

# Enabling the Future of Maritime Communications



A Harbor Research report explores how the maritime industry's connectivity needs require high-throughput satellite solutions.





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# Introduction

The maritime industry is undergoing a significant digital transformation, and leveraging technologies to unlock opportunities for growth, operational efficiency, and sustainability in a highly competitive and challenging environment is critical. Based on Harbor Research's assessment, fleets are adopting innovative ways to use connectivity to better utilize data, tools, and applications.

\*Harbor Research, Currents in Connectivity: How Satellite Infrastructure is Evolving to Enable the Future State of Maritime Communications, 2023.

# A Closer Look at Maritime Today

The maritime industry is at an inflection point, driven by an interconnected network of cultures and economies. The catalysts for industry transformation can be witnessed on a global scale, from supply chain disruptions and increasingly stringent sustainability regulations, to safety compliance and even labor shortages. These factors have revealed that maritime digitalization must accelerate to increase competitiveness, enhance operational efficiencies, and meet sustainability goals.

## Drivers of Maritime Digital Transformation



Aging fleets



Sustainability



Lost revenue and  
cost savings



Safety, security,  
and compliance



Crew welfare and  
operational visibility



Use of autonomous  
vehicles and electrification

Over  
**90%**  
of all goods are transported by sea

Source: UNCTAD, 2022

The lack of digital orchestration creates barriers to systemic value creation and limits the overall efficiency of the global supply chain and business networks. To bridge the data gap, it is important for the maritime players to have the correct connectivity services and strategies to ensure maximum value creation.



## How can fleets sail towards transformation to optimize operations?

Reduce bottlenecks

Track assets

Optimize routes

Use resources sustainably

Operators must tap into networking and connectivity opportunities, leveraging technology like 5G and edge computing, high-throughput and software-defined satellites, and cloud-based platforms. These services and solutions will help them strive towards better systems and processes, making capabilities like centralized data management, cybersecurity and network protection, and port-to-ship communication possible. This can help fleets realize many benefits, such as fleet optimization, predictive maintenance and analytics, remote training and support, and end-to-end supply chain visibility.



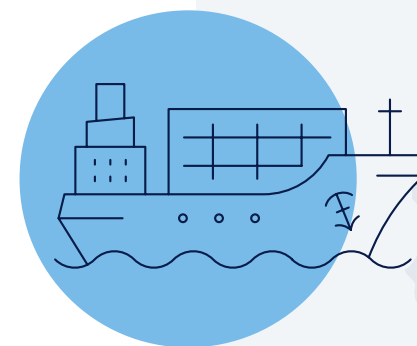
# Innovations in Maritime Connectivity

Intelsat FlexMaritime is an award-winning high-throughput global service for commercial maritime. It removes the complexities of navigating bandwidth availability, configuration, and management of network infrastructure. Supported by a combination of software-defined satellite technology, multiple orbits, cloud infrastructure, and terrestrial advancements from Intelsat's global, enterprise-grade, unified network, FlexMaritime ensures consistent, high-performing ship-to-shore and shore-to-ship communications for maritime operators and their crews.

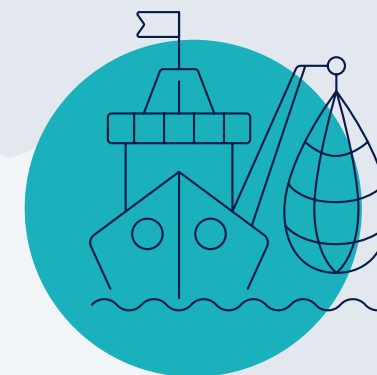
Global fleets

**355K TB**

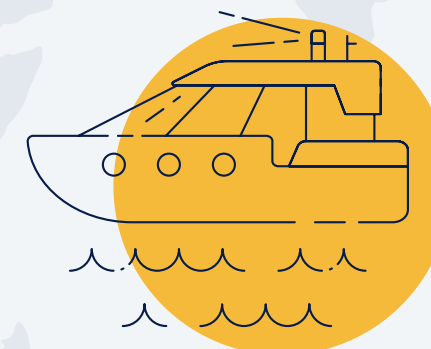
of data is processed and transmitted annually



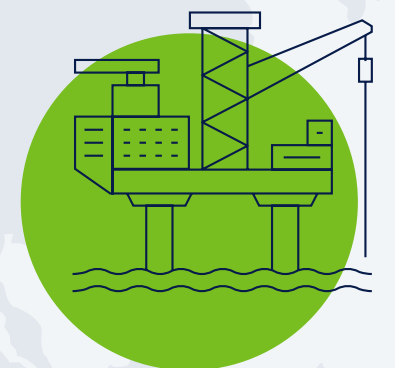
Merchant shipping



Commercial fishing



Leisure



Offshore

**While all maritime companies operate differently, their opportunities to leverage connectivity are plentiful and add value—no matter the segment.**

15.2281550  
21.2155444



### Vessel systems and cloud-based data exchange

- ◆ Environmental and condition monitoring
- ◆ IoT and connected devices onboard
- ◆ Wireless sensor networks
- ◆ Propulsion, control, and power management



### Network technologies and systems

- ◆ Software-defined satellites
- ◆ Multi-band satellite and hybrid network services
- ◆ Wireless mesh for crew and asset management
- ◆ Critical data and information storage and security



### Data-driven services

- ◆ Vessel management and automation systems
- ◆ Cloud-based fleet and supply chain management
- ◆ Automatic identification
- ◆ e-Navigation and VHF Data Exchange Systems

22.9001550  
33.9222420



# Opportunities Across Maritime Segments



MERCHANT SHIPPING

# Connecting Transport Across Seas

1.9M

seafarers make up the merchant maritime fleet, transporting over 90% of traded goods globally

Source: Ocean Shipping and Shipbuilding, OECD, 2022

And the  
fleet is  
growing.

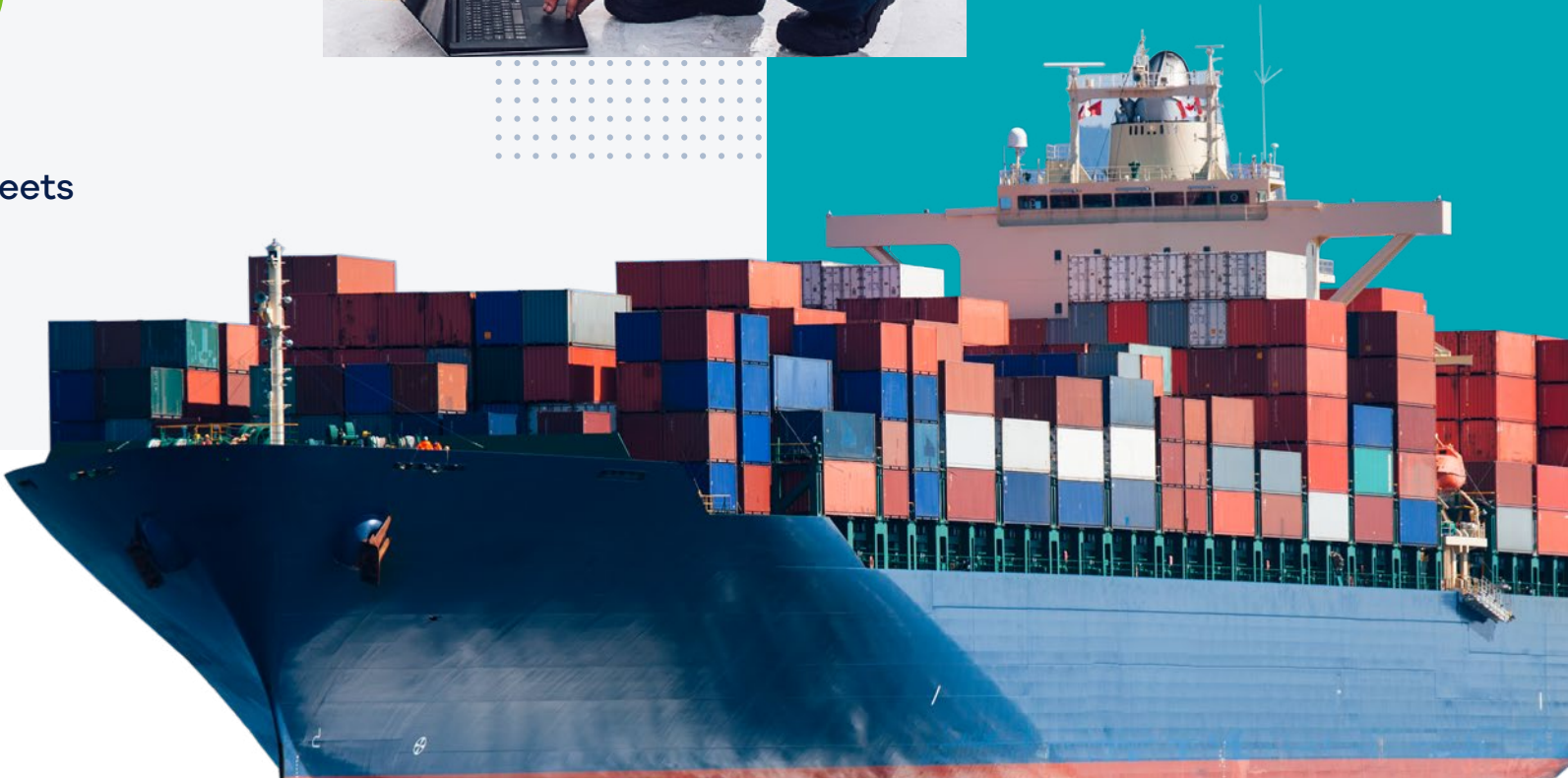
As the segment shows continued growth, updating aging fleets with modern digital technologies is vital to drive the industry forward.

2.9%

Annual fleet growth from 2020-2021

21.9  
years

Average age of fleets







## Explore the key focus areas for mitigating loss and improving operations.

Emerging technologies can create a foundation for advancement, delivering greater visibility and automation, and enabling advanced enterprise management and digital operational technology.

As the amount of data processed between fleets grows, overcoming the constraints of legacy infrastructure are key in facilitating better use of data and insights, which can optimize operations, too.

## Of 15TB of data processed and transmitted per vessel annually...

- 10-15% processed at the edge
- 30-35% sent over the network
- 55-60% data goes unused





COMMERCIAL FISHING

# Driving Sustainable Change

Commercial fishing fleets have doubled since 1950. They're under intensifying regulatory and compliance restrictions, and have an opportunity to promote more sustainable and regenerative practices with connectivity technologies.

**\$80B**  
in commercial fishing  
economic activity globally

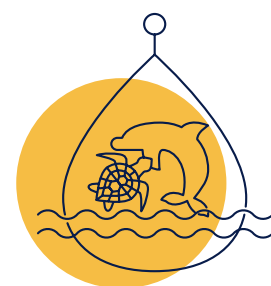
**10-12%**  
of the global population relies on  
fishing for livelihood





Affordable, packaged communications solutions cater to small and medium commercial fishing operations critical to the industry. While 2% of the global fleet controls over 50% of the catch, accessing better technology solutions can help smaller operations avoid regulatory fines and improve their operational processes—saving money and implementing healthier practices. With a single mission control center, it's possible to better enable and simplify fleet orchestration, rescue coordination, regulatory reporting, and more.

## Enable benefits like...



### Reducing bycatch, increasing sustainable yields

Mitigating bycatch of

**38M**  
tons

### Reducing illegal, unreported, and unregulated fishing

Reflects

**1 in 5**  
fish caught

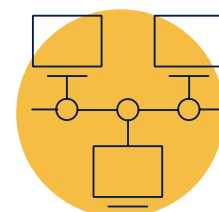
Valued

**\$23B**  
per year



### Reducing safety incidents

**100K**  
deaths per year on  
average currently



### Supporting vessel edge intelligence and fleet orchestration

Processing more data at the edge to gain insights

**3K GB**

of data processed at the  
edge per vessel annually

**26K GB**

data transmitted over the  
network per vessel annually



## OFFSHORE

# Adapting With Industry Growth

The offshore oil and gas industry expects a global upstream industry investment of \$514B in 2023—a comeback as economic pressures settle. This influx will impact adoption of enterprise and digital operational technologies that support market development and increased regulations. In turn, operations will be improved and a healthy seafarer labor market reinforced.

# \$4.1B

expected investment in digital transformation and enterprise technologies by 2023





From dynamic crew management to maintenance orchestration, OpEx savings with third-party ship management services and centralized management can mitigate extraneous operating costs. Along with these benefits, fleets can use data resources—such as visibility into vessel impacts like emissions—to support more sustainable exploration and production. And with enhanced enterprise collaboration, crew lifestyles at sea can reap positive benefits.

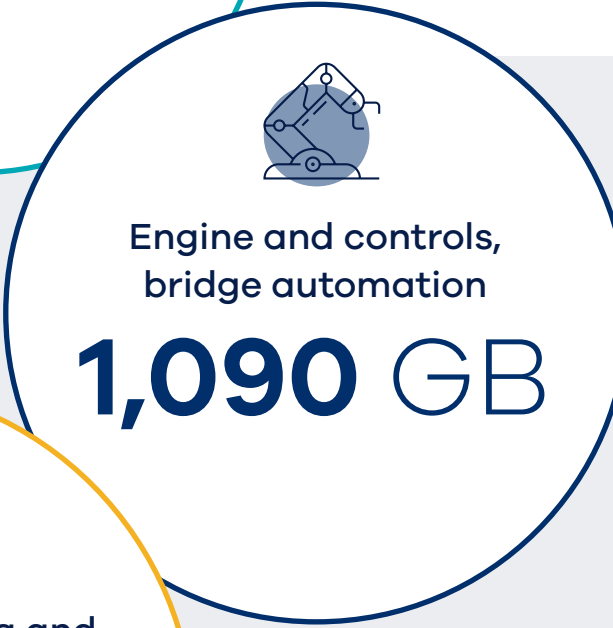
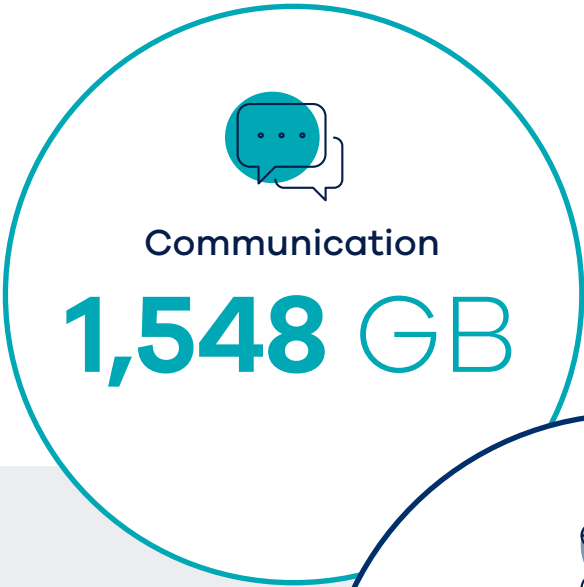
OpEx savings

**25–55%**  
annually

Centralized management savings

**10–15%**  
annually

**Usage in GB  
per vessel,  
annually**





## LEISURE

# Meeting Data Requirements

40%

increase in boat sales in the U.S. from 2019 to 2020

\$78.4B

is the forecasted value of the global leisure boat market by 2032

Leisure yachting and boating are growing in popularity.

The consistent growth of leisure boaters has highlighted safety and environmental issues, necessitating a shift in practices and technology usage. There are more regulatory pressures, and consumers demand more constant connectivity.

As a result, leisure vessels are changing, adopting sustainable technologies such as electric motors—which can drive 30% cost savings compared to diesel. Beyond sustainability, vessels must meet safety regulations. Connected vessels can proactively warn boaters of changing conditions or failing machinery in time for them to make it to safety. These types of updates require bandwidth and also influence vessel modernization.

\$67.5M

of property damage due to safety issues at sea, like collision with other vessels or fixed objects, in 2021





# Reliable connectivity at sea can ensure...



Passenger and crew safety, like enabling advanced AIS for collision avoidance



Emissions and resource monitoring, support for sustainable technology and electrification



Real-time dashboards for battery levels, leaks, intrusions, fires, and more



Better and greater bandwidth for more devices and personal entertainment applications





# Enabling End-to-end Value With Satellite

Intelsat is leading the next generation of satellite services in lockstep with maritime. At the forefront of connecting the most remote operations since 1964, we're a market leader and one-stop provider for GEO, LEO, and multi-orbit managed services for the commercial maritime industry. We collaborate with a globally trusted team of partners to ensure seamless global coverage by deploying software-defined, high-speed satellites, and extensive service management tools.

Our FlexMaritime portfolio of solutions redefines connectivity for digital maritime, allowing fleets to leverage connectivity in new ways—maximizing value and making the most of opportunities at sea.

## Unified Network Vision

Support into the future

## Standards-based 5G Network

Seamless interoperability

## Chart Your Course to Multi-orbit Connectivity at Sea

Built on a global space and ground network supported by 99.999% availability



Comprehensive, end-to-end security backed by GEO SOC 3 accreditation



Scalable, adaptable solutions to meet unique and evolving connectivity needs



Supported by the highest grade of customer experience services



Easy to use and adopt, designed to simply integrate into infrastructure





# Redefining connectivity for your digital maritime operation with Intelsat's enterprise-grade portfolio of commercial maritime services.

## Chart Your Course with Intelsat's FlexMaritime

From synchronizing global fleets with onshore operations to delivering services that enhance crew well-being and foster loyalty, Intelsat offers the **best of both worlds in one place**. Leveraging geostationary orbit (GEO), low-Earth orbit (LEO), and multi-orbit managed services for your satellite connectivity needs, FlexMaritime enables you to streamline operations and reduce complexities that result in time and cost efficiencies.



**FlexMaritime**  
Award-winning high-throughput global service.



**FlexMaritime Vantage**  
Higher throughput service to meet greater demand.



**FlexMaritime Duo**  
Low-Earth orbit, high-speed, low-latency service.



**FlexMaritime CrewTV+**  
Live television streaming service for crew.

Work with us through our world-class solutions partners, and see what FlexMaritime can do for you.

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