

ensto today

STAKEHOLDER MAGAZINE 1/2017

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ensto today

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Cover: Ensto's future is in Smart Cities.



From the Editor

Changes

The world is changing. The way we live is changing.

The family business Ensto is not only embracing that change, but working to be on the vanguard of it. Ensto's new CEO, Ari Virtanen, who began work in April 2016, is leading that change.

This issue of the magazine is largely about these changes. We recognize new megatrends, embrace new ways of working, new markets, and all of this is driven by a new strategy, which is also detailed in this issue.

Ensto's new visual identity has changed as well. It communicates the new strategy and brings Ensto closer to people in their everyday environments, while portraying Ensto's vision "Better life. With electricity." to the fullest.

But at the heart, of course, we have not changed. Our core values, though now articulated in a different manner, have made Ensto special since 1958 and continue to set us apart.

Please continue to follow us to see how Ensto contributes to make life better with electricity!

Pia Hänninen

Director
Brand and Communications

BETTER LIFE. WITH ELECTRICITY.

Facing static European markets and opportunities carried by megatrends, Ensto's new CEO Ari Virtanen leads the charge toward growth.



✍ Scott Diel 📷 Kaupo Kikkas

“Twenty percent of what we do is about definition,” says Ensto Group CEO **Ari Virtanen**, who has spent months leading strategy development since he joined the company in April 2016. “And the remaining eighty percent is about execution.”

10 X 10 X 10 X 10

Ensto's strategy is in service of Ensto's larger set of goals, termed “10 x 10 x 10 x 10” by Virtanen. “This is a shorthand way of expressing our year 2020 goals of ten percent operating profit, ten percent sales growth, ten percent of sales from new solutions, and ten percent of sales from geographical regions new to Ensto.”

What are the drivers behind these goals? “It's partly internal,” says Virtanen. “Currently, our business shows negative organic growth, and our operating model is highly complex.” And there are external drivers, too, the megatrends that are changing the business environment in which Ensto operates.

MEGATRENDS: IGNORE AT YOUR OWN PERIL

Urbanization is the first megatrend impacting Ensto. “By 2050, seven out of ten people will live in cities,” says Virtanen. “Over the next 20 years, China will construct as many new buildings as currently exist in all of Europe.”

Since Europe is not a growing market, Virtanen notes that “Ensto's choice is to find its way in the markets that are growing or seek new growth opportunities in current markets.”

Another megatrend closely linked to urbanization is the shift in economic power to Asia. “Ensto can benefit by being properly positioned,” says Virtanen. “Geographically positioned of course, but also solutions-wise.”

Digitalization is a third megatrend which will impact Ensto's business, and Virtanen says most Ensto products and solutions will eventually need to have a digital component in order to stay competitive.

Social change is a multi-faceted megatrend. “The over-65 segment of the world's population will grow rapidly and want to stay in their homes as long as possible,” says Virtanen. “But we also have younger people who, due to social media, are forming their view of the world in a completely different fashion than their parents did.”

Virtanen says it's critical to understand how Ensto's business will fit into this new paradigm. “Older people want to own cars, but the young are happy to share. Also, what channels do we use to speak to these different customers?”

Finally, Virtanen notes that sustainability is a megatrend with more than one face. “Or course our products must be environmentally friendly. But ‘sustainable’ has an ethical dimension. Do our suppliers behave according to the same ethical principles which Ensto follows?”

ENSTO ACTION

Given these megatrends, Virtanen believes a large part of Ensto's future will be in smart cities. “We're not ignoring rural areas,” he says, “but smart cities are powered by smart electricity, and this is Ensto's strength.”

Specifically, Ensto will play in three ecosystems within smart cities: smart buildings, smart transportation, and

the smart grid. And Virtanen emphasizes that a lot of business will take place at the intersections of these ecosystems. “Electric vehicle charging stations can be a part of a smart building, or EV batteries can serve as demand response capacity for the smart grid.”

“Ensto can't be everywhere at once,” says Virtanen, “so we'll choose the ecosystems where we have strengths and knowledge and focus on those.”

MWBs

Given these megatrends, Ensto will achieve its 10 x 10 x 10 x 10 goals by fighting on four fronts between now and the year 2020. Virtanen calls these “must-win battles,” or MWBs, a term popularized by global consulting firms.

“These are transformational battles,” he says, “each led by a high-profile set of people within Ensto. And when we've reached our goals in 2020, we'll then replace these MWBs with a new set.”

The four MWBs are:

(1) Customer connection. “At Ensto we have a diverse set of teams, processes, and tools for our customers,” says Virtanen. “But we need to transform this into holistic customer channel management.”

(2) Product portfolio renewal. “Ensto has a very diversified portfolio, which we need to simplify,” he says, “and we need a better balance between products and solutions, ‘solutions’ defined as when we combine a product with a service.”

(3) Winning services. “Ensto's digital maturity is low,” he says. “We must develop cloud capabilities and IoT platforms. Digital technology will enable us to build new services that have very high value.”

(4) Agile delivery capability. Virtanen points out that Ensto is not the largest market player and should not try to be. “We cannot compete in volume, but if we have the best delivery capability then this is a major differentiator for us.”

BUILDING ON WHAT'S COME BEFORE

“Luckily,” he points out, “we're not starting from zero. We're not leaving everything behind. We will build our future on what we're already doing well. It's nothing dramatic. We're just taking action to be more competitive and sustainable for the future.”

Virtanen's vision is an Ensto recognized as the electrical solution provider for smart cities. But he says that to achieve that Ensto must maintain and cultivate its employee-first culture. “If we can offer the best employee experience, then this translates to the best customer loyalty and sustainable profitable growth.”

“When our strategy has been executed,” adds Virtanen, “when we've achieved our goals, then we will see that our smart solutions truly make lives better.”



WHAT DOES ENSTO STAND FOR?

Who and what is Ensto?
And what does it expect
of its employees, partners,
and customers?

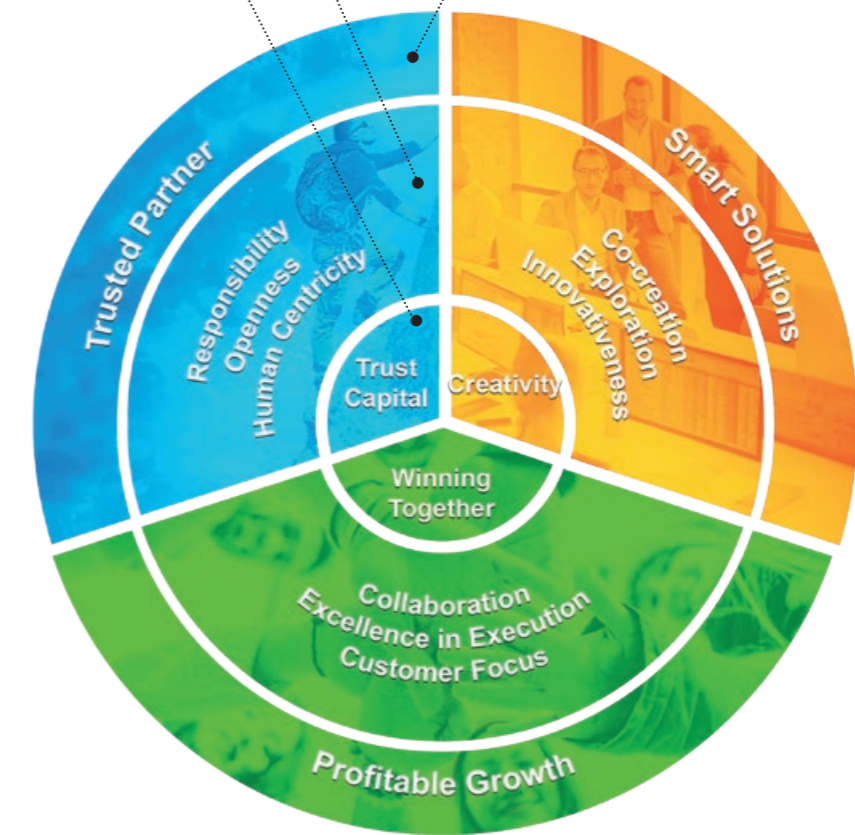
📷 Oscar Lindell

The painting "Winning Together" hangs in Ensto's headquarters.

HOW WE WORK
THE MIDDLE LAYER

HOW WE ARE SEEN
THE OUTER LAYER

VALUES
THE INNER LAYER



When Ensto CEO **Ari Virtanen** joined Ensto in April 2016, he began by listening. Not only did he tour Ensto locations and factories, but he conducted an onboarding survey which received nearly 800 responses.

After many months working closely with Ensto management and the board, a new strategy has been developed. But a strategy cannot be successfully executed without values at its core which enable its success.

ENSTO'S INNER LAYER

"The most often mentioned Ensto core value is trust capital," says Virtanen. "Everybody knows that one." But Virtanen adds two other values to that list, creativity and winning together.

"These values are what we know to be true, what underlie everything that takes place in our organization. But what is inside, our values, are not constantly visible to the outside world."

THE MIDDLE LAYER

"The middle layer expresses our behavior, the way we work in our daily life," says Virtanen.

Specifically, trust capital becomes the behaviors of human centricity, openness, and responsibility. Creativity

grows into innovativeness, exploration, and co-creation. And winning together manifests itself in collaboration, excellence in execution, and a customer focus.

These qualities may be suspected by customers and partners, but they are not always on visible display.

THE OUTER LAYER

"Because we work according to these values, our culture develops naturally from them," says Virtanen. "If trust capital means we are human centric, open and responsible, then the customer sees us as a trusted partner."

"If creativity means innovativeness, then the customer recognizes this in smart solutions. And if winning together means excellence in execution and a customer focus, then this will manifest itself in the profitable growth of the business for both Ensto, its customers, and its partners."

EXPECTATIONS OF OTHERS

In the stairwell of Ensto's Porvoo office hangs a large mural which was created by Ensto employees from all over the world. The title of the painting is "Winning Together." It's a tribute to Ensto's history and values and their alignment with the face of the company which others see.

"Ensto values aren't just for internal use, of course," says Virtanen. "Our values are so that others understand "This is the company you are dealing with, and this is also what we expect of others." ■

GROWTH ON OUR OWN TERMS

Marjo Miettinen assumed her responsibilities as Ensto's Chairman of the Board in 2016. *Ensto Today* spoke with her about her vision for the company and the industry.

✍️ Scott Diel 📷 Kaupo Kikkas



What is your perspective on electricity and the overall business? Ensto is in the business of electricity, and electricity is here to stay. There is no new technology set to replace it. It's not an exaggeration to say that without electricity our lives can be in danger.

After the earthquake in August 2016 in Italy, the first thing said was that without electricity it's impossible to help people. In these situations you understand the power of electricity. Think about the business in those terms: our business is extremely important.

As an owner I keep four things in mind. First, what **business** are we in and does this business have a future? I can say Ensto certainly does.

Second is **capital**. Do we have enough money to develop the company? I believe we do. Of course we'll take small steps suitable for Ensto. I want a profitable company that we can develop and be proud of.

Third is **people**. With whom are we conducting this business? We have a lot of wonderful people, and together we can make Ensto into something even more special.

Fourth is **reputation**. Ensto's reputation, its brand, is at a very good level and I want to continue to strengthen it.

What are your immediate priorities as Chairman?

Our top priority is developing a new Ensto strategy, which I want to ensure is a success. The Board's job is to support Ensto and its management as much as possible in this process. I'm very optimistic that we're proceeding in the right way in the right direction.

Second, I believe we all understand that we can't be number one in the world in everything we do. We have to make some choices. Where, and with which range of products or concepts, can we be at the top internationally — and, in particular, why?

What could that mean for Ensto?

We have to switch our mindset away from products. We are still too product oriented. Our focus should be on building a better business with customer-focused Ensto solutions.

What does this mean? Here we must understand the big trends taking place in the world. What does the IoT [internet of things] or AI [artificial intelligence] mean for Ensto? To me this means a major transformation of Ensto's culture and of our mindsets. We need to be very agile.

I am also very happy that we have a new CEO, **Ari Virtanen**, who comes from a world where digital innovations have played a big role. I like his attitude and approach in moving toward new areas.

We need to remember three words: smart, smart, and smart. Every future component or product we have has to be smart. Every future solution we build must be smart. It's been argued that every company in the future will have a digital aspect. We can do that with Ensto, too, and we must be able to explain to customers what they get more by working with us. We are at a good starting point for this, but it needs to be developed.

Given the move to digital, what can be said about Ensto's place in it?

Where Ensto is concerned the question is *How can we find new business models — and why does that model make sense for Ensto and for our customers?*

3D printing will change manufacturing. The tools surrounding us will become smarter and smarter, and we must be



constantly aware and up to date. If we don't want to embrace the new possibilities that technologies enable, then the technologies might as well not exist. For Ensto there are many opportunities. It is only to choose the right ones.

What are your ambitions for Ensto in terms of size?

We should have the ambition to be bigger, but the question is when and how. It's about profitable growth. As an owner I always try to think about the next five to ten years. By that time we will certainly have a stronger and bigger business compared to today.

Will Ensto remain a family company?

EM Group Oy, the parent company of Ensto, was divided into three companies as of the beginning of 2017. Ensto, which started as a family business, will remain a family business, and the new parent company is Ensto Invest. The third generation is enthusiastic about Ensto.

It's of course easy to give money to your children, but how do you pass on leadership knowledge? You can't. The new generation must earn their places themselves. But we can help, and this is why we started special training for them some years ago that still continues today.

The generational change, however, is not just for the owners. It must go through the entire company. Young people's mindset is different. They bring new spirit to the company and they move faster. If you can combine experience with this young spirit, then it's a winning combination.

Is anything in particular holding Ensto back?

We are still suffering from the 2008 recession. While the economic effects have passed, the recession is still too much in our minds. How can we get the maximum potential out of the company? We have not activated our people's full potential. But first we have to clarify direction for them. If people know where to go, they will certainly move faster towards the goal.

In every case, we have to focus on our customers. Who will they be in the future? This is of critical importance.

Ensto is currently in a good situation. Now we will find the Ensto way to work. All the doors are open for us. Our next step is not so far away, and it is possible to reach it with our excellent Ensto people. ■



ENSTO

NEW VISUAL DIRECTION

✍ Pia Hänninen 📷 Ensto

The renewed Ensto brand strategy and visual identity are based on the new Ensto Group strategy. The One Brand strategy brings coherency to the overall Ensto brand visibility and strengthens the Ensto Brand.

NEW VISUAL IDENTITY

The visual identity communicates Ensto's new strategy. It brings Ensto closer to people in their everyday environments, while portraying "Better life. With electricity." to the fullest.

We wanted to preserve the form of the Ensto brand logo, while still refreshing it with a more modern look. We went back to Ensto's roots and stripped away all complex elements to focus more on the essence of Ensto's brand. The brand logo is simple and easy to use, modern, light and airy – it describes where Ensto is and wants to be in the future.

The main new visual element is the 45 degree-tilted square "Ensto Cube". This modern and distinctive form gives Ensto's materials their new look and feel. The Cube is playful and vibrant, expressing Ensto's vivid new direction.

We communicate our vision "Better life. With electricity." It emphasizes the impact the electricity has on people's life. It also highlights Ensto's wish to be present in the everyday life be it at homes, in working environments, traffic or at leisure time activities.



Better life.
With electricity.



ENSTO AND THE ELECTRICITY REVOLUTION

How the grid, cities, and transportation will all become smart – and how Ensto will be part of the revolution.

by Matti Rae

The smarter our world becomes, the more electricity is used. The smart grid, smart cities, and smart transportation are areas where Ensto contributes to energy efficiency, as well as to sustainable- and reliable electric energy distribution.

THE URBAN ENERGY CHALLENGE

In a modern city, approximately one third of energy is consumed by heating and cooling, one third by transportation and the final third by electricity. As new building norms require energy efficiency measures, the share of heating and cooling will decrease. But the share of energy used for transportation is forecasted to grow with the overall use of electricity.

By 2050, some five billion people, 70 percent of the world's population, will live in cities. Urbanization not only changes social life, but increases the demand for energy, transportation, and services. The ever-growing cities face serious issues of air quality, congestion, and the supply of services.

Additionally, international commitments should contribute to the reduction of greenhouse gas emissions, the use of fewer resources, and energy savings. The energy challenge of cities seems huge, and without smarter and more sustainable solutions, targets will remain unachieved. Smart use of electricity is one of the solutions for more sustainable cities.

ELECTRICITY: MORE THAN JUST ANOTHER FORM OF ENERGY

Sometimes we take electricity for granted and assume it is always available. But as straightforward the route to the domestic outlet is, there is a lot of smartness involved. There is no other energy form or technology to replace electricity in its versatility.

Electricity transmission- and distribution grids are the energy backbone of a modern society. Reliability of distribution has become of utmost importance since many vital services in cities rely on electricity. The absence of electricity would be noticed immediately in lighting, traffic lights, elevators, factory processes, and gradually in our telecommunications.

The electricity we consume daily is a mix generated from multiple sources. In Finland, we enjoy an electricity mix that is 40 percent renewables and almost 80 percent carbon free on a yearly average.

Political incentives, grants, and feed-in tariffs have sped up the development of greener electricity in many countries. On the other hand, the electricity system has become more complex. Balancing consumption and production of weather-driven and distributed generation is a technical challenge for the grid and for the electricity market. Smart grid solutions that enable multidirectional energy flow, maintain excellent reliability of distribution, and connect producers and consumers in the electricity market are needed.

The vast energy potential of the sun harnessed by solar energy systems makes electric energy increasingly renewable and emissions free. There is no other energy form possessing even near the long-term potential of solar energy, and global investments in solar electricity amounted to 161 billion USD in 2015. Technological development has brought solar electricity to a very affordable cost level, enabling it to compete against traditional generation.

A fleet of electric vehicles demands a reliable and smart supply of electricity. Intelligent charging stations and services will be needed on a large scale in connection with parking at bus, metro, train and tram stations. EV charging will be installed in work places and homes. Hotels will offer charging as a normal service for guests. Some big retailers already offer free charging for shopping mall customers.

Millions of vehicles charging simultaneously would accumulate energy demand to high peak loads in a few hours, and therefore charging needs to be smart from day one. With smart charging, the driver plugs in normally, and intelligent controls ensure the car is economically charged during off-peak hours, avoiding peak consumption. A smart charging service will connect the EV to the energy market and enable consumers to take full advantage of electricity offers and maximizes the use of renewables.

TECHNOLOGIES OPEN UP NEW OPPORTUNITIES

The energy business is not immune to disruptive technology developments. Digitalization advances with a



WE AT ENSTO LOOK AT THE FUTURE WITH GREAT EXPECTATIONS IN MAKING OUR WORLD SMARTER AND LIFE BETTER WITH ELECTRICITY.

MATTI RAE, ENSTO'S DIRECTOR OF NEW TECHNOLOGIES

THE E-REVOLUTION IN THE TRANSPORTATION SECTOR

Road transportation has over the decades been dominated by fossil-fuel-powered vehicles, but this situation is changing rapidly and dramatically. Global regulations on CO₂ and NO_x-emissions have put pressure on vehicle manufacturers to develop more environmentally friendly vehicles. Additionally, technology developments of Li-Ion batteries and electric drive trains have enabled the electrification of passenger vehicles. These together have resulted in an increasing supply of electric vehicles (EVs) with improved performance and range. It has been estimated that in 2020 there will be more than 1.5 million electric vehicles in Europe. If you haven't driven an EV yet, you soon will.

On average, an EV uses approximately half to one third the energy of an internal-combustion-engine-powered vehicle to cover the same distance. On an European scale, where some 12 Million passenger cars are registered yearly, energy savings potential is huge. Additionally, electric vehicles are truly emissions-free in use and help contribute to cleaner city air. EVs decrease Europe's dependency on oil imports.

variety of implications. Social media has changed our life and increased transparency. Ways of working are changing and the digi-generations have totally new ways of communicating. The Internet of things connects objects and makes them part of the big data ecosystem.

There is a lot of opportunity for data-minded developers to make the electricity system smarter. Through co-creation, universities and companies can explore new business opportunities not only in digital technology but also in energy storage for the balance of energy usage. We at Ensto look at the future with great expectations in making our world smarter and life better with electricity. ■





PRESSURE MAKES DIAMONDS

The more complicated the job, the greater chance Ensto has of winning it.

📷 Scott Diel 📷 Ensto, Kaupo Kikkas

The Õpik House, LEED Gold, thirteen stories, is a 17,200 square-meter office showcase in the heart of Ülemiste City, Tallinn, Estonia's IT district. Maximum flexibility was the name of the game with this property.

MAXIMUM FLEXIBILITY

"We can never predict when our company might centralize even more," says a key tenant who recently occupied four floors of the new structure, all of them equipped with Ensto Workpoint posts. "And so we needed an extremely flexible workspace."

The tenant's offices are outfitted with a total of 150 Ensto Workpoint posts, a configuration which can serve up to 501 workers. The vast majority of posts enables four workspaces with six electrical outlets and two data ports per workspace.

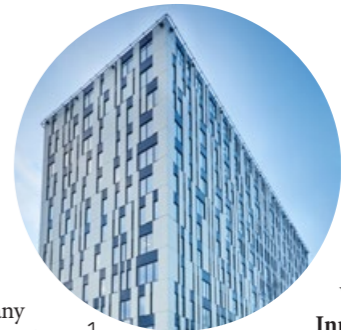
RAL 7030

Ensto was up against tough competition to win the tender to supply the posts. Among the competitors were all the usual suspects, but Ensto prevailed because of RAL 7030 and RAL 7024, two tones of gray that it was able to supply its products in.

"As an architect my two primary concerns are quality and availability," says **Mattias Agabus**, the building's lead architect. There was one other bidder who could supply the gray tones, but Ensto won the job thanks to its ability to deliver a high-quality product in the desired color at a competitive price.

Ensto teamwork made it happen. Three Ensto countries came together to get the right product in the right color at the right time. "The RAL 7030 poles were sourced from Finland, the RAL 7024 sockets in France, and the assembly was done in Keila, Estonia," says **Tarmo Roth**, Ensto's Area Sales Manager.

Constant communication between Ensto Ensek's sales-, purchasing-, and production departments ensured that the product arrived exactly as the client specified when the client needed it.



COMPLICATED? ONLY ENSTO KNOWS.

Involving multiple Ensto countries on a job may sound complicated, but if it was then the client and their support teams never noticed.

"Speaking as an installer, Workpoint is ready to go," says **Innar Pinn**, project manager at Astorfi OÜ. Pinn's team of 70 installers

was responsible for everything electric in the structure. "All you do is put the base plate under the pole and connect it above. It comes assembled so it's faster and easier to install than the competitors, who ship their products in more pieces."

In addition to installation, Ensto also made the color choice seem easy. The lead architect was unaware of Ensto's behind-the-scenes work to deliver the gray tone which would suit his design team's vision. "I was under the impression that gray was a standard offering," says Agabus.

So do lead architects really concern themselves with details like electrical posts? "If you're working only with quality companies you should not see a huge difference in product performance," says Agabus.

"When you know you're working with quality, you can then concentrate on which design is most appropriate, and what's the inventory status so that the builder can quickly get them in place."



THE SECOND STRUCTURE

Construction will soon begin on the Õpik House's sister building which will stand by its side.

At this point it's impossible to say whether Ensto Workpoint poles will fill the sister structure, as well. What is sure is that Ensto people like Tarmo Roth will go the extra mile to make sure architects get the colors they need, without them ever needing to know what's standard. ■



AS AN ARCHITECT MY TWO PRIMARY CONCERNS ARE QUALITY AND AVAILABILITY.

MATTIAS AGABUS, ÕPIK HOUSE LEAD ARCHITECT

1. Õpik House

2. Mattias Agabus, Lead Architect

3. Ensto Workpoint poles await a new Õpik tenant.

4. Tarmo Roth, Ensto Area Sales Manager

ANATOMY OF A HAPPY CUSTOMER – DIGITAL AND FLESH

User experience and service design are two of the most fashionable terms in business today. But what do they mean?

✍️ Scott Diel 📷 Kaupo Kikkas



UX AND ENSTO'S DIGITAL FRONTIER

The My Ensto portal is a 24/7 online service where our customers can log in and check the status of their open orders. They can even track shipped orders, see product lead times, as well as view their personalized price information.

The online service is available on all devices thanks to its responsive design. Customers can access the service everywhere: in the office, on the road, at the construction site, or wherever they like. My Ensto was developed by the Solita team together with Ensto customers.

The portal was piloted in Sweden with positive results. Users especially liked the order tracking functionality and appreciated the possibility to see lead time information.

My Ensto will be rolled out in Finland and Estonia in early 2017. "We are very happy to offer online customer service to our customers," says Nanna Sundman, Ensto's Customer Care Manager. "It is important for us to serve our customers in the best possible way. Customers are different – some like calling us by phone, and some prefer checking information on an online service. We need different channels, and My Ensto is one alternative that we are very proud of."

Mari Häyry

It's proven. Happy customers talk about their experiences and spend more money. So what makes a good user experience? And how do you create one?

SERVICES AS BRAND

"Think of advertising as the polish on the top of your brand," says **Lasse Tammilehto**, Creative Director of Solita, the digital business company. "But, in fact, your services themselves are your underlying brand."

Tammilehto is a specialist in user experience and service design, yet actively cautions his clients not to fall into the trap of thinking "digital" is a silver bullet.

"When we design services we look at the client's whole ecosystem. Digital services is not an island." Tammilehto says that to develop a great user experience, all customer contact points have to be considered.

"However your company interacts with the customer defines the customer experience — your solution, advertising, blog, events, digital interface with customers, face-to-face contact — and all these contact points must be consistent."

LISTEN

Tammilehto begins developing a user experience by listening to his customers' customers. "We're looking for user insights," he says, "which allow us to determine what the end user really needs."

Sometimes companies really do have a good understanding of their customers. "But often they have false ideas of what their customers want. Our job is to help them define the problem and then solve it."

Once Tammilehto was asked by a client to create a simple service to send regular emails to end users. "They wanted a design template and method to send the emails out. But we learned their customers didn't want to receive emails at all." Customers thought email systems were



THERE'S STILL A GUY WITH A SKETCHPAD, BUT TODAY'S PROCESS IS MORE ABOUT UNDERSTANDING THE USER'S NEEDS.

LASSE TAMMILEHTO, CREATIVE DIRECTOR, SOLITA

flawed, and information went missing too easily. So the team from Solita and its client threw away the original brief and created an entirely new solution — a real-time virtual interface where information could be shared and never lost.

"What's important," says Tammilehto, "is that we're co-designing with our customers and their end users. End users are involved in design: they test prototypes. We build communities to give us constant feedback on the work we're doing."

JUDGING SUCCESS?

Services designed for and tested upon end users generate immediate results. KPIs are identified before the design process, and results are closely tracked.

"Typical KPIs are sales improvement and customer experience measured by pre- and post-interviews. And of course web shops either generate new sales or they don't," Tammilehto says. "Not all our customers come to us to boost sales, though. Some want to enable their own employees to complete internal tasks faster."

DESIGN'S NEW MEANING

But what about the old image of the designer with the beret, black turtleneck sweater, stinky French cigarettes, and a blank sketch pad? Has design now become a team sport?

"There aren't many projects anymore where a designer is left alone," says Tammilehto. "There's still a guy with a sketchpad, but today's process is more about understanding the user's needs."



CRACKING THE
DOUBLE-SOCKET
CODE

How Ensto's Jari Silvennoinen and Harri Turunen did what others could not and made homes and offices a lot less ugly.

✍ Scott Diel 📷 Oscar Lindell

One might be tempted to think it's a conspiracy. For the last three decades the European standard of double socket outlets has been 85 x 100 millimeters, with the first socket placed directly over the second.

A major manufacturer created an 85mm square design with sockets set at a 45-degree angle, but this design still meant a rat's nest of sprawling wires, with cables running opposite directions when both sockets are engaged.

Then Ensto's **Jari Silvennoinen** and **Harri Turunen** came to the rescue.

JARI AND HARRI

In 2013, Ensto Key Account Manager Jari Silvennoinen approached his friend Harri Turunen. Jari felt the existing 45-degree design was simply not acceptable and wanted to create a product that served the end user.

He had been playing around with a hand-sketched idea of how two outlets could be placed diagonally, yet allow the cables to run in the same direction. It had never been done before, and he asked Harri, Ensto Senior Product Designer, if he thought it was possible.

Harri had been designing outlets and switches for decades. If anyone would know whether it was possible, it would be Harri.

Harri lost a lot of sleep trying to figure it out. But, then again, not sleeping was just Harri's way of working.

"When I get an idea my brain works 25/7 – that's lunchtime and at night," says Harri. "I can't sleep. I keep thinking 'Why can't this be done?' All night I try to find a reason why it can't be done. Normally I can't and then the solution comes!"

SOLUTIONS AND CONSPIRACIES

Harri did find a solution. It took him weeks, but he found a way to set the sockets in an 85mm-square frame at 48 degrees. The competition had a patent on 45 degrees, but their solution was not elegant. Harri also removed a couple of double plastic walls inside the socket, and he had his solution.

So why had no one ever done it before? "So many people told me it was simply impossible to do," says Jari.

"Also," adds Harri, "Big players in the market would not have wanted to do it. Consider the amount

of investment they have wrapped up in products that already dominate the market." But it was an ideal product for a mid-sized, agile company like Ensto.

ENTER JUNG

As fate would have it, about this time Ensto decided to re-enter the wiring accessories business, so Jari and Harri applied for a patent as Ensto searched for a distribution partner. Jari and Harri knew they needed a partner where their double socket outlet would fit into an existing product line.

Jung's LS990 series seemed a perfect fit, and it served as the base for the new Ensto Intro series which was launched with assistance from Hubertus Wernsmann of Albrecht Jung GmbH, the iconic German company specializing in switches and socket outlets.

NEW PRODUCTS, TOO

In September 2016, Ensto launched the double socket as part of its Ensto Intro product family, approximately one thousand different products. The new double socket is already popular with customers.

Harri's design is one which works in Finnish- (54 mm box), Scandinavian- (60 mm rotating ring), and German (64 mm box) standard openings, which means it could potentially conquer most of Europe. It's already being produced in multiple colors for hospitals, as well as office tones, and additional new products are on the horizon.

COMING SOON TO A THEATER NEAR YOU?

So why would any consumer want the old socket after seeing Jari and Harri's new one? a visiting journalist asks. "I have no idea," Harri answers, though he's admittedly a little biased.

Without trying too hard one can imagine the double socket as the subject of a Hollywood thriller. Tom Hanks will play Harri, who's pitted against an international consortium of bad guys who'll stop at nothing to eliminate the double socket outlet.

But it's too late already. Thousands of units have already sold. And so the world will enjoy Ensto's double socket outlet. And Harri may now finally get a good night's sleep. ■



SMART CHARGING IS SMART BUSINESS

Ensto EV charging solutions integrate data and connectivity into a customer's processes.

✍ Scott Diel 📷 Ensto, Fortum, Pohjolan Liikenne, Spark, Virta

Historically, charging poles have been what you plug into to charge a vehicle. But as digitalization envelops the world, smart charging systems connected to a cloud based back end system become a tool to give business a competitive advantage and directly impact the bottom line.

Ensto EV charging solution clients are parking operators, hotels, business parks, shopping centers, and EV operators. This article presents some of the first to gain advantage from digitalization and its possibilities of the integration of services.



Spark, an electric car rental service, uses a mobile application to reserve and locate cars at ten Chago EV charging stations in Vilnius, Lithuania. Spark chose Ensto as its charging partner in part because of the reliability of Chago chargers – but as importantly because Ensto was able to integrate cloud management system to their existing Spark mobile app.



Pohjolan Liikenne, a Finnish bus company which operates close to 300 busses, gains efficiency by making driver shift changes on bus routes themselves. A bus arrives at a stop, the driver exits and is replaced. To transport its drivers, Pohjolan uses a fleet of electric vehicles charged with Ensto EV chargers. Naturally chargers are connected to Ensto cloud EV charger management system to get better visibility of the charging events, perform remote services and improve reliability. Prior to adopting the EV fleet, the company employed a person whose sole job was to keep the fleet cars full of gasoline. Now, cars are charged at the bus depot and the smart charging system alerts them to which vehicles need charged when, and makes sure the fleet is always ready.



EneRSIEIL, France's energy syndicate, has entered into a partnership with Ensto and Ensto's partner company Virta in order to provide end users with a comprehensive EV charging solution giving them real-time information. Hundreds of new smart Chago charging points dot France's Centre-Val-de-Loire region. The system's infrastructure management and the entire charging service process are operated digitally and automatically from the cloud.



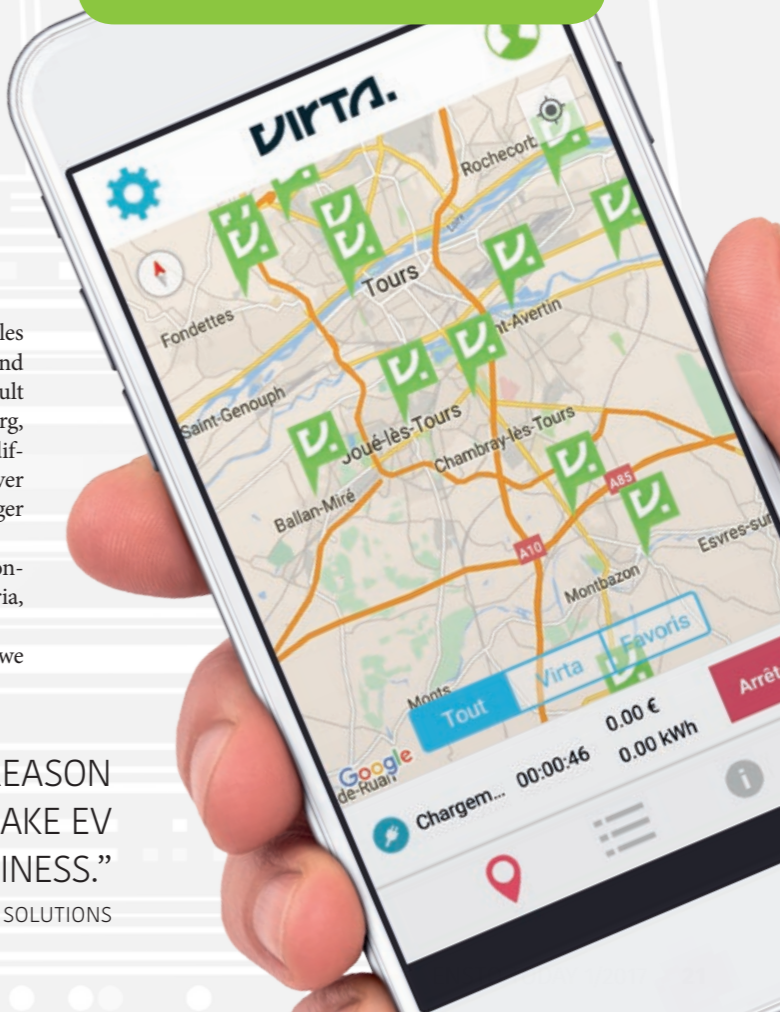
Fortum, a leading clean-energy company, with focus on the Nordic countries, Russia, Baltic Rim area and India, has chosen factory precommissioned Chago chargers for its Charge & Drive service. Chago chargers used by Fortum are plug and play, and arrive preconfigured to a site so electricians may install them directly out of the box. Fortum Charge & Drive is a pioneer in electric vehicle charging and has a network of 1 200 affiliated smart chargers in the Nordic countries. Charge & Drive Cloud provides an intuitive end user interface and a comprehensive back-end system which supports Charge Point Operators in the remote management of Charging Stations. Fortum Charge & Drive, like all Ensto Chago clients, is enjoying a great reduction in operating expenses. Fortum took part in a recent Aalto University study which demonstrated the operating cost of the EV charging infrastructure is 80 percent of the total lifetime cost over a charging network's ten-year life.



Greenway Otomobil in Antalya, Turkey, is a EV-as-a-service operator, which rents EVs to taxi companies, corporate customers, and government clients. Integrating Ensto EV charging solutions with their own system, Greenway is able to manage their fleet and its eight charging locations throughout the Antalya region, monitoring the physical location of cars and how much charge each has left.

"A system like Ensto EV charging solution that enables you to remotely manage, monitor, fix, and update, report, and perform preventive maintenance without site visits, can result in amazing operating expense savings," says Juha Stenberg, President of Ensto Solutions. The operating expense cost difference between a high-quality and low-quality system over that period was calculated to be 9,000 euros per EV charger over 10 years lifetime. The study was based on interviews with companies controlling more than 1,000 charging points in the UK, Austria, Norway, Sweden, and Finland. "Results like these," says Stenberg, "are the reason why we are committed to make EV charging smart business."

RESULTS LIKE THESE, ARE THE REASON WHY WE ARE COMMITTED TO MAKE EV CHARGING SMART BUSINESS.
JUHA STENBERG, PRESIDENT, ENSTO SOLUTIONS





A C&D PARTNERSHIP

Ensto and Helvar have partnered to produce two products, Active+ and ActiveAhead.

ActiveAhead is the first luminaire-based lighting control using AI. It networks continuously-learning luminaires. Its technology deploys a wireless tech Bluetooth Low Energy Mesh, a network topology that is a self-healing net. It's ideal for buildings with dynamic footfall: hallways, stairwells, open-plan offices, and warehouses. Its benefits include dramatic improvement in lighting comfort and major cost savings.

Active+ is a standalone solution for single luminaires which requires no programming. Active+ learns for a period of 60 hours, making it most suitable for refurbishment use, since one luminaire can be replaced with another without adding control wiring.

LIGHTING THAT LEARNS

Ensto and Helvar have partnered to offer the first luminaire-based, continuously-learning lighting control to employ artificial intelligence.

✍️ Scott Diel 📷 Helvar

To enter the office of Helvar in Espoo, Finland, is to enter a world of perfect lighting. Without a visitor ever noticing, lights brighten and dim according to human movement and the presence of natural light. Lighting temperature shifts to optimize mood, energy, alertness, and productivity.

Helvar's office represents the convergence of all the "future" lighting technologies that are talked and written about. Yet Helvar carries it one step further: its lighting is able to continuously learn.

C&D: 'CONNECT AND DEVELOP'

The lighting in Helvar's office is powered by a variety of

technologies. The most modern, ActiveAhead, deploys a wireless tech Bluetooth Low Energy Mesh. It is the first luminaire-based, self-learning lighting control to use artificial intelligence, featuring one of the smallest PIR- and light sensors on the market.

ActiveAhead was brought to the market quickly – in less than a year – and the key to getting there was Helvar's partnership with Ensto. The driver- and sensor technologies are Helvar's — and the luminaires are Ensto's.

The partnership is what Ensto Group's CEO **Ari Virtanen** calls "a case study in C&D." The familiar term is R&D, but C&D – "connect and develop" – is about working together with customers to combine technologies to create meaningful products.

WHY ENSTO?

Lars Hellström, Helvar's Marketing and Business Development Director, says the Ensto-Helvar partnership was a natural one for many reasons. "Our companies had a long-term relationship. Ensto has been a customer for decades, buying drivers and ballasts from Helvar. Ensto also had a factory warehouse in Lohja which was the ideal test facility for Helvar's Active+ and ActiveAhead solutions."

The close relationship made the product testing phase about far more than the product itself, says Hellström. "We learned how the solution was working, what luminaire density was necessary to optimize for footfall. But we also learned what questions to expect. We learned how to position the product, how to talk about it."

ENABLING SMART BUILDINGS

The partners also learned how to retrieve and process data. While perfect, human-centric lighting may seem like the ultimate result, it is only the most visible benefit. Heat mapping of footfalls may be the technology's most amazing future application, which can enable smart buildings of tomorrow.

Sensors placed in luminaires can generate massive amounts of data about how a building is used. Movement may be analyzed in offices, stairwells, parking garages or warehouses, creating not only comfort, but allowing a building owner to influence behavior and save money. "The air conditioning may adjust itself automatically," says Hellström, "or the elevator can know you're coming and

you'd no longer need a call button. And this information is all conveyed at the speed of light itself."

SHOW ME THE MONEY

Since Active+ and ActiveAhead permit the same amount of lighting comfort to be delivered with varying energy levels, not all luminaires operate at full power, which is the traditional luminaire solution.

"The first big savings is switching to LED," says Hellström. "Our test sites with Active+ have shown additional savings beyond the 50 percent easily achieved. If you add ActiveAhead lighting that learns, you will save even beyond this."

Listening to Hellström one is tempted to conclude that lighting could generate its own cash flow. Although that's not yet achievable, the lighting control clearly does pay for itself, though savings are not the most dramatic benefit of this technology.

2050, HERE WE COME!

What about the year 2050 when demographers predict five billion people, or 70 percent of the earth's population, will live in cities? These new cities must be smart cities. And the smart buildings that will fill them will be lighted by Ensto and Helvar.

But it won't just be smart buildings. Both companies are looking forward to finding other C&D projects. "Ensto is strong in many other areas," says Hellström. "This story will continue." ■

HOW TO MEASURE AN OUTAGE

Finland's energy authority tracks outages with a key index called **SAIDI**, the System Average Interruption Duration Index, which measures the total duration of interruptions for a group of customers.

SAIDI is composed of two indices, CAIDI and SAIFI, respectively the Customer Average Interruption Duration Index and the System Average Interruption Frequency Index.

The indices serve as valuable tools for comparing electrical utilities' performance reliability. Nordic authorities have adapted SAIDI/SAIFI criteria to monitor electricity distribution in their markets, and Ensto solutions are developed to improve SAIDI and SAIFI indices.

THE PERFECT STORM

What happens when an aging distribution network meets a season of particularly nasty weather? This is the story of how one northern European country is solving the problem.

✍️ Scott Diel 📷 Oscar Lindell, 123RF

Despite being one of the world's most technologically advanced nations, Finland's distribution network is both varied and aging. It's a problem that's shared by many nations.

But Finland's situation is particularly acute. Finland is Europe's most heavily-forested country, where 23 million hectares, or 74 percent of the nation, is covered by trees.

NETWORK MEETS STORM

It wasn't just one terrible storm. There were four: Asta, Veera, Lahja, and Sylvi all took their toll on the countryside in the summer of 2010.

Finland suffered record warm temperatures, including a new national temperature record of 37.2 degrees Celsius set on July 29. Ground flashes were counted at 170,000, exceeding the long-term average by 30,000.

"In a nation of forests, storms mean fallen trees, and these storms felled over eight million cubic meters of trees," says **Jouni Siniranta**, Sales Director for Ensto Utility Networks in Finland. "And for citizens of Finland, fallen trees mean electrical outages."

AN AGING NETWORK

Finland covers approximately 338,145 square kilometers, making it roughly the size of California. The nation is served by 77 electrical distribution companies, with consumer bases ranging from 757 to 460,000 customers.

Ensto's Siniranta, who's worked with Finnish distribution companies for over 20 years in planning, maintenance, and construction, says some regions of Finland have close to all of their electrical cables underground and protected. "But others have most of their cabling in overhead lines, which cut right through the middle of forests, the most susceptible areas during a storm." And the overhead lines are supported by aging poles, part of the network installed from 1950 to 1970. Downed trees break both lines and poles.

Finland's 2010 summer storms caused significant outages. Over 35,000 kilometers of distribution network was damaged, and repairs required nearly 200,000 working hours. Due to widespread and large scale damage, the longest outages lasted a full thousand hours, or 41 days.

In 2011, Finland was pummeled by winter storms Hannu and Tapani. Although after the storms most in Finland had their electricity restored in a timely manner, the government of Finland knew it could not stand idly by.

THE ELECTRICITY MARKET ACT

In 2013, Finland updated its Electricity Market Act, with a focus on the security of supply. The new law included transitional provisions to connect consumers to a weatherproof network that by 2029 no customer in a populated area will be without electricity for more than six hours. More rural areas may not go without electricity for more than 36 hours.

Finland's 77 distribution companies have selected a variety of compliance strategies. Some have chosen to move from using overhead lines to underground cables. Some are moving substation-to-city lines underground, and remove overhead lines from the center forests to place them roadside where they're more easily protected and serviced.

The solutions for total compliance with the law will cost close to nine billion euros by 2029.

TOWARDS A SMART GRID

The new law has another benefit, as well. As long as lines are replaced or updated, intelligence may be added, allowing those connected to participate in the smart grid.

Today, any household can be equipped with a remote-readable smart energy meter. It enables better information about electricity consumption and quality. At the same time, it allows a homeowner to participate in small-scale electricity production which can be sold to the electricity company.

Electricity companies, in turn, are able to balance the load on the power grid, thus enabling the most trouble-free supply of electricity for special events. Also, power grid transmission capacity can be optimized by means of the smart grid.

ENSTO'S ROLE: HELPING COMPANIES COMPLY

Siniranta says Ensto's role is to provide solutions that help distribution companies make cost-effective investments for the long term, which meet both legal and consumer requirements.

"One quick and efficient solution is to increase automation points and power electronics in the existing distribution network," he says, "and at the same time build underground cables. We also offer solutions for live line work, allowing work to be done without interruption in electrical service." In addition to products, Ensto provides Ensto Pro training and certification for installers.

"Ensto has world-class processes, including extensive product testing before anything makes it to market," says Siniranta. "High-quality products and their proper use ensure a high quality and reliable distribution network that can withstand the beatings of storms."

PREPARING FOR THE FUTURE

Finland's situation with an aging network is certainly not unique, though indeed the nation's heavy forestation forces it to confront its problems faster.

"Given climate change," says Siniranta, "we may expect more severe storms wherever we're located. And in a society that runs on electricity, it's our responsibility to prepare." ■



Ensto's Jouni Siniranta.

PRISMA SEPPÄLÄ, JYVÄSKYLÄ

- Surface area of **43,000 m²**, with 18 special stores
- **46** Ensto Plugi centers and **1,230** wiring harnesses
- Two installers carried out the electrical installation and lighting of the commercial premises in just **10** days
- The project was finished and opened more than a month in advance of the scheduled practical completion date of April 2016.

A PREFABRICATED WIRING SYSTEM FOR IMPROVED INSTALLATION TIMES

Ensto Plugi has been successful in the electrical installation for a hypermarket.

✍️ Kari Heikkilä 📷 HeyDay Pro and Musta & Valkoinen

The Ensto Plugi prefabricated electrification system is designed specifically for each project to meet the specific needs of that site. The system arrives at site in packages ready to be installed. Each package is clearly marked with location numbers relating to the electrical plan drawings, and the assembly is easily carried out with pluggable connections.

Modular assembly is simple and saves significant amounts of time benefitting both developer and contractors. This modular approach is well suited for replacing the traditional electrical installation at sites where the installation time is under pressure from the building program or out of hours working requirements. Using a modular system also allows the contractor to facilitate any

subsequent changes that normally occur on site. In addition to shopping centers and shops, other sites that would benefit from this approach could include office buildings and schools.

BEST PREPARATION FOR CHANGES

Seppälä Prisma opened in Jyväskylä last spring, replacing its predecessor, the first Prisma in Finland which was built in 1972. The 4,000 square-meter hypermarket grew to 10,000 square meters over the decades, and a modern shopping center was established next to it. Now the surface area is 43,000 square meters, of which 3,900 square meters have been reserved for special stores complementing hypermarket services.



The electricity requirements can be better understood by the giant dimensions of the shopping space. There are 410 linear meters of refrigeration equipment and 22 meters of service desk. The purpose is to highlight the approximately 82,000 different products available in the hypermarket with general lighting, spotlighting, and special furnishings. The electrification needs of the market's lighting vary season to season.

"In design and construction we started with the fact we are not about to build the biggest Prisma in Finland. Instead, we want to build the best Prisma utilizing the best competence and newest innovation," says Mikko Junttila, Prisma director in charge of Seppälä hypermarket.

This guiding concept was also followed during the electrical installation, with a modular and flexible system being the special requirement. Since the work site was a hypermarket, the installation had to be carried out quickly despite the record-breaking size of the facility.

THE CONTRACTOR SUGGESTED A NEW METHOD

Salotec Oy, who operated as the electrical contractor, suggested that the customer should consider using Ensto Plugi. It is a customer-specific solution for the distribution and management of electricity, based on a pluggable connector system. The CEO of the company, Henri Salo, says there were several reasons for the decision.

"Above all, the short turnaround and avoiding connection errors are the benefits we value in large projects with tight schedules such as this. Ensto Plugi modules come prefabricated and tested. Material savings are obtained, as well, since no extra cables have to be brought to the site," Salo says. "It was also easy for the customer to accept the plug connector system, as it offers excellent modularity and the possibility to make changes easily at site."

This is important, especially in the shopping area, where small and large changes are carried out regularly. Also the management of the site is easier due to the managed product deliveries. This was also one of the reasons why we considered it to be the best solution for the site."

DECENTRALIZATION CREATES MORE WITH LESS

In total, 46 Ensto Plugi units were installed in Seppälä Prisma, distributing electricity in a decentralized manner. The centers are supplied via conductor rails going through each area. This method made it possible to design modular electrification which minimized the amount of different components to be installed. The large space was divided into dozens of uniform modules. This significantly simplified the design work required by the consultant.

Unlike in a centralized system, one central and space-demanding switchboard is not needed and the installation cable lengths are essentially shorter overall. It is easy

to calculate the loads and this method also helps save significant amounts of copper, which is a burden on both distributor shelves and the environment.

Ensto Plugi enables control of all desired devices of which the most common include lamps, upper distribution sockets, work point sockets and air conditioning. In the same switchboard more control logic, measurement functions and additional outlets can be added to control units

as per the customer's wishes. The prefabricated and tested control unit is connected with a plug connection directly to the system. This means that no demanding and time-consuming programming work has to be carried out at site.

Pre-dimensioned wiring harnesses equipped with EnstoNet connectors in the amount of 1,230 units, and 469 installation panel sockets with shelf brackets, were delivered to the site. In addition, different tap-offs were installed, making it easy to carry out the phase rotation on the three-phase group. The unused tap-off outlets offer added flexibility for subsequent changes if or when they occur.

When the lighting installation rails, conductor rails, and cable shelves were ready, the implementation of the Plugi electrification and general lighting only took ten working days with just two installers.

CAREFULLY DESIGNED IN COOPERATION

The electrification is always designed in cooperation between the consultant and Ensto allowing the required Ensto Plugi components to be defined for the project's implementation stages. After this, dimensions, wire lengths and functions to be programmed are detailed. The clear manner of working and the modularity of the system facilitate the electrical design of large sites and subsequent changes of plans often experienced in such builds.

"As a contractor, we received excellent support from Ensto throughout the design and implementation project," says Henri Salo. "The excellent design co-operation was evident at site where the installation-ready products arrived on time. The work could be carried out fluently without delay and no installation errors requiring trouble-shooting were detected when testing occurred. This working method suited us well and our customer was satisfied with both the swiftness of the work and its results." ■



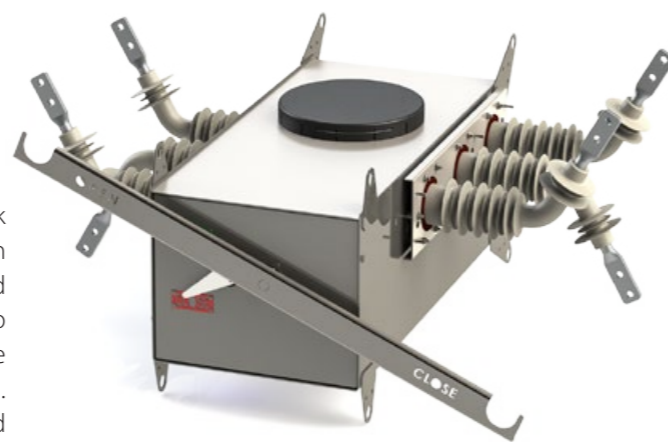
ENSTO PLUGI MODULES COME PREFABRICATED AND TESTED. MATERIAL SAVINGS ARE OBTAINED, AS WELL, SINCE NO EXTRA CABLES HAVE TO BE BROUGHT TO THE SITE.

HENRI SALO, CEO OF SALOTEC OY,
THE ELECTRICAL CONTRACTOR

Ensto Ergoswitch

keeps the power on

Ensto expands its Network Automation product range with a new load break switch in 24 kV: Ensto Ergoswitch. Ensto Ergoswitch is a switch disconnecter with two major functions for optimum management of medium voltage overhead networks. Its load break switch function allows a load interruption at full load up to 630A. The disconnecter function isolates the faulty section of the network due to appropriate insulation distances when the load break switch is in open position. A full range of options including current transformers, motorized command and control command box mean that Ergoswitch fills all essential Smart Grid requirements.



Optically advanced Ensto DPML

New Ensto DPML or "Double Parabolic Modular Luminaire" is an optically advanced module luminaire with easy installation features. DPML is suitable for offices, schools and commercial areas, but can be used where ever the advanced glare control and quality light is needed. DPML provides output of 4000 lumens with 34W. UGR level is under 19 which makes it possible to use also in optically demanding areas.



Ahead by
Helvar

Ensto Saga - The Story of Light

Ensto Saga is an outdoor luminaire, in which high quality light technical solution and design meet. Symmetric and asymmetric light distribution enables energy efficient lighting solution according to the specific needs of the project. Due to the innovative reflector solution, modern control technology and luminous efficacy Saga is an excellent choice for various surroundings.



Score your goal with Ensto Modulo

Ensto Modulo is an entirely new range of durable and innovative distribution enclosures. Ensto Modulo protects your electronic equipment from external risk factors, among them dust, water, moisture, impacts and tampering. Thanks to their high degree of protection and impact strength, Ensto Modulo is able to withstand the harshest environments and to tackle the most demanding installations.

- Cost-efficient and easy
- Outstanding technical features
- Elegant and flexible design
- Certified and tested by VDE

Ensto SLIW family for saving your lines

Ensto introduces complete SLIW product family, a new generation of insulation piercing connectors for low voltage distribution networks. Now Ensto SLIW connectors are suitable for all cross-sections and purposes of use. Ensto SLIW connectors represent the new Ensto design which combines modern appearance with excellent quality. Cutting-edge technology, high-quality materials and continuous testing form the basis of SLIW products. Special attention has been paid to superb usability focusing on durability and easy installation. The connectors are very robust thanks to 2-component injection molding technology. The compact products require less material and are waterproof.



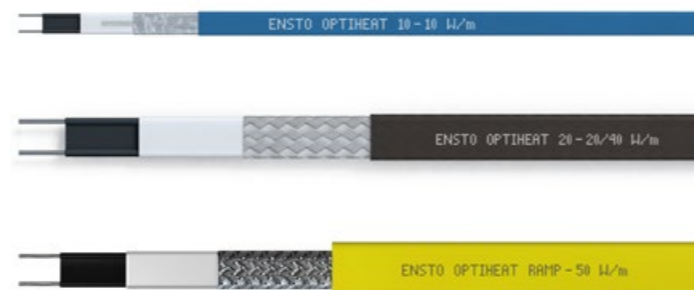
More information about Ensto's products on ensto.com

Ensto Optiheat

self-regulating frost protection cables

By means of self-regulating heating cables it is easy to plan and realize functional frost protection solutions. Typical applications of the frost-protection cables include keeping rainwater drainage systems, roofs, stairways, ramps and other outdoor areas from freezing.

- Long warranty (10 year)
- Easy installation
- Customized cable length and light



Electric vehicle charging point with stylish design and advanced connectivity

Chago Wallbox is the easy-to-use, long lifetime AC charger for public, semi-public and private EV charging. Ideal for installations where an EV charger is connected to a distribution panel, the Wallbox is perfect for large installations in car parks, offices, and real estates – offering the best charging experience with smart services.

More information about Chago products on chago.com

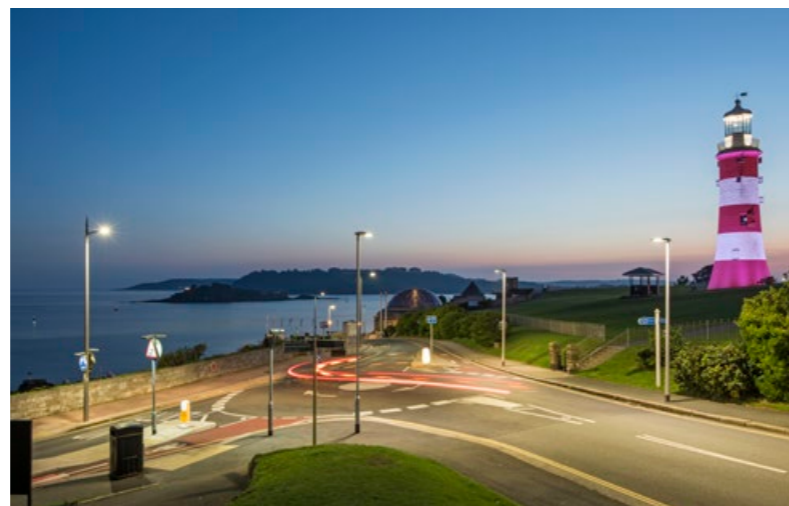


Ensto Green Office

As office premises hold an important position in consumption of energy and natural resources, every choice we make at our workplace matters. Ensto Green Office is Ensto's environmental management system designed especially for the office environment.

Green Office helps us reduce the burden we place on the environment, and brings economic savings in terms of energy, material, and waste management costs.

Even small actions can make a difference!



Ensto expands to street and road lighting

In January 2017, Ensto signed an agreement with the Belgian family company Schröder Group concerning outdoor lighting sales in Finland and Estonia. This agreement supports Ensto's strategy to concentrate on energy efficiency and sustainability. The agreement enlarges Ensto's offering in street- and road lighting.

Market leader in 2020

Ensto's target is to be the market leader in street- and road lighting in Finland and Estonia by 2020. Ensto is already number one in residential lighting, and in a podium position in other product areas. Street- and road lighting will be one of the focus areas as this cooperation starts and new projects will be delivered as early as this year.



The future belongs to kids

Tomorrow's prosperity depends on the well-being of today's children – a healthy soul in a healthy body. Ensto supports the well-being and physical exercise of children in communities we are located. Therefore we sponsor, for example, junior sports activities in our factory cities, like the football club FC Futura Juniorit ry in Porvoo, Finland.

Ensto acquires part of globally-operating Arcteq



In August 2016, Ensto acquired a 20 percent stake of a Finnish company Arcteq Relays Ltd., which specializes in the protection of electricity networks. "Arcteq has strong know-how in protection relay technology and thorough knowledge of the market. Arcteq's products are crucial in controlling reliability of electricity networks, which will be more and more important for our business," says Markku Wederhorn, President of Ensto Utility Networks.

More than just another form of energy, electricity is the future of the planet! EnstoMan shows how that's happening and how you can take part.

ENSTOMAN

ELECTRICITY EMPOWERS!

Dig those rays.

Enough sunlight hits the earth in a 90-minute period to meet the planet's energy needs for one entire year. Any action or investment in solar is an investment in positive and permanent change for our planet.

Get some EV love!

Vehicles will go totally or partly electric across the entire auto industry within a few years. This is a decision already made by auto manufacturers and there is no turning back. What are you driving?

Be the change!

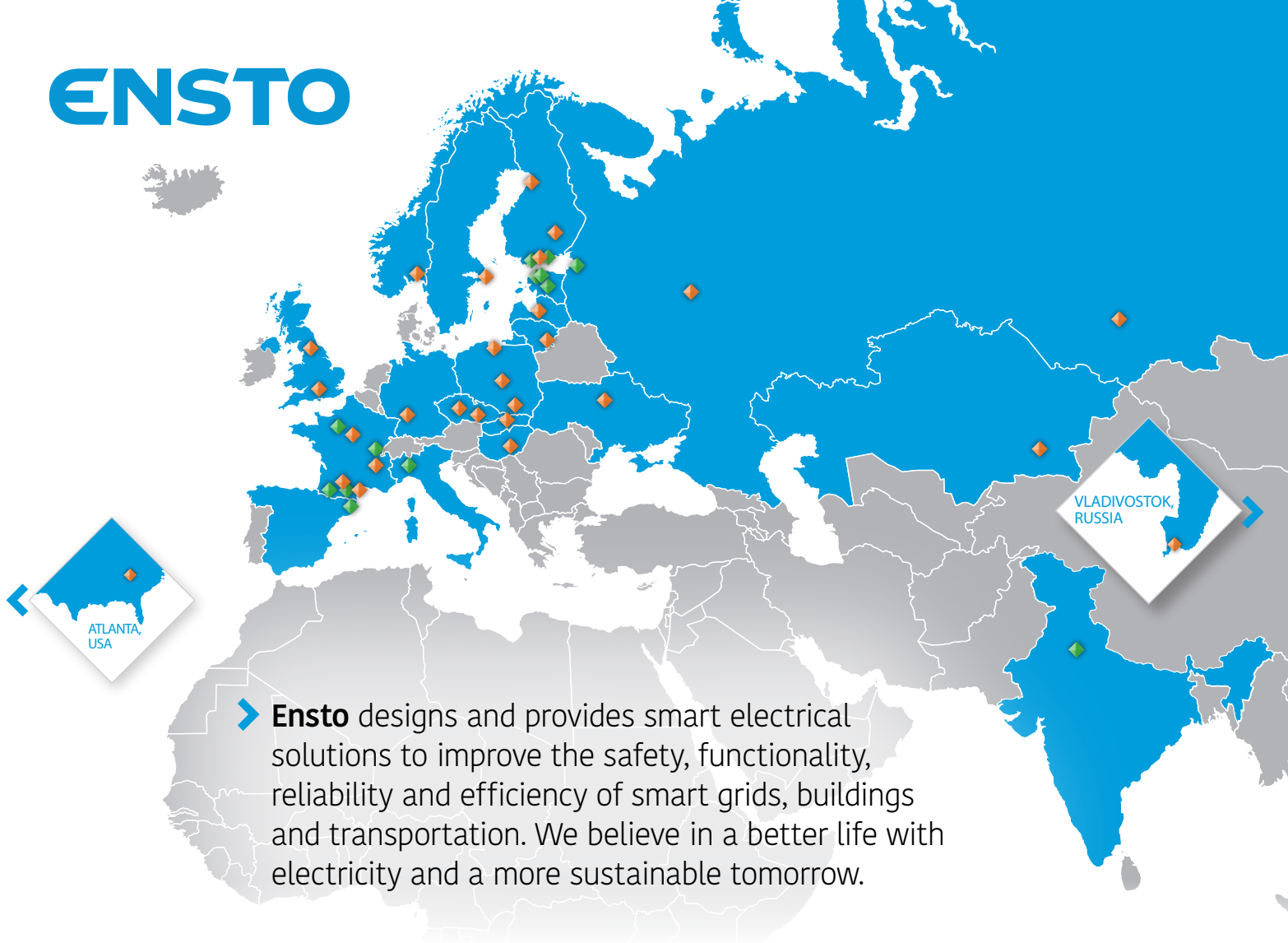
Charge your mobile phone with a portable solar panel! It saves money, reduces the use of fossil fuels, and it's highly visible. Change begins with visible examples that spark discussion!

Are you efficient?

Efficiency = Input/Output.
Example: An electric motor provides 1.5kW of useful power with an input of 1.7kW (0.2kW dissipates as heat).
With a 1.5kW gas-powered engine, you need to input 4.0 kW, meaning most of the resource is wasted.
So whenever you can, go electric!

Become an electricity player.

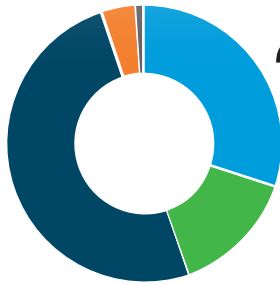
The smart grid ensures power balance and minimizes blackouts. It maximizes the use of distributed renewable power generation and enables multidirectional energy flow. And it makes you, the consumer, part of the energy market!



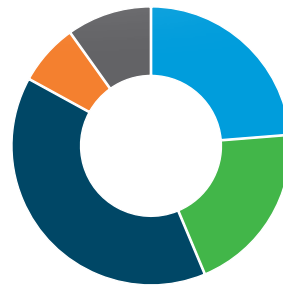
➤ **Ensto** designs and provides smart electrical solutions to improve the safety, functionality, reliability and efficiency of smart grids, buildings and transportation. We believe in a better life with electricity and a more sustainable tomorrow.

- Ensto Electrification **31%**
- Ensto Lighting **15%**
- Ensto Utility Networks **50%**
- Ensto Ventilation* **3%**
- Ensto Chago **1%**

* Divested in August 31, 2016.



TURNOVER
~260
M €



EMPLOYEES

~1,600

56%



44%

ensto.com

Better life.
With electricity.