SoFiN

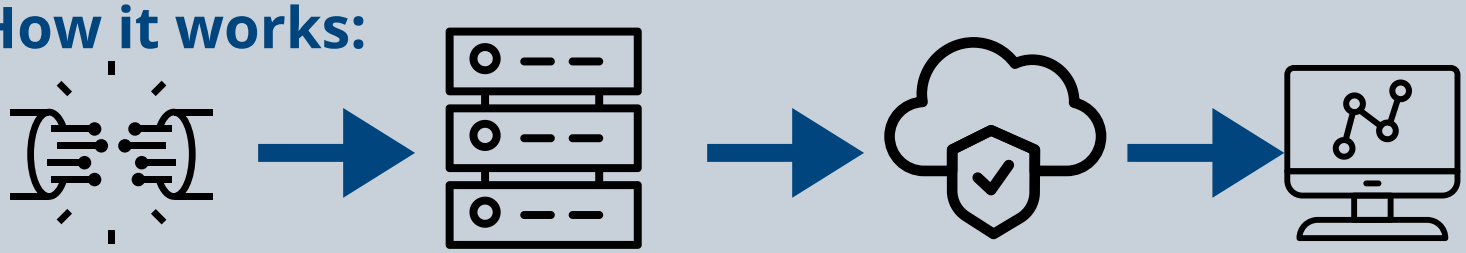
Software Enabled Fiber Optic Multisensing Network

The SoFiN Interrogator

A next-generation fiber optic sensing demonstrator that uses coherent optical time- domain reflectometry to detect physical disturbances along optical fiber, turing exisiting fiber infrastructure into a distributed sensing network



How it works:

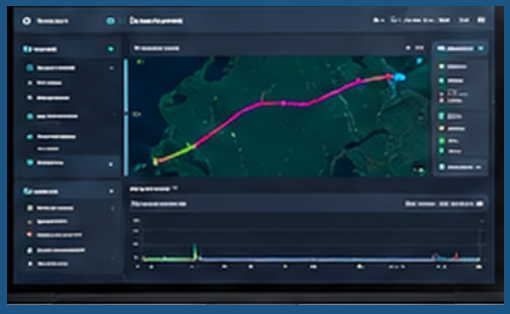


Optical Fibre → *SoFiN Interrogator* → *Cloud and Digital Twin* → *Monitoring Insights*

Key Achievements

- Developed SoFiN Interrogator.
- Field-tested in Estonia & Denmark.
- Water sensing testbed in Cyprus.
- Enhanced hardware & FPGA performance.
- Integrated Cloud & Digital Twin.

Digital Twin & Cloud Platform



Software Enabled Fiber Optic Multisensing Network

Three Real-World Use Cases

Field demonstrations validatingthe SoFiN solution across telecommunications, water supply and electrical power infrastructures.

Telecommunications Infrastructure – Estonia



66.9 km terrestrial | 91.4 km subsea

Field validation on Tele2's operational network, detecting environmental effects, acoustic activity and simulated fibre manipulation.

Water Supply Network – Cyprus



7 fibre optic cables | 2 fibres each

Dedicated Nicosia testbed investigating acoustic and temperature-based approaches for early water leak detection.

Power Cables Monitoring – Denmark



36.6 km fibre | 220 kV power cable

Energinet field trial identifying 50 Hz and 100 Hz frequency components and signals consistent with nearby moving vehicles.

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