

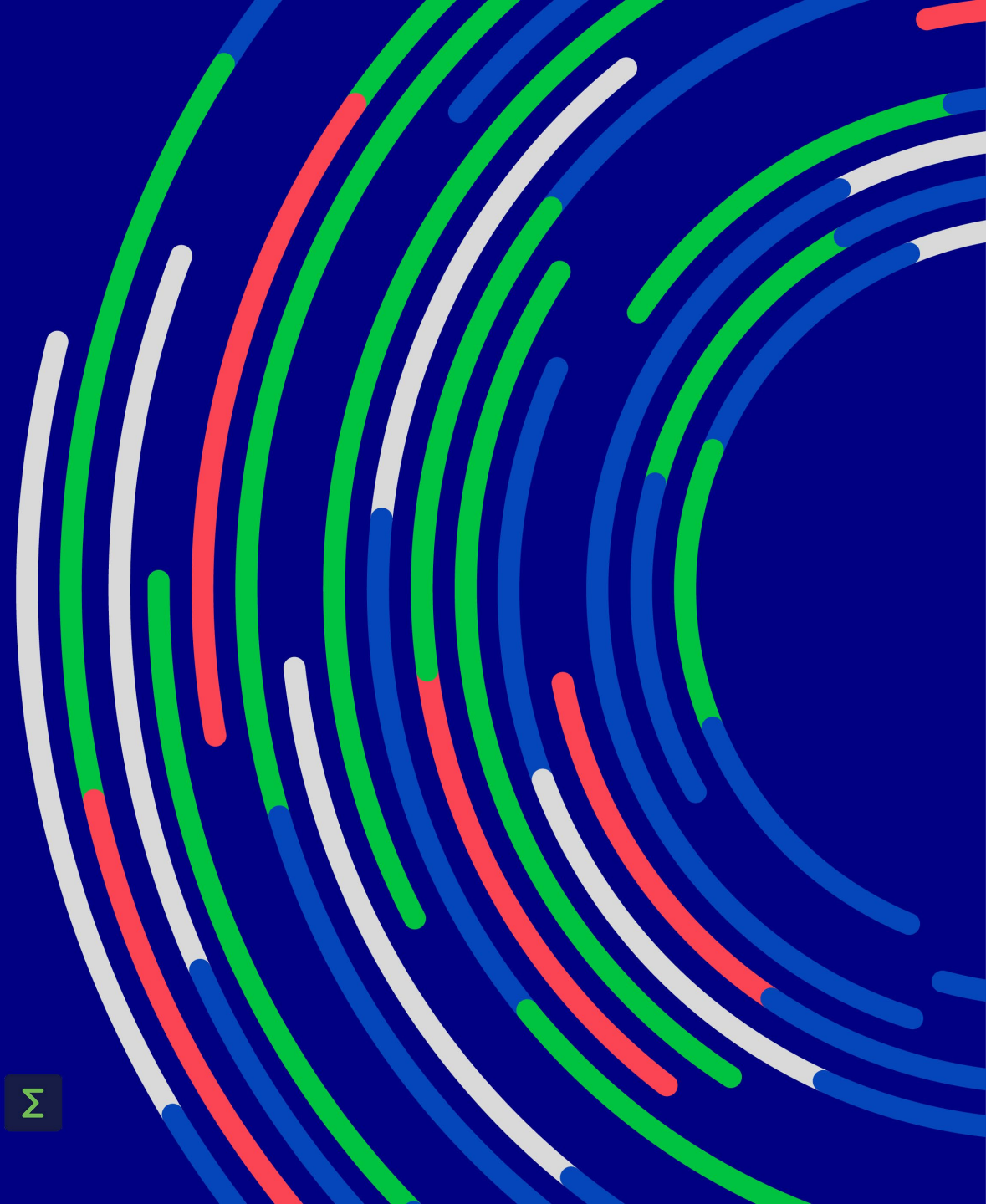
# Co-innovate with Sweden - Funding possibilities for international collaboration on software innovation

Sweden Innovation Days  
23 March 2023 | Online

VINNOVA

25 years  ITEA 4  
1998-2023

ITEA is the Eureka Cluster on software innovation



# Co-innovate with Sweden

FUNDING POSSIBILITIES FOR INTERNATIONAL  
COLLABORATION ON SOFTWARE INNOVATION

**VINNOVA**

Sweden's Innovation Agency

# Why innovate with Sweden?

- Global cooperation is crucial to create a sustainable future!
- Sweden is one of the world's leading innovative nations
  - #1 European Innovation Scoreboard 2022
  - #3 Global Innovation Index 2022
- Swedes are easy to work with
- Industry + Academia + Public sector = Collaborative environment
- Open to new technology



# What are we looking for?



*Industry driven and innovative projects with a high potential to strengthen Sweden's competitiveness and contribute to achieving the Sustainable Development Goals, in accordance with Agenda 2030.*

- **A potential to lead to increased competitiveness and growth in participating Swedish companies**
- **A clear value from the international cooperation**
- **Industry-driven Swedish consortium**
- **Good balance** between large companies, SMEs and universities / research institutes

# Eligibility Criteria for Funding in Sweden

- Project proposal should have received a *label* from ITEA.
- The project must not have started before the proposal is submitted.
- The Swedish consortium must include **at least 1 small and medium sized enterprise (SME)**.
- For SMEs, the following conditions must be met at the time when the Swedish proposal is submitted to Vinnova:
  - The company must have **at least SEK 1 million in net sales** according to the latest annual report. (Net sales do not include public grant from, for example, Vinnova or the EU.)
  - The company must have a **at least 3 full-time employees** according to the latest annual report.

# Funding Possibilities from Vinnova

- We finance up to a maximum of **SEK 15 million** (~ € 1,5 m) per project. (The projects generally run over three years.)
- Vinnova's co-financing can amount to a **maximum of 50 %** of the entire **Swedish consortium's eligible costs**. 
- Funding rates:
  - Maximum **50%** from Vinnova to Swedish **SMEs**
  - Maximum **30%** from Vinnova to **large companies**
  - Up to **100%** from Vinnova to **universities** and **research institutes**
- Vinnova has an open **budget of SEK 100 million** (~ €10m) per year, for **all the Eureka Clusters Sweden** participates in, to finance both ongoing and new projects.

# More information

Read more on our website:



[Eureka clusters fund international industrial cooperation | Vinnova](#)

**Or contact me for any questions!**

**Susanne Liljeblad (Programme Manager)**

[susanne.liljeblad@vinnova.se](mailto:susanne.liljeblad@vinnova.se)

+46 8 473 32 49



# Thank you!

**VINNOVA**  
Sweden's Innovation Agency



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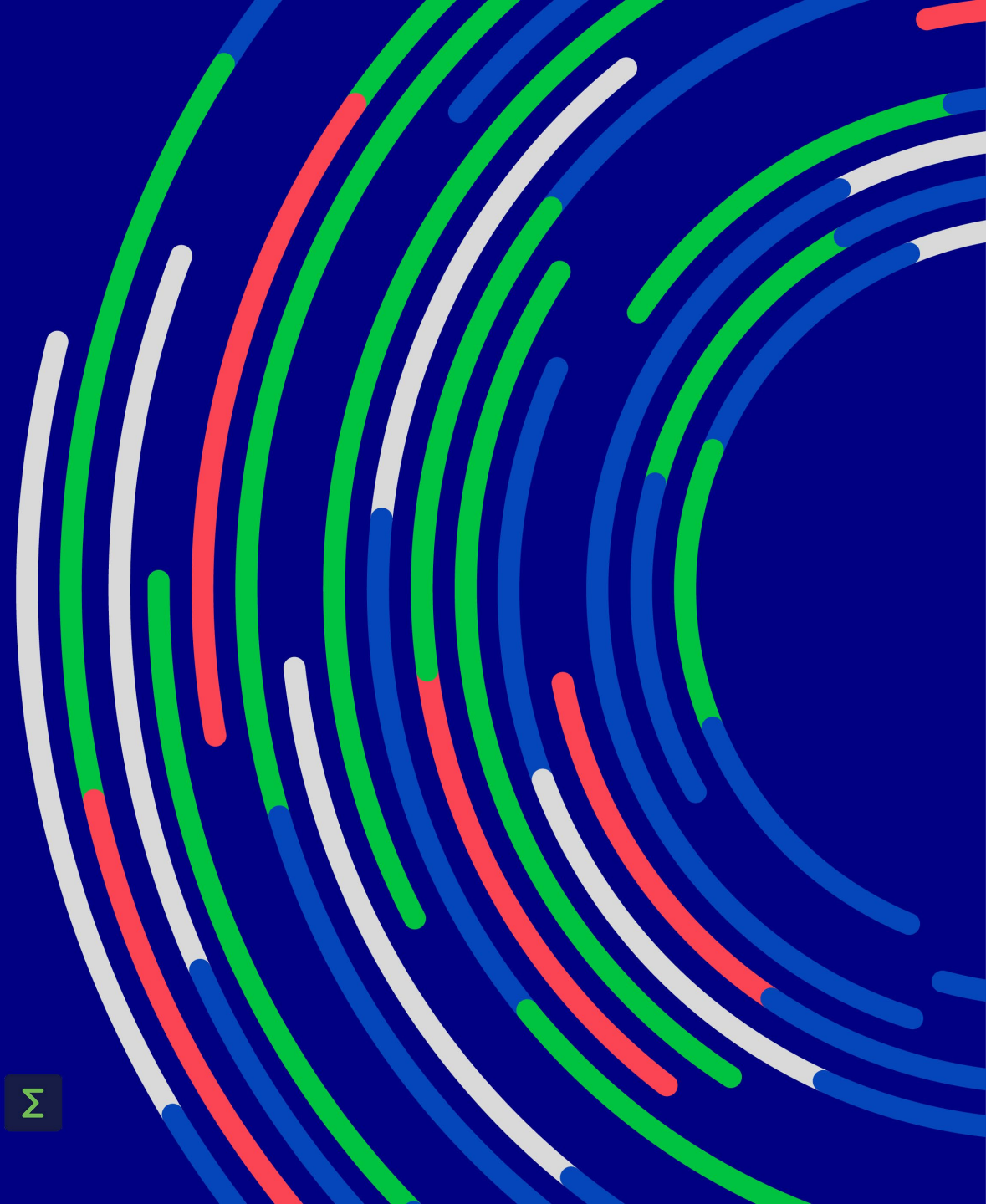
# Sweden Innovation Days 2023 - ITEA Session

Introduction to ITEA  
Zeynep Sarilar, ITEA Chairwoman  
23 March 2023

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# ITEA

## The Eureka Cluster on software innovation and digital transition

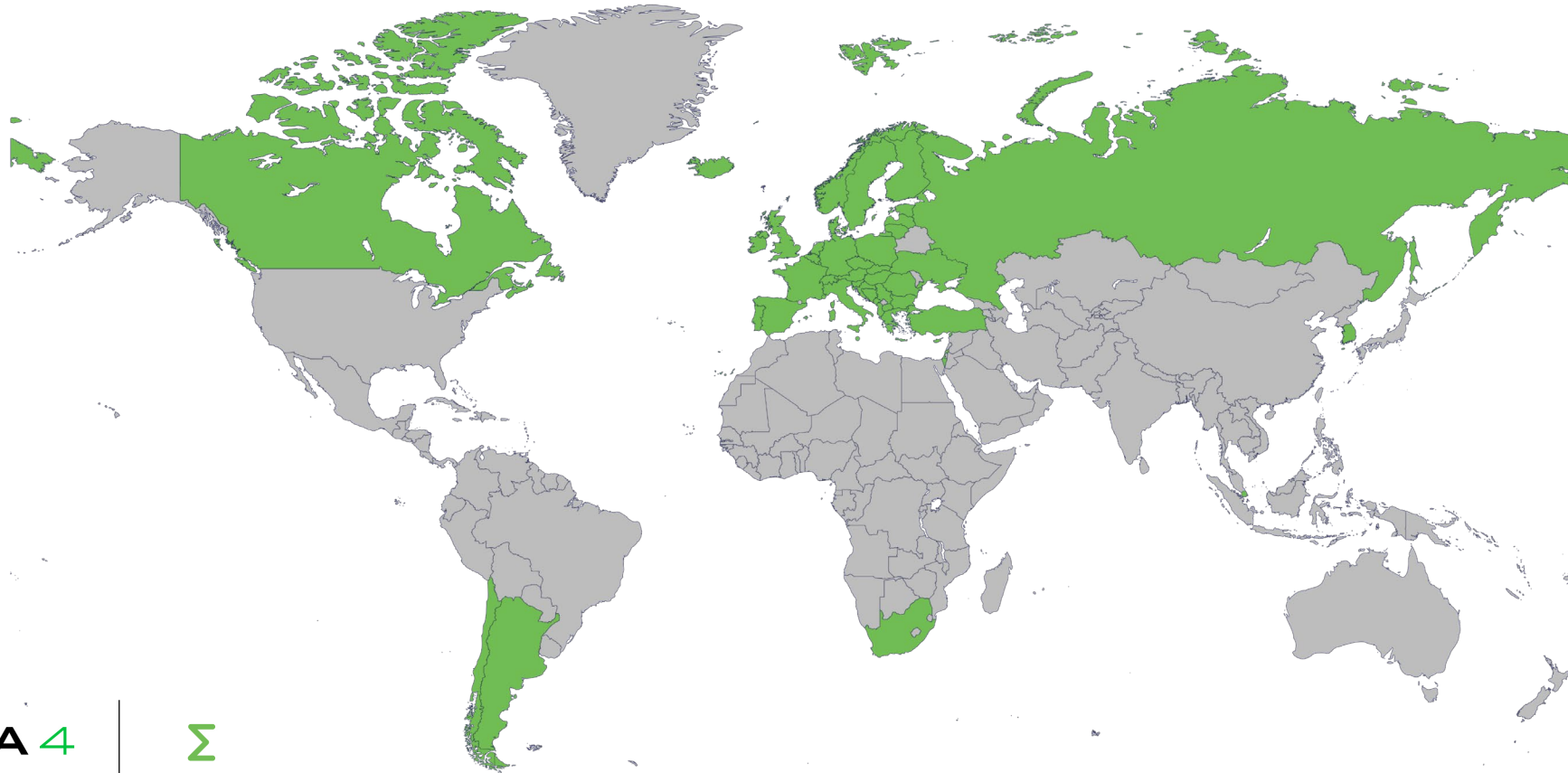
ITEA is a Eureka RD&I programme on software innovation and digital transition. ITEA stimulates transnational and industry-driven R&D&I in the domain of **software innovation**. ITEA enables a large international community to **collaborate in funded projects** that turn innovative ideas into new businesses, jobs, economic growth and benefits for society.

ITEA is:

- Global and trusted cooperation in an industrial community
- Project financing through national public and private funding
- Commercialisation of research results
- Focus on high-quality process and support

# The Eureka network

Eureka is world's biggest global network for market-oriented, industrial RD&I, present in over 45 countries.



# ITEA Key challenges



Smart city



Smart communities



Smart health



Safety and security



Smart mobility



Smart industry



Smart energy



Smart engineering

# ITEA governance and main players

## Trustful relationship

ITEA is an association, with industry Board members:



Some of ITEA's other main (industrial) partners:



# Countries supporting ITEA



Austria



Belgium



Canada



Czech  
Republic



Denmark



Finland



France



Germany



Hungary



Ireland



Israel



Luxembourg



The  
Netherlands



Portugal



Singapore



Slovenia



South Korea



Spain



Sweden



Switzerland



Türkiye



United  
Kingdom

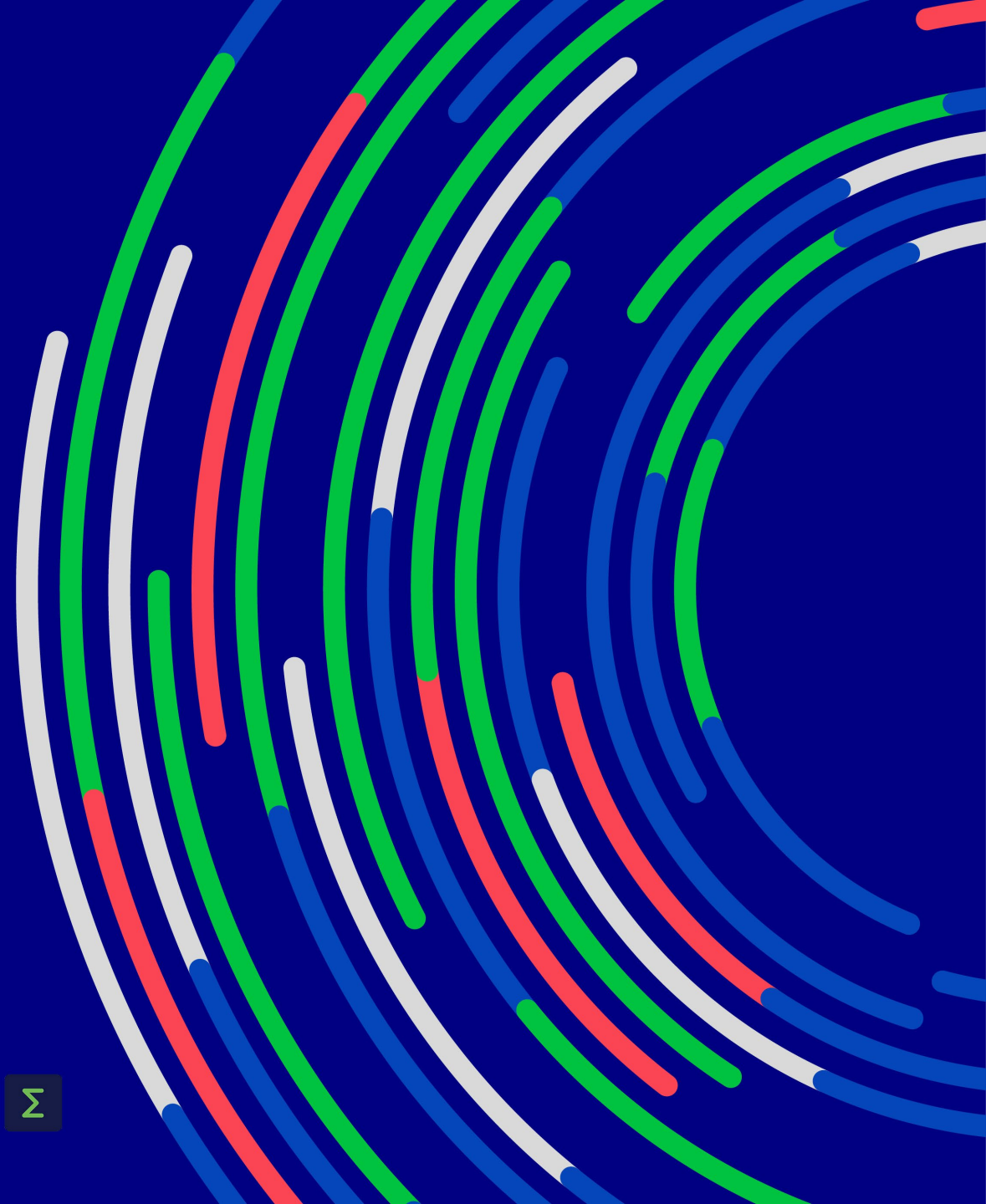
# Examples of ITEA Impact

25  
years



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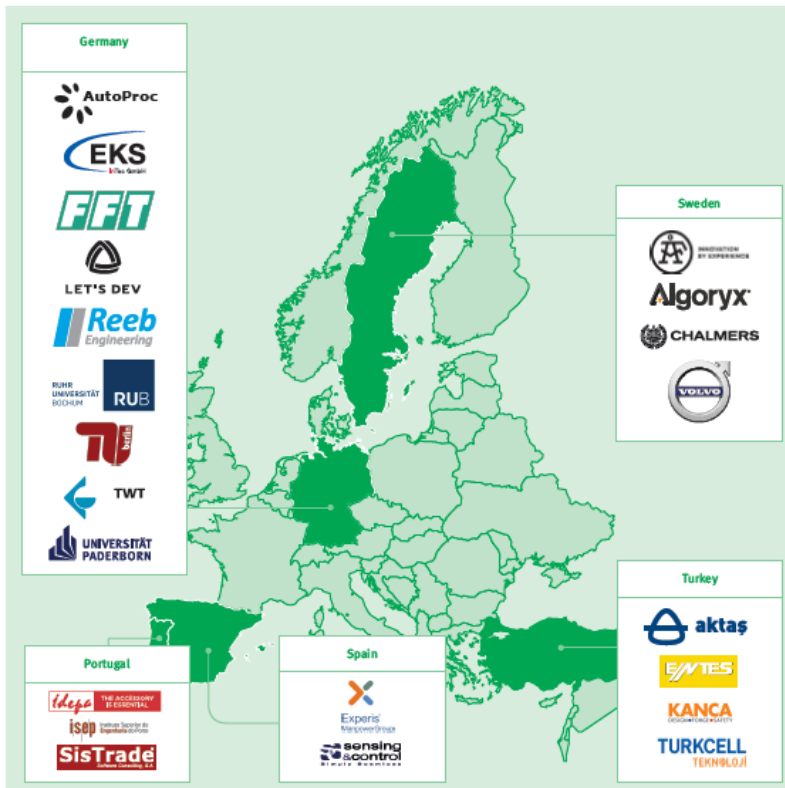
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# SPEAR

## A new approach to energy optimisation for industry

By helping companies to optimise their energy usage, SPEAR enables them to manage resources more effectively, to reduce their energy consumption and costs significantly and increase their productivity in a sustainable manner.



Start date: September 2017  
End date: September 2020

### SPEAR Impact story

<https://itea4.org/project/impact-stream/spear.html>



# SPEAR

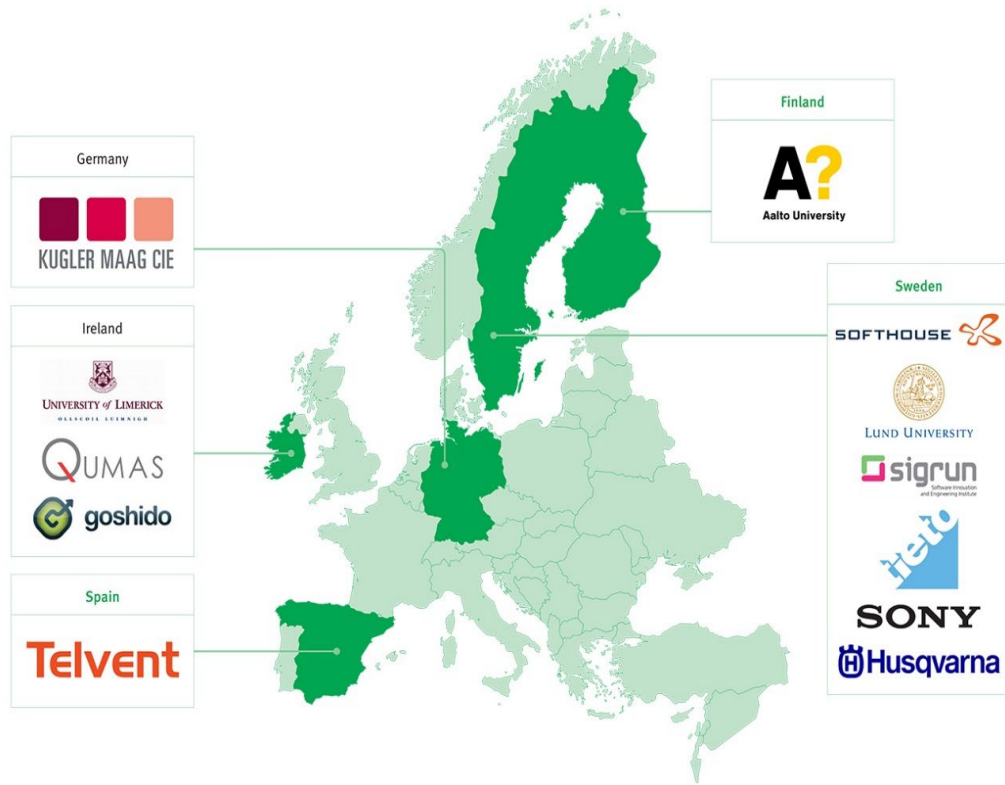
## Highlights

- The SPEAR project allows for a greater uptake of renewable energies (such as solar and wind) which were previously difficult to optimise on a large scale due to their weather dependency. This gives SPEAR a vital role in reducing CO<sub>2</sub> emissions and slowing the speed of climate change throughout society as a whole.
- Through the smart selection of energy sources, the smart adaptation of process-relevant parameters and the reduction of power peaks, SPEAR has been able to reduce energy costs by roughly 10%.
- The SPEAR project outcomes have provided ÅF with a unique selling point for its service over other competitors, allowing them to receive more orders, which in turn increases the value of their turnover.
- Thanks to the developments in SPEAR, Sensing & Control Systems has three new industrial customers and was able to hire one additional staff member. Sensing & Control Systems has also incorporated the Functional Mock-up Interface (FMI) industrial standard, which increased their reliability and reputation.
- For Reeb-Engineering, the knowledge gained in SPEAR has opened up a completely new field of work in virtual commissioning for a wide range in industrial applications and thus a new business area that is becoming increasingly popular. After the completion of the project, they hired one new employee.
- Thanks to its great achievements, SPEAR received the Eureka Innovation Award for 'Best Sustainability Innovation' during the 2022 Eureka Global Innovation Summit.

# SCALARE

## Supporting industry in managing software scalability

SCALARE's aim is to support and enable industries to scale their software capability as software moves from a secondary consideration to primary importance in delivering innovation and competitive products or services.



Start date: November 2013

End date: December 2016

### SCALARE Impact story

<https://itea4.org/project/impact-stream/scalare-impact-story.html>

# SCALARE

## Highlights

- SCALARE has enabled Husqvarna to make the digital transition, with its team of 4-5 software developers expanding to more than 200 people and enabling a 50% shorter time-to-market compared to 2016.
- Thanks to SCALARE, Softhouse Consulting found a new way to enter the business area and was able to recruit 6 additional senior consultants working with new consultancy services and achieved an increased revenue of over 400k€ per year.
- For the Swedish consultancy company Addalot, the results of the SCALARE project led to the recruitment of 1 senior consultant working with new consultancy services and an increased revenue of approx. 150 k€ per year and growing.
- The book 'Scaling a Software Business', published end of November 2017 and freely available as open access under a Creative Commons license, is downloaded 16,000 times by the beginning of 2020.
- Since the research studies conducted as part of the SCALARE project, researchers at the University of Limerick have developed this work further, which led to a prestigious 4-year research grant from Science Foundation Ireland.
- Together with Open Source advocate Danese Cooper, who started the InnerSource Commons community, one of the SCALARE researchers co-authored a book on Inner Source published by O'Reilly and freely available. The InnerSource community has steadily grown since, with over 250 members representing a wide range of companies worldwide.

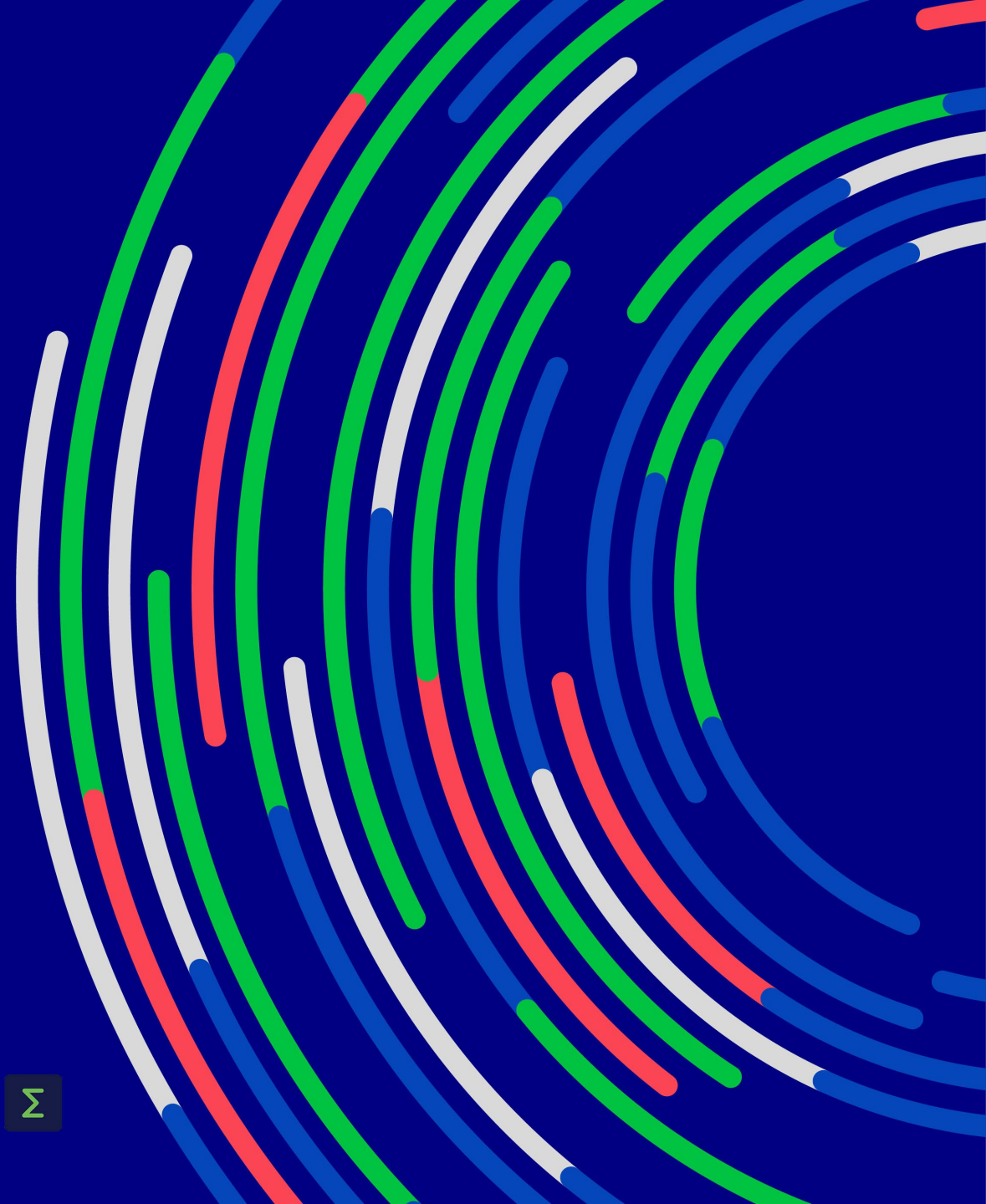
# ITEA events

25  
years



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# ITEA Project Outline (PO) Preparation Days

## A recipe for success!

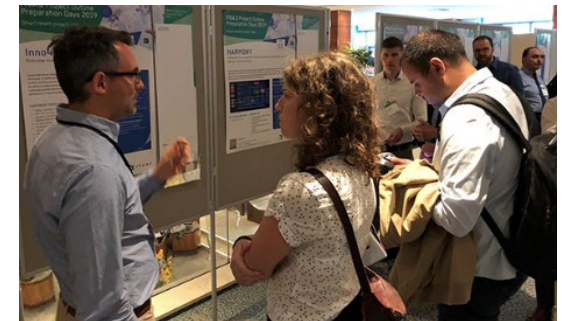
- ITEA PO Days - Yearly networking event taking place in September
  - 300+ participants, 15+ countries
  - 70+ ideas uploaded in project idea tool, 50+ project ideas presented as a poster and 40+ ideas pitches

Generally, more than 75% of the submitted POs are initially presented at the preceding ITEA PO Days.

**SAVE THE DATE**

**ITEA PO DAYS 2023**

**12-13 September in Berlin**



# International customer workshops

## Inventorying actual needs

- Target audience
  - About 50 participants invited around a dedicated theme:
    - international key customers and end users where the challenges are most demanding
    - European global industry players from ITEA who can provide solutions
    - innovative SMEs involved in related ITEA projects
- Day 1
  - Presentations of challenges by the customers and innovations by the big players and SMEs, dedicated site visit, networking dinner
- Day 2
  - Parallel brainstorm sessions, presentation of conclusions, networking lunch





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Thank you

# Sweden Innovation Days 2023 - ITEA Session

Modelon in ITEA  
Hubertus Tummescheit, CSO at Modelon  
23 March 2023

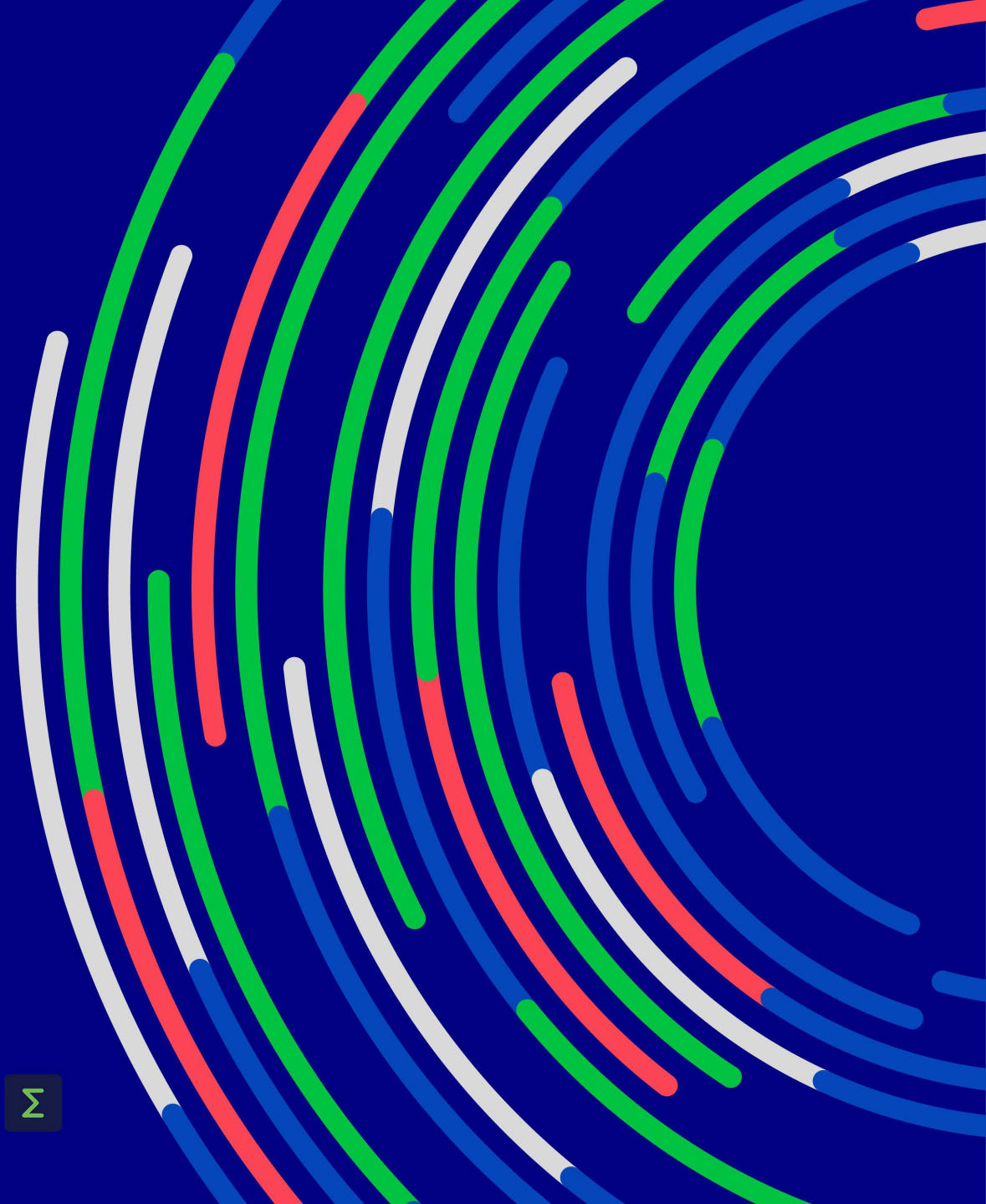
VINNOVA

25  
years



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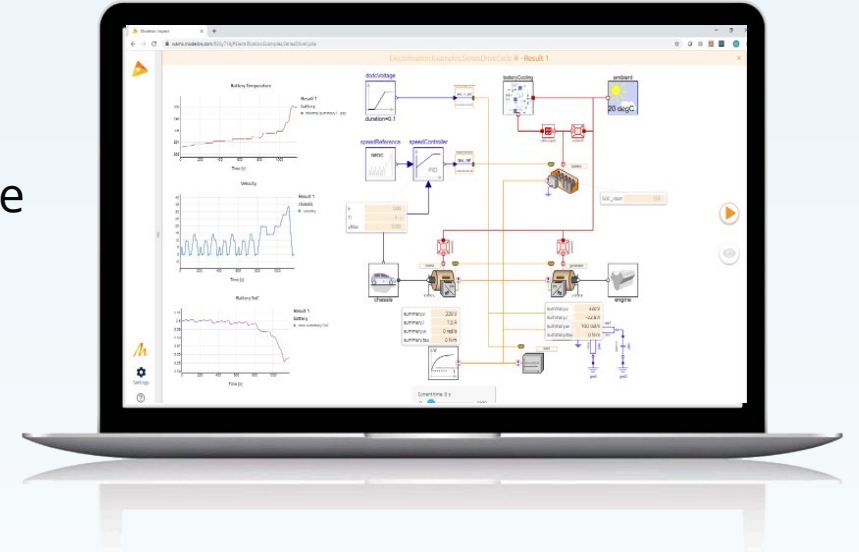
# Modelon in ITEA

- Active since 2007 (First project EUROSYSLIB)
- 5 projects in total – 4 of them funded by ITEA through Vinnova
- Strong results from ITEA projects:
  - Open standards for System simulation:
    - Functional Mockup Interface (FMI)
    - Modelica Modeling Language
  - Contribution to components in Modelon's products



# Who is Modelon?

- Founded in 2004 in Lund, Sweden
- Offer technologies and services that enable customers to leverage system simulation
- Launched Modelon Impact in 2020
  - A cloud-based system simulation & optimization platform
- Publicly traded as of 2021 – Nasdaq First North Growth Market
- Open standards technology based on Modelica & FMI
- 100 employees (MSc/PhD) in 9 offices around the globe



ITEA 4



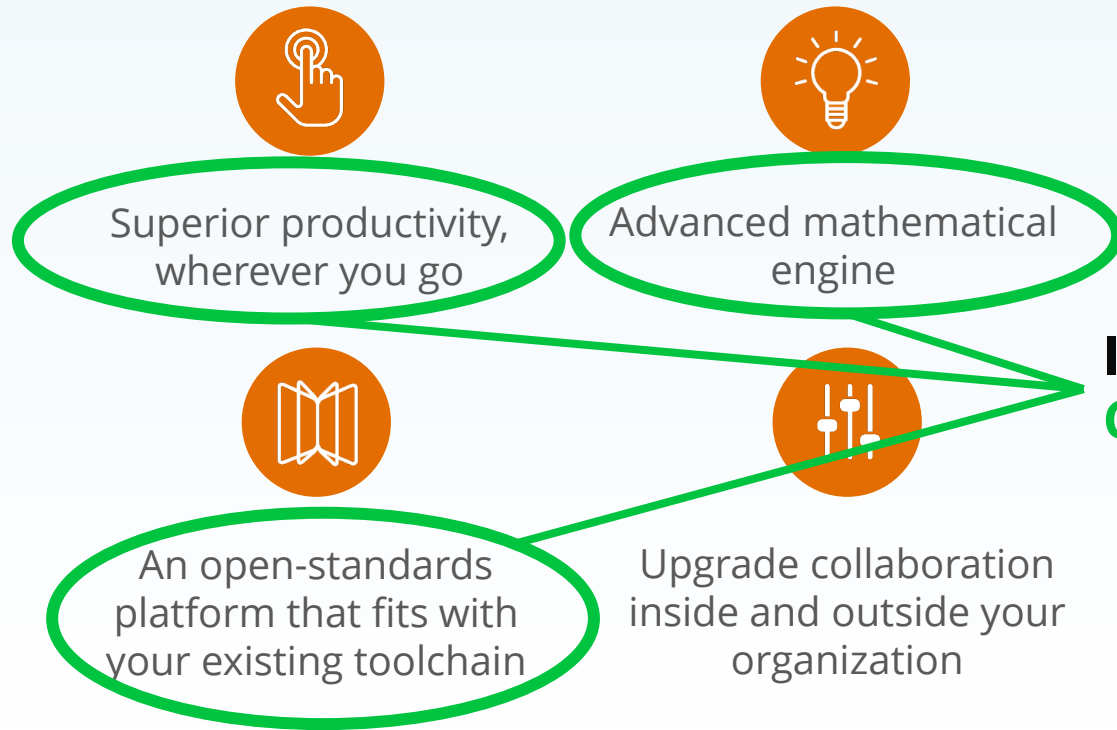
Modelon



# Modelon Impact

Meet Modelon Impact – a cloud platform for virtually designing, simulating, and analyzing industrial systems.

# Modelon Impact - Turn Simulation Results Into Business Decisions With Confidence



# Modelon ITEA projects

## Success factors for ITEA research projects – Modelon's view

Highest impact: Successful development of simulation standards

- Long-term ownership and secured maintenance of standardization results (Modelica Association) clear from the start
- Good mix of vendors, end users and academia/research in consortium
- Several competing vendors commit to implementation within project
- Standards fulfil a real industrial need
- No-royalty implementation of standards: open *and* free
- Open-source basic library to kick-start broad adoption
- Mixed eco-system of open-source and commercial results

# Modelon ITEA projects

Successful examples of OPENPROD / MODRIO / EMPHYSIS / EMBRACE

## Main outcomes for Modelon

### OPENPROD (Jun 2009 - Dec 2012)

- Continued development of open standards, Modelica and FMI, implantation in open source and commercial products

### MODRIO (Sep 2012 - May 2016)

- Integrated design and operations of cyber-physical systems: JModelica.org open-source platform for online- and offline optimization, and optimal operation

# Modelon ITEA projects

Successful examples of OPENPROD / MODRIO / EMPHYSIS / EMBRACE

## Main outcomes for Modelon

### EMPHYSIS (Sep 2017 - Feb 2021): ITEA Award of Excellence

- Development of eFMI standard for bridging design and embedded controls of complex systems, some prototypes developed

### EMBrACE (Nov 2019 - Apr 2023), almost finished

- Requirements can be used to verify and optimize the system design. Modelon's goals were a reduced "time to get an answer" – up to 2 orders of magnitude – for verifying system requirements, through parallelization of simulation execution on cloud with Modelon Impact

# Modelon ITEA projects

Successful examples of OPENPROD / MODRIO / EMPHYSIS / EMBRACE

## Societal impact

- An enabler for innovation: Open standards for simulation support and enable rapid innovation in many industrial sectors. Current Modelon customers in Energy, Automotive, Aerospace, Industrial Equipment
  - Examples: Hydrogen-powered aircraft, long-term energy storage systems, electric vehicles, integrated energy systems, innovative heat pumps, ...
  - Current main growth area is the energy transition to carbon neutrality

## Business impact

- Basic components and support for some features in Modelon's flagship product, Modelon Impact, a pioneer in cloud-based system simulation
- Building blocks on our way to become a listed company
- Open standards are beneficial for Modelon and customers!



# Benefits from collaborating with international partners in ITEA

## Modelon benefits of international collaboration

- *Modelon had an **international customer base** from the start: international research networks are an opportunity to engage in common research with more of your customers*
- *ITEA projects have helped to establish many of the **open standards** and contributed to the development of Modelica & the Functional Mockup Interface*
- *The **international setting with partners and competitors** from all over Europe was necessary to achieve **rapid acceptance of the open standards***

# Notes from the Front

## Progress through research is rarely ever linear

- Many results from the above listed projects have been abandoned and are not used
- But others have outsized success, and more than make up for the duds

## Timescales for successful commercialization of research are hard to predict

- Technically excellent results from MODRIO (finished 2016), lead to actual business results not before 2022 – the transformation of industries to net-zero emissions is the driver.

## Don't be afraid to enter into common research projects with competitors

- Successful standards development requires pre-competitive collaboration

## Don't be frustrated when not all applications succeed!

- We were frustrated for not getting funding in EUROSYSLIB: we were arguably the first company to develop a business around Modelica libraries, and didn't get funding in a project to grow that technology

# Contact Details

## Swedish ITEA Partners



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# Sweden Innovation Days 2023 - Co-innovate with Swedish partners in ITEA

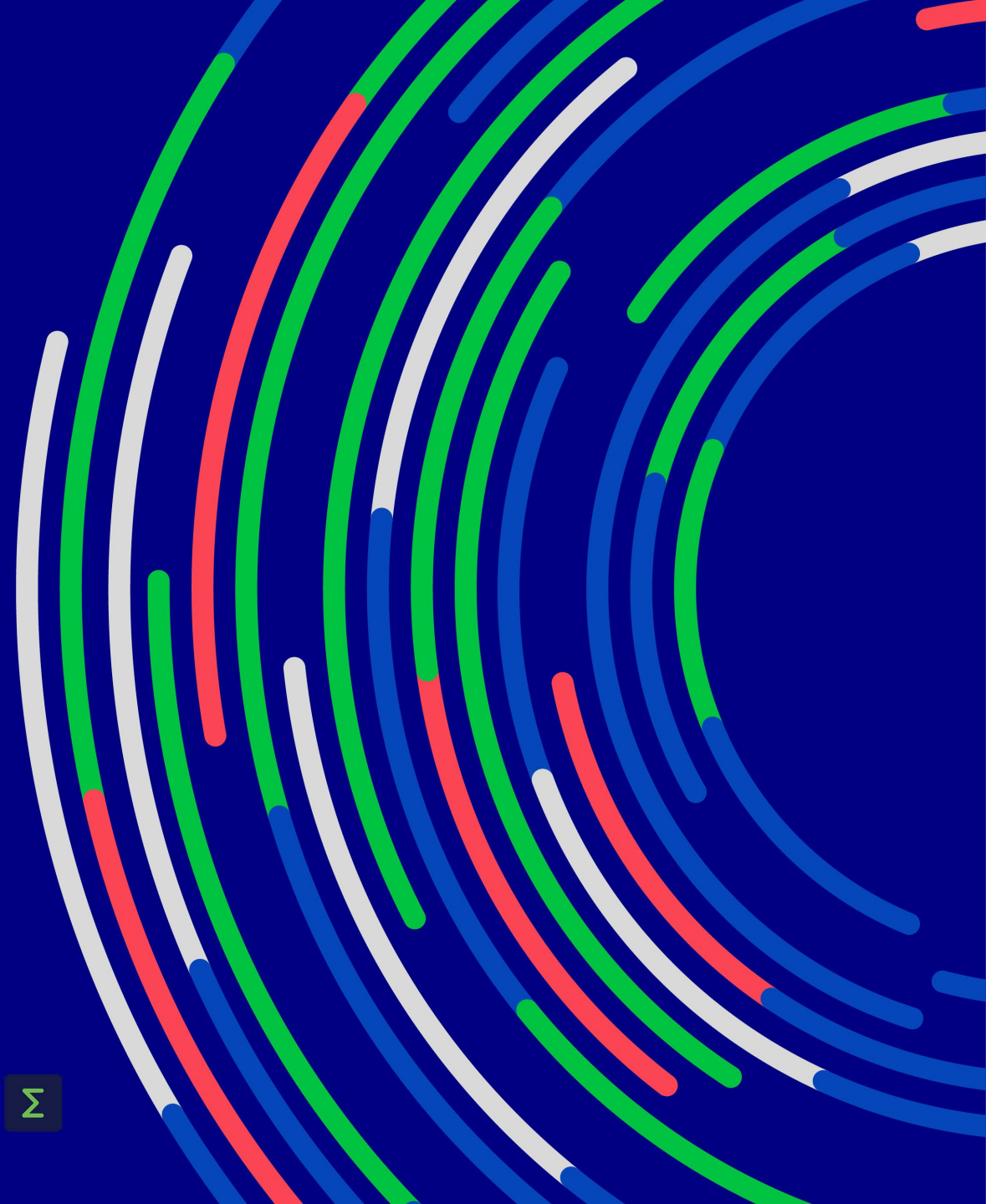
Mark van Helvoort, Philips  
23 March 2023

25  
years



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# Co-innovate with Swedish partners in ITEA

## Introduction to MR-Radiotherapy



Elekta

• Elekta

PHILIPS

• PHILIPS

Source material: <https://youtu.be/2xO2inYpiWE> and <https://youtu.be/PVwruYBZEIg>

# Co-innovate with Swedish partners in ITEA

## The successful examples of SoRTS and STARLIT

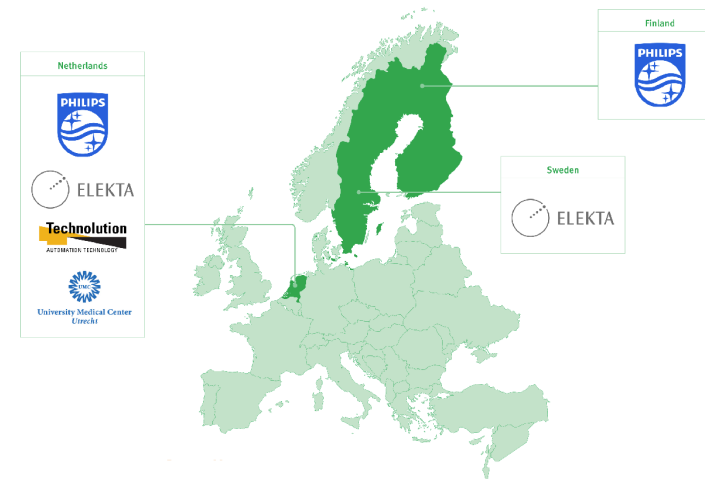
SoRTS 🇫🇮 🇳🇱 🇸🇪 developed a system of real-time systems to support healthcare professionals in the transition from invasive, open surgery to minimally invasive, image-guided intervention and treatment.

The follow-up project STARLIT 🇸🇪 🇨🇦 🇳🇱 🇸🇪 developed technology to improve treatment accuracy and to minimise the unintended dose in image-guided radiation therapy.

### More information

<https://itea4.org/project/sorts.html>

<https://itea4.org/project/starlit.html>



# Co-innovate with Swedish partners in ITEA

## The successful examples of SoRTS and STARLIT

### Main outcomes of these collaborative projects

#### SoRTS

- Elekta Unity, combining Elekta's radiation therapy system and Philips' 1.5T digital MR imaging technology
  - enabling the delivery of the radiation dose while simultaneously visualising the tumor and surrounding healthy tissue with high-quality MR images.

#### STARLIT

- Improved software for Unity to speed up imaging
  - allowing a number of intervention and monitoring processes to be carried out in real time.



# Co-innovate with Swedish partners in ITEA

## The successful examples of SoRTS and STARLIT

### Impact highlights of these collaborative projects

#### Societal impact

- Higher confidence and control of the treatment delivery for physicians
- Reduced number of treatments and side effects for patients
- Increased number of patients treated as less treatments are needed

#### Business impact

- Long-term partnership between UMCU, Philips and Elekta
- New market, new opportunities – many systems already sold
- Innovative reconstruction adopted by nearly all diagnostic customers

# Co-innovate with Swedish partners in ITEA

## Some other successful examples with Swedish participation

IVVES 

- The IVVES project has developed new methods to use AI for verification and validation of evolving systems and for the verification and validation of AI applications.

IMPACT 

- IMPACT has accelerated data analysis for clinical business intelligence, reducing the time needed for data analysis to less than five minutes, compared to the days or weeks it previously took.
- And many more!



# Co-innovate with Swedish partners in ITEA

## Benefits of international collaboration

- Realizing new paradigms
  - MR-Guided Therapy (C-Rad, Akademiska sjukhuset, Elekta)
  - AI in regulated environments (Addiva, ABB, Alstom, RISE)
  - Tissue classification without needles (SyntheticMR, Linköping)
- Increasing the pace of innovation
- ITEA: Excellent framework for collaboration

# Co-innovate with Swedish partners in ITEA

## Contact details



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