

# ensto today



*Lean Thinking:*  
**ANDON**  
and **KANBAN**

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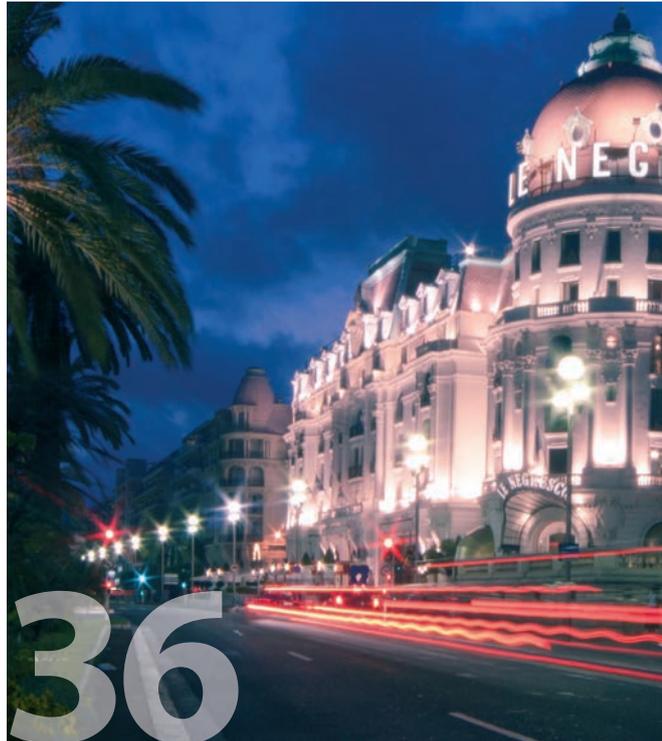
*Chika Kako & Carole Favart*  
**Kansei Quality:**  
The Near Future  
of Manufacturing

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Chago: **Parking**  
**Worth Paying For**

The **LEDi**  
**MASTER**

The Cold War  
**on Grid Failures**



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Printed by  
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Cover: **Chika Kako and Carole Favart**  
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From the Editor

## Lean in a Vacuum?

You can't be lean in a vacuum, to paraphrase one of the stories in this Ensto Today issue which celebrates Lean manufacturing.

Lean is all about preserving value by eliminating waste, and when properly implemented results in dramatic improvements. In the Ensto factories where we are lean, it has meant an annual waste reduction of 30,000 hours, and bettering our delivery accuracy to 96 percent.

But we didn't do it alone. We could not have done it without the help of our stakeholders: our partners, suppliers, and customers. They must both see and reap benefit from the process, which does not always happen overnight.

Our quest to be lean is far from complete – our rollout is ongoing – but the major improvements we have so far experienced are worthy of note. And it is only appropriate to thank all our stakeholders who have made it possible.

Kaizen!

**Pia Hänninen**  
Director  
Brand and Communications



 *It was not long ago that our attitudes toward women were entirely different.*

MARJO MIETTINEN, ENSTO

Finland's first Women in Tech seminar took place on October 15th, 2013. Over 500 women and men were present to hear from industry leaders about how women may play a larger role in the future of business and technology.

# A Feminine Future



Harini Gokul (right) from Microsoft raised the topic of women's challenges in a world changing through technology.



Krista Kiuru, Finland's Minister of Education and Science, opened the seminar.



The seminar was fully booked - with both men and women in the audience.



Engineering students, more and more women every year, gave a fashion show about possible career options for engineers.

✍ Scott Diel 📷 Kaupo Kikkas

"The future of the technology business is feminine," reads the first line of the Women in Tech 2013 program, and Ensto board member **Marjo Miettinen** is the first to acknowledge the past hasn't been easy.

"When the CEO saw there were two female guests in attendance, he quickly revised the meeting's agenda," she recalls of visit to a Hungarian power company a few years back. "One hour was allotted for negotiations and the balance of the day for sightseeing. The negotiations ended up lasting seven hours!"

To help improve the workplace at a faster pace, Ensto's Marjo Miettinen, KONE's **Anne Stenros** and **Mervi Karikorpi** of the Federation of Finnish Technology Industries, founded Women in Tech, whose first conference took place this year.

"We put up a link and after two days we had 100 people registered for the seminar," says Miettinen. "After two or three months we were fully booked and closed the link with more than 500 people signed up."

Asked why the future of the tech business is feminine, Miettinen replies that the two genders approach problems in different fashions.

"Let's say you have a target and are discussing how to reach it. The woman thinks, 'Who are the best people to reach this objective?' The man thinks, 'Do we have money? How much do we need?' The fact is that if we have both thought processes at the table, then we can reach the target much faster."

"I remember when my father [Ensto founder, **Ensio Miettinen**] said that it's not possible to have a woman in a leadership position. 'They get pregnant,' he said. He thought like this. He eventually hired a woman for a leadership position and after one year she was pregnant! But it was not a problem, because she had learned the organization, had learned how to schedule time. My father then changed his mind."

Miettinen notes that this history is not the ancient past: "It was not long ago that our attitudes toward women were entirely different." 📌

# Defining Quality

 Kaupo Kikkas

**T**here are several ways to define the perception of quality.

For some it is durability, longevity due to proper choice of components, and flawless execution in manufacturing. For others it may be ease of use, design, a physical feeling of pleasant contact with the item remaining in mint condition despite heavy use and wear. For others it is sustainability, recyclability, energy efficiency, and a low carbon footprint over the product's life cycle. For operations people, good quality most often means a combination of a high supply chain yield and dependable and flexible delivery performance with a short lead time. Yield is most often measured as a percentage, and faults in parts per million, or sigmas. For example, a maximum of 233 ppm in faults equals five sigmas, i.e., fewer than 233 faulty units in a million, a yield of 99.98 percent. Of course, high yield also means efficient use of raw materials and making the choice of recycled and recyclable materials.

Whatever your criteria, good quality begins and ends with meeting or exceeding the customer need, the customer promise. It means delivering an exceptional customer experience.

When you have understood what your client wants and needs, your whole process must focus on delivering this quality in a systematic, predictable, controlled, efficient and effective way, one that can be reproduced over and over again. You should be rather sure of your choices when you begin R&D, since in the development

process you define the ease of manufacturing and assembly. You will make your choice of components, the most important part of the cost of your product; hence, you also define the manufacturing technology.

These decisions also largely determine your time to market, which in some cases can determine how to meet customer needs, and if you get it right in R&D, operations should, in a systematic way, always give you the right end result, as per your product plan.

At Ensto, quality is our key target and an integral part of sustainability. It is our customer promise. During the last five years we have developed our quality assurance organization as a vehicle to become in every respect a true world class operations and marketing organization, with our partners integrated into the supply chain.

This process is, of course, a journey without an end. But along this journey there are milestones and control points which enable us to become the best partner for our stakeholders.

## TIMO LUUKKAINEN

CEO and President, Ensto Group

*Timo harvests firewood from a maximum radius of 500 meters from his fireplace, and his consumption never exceeds the same area's annual growth. The surrounding forest traps all carbon dioxide emissions of this carbon-neutral and 100-percent-renewable biomass.*



# Friendship and Business: 20 Years in Poland

To help celebrate 20 years of Ensto serving the Polish market, Poland's Ambassador to Finland, **Janusz Niesyto**, paid a visit to Ensto in Porvoo with a parliamentary delegation in September 2013.

Since 1993, Poland has been important to Ensto, both as a large European market, and as a manufacturing base. Ensto employs 40 in Poland with a head office in Gdańsk and a satellite office in Krakow.

The Poland-Finland relationship is often characterized by the remark that, in Poland, "Finnish" is synonymous with "quality."

"Poland is a dynamic, growing market, where, for example, the sales of electricity network accessories already exceed sales in Finland," notes Ensto's Timo Luukkainen, speaking to the strength of this market of nearly 40 million people. ■



Photos: Riku Isohella



Polish Sejm delegation visited Ensto's head office and factory in Porvoo in September 2013.

Ensto's Timo Luukkainen introduces installation-friendly Sliw connectors to Janusz Niesyto, Poland's Ambassador to Finland.

## Ensto strengthens **LED expertise**



Photo: Alppilux

Ensto has acquired Alppilux Oy, a privately-owned Finnish manufacturer of professional LED lighting solutions. The acquisition is a step in Ensto's strategy to become a leading supplier in LED technology and energy efficient lighting solutions.

The acquisition remarkably strengthens Ensto's position and product offering in the lighting business. "The target is to strengthen our market share, especially in the rapidly growing LED lighting business throughout our market areas," says Timo Luukkainen.

Alppilux's product offering improves Ensto's selection and coverage of energy efficient lighting solutions. Following the acquisition, Ensto's product offering will cover a wide range of indoor and outdoor lighting applications for both residential and business construction. ■

# Kansei Quality: The Near Future of Manufacturing

✍️ Scott Diel 📷 Kaupo Kikkas

*If a car parks by itself, how do you keep the emotional experience? No, it's not a Zen riddle. It's a real life problem that Toyota is working to solve.*

**T**he Toyota Motor Corporation has long defined quality in the automotive industry and beyond. Famously, its Toyota Production System, an integrated socio-technical system, has been the model for manufacturing in industry worldwide. Toyota has been the pioneer in Lean manufacturing, a production practice focusing on elimination of waste and preserving value with less work.

Now, Toyota is paving the way to a new dimension of quality with Kansei engineering. Kansei concerns itself with translating a customer's feelings and needs into the domain of product design.

So as more cars are able to park themselves, as automation takes the driver further out of the equation, how will this affect driving pleasure? And how will emotional values be brought to future products?

"It's not about driving, it's about mobility," says **Carole Favart**, General Manager Kansei Design for Toyota Motor Europe. "It's the pleasure you will imagine before and keep in your memory after." She brings the Mazda Miata as the first Kansei engineering example, the roadster which is not fast by objective measure. "It doesn't have to be fast in absolute terms," she says. "It 'feels fast' as a journalist once wrote."

## Holistic quality

Kansei design is mainly a holistic approach based on sensory feelings which are confirmed by the complete user experience.

Emotion can be enhanced through materials. "If you see something metal, you expect it to be cold to the touch," says Favart. "But if it's warm then you sense it's fake. You don't trust it anymore."

"Kansei's methodology measures sensitivity – all which is subjective, which is conceptualized by the Kansei Design Department in an early stage, prior to any sketches. Now other Kansei patterns based on design and emotion are popping up."

A good example is Project F, which was conducted with the Lexus LS ten years ago. "We modified prioritized parts to make it more personal and improve sensory quality on certain zones," says Favart. "When we enter a car our overall feeling tells us if the balance is not right, even if we can't define why. This might come from the color tone – there are many details and you cannot express why, but you feel whether it's harmonized or not. We must create an interior which fits a customer's taste, yet one in which he feels that every component and material is right regarding his expectations."

Another pioneer of Kansei in the company is **Chika Kako**, one of the Chief Engineers of Lexus International. "Most

of the time quality gets defined as durability. But initial appearance is of critical importance when it comes to automobiles. Kansei quality means an emotional user experience."

Kako and Favart say Europeans have high expectations in materials and color coordination, and one of their missions is to create methodologies which integrate into the planning process in early phases.

Toyota has created a Kansei Competency Center in Belgium, which Favart credits largely to Kako. "Thanks to Chika we created a department in Europe which combines Kansei and design. We're creating new methodologies with the support of academics in Europe, to prepare from the concept phase to make sure we're better prepared for next step."

## Quality is a mindset

So while the way a consumer feels may be the newest dimension of quality, Toyota and Lexus are far ahead of the pack – a pack that is still largely focused on buzzwords Toyota leaves in its wake.

"Toyota's production system is well known and it can be copied," says Kako. "But it's really just a starting point. Lean manufacturing is mental. Kaizen, kaizen, kaizen!"

*continued* ▶

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 *'Respect' is a strong word in the Toyota Way.*  
**Respect for people and the environment.**

CAROLE FAVART, GENERAL MANAGER KANSEI DESIGN FOR TOYOTA EUROPE





# Priorities

Quality is what the customer says it is.  
**Vesa Keränen helps Ensto listen.**

 Scott Diel  Riku Isohella

“Quality starts from the customer,” says **Vesa Keränen**, President of the Ensto Building Technology business unit. “We can spend all we want on a product, but if the customer doesn’t perceive quality, then it doesn’t matter.”

Customer understanding is the starting point for business development and growth, says Keränen, who knows a thing or two about growing businesses. Before he joined Ensto this past February, Keränen spent close to 20 years in developing international businesses, including 14 years with Elcoteq, a consumer electronics contract manufacturer whose business grew by an average of 50 percent for almost a decade.

Ensto’s plans for growth, plus a set of shared values, are what drew him to Ensto. “Quality thinking is a priority at Ensto – it’s part of the corporate strategy. And my past experience plays well into Ensto’s goal of growth and its international agenda.”

Keränen spent five years in Texas with Elcoteq. Although he argues he retained his Finnish accent and did not acquire a Texas drawl, he says his two daughters, ages ten and twelve, “speak fluent Texan.” What Keränen would like to import more of from Texas is their glass-half-full mentality. “I liked that people see opportunities rather than problems. It creates the right kind of culture.”

Customer orientation will be Priority One for Keränen. “Given Ensto’s size, especially when doing business outside of Finland, we must be very customer focused. It’s one of our competitive advantages. We understand our customer, and we’re willing and capable of continuously developing our way of working, and creating new products and solutions according to needs of our customers. This has already been important with Ensto before my time. I’ll keep it there in priority.” ■





Jarno Kontia, Eurofasteners

## *A Christmas Card* **Is Not Enough**

✍ Scott Diel   📷 Ensto

*Lead times can't be cut by good intentions alone. Great relationships with suppliers are an essential element.*

### **A critical part of Lean**

Last year Ensto reduced suppliers' lead times 36 percent across the company. In 2014, it plans an additional 25 percent reduction. The initiative may have started with Ensto, but lead time can't be cut in a vacuum. Without close cooperation with suppliers, it's impossible to enjoy the touted benefits of Lean manufacturing.

Ensto is a little more than halfway through a five-year program to reform and improve its relationships with suppliers.

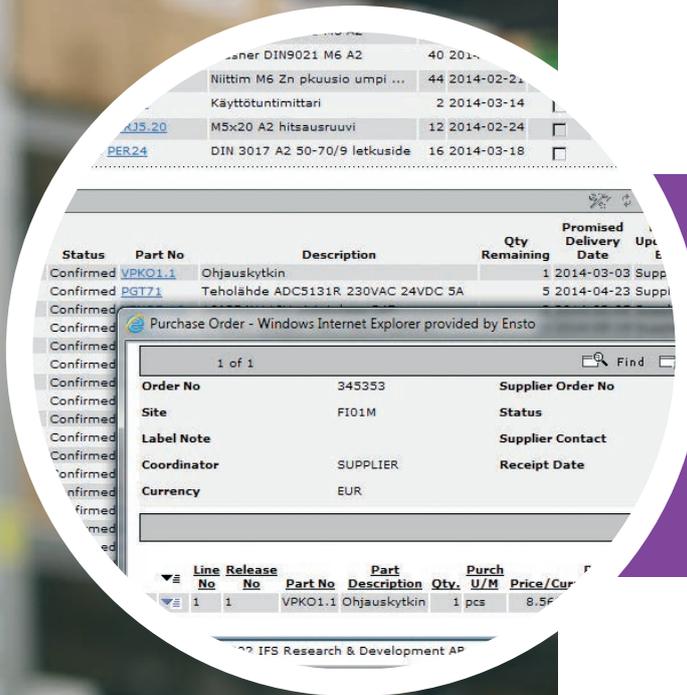
Choosing the right partners is one part of that: In 2009, Ensto had more than 800 suppliers; today, it has fewer than half that.

This transition to fewer suppliers means seeking relationships where both parties can be profitable at the quantity levels Ensto requires. Ensto is also engaged in finding second source suppliers to ensure stability and quality. It means the e-purchase system which enables suppliers to work from actual orders, instead of depending solely on forecasts.

### **The alchemy of transition**

**Pekka Tiainen**, Ensto's Director, Group Sourcing, has the job of managing the transition. So far results are good. "Our lead time has come down, yet delivery accuracy is up. Normally it's the opposite. If lead time drops, delivery accuracy drops."

"Our message to suppliers has been consistent: 'Shorter lead time and better quality at reasonable price level.' These things must be in balance, and it requires



*When suppliers see what we require it can be a shock. They must tightly control the daily process and they must measure all kinds of things in the ramp-up – sometimes totally new things to them.*

PEKKA TIAINEN, ENSTO'S DIRECTOR, GROUP SOURCING

a great relationship with suppliers. A Christmas card once a year is not something you build a relationship on."

Tiainen says experience shows that when a supplier embraces Ensto's three-fold goal, then business booms.

One example of this is Eurofasteners, in Nummela, 40 kilometers west of Helsinki, which supplies approximately 1,500 different items to Ensto – including fasteners, plastic parts, electronic components, and tools.

Eurofasteners' owner **Jarno Kontia** says his company's turnover has tripled to nearly two million euros over a period of three years largely due to his business with Ensto. This is even more impressive when one considers he founded the company only three and a half years ago.

"I'm on the phone every day with

Ensto," says Kontia, who also takes pains to stay abreast of what's happening with his key client. "I read Ensto magazines, I monitor their website, I like to know my customer."

### E-purchase

Eurofasteners' results may be in part credited to their use of Ensto's e-purchase system, which is tied directly to Ensto's factories and accelerates its conversion to a pull system.

"We've used the e-purchase system two years now," says Kontia. "It's the responsibility of the supplier to check the needs, to know the lead times. We physically fill the Kanban boxes for the Mikkeli factory. We dispose of packing materials. At first it was a lot of work, but it's running smoothly now. It's easy for me to check quantity levels."

Consignment and buffer stocks are other elements of Ensto's program. Consignment is stock physically present in Ensto's warehouse but remains on the supplier's balance sheet. Buffer stock is kept in the supplier's warehouse and becomes Ensto's once it's delivered.

Kontia says he initially had concerns about consignment stock. "I was hesitant at first. I wondered how could we manage with all these new items with our huge quantities. But then I considered that to keep all that stuff for Ensto I'd need 2,000 square meters of warehouse." Due to this, Eurofasteners currently manages with only 500 square meters of warehouse space, though it has plans to double that this year.

### Going the extra mile

Currently, 20 suppliers use Ensto's e-supplier portal and participate in the program with consignment and buffering. Pekka Tiainen believes eventually 30 to 35 suppliers will be on board.

"When suppliers see what we require it can be a shock," says Tiainen. "They must tightly control the daily process and they must measure all kinds of things in the ramp-up – sometimes totally new things to them."

"Historically, we've had a price emphasis," says Tiainen. "But now quality and short lead time are at the same level. If these three things are in balance, then we can grow business with a supplier."

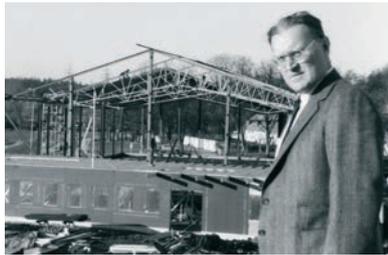
So it helps that suppliers like Eurofasteners share Ensto's progressive philosophy. Kontia himself travels to Asia several times a year to source fasteners, careful to choose his own suppliers with the same care Ensto does. "I'm looking for the right sized supplier, where my business will matter. They're usually family-owned companies with similar values."

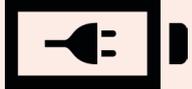
In keeping with their values, Eurofasteners started the ISO9000 certification process with the goal of achieving it in the fall. "It may not mean more business for us, but it helps us keep quality in focus," says Kontia.

Eurofasteners also purchases measuring instruments to enable strict control of plating and angles. "That's a huge step for a small company like ours. But we do it because we are flexible. We value quality."

## 40 years in Sweden

Happy birthday to Ensto Sweden! In this photograph Ensto's founder, Ensio Miettinen, inspects a construction site for the company's expansion to Sweden – Ensto Elektriska AB was founded in 1973.



  
World energy  
production rose

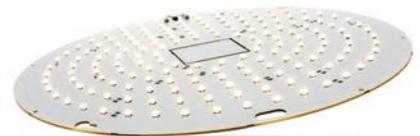
# 42%

between  
1980 and 2000

and will grow

# 150- 230%

by the year 2050.



With Ensto LEDs  
you can save up to

# 80%

energy compared  
to traditional  
light sources.

## Giving back - HeiaHeia's charity effort

HeiaHeia.com is an online platform for tracking physical activities and sharing them with colleagues and friends. In summer 2013, Ensto organized a charity campaign for its personnel with HeiaHeia. The goal was to collectively exercise 7,000 hours, with activities from gardening to marathon running taken into account. The winning

team exercised over 300 hours and donated the sum to a social services charity organization in Porvoo, Finland. The result was truly a win-win situation: increased energy levels, improved physical and mental well-being and at the same time, the ability to do something good!

## HeiaHeia!



## True **Blood**

Blood donors are needed every day, and donating blood as a group is a great way to give back. Ensto's blood donation campaign is called Ensto True Blood, and through it we've helped hundreds of people. Won't you join us? Ask your local blood donation organizer for information about when and where to donate.



## Niki **Blässar**

Finnish sailor Niki Blässar has joined the Ensto team! Ensto is a proud sponsor of Niki and supports her in her goal to become one of Europe's leading sailors. Her next major goal is to compete in the Rio de Janeiro Olympics in 2016. Niki competes in the Laser Radial class, and has placed well in multiple national and international competitions. She competed in the Youth Olympic Games in Singapore 2010 and placed second in the U21 World Championships in Hungary in 2013. This year, Niki has her sights on the European Championship in Croatia (June), the U21 Europeans in Italy (June), and the World Championship in France (September), where the first Olympic spots for Rio are to be earned. Follow Niki on her homepage: [www.ikin.fi](http://www.ikin.fi)



*“Cleantech is not an industry, but a mindset.”*

*Jyri Häkämies, CEO, Confederation of Finnish Industries  
Green Growth & Cleantech Summit II, 25th of February, Helsinki*

## 20 years in **Russia**

This year we celebrate Ensto's 20th birthday in Russia. We have three sales offices: Moscow, St. Petersburg, and Vladivostok. Our production plant, which was opened in St. Petersburg in 2007, manufactures suspension fittings and assembly accessories for overhead lines.



# At Home in **EXTREMES**

✍ Scott Diel 📷 Dreamstime, Ensto

*How Vaisala-Ensto cooperation helps make weather stations more indestructible.*



**T**here are few extremes that can surprise Vaisala engineer **Pekka Puura**. A customer once asked for a weather station with an ATEX enclosure big enough to fit a human being. It was for Greenland, and the customer wanted to be able to climb inside it to escape polar bears.

Vaisala is in the business of building things which withstand extreme conditions. Doing business in over 150 countries, Vaisala is a world leader in products for environmental and industrial measurement. The company was founded in the 1930s when Professor **Vilho Väisälä** invented the radiosonde, an electronic device used to measure meteorological variables in the atmosphere.

Since its beginnings, Vaisala has had a knack for building things that withstand

pressure. If it isn't arctic weather and polar bears out to do in a weather station, then it's small animals eating door gasket seals and sensor cables. Or, in warmer climates, it might be human vandals. "You can have alternative options for all other parts on a weather station except the enclosure," says Puura, noting that if you want a weather station to last 15 years, the box is absolutely critical.

So Vaisala is always striving to build something better, something stronger, something that will last longer. And this is how they found Ensto.

#### **Enter Ensto**

"Several years ago we were organized in three business units," explains **Kimmo Tuuha**, Vaisala Sourcing Category Manager. "This meant we had three different

R&D teams developing three different platforms for enclosures. It's just hard to maintain so many different boxes with so many different specs, and we needed to go to one platform."

"We needed a partner who could help our design team in R&D," adds Puura, who says they found that partner in the Ensto team led by Sales Director **Tomi Muurinen**. "Ensto knows enclosures."

For a period of two years, the two companies worked closely together to create the BOX652SET with ATEX closed-cell special gasket for Vaisala's automatic weather stations.

The new enclosure's most noticeable difference is its larger size. "Customers want to put their own devices in them," says Puura. "The extra space can be used for batteries, solar powered weather

## Vaisala in Brief

- Headquartered in Finland
- Employs over 1,500 professionals
- Has 30 offices worldwide
- Net sales of EUR 273.2 million and operating result EUR 18.1 million in 2013
- Products used in over 150 countries
- A-series shares quoted in NASDAQ OMX Helsinki stock exchange



*Kimmo Tuuha and Pekka Puura are pleased with the Ensto partnership.*

stations, telemetry devices, radios, or modems, just to name a few.”

“The stainless steel is better, too. And no longer is the connector under the box. We now use through holes, a cable through the flange, two flanges per box,” says Puura.

### Results

Currently, Vaisala is ramping up production of the new product while it ramps down old production – you can’t quit production cold turkey, as some customers still need old models. But eventually, Vaisala’s intention is to use one platform for all enclosures it offers.

What’s the secret of cooperation that yields results? According to Tuuha, it’s communications and delivering on promises: “The biggest danger to a rela-

tionship is when sales guys give too optimistic information about capabilities or schedules.”

“Ensto met its promises,” adds Puura, who praises Ensto’s patience in the face of him requesting many changes in mounting plate prototypes. “Ensto did not criticize. They understood this is normal development.”

### A Common Future

Durability and flexibility somehow have a way of transcending the products of both companies and seeping into the corporate culture. Perhaps it’s partly because both firms are headquartered in Finland that Ensto and Vaisala are both committed to building products which last in any extreme.

Also, an effort to make the process



*Vaisala’s Automatic Weather Station AWS310. It’s critical the product be virtually service-free, since it will often be placed somewhere without human inhabitants.*

more sustainable is in the planning stage. Already a green company – its headquarters building is gold certified LEED – Vaisala wants its products put in Vaisala crates in Ensto factories to save materials and labor.

It’s unlikely the Ensto enclosure will stop the more bizarre customer requests from coming, though it increases the chances a need may be satisfied by a standard solution.

Engineer Pekka Puura will likely never run out of stories about customer requests for enclosures in extreme conditions. “For Australia,” he says, “the enclosures have to be bulletproof.”

“Have you tested that?” asks Kimmo Tuuha dryly.

“Okay,” admits Puura, “we know they’re handgun proof.” 

Harri Joki-Luomala is one of Ensto's cheerleaders for Andon.

# Andon: The Five-minute Fix

✍ Scott Diel 📷 Ensto

*Andon's mission: Fix problems right away, and once and for all.*

**It's 9:30 a.m.** on a Tuesday in December and **Harri Joki-Luomala's** phone is ringing. It's a call from the yellow Andon phone on the Mikkeli factory floor, and a quality-related issue requires attention. Joki-Luomala has five minutes to don an orange vest and report to the scene.

Andon, or "paper lantern" in Japanese, is a principal element in Lean manufacturing. Although Ensto does not use flashing signal lights (it uses mobile telephones), the system is the same: line workers are empowered to stop production

when a defect is found and immediately call for assistance.

#### **Wave 1**

Today there's a problem in the assembly department of metal enclosures. When Joki-Luomala arrives on the scene, Team Leader **Jouko Pulkkinen** and Quality Engineer **Riina Strömberg** are already present. This group is "wave 1," and Joki-Luomala, who is EOX Development Manager at Ensto's Mikkeli plant, is this wave's third and final team member.

There's an issue with the automatic

bending machine, which has for some reason bent metal in the wrong direction, causing the position of holes in enclosures to be incorrect. Production has been stopped and the Andon team examines the approximately two dozen boxes which will have to be thrown out. Pulkkinen fills out an orange Andon loss card for the war room – it will be logged and studied as part of a continuous-improvement program – and then goes about his search for the problem's root cause.

"The point of Andon," explains Joki-Luomala, "is to get the problem solved



*Project Manager Antti Lopperi and Team Leader Jouko Pulkkinen discuss the order of work at the stud welding table.*

right now and take action to prevent it from happening again.”

### Wave 2

But before the root cause is identified, another Andon alarm has sounded. This time there’s an issue in the handicraft stage department: a welding stud gun is stuck in an enclosure.

For the second alarm, wave 1 decides to address the problem by summoning wave 2. Any combination of people from the Mikkeli factory can be included in wave 2, but usually only one key person is called. This time it’s the product’s design engineer, who arrives within five minutes of their call. After some consultation, the gun is forced free of the box, and an immediate decision is made to change the order of work so that stud welding is done before bending.

Joki-Luomala says the gun has become stuck before, but points out that Andon was introduced to this department just one week prior. “Before Andon they were limited to swearing,” he says half seriously. “But with Andon something is done about it right away.” Typical Andon issues may include two parts not fitting together properly or paint surface problems due to machine settings.

### Step by step

Mikkeli instituted its first Andon in May 2013 and every two months brings a new department on line. All of Mikkeli will

use Andon by the second quarter of 2014, with all Ensto factories in Finland and Estonia following by summer.

Two Andon calls in one morning are rather rare, given Ensto Mikkeli’s average of two alarms per week. And since the pilot program’s introduction, response time and average alarms per week have dropped.

Joki-Luomala, himself a production engineer, is one of Ensto’s most experienced Lean practitioners, having used Andon with wind gear manufacturing at Moventas before he came to Ensto in 2011. He says the benefits of Andon are many: fewer losses, improved quality, faster lead time, more value added, and happier people.

Enclosure Assembly Team Leader **Petra Falkenbach** is one who’s happier: “Problems get solved quickly. Before it could take a couple of days, because people were busy, and it was hard to get the right people to address the problem. With Andon the problem is addressed within five minutes.”

Joki-Luomala is a tireless cheerleader for Andon, because he believes it keeps priorities in line. “People might be in a meeting. They might be at their desks. Sitting can be comfortable. But this is a production plant. Andon forces us to make contact with the floor!”

## What's EOX?

**EOX means Ensto Operational Excellence**, and it’s Ensto’s program to institute a culture of Lean. Lean means 5S (all things in their proper place), SMED (making setup operations as efficient as a Formula 1 pit stop), 8D (root cause analysis and elimination of defects), ASSY (reorganization of assembly cells), and War Room (a factory floor process to track and follow up on deviations, the war against losses).

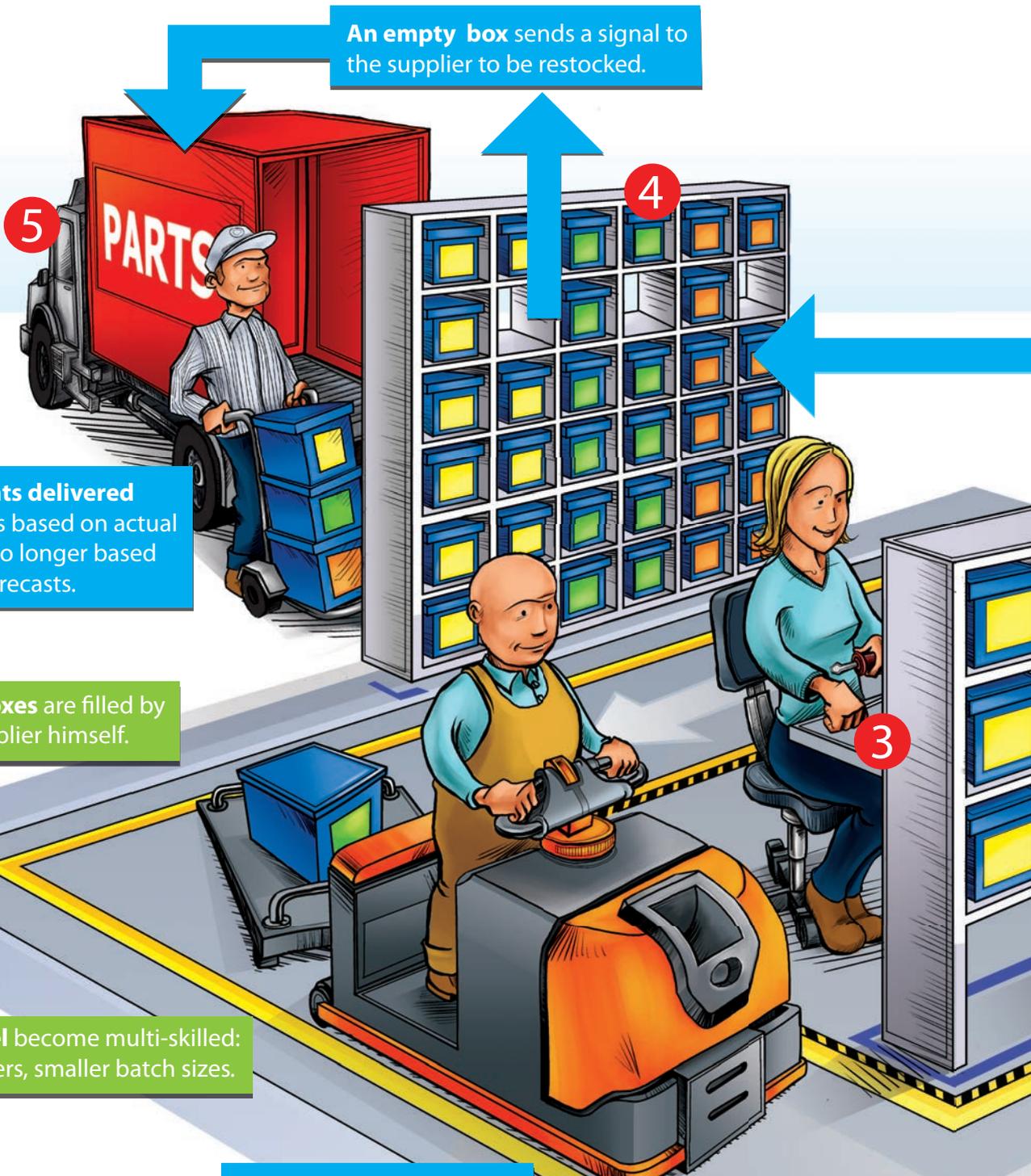
But EOX is concerned with more than just instituting programs. “EOX is about getting the whole organization involved, using the full power of the personnel. The EOX program is making the project the culture, making it become normal behavior,” says **Keijo Mäkelä**, Vice President of Ensto Operations.

Explore Kanban, a key to Lean and EOX

# PULL: The World of Kanban

 Tomasz Bilinski  Toon Vugts

**An empty box** sends a signal to the supplier to be restocked.



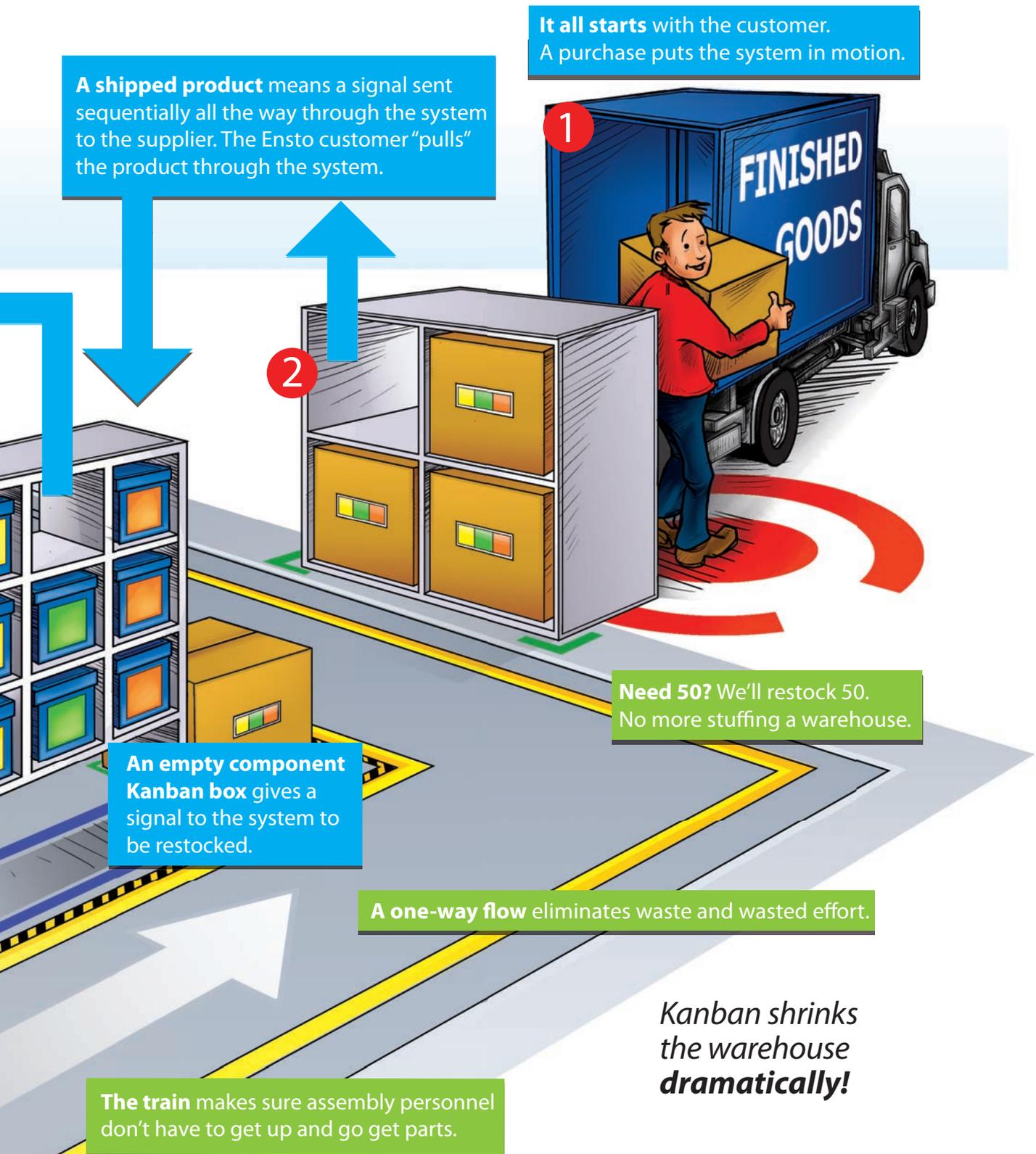
**Components delivered** by suppliers based on actual demand - no longer based solely on forecasts.

**Kanban boxes** are filled by the supplier himself.

**Personnel** become multi-skilled: More orders, smaller batch sizes.

**The train driver** takes full boxes from the shelves and places them on the train, leaving a visible, empty space on the shelf.

*Kanban (Japanese for "signboard") is a scheduling system for Lean production. For customers, it means lead times drop and delivery accuracy improves.*



-The-  
**LED*i***  
**MASTER**

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✔ Scott Diel    📷 Kaupo Kikkas

*LED technology seems to evolve at the speed of light.  
Paavo Ritala attempts to keep pace.*



**Q** *LEDs are currently 15 percent of our lighting turnover, but they could easily grow to be one-third of Ensto's total lighting business.*

PAAVO RITALA, MANAGER, LIGHTING SOLUTIONS

# -The- LED<sup>i</sup> MASTER

“If you don’t have LED now you’re out of the game,” says Ensto’s **Paavo Ritala**. His business card reads Manager, Lighting Solutions, but he’s also known as “Mr. LED” or, from his Twitter handle, the “LEDi Master.”

Ensto started in the LED business in 2007 with outdoor lighting products. In 2013, Ritala joined the lighting team, and since then it’s been his job to keep pace. “Renewable time for LEDs is amazing,” he says. “Chip development happens so fast that we could be updating our products every six months!”

Commercial fixtures produce approximately 100 lumens per watt, but 200 lm/W has been exceeded by global manufacturers. (Context: an incandescent light bulb is measured at 10 to 15 lm/W.) “It’s rising all the time,” Ritala notes.

## New tech, old fixture

Ensto’s first foray into LED was putting LEDs inside existing fixtures, and today this series of retrofits offers nearly a dozen LED options.

Ensto’s future, however, will be new lighting products designed around the LED.

“We’ll carefully follow our customers,” says Ritala. “Most urgent are outdoor luminaires – lighting parks and parking lots, tower block buildings in public and semi-public settings. We’re at the idea level and will develop two to four product families in the coming year.”

That development is guided by Ensto’s LED300 program, the “300” meaning percent: a goal to triple sales in LED products within three years. “LEDs are currently 15 percent of our lighting turnover,” says Ritala, “but they could easily grow to be one-third of Ensto’s total lighting business.”

## Small is beautiful

Ensto competes with tailored solutions. “Small means faster and flexible,” says Ritala, “and that’s how we can take on the big LED players that we can’t match in resources or sales power.”

In non-residential buildings, Ritala says success will come from offering across-the-board solutions: EnstoNet, Ensto Workpoint electric poles, office luminaires, motion detection, and couplers for electric installations. “Everything is based on three ideas for the professional market: easy to install, easy to use, and as energy efficient as possible.”

“We need to build the brand, the design, the selection to match the customer needs. I’d love to see that there’s an ‘Ensto look’ to our luminaires. ‘Oh, that’s probably an Ensto,’ would be nice to hear.”

## All over Europe

Thanks to 55 years in Finland, Ensto products are well known and respected. But abroad we must work to raise awareness to the levels we have in Finland and Sweden.

Ritala’s challenge is to marshal and coordinate all of Ensto’s lighting resources and know-how: “Ensto France knows the lighting needs of office customers. Ensto Italy can outfit an entire cruise liner with luminaires. Our colleagues in the Czech Republic are experts in LEDs for difficult conditions, and we’ve got a product development and management team in Finland.”

“I want to take the cruise line selection, put it in hotels. Take the French stuff and make it a global office offering. Combine EnstoNet and LEDs... I’m good at putting stuff together, finding the combinations of products and people.”



Follow Paavo and Ensto Lighting:

@LEDiMaster   
@EnstoGroup

## Problem solving

Before he was Mr. LED, Ritala was Mr. Hardware Store. He began his career with five years on the floor in the lighting section of a hardware store in Espoo, Finland. Then he joined a wholesaler, and eventually became a product manager for lighting and electrical items.

While he long ago left his first job, there’s one thing that never left him: “In the hardware store, every customer you meet has a problem for you to solve. At Ensto, I want to give our customers the idea that if you have a space, come to us, because we have a solution for complete electrification.” 

# Championing Quality and Standardization

*Ensto on Europacable's Accessory Committee*

The lobby organization Europacable represents 85 percent of the European wire and cable industry - over 200 businesses engaged in producing and installing insulated wires and cables.

**Markku Wederhorn**, President of Ensto Utility Networks, is a member of Europacable's Accessory Committee, whose mission is to promote reliability of the power distribution network through advocating the use of high quality cable accessories and the verified training of installers.

"Currently there is no common approach in the EU countries," says Wederhorn, noting that the only formal industry accreditation systems

for jointer training are in France, Poland, and Hungary. "Our plan is to create a European-wide standard and enforce it through the certification of jointers."

Wederhorn says the EnstoPro training program is a good example that teaches best practices for proper installation of Ensto underground products. "We train our customers how to install. We're exactly on the right path in terms of training installers with the ultimate goal of reliability." ■

[www.europacable.com](http://www.europacable.com)



*Photo: Ensto*

## World's First: EV Charging and Outdoor Advertising

Ensto, digital display technology manufacturer Symbicon, and out-of-home media company Clear Channel, have together developed a solution for Helsinki Airport which combines digital outdoor advertising and electric vehicle charging - the first of its kind in the world.

According to EU directives, the future holds 4,000 EV charging points for Finland, and 500,000 points in Europe. But infrastructure development costs money, and finding business models to support it has been challenging. The newly introduced solution solves this problem by combining an outdoor advertising display with one or two EV charging stations.

Finavia, which operates Finland's airports, has equipped Helsinki Airport's parking area with four charging stations, two of them connected to digital displays.



*Photo: Ensto*

Ensto's Director for EV charging solutions, **Allan Ahlgren**, says it's not possible for municipalities to operate charging stations on their own, even

if those stations are used continuously. "The operation requires other sources of income," he says. "And this solution makes the stations commercially viable." ■

✍ Scott Diel 📷 Jori Gustafsson

# *Villa Ainoa:* **125m<sup>2</sup>** of Savings

*The Villa Ainoa Ensto Hybrid House made news at the Finland Housing Fair in Hyvinkää last summer. But more importantly it meets the Hurme-Rintala family's expectations for energy savings.*



**V**illa Ainoa is a full 125 square meters of energy savings. It's a one-story, resident-ready passive home manufactured by the prefabricated housing firm Ainoakoti using Ensto components: floor heating, an LED package, electricity distribution boards, a charging unit for an electric vehicle, as well as a ventilation unit with heat recovery.

Although many often associate ground-source heat with passive homes, the Villa Ainoa is a perfect argument against that technology. In calculations performed on a 137-square-meter home, total costs of ground-source heating were almost 12,000 euros higher over a 15-year period than those of a house like Villa Ainoa which employs electric floor heating and ventilation with heat recovery.

For lighting technology, Villa Ainoa uses Ensto LED luminaires to reduce the consumption of energy by at least 50 percent over conventional systems.

Villa Ainoa's new homeowner **Teea Hurme-Rintala** says she's just beginning to explore the flexibility the LED lighting offers. "In the kitchen we have many different lighting possibilities: direct for cooking and indirect for atmosphere and the aesthetic. It was absolutely great to have a lighting plan for Villa Ainoa."

At the fair, Villa Ainoa took double honors for its energy efficiency, recognized by TTS (a Finnish research, development and training institute), and again by the Finnish magazine *TM Rakennusmaailma*. ■

## Villa Ainoa FACTS

### Size/type:

Passive, prefabricated home

### Air-tightness score:

0.4

### Manufacturer:

Ainoakoti

### Ensto Hybrid House:

Electric heating, Enervent ventilation with heat recovery, LED lighting, EV charging, electricity distribution boards

### Total construction time:

22 weeks

## Showcasing Energy- efficient Living

The Finland Housing Fair is an annual event to showcase ongoing and future trends in the housing industry - architecture, interior design, building, and energy efficiency.

The fair takes place on formerly empty ground, where new homes are constructed and decorated for home enthusiasts to visit. The houses are built for specific families, who will move in and occupy them when the fair closes.

The fair has taken place since 1970 and now attracts well over 100,000 visitors each year. In summer 2013, the fair was held in Hyvinkää. Next summer it will be in Jyväskylä. ■



## How Noram Produkter and Ensto are conquering Norway, the largest ventilation market in Europe.

✍ Scott Diel 📷 Ensto, Dreamstime

*Postcard from Europe's*

# Ventilation Capital

“We spend ten months each year indoors,” says **Bjørn Braastad**, Managing Director of Noram Produkter AS. He’s exaggerating slightly (Norway’s weather isn’t *that* bad) to explain why Norway is Europe’s largest ventilation and heat recovery market.

But of course there are colder places on earth, and Braastad quickly adds that Norwegian legislation has helped to influence sales: Since 2010, Norway requires a ventilation system with heat recovery in all new construction. The law also applies to major renovation work.

### Explosions – the good kind

“After the legislation passed the market exploded,” says Braastad. And that meant

very good things for Noram, which markets Ensto Enervent ventilation units and heat recovery solutions in Norway.

Ensto’s ventilation sales in 2013 reached 900 units in Norway, growth of 20 percent over 2012. Although definitive industry figures are not available, the total ventilation unit market is estimated to be 20,000 units. “Our goal is to reach 10 percent market share, or 2,000 units in annual sales in the next three years, without sacrificing quality or service,” says Noram’s Sales Manager **Gard Skjelstad**.

Quality and service are key parts of Noram’s strategy in a market where competitors focus on volume by selling to prefabricated house factories. “We could grow faster,” Skjelstad says, “but to

maintain quality we have to manage the growth and make sure customers are close to us and using our technical expertise.”

### Dimensions of quality

Quality in a ventilation unit isn’t always immediately apparent. “What we sell in a way is a box. For the box to work you need good ducts, properly installed,” says Braastad, who notes that his product is generally hidden away in a closet.

So Noram has carved its niche with a wide product offering to ventilation companies who understand quality means good installation and ducts. “Our message is the best air handling unit,” adds Skjelstad, “but if the whole system is not good then it doesn’t work to its potential.”

This is one reason behind Noram’s



Noram's *Espen Timenes, Bjørn Braastad, and Gard Skjelstad.*

## Old Product, New Use

On virtually every city corner in Norway there seems to be a small food shop. Chances are that shop is using an Enervent Pelican PRO greenair HP unit.

One of Norway's largest small food shop chains turned to Noram to help them with a "challenging interior": old structures with modern needs.

"In this particular case a government inspector visited the shops to check air quality," says Noram's Sales Manager Gard Skjelstad. "The shops were told to put ventilation in the tiny employee-only areas."

The space to ventilate happened to be employee locker rooms, generally located in the very center of the shops. "The customer asked us if we had a small unit with cooling and heating built in. We couldn't put cooling units on the outside of the walls, because they're often old buildings."

Noram suggested the Enervent Pelican, an air handling unit with a built-in small heat pump originally developed for passive homes. "The Pelican HP has everything built into the unit, and there is no need for extra installation outside ducts and wiring. There is no separate cooling installation," says Skjelstad. "You connect power and the ducts and you're good to go. We never conceived of the product as a solution for shops, but it solved the problem perfectly."

If the Pelican HP had one disadvantage for the shops it was a higher price, but this was offset by a significantly lower installation cost. "Overall the Pelican HP is not more expensive for the customer," says Skjelstad.

Given the serendipitous success of the Pelican HP, Skjelstad and his team began thinking about other products. "The success of the Pelican HP is that everything is built into the unit, and our Pegasos air handling unit is similar but handles twice the volume." ■

ambition to have an installation team in every town in Norway which has been trained by both Noram and Ensto.

### Showing the neighbor

"Enervent quality can be felt," says Skjelstad. "You want them to be absolutely quiet in a house. They are heavier with thicker plates. They're easier to service. The hatch comes open easily, and a customer can change a fan himself without any tools."

Quiet gets noticed. But what else gets noticed is Enervent's touch screen, wireless controller. "The big white box may not be the sexiest thing you can imagine," adds Braastad. "And the consumer may not even notice it in the technical closet. But what the consumer does see is how

you control it." Braastad holds up the palm-sized unit. "This is what the customer shows his neighbor!"

Noram believes the eAir controller is one example of how Ensto is taking signals from the market. "The eAir is not an engineer's technical whim. This is clearly a market-driven innovation," says Braastad.

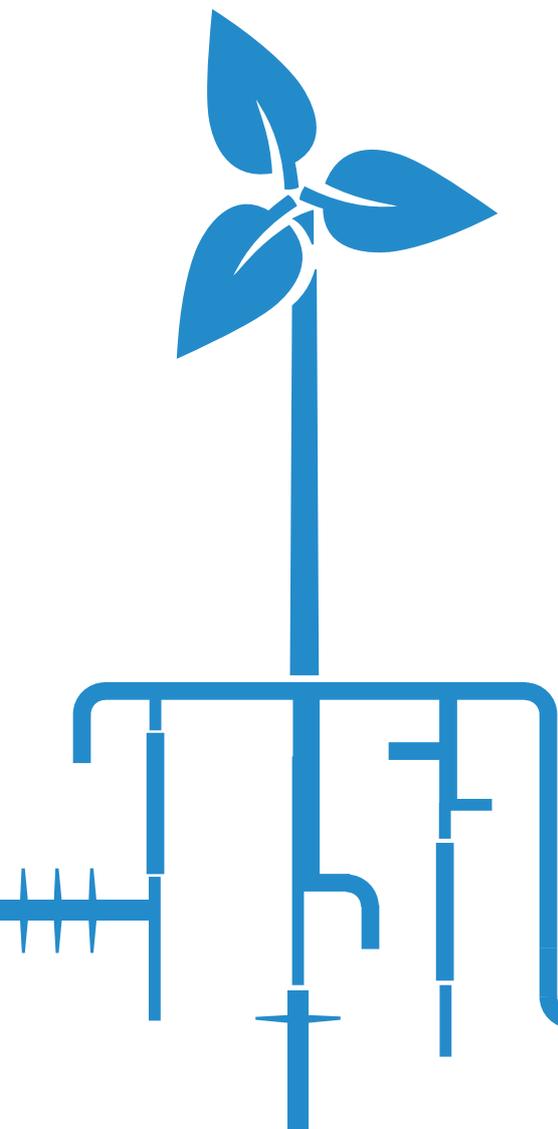
If Enervent had evangelists, then Braastad and Skjelstad would surely qualify. They see the work they do in Norway as paving the way for other markets, all in the name of spreading their belief in ventilation and heat recovery all over the world. ■



# The Cold War on Grid Failures

 Gionata Picchio  Ensto

*Consumers take power supply quality for granted, but the job of assuring it isn't simple. Ensto's cold shrink products make the task easier for power utilities.*



**T**en million kilometers, more than a dozen round trips to the moon: it's the total length of electricity distribution networks in Europe.

If generation plants are the heart of power systems and transmission the big arteries, distribution is the last mile, the maze of small vessels carrying nutrition to every single cell, about 260 million consumers.

Big numbers mean big responsibilities to households and businesses. Given the large risks, operators make every effort to prevent grid failure, and promptly fix them when they happen. It's not easy considering that almost half of distribution grids run underground, making repairs difficult and costly.

That's where reliability of components comes into play in the daily war on breakdowns.

#### **Every 500 meters**

"Cold shrink joints for medium voltage underground cables dramatically reduce failure rates by making assembly mistakes nearly impossible," says **Claudio**

**Malpede**, Sales Manager at Ensto. For this reason, he says, last year Ensto won tenders to supply accessories to Enel and Endesa, the biggest power utilities in Italy and Spain, respectively.

To build underground medium voltage (MV) networks - which represent a significant share of distribution grids - operators use cables several hundred meters in length, connecting them in single lines. This requires specific electrical joints, which are also used for repairs.

The durability of a joint depends heavily on the quality of installation. Until a few years ago the preferred technique was heat shrink - using a flame to make the insulation tube shrink around the cable. This approach is much prone to errors.

Cold shrink technology has changed all this, making the same operation quicker, simpler and, what matters most, more uniform in the outcome.



*Cold shrink joints dramatically reduce failure rates.*

### **Power utilities turn to cold**

"To make a mistake installing an Ensto cold shrink joint you must try really hard," says Malpede. Since all components of the joint are pre-assembled on only one integrated structure with spirals, the product is virtually foolproof, a feature that customers seem to appreciate.

"In the last few years we turned to MV cold shrink joints for all our new installations," says **Roberto Bortolamasi**, Technical Manager at Hera Modena, a utility serving 400,000 customers in northern Italy. "This technology halves installation times compared to heat shrink and makes the job easier, cleaner, and the outcome more reliable."

Reliability is what operators and consumers care most about, because every failure causes at least a short interruption of supply and repairs require complex and costly operations.

### **Time and money**

"Fixing an underground cable usually takes one full day and can cost from a few

hundred to 15,000 euros," explains Bortolamasi. Permissions may be needed, inconvenience for traffic created, and monetary penalties imposed. In 2012, the Italian energy regulator imposed a total of 30 million euros in fines to low performers.

Similar considerations also apply to cold shrink terminals which are used to connect ends of electric cables to substations. "With cold shrink products three terminals can be installed in less than an hour," adds Bortolamasi.

Time and reliability are even more critical in emergency cases. Network operators have special supply needs on a spot basis in the case of unplanned maintenance or grid breakdowns. In these cases, product availability and sharp delivery become paramount.

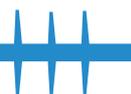
### **Emergency needs**

"My company meets Enel's local needs and we chose Ensto's products because of prompt availability and timely delivery," says **Domenico Rotelli**, Managing Director of S.A.I., an electric supply

wholesaler covering Sicily. Rotelli's S.A.I. of Palermo holds inventories of Ensto products that are tapped by Enel in case of emergency.

"This is typically the case between May and August," he explains, when Sicily's scorching summers push up power demand for air conditioning, increasing the load on the network. "I can expect delivery in ten days max – and that matters!"

So the "cold war" on grid failures continues, and the aphorism about distribution networks remains ever true: The best repair is the one you don't need to make because you chose the right material. ■



Ensto Today editors Mari Häyry and Scott Diel  
bring home a rally victory to Ensto.

# EVs Take a Victory Lap

 Scott Diel  Ensto





*Co-driver Mari Häyry and EV enthusiast Scott Diel.*

**I**t's not like you can just call a friend and have him bring you a canister of gasoline," remarked co-driver **Mari Häyry** as we entered the motorway just outside of Porvoo. We were contestants in the Porvoo-Helsinki stage of the 3,000-kilometer St. Petersburg - Monte Carlo Electric Marathon.

Mari was referring to the fact that Elvi, the Nissan LEAF we were driving, had displayed 115 kilometers of range as we idled on the starting line. Now, fewer than five kilometers later into our 51-kilometer leg, she was telling us we had 81 kilometers left on the car.

"We could call a tow truck," I suggested to Mari. "Or just set the car on fire and walk away like in an American movie."

While Nissan advertises its range as 200 kilometers, many factors can impact that, including kindness shown to a battery, the climate you live in, and how fast you drive.

But since we were brave souls, and because I'd gone to great lengths to borrow a Red Baron flying cap and goggles for the race, we decided to continue. I'd also promised (on video) that we'd "win for the glory of Ensto." There was no turning back.

Neither Mari nor I are car freaks. I am more knowledgeable about pursuits such as bicycles and fly rods. Mari is more expert on reading books and raising three kids. But car enthusiasts or not, now we were in the cockpit of Elvi, moving toward Helsinki at 105 kilometers per hour.

**I'd also promised, that we'd  
"win for the glory of Ensto."  
*There was no turning back.***

Despite our minor range anxiety, we were immediate converts. The LEAF was a dream to drive, especially in the city, where it offered a virtually silent ride in the absence of the hundreds of explosions per second that take place inside an internal combustion engine. If enough charging points are present, which in many countries there are, we wondered why any family with two cars wouldn't choose to have one which is electric. Unfortunately, due to wet roads I did not get to experience the legendary torque of electric vehicles, which enables what Ensto CEO **Timo Luukkainen** has characterized as "guilt free" acceleration.

*continued* ▶



Family Barlev (form left to right): Thomas (11 months), Carl, Ursa (age 3), Lisa and Torben (age 5).  
Photo: electricmarathon.eu

## Team Tesla

(a.k.a. Family Barlev)

Three small children. Three-thousand kilometers. One electric vehicle.

A journey from Russia to Monte Carlo isn't your typical family vacation, but the Barlevs aren't your typical family. Father **Carl Barlev** carries a New Zealand passport, his wife **Lisa** is Canadian, and the family resides in Norway. If that's not confusing enough, they're driving under the team name the Half Danes (Carl's parents have Danish roots).

Father Carl is an electrical engineer who admits to not having owned a car for many years. His enthusiasm for Tesla is what brought him back to automobiles – and to the rally. The family entered only six weeks after taking possession of their new Tesla.

For Carl, someone who is not necessarily a friend of automobiles, Tesla represents the perfect vehicle and the rally the perfect opportunity to spread the message about electric vehicles. "There are 4,000 moving parts in a Tesla, and 20,000 in a petrol car," he says. "The induction engine on the Tesla can last forty years..."

He is also quick to point out that the Tesla's tax-free cost in Norway is 60,000 euros – no small thing in a country he says levies car taxes of "one hundred to 200 percent." Six Tesla supercharging stations are located throughout central and southern Norway, where the Tesla can be charged to 50 percent in thirty minutes.

Although such stations are not available everywhere along the rally route, it does not present a problem since charging is still available every few hundred kilometers. Which means that range anxiety is eliminated, the family's small children get a break from driving, and the electric car becomes an ideal family vehicle. ■

Read more about the Barlev's adventure on their blog:

[barlevfamily.wordpress.com](http://barlevfamily.wordpress.com)

## EVs Take a Victory Lap

Race rules, as we understood them, dictated that the car which comes the closest to the zero car's time wins the stage.

(The "zero" car's time marks the ideal finish, with competitors measured relative to its time, and faster times considered unsafe and penalized.) Since the only car we'd seen anywhere near the speed limit was an ancient Volvo pulling a horse trailer, we assumed the zero car might be moving right along. So we decided to speed, with the added rationalization that I, as a foreigner, would be less aggressive in Helsinki traffic, and time would need to be made up.

We pushed on through a rainy Finnish evening (note to pit crew: change Elvi's wiper blades!), and we arrived at Kamppi Plaza in 46 minutes and 59 seconds, 2 minutes and 59 seconds off the zero car's 44-minute finish.

As the fourth- and third-place winners were called to the podium to receive boxes of chocolates, Mari resigned herself to the fact that we'd lost. "We didn't understand the rules," I offered as consolation. It was true: the little we knew about rallies came from watching Burt Reynolds and Farrah Fawcett in the 1981 film, *The Cannonball Run*.

Just as we were vowing to enter next year's competition with a proper understanding of the rules, we were called to the podium and presented a magnum of champagne.

The finish line would be crossed over a week later on November 6th, in front of the palace of **Prince Albert II** of Monaco with His Serene Highness present to wave the victory flag. Mari and I would not be there, unfortunately, as we'd return to work. But the glory was Ensto's. And Mari and I had been converted to electric car freaks. ■





# Meet FRANCESCO SANTELLA

 Riina Silvennoinen  Francesco Santella

**Who are you and what do you do at Ensto?**  
My name is Francesco Santella, and I'm Key Account Management Director at Ensto France. I have been working in the company since 1992.

**Okay, that's what you do at Ensto. But what do you do in your free time?**

I spend a large part of my free time among art and culture. I have always been interested in film and literature, but visual arts are my true passion. I have loved drawing and creating things with my own hands since childhood. Right now I'm especially interested in painting with pastels, oils and watercolors.

**How did you start making your art?**

When I was seven years old my family moved from Italy to France. I didn't speak the language, so I started to draw – it became my favorite way of spending my days in school, where I couldn't understand what people around me were saying. Art and creativity have been with me ever since. Now, as an adult, I have tried to improve my skills by taking drawing and painting classes, where I have practiced drawing from a model, among other things.

**Have there been other key moments you remember?**

In 2006 I was able to fulfill one of my dreams when I bought an apartment and modified it into an atelier. I am very excited to have such a workspace of my own. It has given me new possibilities for creating my art. For example, without such a space it would have been very hard to make the large three-piece painting I made for the Ensto office in Milan.

**Are you working on something at the moment?**

At the moment I'm involved in a project themed "exterieur – moi" (exterior – me), where I'm planning to go outdoors and explore how to express my emotions by abstract expression of the exterior. I am going to work on a couple of pictures – and take the exterior in and reflect the feelings this generates in my art work.

**At Ensto our aim is to save people's energy. How do you save your energy?**

I try to enjoy life. When I do that, I'm saving my energy – because I don't have to waste my energy on unnecessary and negative things. I don't feel my age. You age more slowly when you have a positive outlook on life! 



# Parking Worth Paying For

✍️ Scott Diel   📷 Dreamstime, Ensto

*How do you reduce traffic, collect more parking revenue, and make citizens happier? Ensto and the city of Nice are showing how by installing 600 Ensto Chago Kiosks throughout the city.*

**I**t all started with parking violators. “In France,” says Ensto Area Sales Manager **Jérôme Perdu**, “roughly 80 percent of people don’t pay for parking. The police give tickets, of course, but they can’t be everywhere, and they have no way of knowing which areas are full of parking violators.”

But what if a computer system could let police know at any given moment where and how many parking violations were taking place? And what if the same system could make drivers feel parking is really worth paying for? The Ensto Chago Kiosk does just that – and a whole lot more.

## **Starting small**

In November 2012, the city of Nice, France, through its parking services company Semi-acs, installed 70 of the kiosks for a trial run in one part of this city of 350,000 residents.

Ten switches were placed in streetlights in the test zone which were then connected to sensors. The switches route information to a central server, which relays it to the kiosks. A freeware application available for smartphones refreshes data every ten seconds showing available parking and the most traffic-free routes. Drivers may pay for parking without ever getting out of the car.

In addition, the kiosks offer EV charging, a touch screen and a Wi-Fi connection to information about city services, culture,

events and entertainment, plus a diverse range of other internet-based services.

The system is even connected to moisture sensors 25 centimeters deep in the ground, which alert the city when parks and other green spaces need watering.

## **Endless possibilities**

The possibilities for connecting kiosks to city-based services are virtually limitless. For example, the system can help cities save by lighting streets only when needed. Also, sensors placed on waste bins can offer major savings. “Sensors on waste bins were tested in Barcelona,” says Perdu, “and 30 percent of pickups were eliminated.”

Given this potential, Ensto’s interest

 *We have a lot of interest in accessing new smart city technology. It's a revolution for the world in paid parking.*

STÉPHANE GIRERD, DIRECTOR OF TECHNICAL SERVICES FOR SEMIACS



Ensto's Jerome Perdu together with Stéphane Girerd from Semiacs.



was to develop a product that could serve not only Nice, but all of France, if not the entire world.

“Based on our successful test Ensto won the contract,” says Ensto’s Perdu, “because we did not need astronomical sums to develop the product and we were able to install it. And Semiacs liked working with us because we’re big enough, but we’re not too big.”

#### **Fast payback**

By 2015, Nice will have 370 new kiosks bringing the total units to 600. For Ensto, this means a contract of almost four million euros over a period of two years. For Nice, it is a total investment of 15 million

euros over the same period.

It’s a rather large investment, but Perdu says the payback period is quite short, given the improved ability to collect both parking fees and fines. “Financially, it makes a big investment very feasible – and the perception is positive for everyone. On one hand you have the police who give tickets, but on the other you give citizens a service they haven’t had before.”

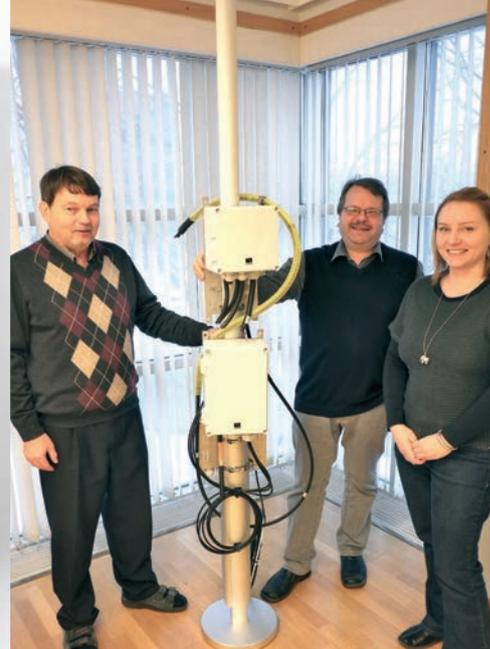
“It’s an ambitious project for Semiacs and Nice,” says **Stéphane Girerd**, Director of Technical Services for Semiacs. “We have a lot of interest in accessing new smart city technology. It’s a revolution for the world in paid parking.” 



# Towering Innovation

 Scott Diel  Ensto

*Orbis was the first to market with a fiber to the antenna solution with trunk cable. Ensto is helping them keep the leader's position in Finland.*



## Orbis in Brief



- Headquartered in Finland
- Privately-owned family business
- Employs 50 professionals
- Has offices in Finland, Baltics and Russia
- Specialized in Fiber Optics, Radio Frequency Components and Antennas, Industrial Cameras

**T**alk on a mobile phone in Finland and you likely take for granted that some poor soul climbed 150 meters skyward in windy and icy conditions to affix hundreds of meters of heavy cable to a mast.

Thanks to Orbis, the technician may now ascend the mast a whole lot less.

### A family affair

Founded in 1949, Orbis is known for distributing radio frequency, fiber optic, and machine vision technologies throughout Finland. Led by **Markku Linna-Aro**, the 50-employee, family-held company also manufactures a host of complementing products, including a world's-first in 2007: a Fiber to the Antenna (FttA) solution.

The Orbis innovation meant six heavy copper cables no longer had to be hauled 150 meters into the air and connected separately to radio antennas. Thanks to Orbis technology, one cable could be run up the side of a mast and be connected via fiber optic technology to radio units with short, three-meter jumpers.

"Our FttA technology means dramatic savings," says **Heikki Kaskela**, Technical Product Manager at Orbis. "You get faster, simpler installation, much lower

investment costs, and savings in power needed to cool the transmitter are about 40 percent lower overall."

### Problem, solution

But the initial solution employed a plastic enclosure which was not ideal. For starters, it had no hinge. "The lids could fall off the boxes when you're up on a mast trying to install them," says **Heikki Saukko**, Orbis Sales Director. "Also, the boxes were made in Germany." And Germany was far enough a way you couldn't just hop in the car to go talk about enclosure technology.

So Orbis turned to Ensto. Porvoo was a short hop from the Orbis offices in Vantaa. Ensto engineers moved quickly with design, and the product could be shipped ready, leaving Orbis to attach only cables and adapters. There was also no language barrier. But best of all: Ensto was flexible.

"We needed a lot of modifications in the boxes," says Saukko. "There are twelve glands of differing sizes through which the cables pass. We also have three or four different designs, so communication has to be good to get it right."

**Paula Meuronen**, Marketing Manager

for Orbis, says testing is also an issue. "After the designs you have to do pilot installation. Every time we bring a new version to market it must be tested at least two sites. Ensto understands our process and remains flexible."

### The rest play catch-up

Despite having world-first technology with documented savings of up to 50 percent cheaper than the total cost of individual risers for each remote radio unit and 50 percent faster to install, the world outside Finland is slow to catch up.

"Finland is a market where new technology is easily adapted," explains Meuronen. "It's not just Nokia. Finland's mobile network providers also want to lead the world."

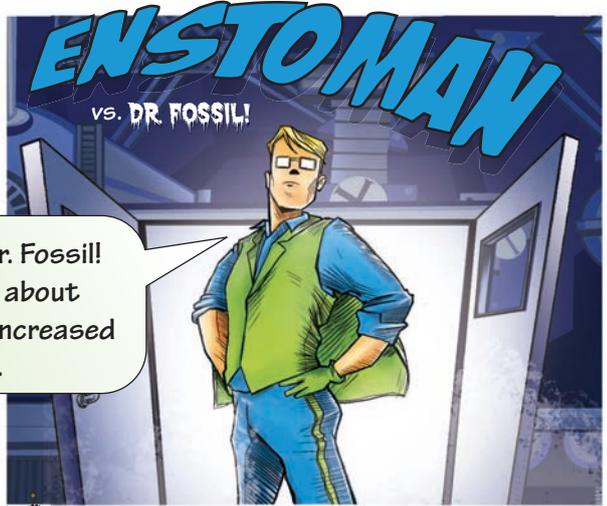
Although the rest of Europe is often years behind Finland when it comes to FttA technology, Finnish demand has been solid. To date, 15,000 units have sold for the fiber optic technology.

Orbis sees Russia as a key future market, and they recently expanded there. "Russia is huge, of course," Meuronen says. "And now they're making base station technology a priority." 



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In the meantime, would you like some fresh grass tea?

## **Lean is a way of thinking,**

says Chika Kako, a Lexus Chief Engineer who is pictured on the cover of this magazine. Ensto's Operational Excellence program is a commitment to the culture of Lean and the Lean way of thinking. "Kaizen, kaizen, kaizen!" says Kako, calling for continuous improvement. We couldn't agree more.

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