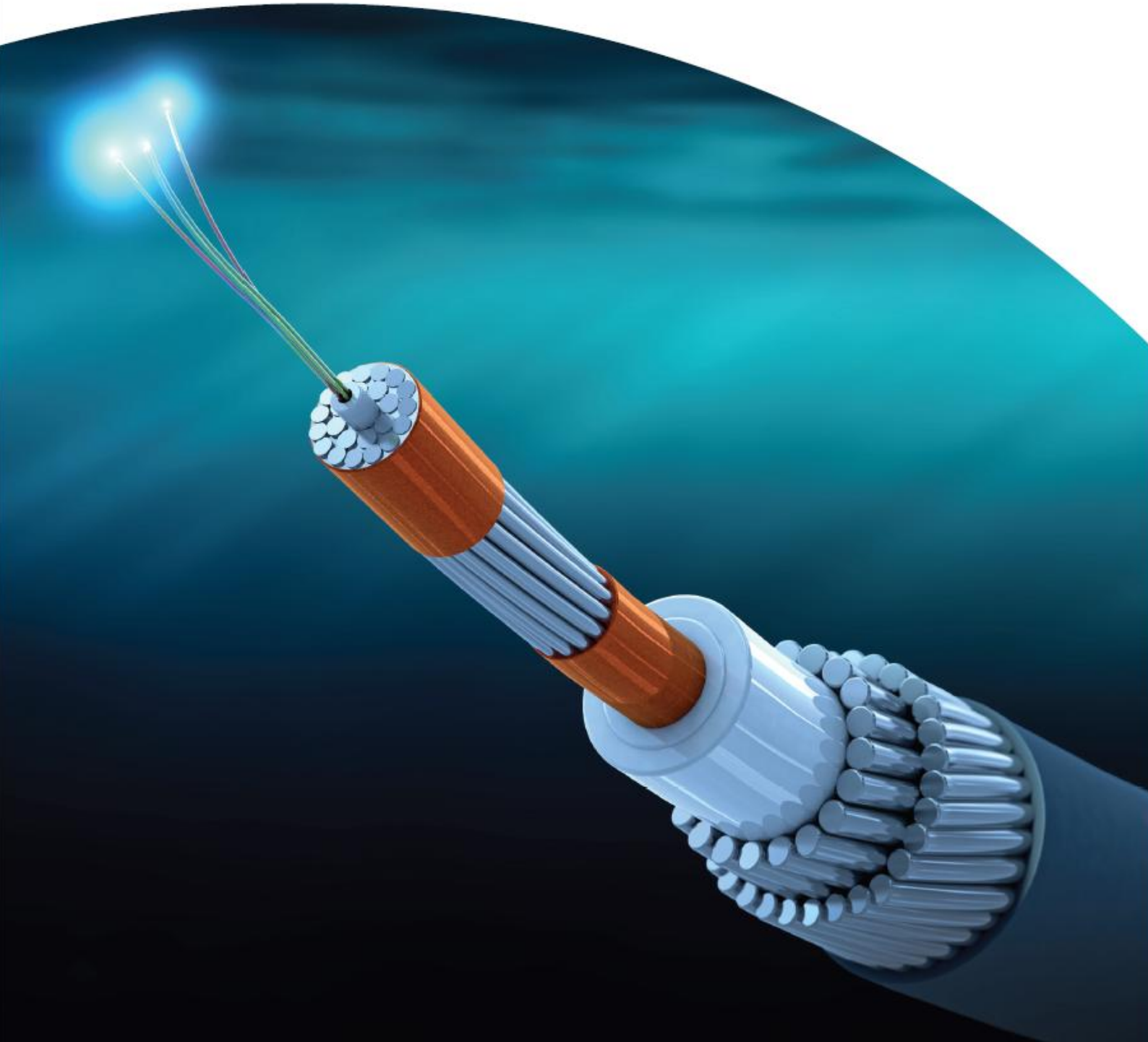
Report by the Expert Group under Recommendation 2024/779
on Secure and Resilient Submarine Cable Infrastructures

Security and Resilience of EU Submarine Cable Infrastructures

Submarine Cable Security Toolbox and Cable Projects of European Interest

January 2026



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1. INTRODUCTION

Amid rising geopolitical tensions, submarine cables connecting Europe have suffered multiple incidents in recent years (although the nature of these events, whether accidental or intentional, is not always easy to determine). These incidents have raised awareness across Europe and beyond regarding the criticality and vulnerability of submarine cables carrying data or electricity.

To address these concerns, the European Commission ('the Commission') and the High Representative of the Union for Foreign Affairs and Security Policy ('the High Representative') adopted the EU Action Plan on Cable Security ([1]) on 21 February 2025 (the 'Cable Action Plan'). This initiative outlines a series of co-ordinated actions to address threats and enhance the resilience of telecoms and power submarine cable infrastructures, across all stages of the resilience cycle: prevention, detection, response and recovery, and deterrence.

To support the implementation of the Cable Action Plan, and the preceding Commission Recommendation (EU) 2024/779 on Secure and Resilient Submarine Cable Infrastructures, the Commission set up the Submarine Cable Infrastructures Expert Group ('the Expert Group'). This Group is chaired by the Commission and comprises representatives from Member States' authorities and the EU Agency for Cybersecurity (ENISA), to offer guidance particularly on the following matters:

(1) mapping the existing and planned submarine cable infrastructures at EU-level, based on national mapping exercises
(2) conducting a consolidated Union-wide assessment of risks, including threats, vulnerabilities and dependencies of submarine cable infrastructures
(3) putting forward a Cable Security Toolbox of mitigating measures
(4) proposing a draft list of strategic Cable Projects of European Interest (CPEIs) that meet the criteria listed in Recommendation (EU) 2024/779
(5) advising on maintenance and repair capacity for submarine cables.

In October 2025, the Expert Group published a report, ([2]) which addresses points (1) and (2) on this list.

The present report covers points (3), (4) and (5) listed above. ([3]) In particular, Section 2.2 proposes the Cable Security Toolbox, which recommends a set of mitigation measures to address the risk scenarios – based on threats, vulnerabilities and dependencies – identified in the October 2025 Expert Group report. Section 3.2 presents the proposed CPEI list. It covers both areas where new submarine cables could be built (or existing ones upgraded) and horizontal capacity measures, such as modular repair capacity and the use of Optical Fiber Sensing (OFS) technologies for monitoring purposes – for example, Distributed Acoustic Sensing (DAS) or Science Monitoring and Reliable Telecommunications (SMART) cables – to improve systems for detection of threats.

([1]) European Commission (2025), *EU Action Plan on Cable Security*.

([2]) European Commission Expert Group (2025), *Security and Resilience of EU Submarine Cable Infrastructures: Mapping, Risk Assessments, Stress Tests*. Study conducted by Analysys Mason and Axiom under service contract EC-CNECT/2024/OP/0070.

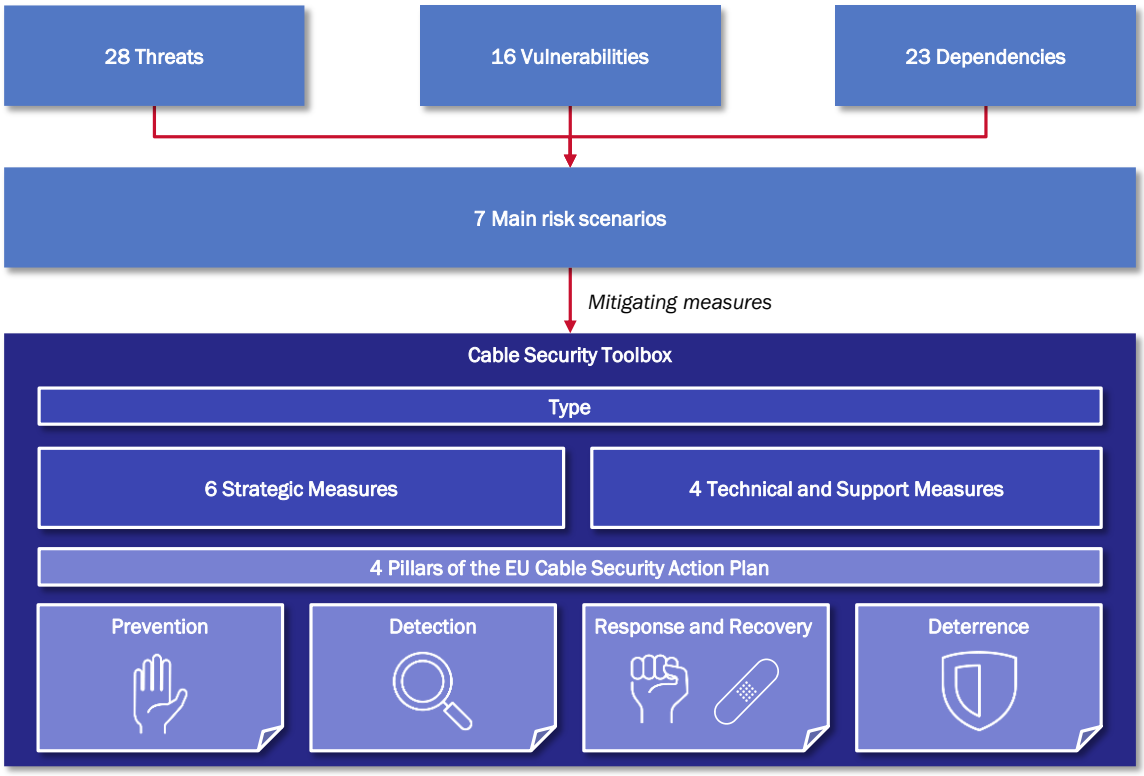
([3]) The Expert Group prepared this report on the basis of a study contracted by the Commission to Analysys Mason and Axiom under service contract EC-CNECT/2024/OP/0070, as well as discussions and written exchanges between Member States and the Commission throughout 2024 and 2025.

2. CABLE SECURITY TOOLBOX OF MITIGATION MEASURES

2.1. Methodology

The Cable Security Toolbox methodology is illustrated in Figure 2.1 below.

Figure 2.1: Cable Security Toolbox methodology [Source: Analysys Mason, 2026]



Based on the identified threats, vulnerabilities and dependencies, seven main risk scenarios were outlined in the EU risk assessment of the Expert Group report issued in October 2025, as presented in Annex A of this report.

The objective of the Cable Security Toolbox is to propose a common set of recommendations, which can mitigate one or several of the identified risk scenarios. The methodology used to develop the Cable Security Toolbox is based on Commission Recommendation 2024/779 on Secure and Resilient Submarine Cable Infrastructures, particularly Points 20 to 22 and Recitals 22 to 23 and 26 to 27 therein. The methodology also accounts for Technical Recommendation 7 of the Nevers Report, ([4]) which calls for exchanging good practices and developing technical guidelines on the resilience of submarine cables.

A draft version of the Cable Security Toolbox was discussed by the Expert Group at a meeting held by the Commission in June 2025. Based on feedback and comments received, an updated draft version was agreed in principle by the Expert Group at a Commission meeting in November 2025.

([4]) European Commission (2024), *Report on the cybersecurity and resiliency of the EU communications infrastructures and networks*.

The Toolbox was finalised in January 2026, taking into account additional feedback from the Expert Group.

The Cable Security Toolbox recommendations proposed in this report are categorised into two types, namely:

- **Strategic Measures**, which address risks from a non-technical angle and may lead to increased intervention by relevant authorities.

- **Technical and Support Measures**, which address risks from a technical angle, intended primarily for implementation by the private sector.

The Cable Security Toolbox predominantly aims at providing mitigation measures under the 'Prevention' section of the Cable Action Plan, which focuses on 'increasing the resilience and preparedness of the EU', but it also links to the other sections of the Action Plan ('Detection', 'Response and Recovery', and 'Deterrence'), as shown in Figure 2.1 above.

2.2. Cable Security Toolbox measures

This section lays out the ten measures included in the Cable Security Toolbox. Each measure includes a series of possible actions to mitigate the threats, vulnerabilities and dependencies identified in one or several related risk scenarios. The list of possible actions considered for each measure is not intended to be comprehensive, but rather represents a non-exhaustive list of concrete elements that can be considered by the relevant actors when implementing the mitigating measures. The most relevant actors responsible for the implementation of each measure are identified.

Figure 2.2 below presents the set of Strategic as well as Technical and Support Measures included in the Cable Security Toolbox.

Figure 2.2: Cable Security Toolbox measures [Source: Analysys Mason, 2026]

ID	Measure	Relevant actors
Strategic Measures (SM)		
SM01	Increase cable redundancy with additional connections, diversity of routes and landing locations	• Operators • The Commission • Member State authorities
SM02	Reinforce EU maintenance and repair capacity and capabilities	• Maintenance providers • Operators • Suppliers • The Commission • Member State authorities
SM03	Reduce exposure to non-EU suppliers and operators	• The Commission • Member State authorities • Operators
SM04	Promote manufacturing facilities, stocks and depots in the EU	• Suppliers • Member State authorities • The Commission
SM05	Implement and, where needed, strengthen Member States, EU and international regulatory and administrative measures on submarine cable protection	• Member State authorities • The Commission

ID	Measure	Relevant actors
SM06	Promote co-ordination between industry, Member States, the North Atlantic Treaty Organization (NATO) and international bodies	• Member State authorities • The Commission • NATO and other international organisations • Operators
Technical and Support Measures (TM)		
TM01	Ensure adequate physical and cyber protection of submarine cables	• Operators • Member State authorities
TM02	Reinforce physical and cybersecurity as well as power resilience of dry plant facilities	• Operators • Suppliers • Member State authorities
TM03	Increase monitoring, surveillance and detection capabilities	• Operators • Suppliers • Member State authorities • EU agencies (such as the European Border and Coast Guard Agency (Frontex), the European Defence Agency (EDA), the European Environmental Agency (EEA), the European Fisheries Control Agency (EFCA), the European Maritime Safety Agency (EMSA), the European Union Agency for Cybersecurity (ENISA)) • The Commission
TM04	Strengthen maintenance and repair capabilities	• Operators • Suppliers • The Commission • Member State authorities

2.2.1. Strategic Measures

SM01. Increase cable redundancy with additional connections, diversity of routes and landing locations

The primary aim of this Strategic Measure is to enhance the resilience and reliability of critical cable infrastructures across Europe. This will be achieved by introducing additional cable connections or reinforcing existing ones, and ensuring diversity in both routes and landing locations. By reducing dependency on a limited number of cables, the risk of service disruption caused by physical damage (intentional or not) is significantly mitigated.

Examples of practical actions that can be taken to support this Strategic Measure include the following:

1. Fund capacity on critical routes, including both new and reinforced routes, particularly through public–private partnerships. This notably includes prioritising areas listed under the CPEI framework in Section 3 of this report.

2. Promote cross-border co-ordination to identify strategic locations for additional or alternative cable routes and landing points. Such co-ordination should ensure that redundancy is not limited to the national remit but extended at EU-level.

3. Streamline permitting for deployment activities in the EU. Reducing administrative barriers accelerates project timelines and lowers costs for cable owners.

This Strategic Measure mitigates the following risk scenarios:

- **R1** – Co-ordinated physical sabotage or attack on a submarine cable
- **R2** – Co-ordinated sabotage or attack on a cable landing site (beach manhole and/or landing station)
- **R6** – Unintentional cable damage caused by human activity
- **R7** – Natural events leading to physical damage on multiple cables or cable landing stations.

This measure falls under the **Prevention** section of the Action Plan, as it mitigates the risks associated with the above scenarios by providing additional redundant cables, which in turn reduces the risk of service outages.

Effective implementation of this Strategic Measure requires co-ordinated efforts by multiple stakeholders, including:

- **operators**, by investing in and deploying additional cable infrastructure
- **the Commission**, by providing policy direction and funding requirements
- **Member State authorities**, by facilitating regulatory approvals, national-level co-ordination and providing funding support.

SM02. Reinforce EU maintenance and repair capacity and capabilities

This Strategic Measure aims to strengthen the EU's ability to maintain and repair critical cable infrastructure efficiently and effectively. Robust maintenance and repair capabilities are essential to ensure continuity of service and rapid recovery in the event of disruptions caused by physical damage (intentional or not). By reinforcing these capabilities, the EU can reduce downtime, safeguard connectivity and maintain operational resilience across its digital networks.

Examples of practical actions that can be taken to support this Strategic Measure include the following:

1. Fund the renewal of maintenance vessels serving EU waters, as identified in the CPEI framework (Section 3 of this report).

2. Promote the use of multipurpose hybrid vessel(s), and modular equipment stock[5] for exceptional interventions by public bodies in emergency situations, as identified in the CPEI framework (Section 3 of this report).

3. Streamline permitting for maintenance activities in the EU. Reducing administrative delays ensures that repair operations can commence promptly and that the permitting process does not lead to repair delays.

4. Scrutinise and prohibit, if necessary, the acquisition of EU cable maintenance vessels and depots by non-EU entities, particularly those controlled directly or indirectly by third states operating at odds with the security interests of the EU and its Member States or violating the sovereign rights of Member States within their maritime zones. This measure safeguards strategic assets and prevents potential vulnerabilities linked to foreign ownership.

([5]) Modular equipment stock comprises standardised, containerised or skid-mounted telecoms repair kits (such as jointing habitats, test sets, portable cable engines and tensioners, overboarding sheaves, Remotely Operated Vehicle (ROV) spreads and modular cable tanks) that can be rapidly integrated with pre-configured multipurpose vessels to execute emergency repairs.

5. Carry out cable security exercises considering the repair dimension. These exercises should assess logistical readiness, resource allocation and co-ordination among stakeholders, ensuring that response plans are practical and effective.

This Strategic Measure mitigates risk scenario **R4** (disruption of maintenance capability).

This measure falls under the **Prevention** and **Response and Recovery** sections of the Action Plan, as it mitigates the risks associated with the disruption of maintenance capabilities and strengthens EU capacity of response and recovery in case of such disruption.

The successful implementation of this measure requires co-ordinated efforts among multiple actors, including:

- **maintenance providers**, by delivering state-of-the-art repair services
- **operators**, by managing infrastructure and ensuring readiness for maintenance interventions
- **suppliers**, by providing specialised equipment, vessels and spare parts necessary for repair operations
- **the Commission**, by providing funding
- **Member State authorities**, by ensuring regulatory compliance, facilitating national-level co-ordination and providing funding support**.**

SM03. Reduce exposure to non-EU suppliers and operators

This Strategic Measure aims to strengthen the security and resilience of Europe's submarine cable infrastructures by reducing reliance on non-EU actors, where appropriate. Dependence on external suppliers not only affects economic security (e.g., imposition of embargo by non-EU countries on key components) that may result in risks with a cybersecurity and physical security dimension (from cyber espionage to embedded backdoors in key components enabling remote sabotage or malicious system shut down). Prioritising EU-based suppliers and diversifying sources of supply within the EU helps to safeguard the integrity of the supply chain for repairing existing submarine cables and deploying new ones.

Examples of practical actions that can be taken to support this Strategic Measure include the following:

1. Assess supply chain dependencies and risks, including risks associated with the suppliers' profile. This may involve assessing financial stability of suppliers, their security practices, the track record of reliability of their equipment and services, and geopolitical exposure.

2. Based on dependency and risk assessment, promote supply diversity and favour European supply, restricting the participation of non-EU suppliers in critical segments and components of the value chain for submarine cable systems.

This Strategic Measure mitigates the following risk scenarios:

- **R5** – Disruption of the supply chain.

This measure falls under the **Prevention** section of the Action Plan, as it mitigates the risks associated with the above scenarios by reducing exposure to and reliance on non-EU suppliers and operators.

The successful implementation of this measure requires co-ordinated efforts among multiple actors, including:

- **the Commission**, by providing policy direction and funding requirements

- **Member State authorities**, by adopting national-level initiatives to prevent strategic threats to national security and reduce non-EU dependencies
- **operators**, by making procurement decisions aligned with national and EU economic security objectives and ensuring supplier diversity.

SM04. Promote manufacturing facilities, stocks and depots in the EU

The purpose of this Strategic Measure is to strengthen the resilience and autonomy of Europe's submarine cable infrastructures by promoting the establishment of manufacturing facilities and maintenance depots within the EU. By localising production and storage capabilities for critical components in the EU, such as fibre and semiconductors, this measure aims to reduce dependency on external suppliers, improve response times during disruptions and ensure continuity of operations.

Examples of practical actions that can be taken to support this Strategic Measure include the following:

1. Increase manufacturing facilities in the EU for all submarine cable key components, including fibre and semiconductors, to reduce reliance on non-EU sources and strengthen strategic autonomy.

2. Build up stocks for spares of key submarine cable components in the EU, to ensure their availability for maintenance and activities, especially during emergencies.

3. Incentivise the location of depots in the EU by offering financial and regulatory incentives to operators and suppliers, ensuring proximity to key cable routes and landing stations.

4. Increase depot backup locations in the EU to maintain continuity in case primary facilities become inaccessible.

This Strategic Measure mitigates the following risk scenarios:

- **R4** – Disruption of maintenance capability
- **R5** – Disruption of the supply chain.

This measure falls under the **Prevention** and **Response and Recovery** sections of the Action Plan, as it accelerates the response and recovery of service in case of a co-ordinated physical sabotage or attack on a submarine cable, unintentional cable damage caused by human activity, and natural events leading to physical damage on multiple cables or cable landing stations. In addition, it helps to prevent disruption to maintenance capabilities and the supply chain by retaining control and ownership on spare parts stock and the locations where they are stored.

The successful implementation of this measure requires co-ordinated efforts among multiple actors, including:

- **suppliers**, by establishing manufacturing capabilities and maintaining adequate stock levels in the EU
- **Member State authorities**, by facilitating regulatory approvals and providing incentives for national production
- **the Commission**, by offering policy guidance, through funding programmes and co-ordination across Member States.

SM05. Implement, and where needed, strengthen Member States, EU and international regulatory and administrative measures on submarine cable protection

This Strategic Measure focuses on reinforcing the regulatory and administrative structures at Member State, EU and international levels to ensure comprehensive protection of submarine cable infrastructures. The measure aims to establish clear governance structures, streamline permitting processes and enhance co-ordination among different bodies within each Member State and across Member States, in view of strengthening physical and cybersecurity. By improving legal frameworks and administrative mechanisms, Europe can more effectively prevent, detect and deter threats to critical connectivity assets.

Examples of practical actions that can be taken to support this Strategic Measure include the following:

1. Swiftly transpose and implement the Directive on a high common level of cybersecurity across the Union (the 'NIS 2 Directive') and the Directive on the resilience of critical entities (the 'CER Directive') into EU Member State legislation, to ensure appropriate and consistent treatment of submarine cable infrastructures.
2. Enable a single entity in each Member State to co-ordinate between the different authorities/bodies involved in submarine cable security and resilience, to ensure streamlined communication and decision-making.
3. Increase emergency co-ordinated response by and across Member States, to address incidents effectively and minimise downtime.
4. Set up a cross-Member State system to exchange on physical and/or cyber incidents (e.g., in stages through Cable Hubs), building on existing systems (e.g., Common Information Sharing Environment (CISE)).
5. Streamline the permitting process to access territorial waters and Exclusive Economic Zone (EEZ) waters, to reduce administrative delays for cable deployment as well as maintenance and repair.
6. Encourage planning of maritime space, including dedicated space for submarine cables, to enhance protection from activities such as fishing or anchoring.
7. Adopt and enforce effective domestic cable protection laws aligned with international standards, and in accordance with international law, including the United Nations Convention on the Law of the Sea (UNCLOS).

This Strategic Measure mitigates against the following risk scenarios:

- **R1** – Co-ordinated physical sabotage or attack on a submarine cable
- **R2** – Co-ordinated sabotage or attack on a cable landing site (beach manhole and/or landing station)
- **R5** – Disruption of the supply chain
- **R6** – Unintentional cable damage caused by human activity
- **R7** – Natural events leading to physical damage on multiple cables or cable landing stations.

This measure falls under the **Prevention**, **Detection, Response and Recovery** and **Deterrence** sections of the Action Plan as it strengthens regulatory and administrative frameworks to prevent vulnerabilities, enables early detection of potential threats and adequate response to outages, and deters malicious activities through enhanced governance and co-ordination at national, EU and international levels.

The successful implementation of this measure requires co-ordinated efforts among multiple actors, including:

- **Member State authorities**, which are responsible for transposing EU directives and enforcing national laws
- **the Commission**, by providing policy direction, monitoring implementation and supporting cross-border co-ordination.

SM06. Promote co-ordination between industry, Member States, NATO and international bodies

This Strategic Measure seeks to enhance collaboration between public authorities, private operators and international organisations to ensure the security and resilience of submarine cable infrastructures. Given the transnational nature of these infrastructures, effective co-ordination is essential for preventing, responding to and deterring threats, whether physical or cyber. By fostering partnerships and information-sharing, this measure aims to create a unified approach to protecting critical connectivity assets.

Examples of practical actions that can be taken to support this Strategic Measure include the following:

1. Promote public–private co-ordination for prevention of, and response to, critical incidents and emergencies. This includes joint planning exercises and shared contingency frameworks. ([6])

2. Share information and best practices between public entities from different Member States to improve preparedness and resilience.

3. Explore possibilities of carrying out naval exercises between Member States, NATO and third countries to protect submarine cables, provided that substantial safeguards for the involvement of non-EU countries are satisfied. In this regard, it is imperative that sovereignty and sovereign rights of Member States be respected in accordance with international law, including UNCLOS. Co-ordination with NATO should be conducted in an inclusive and non-discriminatory manner, and in full respect of the agreed principles of the parameters of EU-NATO co-operation, namely inclusiveness, reciprocity, transparency and decision-making autonomy of both organisations.

4. Increase the representation of EU stakeholders (including Member States) in global forums such as the International Telecommunication Union (ITU) and the International Cable Protection Committee (ICPC), to ensure that EU priorities and standards are reflected in international cable protection policies.

This Strategic Measure mitigates against all risk scenarios:

- **R1** – Co-ordinated physical sabotage or attack on a submarine cable
- **R2** – Co-ordinated sabotage or attack on a cable landing site (beach manhole and/or landing station)
- **R3** – Power cuts to cause a regional network outage
- **R4** – Disruption of maintenance capability
- **R5** – Disruption of the supply chain
- **R6** – Unintentional cable damage caused by human activity

([6]) In Norway, national authorities and telecoms operators are mandated to collaborate closely on critical digital infrastructure. The National Security Plan for Digital Infrastructure explicitly calls for government agencies (including Nkom and defence authorities) to work jointly with operators on prevention, risk analysis and emergency response across communications networks, including subsea cables. Ministry of Digitalisation and Public Administration (2025), *National Security Plan for Digital Infrastructure: Electronic Communications in Peace, Crisis and War*.

- **R7** – Natural events leading to physical damage on multiple cables or cable landing stations.

This measure falls under the **Prevention**, **Response and Recovery**, and **Deterrence** sections of the Action Plan, as it promotes cross-sector and international co-ordination to prevent risks, enables rapid and unified response to incidents, supports recovery efforts through shared resources and expertise, and deters malicious actions by strengthening collective resilience and information-sharing. In this context and with the aim to effectively safeguard the security of critical EU infrastructure, any co-ordination with non-EU actors (state and non-state) should be subject to clear and specific criteria (i.e. alignment with the EU Common Foreign and Security Policy) and with respect for the rights and interests of the EU and its Member States under EU and international law.

The successful implementation of this measure requires co-ordinated efforts among multiple actors, including:

- **Member State authorities**, by ensuring national-level co-ordination and participation in joint initiatives
- **the Commission**, by providing policy guidance and facilitating international engagement
- **NATO and other international organisations**, such as the ITU, ([7]) the ICPC, the International Maritime Organization (IMO), the European Subsea Cable Association (ESCA), EuropaCable and the International Connectivity Coalition (ICC), by providing co-ordination between relevant actors in view of enhancing security and resilience of submarine cable infrastructures
- **operators**, by collaborating with public authorities and sharing operational insights.

2.2.2. Technical and Support Measures

TM01. Ensure adequate physical and cyber protection of submarine cables

This Technical and Support Measure aims to safeguard submarine cable infrastructures against both physical and cyber threats. Submarine cables are critical for global connectivity, yet they remain vulnerable to accidental damage, malicious interference and cyberattacks targeting operational systems. By implementing robust physical protection standards and enhancing cybersecurity measures, this initiative seeks to ensure the integrity and resilience of these essential assets.

Examples of practical actions that can be taken to support this Technical and Support Measure include the following:

1. Add adequate cable armouring, burial standards and other protection methods such as articulated pipes in shallow waters, to reduce the risk of accidental damage from fishing, anchoring or natural threats.

2. Ensure the security of submarine cable Operations and Support Systems (OSS) and monitoring platforms, by implementing robust cybersecurity protocols, continuous monitoring and incident response capabilities.

3. Promote targeted education programmes on submarine cables for relevant industries such as fishing, raising awareness about the importance of submarine infrastructures to prevent accidental damage.

([7]) In 2024, the ITU established an *International Advisory Body for Submarine Cable Resilience - Submarine cables*.

4. Encourage new risk-based route selection, including the use of deeper-water corridors where feasible, to minimise exposure to accidental damage from maritime activities in high-density cable and bottleneck areas.

This Technical and Support Measure mitigates the following risk scenarios:

- **R1** – Co-ordinated physical sabotage or attack on a submarine cable
- **R6** – Unintentional cable damage caused by human activity
- **R7** – Natural events leading to physical damage on multiple cables or cable landing stations.

This measure falls under the **Prevention** section of the Action Plan, as it introduces adequate physical and cyber protection measures to prevent submarine cables from deliberate sabotage, accidental damage caused by human activity and natural events.

The successful implementation of this measure requires co-ordinated efforts among multiple actors, including:

- **operators**, which are responsible for deploying and maintaining cable infrastructure and associated systems
- **Member State authorities**, by ensuring compliance with protection standards and supporting enforcement.

TM02. Reinforce physical and cybersecurity as well as power resilience of dry plant facilities

This Technical and Support Measure aims to strengthen the security and operational resilience of dry plant facilities that support submarine cable infrastructures. These facilities are critical for housing Power Feeding Equipment (PFE), Network Operations Centres (NOCs) and spares depots. They face risks such as physical intrusion, cyberattacks and power outages, which could disrupt connectivity. Reinforcing physical security, implementing robust cybersecurity measures and ensuring reliable power supply are essential to maintaining uninterrupted service.

Examples of practical actions that can be taken to support this Technical and Support Measure include the following:

1. Secure the beach manhole adequately (e.g., lock and intrusion detection), to prevent unauthorised access and tampering at the initial entry point of the cable system.

2. Secure the cable landing station/NOC adequately (e.g., access control, fence, intrusion detection, guards, firewalls, antivirus), to ensure both physical and cyber protection against external threats.

3. Secure the cable segment between the beach manhole and the landing station, by applying physical barriers and monitoring to prevent interference or damage during the vulnerable shore approach.

4. Provide appropriate backup power supply at the cable landing station/NOC through redundant power feeds, diesel generators and Uninterruptible Power Supply (UPS) systems. Regular testing and maintenance of these systems should be mandated to guarantee reliability during emergencies.

5. Provide appropriate redundancy for the PFE, to ensure continuous operation even in case of equipment failure or maintenance requirements.

6. Secure spares depots adequately (e.g., access control, fence, intrusion detection, guards), to protect critical replacement components from theft or sabotage.

7. Implement thorough background checks and security vetting of personnel with access to submarine cable infrastructures, to reduce insider threat risks and ensure trustworthiness of critical staff.

This Technical and Support Measure mitigates the following risk scenarios:

- **R2** – Co-ordinated sabotage or attack on a cable landing site (beach manhole and/or landing station)
- **R3** – Power cuts to cause a regional network outage
- **R7** – Natural events leading to physical damage on multiple cables or cable landing stations.

This measure falls under the **Prevention** section of the Action Plan, as it strengthens physical and cybersecurity measures as well as power resilience for critical dry plant facilities, preventing the risk of service disruptions.

The successful implementation of this measure requires co-ordinated efforts among multiple actors, including:

- **operators**, which are responsible for securing facilities and implementing resilience measures
- **suppliers**, by providing secure and reliable equipment and backup power solutions
- **Member State authorities**, by enforcing compliance with security standards and resilience requirements.

TM03. Increase monitoring, surveillance and detection capabilities

This Technical and Support Measure aims to enhance the ability to monitor, detect and respond to potential threats or incidents affecting submarine cable infrastructures. Continuous surveillance and advanced detection systems are essential for preventing damage, identifying suspicious activities and enabling rapid intervention. By improving monitoring capabilities both at sea and onshore, this measure strengthens resilience against physical and cyber risks.

Examples of practical actions that can be taken to support this Technical and Support Measure include the following:

1. Promote and, where possible, enforce the use of Automated Identification Systems (AIS) and Vessel Monitoring Systems (VMS) on vessels at all times, ensuring that ships operating near submarine cable routes are continuously tracked. This helps to prevent accidental damage and enables authorities to identify unauthorised or suspicious activities.

2. Promote the use of advanced monitoring systems (e.g., DAS, SMART cables, Optical Time-Domain Reflectometry (OTDR)) on existing and future commercial systems, for instance, via public–private partnerships. These technologies enable real-time detection of physical disturbances or faults along cable routes.

This Technical and Support Measure mitigates the following risk scenarios:

- **R1** – Co-ordinated physical sabotage or attack on a submarine cable
- **R6** – Unintentional cable damage caused by human activity
- **R7** – Natural events leading to physical damage on multiple cables or cable landing stations.

This measure falls under the **Prevention**, **Detection** and **Deterrence** sections of the Action Plan, as it enhances monitoring and surveillance capabilities to prevent incidents, improves detection of potential threats and deters potential malicious activities.

The successful implementation of this measure requires co-ordinated efforts among multiple actors, including:

- **operators**, by deploying monitoring systems and enforcing vessel-tracking requirements
- **suppliers**, by providing advanced surveillance technologies and integration solutions
- **Member State authorities**, by ensuring compliance and supporting enforcement
- **EU agencies**, such as Frontex, EDA, EEA, EFCA, EMSA and ENISA, by assisting with monitoring, surveillance and detection of maritime threats and incidents
- **the Commission**, by providing funding and cross-border co-ordination.

TM04. Strengthen maintenance and repair capabilities

This Technical and Support Measure aims to improve the EU's capacity to maintain and repair submarine cable infrastructures efficiently and effectively. Ageing maintenance assets, lack of interoperability between components and insufficient technical expertise can lead to delays in restoring connectivity after faults or damage. By upgrading vessels, standardising spares and enhancing workforce skills, this measure seeks to ensure rapid and reliable repair operations.

Examples of practical actions that can be taken to support this Technical and Support Measure include the following:

1. Replace ageing maintenance vessels serving EU waters, to ensure that repair operations can be carried out promptly and safely. Modern vessels equipped with advanced technology will improve operational efficiency and reduce downtime.

2. Explore interoperability possibilities (e.g., test components on cables of different suppliers) and further standardisation of submarine cable spares (e.g., universal spares). ([8]) This will simplify logistics, reduce dependency on specific suppliers and accelerate repair timelines.

3. Develop technical training programmes to strengthen the skills of submarine cable repair teams. Training should cover advanced repair techniques, safety protocols, and the use of modern tools and technologies to ensure high-quality and timely repairs.

This Technical and Support Measure mitigates the following risk scenarios:

- **R4** – Disruption of maintenance capability
- **R5** – Disruption of the supply chain.

This measure falls under the **Response and Recovery** sections of the Action Plan, as it enhances maintenance and repair capabilities to prevent prolonged outages and ensures rapid recovery of connectivity following incidents or damage.

The successful implementation of this measure requires co-ordinated efforts among multiple actors, including:

- **operators**, which are responsible for maintaining repair assets and co-ordinating repair activities
- **suppliers**, by providing standardised components and technical support
- **the Commission**, by facilitating funding frameworks
- **Member State authorities**, by facilitating regulatory approvals and supporting workforce development.

As a summary, Figure 2.3 below maps the Strategic and Technical and Support Measures included in the Cable Security Toolbox to the seven risk scenarios.

([8]) The Universal Joint Consortium and other organisations such as Suboptic and the ITU are pursuing standardisation in several domains within submarine infrastructures.

Figure 2.3: Mapping of measures in the Cable Security Toolbox to the risk scenarios [Source: Analysys Mason, 2026]

ID	Measure	Action Plan section	Related risk scenarios							Relevant actors
			1	2	3	4	5	6	7	
Strategic Measures (SM)										
SM01	**Increase cable redundancy with additional connections, diversity of routes and landing locations** Examples: • Fund CPEIs on critical routes, including both new and reinforced routes (see list of CPEI priority areas), notably through public–private partnerships • Promote cross-border co-ordination to identify strategic locations for alternative cable routes and landings • Streamline permitting for deployment activities in the EU	Prevention	✓	✓				✓	✓	• Operators • The Commission • Member State authorities
SM02	**Reinforce EU maintenance and repair capacity and capabilities** Examples: • Fund the renewal of maintenance vessels serving EU waters (see list of CPEI priority areas) • Promote the use of multipurpose hybrid vessel(s) and modular equipment stock for exceptional interventions by public bodies in emergency situations (see list of CPEI priority areas) • Streamline permitting for maintenance activities in the EU • Scrutinise the acquisition of EU cable maintenance vessels and depots by non-EU entities • Carry out exercises considering repair dimensions	Prevention, Response and Recovery				✓				• Maintenance providers • Operators • Suppliers • The Commission • Member State authorities
SM03	**Reduce exposure to non-EU suppliers and operators** Examples: • Assess supply chain dependencies and risks, including risks associated with the suppliers' profile	Prevention					✓			• The Commission • Member State authorities • Operators

ID	Measure	Action Plan section	Related risk scenarios							Relevant actors
			1	2	3	4	5	6	7	
	• Based on dependency and risk assessment, promote supply diversity and favour European supply, considering restrictions of non-EU vendors in critical segments of the value chain for submarine cable systems, transponders and other components									
SM04	**Promote manufacturing facilities, stocks and depots in the EU** Examples: • Increase manufacturing facilities in the EU for all submarine cable key components, including fibre and microchips • Build up stocks for spares of key submarine cable components • Incentivise the location of depots in the EU • Increase depot backup locations	Prevention, Response and Recovery				✓	✓			• Suppliers • Member State authorities • The Commission
SM05	**Implement and, where needed, strengthen Member States, EU and international regulatory and administrative measures on submarine cable protection** Examples: • Swiftly transpose the NIS2 and CER Directives into EU Member State legislation • Enable a single entity in each Member State to co-ordinate between the different authorities/bodies involved in submarine cable security and resilience • Increase emergency co-ordinated response by and across Member States • Set up a cross-Member State system to exchange on physical and/or cyber incidents (e.g., in stages through Cable Hubs), building on existing systems (e.g., Common Information Sharing Environment (CISE)) • Streamline permitting process to enter territorial waters and EEZ waters	Prevention, Detection, Response and Recovery, Deterrence		✓			✓	✓	✓	• Member State authorities • The Commission

ID	Measure	Action Plan section	Related risk scenarios							Relevant actors
			1	2	3	4	5	6	7	
	• Encourage planning of maritime space, including dedicated space for submarine cables • Adopt and enforce effective domestic cable protection laws in line with UNCLOS									
SM06	**Promote co-ordination between industry, Member States, NATO and international bodies** Examples: • Promote public–private co-ordination for prevention and response to critical incidents and emergencies • Share information and best practices between public entities from different Member States • Explore possibilities of carrying out naval exercises between Member States, NATO and third countries to protect submarine cables • Increase the representation of EU stakeholders (including Member States) in the ITU and the ICPC to promote the EU's approach internationally	Prevention, Response and Recovery, Deterrence	✓	✓	✓	✓	✓	✓	✓	• Member State authorities • The Commission • NATO and other international organisations • Operators
Technical and Support Measures (TM)										
TM01	**Ensure adequate physical and cyber protection of submarine cables** Examples: • Add adequate cable armouring, burial standards and other protection methods (e.g., articulated pipes) in shallow waters • Ensure security of submarine cable OSS and monitoring platforms • Promote education programmes on submarine cables for the fishing industry • Encourage new risk-based route selection, including the use of deeper-water corridors where feasible	Prevention	✓					✓	✓	• Operators • Member State authorities

ID	Measure	Action Plan section	Related risk scenarios							Relevant actors
			1	2	3	4	5	6	7	
TM02	**Reinforce physical and cybersecurity as well as power resilience of dry plant facilities** Examples: • Secure beach manhole adequately (e.g., lock and intrusion detection) • Secure cable landing station/NOC2 adequately (e.g., access control, fence, intrusion detection, guards, firewalls, antivirus) • Secure the cable segment between the beach manhole and the landing station • Provide appropriate backup power supply at the cable landing station/NOC (e.g., battery backup, diesel generator) • Provide appropriate redundancy for the PFE • Secure spares depots adequately (e.g., access control, fence, intrusion detection, guards) • Implement thorough background checks and security vetting of personnel with access to submarine cable infrastructure	Prevention		✓	✓				✓	• Operators • Suppliers • Member State authorities
TM03	**Increase monitoring, surveillance and detection capabilities** Examples: • Promote and, where possible, enforce the use of vessels equipped with Automated Identification Systems (AIS) and Vessell Monitoring Systems (VMS) • Promote the use of advanced monitoring systems (e.g., DAS systems, SMART cables, OTDR) on existing and future commercial systems, for instance, via public–private partnerships	Prevention, Detection, Deterrence	✓					✓	✓	• Operators • Suppliers • Member State authorities • EU agencies (such as Frontex, EDA, EEA, EFCA, EMSA, ENISA) • The Commission
TM04	**Strengthen maintenance and repair capabilities** Examples: • Replace ageing maintenance vessels serving the EU	Response and Recovery				✓	✓			• Operators • Suppliers • The Commission

ID	Measure	Action Plan section	Related risk scenarios							Relevant actors
			1	2	3	4	5	6	7	
	• Explore interoperability possibilities (e.g., test vendor components on cables of different vendors) and further standardisation of submarine cable spares (e.g., universal spares) • Develop technical training programmes to strengthen the skills of submarine cable repair teams									• Member State authorities

3. CABLE PROJECTS OF EUROPEAN INTEREST

Cable Projects of European Interest (CPEIs) are priority areas identified to enhance EU resilience, where private investment alone may not be commercially viable. Projects in those areas may thus require public funding from the EU and/or Member States to cover funding gaps. Any financial support for CPEIs must comply with EU law, notably rules of EU funding programmes and State aid, to ensure that public investment does not crowd out commercial deployments.

The scope of CPEI prioritisation includes the procurement and installation of new submarine cables to strengthen network resilience in identified priority areas. It also includes creating horizontal capacity, such as enhancing maintenance and repair capabilities. Finally, future EU funding may also be directed towards monitoring systems (e.g., DAS, SMART cables) to enhance detection capabilities.

Future EU funding will be based on the criteria set out in Recommendation (EU) 2024/779, while accounting for specific contextual considerations, such as integration with terrestrial corridors, projected demand for data centres, requirements for High-Performance Computing (HPC) and AI (Giga) factory deployments, and redundancy for existing hubs.

Considering geostrategic, commercial and technical developments, the Expert Group may revisit the CPEI prioritisation, whenever it deems appropriate.

3.1. Methodology

As outlined above, the methodology is designed to identify general priority areas (geographical or capabilities-related) that can be supported by EU funding to enhance the security and resilience of EU submarine cable infrastructures. These priority areas may suggest EU-wide strategic direction for investment. It is important to note that the proposed methodology does not prescribe specific submarine cable projects or designate particular landing stations; rather, it provides guidance on which areas should be prioritised. Actual submarine cable projects within an area will be selected through competitive funding calls according to applicable funding programme rules, thereby ensuring transparency and fairness in the allocation of resources. Furthermore, terrestrial cables that complement or extend the identified submarine cables should also be prioritised, particularly when they serve the same purpose, meet the same criteria and form part of the wider regional cable architecture owing to their comparative advantages. However, they are neither considered nor illustrated herein, as they fall outside the scope of this report.

The focus of the methodology is network resilience and redundancy. This involves detailed assessment of vulnerabilities within the existing infrastructure, including identification of single points of failure and critical routes that could compromise connectivity in the event of disruption. In addition, this analysis has considered the location of data centres and cloud infrastructures as well as Internet Exchange Points (IXPs), which form a significant part of the EU critical infrastructure.

Consideration was also given to the lifecycle of submarine cables. Ageing infrastructure and the planned decommissioning of certain cables must be addressed when deploying new cables to maintain continuity of service. This point was complemented with information from the Connecting Europe Facility (CEF)-Digital, including projects already funded or retained for funding under the last CEF-Digital call. This ensures alignment between CPEIs and EU funding already allocated or planned.

To fulfil these requirements, the methodology promotes the development of a meshed network architecture at EU-level, which would provide several alternative routes in case of submarine cable failure and enhance the overall robustness of EU infrastructures.

Furthermore, the methodology examines the capacity for detection, response and recovery. Building on the October 2025 Expert Group report, which, among other topics, analysed the submarine cable landscape and market, the methodology considers the age profile of maintenance vessels operating in European waters, as well as the availability of multipurpose vessels and modular equipment stock to enhance maintenance capabilities in emergency situations. Additional technologies such as Optical Fibre Sensing (OFS) for monitoring purposes (e.g., DAS or SMART cables) are also identified as essential components of a resilient EU network.

CPEI criteria

The list of CPEI priority areas presented in this section links to the methodology outlined in Points 26 and 27 of Recommendation (EU) 2024/779 on Secure and Resilient Submarine Cable Infrastructures, to identify gaps in submarine cable infrastructures and establish new or alternative routes. The recommended CPEIs will contribute to bringing new capabilities in terms of security, performance and resilience. In line with the 2025 Cable Action Plan, the list of CPEI priority areas could be included in a Delegated Act to amend the Annex part V of the CEF Regulation, to prioritise CPEIs as CEF Projects of Common Interest. This would be a first step towards an EU Investment Framework for CPEIs.

In addition to identifying mitigation measures, Recital 13 of Recommendation (EU) 2024/779 calls for "support for the joint deployment or significant upgrade of such infrastructures via Cable Projects of European Interest ('CPEI')" ([9]) and, thus, calls for a proposed list of CPEIs that meet the criteria set out in the Recommendation. ([10])

Recitals 26 and 27 of the Recommendation set out the criteria for identifying CPEIs. ([11]) Specifically, Recital 26 states that:

a. "the project fills a gap in submarine cable infrastructures as evidenced by the mapping, which may address the need to establish new or alternative secure routes, or to increase the capacity and resilience of existing submarine cable infrastructures;

b. the project contributes to a significant increase of the supply chain security through measures to include in the selection of any supplier to ensure the availability of components, technologies, systems and knowhow required in the planning, acquisition, construction, operation, maintenance and repair of submarine cable infrastructures; projects involving suppliers identified as high-risk in the consolidated risk assessment should not be eligible;

c. the project should have geostrategic importance, in view of the interests of the Union and its Member States, notably to ensure a high level of security of the EU submarine cable infrastructure;

([9]) Point 13 of European Commission (2024), *Commission Recommendation (EU) 2024/779 of 26 February 2024 on Secure and Resilient Submarine Cable Infrastructures*.

([10]) Point 28 of European Commission (2024), *Commission Recommendation (EU) 2024/779 of 26 February 2024 on Secure and Resilient Submarine Cable Infrastructures*.

([11]) Recital 26 and 27 of European Commission (2024), *Commission Recommendation (EU) 2024/779 of 26 February 2024 on Secure and Resilient Submarine Cable Infrastructures*.

d. the project fulfils connectivity needs that will not be met by private investments alone, due to the commercial and financial risks involved; and

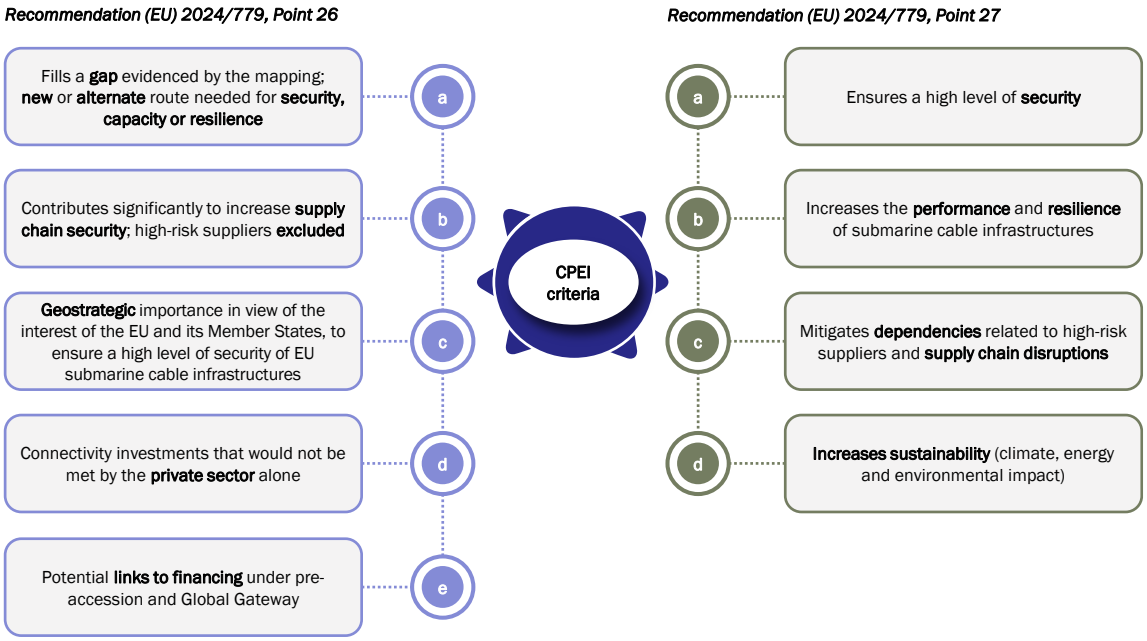
e. where the project involves funding under Regulation (EU) 2021/947 ('the NDICI Global Europe Regulation') and Regulation (EU) 2021/1529 ('the IPA III Regulation'), further consideration should be given to the degree of applicability of the criteria (a) to (d) and whether the project is already developed within the framework of the Global Gateway strategy."

Recital 27 of the Recommendation specifies that Member States are encouraged to consider the following criteria to determine how CPEIs should address the identified risks, vulnerabilities, dependencies and redundancy needs:

a. "whether the project meets certain security requirements ensuring a high level of security;
b. whether the project significantly increases the performance and resilience of submarine cable infrastructures;
c. whether the project mitigates the risks related to dependency on entities identified as high-risk, directly or indirectly controlled by third countries, in the consolidated risk assessment, irrespective of the high-risk suppliers mentioned in Commission Communication C(2023) 4049, and whether it mitigates the risks related to possible disruptions in the supply of components (including line terminal equipment), technologies, services, and systems, including price changes or lower performance or alternative sources of supply, during the entire lifetime of the submarine cable infrastructure; and
d. whether the project increases the sustainability of submarine cable infrastructures by reducing their climate, energy and overall environmental impact."

These criteria are summarised in Figure 3.1 below.

Figure 3.1: Summary of the key criteria which CPEIs are required to meet [Source: Analysys Mason, 2026]



Cost estimate

Indicative cost estimates have been prepared for the proposed CPEI priority areas. These estimates have been calculated using the approach shown in Figure 3.2 below, which includes:

- **Cable distance estimate**: the route length was estimated based on information extracted from various databases used in preparing the October 2025 Expert Group report and rounded to the nearest kilometre.

- **Uplift factor**: a 20% uplift was applied to mitigate potential inaccuracies in the mapping tool's length outputs and to account for the fact that submarine cables cannot be installed in a straight line between two points due to subsea terrain and environmental constraints.

- **Cost benchmarking**: the unit cost per kilometre (in EUR thousand) was determined by water depth, based on historical data and comparable cable deployments. ([12])

- **Stage allocation**: costs were distributed across three deployment stages, each covering a 5-year period, and based on indicative project timelines and EU-wide strategic priorities (see details further below).

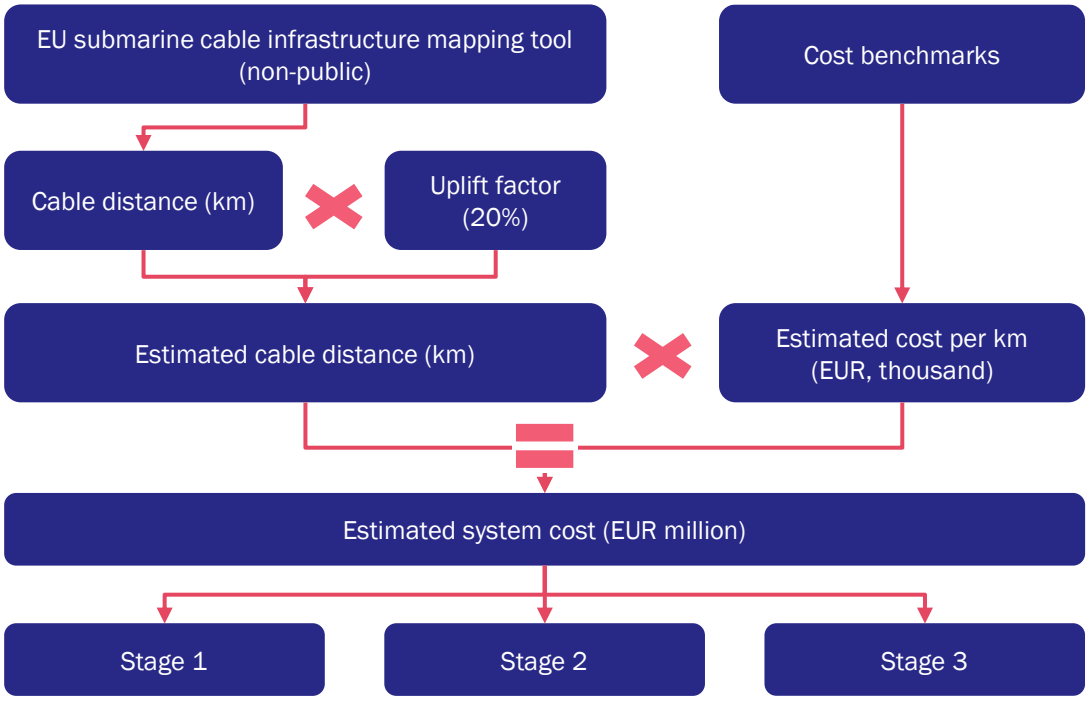
- **Vessels and equipment**: the cost associated with the renewal of maintenance vessels was based on the estimate calculated in the October 2025 Expert Group report, ([13]) while the cost for multipurpose vessel(s) and modular equipment stock was derived from the cost of fitting appropriate equipment to two existing multipurpose vessels.

- **Benchmark validation**: the assumptions were validated using known costs of comparable telecoms submarine cables (e.g., PISCES, EllaLink).

([12]) For example, the unit cost per kilometre of laying submarine cable in shallow waters where there is commercial shipping/fishing activity is significantly more expensive than the unit cost associated with a cable installed in the high seas. This is because in shallow waters, the cable needs to be armoured and buried to protect it from anchoring and trawling, which is not the case in high seas. Also, submarine cable installations in ice-affected regions imply higher complexity and resulting costs.

([13]) The cost is based on the analysis of the age of the fleet serving European waters and includes three maintenance vessels for repeated systems and three vessels for unrepeated systems, which will all need to be replaced within the next 10 to 15 years.

Figure 3.2: Methodology for estimating the cost of CPEI priority areas [Source: Analysys Mason, 2026]



The estimated costs for the CPEI priority areas represent the total expenditure required for procuring and installing the submarine cable and vessel deployment, but exclude any past or future public funding.

Methodology limitations

It should be noted that for the identification of CPEI priority areas, specific traffic routes and associated traffic volumes were not considered to be within the scope of this report due to two main constraints:

- firstly, traffic data on a route basis was not publicly available at the time of writing this report
- secondly, modelling traffic streams that would be re-routed in the event of a failure is inherently complex and would require the inclusion of terrestrial networks, which falls outside the scope of this report.

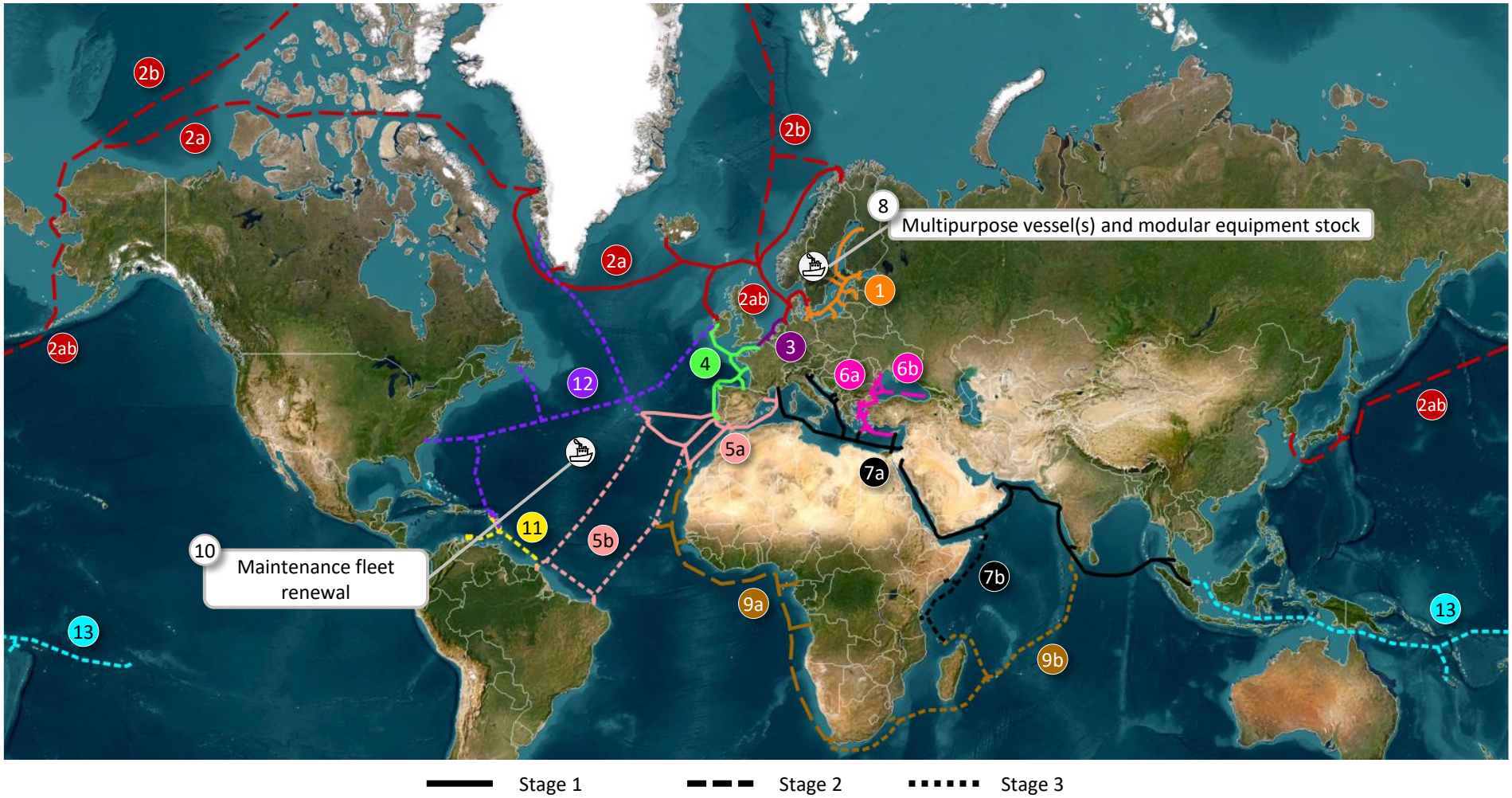
Although other EU infrastructures were considered for contextual understanding, the methodology is strictly limited to submarine data cable infrastructures and does not identify terrestrial CPEI priority areas, or priority areas for other infrastructures. The focus on submarine data cables ensures that the analysis remains aligned with the scope and objectives of Recommendation (EU) 2024/779, without extending into areas that would require fundamentally different modelling approaches and datasets.

3.2. CPEI priority areas

Overview

Based on the methodology linked to the CPEI criteria outlined above, 13 priority areas have been identified that contribute to fulfilling strategic gaps and increase the resilience of EU submarine cable infrastructures. These priority areas are displayed on a global map in Figure 3.3, where the numbering does not indicate their ranking by priority.

Figure 3.3: Map of CPEI priority areas [Source: Analysys Mason, 2026]



As shown in Figure 3.4, the 13 CPEI priority areas have been grouped into three distinct stages, each covering a 5-year period. The resulting indicative timeline reflects the Expert Group's strategic priorities (i.e., Stage 1 priority areas are considered higher priority than those in Stage 2) to facilitate a phased and manageable investment and deployment, while also taking into account practical considerations such as supply chain production capacity and maintenance fleet capability. The numbering of CPEIs itself does not constitute a prioritisation among areas. A CPEI area listed in a particular stage reflects the goal that the supply contract between the cable owner and the submarine cable supplier for a specific project(s) is expected to be signed within that stage's 5-year timeframe, but does not reflect the time required to implement a project addressing that priority area.

Figure 3.4: Indicative timeline for CPEI priority areas [Source: Analysys Mason, 2026]

No	Stage 1	Stage 2	Stage 3
1	**Area 1** – Baltic Sea (DE, DK, EE, FI, SE, LT, LV, PL)		
2	**Area 2a** – West Arctic passage (DE, DK (DK, GL), IE, SE and IS, NO)	**Area 2a** – West Arctic passage (DK (GL) and CA, JP, KR, US)	
		Area 2b – Polar passage (DE, DK, SE and CA, JP, KR, NO, US)	
3	**Area 3** – North Sea (BE, DE, FR, NL)		
4	**Area 4** – North Atlantic (ES, FR, IE, PT)		
5	**Area 5a** – Atlantic and Western Mediterranean (ES, FR, PT (PT, PT-20, PT-30))		**Area 5b** – South Atlantic extension to South America (FR (GF), PT (PT-20, PT-30) and BR, CV)
6	**Area 6a** – Eastern Mediterranean and Black Sea (BG, CY, EL, RO, and TR, UA)	**Area 6b** – Black Sea extension to South Caucasus (BG, RO and South Caucasus)	
7	**Area 7a** – Trans-Mediterranean, Red Sea and Indian Ocean (CY, EL, FR, HR, IT and AL, EG, IL, IN, JO, ME, MY, OM, SG)		**Area 7b** – Indian Ocean extension to East Africa (FR (YT) and SO, TZ)
8	**Area 8** – Multipurpose vessel(s) and modular equipment stock		
9		**Area 9a** – South Atlantic extension to West Africa (ES and AO, CV, GQ, GW, ZA)	**Area 9b** – Indian Ocean extension to India (FR (RE, YT) and IN, ZA)
10		**Area 10** – Maintenance fleet renewal	

No	Stage 1	Stage 2	Stage 3
11			**Area 11** – Caribbean Sea (FR (BL, GF, GP, MF, MQ), NL (AW, BQ-BO, BQ-SA, BQ-SE, CW, SX))
12			**Area 12** – Trans-Atlantic (DK (GL), FR (BL, GP, MF, MQ, PM), IE, NL (BQ-SA, BQ-SE, SX), PT (PT-20), and US)
13			**Area 13** – Southeast Asia and South Pacific (FR (NC, PF, WF) and SG)

Furthermore, an estimate of the total capital expenditure (i.e., cost) for each CPEI priority area is provided in Figure 3.5, based on the methodology outlined in Section 3.1.

Figure 3.5: Cost estimate for CPEI priority areas [Source: Analysys Mason, 2026]

No	Recommended CPEI deployment stage	CPEI priority area	Cable length + uplift (km)	Stage 1 estimate cost (EUR, million)	Stage 2 estimate cost (EUR, million)	Stage 3 estimate cost (EUR, million)	Estimate total cost (EUR, million)
1	Stage 1	Baltic Sea (DE, DK, EE, FI, SE, LT, LV, PL)	3605	180	–	–	**180**
2a	Stage 1	West Arctic passage (DE, DK (DK, GL), IE, SE and IS, NO)	11 035	662	–	–	**662**
2a	Stage 2	West Arctic passage (DK (GL) and CA, JP, KR, US)	15 635	–	1563	–	**1563**
2b	Stage 2	Polar passage (DE, DK, SE and CA, JP, KR, NO, US)	20 629	–	2063	–	**2063**
3	Stage 1	North Sea (BE, DE, FR, NL)	970	78	–	–	**78**
4	Stage 1	North Atlantic (ES, FR, IE, PT)	4141	207	–	–	**207**
5a	Stage 1	Atlantic and Western Mediterranean (ES, FR, PT (PT, PT-20, PT-30))	9545	377	–	–	**377**
5b	Stage 3	South Atlantic extension to South America (FR (GF), PT (PT-20, PT-30) and BR, CV)	13 592	–	–	408	**408**
6a	Stage 1	Eastern Mediterranean and Black Sea (BG, CY, EL, RO, and TR, UA)	3846	231	–	–	**231**
6b	Stage 2	Black Sea extension to South Caucasus (BG, RO and South Caucasus)	1719	–	103	–	**103**
7a	Stage 1	Trans-Mediterranean, Red Sea and Indian Ocean (CY, EL, FR, HR, IT and AL, EG, IL, IN, JO, ME, MY, OM, SG)	21 380	1069	–	–	**1069**
7b	Stage 3	Indian Ocean extension to East Africa (FR (YT) and SO, TZ)	5445	–	–	218	**218**
8	Stage 1	Multipurpose vessel(s) and modular equipment stock	2 vessels + stock	50	–	–	**50**
9a	Stage 2	South Atlantic extension to West Africa (ES and AO, CV, GQ, GW, ZA)	14 025	–	421	–	**421**

No	Recommended CPEI deployment stage	CPEI priority area	Cable length + uplift (km)	Stage 1 estimate cost (EUR, million)	Stage 2 estimate cost (EUR, million)	Stage 3 estimate cost (EUR, million)	Estimate total cost (EUR, million)
9b	Stage 3	Indian Ocean extension India (FR (RE, YT) and IN, ZA)	13 502	–	–	540	**540**
10	Stage 2	Maintenance fleet renewal	3 + 3 vessels	–	225 to 330	–	**225 to 330**
11	Stage 3	Caribbean Sea (FR (BL, GF, GP, MF, MQ), NL (AW, BQ-BO, BQ-SA, BQ-SE, CW, SX))	4126	–	–	124	**124**
12	Stage 3	Trans-Atlantic (DK (GL), FR (BL, GP, MF, MQ, PM), IE, NL (BQ-SA, BQ-SE, SX), PT (PT-20), and US)	16 318	–	–	653	**653**
13	Stage 3	Southeast Asia and South Pacific (FR (NC, PF, WF) and SG)	16 476	–	–	989	**989**
Total			**175 990**	**2854**	**4375 to 4480**	**2931**	**10 160 to 10 265**

A detailed description of each CPEI priority area is provided in the remainder of this section.

3.2.1. Area 1: Baltic Sea

Rationale for CPEI priority area

Several countries – including Poland, Lithuania and Latvia – are heavily reliant on Sweden for international connectivity, creating a dependency that poses potential resilience risks. At present, the C-Lion1 cable system, owned by Cinia, ([14]) represents the only operational repeated cable connecting Finland to Central Europe (specifically Germany), and offers a capacity of 144 Tbit/s. However, this system does not extend to other Member States in the region, such as Latvia, Lithuania, Poland or Sweden, thereby leaving significant gaps in redundancy.

This challenge is exacerbated by increasing geopolitical pressure to strengthen the resilience of digital infrastructure in the Nordic and the Baltic States, driven by heightened regional security concerns with Russia and the need to increase the diversity of cable routes serving that region in light of potential hybrid threats.

For these reasons, the Baltic Sea region is considered a CPEI priority area (Priority Area 1), which links mainly to CPEI criteria a, b and c of Point 26, and CPEI criteria a and b of Point 27 of Recommendation 2024/779. ([15])

Recommendation

The Expert Group recommends the deployment of a new submarine cable in the Baltic Sea region connecting all Member States in Northern Europe (DK, EE, FI, LT, LV, SE) to several Central European countries (DE, PL), including a branch across the Gulf of Bothnia. This is illustrated in Figure 3.6 below.

([14]) Cinia is under the ownership steering of the Prime Minister's Office (Finland).

([15]) See Section 3.1 of this report.

Figure 3.6: Proposed cable route for Priority Area 1 [Source: Analysys Mason, 2026]

The estimated cost of deploying a new submarine cable for this priority area is EUR 180 million.

In-deployment and planned cables in Priority Area 1

Five projects (GC SWE-FIN, Eastern Light Sweden–Finland II, GC FIN-EST, GC EST-SWE and C-Lion2) are planned to improve links between Member States in the Baltic Sea; however, they do not provide structural connectivity for all countries in the region. The absence of submarine cables connecting all Baltic and Central European Member States means that the proposed CPEI priority area remains critical to closing strategic gaps and reducing single points of failure. ([16])

3.2.2. Area 2: West Arctic passage and Polar passage

Rationale for CPEI priority area

Currently, 90% of data traffic between Europe and Asia transits through submarine cables located in the Red Sea, particularly via the Bab el-Mandeb Strait, which represents a single point of failure. ([17]) Consequently, there is an increasing need to develop alternative corridors for connectivity between Europe and Asia. Given the Arctic region's strategic importance, a route traversing this area constitutes a viable alternative. Moreover, this route significantly shortens the distance between Europe and Asia, thereby reducing communication latency across the two regions. Furthermore, reinforcing connectivity between Greenland and the EU is of increasing geopolitical and economic importance.

([16]) See Annex B of this report for a list of all in-deployment and planned cables.

([17]) European Commission Expert Group (2025), *Security and Resilience of EU Submarine Cable Infrastructures: Mapping, Risk Assessments, Stress Tests*.

Establishing a connection through the West Arctic passage and the Arctic Ocean would create a robust and diversified network ring, removing the single point of failure in the region and therefore improving the resilience of EU infrastructures.

Currently, two potential routes have been identified within the Arctic region. The first, designated as Area 2a, involves the West Arctic passage, which would connect Germany, Sweden, Norway, Ireland, Denmark, Iceland, Greenland, Canada, the US, Japan and South Korea. The second route, Area 2b, is the Polar passage, which would link Scandinavia to Asia via a northern route through the Arctic Ocean north of Greenland. Both routes, combined with relatively short-range terrestrial connections, would also facilitate Arctic connectivity for countries such as Finland and the Netherlands.

For these reasons, the Arctic region is considered a CPEI priority area (Priority Area 2), which links mainly to CPEI criteria a, c, d and e of Point 26, and CPEI criteria a, b and c of Point 27 of Recommendation 2024/779. ([15])

Recommendation

The Expert Group recommends the deployment of two new submarine cables in the Arctic region:

- 2a) West Arctic passage cable, connecting DE, DK (DK, GL), IE, SE and CA, IS, NO, JP, KR, US
- 2b) Polar passage cable, connecting DE, DK, SE and CA, JP, KR, NO, US.

This is illustrated in Figure 3.7 below.

Figure 3.7: Proposed cable route for Priority Area 2 [Source: Analysys Mason, 2026]

The estimated cost of deploying these two new submarine cables for this priority area is EUR 4289 million.

In-deployment and planned cables in Priority Area 2

Projects such as Far North Fiber (West Arctic passage, expected to be operational by 2029) and Polar Connect (Polar passage, expected to be operational by 2031) are planned to enhance trans-

Arctic connectivity. However, these projects do not fully deliver the strategic redundancy (i.e., ring network) and direct links needed for EU resilience. The proposed CPEI priority area (2a and 2b) remains essential to connect Greenland to the EU and provide an alternative route between Europe and Asia through Japan and South Korea, with a possible future extension to the Philippines. It also offers the opportunity to connect Europe to the West coast of the US and Canada as an alternative route to transatlantic cables. ([18])

3.2.3. Area 3: North Sea

Rationale for CPEI priority area

Historically, Northern and Western European Member States – specifically Belgium, France and the Netherlands – were dependent on the UK for connecting to the US. In the case of the Netherlands, 10 out of its 11 submarine cables are directly connected to the UK, highlighting the extent of the dependency. Similarly, all five cables that provide connectivity to Belgium also terminate in the UK. France shows a comparable pattern, with approximately 50% of its submarine cable capacity routed through the UK.

This dependency on the UK is further exacerbated by the decommissioning of two major submarine cable systems, which previously offered a combined capacity of 10.68 Tbit/s. The first, SEA-ME-WE 3 (SMW3), connected eight Member States with regions including the Middle East, Africa and Asia. The second, TAT-14, provided connectivity between five Member States and the US. The removal of these systems has reduced redundancy and increased the strategic importance of the UK for Northern European connectivity to other countries.

For these reasons, the North Sea region is considered a CPEI priority area (Priority Area 3), which links mainly to CPEI criteria a, c and d of Point 26, and CPEI criteria a and b of Point 27 of Recommendation 2024/779. ([19])

Recommendation

The Expert Group recommends the deployment of a new submarine cable in the North Sea to replace the decommissioned cables connecting Belgium, Germany, France and the Netherlands, and reduce reliance on the UK. ([20]) This is illustrated in Figure 3.8.

([18]) See Annex B of this report for a list of all in-deployment and planned cables.

([19]) See Section 3.1 of this report.

([20]) This route is known to be prone to faults due to intense fishing and underwater currents which regularly expose the cables, and new cables need to be buried and armoured appropriately.

Figure 3.8: Proposed cable route for Priority Area 3 [Source: Analysys Mason, 2026]

The estimated cost of deploying a new submarine cable for this priority area is EUR 78 million.

In-deployment and planned cables in Priority Area 3

The IOEMA cable (which will connect Denmark, Germany, the Netherlands, UK and Norway, expected to be operational in 2027) will improve connectivity across parts of the North Sea. However, it does not fully replace the redundancy lost with the decommissioning of SMW3 and TAT-14, nor does it sufficiently reduce dependency on the UK for international connectivity. The proposed CPEI priority area remains essential as a complement to IOEMA, restoring redundancy and strengthening resilience. ([21])

3.2.4. Area 4: North Atlantic

Rationale for CPEI priority area

Ireland, as an island EU Member State, is heavily reliant on submarine cables to maintain international connectivity. At present, there are 14 operational cables landing in Ireland, which collectively form the backbone of its external communications infrastructure. Of these, four are transatlantic cables, providing direct links to North America. A further eight cables connect exclusively to the UK, creating a significant dependency on the UK for connectivity to mainland Europe.

This is considered a CPEI priority area because Ireland's current connectivity situation creates a critical single-point dependency that poses significant operational and security risks. The concentration of routes through the UK limits resilience and exposes Ireland to potential disruptions that could affect the wider EU network.

([21]) See Annex B of this report for a list of all in-deployment and planned cables.

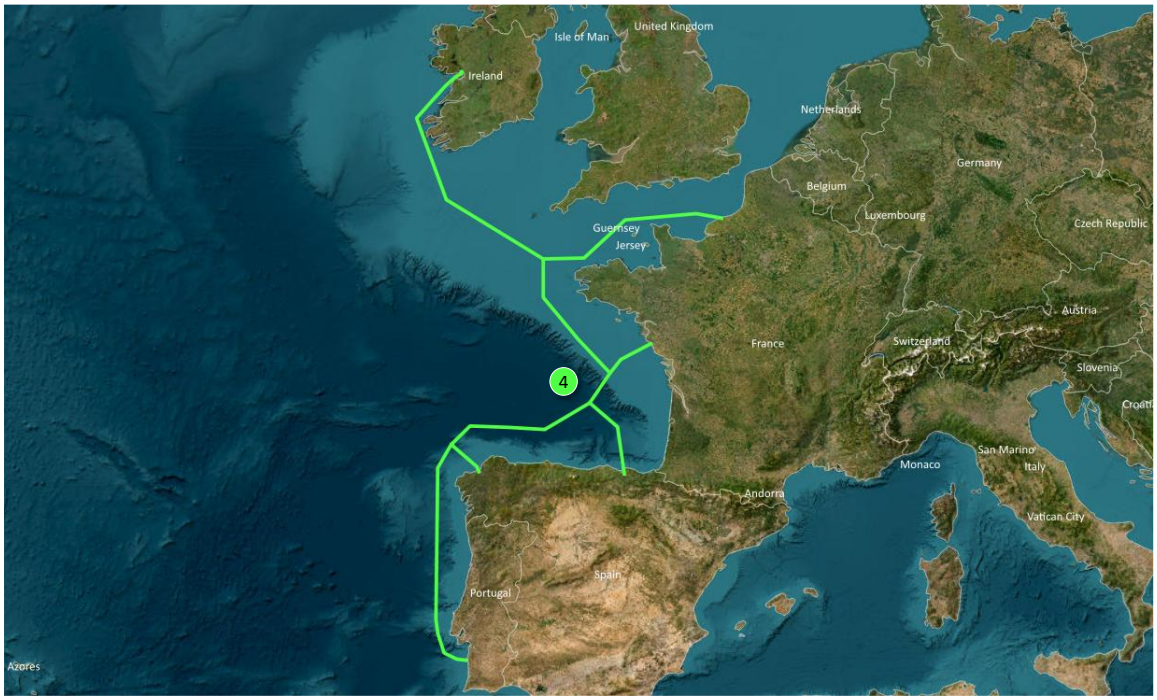
Ireland's current reliance on UK-based international connectivity creates a vulnerability for the country, while establishing a direct connection between Ireland and Member States such as France, Portugal and Spain would enhance the resilience of EU submarine cable infrastructures.

For these reasons, the North Atlantic region is considered a CPEI priority area (Priority Area 4), which links mainly to CPEI criteria a, c and d of Point 26, and CPEI criteria a and b of Point 27 of Recommendation 2024/779. ([22])

Recommendation

The Expert Group recommends the deployment of a new submarine cable system connecting Ireland to mainland Europe's Member States such as France, Spain and Portugal, to remedy Ireland's dependency on the UK. This is illustrated in Figure 3.9.

Figure 3.9: Proposed cable route for Priority Area 4 [Source: Analysys Mason, 2026]



The estimated cost of deploying a new submarine cable for this priority area is EUR 207 million.

In-deployment and planned cables in Priority Area 4

Projects such as the PISCES submarine cable (connecting Ireland to France, Portugal and Spain, expected to be operational in 2027/2028) and the Celtic Interconnector (connecting Ireland to France, expected to be operational by 2027) will improve Ireland's connectivity to mainland Europe. ([23]) However, these projects do not fully eliminate Ireland's strategic dependency on UK-linked routes or provide the adequate level of redundancy required for long-term resilience. The

([22]) See Section 3.1 of this report.

([23]) Although the Celtic Interconnector is conceived as a power cable, it also planned to include a direct fibre-optic communications link between Ireland and France.

proposed CPEI priority area remains essential to diversify Ireland's connections to mainland Europe and strengthen the security of the wider EU network. ([24])

3.2.5. Area 5: Atlantic, Western Mediterranean and South Atlantic

Rationale for CPEI priority area

Currently, three submarine cables traverse the Strait of Gibraltar, collectively creating a single point of failure for regional connectivity. Among these, the Europe India Gateway (EIG) is the only high-capacity system, delivering 28 Tbit/s. This heavy reliance on a single cable poses a significant risk to the connectivity resilience of southern European Member States.

Additional vulnerabilities are present in the Atlantic region, as the existing CAM ring system linking Madeira, the Azores and mainland Portugal is nearing the end of its operational lifespan and is expected to be decommissioned by 2028. Likewise, the Canary Islands depend on three submarine cables, one of which is approaching obsolescence. Finally, French Guiana is not directly connected to Europe and depends on the US for its international connectivity.

Furthermore, the vast majority of traffic between Latin America and Europe is currently routed through the US, introducing a significant dependency. While the deployment of EllaLink helps to mitigate this issue, it remains important to establish an additional direct cable between Europe and Latin America to ensure redundancy and reduce reliance on US-connected submarine systems.

The above observations underscore the requirement for new submarine cables connecting Spain and Portugal to their outermost regions, as well and a direct and independent route between Latin America and Europe.

For these reasons, the Atlantic, Western Mediterranean and South Atlantic region is considered a CPEI priority area (Priority Area 5), which links mainly to CPEI criteria a, c and d of Point 26, and CPEI criteria a and b of Point 27 of Recommendation 2024/779. ([25])

Recommendation

The Expert Group recommends the deployment of two new submarine cables:

- 5a) one submarine cable routed along the Western Mediterranean, crossing the Strait of Gibraltar and linking to mainland Spain and Portugal as well as Spanish and Portuguese islands to close the loop between Northern Europe and the Mediterranean Member States. This system could include an inter-island submarine cable connecting some or all the islands in the Azores, as required.
- 5b) another submarine cable connecting Europe, via the Azores (Portugal), to French Guiana, ([26]) with a branch to Brazil, and a parallel route connecting back to Europe (Madeira, Portugal) via Cape Verde.

Projects in this area would strengthen effective route diversity in relation to existing submarine cable systems (i.e., EllaLink), in line with the EU's resilience objectives, and favour the use of

([24]) See Annex B of this report for a list of all in-deployment and planned cables.

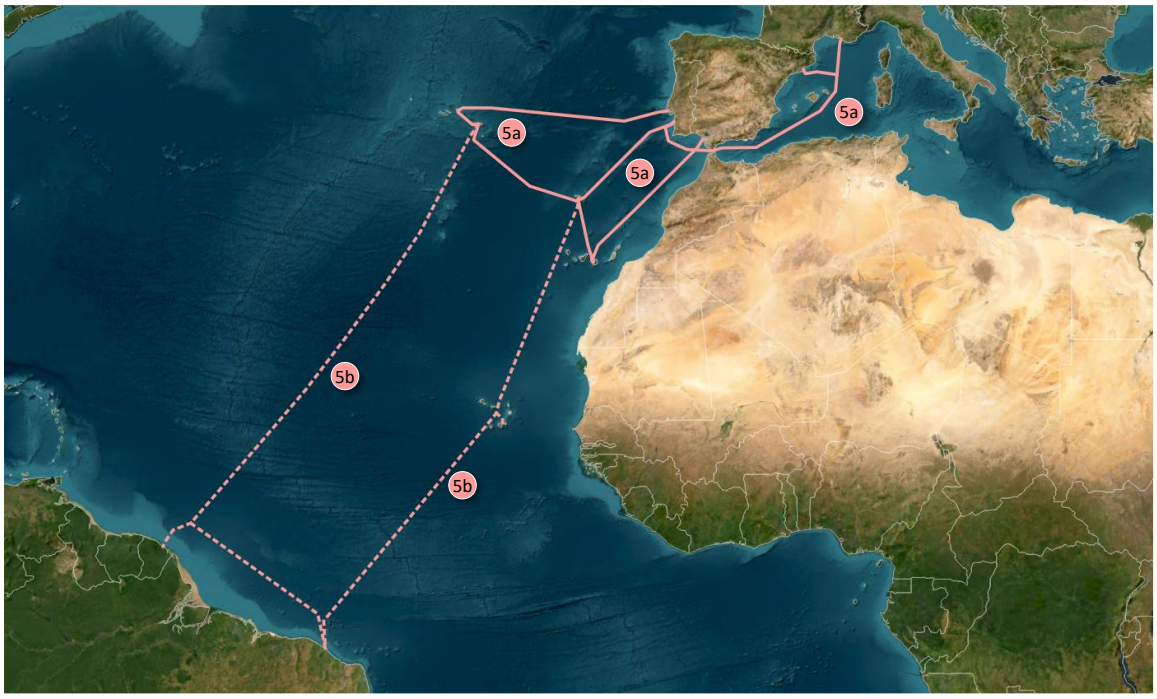
([25]) See Section 3.1 of this report, CPEI criteria paragraph.

([26]) Providing redundancy to EllaLink.

deeper-water corridors where feasible, thereby reducing exposure to accidental damage arising from fishing activities and vessel anchoring.

This is illustrated in Figure 3.10.

Figure 3.10: Proposed cable route for Priority Area 5 [Source: Analysys Mason, 2026]



The estimated cost of deploying two new submarine cables for this priority area is EUR 785 million.

In-deployment and planned cables in Priority Area 5

The Medusa cable (expected to be operational by 2026) will significantly improve connectivity across the Mediterranean Sea, while PENCAN-X (connecting mainland Spain to the Canary Islands, expected to be operational in 2026), together with Atlantic CAM (intended to replace the existing CAM system, linking mainland Portugal, the Azores and Madeira; this submarine cable is already in deployment and is expected to be ready for service in 2027), could address links to Portuguese and Spanish islands in the Atlantic Ocean. In addition, as proposed within this CPEI priority area, a dedicated cable connecting Europe to Latin America remains essential to strengthen resilience and diversify traffic flows. The EllaLink branch currently being deployed to link Brazil with French Guiana (expected to go live in 2026) will help to connect this EU outermost region to Europe; however, the proposed redundant links within Priority Area 5 would further enhance network resilience between French Guiana and Europe. ([27])

([27]) See Annex B of this report for a list of all in-deployment and planned cables.

3.2.6. Area 6: Eastern Mediterranean and Black Sea

Rationale for CPEI priority area

The Aegean Sea currently hosts two operational submarine cables that provide international connectivity between Greece and Türkiye. The first, MedNautilus, offers a capacity of 3.84 Tbit/s, but is approaching the end of its operational life as is expected to be decommissioned in 2026. The second cable, Nibble, was deployed in 2021; however, its capacity is not in the public domain. Despite these connections, several large Greek islands within the Aegean Sea are not presently connected back to mainland Greece, creating gaps in regional connectivity.

Current submarine cables in the Aegean and Black Sea provide insufficient connectivity and redundancy between Greece, Türkiye, Bulgaria and Romania.

In addition, the ongoing war of aggression against Ukraine led by Russia underscores the need for secure and direct connectivity between Ukraine and European countries.

Furthermore, the Black Sea currently hosts a single submarine cable linking South Caucasus (Georgia) to Europe through Bulgaria, creating a significant single point of failure. Any disruption could isolate the South-Caucasus countries and EU neighbourhood regions from European networks. Deploying additional cables across the Black Sea would improve redundancy, strengthen regional resilience and support the development of a secure digital corridor between Europe and the Caucasus.

Finally, the current infrastructure in the Aegean Sea and the Black Sea is fragmented and ageing, creating significant vulnerabilities for regional connectivity. Reliance on a limited number of cables, some nearing end-of-life, exposes the region to risks of service disruption and limits scalability.

For these reasons, the Eastern Mediterranean and Black Sea region is considered a CPEI priority area (Priority Area 6), which links mainly to CPEI criteria a, d and e of Point 26, and CPEI criteria a and b of Point 27 of Recommendation 2024/779. ([28])

Recommendation

The Expert Group recommends the deployment of two new submarine cables:

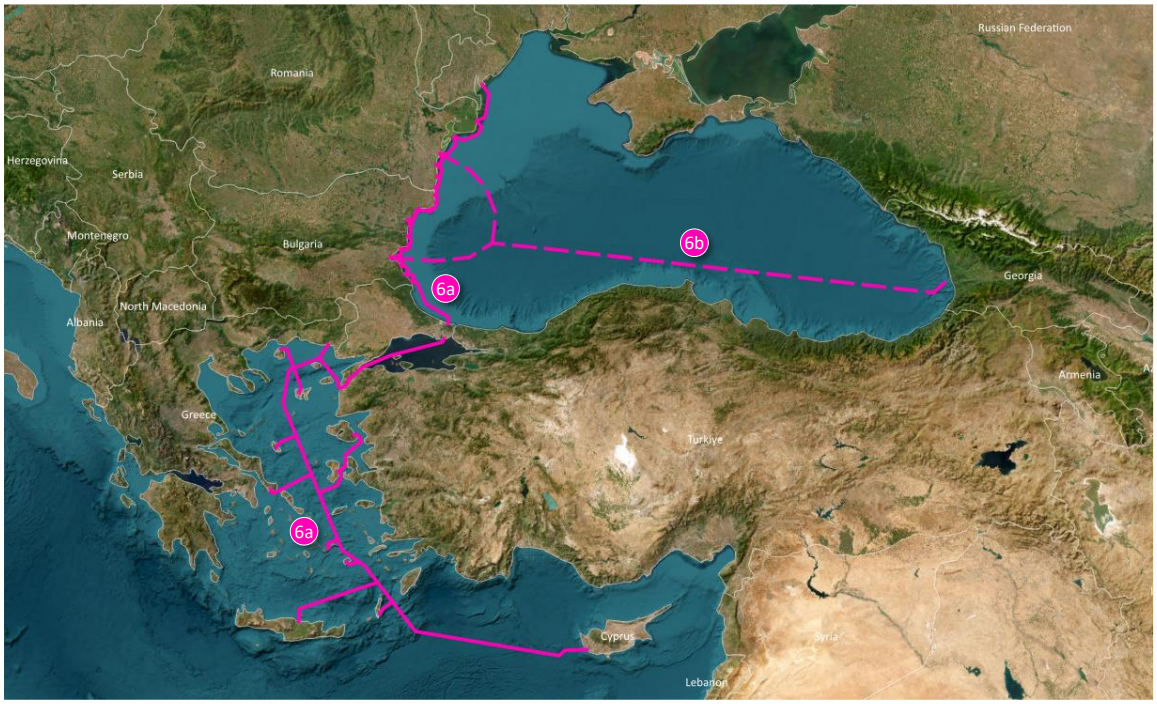
- 6a) one submarine cable connecting Cyprus to mainland Greece, and Türkiye, and extending onward to Bulgaria, Romania and Ukraine through the Black Sea, by deploying a ‘festoon’ network ([29])
- 6b) another submarine cable connecting the South Caucasus to Bulgaria and Romania across the Black Sea.

This is illustrated in Figure 3.11.

([28]) See Section 3.1 of this report.

([29]) Refers to a type of submarine cable system where the cable runs along the coastline, connecting multiple landing points in a series, rather than routing the cable using terrestrial routes. A terrestrial branch traversing northeastern Greece and Bulgaria, from the Aegean Sea to the Black Sea, is also possible but not illustrated in this report, as terrestrial infrastructure is not within its scope.

Figure 3.11: Proposed cable route for Priority Area 6 [Source: Analysys Mason, 2026]



The estimated cost deploying two new submarine cables for this priority area is EUR 334 million.

In-deployment and planned cables in Priority Area 6

Projects such as SEA-SPINE (connecting some Greek islands in the Aegean Sea, expected to be operational in 2026) and Kardesa (connecting Georgia to Türkiye, Bulgaria and Ukraine, expected to go live in 2027) aim to improve connectivity in parts of the Eastern Mediterranean and Black Sea. However, they do not fully address the broader need for integrated routes connecting Cyprus, Greece, Türkiye, Bulgaria, Romania, Ukraine and the South Caucasus. In addition, the exponential increase of data traffic in the region is calling for new cable systems, relying on EU cyber-security standards. The proposed CPEI priority area remains essential to enhance regional resilience, and reduce vulnerabilities associated with ageing and fragmented infrastructure. ([30])

3.2.7. Area 7: Trans-Mediterranean, Red Sea and Indian Ocean

Rationale for CPEI priority area

As mentioned in Section 3.2.2, it is essential to establish an alternative route to the Red Sea to ensure secure and resilient connectivity between Europe and Asia. As highlighted in the October 2025 Expert Group report, a viable option involves deploying a route through the Mediterranean

([30]) See Annex B of this report for a list of all in-deployment and planned cables.

Sea, traversing the Arabian Peninsula via terrestrial infrastructure, ([31]) and extending to the Persian Gulf, India and Malaysia, as well as Singapore.

Given that the cables in the Red Sea are highly utilised, deploying additional submarine cables in this area would enhance resilience, especially if they could form a ring around the Arabic Peninsula. It should be noted that deploying a terrestrial route through Saudi Arabia could also create a closed connectivity ring and further improve resilience; however, this option falls outside the scope of the current study.

Additionally, establishing connections between Italy and Albania, as well as Montenegro, across the Adriatic Sea would provide strategic benefits, particularly as both countries are candidate countries for EU accession. Furthermore, higher deployment costs in the shallow Adriatic Sea have created a market failure, resulting in underinvestment and only limited routing options connecting the EU, the Western Balkans and global networks via this part of the Mediterranean. In the short term, this corridor is unlikely to constitute a strategic alternative to the current concentration of routes along the Western Mediterranean, due to the need for further resilient terrestrial networks to reach cloud regions from the north coast of the Adriatic Sea.

At present, the Jonah cable is the only major system in the Mediterranean region, providing a capacity of 25 Tbit/s and connecting EU Member States in the Mediterranean to Israel. This limited infrastructure heightens the risk of disruption in the event of cable damage or geopolitical instability.

Finally, there is a gap in connectivity between eastern Africa and Europe. The French outermost regions in the Indian Ocean (Mayotte and Réunion) are mainly connected to Africa and Asia, having no direct connection back to Europe.

For these reasons, the Trans-Mediterranean, Red Sea and Indian Ocean region is considered a CPEI priority area (Priority Area 7), which links mainly to CPEI criteria a, c, d and e of Point 26, and CPEI criteria a, b and c of Point 27 of Recommendation 2024/779. ([32])

Recommendation

The Expert Group recommends the deployment of additional submarine cable capacity in two areas:

- 7a) from mainland Europe (France, Italy), landing in Croatia, Cyprus, Greece, Albania, Montenegro and Egypt, and crossing to the Arabian Sea (through Jordan, Saudi Arabia and Oman or the UAE) ([33]) to provide an alternative route to the Red Sea and the Bab el-Mandeb Strait, connecting Europe and India, Singapore and Malaysia, while avoiding the Strait of Hormuz
- 7b) linking Aqaba to western Africa through the Red Sea and connecting to Mayotte.

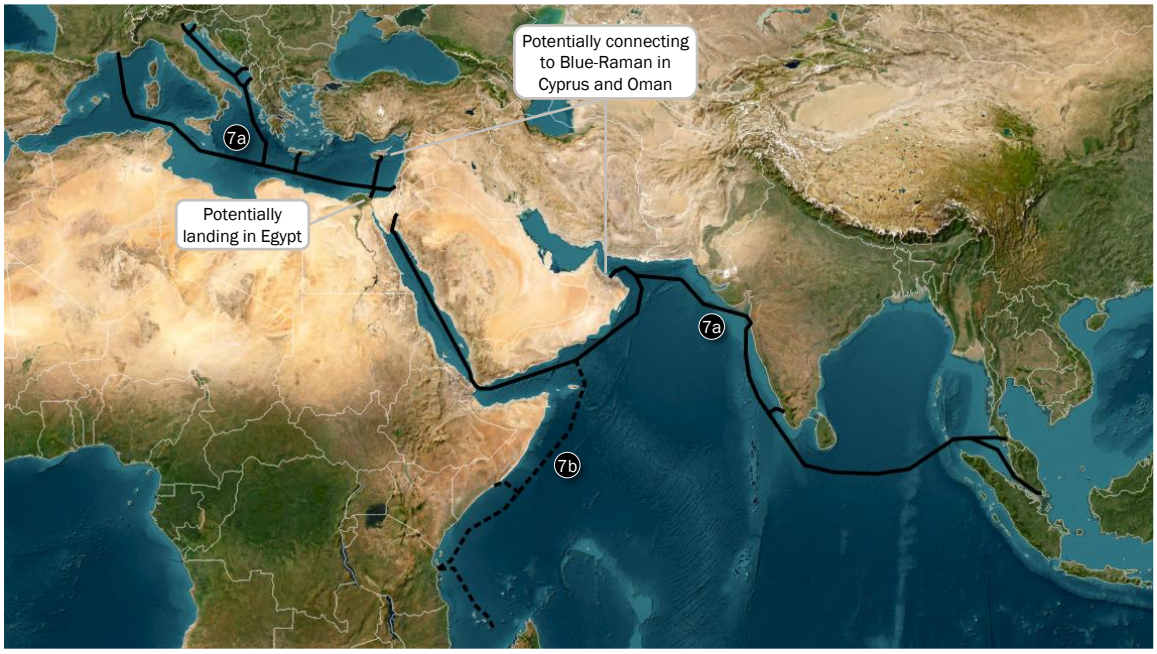
This is illustrated in Figure 3.12.

([31]) Terrestrial infrastructure falls outside the scope of this report, but is mentioned to provide an end-to-end view of the proposed CPEI.

([32]) See Section 3.1 of this report.

([33]) The terrestrial section of the CPEI is not within the scope of this report.

Figure 3.12: Proposed cable route for Priority Area 7 [Source: Analysys Mason, 2026]



The estimated cost of deploying additional cable capacity for this priority area is EUR 1287 million.

In-deployment and planned cables in Priority Area 7

Several projects such as the East to Med Corridor (EMC) West, the Egypt-Albania Gateway Link to Europe (EAGLE), SEA-ME-WE 6 (SMW6), GreenMed, Blue-Raman, India-Europe-Xpress (IEX), ([34]) Africa-1 and 2Africa are planned, or currently being deployed, to enhance connectivity across the Mediterranean Sea, the Red Sea and the Indian Ocean. However, these initiatives largely follow existing corridors and do not fully mitigate the strategic vulnerability of concentrated traffic through the Bab el-Mandeb Strait and Red Sea routes. A dedicated CPEI priority area providing an alternative and redundant route is essential to reduce vulnerability to single points of failure, strengthen resilience and safeguard Europe's international connectivity. ([35])

3.2.8. Area 8: Multipurpose vessel(s) and modular equipment stock

Rationale for CPEI priority area

This CPEI focuses on strengthening the horizontal maintenance capability of the repair fleet. The existing commercial maintenance fleet is adequate for handling routine faults but may lack enough capability to respond effectively to emergency situations. ([36]) To strengthen emergency

([34]) The IEX submarine cable has finalised landings in the Mediterranean Sea; the sections extending to Egypt and Saudi Arabia are expected to be completed by March 2026, while the Oman–India segment was commissioned at the end of 2025. The Red Sea crossing, off the coast of Yemen, remains on hold.

([35]) See Annex B of this report for a list of all in-deployment and planned cables.

([36]) Emergency situations refer to unexpected, severe events – such as natural disasters, geopolitical conflict or multiple simultaneous system failures – that pose immediate risk to the integrity, availability or security of submarine cable infrastructures and require rapid, extraordinary response measures beyond standard maintenance protocols.

preparedness, supporting the equipment of modular systems in multipurpose vessels has been identified as a practical approach. These vessels would offer flexibility and rapid deployment, complementing the commercial fleet to accelerate cable repairs and restore services efficiently during crises. The ability to respond rapidly to cable failures is fundamental to maintaining network continuity.

For these reasons, multipurpose vessel(s) and modular equipment stock are considered a CPEI priority area (Priority Area 8), which links mainly to CPEI criteria b, c, d and e of Point 26, and CPEI criteria a, b and c of Point 27 of Recommendation 2024/779. ([37])

Recommendation

The Expert Group recommends to pre-configure some vessels for multipurpose maintenance and emergency repairs.

The estimated cost of the proposed measure for this priority area is EUR 50 million.

3.2.9. Area 9: South Atlantic extension to West Africa and the Indian Ocean

Rationale for CPEI priority area

As outlined in the October 2025 Expert Group report, establishing an alternative connectivity route along Africa's western and southern coasts would provide a viable option to bypass the Red Sea and the Bab el-Mandeb Strait for connecting Europe and Asia.

Also, at the time of writing this report, Africa Coast to Europe (ACE) is the only submarine cable that directly connects Europe to several West African nations. This dependency was exposed in March 2024 when an underwater landslide off Côte d'Ivoire severed four major cables – including ACE – triggering widespread outages across multiple countries and disrupting businesses, government services and critical communications. ([38]) Moreover, ACE's total capacity of just 12.8 Tbit/s is shared among 19 nations, leaving each of them with limited bandwidth to meet rapidly growing digital demands. As the system is expected to reach end-of-life by the mid-2030s, it remains uncertain how these countries will sustain essential internet connectivity thereafter.

On the South-East coast of Africa, French outermost region Réunion is connected via two main international submarine cables. The first one (METISS), with a capacity of 24 Tbit/s, was deployed in 2021 and links Réunion to Madagascar, Mauritius and South Africa. The second cable (SAFE) was deployed in 2002 and connects Réunion to South Africa, Mauritius, India and Malaysia. However, SAFE has very limited capacity (0.44 Tbit/s) and is planned to reach end-of-life in 2027. Furthermore, Mayotte currently has limited international connectivity, relying solely on a single low-capacity submarine cable to mainland Africa (Kenya), with a bandwidth of 1.28 Tbit/s. The inclusion of Réunion and Mayotte in the proposed route would complement these existing systems and provide additional redundancy and capacity to connect to Europe and India. From India, there is significant capacity to link to the rest of Asia, in particular if further connections materialise under CPEI Area 7a (see above).

Furthermore, developing submarine infrastructures closer to the African continent could enhance European competitiveness in the region and provide a strategic interconnection point between

([37]) See Section 3.1 of this report.

([38]) Internet Society (2024), *2024 West Africa Submarine Cable Outage Report*.

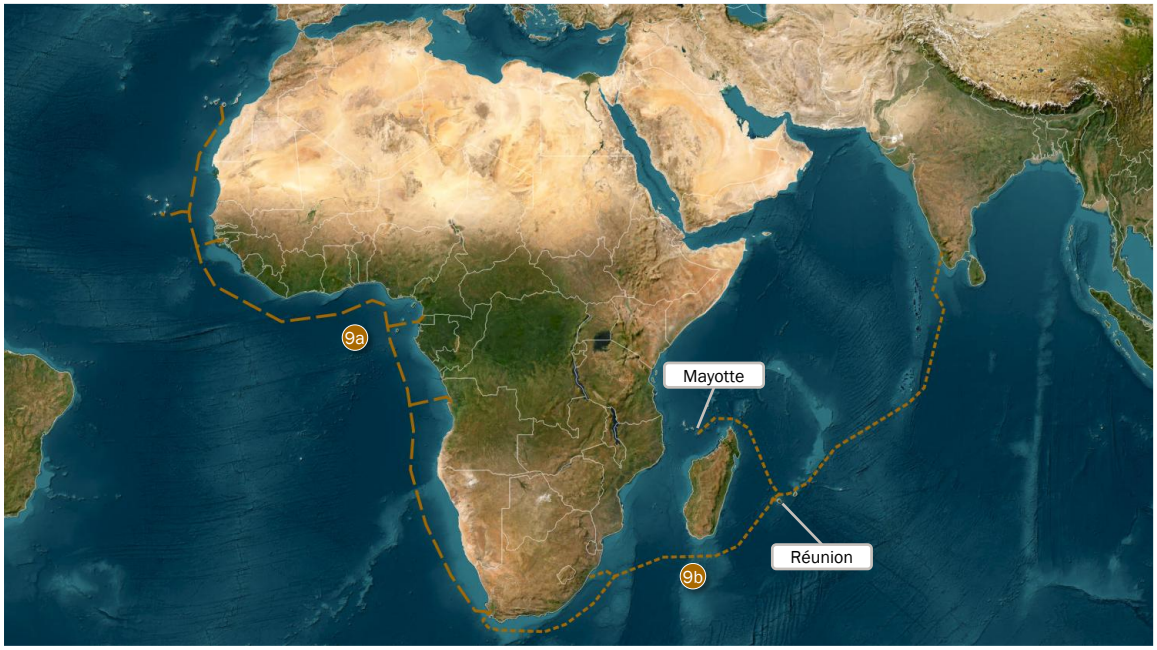
routes to West Africa, South America and eventually Asia. This would strengthen overall route diversity and reduce reliance on any single path.

For these reasons, the South Atlantic extension to West Africa and Indian Ocean region is considered a CPEI priority area (Priority Area 9), which links mainly to CPEI criteria a, c, d and e of Point 26, and CPEI criteria a, b and c of Point 27 of Recommendation 2024/779. ([39])

Recommendation

The Expert Group recommends the deployment of a new submarine cable connecting the Canary Islands (Spain), Cape Verde, Guinea Bissau, Equatorial Guinea, Angola to South Africa (African submarine cable hub), and then connect South Africa to Réunion and Mayotte onto India. This is illustrated in Figure 3.13. CPEI Area 9a is thereby complementary to CPEI Area 5b, as it would provide additional resilience for connections on the way to Latin America. Moreover, CPEI Area 9b is complementary to CPEI Area 7a, which extends from India to Singapore and Malaysia.

Figure 3.13: Proposed cable route for Priority Area 9 [Source: Analysys Mason, 2026]



The estimated cost of the proposed cable deployments for this priority area is EUR 961 million.

In-deployment and planned cables in Priority Area 9

The 2Africa cable (expected to go live in 2026) ([40]) will significantly enhance connectivity along Africa's west coast and provide links to Europe and Asia. However, it does not fully address the strategic need for a geographically diverse route connecting Réunion and Mayotte back to Europe and across the Indian Ocean. Furthermore, 2Africa will serve more than 20 countries, but the capacity available to each will be relatively limited, reinforcing the need for complementary

([39]) See Section 3.1 of this report.

([40]) 2Africa can largely be regarded as finalised, apart from a few minor elements, the Persian Gulf festoon section and the Red Sea crossing.

infrastructure. The proposed CPEI priority area therefore remains essential to reduce dependency on existing corridors. ([41])

3.2.10. Area 10: Maintenance fleet renewal

Rationale for CPEI priority area

As outlined in the October 2025 Expert Group report, the existing European fleet of maintenance vessels is ageing and will require substantial renewal over the next 10 years to maintain operational readiness and resilience. It is estimated that at least six vessels will need replacement within the next 10 to 15 years. This includes three dedicated maintenance vessels currently serving repeated systems in large basins (primarily the Atlantic Ocean and the Mediterranean Sea) and three multipurpose vessels serving unrepeated cables operating in smaller basins, such as the Baltic Sea, which will also reach end-of-life within this timeframe.

It will be essential for maintenance companies to replace ageing vessels to preserve their ability to repair all cable faults across European waters, particularly as the number of submarine cable systems requiring maintenance is expected to increase over time. ([42]) Without timely renewal, repairing cables promptly will become increasingly challenging, increasing the risk of prolonged outages.

However, it remains uncertain how submarine cable maintenance companies will finance the acquisition of new vessels, given the substantial costs (estimated to range between EUR 60 million and EUR 80 million for those operating in large basins, and between EUR 15 million and EUR 30 million for multipurpose vessels serving smaller basins). ([43])

For these reasons, renewal of the existing maintenance fleet is considered a CPEI priority area (Priority Area 10), which links mainly to CPEI criteria b, c, d and e of Point 26, and CPEI criteria a, b and c of Point 27 of Recommendation 2024/779. ([44])

Recommendation

The Expert Group recommends replacing ageing maintenance vessels serving European submarine cables. The estimated cost of this measure is shown in Figure 3.14.

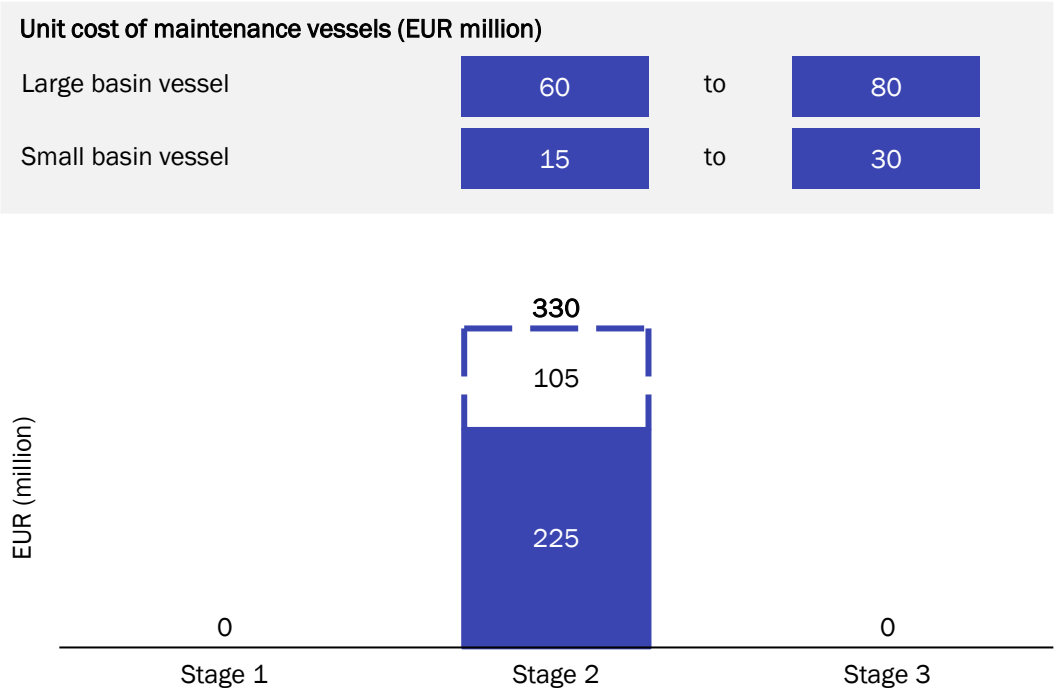
([41]) See Annex B of this report for a list of all in-deployment and planned cables.

([42]) TeleGeography (2025), *The future of Submarine Cable Maintenance Trends, Challenges and Strategies*.

([43]) European Commission Expert Group (2025), *Security and Resilience of EU Submarine Cable Infrastructures: Mapping, Risk Assessments, Stress Tests*.

([44]) See Section 3.1 of this report, CPEI criteria paragraph.

Figure 3.14: Cost estimate for Priority Area 10 (maintenance fleet renewal) [Source: Analysys Mason, 2026]



New maintenance vessels

It should be noted that, in October 2025, Orange Marine, a key provider of submarine cable maintenance in European basins, announced the construction of two maintenance vessels to replace two of its older vessels (i.e., Leon Thevenin (1983) and Antonio Meucci (1987)). ([45]) These vessels, which are expected to be ready for service in 2028 and 2029, respectively, will contribute to strengthening the resilience of submarine cable networks in Europe.

3.2.11. Area 11: Caribbean Sea

Rationale for CPEI priority area

Two submarine cables currently provide connectivity to the EU Outermost Regions (ORs) and Overseas Countries and Territories (OCTs) in the Caribbean Sea, but both are approaching the end of their operational life, creating a significant risk to regional resilience. The East Caribbean Fiber System (ECFS), which offers a capacity of 1.10 Tbit/s, has surpassed its initial estimated end-of-life of 2020. The second system, Americas-II, provides a higher capacity of 6.10 Tbit/s, but reached end-of-life in 2025.

The ageing status of these cables underscores the requirement for infrastructure renewal or alternative connectivity solutions to maintain reliable links between the Caribbean and Europe.

([45]) Orange Marine (2025), *Orange Marine modernizes its fleet of cable ships to secure digital infrastructure in Europe, Africa and the Middle East*.

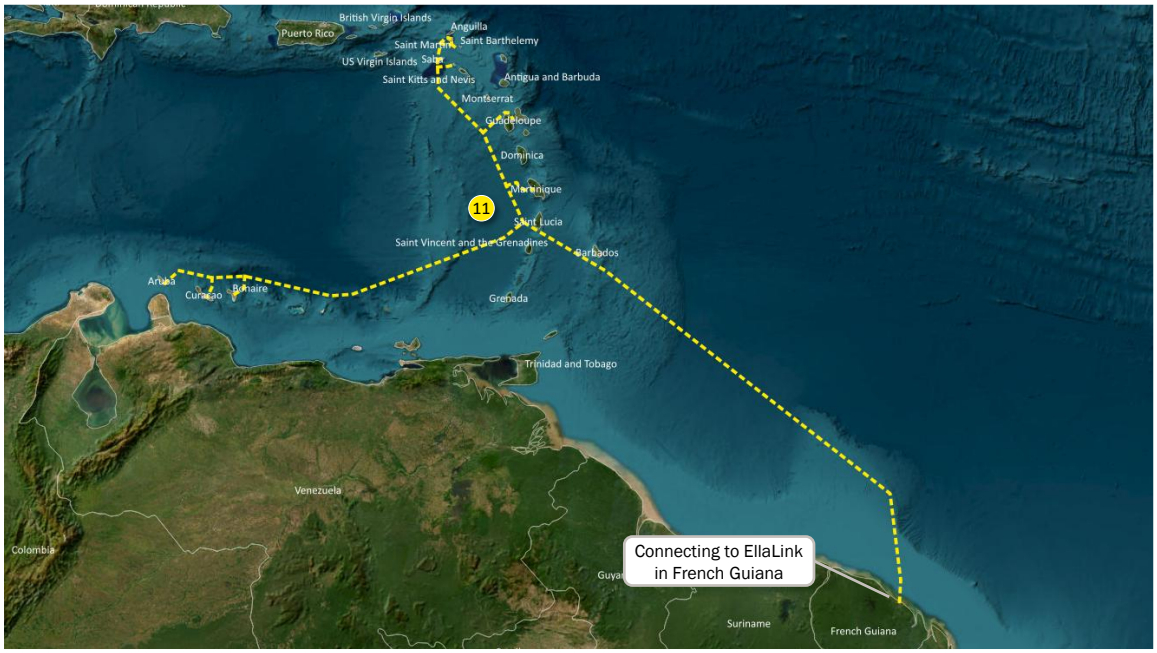
Furthermore, the imminent decommissioning of existing systems poses a threat to connectivity for the EU ORs and OCTs. As such, strengthening connectivity in the Caribbean Sea is essential to maintaining service continuity for the EU ORs and OCTs.

For these reasons, the Caribbean Sea region is considered a CPEI priority area (Priority Area 11), which links mainly to CPEI criteria a, c, d and e of Point 26, and CPEI criteria a, b and c of Point 27 of Recommendation 2024/779. ([46])

Recommendation

The Expert Group recommends the deployment of a new submarine cable connecting the EU ORs and OCTs, including linking Saint Barthélemy, Guadeloupe, Saint Martin, Martinique, Aruba, Bonaire, Saba, Sint Eustatius, Curaçao and Sint Maarten between each other and to EllaLink in French Guiana. This is illustrated in Figure 3.15.

Figure 3.15: Proposed cable route for Priority Area 11 [Source: Analysys Mason, 2026]



The estimated cost of deploying a new submarine cable for this priority area is EUR 124 million.

In-deployment and planned cables in Priority Area 11

The Caribbean ELIte Alliance (CELIA) cable (which connects the US to several islands in the Caribbean Sea, expected to be operational in 2027) will improve connectivity for multiple Caribbean islands. However, this cable creates additional dependency on the US to connect the EU ORs and OCTs. The proposed CPEI priority area remains essential to maintaining service continuity, strengthening resilience and safeguarding connectivity between the Caribbean and Europe, mitigating the dependency on the US. ([47])

([46]) See Section 3.1 of this report.

([47]) See Annex B of this report for a list of all in-deployment and planned cables.

3.2.12. Area 12: Trans-Atlantic

Rationale for CPEI priority area

As of 2025, more than 90% of the total capacity across transatlantic routes was either wholly or partially owned by US-based hyperscalers, namely Google, Meta and Microsoft. This concentration of ownership creates a significant dependency on a limited number of private actors for transatlantic connectivity. This trend is set to accelerate with the deployment of new hyperscaler-owned submarine cables – including Anjana and Aurora (Meta), and Nuvem (Google) – and additional systems planned for the near future, such as Sol (Google).

In addition, the French OCT St. Pierre and Miquelon is only connected to Canada by a single system. Also, closing the loop with Priority Area 11 in the Caribbean Sea would further enhance resilience by forming a ring between Europe and the EU ORs and OCTs in the Caribbean region.

Furthermore, establishing a connection to the Azores and Greenland would create a meshed network with Priority Areas 2 and 5. Projects in this area would strengthen effective route diversity, in line with the EU's resilience objectives, and favour the use of deeper-water corridors where feasible, thereby reducing exposure to accidental damage arising from fishing activities and vessel anchoring.

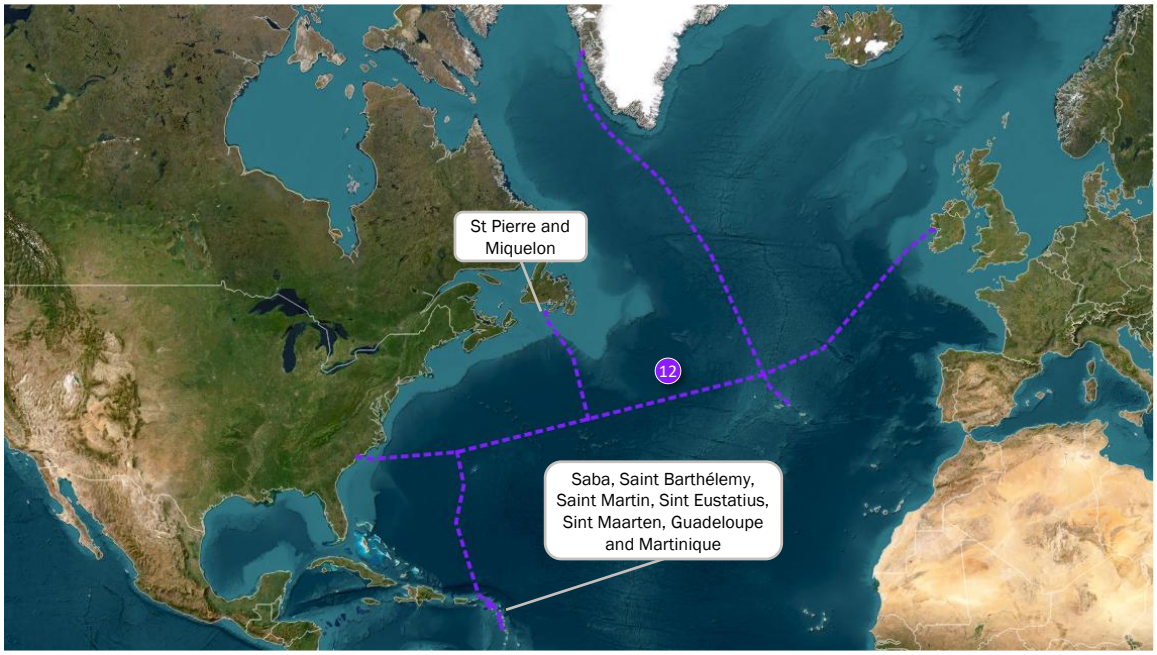
For these reasons, the Trans-Atlantic region is considered a CPEI priority area (Priority Area 12), which links mainly to CPEI criteria a, c, d and e of Point 26, and CPEI criteria a, b and c of Point 27 of Recommendation 2024/779. ([48])

Recommendation

The Expert Group recommends the deployment of a new submarine cable across the Atlantic Ocean connecting Ireland to North America, with branches to the Azores, Greenland, St Pierre and Miquelon, and the EU ORs and OCTs in the Caribbean Sea. This is illustrated in Figure 3.16.

([48]) See Section 3.1 of this report.

Figure 3.16: Proposed cable route for Priority Area 12 [Source: Analysys Mason, 2026]



The estimated cost of deploying a new submarine cable for this priority area is EUR 653 million.

In-deployment and planned cables in Priority Area 12

Projects such as Anjana (a transatlantic submarine cable connecting Spain to the US, completed in 2025), ([49]) Nuvem (a transatlantic cable linking Portugal to the US and Bermuda, expected to be ready for service in 2026) and Sol (a new cable that will connect Spain and the Azores (Portugal) to the US and Bermuda, expected to be operational in 2027) will add further capacity on the North Atlantic route. However, all of these submarine cables are owned by US-based hyperscalers and do not address the strategic need for European-controlled transatlantic infrastructure.

3.2.13. Area 13: Southeast Asia and South Pacific

Rationale for CPEI priority area

New Caledonia and French Polynesia currently rely on a limited number of submarine cables for international connectivity. New Caledonia is connected to Australia via Gondwana-1, which entered service in 2008, and to Fiji through Gondwana-2, commissioned in 2022. French Polynesia, on the other hand, is linked to the US through the Honotua cable, which became operational in 2010, and to Samoa via the Manatua system, which went live in 2020. These connections provide essential links to the Pacific region but remain relatively constrained in terms of capacity and redundancy.

New Caledonia, Wallis and Futuna, and French Polynesia's current reliance on a small number of ageing systems, combined with the growing dominance of hyperscalers in the South Pacific region, poses significant risks to the resilience and sovereignty of EU territories in the Pacific Ocean.

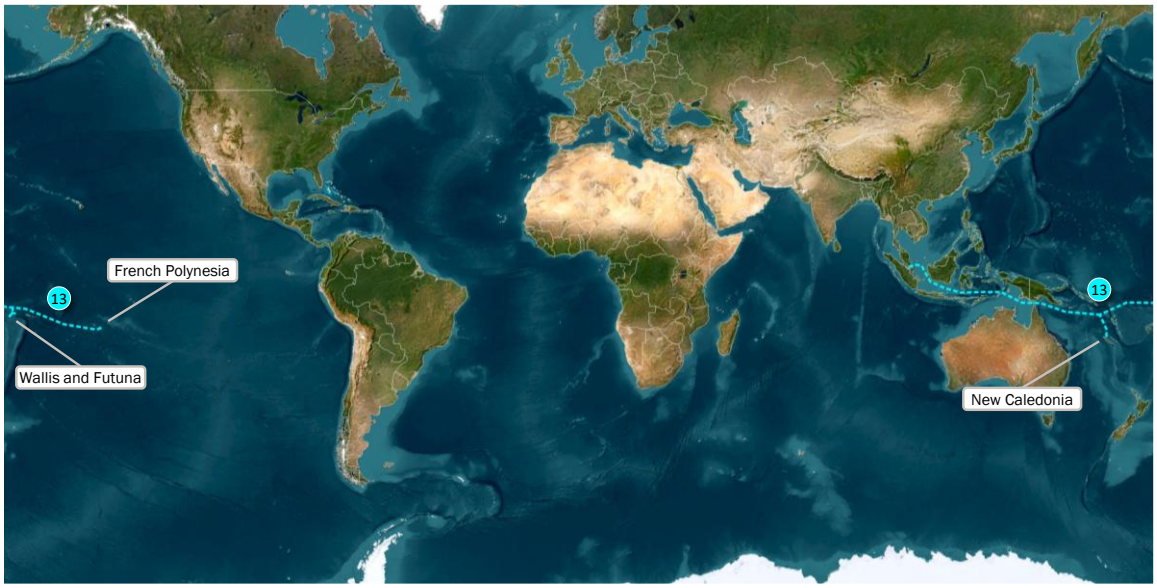
([49]) Both landings had been completed at the time of writing this report.

For these reasons, the South Pacific region is considered a CPEI priority area (Priority Area 13), which links mainly to CPEI criteria a, c, d and e of Point 26, and CPEI criteria a, b and c of Point 27 of Recommendation 2024/779. ([50])

Recommendation

The Expert Group recommends the deployment of a new submarine cable connecting Singapore to New Caledonia, Wallis and Futuna, and French Polynesia. This is illustrated in Figure 3.17.

Figure 3.17: Proposed cable route for Priority Area 13 [Source: Analysys Mason, 2026]



The estimated cost of deploying a new submarine cable for this priority area is EUR 989 million.

In-deployment and planned cables in Priority Area 13

Google has announced plans to deploy three new high-capacity submarine cable systems that will land in French Polynesia by 2027. ([51]) These cables are expected to connect French Polynesia to the US, Australia and Chile, significantly expanding its international connectivity footprint. However, it is important to note that Google will hold sole ownership of most of this infrastructure, which raises concerns about relying on a single private entity for critical connectivity. ([52])

([50]) See Section 3.1 of this report.

([51]) Bulikula, which will connect the US, French Polynesia, Fiji, Guam and the Northern Mariana Islands (expected to be ready for service in 2026); Honomoana, which will link the US, French Polynesia, Australia and New Zealand (expected to be ready for service in 2026); and Halaihai, which will connect French Polynesia, Chile, Guam and the Northern Mariana Islands (expected to be ready for service in 2027).

([52]) See Annex B of this report for a list of all in-deployment and planned cables.

4. FOLLOW-UP

4.1. Use and implementation of the Cable Security Toolbox

An effective approach to mitigating risks to submarine cable infrastructures requires a combination of measures at both national, EU and international levels. Some actions may be implemented directly by individual Member States, while others require co-ordinated efforts at EU-level and with international partners to ensure consistency and impact. Implementing the Cable Security Toolbox may involve new or reinforced measures, as well as alignment with existing EU instruments in areas such as funding, relevant legislation in place and trade. Increased co-operation between Member States will be essential for capacity building, alignment of security standards and development of best practices.

At national level, implementation should reflect the specific characteristics of each Member State context, including existing legal frameworks, resource availability and specific risks to be mitigated, based on identified threats, vulnerabilities and dependencies (e.g., on particular suppliers or routes). Measures may be phased in gradually where significant operational changes are required. To guide prioritisation, Member States should assess their respective risks, including through the stress test approach presented in the October 2025 Expert Group report, to identify gaps in existing mitigation measures and prioritise those measures with the greatest impact, either individually or in collaboration with other Member States and the Commission. According to this approach, implementing the Cable Security Toolbox should be both targeted and adaptable, fostering a resilient and secure submarine cable network across the EU and with partner countries.

Finally, it should be noted that the Strategic and Technical and Support Measures proposed in this report remain non-binding for Member States and may only be considered as recommendations.

4.2. CPEI implementation

The CPEI priority areas set out in this report will inform the selection process for future EU funding calls, notably under the CEF-Digital programme or other future programmes. In practice, proposals for submarine cable infrastructures and other horizontal capacity addressing these priority areas as a whole will be prioritised for funding, within the boundaries of the applicable selection rules. In any case, funding will be awarded through a competitive process in which each proposal will be assessed according to its merits, guaranteeing transparency and fairness in the allocation of public resources.

Annex A Risk scenarios

Escalation	Sub-scenario
R1. Co-ordinated physical sabotage or attack on submarine cable (R6 Nevers Report)	
Escal. 1: baseline	R1.1. Cable cut in territorial waters/EEZ of an EU Member State affecting at least two EU Member States
Escal. 2	R1.2. Cable cut in territorial waters/EEZ of a third country affecting at least two EU Member States
Escal. 3	R1.3. Cable cut in high seas affecting at least three EU Member States
N/A	R1.4. Cutting off an entire island
N/A	R1.5. Cutting off an entire region
R2. Co-ordinated sabotage or attack on cable landing site (beach manhole and/or landing station) (adapted from R6 Nevers Report)	
Escal. 1: baseline	R2.1. Cyber intrusion into cable landing station where cables land, affecting at least two EU Member States
Escal. 2	R2.2. Sabotage of beach manholes where cables land, affecting at least two EU Member States
Escal. 3	R2.3. Physical intrusion into cable landing station where cables land, affecting at least two EU Member States and destruction of equipment (including potentially the entire cable landing station)
R3. Power cuts to cause a regional network outage (adapted from R9 Nevers Report)	
R4. Disruption of maintenance capability	
Escal. 1: baseline	R4.1. Market dynamics resulting in temporary shortage of maintenance vessels in EU waters
Escal. 2	R4.2. Sabotage of a maintenance vessel serving in EU waters or of a spares depot
Escal. 3	R4.3. Co-ordinated sabotage of several maintenance vessels serving the EU or of several spares depots
R5. Disruption of supply chain	
Escal. 1: baseline	R5.1. Market dynamics resulting in temporary supply shortage of key components
Escal. 2	R5.2. Third country interference on supplier of key components (including cyber espionage) (adapted from R2-4 Nevers Report)
Escal. 3	R5.3. Block of supply (e.g., embargo) or backdoor access to system enabling malicious system shut down
R6. Unintentional cable damage caused by human activity	
R7. Natural events leading to physical damage on multiple cables or cable landing stations	

Annex B In-deployment and planned cables across CPEI priority areas

CPEI priority area	Cable name	Status	CEF funded	Expected RFS date	Countries linked	Capacity (Tbit/s)	Ownership
1	GC SWE-FIN	Planned	No	2026	Finland, Sweden	Unknown	• GlobalConnect (Denmark)
1	Eastern Light Sweden-Finland II	In deployment	No	2026	Finland, Sweden	Unknown	• Eastern Light (Sweden)
1	GC FIN-EST	Planned	No	2027	Finland, Estonia	Unknown	• GlobalConnect (Denmark)
1	GC EST-SWE	Planned	No	2027	Estonia, Sweden	Unknown	• GlobalConnect (Denmark)
1	C-Lion2	Planned	Yes	Unknown	Finland, Germany, Sweden	Unknown	• Cinia (Finland)
2a	Far North Fiber	Planned	Yes	2029	Ireland, Japan, Norway, US	Unknown	• Far North Fiber Inc. formed by Cinia (Finland) • Far North Digital (US)
2b	Polar Connect	Planned	Yes	2031	Sweden, Norway, Canada, US, Japan, South Korea	Unknown	• The Swedish Research Council (VR) • NORDUnet
3	IOEMA	Planned	No	2027	UK, the Netherlands, Germany, Denmark, Norway	1300	• IOEMA Fibre (US)
4	PISCES	Planned	Yes	2027/28	Ireland, France, Spain, Portugal	Unknown	• Deep Sea Fibre (Ireland) • McMahon Design and Management (MDM) (Ireland)
4	Celtic Interconnector	In deployment	Yes	2027	Ireland, France	Unknown	• EirGrid (Ireland) • RTE (France)
5a	Medusa	In deployment	Yes	2026	Portugal, Spain, France, Italy, Greece, Cyprus ([53]),	480	• Orange (France) • AFR-IX Telecom (Spain)

([53]) With regard to Cyprus, no application has yet been submitted for the laying of the cable in its EEZ. It should be noted that a geological survey was carried out in 2025.

CPEI priority area	Cable name	Status	CEF funded	Expected RFS date	Countries linked	Capacity (Tbit/s)	Ownership
					Morocco, Algeria, Tunisia, Libya, Egypt		
5a	Atlantic CAM	In deployment	Yes	2027	Portugal	150	• Infrastruturas de Portugal (IP Telecom) (Portugal)
5b	PENCAN-X	Planned	Yes	2026	Spain	Unknown	• Telefónica (Spain)
6a	SEA-SPINE	Planned	Yes	2026	Greece	Unknown	• WINGS ICT Solutions (Greece) • Organismos Tilepikoinonion Tis Ellados (Greece) • Ministry of Digital Governance of Greece (Greece)
6b	Kardesa	Planned	Unknown	2027	Bulgaria, Georgia, Türkiye, Ukraine	Unknown	• Neqsol Holding (Netherlands) • Vodafone (UK)
7a	EMC West	Planned	No	2026	Cyprus, France, Greece, Israel, Italy, Saudi Arabia	640	• center 3 (stc) (Saudi Arabia) • Public Power Corporation (PPC) (Greece) • Telecommunication Telephony Satellite Applications (TTSA) (Greece)
7a	EAGLE	In deployment	Unknown	2026	Albania, Egypt, Italy	480	• 4iG Group (Hungary) • Telecom Egypt (TE) (Egypt)

CPEI priority area	Cable name	Status	CEF funded	Expected RFS date	Countries linked	Capacity (Tbit/s)	Ownership
7a	SEA-ME-WE 6	In deployment	Yes	2026	Singapore, France, Malaysia, Bangladesh, Sri Lanka, Maldives, India, Pakistan, Djibouti, Saudi Arabia, Egypt	100	• Microsoft (US) • Orange (France) • Telekom Malaysia (Malaysia) • Telecom Egypt (TE) (Egypt) • Bangladesh Submarine Cable Company (Bangladesh • Djibouti Telecom (Djibouti) • Singtel (Singapore) • Mobily (Saudi Arabia) • Telin (Indonesia) • Dhiraagu (Maldives) • Transworld Associates (United Arab Emirates) • Bharti Airtel (India) • Sri Lanka Telecom Limited (SLT) (Sri Lanka)
7a	GreenMed	Planned	Yes	2028	Italy, Croatia, Montenegro, Albania, Greece, Türkiye, Israel	480	• Telecom Italia Sparkle (Italy)
7a	AAE-2	Planned	No	Unknown	France, Italy, Singapore, Hong Kong, Oman, Saudi Arabia, Egypt, Thailand, United Arab Emirates	Unknown	• PCCW Global (Hong Kong, China) • Telecom Italia Sparkle (Italy) • Telecom Egypt (TE) (Egypt) • Zain Omantel International (ZOI) (UAE)
7a	Blue-Raman	In deployment	Yes	2026	Cyprus, Italy, France, Greece, Israel, Jordan, Saudi Arabia, Djibouti, Oman, India	388	• Google (US) • OmanTel (Oman) • Telecom Italia Sparkle (Italy)

CPEI priority area	Cable name	Status	CEF funded	Expected RFS date	Countries linked	Capacity (Tbit/s)	Ownership
7a	India-Europe-Xpress (IEX)	In deployment	No	2025 ([54])	India, Djibouti, Oman, Saudi Arabia, Egypt, France, Italy, Greece	200	• Meta (US), China Mobile International (China), Reliance Jio Infocomm (India)
7a	Africa-1	In deployment	No	2026	France, Italy, Tunisia, Egypt, Saudi Arabia, Sudan, Yemen, Djibouti, Somalia, Kenya, United Arab Emirates, Pakistan	200	• e& (etisalat) (United Arab Emirates) • Telecom Egypt (TE) (Egypt) • Mobily (Saudi Arabia) • G42 (United Arab Emirates) • Pakistan Telecommunication Company (PTCL) (Pakistan)
7a/7b/9	2Africa	In deployment	No	2025 ([55])	Italy, Djibouti, Egypt, Spain, France, South Africa, Kenya, Saudi Arabia, Comoros, Mozambique, Madagascar, Seychelles, Angola, Congo, DRC, Ghana, Gabon, United Arab Emirates, Bahrain, Ivory Coast, UK, India, Iraq, Kuwait, Nigeria, Oman, Pakistan, Portugal, Qatar, Sudan, Senegal, Somalia, Tanzania	180	• Meta (US) • China Mobile International (China) • Orange (France) • center 3 (stc) (Saudi Arabia) • Bayobab (United Arab Emirates) • Vodafone (UK) • Telecom Egypt (TE) (Egypt) • WIOCC (Mauritius)

([54]) The IEX submarine cable has already been deployed in the Mediterranean Sea; the sections extending to Egypt and Saudi Arabia are expected to be completed by March 2026, while the Oman–India segment was commissioned at the end of 2025. The Red Sea crossing, off the coast of Yemen, remains on hold.

([55]) 2Africa can largely be regarded as finalised, apart from a few minor elements, the Persian Gulf festoon section and the Red Sea crossing.

CPEI priority area	Cable name	Status	CEF funded	Expected RFS date	Countries linked	Capacity (Tbit/s)	Ownership
11	CELIA	Planned	Yes	2027	Antigua and Barbuda, Aruba, Curaçao, Sint Eustatius, Saba, Bonaire, Martinique, US	Unknown	• Orange (France) • Setar (Aruba) • APUA (Antigua and Barbuda) • Telxius (Spain)
12	Anjana	In deployment	No	2025 ([56])	Spain, US	480	• Meta (US)
12	Nuvem	In deployment	No	2026	Portugal, US, Bermuda	384	• Google (US)
12	Sol	Planned	No	2027	Spain, Portugal, US, Bermuda	Unknown	• Google (US)
13	Bulikula	Planned	No	2026	US, French Polynesia, Fiji, Guam, Northern Mariana Islands	Unknown	• Google (US)
13	Honomoana	Planned	No	2026	Australia, French Polynesia. New Zealand, US	Unknown	• Google (US)
13	Halaihai	Planned	No	2027	Chile, French Polynesia, Guam, Northern Mariana Islands	Unknown	• Google (US)

([56]) Both landings had been completed at the time of writing this report.

Annex C Country codes

Country/territory	Code ([57])
Albania	AL
Angola	AO
Aruba	AW
Azores	PT-20
Belgium	BE
Bonaire	BQ-BO
Brazil	BR
Bulgaria	BG
Canada	CA
Cape Verde	CV
Croatia	HR
Curaçao	CW
Cyprus	CY
Denmark	DK
Egypt	EG
Equatorial Guinea	GQ
Estonia	EE
Finland	FI
France	FR
French Guiana	GF
French Polynesia	PF
Georgia	GE
Germany	DE
Greece	EL
Greenland	GL
Guadeloupe	GP
Guinea-Bissau	GW
Iceland	IS
India	IN
Ireland	IE
Israel	IL
Italy	IT
Japan	JP
Jordan	JO
Latvia	LV
Lithuania	LT

([57]) ISO 3166-1.

Country/territory	Code [57]
Madeira	PT-30
Malaysia	MY
Martinique	MQ
Mayotte	YT
Montenegro	ME
Netherlands	NL
New Caledonia	NC
Norway	NO
Oman	OM
Poland	PL
Portugal	PT
Réunion	RE
Romania	RO
Saba	BQ-SA
Saint Barthélemy	BL
Saint Martin	MF
Singapore	SG
Slovakia	SK
Somalia	SO
South Africa	ZA
South Korea	KR
Spain	ES
Sint Eustatius	BQ-SE
Sint Maarten	SX
St. Pierre and Miquelon	PM
Sweden	SE
Tanzania	TZ
Türkiye	TR
Ukraine	UA
United States	US

Annex D Abbreviations

Abbreviation	Definition
ACE	Africa Coast to Europe
ACMA	Atlantic Cable Maintenance Agreement
ACPL	Asean Cableship Pte Ltd
AI	Artificial Intelligence
AIS	Automated Identification System
CEF	Connecting Europe Facility
CER	Critical Entities Resilience
CISE	Common Information Sharing Environment
DAS	Distributed Acoustic Sensing
EC	European Commission
EIG	Europe India Gateway
EMC	East to Med Corridor
ENISA	European Union Agency for Cybersecurity
EU	European Union
EUR	Euro
ICPC	International Cable Protection Committee
ID	Identification
IEX	India-Europe-Xpress
ISO	International Organization for Standardization
ITU	International Telecommunication Union
IXP	Internet Exchange Point
MS	Member State
NATO	North Atlantic Treaty Organization
NIS	Network and Information Security
NOC	Network Operation Centre
PFE	Power Feed Equipment
UAE	United Arab Emirates
UK	United Kingdom
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UPS	Uninterruptible Power Supply
US	United States of America