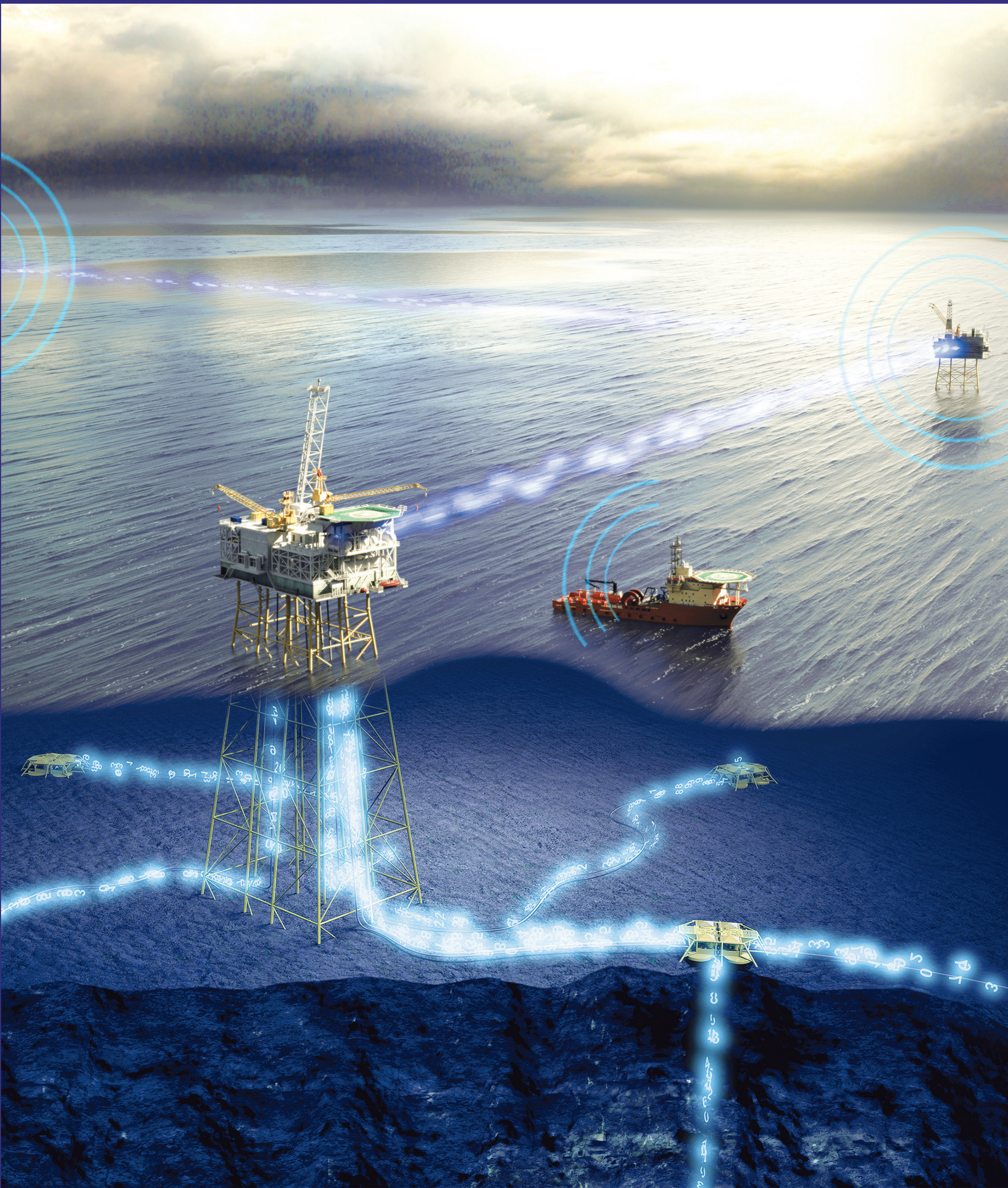


SUSTAINABILITY OF SUBSEA OPTIC FIBRE CABLES IN THE NORTH SEA



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Overview:
Tampnet installed its first cables in 1998 in the North Sea. Over the past 20 years, demand for low-latency connectivity to and from the Nordics has resulted in ongoing expansion of Tampnet’s passive subsea optic fibre cable network within this region.

To enable further expansion, additional branching units were installed to enable re-routing of some fibres into a meshed network design.

Some of the oldest cables in the network were evaluated to determine their remaining life span and suitability for this project.

The NorSeaCom 1 subsea fibre cable was inspected following over 20 years of operations. Findings showed the cable had lower attenuation than their original design specification, and no visible corrosion.

This paper discusses the factors which have influenced the extended life of the subsea cables.

FINDINGS SUPPORTING IMPROVED NETWORK SUSTAINABILITY

FEATURE	FACTORS
PASSIVE CABLE	<ul style="list-style-type: none">• Flexibility in network design• Lighter weight• No power feed• Lower risk of faults – no active components• Repairs possible within 7-10 days (average)
CAREFUL NETWORK PLANNING	<ul style="list-style-type: none">• Understanding of current and future market needs• In-depth analysis of seafloor environment• Prebuilt cable with integrated branching units and lay down heads
FIT-FOR-PURPOSE CABLE & COMPONENTS	<ul style="list-style-type: none">• Built to withstand torsional and pressure forces at various depths and positions/locations• Protect from mechanical damage due to human activity [e.g. fishing]
ROPA AND RAMAN AMPLIFICATION	<ul style="list-style-type: none">• No active subsea amplifiers needed• Transmission distance can extend up to 500km
MESH NETWORK DESIGN	<ul style="list-style-type: none">• Robust and flexible• Can be further expanded whilst in operation• Provides reliable network performance• Service and operations can be planned to reduce cost and impact
BURIAL	<ul style="list-style-type: none">• Cables are typically buried to a target depth of 1m to protect from fishing activities• Concrete mattresses and rock dumping incorporated where needed

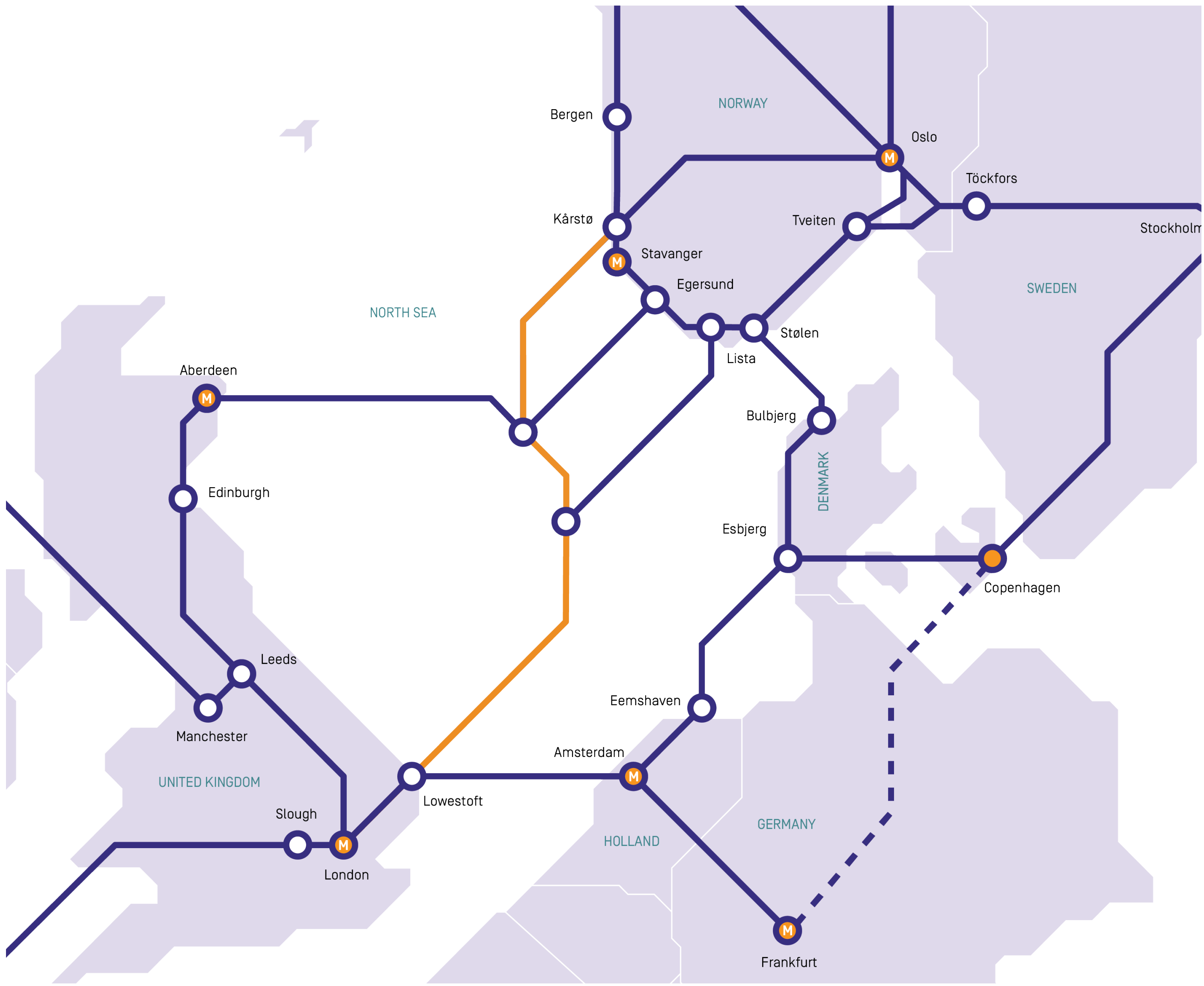


Figure 2: NorSeaCom 1 Submarine fibre optical system

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