References

Energy

Agile governance in a rapidly changing energy market

Fingrid wanted to make its ICT and digital service development more agile and efficient while implementing its customer-centric strategy.

"Futurice has been a great help in creating and implementing our agile governance and operating model. DoIT was smoothly adopted in our teams, the feedback from our organization was positive, and the results are already showing. Since we can now involve the end-users in development processes, we can offer solutions that serve them best. In the future, we want to utilize agile development even more."
– **Hannu Sintonen, Project Manager, Fingrid Oyj**

FINGRID: Fingrid is a Finnish public limited liability company responsible for high-voltage electricity transmission in Finland. Fingrid's nationwide grid is an integral part of the Finnish power system, offering the third-lowest transmission tariffs in Europe and world-class security of supply. Fingrid shapes the clean power system of the carbon-neutral future, sustainable technologies and the transformation of the energy business.

FINGRID

The traditional waterfall model was no longer the working for a company operating in a rapidly changing electricity market. Fingrid also wanted to enhance co-operation with vendors, foster teamwork and improve its understanding of agile and modern digital practices. DoIT is a new governance and operating model for ICT's digital service development.

What we did

We helped renew Fingrid's culture by supporting them adopt service design, Scrum and DevOps practices and principles in their daily work.

The new governance and operating model defines an agile way to create digital services, starting with a business idea. DoIT was built, tested and piloted in more than 10 simultaneously ongoing projects.

In addition to the project collaboration, workshops and coaching, we produced a Governance and Operating Model Description, a definitive guide to the new practices. We also trained key Fingrid employees to manage DoIT so the company can employ it independently.

Why it matters

Fingrid's service development projects now start with customer needs and pain points. Actively listening to customers and involving them in the process ensures movement in the right direction. Co-creating a minimum viable product, and co-developing it step-by-step, decreases the need for redesign, redevelopment, and retesting.

The new cross-functional teams, with the developers concentrating on a single project at a time, are more efficient, functional and innovative.

The new governance and operating model is constantly validated and improved.
The DoIT model can be used to both achieve faster results and continuously develop long-term projects.

Other Fingrid business areas are already planning to implement DoIT as well, paving the way for a cultural transformation of the entire organization.

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Becoming a digital and customer-centric energy service provider

E.ON wanted to gain a considerable market share in domestic solar panels fitted to customers' homes. They also wanted to be the preferred partner for external sales agents and installers, and provide the best services available on the market.

What we did

Futurice worked hand in hand with E.ON to explore how digital innovation could help develop new business models and new services.

A key element of this transformation was to shift the business from its traditional focus more towards building a culture in which digital services can be prototyped and deployed faster than at conventional service providers. In addition to speed, E.ON also wanted to increase its focus on customer-centricity.

Why it matters

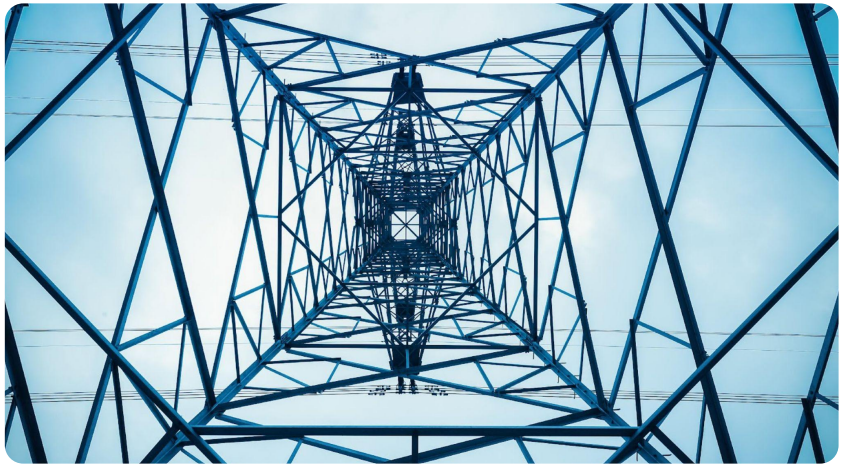
The end result was 'Project Silicon,' a complete end-to-end digital sales and delivery platform.

The customer experience of buying solar panels and home batteries is now seamless and transparent, thanks to a set of digital touch-points that help customers calculate the potential benefits as well as investments and keep them fully informed of their order status.

In Germany where the system was first rolled out, customer acquisition costs have gone down and overall sales volumes are increasing.

E.ON: E.ON is an international, privately owned energy supplier based in Essen, Germany, and has over 70,000 employees. E.ON provides solutions for the new energy world and makes sure that everything they do has a single focus - customers. Whether they are individuals or families, big or small businesses, or even entire towns and cities.

A modern extranet service for Fingrid



In the face of a rapidly changing regulatory environment and electricity market, Fingrid wanted to develop more customer-centric services in an agile way using modern tech.

FINGRID: Fingrid is a Finnish public limited liability company responsible for the electricity transmission in the high-voltage transmission system in Finland. Fingrid's nationwide grid is an integral part of the power system in Finland. The transmission grid is the high-voltage trunk network which covers the entire Finland. Major power plants, industrial plants and regional electricity distribution networks are connected to the grid.

FINGRID

Fingrid's customers include Finland's regional electricity distribution companies, major power plants, electricity producers and industrial plants. In the past, these customers were served by Fingrid via many different legacy extranets from different digital epochs. They all had different user interfaces and experiences, lacking modern conveniences like e.g. single sign-on (SSO) available. Fingrid wanted a single modern service built on state of the art tech to replace all the legacy extranets. The new service was named Oma Fingrid.

What we did

We assembled a multidisciplinary team with business, service design and tech experts to build Oma Fingrid into a customer-centric service with a positive impact on the everyday work of its users. The team started by collaborating with the client on an intensive service vision sprint to get a solid handle on what the customers' real priorities and needs are when using Fingrid's extranet services.

After successfully launching the first version of the service, we went into DevOps mode to ensure continuous development based on both data from and feedback from users.

The Oma Fingrid project was the company's first agile software project and introduced new ways of working to the organization.

Why it matters

Oma Fingrid takes staggering amounts of data related to Finland's nationwide grid and visualizes it in a clear and understandable manner for Fingrid's customers to use in decision-making. Many of these decisions made using the the data will have a profound impact on both the profitability of the companies in question and sustainability in Finland and neighbouring regions.

The service has been extremely well received among Fingrid's customers. It's a starting point for an internal transformation process at the company as they embrace new ways of working and create more customer-centric services.

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New customer value at the intersection of e-mobility & energy

Digital Energy Solutions, a joint venture between BMW Group and Viessmann Group, was looking for a solution to manage energy flexibility for small and medium-sized companies.

What we did

We started with the creation of a user experience strategy. The goal was to provide an optimum energy solution, based on economy, sustainability and supply security. Guided by a customer-centric perspective, we adopted a multi-layered approach, using innovative methods and tools, to create results fast. We implemented new team structures and organization of work, to make optimal use of everybody's expertise. Finally, we worked through a change in mindset, to find the sweet spot between what is technically feasible, desired by customers, and viable from a business perspective.

Why it matters

The team discovered completely new business opportunities, combining their vision with experimentation, and tackling the challenges in many different ways. Out of this, new concepts and prototypes were developed. The pairing of BMW and MINI's existing products with innovative services would create an ecosystem of energy and mobility. A new offer emerged, allowing customers to be sustainable with both their mobility and energy demands, all seamlessly integrated within a premium service experience.

BMW: BMW Group is a leading international premium manufacturer of motorcars and motorcycles as well as a provider of premium finance and mobility services. BMW Energy Services acts as one of the enablers of the e-mobility strategy of the BMW Group.

THE E-MOBILITY BUSINESS IS MATURING. We were grateful for the rare opportunity to shape the future of e-mobility together with the BMW Group – as facilitators, innovators and change makers.

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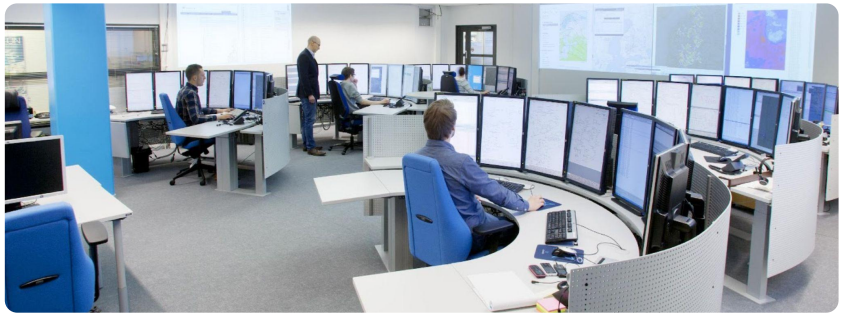
CASE STORY **ELENIA TILANNEKUVA**

PUBLIC

Electrifying life



Elenia wanted to minimize the impact of power cuts on its customers' quality of life and the company's bottom line. Together we ended up trying to predict them.

"Shortening power cuts is one of the key factors in improving quality of life and safety for our customers. This is something that we at Elenia invest and believe in. To succeed, we needed a trusted partner who knows new technologies inside and out. Co-operation between Elenia and Futurice worked well due to well defined roles and meeting practices. I recommend Futurice for anyone interested in learning more about applications like this. This is only the beginning of what's possible."
– Santtu Vähäkuopus, Development Manager, Supply Chain Development, Elenia

ELENIA: Elenia is an electricity distribution company serving 430 000 customers and operating in more than a hundred municipalities in Finland, supplying electricity to homes, businesses and society. Elenia's services are core community functions that respond to increasing expectations and demands from customers, stakeholders and society. Elenia's ambition is to be a forerunner in energy business service development.

ELENIA

Electricity distribution companies in Finland are responsible for ensuring outages do not exceed statutory limits. Breaching these limits is expensive in terms of compensation and has a negative impact on safety and quality of life.

To help Elenia and its fieldwork partner teams get repairs done as fast as possible, around the clock and every day of the week, Futurice created comprehensive and easy-to-use status maps showing the location and severity of the damage. After the first iteration of the map, Elenia realized the tool could be even better with a little data science. Could we predict outages instead of just reacting to them?

What we did

We started by defining information and system integration needs. For the best results, we needed to understand the variables that could impact damage to overhead lines, e.g. length of lines, the seasonal weather patterns, etc. Elenia's expertise in recognising the impact of weather on their assets was invaluable in defining the algorithms used in the system. We combined the main network and control system data with weather forecasts. The system uses data sources and historical data to predict and estimate possible damage to the network in a specific area. The estimate is displayed in Elenia's control room and the partners' resource management's status map – on an hourly level and regularly updated when a major disturbance progresses.

Why it matters

Elenia and its partners' fieldwork teams are now managed proactively. They know the expected damage in each area before it happens and can assign appropriate resources. As distances in Finland are long, this often means shorter travel times, resulting in much shorter power cuts, better quality of life, increased customer satisfaction, improved safety and work routines, and decreased spending.

On a national level, the possibilities of data science and AI are ground-breaking. As the system gathers more information by learning or via other network operators in Finland, results are automatically improved.

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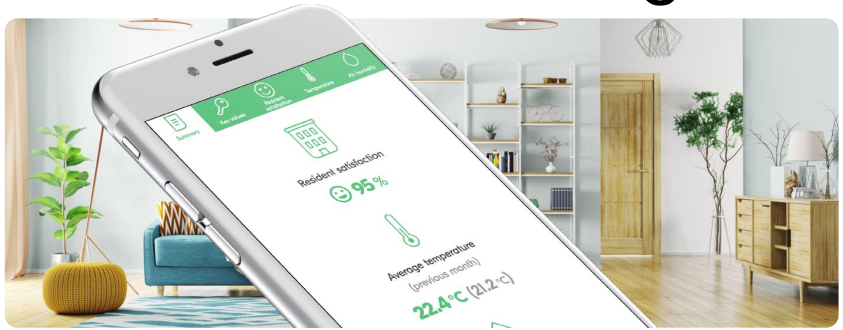
Fortum Smart Living heating optimisation



The need to make buildings more energy efficient and reduce CO2 emissions is becoming increasingly important.

"Fortum Smart Living is a completely new type of household service that easily scales. Installing the Smart Living sensors takes just minutes and requires no actions from the customer. Not only are the measurement results that Smart Living offers very useful for residents, but we also highly value residents' feedback as a highly useful way of improving our customers' level of comfort."
- Anne Salonen, Development Manager, Fortum

FORTUM: Fortum is a leading clean-energy company that provides its customers with electricity, heating and cooling as well as smart solutions to improve resource efficiency. Fortum wants to engage customers and society to join the change for a cleaner world. They employ 8,000 professionals in the Nordic and Baltic countries, Russia, Poland and India. Fortum's share is listed on Nasdaq Helsinki.

Fortum was looking for a way to optimize the entire heating system of a building, based on outdoor temperature, indoor temperature and humidity. They also wanted to give building inhabitants new ways to more precisely monitor their temperature and humidity – and give accurate, timely feedback to energy providers. Digital services were identified as a way to reach these goals as well as provide a differentiator in the market and enable significant customer value that would otherwise be unattainable.

What we did

We used the Lean Service Creation (LSC) methodology to co-create an energy service concept based on project partner company Leanheat's product, a fully automatic and self-learning system that optimizes building heating in real-time and monitors indoor humidity.

The concept was was validated with end users and then moved forward to build a Minimum Viable Product.

After positive feedback the initial service was scaled to include housing companies that are responsible for apartment management and maintenance. In this second phase, building managers are provided with regular reports that offer an overview of their entire housing company heating profile, including both the current situation and also the historical data.

Why it matters

Futurice, Fortum and Leanheat created a service that brings interior climate control closer to end users, providing greater transparency and control.

Customers get lower heating bills and an enhanced indoor climate. Fortum benefits from new sales by offering better services that increase loyalty and reduce churn to building owners and residents. Buildings will be more energy efficient and CO2 emissions will be lower – in line with global agenda for a cleaner world.

The service is now available to approximately 15,000 homes in Finland, Poland and Norway. This strong growth is expected to continue, and the service will be expanded by introduce new features such as water consumption monitoring.

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Environmentally and economically more efficient hydropower production

Energy market volatility has a major impact on both the sustainability and profitability of energy production. Fortum works to improve the optimization of its energy production and sales.

I am very pleased with the Apollo system we have created. The mid-term horizon hydropower forecasts and pricing of water have a notably better quality. The automated process significantly reduces the risk of human error and users have much more time to analyse the results and make more kinds of different analyses. Apollo's user interface is very visual but also simplified. Users are able to get started with only a brief introduction.

- Tuomas Pyykkönen, Product Owner, Fortum

FORTUM: Fortum is a leading clean-energy company that provides its customers with electricity, heating and cooling as well as smart solutions to improve resource efficiency. We want to engage our customers and society to join the change for a cleaner world. We employ some 9,000 professionals in the Nordic and Baltic countries, Russia, Poland and India. In 2018, our sales were EUR 5.2 billion and 57% of our electricity generation was CO2 free. Fortum's share is listed on Nasdaq Helsinki.

fortum

Hydropower is among the quickest and most efficient ways to regulate the amount of energy the company is making available to the market, offering a good avenue to optimise energy production to increase profitability and reduce the likelihood of environmental impacts.

Fortum's improved optimisation model produces a staggering volume of data, so a completely new way to present the results was needed.

What we did

The system processes forecasts and realisations for just about every river, power plant and hydro reservoir that Fortum operates in the Nordic countries.

We worked with Fortum on three areas related to the impact of the optimisation model:

1. Managing and storing input & output data in a structured way
2. Presentation to the end-user, including interactive editing of inputs and visualising optimisation results using a domain specific visual templating language
3. System performance optimisation for all the links in the chain that call the optimisation engine - from background systems to the browser and generated reports.

Why it matters

Apollo can run the optimizations automatically, unlike the old, manual hydro optimization process. This allows Fortum to focus on analysing results, rather than creating them. Apollo models a horizon that ranges from one to several years.

By making sure that the right amount of energy is available in the right place and that all waste is minimized, energy production efficiency optimisation has a positive impact on the world we build for future generations,.

The production and sale of energy is at the very core of Fortum's business. Any significant improvements in any facet of its core business – from production optimization to data generation and the utilization of the produced data – has a major impact on Fortum's profitability.

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Building a machine learning prototype

When learning new technologies and searching for innovation, putting theory into practice is key.

A POC with a working demo: a concrete way to improve Vattenfall's customer service.

A practical and efficient method for learning and using AI and machine learning.

"Futurice's structured training and exploration helped us gain a deeper, mutual IT & business understanding of AI/ML opportunities and brought out hidden 'big data' champions who were previously not on our radar.
- Carsten Schrijver, Head of Agile IT, Vattenfall Information Services GmbH

VATTENFALL: Vattenfall is a leading European energy company with approximately 20,000 employees. For more than 100 years it has electrified industries, supplied energy to homes and modernized our way of life. Vattenfall now aims to make fossil-free living possible within one generation.

Vattenfall wanted to upskill their IT talent, enhance collaboration between IT and business, and explore their data sets to see if they held the potential for operational or customer experience improvements.

They also wanted an understanding of the new technology through experimentation and identify business problems worth solving. Futurice tailored a program that combined training - what we call the AI Primer - and a hands-on, three-week Data Vision Sprint. Taking part was a multidisciplinary team of data scientists and business designers.

What we did

The AI Primer, an introduction to AI and machine learning for Vattenfall's technology experts and business teams, addressed questions like: how can we read and make data actionable? How does data help us fulfill real user and business needs? To combine theory and practice, the teams worked with their own data and were given real challenges to solve.

Next, we held a Data Vision Sprint to further explore the chosen challenge in cross-disciplinary teams. The goal was to create a proof-of-concept (POC) and come up with the smartest way to route incoming calls in service centers.

Why it matters

The process provided an efficient, practical, and co-creative way for Vattenfall's teams to learn about and experiment with new technologies, increasing both know-how and motivation. It also helped identify new data science talent in Vattenfall's multidisciplinary teams.

The POC with a working demo brought innovation to life, showcasing how to innovate using AI and machine learning. The process required close collaboration between the business unit and the IT department. The process also positioned the internal department as one capable of doing more than keeping the lights blinking - it empowered the team to continue learning from data and using AI/machine learning strategically.