

# Avustavien järjestelmien kehitysvisio ja puunkorjuun tulevaisuuden näkymät

Metsätehon iltapäiväseminaari

21.3.2024 Helsinki



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R&D Manager  
Technology, Product Safety & IPR  
Ponsse Plc

# PONSSE GLOBALLY

We are in

# 37

countries

# 12

Subsidiaries

# 30

Dealers



# 47,2

MEUR

Operating profit  
(2023)

# 821,8

MEUR

Net sales  
(2023)

# 30,0

MEUR

Net result  
(2023)

# 2110

Ponsse people globally

Share of women 11 %

# 972

Ponsse people in Finland

# 945

Ponsse people abroad

# 74,9 %

Share of exports

# 193

Epec people

# 21 %

Share of service from turnover

# 235

Service centers around the world



# > 2200

Service professionals



# 15 000

Active PONSSE fleet

# 124

Sales professionals



# A LOGGER'S BEST FRIEND

## PURPOSE

SUSTAINABLE SOLUTIONS FOR THE BENEFIT OF OUR CUSTOMERS AND ENVIRONMENT

## MISSION

WE SUCCEED TOGETHER WITH OUR CUSTOMERS

## VISION

THE PREFERRED PARTNER FOR RESPONSIBLE FORESTRY

## MEGATRENDS

- TECHNOLOGY IS CHANGING EVERYTHING
- SUSTAINABILITY CRISIS NOW



PRODUCTS



SERVICE



FINANCE



TRAINING



PARTNERSHIP DEVELOPMENT



DIGITAL SOLUTIONS



CTL OPERATIONS CONSULTANCY

## CTL INDUSTRY DRIVERS

- MECHANICAL FOREST INDUSTRY
- CHEMICAL FOREST INDUSTRY

## OUR TECH DRIVERS

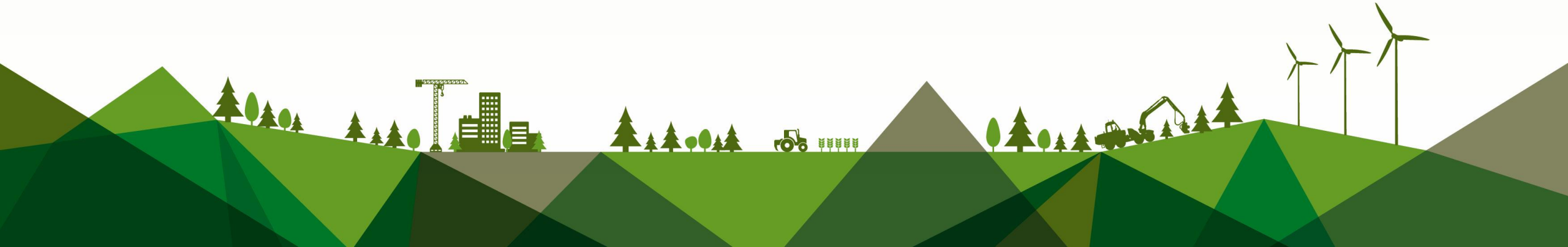
- SUSTAINABLE POWER SOLUTIONS
- OPERATOR ASSIST SYSTEMS
- DIGITALIZATION AND DATA DRIVEN SERVICES



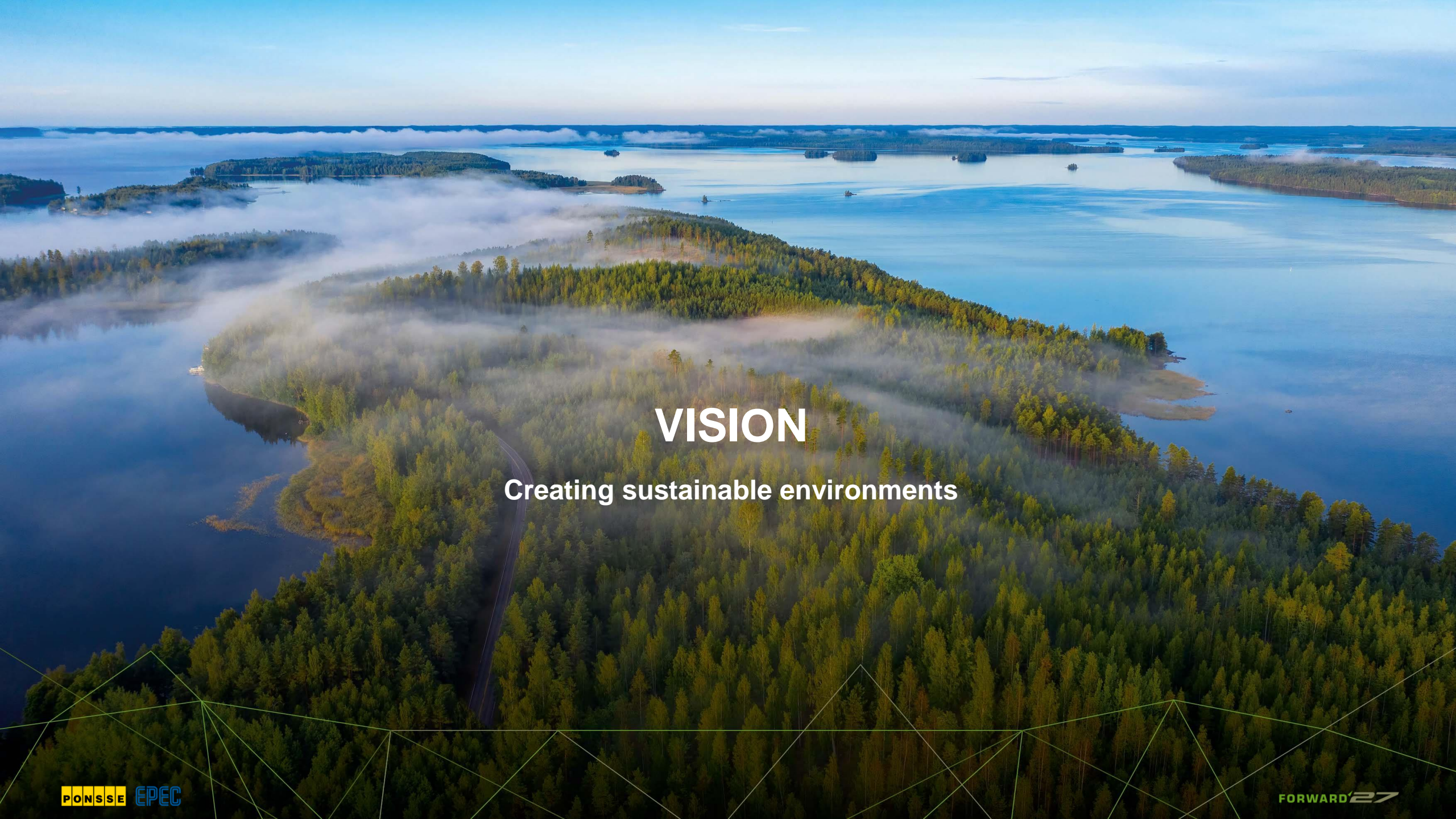
# CREATING SUSTAINABLE ENVIRONMENTS

**FORWARD**  
**PONSSE**   
**EPEC** 

AN ECOSYSTEM PROGRAM BY PONSSE GROUP





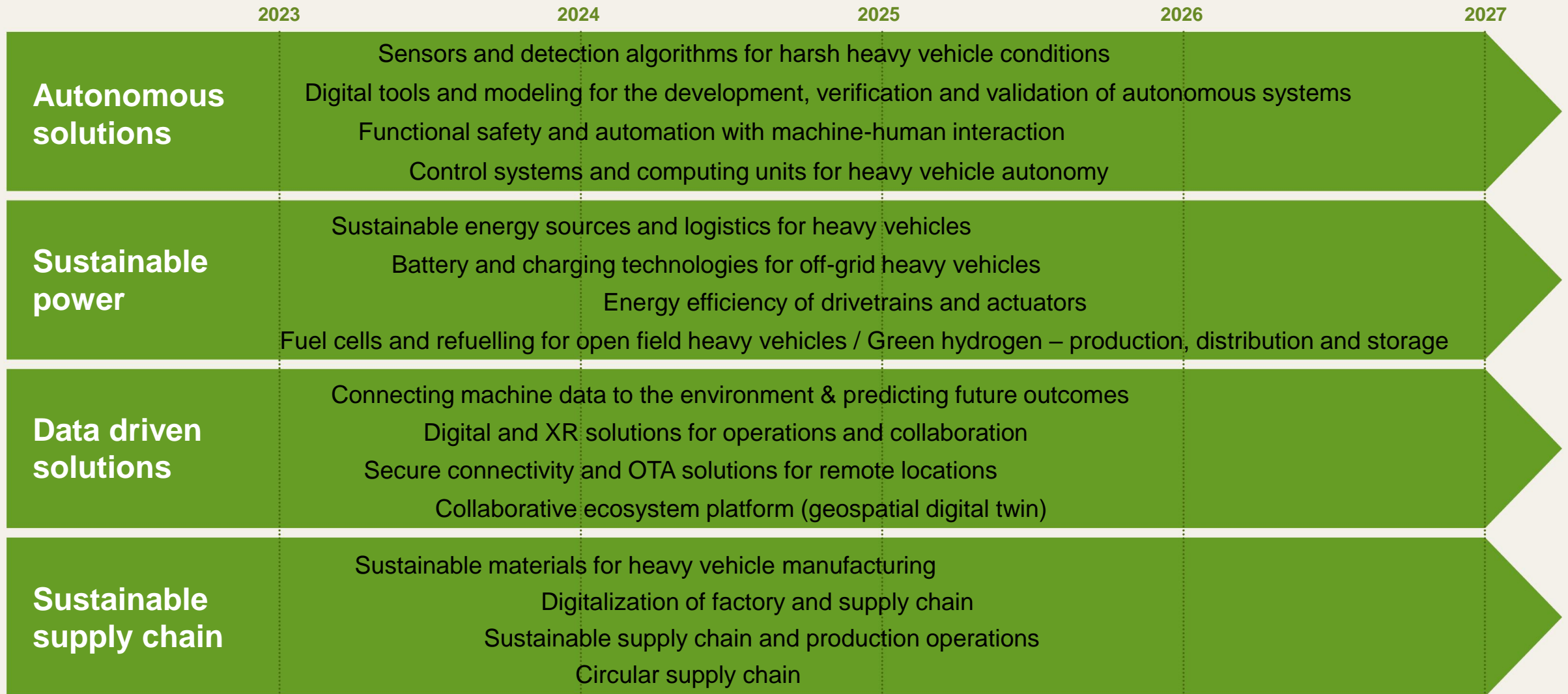


# VISION

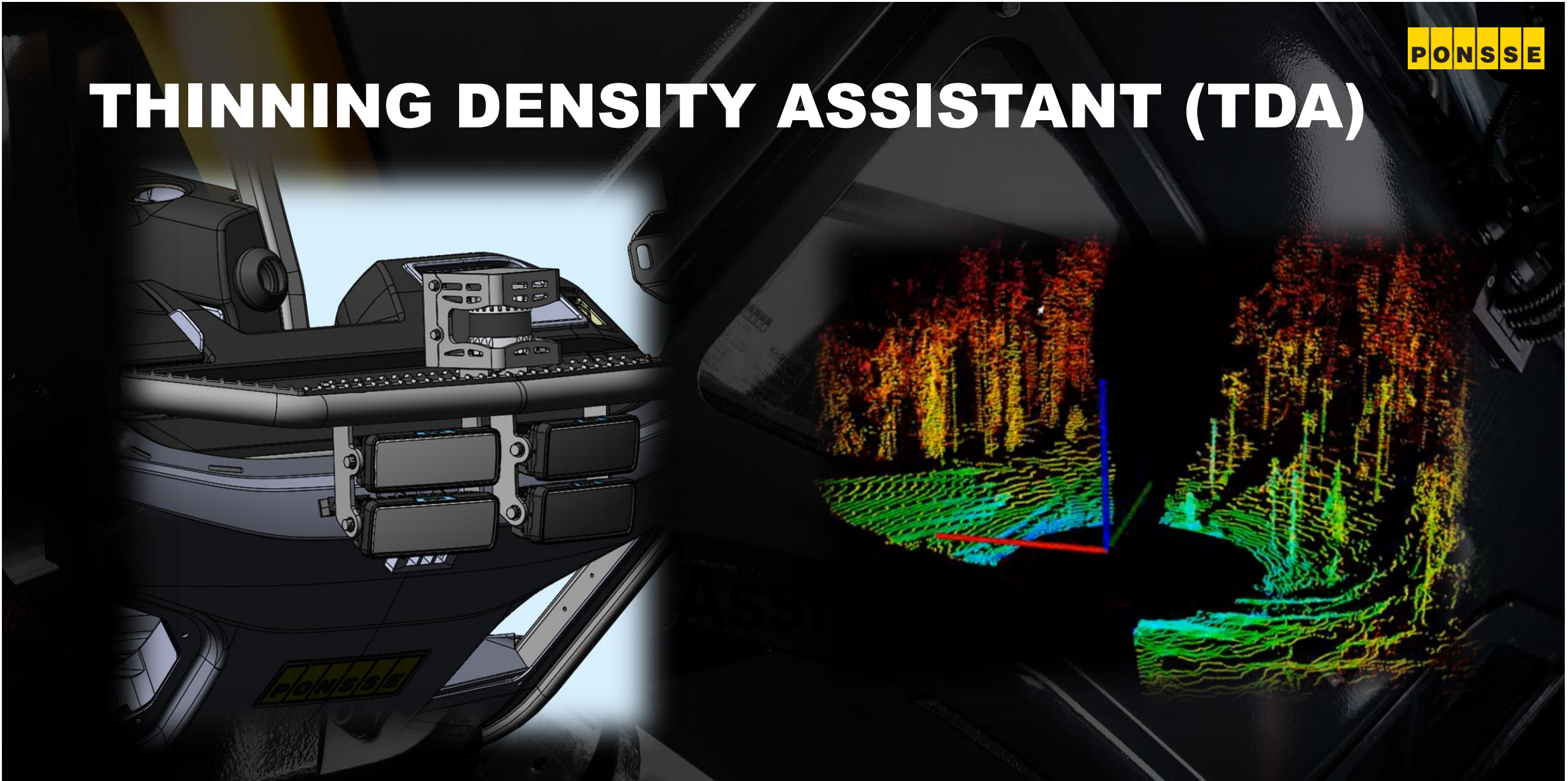
Creating sustainable environments

# WE WILL SOLVE THE TECHNOLOGY & COMMERCIAL CHALLENGES

through collaboration in ecosystem projects to create solutions for non-road & commercial vehicles



# THINNING DENSITY ASSISTANT (TDA)





# Drivers for Thinning Density Assistant

- Thinning forest to right density in all conditions 24/7 is not easy for even the most experienced operators
- Cognitive strain for the operator is high and it can be lowered with right kind of assist systems – while quality of work is improved
- Faulty thinning density leads to growth losses and lower carbon sequestration
- Also right & optimal forest strip road spacing asks for assist
- Recorded data of thinning stand after operation has remarkable value also e.g. for stand rotation simulations
- Machine perception like this is also the first step towards assist features with obstacle avoidance

Talous | HS Ympäristö

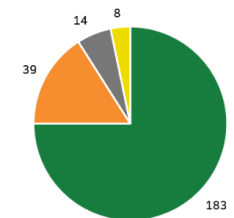
## Suomen metsien harvennuksissa kaatuu laittoman paljon puuta: ”Tulokset ovat huolestuttavia”

Suomessa ensiharvennukset tehdään suosituksia ronskimmin, mikä pienentää metsän kasvua, puunmyyntituloja ja hiilensidontaa, ilmenee Metsäkeskuksen selvityksistä.



Liian ronski ensiharvennus johtaa runkopuun tuotannon ja hiilensidonnän vähenemiseen metsikössä, laskee Metsäkeskus. KUVA: ERJA NIEMELA

Laura Kukkonen HS  
20.12.2022 14:42



■ Harvennettu liian harvaksi ■ Liian leveät ajourat  
■ Runsaasti maaastovaurioita ■ Runsaasti puustovaurioita

PONSSE

SOLUTIONS

SUSTAINABLE SOLUTIONS FOR THE BENEFIT  
OF OUR CUSTOMERS AND ENVIRONMENT

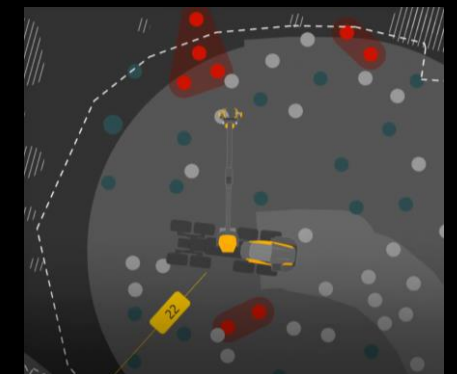
# Lidar?

- A long way here



# TDA key features

- Detects surrounding trees of the machine in real time with LiDAR
- Provides accurate location of machine and trees
- Operator assistance systems helps operator to achieve target thinning density and optimize strip road network
- Map of trees can be exported automatically out of the system for later use
- Highest possible added value to thinning operation through optimized thinning quality
- TDA is currently a technology concept in forest tests (**Scorpion, 5G**)
- TDA is also the future source of 'under canopy' calibration data for forest inventory data (ALS, satellite, etc.) in GIS



# ACTIVE CRANE

- Available now for all forwarders, most harvesters
- Also inertia based position & state feedback
- The platform for advanced assist features



# 5G

- Industry first **native touch UX**
  - Daily use without keyboard or separate pointers
  - Standard on harvesters, forwarders soon
- Developed & engineered for maximum ease of use and true intuitiveness



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User Interface (UI) Product Interfaces

## Opti 5G Operating system for a forest machine

Industrial Machine: Forest machine

Ponsse Qyj

Operating modern forestry machine is demanding for its operator: the cognitive load is high and there many difficult choices to make. The operators need to make thousands of decisions daily affecting environment, machine's lifetime, profitability. The Opti 5G is designed to ease the cognitive load and reduce the complexity of day to day operations in Cut-to-Length operations. The project completely rethought the user Interface to meet the users needs in today's and tomorrow's forest industry. User research and testing were in the heart of the design: it balances the needs of the operators, machine owners, maintenance personnel and saw mills.

<https://ifdesign.com/en/winner-ranking/project/opti-5g-operating-system-for-a-forest-machine/636867>

# DIGITAL SOLUTIONS



Ponsse Manager



Ponsse Sync



Active Manual



Ponsse Parts Online



PONSSE



**TECHNOLOGY  
CONCEPT**



**SUSTAINABLE SOLUTIONS FOR THE BENEFIT  
OF OUR CUSTOMERS AND ENVIRONMENT**

# EVOLUTION OF DRIVE TRANSMISSIONS

1970



PAZ

Hydrodynamic



S15

Hydrodynamic



Buffalo S16

Hydrostatic



Bison & Mammoth

Power-Split CVT

2022



EV1

Electric



Passive PDU



HCU



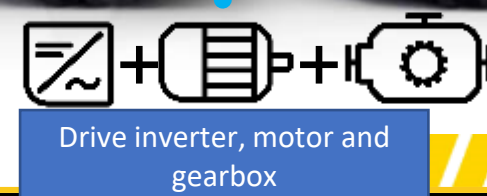
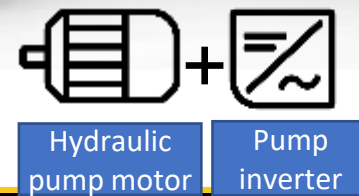
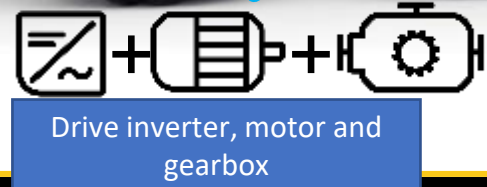
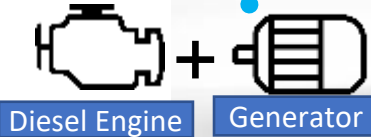
IO+TC



HMI



Active PDU



SUSTAINABLE SOLUTIONS FOR THE BENEFIT OF OUR CUSTOMERS AND ENVIRONMENT

# KEY TAKEAWAYS

- Advanced machine perception systems (*TDA*) enable:
  - Better work/thinning quality & productivity for more operators
  - Lower cognitive strain for even most experienced operators
  - Future's site level automation (together with high precision GPS/GIS systems)
- Boom automation platforms (*ACTIVE CRANE*) enable:
  - Improved productivity and lower operator strain
  - Future's sequence based boom automation & robotics in forestry
- Digital solutions (*MANAGER 2.0*) enable:
  - Global connectivity & real-time fleet management
  - Transparent machine level CO2 emissions reporting
- Modern, electrified powertrain solutions (*CVT, EV1 Technology*) enable:
  - Lowered fuel consumption
  - Future's CO2 neutral operations

PONSSE

# KIITOS!

**THE BEST**  
**CUSTOMER EXPERIENCE**

**EVERY DAY**

**FORWARD**  
PONSSE  
EPEC **27**  
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