am an entrepreneur in the wellbeing, sports, and media businesses.

A single greatest memory is difficult to name since there are so many. But a certain Christmas "adventure" comes to mind. I was around 10 years old and selling Boy Scout calendars to Ensto employees. I remember being very nervous about it, but that nervousness quickly faded, because I was so warmly received by everyone. For some reason, I remember this vividly.

Another memory that comes to mind is going on a factory tour with my grandpa when I was around five years old. I found discarded plastic parts on the factory floor and assembled little toys and "monsters" from those, which were of course interesting to me.

Ensto people have taught me a lot over the years. Every single person has always been ready to help, and there is no such thing as a stupid question. This is a great company culture and way of working, which I feel will take us very far. I would like to humbly thank each and every Ensto employee for their effort in creating this atmosphere. Being an Ensto employee rules!



Jenni Raitavuo

I work as a HSE Manager (Health, Safety and Environmental) at Ensto Operations in the Porvoo Office. I'm responsible for developing and maintaining environmental and occupational safety management systems and related projects. I have worked full time now at Ensto for about six years. In 1997 I started as a summer trainee in Porvoo. I had time to work many summers in different functions, in mailing, assembly, the service team, and the office. Last year I celebrated five years at Ensto and 20 years from starting my first summer job at the company.

Ensto has been part of my life ever since I can remember. I have many great memories with family and colleagues, and it's quite difficult to choose the best one. But the warmest memories I have are from my childhood, when my cousins and brothers toured the Porvoo factory with my grandfather. We also always got to take one component home as a token.

The world is changing fast, and we need to keep up with the change. Let's do it together and enjoy what we do!



Emilia Valsta

Although I have spent multiple summers working at Ensto, I am not employed there currently, since I am finishing up my master's degree in Egypt. It was always important to our grandfather that we grandkids experience as many different roles at Ensto as possible, so that we could better understand how the company works and get to know as many people as possible from different departments. I have worked everywhere from the factory to customer service and communications.

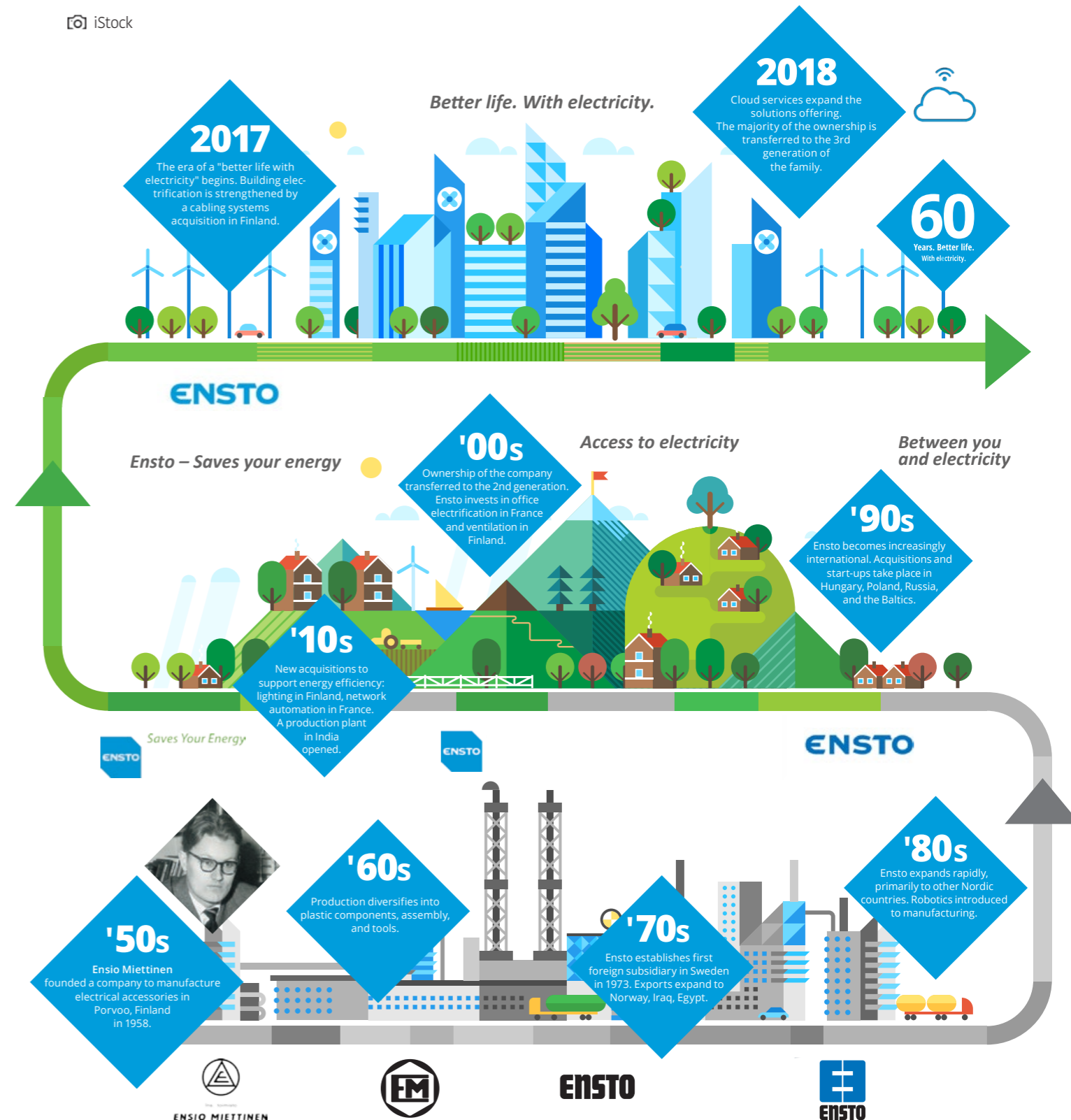
The people are the absolute best thing about Ensto. The work atmosphere has always been relaxed and fun, and people are easy to approach. I was always given responsibilities, which itself made me more motivated to work. After all these years, I still keep in touch with people from Ensto, some of whom left the firm a long time ago.

I think the most important thing for me is that the people at Ensto know and feel how much they are appreciated! For me personally, it's extremely important that people feel they are heard and that they have the ability to affect their work in a positive manner. ♦

60 YEARS HAPPY BIRTHDAY ENSTO!

A profile of Ensto's 60 years in the business.

iStock




CUSTOMER MEMORIES OVER 60 YEARS

Ensto invited its customers to share their memories of working with Ensto over the years. Quality, customer understanding and flexibility were the recurring themes.

Ensto presented us the concept of insulated overhead low voltage lines. At the end of 1992, we built 700 meters of a power line along a tract with trees in urbanized area. This was the first implementation of such a solution in Poland. And Ensto is still a leader in its field. Congratulations for 25 years in Poland! I wish you success in the future and always be yourself!


Zbigniew Jedrusiak,
Energa Operator,
Technical Engineer,
Poland




Ensto Pol Sp. z o.o.
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Pol

Ensto treated us very well as a company and a client from our company's beginning. Knowledge and support from Ensto was valuable to us as a new company and young entrepreneurs. I also remember fondly a visit to the Ensto factory in France in 2013 and spending the day with the Ensto factory director at the motorcycle race track in Alcarraz. The fact that such a large company can still truly be customer oriented as well as fast and agile with customer requests is a great advantage. I think of Ensto as a smaller company than it really is, and that is definitely a good thing.

Mikko Virtanen, Neo Sähkö Oy,
Director of the Board, Finland




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Ensto is good at understanding customer needs and responding early with new products. We feel that we are involved in processes. Ensto offers very good quality, reliability and most of all, dedicated personnel with whom we have personal contact. They're able to make the choice simple for their customers. Congratulations on your both anniversary. We need you in the market!

Per Olav Mikalsen,
Otera Infra AS,
Director for Transportation
and Procurement, Norway



Ensto NOR AS
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0614 Oslo
NORWAY

I've worked with Ensto for 15 years. What led me to choose to work with Ensto is the quality of their products. I recall once we had an emergency coming from our Board and had to complete office-furbishing works within four days. The Ensto team came to deliver the material on a Saturday morning to help us out.

Franck Halbout
Safran Aircraft Engine
General Means
Department Manager,
France







Ensto France SAS
19-21 Rue du 8 Mai 1945,

Speaking about products, there is permanent high quality without claims. Let's maintain our great relationship and even build on it! I should add that we generally like Finland and Finns in the Czech Republic, even if you very often beat us in the ice hockey championships.

Milos Jarolim
Enika R+D, Salesman
Czech Republic





Ensto Czech, s.r.o.
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25101 Prague - Vychod
Czech Republic

I'm very happy to recognize the fact that thanks to our partnership more than 90 percent of the overhead lines were built in our hometown. Also, every time when the Christmas lighting turns on in the streets of St. Petersburg, this happens using Ensto products. When you drive through your native city, see the lights and feel peace and joy, there is great pride knowing that you are somehow involved in this.

Sergey Alexandrovich Petrenko, CJSC
Baltic Cable Company, Manager, Russia







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198 205 Saint Petersburg
RUSSIA

When we first started working together Ensto had a small organization in Alby, south of Stockholm. Now, the product portfolio is much bigger, and our businesses have grown together. Keep up the good work and good luck for the next 60 years.

Kenneth Östlund, Elektroskandia
Marketing Manager, Electric Utility
Sweden





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Sweden

DISRUPTING A MEGA INDUSTRY

How Fira is using technology to rethink the construction industry.

✍️ Scott Diel 📷 FIRA

The construction business is ripe for disruption, says McKinsey & Company. Their 2016 article would seem to sound the death knell for the industry. It reports that large projects typically run 20 percent longer than scheduled and go up to 80 percent over budget. It claims productivity has declined, and financial returns have become volatile.

The Finnish general contractor Fira is trying to change all that, at least in the Nordics. Formed in 2002, Fira enjoyed modest turnover until 2009, when Jussi Aho, a builder who'd taken a detour into the telecom business, returned to the industry. Aho saw then what McKinsey wouldn't point out for seven more years: that process and technology innovations could be brought to bear on the building industry, and that Fira could become a service-oriented construction company.

Aho's goal was to take Fira's 2009 revenue from 14 million euros to 100 million euros in only seven years' time. He accomplished it in five.

TWO PATHS

By Aho's way of thinking there were two paths available in the construction business. The first was to become a developer: buy land, develop, sell. The second was to develop skills to serve clients more thoroughly and add value from beginning to end.

Ville Wikström, Fira Group's Vice President responsible for their modular business unit, says construction projects are usually divided into distinct and separate phases – preplanning, development, construction, and so forth – and each has a separate budget. "In each phase the customer hires the lowest bidder, and from phase to phase information is lost," says Wikström. "The Fira approach puts builder and client on the same side of the table. We play on transparency and trust through an open-book system that aligns risk with reward."

Talking with Wikström feels like talking to a startup entrepreneur. He describes the Fira approach as "digitalizing best practices" and uses terms like "agile" and "scaling."

CASE IN POINT

Fira's most famous success has probably come in the area of plumbing retrofits. Helsinki contains vast numbers of buildings constructed in the 1960s and '70s which are in need of complex plumbing renovations. Actual plumbing can differ dramatically from old blueprints. The usual construction model, as Wikström puts it, is "outsiders come into your home, smash up everything and make a mess. There are many surprises, and the customer feels completely unempowered."

Wikström says these type of jobs traditionally run way over budget and schedule. "The Fira Agile model changes all this. We bring in construction experts in the beginning, who point out potential trouble spots and conduct small inspections by opening up some walls. We get all the residents together and they have their say. We constantly feed them information so they feel they're in control." Wikström says the agile approach can keep project costs down 20 percent and enable them to complete the job 30 percent faster. "However, the client has to mentally commit that he wants to do it in a new way." ▶



THE FIRA APPROACH PUTS BUILDER AND CLIENT ON THE SAME SIDE OF THE TABLE.

VILLE WIKSTRÖM, FIRA GROUP'S VICE PRESIDENT



Ville Wikström



One client who did commit was in eastern Helsinki, where Fira did a retrofit of a 19-unit housing complex. "People had to move out for two weeks and came back to new bathrooms and kitchens," says Wikström. The usual time required for this job: three months. The success was unusual enough that Fira was awarded an EMEA Gold SABRE Award in 2017— sometimes called a "communications Oscar" — for the job. In this honor Fira stood alongside builders of Dubai's tallest building and the Panama Canal retrofit. Online articles about the job garnered 63 million clicks.

"People from outside Helsinki started calling us after that," says Wikström. "Their interest was in our tools and processes which made the job possible."

A MODULAR FUTURE

Fira constantly measures itself against the automotive industry which is known for not only its pioneering work in Lean practices, but also for assembly using modular components.

Fira Modules, a company which began from scratch as a Fira-funded startup, is an effort to modularize housing components to reduce costs and increase speed. Fira bathroom modules, for example, are dropped via crane into a building's central shaft, with plumbing, electric, heating and air conditioning, all connectable in a plug-and-play fashion. (Ensto products enable the electrical wiring system hookup -- see box.)

The modular bathroom is only the beginning. Wikström says that the modules themselves will be developed further to have "modules within modules," enabling mass customization from project to project and apartment to apartment — enabling personalized and well-thought-through bathrooms. On a larger scale, the apartment shaft will serve as the backbone of the structure and could be infused with all



kinds of technology. "Ensto wiring could go out from the shaft to bring electricity and data connections to the rest of the apartment." Smart technologies could also be installed. "What if you have an elderly person in an apartment and the system could tell you that his light hasn't been switched on and off in 12 hours. You could then look in on him. The modular approach would enable the house to better serve its inhabitants."

FINLAND'S FIRST CONSTRUCTION UNICORN?

The construction industry is massive. Estimates place it at over 10 percent of the world's GDP. "But even the biggest players have less than one percent of the market," says Wikström. "There just aren't big gains to be had from getting big."

But once upon a time there were hundreds of automobile manufacturers. Wikström notes that today there are fewer than a dozen big players. "Those who thrived were those who utilized information in a new way and made production modular. Through mass customization they produced higher quality for lower prices."

Can the construction business be scaled? Kattera has done it. The Arizona-based company offers software for the construction industry for building design, logistics and purchasing, and in 2017 sought a valuation of 2.5 billion dollars.

Fira's turnover reached 217 million in 2017, and though management has not formalized the goal, one gets the distinct impression they would not object to being the construction industry's first unicorn in Finland. "We've been waxing our surfboard for about five years now," says Wikström, "and I think things are now really starting to happen." ♦

WHAT'S IN A MODULE?

Ensto is Fira's key partner when it comes to the electrical wiring in the Fira bathroom modules. A typical module is about four to six square meters and prefabricated to the level that it can be dropped into the apartment using a crane. "A similar principle has been applied in ship building for a very long time," says Jani Pesonen, Product Manager at Ensto.

The modules follow an electrical plan with luminaires, panel boards, and sockets already in place and tested before the module is shipped to the construction site. Ensto supplies standard and customized items, but Pesonen says for the longer term Fira and Ensto could cooperate to design modular wiring accessories to bring electricity to the entire module and beyond.

Pesonen thinks that the modular approach in the construction industry is the way of the future and Fira is the horse to bet on. "The approach Fira has chosen makes things happen. They gather expertise around the idea, and cooperating with other companies allows quick solution building. Scaling the business will be easier, as well as convincing builders to start using a system which takes their business to the next level. Fira has a clear task to change the entire industry. It's great to be part of it!"

THE ELECTRICITY REVOLUTION

Fingrid CEO and Ensto board member Jukka Ruusunen spoke to *Ensto Today* about the big picture of the energy market, as well as his role as a consumer of electricity.

✍️ Scott Diel 📷 Fingrid

From your point of view as the Fingrid CEO, what are the big-picture issues worth our attention?

We're currently living through an electricity revolution.

The revolution is the coming of renewables, of CO²-free energy. Electricity literally is the solution for climate change. There is so much technology in development and the prices of renewables are dropping. Batteries and storage technologies are developing.

The next solution we would hope to see is seasonal storage for electricity. Power-to-gas, whichever method you choose, converts electrical power to gas fuel by splitting water into hydrogen and oxygen by electrolysis. You can then use gas instead of transmitting electricity huge distances. The gas can be shipped which will solve a lot of problems.

What part does digitalization play in this revolution? And how is Fingrid capitalizing on it at the level of the national grid?

You could say that digitalization is the enabler of the electricity revolution.

At Fingrid we're using digital technology to make our substations smarter. These devices, which some people think are ugly, are becoming intelligent. If there's a problem

with the transformer, it will call me in advance to say it's going to fail. When we fix it before it breaks we can guarantee reliability and serve our customers better.

We also have interesting new technology that allows us to listen to the sounds of devices when we're connecting or isolating transmission lines in the substation. It's similar to a talented mechanic who can listen to your car's engine and can tell you what's wrong with it. We listen to the voices and take measurements. This is possible today because devices and sensors are cheap, and we have advanced methods to do the analysis automatically.

How are renewables impacting Fingrid?

With conventional power production, the demand of electricity was the uncertain component. Now, increasingly, generation is uncertain, as well. You have to forecast your wind and solar production for the next day! The forecast of renewables is not as good as conventional, so we have to make it possible that trades can be made closer to delivery time. Forecasts are constantly adjusted, and so trading volumes increase close to delivery time. Supply and demand can then balance in the market. ▶



At the consumer level, do you see a lot of consumers making a green choice when it comes to electricity?

Fingrid is the body in Finland that guarantees the origin of the green electricity you buy, and we're seeing more consumers making a green choice.

But buying green electricity isn't the only way to be green. I'm seeing that consumers like to go green via investments. For example, Helsinki's Kivikko solar plant, the first "megawatt station" solar plant in the Nordic countries, is leasing panels to consumers. When you make that investment then you really are in the business. The return on investment isn't high, but it's an important symbolic gesture.

Think about what kind of car you're using and the choices you made when buying that car. You probably didn't simply go buy the cheapest. The car brand or the health of the planet may have somehow factored into your buying decision. It's the same with electricity, or at least it can be the same. Those buying photovoltaic plants are the pioneers. Others will follow, and as prices fall there will be a very good business case for photovoltaic.



WHEN I'M WORKING HERE IN THE HELSINKI AREA I CAN THEN POWER MY CAR WITH ELECTRICITY USING SOLAR POWER AT OUR OFFICE. THAT'S MY START.

Finland can and will boost its production of renewables. At Fingrid we're preparing for this. Finland will produce more wind in Northwest Finland, and we'll also buy wind-generated electricity from Sweden. We're currently building a strong transmission line now to bring that energy to southern Finland.

If we speak about you as a consumer, what are the personal choices you're making?

On the personal level I think the right approach is to first deal with efficiency. I have put in better insulation. I use heat pumps. Deal with efficiency and then move on from there.

My next car will be a chargeable hybrid. When I'm working here in the Helsinki area I can then power my car with electricity using solar power at our office. That's my start.

Given the electricity revolution, digitalization, and the rise of renewables, what is your message to Ensto as a board member?

"A better life with electricity" is Ensto's vision and it also expresses that we're here to serve society with the main goal of a clean planet. In the western world, we're in the second phase already. We take electricity for granted. But we have to take the first step in a lot of places and just get electricity to the people.

Cities are becoming smarter. The devices we use must become more intelligent. Smart grids will have to become smarter. Distribution companies want to see smarter devices. It's built into their business. The need is there and the business case is clear. Ensto can serve in all these capacities.

What I say to Ensto is that we have to supplement our technical capabilities with even better design and intelligence so that people fall in love with our products. Electrical equipment and services can be even more useful than they are today. Digitalization is one tool to make that happen. Digitalization and electricity go hand in hand, and it's got to be integrated into Ensto's activities. ♦



Ensto selected exclusive supplier of electric vehicle charging to Avinor



Photo: Avinor

Ensto has been selected as exclusive supplier of electric vehicle (EV) charging points to Avinor, the operator of 45 state-owned airports in Norway. The contract is for three years, with an extension option.

The contract also includes a cloud-based Ensto EV Manager, which is an intuitive user interface that enables quick and efficient management, operation and control of users and charging stations, and potential integrations with building automation and payment systems. Initially, around 1,000 charging points will be installed, and further installations are expected to meet market demand.

Ensto will deliver Chago Wallbox charging points to all of Avinor's airports that have regulated parking. These parking places will have a minimum of three percent of the total amount of parking spaces equipped with EV charging points as soon as possible.

"We are truly honored to be selected Avinor's technology partner for such a large rollout of EV charging infrastructure. The



WE ARE TRULY HONORED TO BE SELECTED AVINOR'S TECHNOLOGY PARTNER FOR SUCH A LARGE ROLLOUT OF EV CHARGING INFRASTRUCTURE."

LEIF EGGE, SALES MANAGER OF ENSTO SMART BUILDINGS BUSINESS UNIT IN NORWAY

work so far has been extremely interesting, and we will strive to create the best possible EV charging experience for Avinor's customers," says **Leif Egge**, Sales Manager of Ensto Smart Buildings business unit in Norway.

"Upgrading our infrastructure for charging of electrical vehicles will provide travelers

at our airports with even better service. In addition to electric vehicles, Avinor is committed to electrification on a broader scale. Together with industry partners, we aim to make Norway a world leader in electric aviation," says **Kristian Løksa**, Head of Communications at Avinor.

Currently, plug-in-vehicle sales in Norway are around 47 percent of total new car sales. 19 percent of plug-in sales is plug-in hybrid electric vehicles (PHEV) that combine a gasoline or diesel engine with an electric motor and a large rechargeable battery; 28 percent is battery electric vehicles (BEV) that have only an electric motor and battery, deriving all their power from plugging in. The current fleet stands at 150,000 BEVs and 74,000 PHEVs.

Why not try NORDIC-ITALIAN Fusion Cooking?

Italian with a Nordic twist:
a recipe for better projects!



Project:

- Intesa Sanpaolo Bank on Via Montebello in Milan – an Italian banking treasure.



Ingredients:

- 1 passionate lighting engineer.
- 1 professional Ensto team (one ready to customize anything!).
- 1 trusting customer (not always easy to find, but you can grow your own).
- Workpoint and lighting solutions, Diana, Velox panels ALSD180PU and ALSD180 PP. (Over 2,000 lighting points throughout eight floors!)



Preparation time:

- 20+ years. This recipe is not for amateurs.
- Attention kids: Don't try this at home!



Cooking instructions:

- Mix Italian imagination and artisanal tradition with Nordic problem-solving skills and Finnish process orientation and sharp scheduling.
 - Consult customer regularly.
 - Customize product as needed.
 - Always keep the end result in mind!



The use of old recipes will kill you in the highly-competitive Italian lighting market. Customize or die!



Consult the customer regularly. Always keep the end result in mind!



Intesa Sanpaolo: one of Italian banking's top kitchens!

"Speed matters in my kitchen! We are faster and more precise when it comes to offering solutions thanks to our Finnish process orientation and sharp scheduling, yet we have the Italian artisan way of working, too."

- Chef Paolo De Vecchi, Ensto Lighting Engineer



FLOW: ENSTO'S SKUNKWORKS

Ensto Flow allows experimentation and collaboration to build things that don't fit neatly into Ensto's usual business model. And some of the experiments may even contribute to long-term human survival.

Scott Diel iStock



A HOME FOR GREAT IDEAS AND LEARNING WEIRD STUFF THAT DOESN'T NEATLY FIT INTO THE TRADITIONAL BUSINESS MODEL.

VISA PARVIAINEN, ENSTO'S CHIEF TECHNOLOGY OFFICER

When he talks about the mission of Ensto Flow, **Visa Parviainen** can sound like Captain James Tiberius Kirk: "To bravely do something that doesn't come naturally to an established industrial player."

Parviainen is Ensto's Chief Technology Officer for Digital Solutions, and his role is to oversee Ensto's technology strategy and identify situations where synergies can be built. A software engineer Parviainen comes from outside the usual manufacturing ecosystem, and he joined Ensto in late 2017 to help create an environment where, as he puts it, "failure is not only protected, but it's celebrated when it keeps Ensto from chasing the wrong projects."

MAKING THINGS SMART

At the core of Ensto Flow is helping decide how Ensto products should communicate to the outside world. "We're a product company traditionally," says Parviainen, "but we need to make it easy for a customer to choose an end-to-end solution for a given product."

So will everything be made smart? Parviainen says there are products, like couplers, that won't have smartness embedded. But products like circuit breakers, which are currently quite simple, could indeed be made smart. "They can tell us 'Am I tripped or am I okay?'" All our low-voltage products like transformers and rectifiers will be able to communicate. And all active components down the line — anything with electronics — will have the option for communication."

TWO TRACKS

Flow offers two tracks. The prototyping track provides an environment for unusual experiments that don't necessarily have an immediate product application. "We can work together with other companies and both learn something that would have been impossible or expensive to learn alone," says Parviainen.

The integration track is about creating devices with communications interfaces that other companies may want to incorporate into their own solutions in ways Ensto hasn't yet imagined — other companies' products talking to Ensto's. "We don't grant exclusivity on use of our APIs" [Application Programming Interfaces], says Parviainen, "so there can be many companies using them. This is us moving toward ecosystems of devices."

Flow's first case studies have been in the area of prototyping.

ERICSSON AND DNA

Ensto recently partnered with Ericsson and DNA, the Finnish telecommunications company, to ensure the radio communications technologies employed in EV

charging modems don't become obsolete. The experiment, which Parviainen characterizes as "highly technical and far under the hood," took place in the Ensto lab in Porvoo. Later, the prototype was taken public at the Sähkö Tele Valo AV exhibition (electrical equipment fair) in Jyväskylä, Finland, where it was connected to an EV simulator to test charging transactions.

"Ericsson provided the expertise and loaned us the physical modems, and we tested it on DNA's Cat M1 network," says Parviainen. Ensto is not looking to immediately replace its current generation of modems but wanted to validate the possibility if the need arose. Failure might have been an outcome in this case. "We might have determined that a heavy investment in compatibility was in order, or that our modem enclosures weren't compatible with certain radio frequencies. However, we found that it works and when we want to we can start developing it."

BLACK FLIES

Ensto Flow also takes part in projects of major societal importance, where future commercial applications may be nebulous.

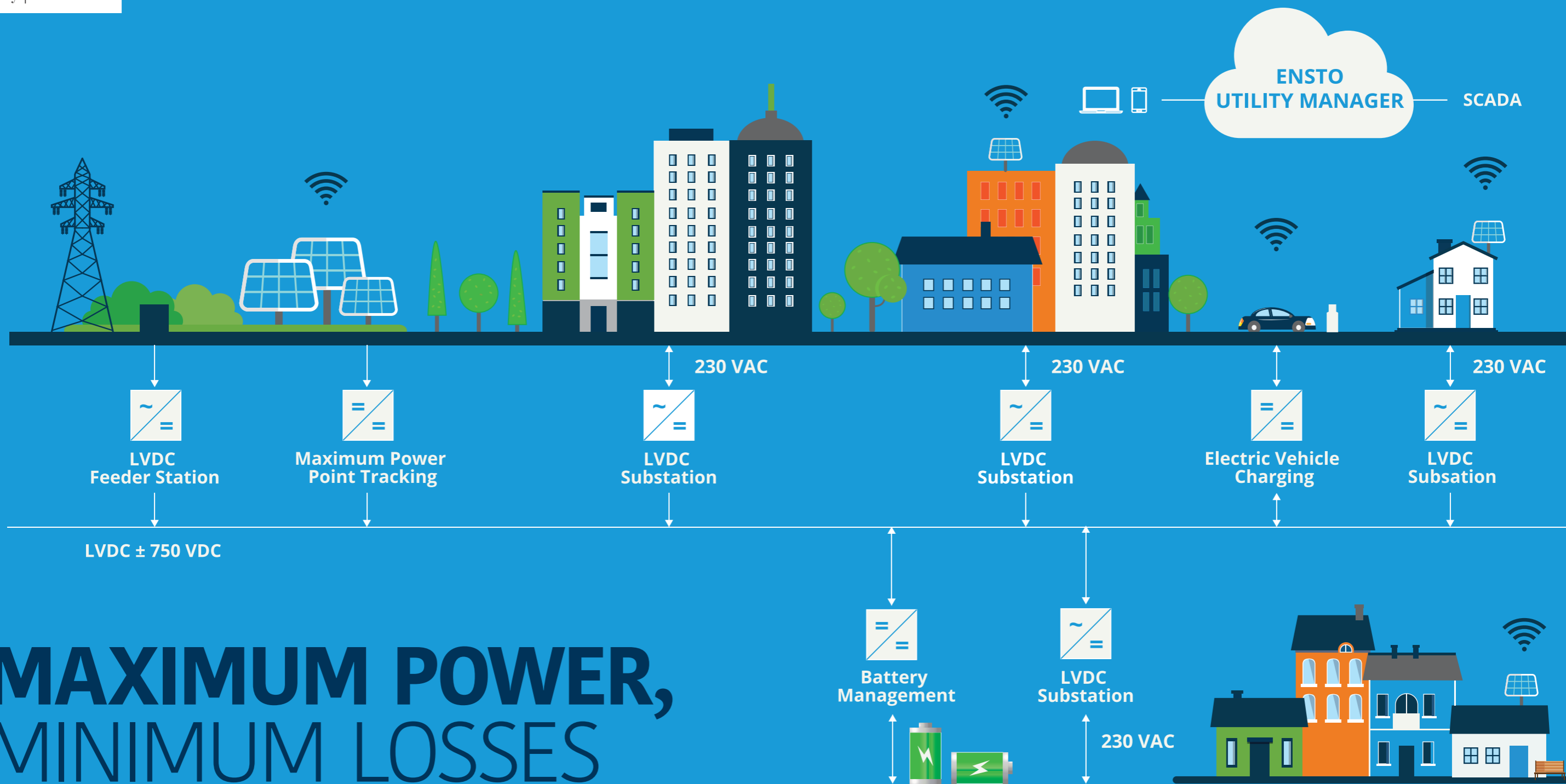
For example, VTT Technical Research Centre of Finland is researching the use of black soldier fly larvae to convert organic waste into protein for animal feed. Ensto entered the project to create a remotely controllable heating solution for sea containers where the flies are bred.

"It's a new direction of technology, and it's good for us to understand what environments our products are used," says Parviainen. "We're of course not going to start producing containers to grow larvae, but Flow provides the opportunity to help work toward a circular economy, where low-value matter streams are turned into a high-value streams. That the value of things doesn't decrease as they get used in a process is a requirement for long-term human survival. For Ensto, the immediate benefit is taking a set of quite traditional products into a challenging environment to see if we can accommodate them as we delve further into remote control and sensors in our products."

WHEN 'WEIRD' BECOMES THE NORM

"A home for great ideas and learning and weird stuff that doesn't neatly fit into the traditional business model" is Parviainen's description of Ensto Flow.

As Ensto continues to make its products smart, the line between traditional and weird will continue to blur. "In a year Ensto Flow will look different than it does now," says Parviainen. "But that's acceptable, enjoyable, and kind of the whole point of it." ♦



MAXIMUM POWER, MINIMUM LOSSES

Ensto pioneers the world's first LVDC commercial network.

✍️ Scott Diel 📷 Jaana Heinola

It's an AC (alternating current) world. Google LVDC (Low Voltage Direct Current) and you won't find much. You may discover an LVDC network operating at an experimental level but not in commercial use. Until now.

"LVDC power distribution systems may be a potential means of implementing electricity for the future," says **Sami Laitinen**, Product Manager on Ensto's ten-person LVDC development team.

AN LVDC PILOT

Ensto's pilot LVDC network is hosted by the electricity distribution company Elenia and located near Tampere, Finland. It is comprised of a 100-kVA feeder station and four substations. The pilot project concerns eight households, but future LVDC networks will of course serve many more.

Technically speaking, the LVDC branch of a distribution network creates a micro grid enabling on-grid and off-grid operation and acts as a virtual power plant towards the grid, giving voltage support with reactive power control and frequency support if there are energy shortages or production connected to LVDC. A feeder station connects to the 20kV MV grid through a transformer, rectifies the power to +750V DC, and distributes the power via LVDC close to the customer where it is inverted back to AC-voltage by an LVDC substation. It can be set to control reactive power to compensate another area of the MV (medium voltage) grid. As a result, power losses are reduced and distribution efficiency increased.

The benefits of DC are immense. The distribution capacity increases by a factor of 10. Cables may be 10 times longer than with AC. Flickering and voltage dips disappear.

LVDC: THE NEW STANDARD?

The basic technology of LVDC in power electronics has been around for years in industrial applications. It is considered a basic building block for solutions such as electrical distribution in the countryside, photovoltaic (PV) control, and local energy storage. **Jussi Vanhanen**, Ensto's Director of LVDC, says Ensto got involved with the technology after conducting analyses of PV solar energy storage. "After doing our own work, we then collaborated with three Finnish technical universities and began power electronics development for LVDC."

Megatrends all support the use of LVDC. Worldwide consumption of electricity is increasing. Existing grids are falling behind the needs of customers. Renewable energy production is at the consumer level – in the United Kingdom, Ikea is selling a turnkey solar power solution. Governmental regulations demand better quality power, requiring outages and fluctuations to become relics of the past. LVDC is a solution for the most relevant problems like lack of capacity, power loss,

poor quality of electricity, imbalances and variations of voltage or frequency.

Jussi Vanhanen is careful to point out that LVDC holds far more potential than just distribution. "LVDC is a way to enable energy storage, which Ensto will also pursue. And we will also offer preventative maintenance services via the utility cloud that we're developing."

Vanhanen says the world will move more toward DC in power generation, energy storage, and consumer loads (streetlights are LED, for example). "DC is a very powerful technology for low-voltage areas, but in higher-level places AC still makes sense. But definitely look for DC to gain popularity."

In 2018, Ensto's LVDC pilot in Finland will come fully on line. At the same time, Ensto is looking for more pilot locations in Finland as well as other Ensto countries. While it may not replace AC, it's clearly a technology with huge implications for both society and Ensto. ♦



ENSTO'S DECADE OF GROWTH IN INDIA

Megatrends are set to boost business in the country.

✍ Pia Heikkilä 📷 iStock, Pia Heikkilä

Ten years ago India was a promising market for Ensto but one that the company had little experience in. Then in 2009, a decision was made to set up operations in the country.

It all started with one product, a single customer and just a few staff.

One of the first staff members to join the company was an engineer

Vinod Kumar. "Joining Ensto meant good career prospects with an international company. But at that time, I did not know I was going to stay this long," he laughs.

Kumar's career has flourished with Ensto. Originally hired as a production supervisor, today he is in charge of production at the company's plant in Gurgaon, New Delhi. Kumar himself has closely witnessed phenomenal growth of the business in the last decade. "Operations have grown from a simple small business to a proper, fast growing domestic and export business," he says.

REWARDING WORK EACH DAY

Indeed Ensto India today is a very different company with over 100 staff, more than 100 products and a huge,



MEGATRENDS SUCH AS URBANIZATION AND DIGITALIZATION ARE SET TO BOOST OUR BUSINESS."

ASHOK KAUSHIK,
MANAGING DIRECTOR OF ENSTO INDIA

well-organized warehouse where products get shipped all over India, as well as overseas.

Kumar's day starts with a morning meeting, and he then goes to check the production schedule, dealing with supply issues or manpower. No day at the site is ever the same, he says. But the reward for his work is constant. "Even when it's hectic, I feel that my work is valued by my managers and co-workers," he adds.

Kumar is busy because today Ensto India is the market leader in overhead line accessories in India and it boasts sector majors such as Bajaj, L&T, Reliance, and Tata Power as its customers.

Growth did not happen overnight, but Ensto India gradually built its name in the market as the most reliable

supplier. "In those early days, we were not known. But we began showing potential customers our international track record and slowly yet surely market recognition happened with quality products and services," says **Ashok Kaushik**, Managing Director of Ensto India.

The Indian customer mindset has changed over the years, he notes. "We showed our customers the cost of the total life cycle of our products and the importance of investing in good quality. Most of them understood that getting low-end products would become costly later."

MEGATRENDS SHAPING THE FUTURE

For Ensto Group, India's importance grew strategically as the business in the country grew. And this is not about to stop, Kaushik notes. "Megatrends such as urbanization and digitalization are set to boost our business."

As India's cities grow, so does the demand for better quality electricity and the need in local production. This in turn creates challenges for local electricity companies.

"Ensto's low voltage direct current (LVDC) technology is a smart- and cost-effective way of making the most of the network because it can increase the power capacity without any extra investment, improve the quality of electricity and has the provision to use electricity from renewable sources like roof-top solar," says Kaushik.

Smart cities are another opportunity. India is looking heavily into making cities less polluted and electric-vehicle friendly by creating a charging station network.

Ensto India has already partnered with the Finnish energy giant Fortum to deliver charging equipment for the company in India. "We are in process of developing chargers specific for the Indian market and are currently testing out smart chargers with Fortum across the capital," says Kaushik.



India is known for its poor power supply, leaving millions of people still today in the dark. Most rural households have poor or no electricity supply, which means patchy distribution is a genuine opportunity. ▶



Vinod Kumar and Ashok Kaushik

“Each power cut, however unwanted they are, opens up an opportunity for improvements. We can help make villages smarter because our Phase Balancer divides phase currents more equally and creates better voltage stability,” Kaushik says.

India is a country that wants to modernize its ancient electricity cables. The trend of converting overhead lines into underground lines is a significant opportunity for Ensto.

“The opportunity to grow the business is huge since the Indian government has begun its work converting the lines into an integrated power distribution system,” Kaushik notes.

EXPANSION ON THE WAY

As Ensto India gears up for its next decade, plans to expand the business are on the way to respond to rising demand. “We are currently looking at expanding our production to double the capacity,” says Kaushik. The aim is to find a suitable assembly facility, which should be up and running by next year.

Ensto India does not only supply products for the Indian market but works as manufacturing hub other markets outside India.

“We have customers in the regional markets such as Bhutan and Nepal and in recent times began supplying our group of companies in countries such as Czech Republic, Poland, and Estonia as well. It has taken some time to get products made in India to be accepted in these markets but now that we have made a good start, we are looking to grow this side of business too,” Kaushik says.

The potential in India seems unlimited and only serves to highlight a great future ahead for the business.

For Ensto India, keeping the customer happy is number one priority, and it aims to keep it that way for the decades to come.

“Our unique selling point is that whatever we promise, we will deliver it. In addition, the quality of our product is unrivaled as is our training and support service,” says Kaushik. ♦

Opening of new premises in Bagnères-de-Bigorre

In May, Ensto completed the Bagnères real estate restructuring project by inaugurating its new premises in Bagnères-de-Bigorre, France. The inauguration was the culmination of two years' work to consolidate surge arrester and load break switch production on the same site. With a staff of 70 people, the site manufactures more than 200,000 surge arresters and over 800 load break switches per year. With this expansion, figures will rise in the coming years.



Ensto's Ari Virtanen with Jacques Brune, President of the Common Community of Haute Bigorre

First electric airplane in Finland takes off

A new era began in Finnish aviation and electric traffic as Finland's first electric airplane enjoyed its maiden flight on July 31st in Helsinki. The airplane, Pipistrel Alpha Electro, the first serial-produced electric airplane in Finland, is owned and operated by the Helsinki Electric Aviation Association.

“The day was very important for electric aviation in Finland,” said **Janne Vasama**, Chairman of the Helsinki Electric Aviation Association. “Aviation is facing radical changes, so we wanted to promote the know-how of electric flight in Finland. Our goal is to work with pioneers in a variety of industries to investigate battery life and performance, charging infrastructure, and the ecology of aviation, to name a few examples.”

The use of electricity in aviation reduces emissions and noise around airports and, according to calculations, also reduces the cost of pilot training.



Ensto electrifies traffic and encourages innovativeness

Ensto has almost a decade's knowhow of electric vehicle charging technology and 60 years' experience of electrification, and seeks for new innovative areas for electrification business. “Even though electrification of air traffic is in its pioneer stage, we see technology enabling rapid development in emission-free aviation. In addition, we want to encourage innovativeness of which the project of Helsinki Electric Aviation Association is a good example,” **Matti Rae**, Director at Ensto states. “We strongly believe in electric aviation and follow it as a new interesting business opportunity,” Rae continues.



Ensto Ensek awarded Golden Label for Socially Responsible Entrepreneurship

Ensto Ensek, our company operating in Estonia with nearly 500 employees, has received its first Golden Label for Socially Responsible Entrepreneurship. The responsible leadership at Ensto is expressed in several areas. “For environmental reasons, we adopted a smart heating solution at our Keila factory, where a computer is responsible for optimum heating management,” explains **Kaarel Suuk**, Director of the Ensto Ensek Keila plant. In community projects, the company has actively sought ways to contribute to the goals of the local people, both in Keila and in the Lasnamäe district.



The non-governmental organization Responsible Business Forum Estonia issues quality labels in gold, silver and bronze categories. The competition allows businesses to analyse how positive their impact is on their surroundings, in order to find ways to improve this, as well as to profit from it as a company.



FIRST WE TAKE THE **NORDICS...**

Fortum and Ensto are providing leading solutions to the Nordic region's EV charging market. Next step: the world.

 Scott Diel  Fortum, OP

Fortum Oyj is a well-known clean-energy company in the Nordics, Baltics, Poland, Russia and India. The company has 2.5 million electricity customers in the Nordic countries alone. Fortum Charge & Drive, its charging platform for electric vehicles, is expanding its lead in the Nordic market and is already offering a cloud service for operating charging networks in 16 countries.

In Finland, Sweden, and Norway, Charge & Drive has 2,000 chargers. In Norway alone, recognized the world over for its electric vehicle (EV) penetration and charging network, Fortum offers the widest network coverage.

To better connect its markets and to enable the next step in e-mobility, Fortum is constructing the first High-Power Charging network between Oslo, Stockholm and Helsinki. This network makes it possible for new long-range EVs (over 300 kilometers in range) to make the journey from Helsinki to Oslo in the same amount of time as a conventional automobile.

BEYOND HARDWARE

But it's more than just a physical structure that Fortum is bringing to EV drivers. In addition to serving 75,000 Nordic EV drivers with EV chargers, Fortum's recent acquisition of Plugsurfing GmbH connects its user base of 50,000 drivers to over 200 different charging networks throughout Europe, giving them access to more than 70,000 chargers across 24 European countries.

"In Germany alone there are 70 different charging networks!" says **Tero Era**, Fortum Charge & Drive's Country Manager for Finland. Plugsurfing solves that problem, allowing EV drivers to move seamlessly throughout Europe.

RIGHT PARTNERS, RIGHT PRODUCTS

Although international expansion requires Fortum's Charge & Drive cloud solution for operating charging networks to be hardware agnostic, in many cases Charge & Drive has chosen Ensto technology to be used in their Nordic network.

"Ensto is able to provide DLM, or dynamic load management," says Fortum's Tero Era. "This is of critical importance when you've got big parking garages and limited capacity of electricity. Ensto technology enables the maximum charging speed possible for the cars that need them. Ensto chargers and Ensto DLM are what we ourselves use for the 92 charging points at our Espoo headquarters."

Era says another benefit to working with Ensto is its ability to brand chargers according to the needs of individual networks. "Ensto is good at design and branding."

Fortum and Ensto's relationship is as old as the EV market itself. The two companies first worked together in 2009 on a public charging project in Espoo, Finland. Of course, both companies are Finland-based and share a common language. But most important is a shared philosophy toward EV technology. "Ease of use is important for us and for EV drivers," says Era. "The semi-fast chargers Ensto is making are of great quality and suit tough Nordic conditions."

FASTER TO MARKET

Ensto's Head of Venturing, **Juha Stenberg**, sees the partnership as a springboard to the future. "Ensto's products



Tero Era



EASE OF USE IS IMPORTANT FOR US AND FOR EV DRIVERS. THE SEMI-FAST CHARGERS ENSTO IS MAKING ARE OF GREAT QUALITY AND SUIT TOUGH NORDIC CONDITIONS."

TERO ERA, FORTUM CHARGE & DRIVE'S COUNTRY MANAGER FOR FINLAND

are the most user friendly and advanced when it comes to smart charging. Fortum is clearly the biggest player, they lead the EV market in Norway, and so what we do together gives us a peek into the future."

Stenberg says the fact that an energy company is behind Charge & Drive serves as a foundation for smart charging. "Smart charging means many things, but it's important to consider the energy side of EV charging. Our shared vision enables the development of products and service."

The proof is in markets outside the Nordic region like Hungary, Italy, the UK and Spain. "Our partnership makes it simple for clients," says Stenberg. "They're copying our Nordic experience for their markets to get a faster time to market and a futureproof, smart charging network."

NEW MARKETS, NEW PRODUCTS

In autumn 2017, Fortum again partnered with Ensto to launch a Charge & Drive pilot project near Delhi, India. Fortum operates four large solar plants and has been present in India for five years, both companies consider it a home market, and both partners expect the network to grow over time.

But there is business to be done back at home, too. "There are 2.5 million customers in the Nordics which buy electricity from Fortum," says Ensto's Stenberg. "This is a great opportunity for both our companies in areas where smart solutions are needed. Smart homes will have needs well beyond just smart charging. We'll need all the smart products plus the mobile applications to control it all. In this sense, it's quite an interesting partnership." ♦



OP Financial Group Offers Mobility Services

The Fortum-Ensto partnership enables new players and new business models.

Just a few years ago few would have imagined that a financial services company would get into the electric car business.

OP Financial Group, the largest financial group in Finland, recently introduced DriveNow in Helsinki. The car sharing service operates in 11 European cities. The service offers BMW and MINI cars at a minute-based fee to residents of Helsinki and neighboring areas. OP has also launched an EV sharing service for companies and cities to use, plus a private leasing model for EVs.

Fortum Charge & Drive and OP have joined forces to build 100 electric car charging stations in the vicinity of OP cooperative banks around Finland, increasing the number of public charging stations in the country. The chargers are made by Ensto. "They're ISO 15118 standard to enable plug and charge functionality in the future," says Fortum's Tero Era. "In the coming years, the customer won't have to do anything but plug the cable into the car – the ID, the payment, absolutely everything, will happen through the cable. No cards or tags needed!"

In the private leasing business model, OP will finance the cars, insure them, and offer the entire package. The OP Financial Group entering the EV market is an excellent example of how when mobility evolves new players are able to create new business models.

ENSTO'S 60 YEARS, 60 ACTS!

For 60 years Ensto has worked for a better life with electricity. We chose to celebrate our birthday this year by engaging in 60 acts to make the world a better place. The following stories highlight just a few of those 60 acts.

Ensto

Chargers for Children's Hospital

In Finland, Ensto donated three charging stations to Helsinki Children's Hospital, enabling six EVs to charge at one time.



Fight Dirty!

Since cancer fights dirty, so should we! Ensto employees in France joined their daughters to take part in the six-kilometer Muddy Angel Run in Lyon, France, in May 2018. The run, held in partnership with France's CAMI Sport & Cancer and Belgium's Think Pink, raised funds for the fight against breast cancer.

Follow every act to celebrate our anniversary at ensto.com/60acts



Mobile Orienteering

Ensto supports the Finnish OK Trian orienteering club by helping build mobile orienteering routes - by using a mobile phone's QR-code reader for the general public, as well as schools in Porvoo, Sipoo, and Loviisa for use in physical exercise classes. Through orienteering, children learn both to move in nature and enjoy fresh air.

Biking for Health and the Planet

Ensto in Latvia invited customers to enjoy some environmentally-friendly transportation up and down the steep hills of Gauja National Park. While not everyone rides to work yet, there's no denying a bicycle is one of the best ways to reduce a CO² footprint while improving your health.



Trees for a better Future

Trees are an essential part of the environment and the existence of life. Ensto's team in India gathered their partners, vendors and service providers to plant 60 beautiful trees near Ensto's office in Gurgaon, Haryana.



60
Years. Better life.
With electricity.

Breaking the poverty cycle with solar energy

At Ensto, we have donated solar panels for a World Vision project in Kenya. Ensuring access to electricity for all is a vitally important step forward for developing nations.



WE'RE ALL COMMITTED TO MAINTAINING THE SUSTAINABILITY OF OUR PACKAGES, THEREFORE WE'LL DEFINITELY FIND THE NEEDED SOLUTIONS IN EVERY STRUGGLE."

TATIANA NOVATSKAYA, PROJECT MANAGER

BROWNIES AND BLUEYS

New packaging in the name of sustainability

✍️ Scott Diel 📷 Ensto

It started with Ensto customers.

"Customers really don't need a fancy, glossy package with many colors used on the box," says **Tatiana Novatskaya**, Ensto Project Manager for the packaging transition. "Following global environmental responsibility initiatives they're far more interested in knowing that our packaging is sustainable."

A MASSIVE EFFORT

The place to start being sustainable was corrugated cardboard. Ensto spends close to two million euros each year to produce packaging, and more than a half of that amount is connected to corrugated cardboard. Ensto packaging was folded into about 450 different forms, and plenty of different suppliers were used to create it. There was also no common process or agreed-upon rules for new package introduction. Some existing marking methods like tick-the-box labeling were not always understood properly. With input from customers and consumers, our team set out to simplify the box itself and make markings clear and unequivocal.

The project's Steering Team, headed by Project Owner **Pia Hänninen** and Project Manager **Tatiana Novatskaya**, defined the project scope as "from beginning to end, a huge cooperation project within Ensto." It required people from every link in the supply-, production-, and logistics chains, and especially those in product management and product development. "It's a huge amount of work for a lot of people," says **Novatskaya**, "and the new boxes are now being implemented in factories, which will create even more unpredictable challenges. But we're all committed to

maintaining the sustainability of our packages, therefore we'll definitely find the needed solutions in every struggle."

LESS MEANS MORE

The team's target is to reduce the number of cardboard boxes used by 30 percent, and optimize cardboard through the newest methods and tools available on the market.

Learning from the insights of the leading carton manufacturers worldwide, the steering team came up with the "brownies" and "blueys" packaging concept.

Most industrial packages were made brown – made from recycled flute with a strong fiber top liner and one-color printing. This change is creating a synergy effect with box sustainability where manufacturers require less water for production, less ink, and less CO² emissions. In addition, "brownies" do not require the use of AOX (absorbable organic halides) like chlorine.

The quantity of consumer boxes ("blueys") required has also been significantly decreased. Here, several brands have been combined into one Ensto-brand packaging, and manufacturing technologies simplified. Glossy top liners are being eliminated, since they require an additional layer of varnish to be used. The quantity of colors used was reduced from the previous three (and sometimes five!) to only one. This change also reduces water consumption. For consumer boxes, Ensto has undertaken a huge optimization process, with box structure and opening mechanisms reconsidered in order to maximize savings of plywood used for carton manufacturing.

New boxes are clearly labeled with a photo or product illustration so everyone knows what's inside, and the Ensto brand is crystal clear to everyone who encounters the package.

FOOTPRINTS

Because part of not wasting is utilizing what you have, Ensto is still working its way through the old packages. This means it's entirely possible that you may not have seen the new packaging yet, but you definitely will notice a big difference soon.

It's also too early to be able to accurately calculate how much Ensto will reduce its CO² footprint through its new packaging, though with 20,000 products supplied annually it's clear the reduction will be substantial.

What is clear is how much customers appreciate it. **Heikki Palmu**, Marketing Manager at Rexel, the wholesaler which distributes products and services in the areas of automation, technical supply and energy management, believes the new design perfectly reflects the environmental-friendliness of Ensto's strategy. "Ensto's new package design is simple and stylish at the same time," he says. "Less is now totally more." ♦

IT'S AN ENSTO WORLD

Ensto employees from around the world share what's good about Ensto and how they feel Ensto has developed over the years.

© iStock, Ensto



"When I started as a two-week temporary employee in 1987, the name of the company was Heiness & Heiness. Ensto bought the company in 1991, and we became part of an international group. From my point of view, it seems that the Miettinen family has made many right choices throughout the years and moved in the right directions. This has led to an international company with many strings on its bow, and simultaneously a company with its feet planted firmly on the ground. Ensto is family owned, and to me it seems that the Miettinen family wants a company focused on values and not exclusively profit-making."

Reidun Urdal, HCM Manager, Norway, with Ensto since 1987



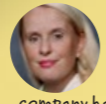
"Ensto has a strong will for the company to meet today's challenges, yet, at the same time, also listen to the needs and ideas of the next generation. I like the fact that Ensto is a strong family company where everyone is cared about. Let's bravely continue on the path to digitalization, learn new things, and put our knowhow to work!"

Ville Parviainen, Head of Software, Finland, with Ensto since 2015



"Ensto was a very different place 23 years ago when I started. Our emphasis has shifted from Finland to the Nordic markets to Europe and beyond. Ensto is a stable employer with good reputation and I have never felt boring here. Something is always going on at Ensto - new projects and new developments. It has given me opportunity to travel, meet people in other countries, and learn new things. Learning new things daily in my job, and this is what keeps me excited. Employees are the most valuable asset at Ensto. Their knowledge, skills, and ideas make Ensto what it is and what it will be. Keep up the enthusiasm and spirit. Companies have to be more and more flexible to find new business opportunities and solutions. Happy birthday to all Ensto people, from the past and the present!"

Mihkel Aitsam, Manager, Business Information Systems, Estonia, with Ensto since 1994



"The development of the company has always been very positive. The cooperation between the different business units has become stronger. The best thing about Ensto is that it is and has always been a great company to work for. I can't remember waking up one morning and not wanting to go to work."

Madeleine Björk, HCM Manager, Sweden, at Ensto since 1987



"Over the years I've observed Ensto's development in production. When I started, the production had just opened and was not equipped and inefficient. But over time it became a highly organized technology plant. Ensto is great about taking care of its employees. In addition to good benefits, it gives us an opportunity to develop professionally. I feel stable here and I have confidence in the future. I with the company more development and prosperity, even more new, interesting projects!"

Svetlana Evseeva, Production Worker, Russia, with Ensto since 2007



"Ensto has a rich engineering history which is obvious for all to see as it transitions from utilities into other sectors. The company hasn't stood still and it's adapting to the future in global markets which are very much changing the way manufacturers operate. I have been lucky to be part of a very collaborative team that works together where we all embrace ideas and challenges. Fundamentally from my experience the best part has been the culture which is always encouraging where you can talk to anyone no matter their position."

James O'Neill, Director, EV Solutions, UK, with Ensto since 2016



"The best thing about Ensto is the people. I have visited the Porvoo, Tallinn and Keila offices and come away with a genuine feeling of compassion for one another and what we do as employees of Ensto. Since I am a relative newcomer, I can only envision our future. In the USA, we are pushing the envelope when it comes to the things that we will be able to do in the years ahead."

Jeffrey Glover, Sales Support Specialist, USA, with Ensto since 2017



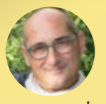
"When I joined Ensto India our turnover was nothing, and now we are operating with six million euros in turnover and 138 employees. We've grown at more than 20% per year and now Ensto is a market leader in its category. In my opinion, our transparency and agility are our best assets!"

Vinod Kumar, Production Manager, India, with Ensto since 2010



"Since I joined Ensto there have been a lot of initiatives aiming to change our mindset from strictly technical, production-driven, to an innovative, customer-oriented company. We have always tried to keep up the pace of the changing world and develop new products and solutions, find new markets, optimize our operations or take over new companies. Despite all the changes during those years, the spirit of Ensto remained mostly the same, and even newcomers adjust very quickly to this unique company's culture. I've spent more than one-fourth of my life at Ensto, and I believe it's worth spending even more here."

Przemyslaw Prozdziak, Customer Engagement Manager, Poland, with Ensto since 2006



"My best Ensto memory is the first time I met Ensio Miettinen the founder of Ensto, I was impressed by his charisma. I think the best thing about Ensto as an employer is that it's a family company, held by the same family since its beginning with strong values and respect. Ensto has developed during the years doing good choices about products and strategy, being one of the first manufacturer of the electrical vehicle charging pole, spreading abroad in Italy and France. Ensto has developed during the years doing good choices about products and strategy, being one of the first manufacturer of the electrical vehicle charging pole, spreading abroad in Italy and France."

Francesco Santella, Sales and Marketing Director, France, with Ensto since 2006



"Ensto has developed a lot towards new sophisticated products and solutions and this development has been accelerating during last two or three years. The best thing is that Ensto as an employer plays fair play with employees."

Petr Necas, Sales Director, Czech Republic, with Ensto since 1999



"21 years is a long time. I started to work for a company where the founder was an employee and now we are living in a digital world. I have seen many different development periods at Ensto, many different management styles while the business environment has been changed continuously. Most of our leaders have focused on the employees, which is - according to my opinion - the key element of the successful development. Ensto as an employer is still different from an international standard multinational company. We have space to be the best one in every category, but as a package, Ensto is positively different from the standard. Most of our employees are satisfied with Ensto and only the satisfied employee creates a satisfied client. If I say some keywords where Ensto is better as an employer: strong teamwork, social atmosphere, chance for creativity, trust in each other."

Tibor Lakatos, Managing Director, Hungary, with Ensto since 1997

ON THE ROAD WITH THE EV BROTHERHOOD

Ensto's Brand and Communications Director, Pia Hänninen, leased a full electric vehicle in April 2018. Over the summer she logged more than two thousand kilometers. She's a bigger EV fan now than ever, and this is what she learned.

by Pia Hänninen

Oscar Lindell

Pia has now driven 4,550 kilometers and used 790 kWh of electricity. Average price for a kWh for households in Finland is 0.12 euros including taxes and electricity transmission costs. For charging with an RFID/app in a public fast charger, the price is usually 0.20 €/minute. On average, Pia's EV (40 kWh battery) requires 60 minutes to charge 20 to 80 percent full. If you charge with slower charger, the price is of course less. Time is money.

I've been an EV driver since April 2018. This summer in June and July I logged exactly 2,216 kilometers in my Nissan Leaf. I've loved most every minute in my EV – the silence of the engine, the incredible torque, zero emissions while driving, and of course the fact that it costs much less to drive EV compared to a conventional combustion engine car!

Before I leased my EV, I read everything I could find on EV driving. But this summer on the road I learned three new things:

- **Educate yourself about your EV.** Dealers may not know everything about EVs.

Buying or leasing an EV is currently focused on the car itself and not the driving experience – after all, most of the car salesmen are still from the combustion engine era. The EV driver will find herself in need of information about services: the charging process itself, the apps you need, who are the operators, what it costs to maintain the car, to charge in public places, the nearest charging point to your home or work. Luckily, an extensive warranty deletes common worries of a battery life cycle and replacement costs.

Dealers certainly could and should do a better job of preparing EV drivers, but keep in mind that they're new to the EV game, too, as I was. Be prepared to educate yourself and figure things out on your own. Social media is full of people to help you getting started.

- **EV drivers must plan ahead.** Way ahead.

Unlike with conventional automobiles, EV charging stations aren't everywhere. Sure, more are being built all the time, but there's no guarantee that the charging station you need will be available when you get there. In my experience, there were almost always two EVs wanting to use the same charging station. Make sure you budget in some waiting time when planning your itinerary. But – the situation will be much better in the future when the charging network gets better.

Also, never assume that at the end of the day you'll be able to get a charge. Most hotels aren't yet equipped with proper chargers, and a regular electrical outlet wasn't enough to give my car a full charge even when plugged in overnight. This problem is quickly being remedied, however, since many hotel owners are now discovering that it's a great idea to have a charger in their courtyard – and it's a source of profit, as well.

Finally, when it comes to planning, here is one amazing thing I didn't count on: EV drivers normally get the very best parking places in parking halls, since the chargers are located very often near the mall's entrance.

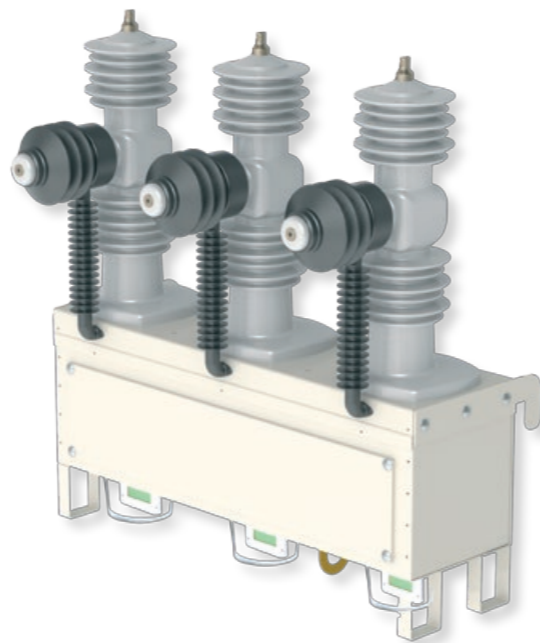
- **Embrace the EV Brotherhood.**

One of the coolest aspects of EV ownership is meeting other EV drivers. I found them to be always ready to share information, and even willing to surrender their place in the charging queue if you're in a hurry and only have 10 kilometers of range left.

On my road trip, I met an Estonian gentleman with a brand new EV straight from the dealership. He had not charged it even once, and so I helped him download the appropriate app for his phone and showed him how to work the charger. He was overjoyed, and I took great pleasure in helping out a fellow road warrior. EV owners truly are a special breed! ♦

Ensto Smartcloser reduces outage duration and automatically isolates a faulty section of distribution network

Ensto Smartcloser is an autorecloser installed on overhead distribution networks. It detects and interrupts momentary faults. If the fault is permanent, it automatically isolates the faulty section of the network. Indicators such as SAIDI and SAIFI help to measure the reliability of electrical utilities. Adding Smartclosers to a network is a simple and cost-effective solution to improve network reliability, decrease outage duration and thus save money.



The best power quality for low voltage with high performance and lower distribution losses

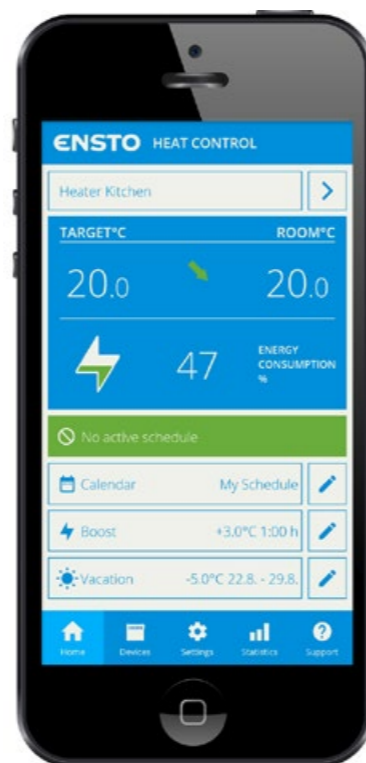
The LVAC (Low Voltage Alternating Current) Power Quality solution improves the quality of electricity and makes it safer for end users. Power Quality products perform best in sparsely populated areas and in holiday housing areas. Our solution enables minimal investment costs but considerably improves low voltage networks.

The distribution distances of low voltage can be long, and due to distribution losses, the voltage level can drop. Disturbances like harmonic waves, voltage and frequency variations are rather common. Our Power Quality products Phase Balancer, Voltage Booster, and Voltage Controller are the solution for these unwanted situations.



Smart thermostats with mobile app

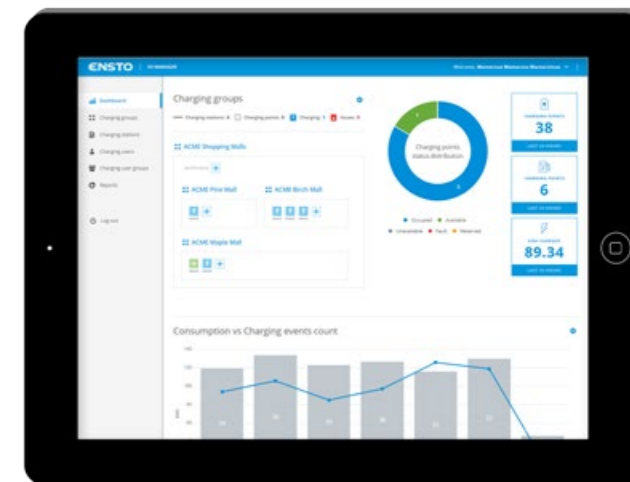
Ensto's smart thermostat is a cost-effective solution that meets ecodesign requirements. The intelligent thermostat enables heating start-up at optimal conditions and can be controlled easily by mobile devices, so no separate control system is required. Calendar control allows you to set the temperature for each day of the week, which brings up to 40% savings in heating consumption.



Ensto EV Manager

Visualize – Manage – Report – Remote

Ensto EV Manager is an intuitive user-interface that enables quick and efficient management, operation and control of users and charging stations, as well as user-based consumption data reporting. It's a perfect match for Ensto EV charging stations, but almost any charging station can be integrated. In addition, the open RestAPI interface enables customers to create their own charging station-related applications.



Marlo – New industrial luminaires for retail use

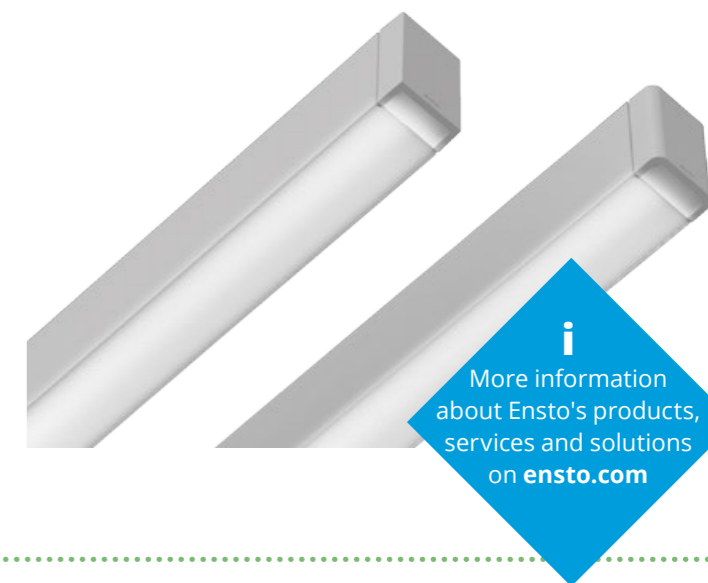
Marlo is a new high-end luminaire designed specifically for retail use. Marlo lights up supermarkets as well as other stores, warehouse and logistics facilities where an optimized solution is needed for general lighting, highlights and low glare. Marlo is an energy-efficient and versatile novelty that combines the requirements of the commercial space, a reasonable price and an excellent optical range.

Design luminaires for offices

Ensto Anna

Ensto expands its public space lighting range by introducing the new Anna design luminaire. Anna is a stylish high-end luminaire designed in cooperation with Finnish Pentagon Design. Anna's stylish design and optics fit into the contemporary architectural design of today's high-quality offices.

The Anna product family is comprised of Anna System, a modular luminaire entity. It can be built with different corner pieces, with different forms, one at a time, in a "build your own space" style. With its form and light-optical design, the modules create a high-quality and comfortable working environment for offices and other public places.



Ensto launches EnstoNet XL robust and pluggable couplers for smart installations

EnstoNet XL are high quality, robust, modular industrial installation couplers for power supplies. In the creation of the new EnstoNet XL system, Ensto has incorporated a new design level of ergonomics in order to aid usability. Due to its exceptionally compact and functional design, EnstoNet XL harmoniously integrates into various applications and installation environments, especially in smart commercial buildings.



reddot award 2018 winner



Leading the way for a common leadership culture in the 10th Ensto LEAD

This spring the 10th Ensto LEAD group graduated from Ensto's leadership development program. Since 2011, 226 Ensto people have participated in the program. This time there were 22 happy managers and team leaders who gathered together for six days in Finland. Ensto LEAD is organized in co-operation with Mercuri International, and **Marko Saarela** hosted it in his inspiring style as in previous years.

World-class performance and Best Employee Experience requires excellent leadership skills. The Ensto LEAD superior training program is one good example of a systematic approach to developing employees. The program is targeted at developing our managers' leadership skills and increasing synergies between Ensto's functions. The learning methods in the program are interactive and discussion-oriented, including practical tasks and team exercises. We believe it pays off to invest in training people in order to create Ensto the best possible place to work in.



The Ensto Innovation Award goes to...



The Ensto Innovation Award (EIA) 2017 contest prizes were awarded in June 2018. EIA is Ensto's annual global innovativeness contest open to all Ensto employees. In total, there were 33 applications, with a majority of applications being new products. This year's EIA Challenge Trophy winner is Ensto EV Manager, a comprehensive electric vehicle charging software service platform managing chargers remotely, assisting users, collecting charging event details with energy data, and linking charging to other commercial solutions. The winning team consists of software specialists with superior skills: Head of Software **Ville Parviainen**, Solution Architect **Lasse Gustafsson**, Product Designer **Aulis Flod**, and Solutions Manager **Päivi Linteri**.

It's Ensto's 60th birthday, and rather than fighting energy villains, EnstoMan has taken a break to lead a tour of Ensto's 60 years of industrial transformation.

ENSTOMAN

This was in the 1950s when Ensto opened his first factory. It all started with mechanical production.

Mechanical marvels, '50s
Turnery for cable glands

I wonder if she could have imagined how fast Ensto would automate?

Skillful hands, '60s and '70s
Connector quality due to precise manual work

This looks like the world's most advanced espresso machine.

It all lined up, '80s
New thermoplastics and assembly lines boosted production to a new level

We are the robots, '90s to date
Automated, robot-assisted production units were adopted

Ensto has always been on the front line of electrification.

Clouds at your service, 2016 to date
Digital services developed on software platforms

And it's all sustainable!

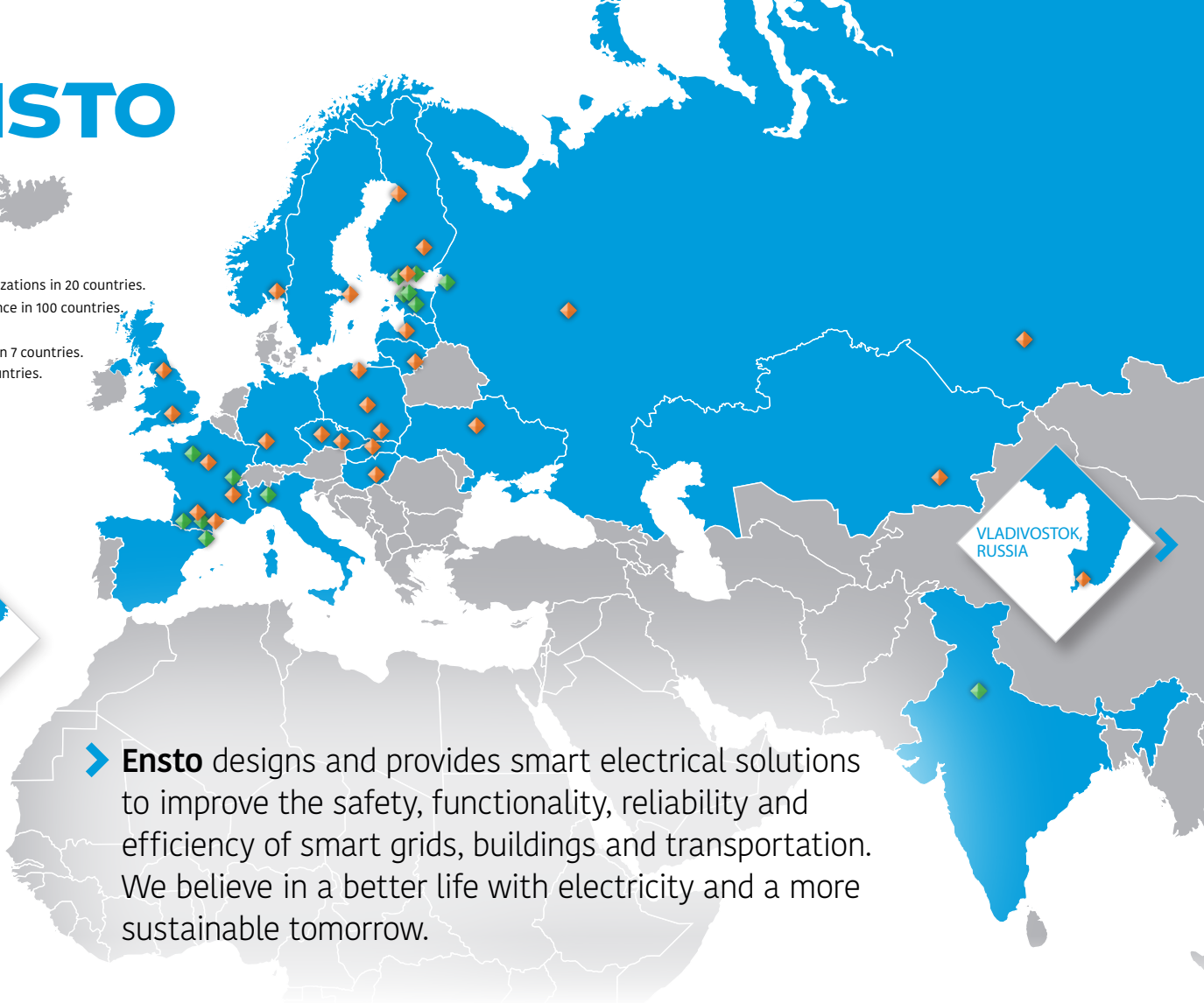
Whatever the future holds, we are ready!

The world changes, technology changes, but Ensto's values remain. It's all about trust, creativity, and winning together.

To be continued...

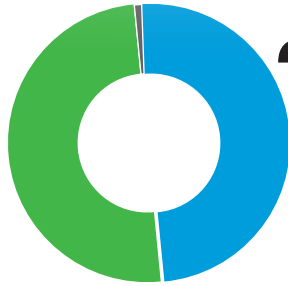


- ◆ Sales organizations in 20 countries.
Sales presence in 100 countries.
- ◆ Production in 7 countries.
R&D in 5 countries.



➤ **Ensto** designs and provides smart electrical solutions to improve the safety, functionality, reliability and efficiency of smart grids, buildings and transportation. We believe in a better life with electricity and a more sustainable tomorrow.

- Ensto Smart Buildings **49%**
- Ensto Utility Networks **50%**
- Other **1%**



TURNOVER

~261
M €



- Finland **24%**
- Other Nordic Countries **20%**
- Other EU Countries **41%**
- Russia and CIS Countries **7%**
- Other Countries **8%**

EMPLOYEES

~1,600

56%



44%

ensto.com

Better life.
With electricity.