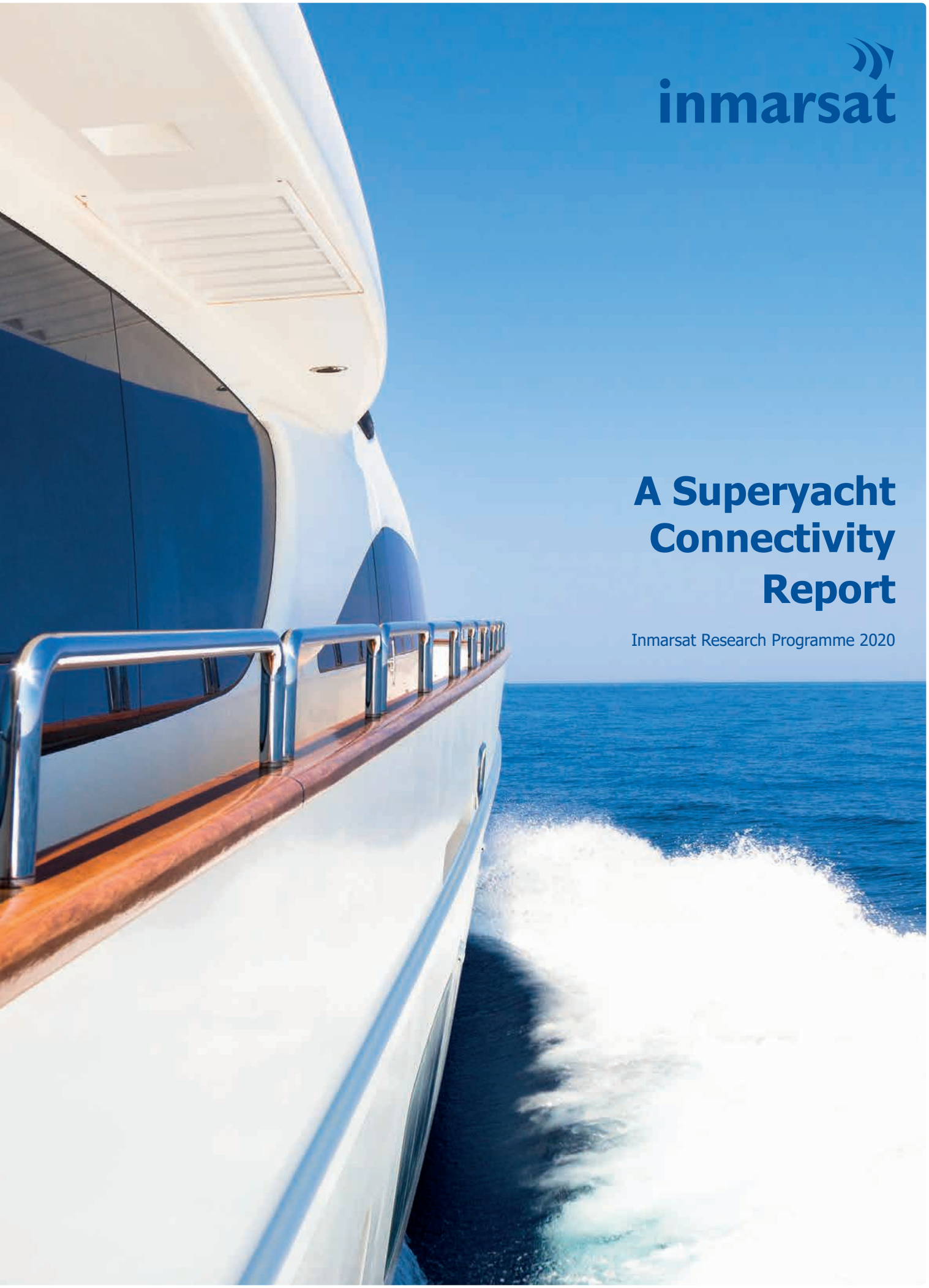


inmarsat

A Superyacht Connectivity Report

Inmarsat Research Programme 2020

INTRODUCTION

A new era of yachting freedom and quest for adventure is transforming the ambitions, demands and expectations of superyacht owners, crew and guests, and there is a corresponding desire for reliable connectivity to facilitate these aspirations. From increased mobility between the hotspots of the Mediterranean, Caribbean or Asia/Pacific to a rise in voyagers yearning to experience the wonders of remote regions such as the Galapagos Islands, Antarctica or Polynesia on board a private yacht, there is a growing appetite to sail anywhere and everywhere.

Access to global, mobile satellite communications on board can now enable owners to embark on the most adventurous cruising itineraries, while staying connected with the seamless internet connectivity they are used to at home. The next generation of satellites, unprecedented coverage, global reliability, more flexible service packages and new antenna technology are among the developments offering the superyacht fleet the ability to elevate its communication capabilities for a range of operational, regulatory, guest and crew requirements. This year, the travel restrictions and lockdowns due to the COVID-19 crisis accentuated the critical importance of a stable communications partner that can provide access to a future-proof satellite network and guarantee reliable and resilient connectivity onboard.

INMARSAT RESEARCH PROGRAMME

A Superyacht Connectivity Report, an Inmarsat Research Programme, is now in its third year. While the 2018 report focused on the procurement and installation of satellite communication technology in light of the development of Inmarsat's turnkey hardware, airtime and ongoing service package, the 2019 and 2020 reports examine the current use of satcomms on board superyachts and reveal the future requirements of the superyacht market for global connectivity solutions. The shift in focus of the report reflects Inmarsat's evolving portfolio and the growth of its premium Fleet Xpress high-speed mobile broadband service created for superyachts, plus the company's extensive satellite launch plan up to 2023. As owner and operator of the world's best global portfolio of satellite networks, Inmarsat is currently extending its GX network with new satellite launches to transform its Fleet Xpress capacity, offering global capabilities, including Arctic coverage. Following the launch of GX5 in 2019, the first of the Inmarsat-6 satellites (GX6A) is scheduled to launch by the end of 2021, with the second (GX6B) due to launch early in 2022 - both entering commercial service in 2022. A further three satellites (GX7-9) will launch by the end of 2023, while two more (GX10A and GX10B) are due for launch in 2022.

Carried out in May during the global pandemic, the 2020 report presents survey responses from hundreds of superyacht captains, engineers, technical officers and senior crew to provide valuable insight into the current and predicted demands of key decision makers. It also surveys their awareness of the critical operations identified as the most important functions of satellite communications on board.

Inmarsat is committed to working with the superyacht community to match its services with their requirements. It is uniquely placed to do so, as the only satellite operator to operate in both L-band and Ka-band, and the only operator able to guarantee service levels globally by owning and managing the whole network from end to end, with 100 per cent control over cyber security.

With its gold standard Fleet Xpress platform now installed on 10,000 vessels, Inmarsat has established its position at the forefront of the expansion of digitalisation in the superyacht sector. Fleet Xpress is the world's fastest growing VSAT service, with global mobile coverage, guaranteed service levels, flexible rate plans, and unlimited and free back up. It incorporates a range of benefits including affordable voice calls, multiple voice options for crew and operations, and high-speed broadband for internet access, plus 24/7 online support by certified engineers, with further benefits such as the new managed Wi-Fi solution Fleet Hotspot, its multi-layer cyber defence solution Fleet Secure Portfolio, and Fleet Data, the maritime industry's first secure IoT platform.

EXECUTIVE SUMMARY

Continuing the trends shown in the 2018 and 2019 reports, the data received this year from over 300 captains, senior officers and crew highlights that VSAT connectivity usage and spend will continue to grow over the next five years as digitalisation in the superyacht sector expands. Reliance on satellite communications by professionals is predicted to increase for numerous operational requirements, to meet the desires of guests, to contribute to crew welfare needs and to protect the vessel with the highest levels of cyber security. Despite the COVID-19 travel restrictions, more superyacht owners are exploring worldwide, cruising widely between regions.

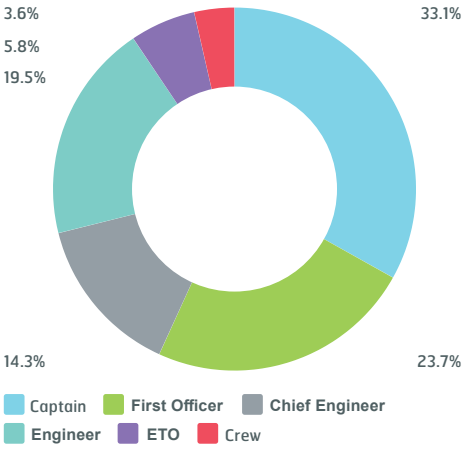
The survey results show that superyacht professionals clearly expect to invest in and use VSAT more in the coming years, with respondents predicting a 42 per cent increase in VSAT usage by 2025 and 29 per cent anticipating they will spend more than €20k per month on satellite connectivity. Both operational and leisure usage will drive the growth for VSAT, particularly for regulation compliance and TV over IP. The need for download and upload speed is also growing with high expectations of enhanced service, with 26 per cent expecting their download speed to be more than 24 Mbps by 2025 and 76 per cent expected their upload speed will be more than 8 Mbps. In spite of imminent IMO cyber security regulations from January 2021, 40 per cent still do not know the difference between anti-virus software and network endpoint security, only 31 per cent indicated that endpoint security is currently used and 43 per cent said their vessel's crew had no cyber security training.

Since the start of the COVID crisis, Inmarsat reported an average increase in data download of an extra 2GB per day across the vessels with Fleet Xpress installed, indicating the pandemic has further increased demand for bandwidth and on-board communications for safety, healthcare and telemedicine, crew welfare, personal and business communication, and vessel operations. Inmarsat had the structure, experience, stability and flexibility to adapt quickly to highlight current services and introduce a range of new initiatives to help the yachting and seafaring community.

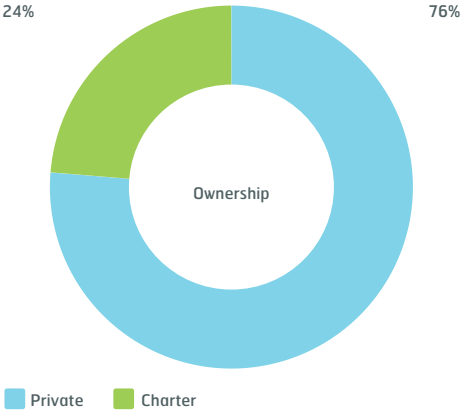
RESEARCH DEMOGRAPHICS

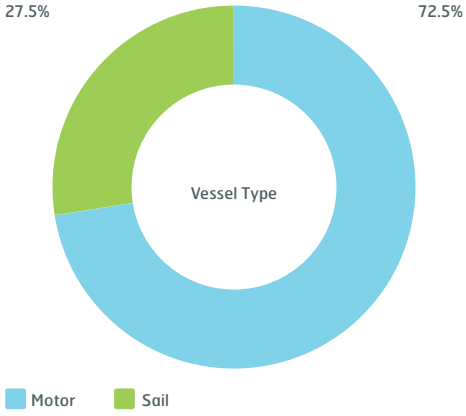
As the choice of satcomms technology for yachts becomes increasingly critical, the VSAT connectivity usage needs and expectations of the decision-makers are key factors for satellite companies and providers as they aim to fulfil these requirements. It is also important to monitor the awareness and knowledge of the superyacht technicians who are tasked with finding an advanced and current solution to discover if they are sufficiently empowered to consider all the relevant factors. Inmarsat received survey responses from over 300 captains (33 per cent), first officers (24 per cent), chief engineers (14 per cent), engineers (19 per cent), ETOs (6 per cent) and crew (4 per cent). Respondents worked on board private (76 per cent) and charter (24 per cent) vessels and on motor (73 per cent) and sail (27 per cent), across a range of vessel sizes from smaller superyachts below 40 metres (25 per cent) to over 80 metres (7 per cent).

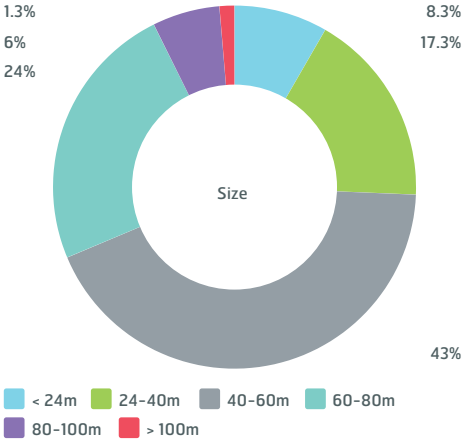
Survey Audience



Type of Vessel





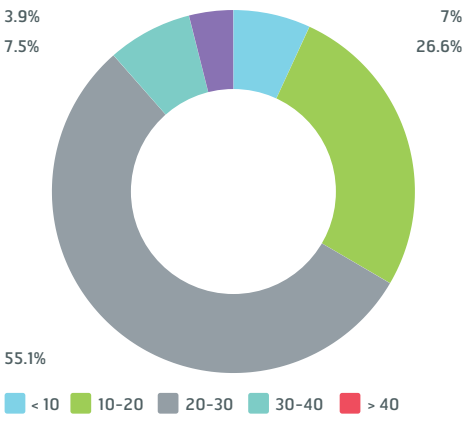


INCREASED TREND IN YACHTS VOYAGING FAR AND WIDE

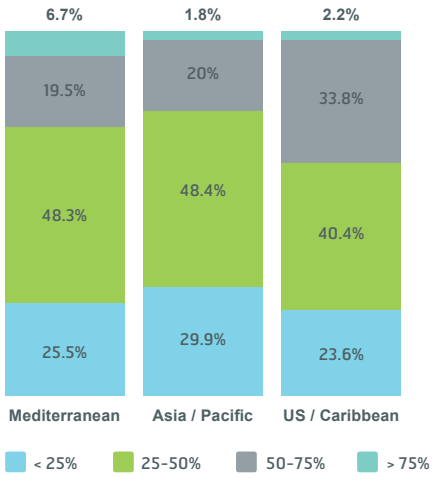
Responses concerning the percentage of time spent in popular cruising areas suggest that mobility continues to be high, with yachts appearing less likely to remain in one region for the majority of the time. In the Mediterranean, only 7 per cent remain in the region for more than 75 per cent of the year and 20 per cent remain in the region for 50-75 per cent of the year, leaving 73 per cent with a clear intention to travel further afield. In 2019, data showed 31 per cent remained for more than 75 per cent of the year, with 51 per cent remaining for 50-75 per cent of the year, indicating that the desire to cruise widely is growing. In Asia/Pacific, the 2020 data supports the evidence that more yachts are travelling to the region compared to 2019. This year's results showed only 2 per cent remaining for more than 75 per cent of the year and 22 per cent remaining for more than 50 per cent of the year. Compared to last year's report, movement of yachts in Asia/Pacific has increased with 2019 data showing 38 per cent remaining in the region for more than 50 per cent of the time. In the US, 36 per cent remain in the region for more than 50 per cent of the year, which is very similar to the 2019 data.

As the survey was carried out in May, it is too early to assess the full impact of the COVID travel restrictions, but the results suggest more superyacht owners are exploring worldwide with family and friends, with many venturing to remote regions to experience adventure and comparative isolation away from more crowded areas. The desire for freedom to sail anywhere and everywhere is in turn driving demand for continuous, global onboard connectivity. With most vessels (66 per cent) operational for more than 20 weeks per year, the connectivity packages required need to reflect this seasonal use with flexible contract options.

Weeks Operational (Per Year)



Time Spent in Cruising Regions



EXPANSION OF DIGITALISATION IN SUPERYACHT SECTOR

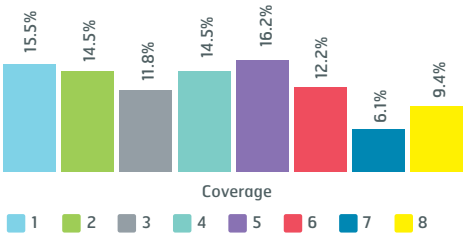
Backing up the conclusions of the 2018 and 2019 reports, the 2020 data provides further evidence that VSAT connectivity usage and spend will continue to grow over the next five years to meet a variety of operational and leisure requirements on board. It is clear that the expansion of digitalisation in the superyacht sector is resulting in an increasing reliance on satellite communications by superyacht professionals as they learn to depend on and profit from the constant connectivity and seamless coverage that it provides. With the prospect of dependable VSAT, and the assurance of contracted confirmation of the bandwidth received, professionals are also confident enough to predict they will increase spend in the upcoming years to invest in solutions that they trust will enhance the onboard experience and enable their yachts to travel around the world more readily.

INCREASING RELIANCE ON SATELLITE COMMUNICATIONS

While all three reports confirm that 4G is still the most popular on-board communication system, satellite communications usage is growing and the predictions for use up to 2025 suggest the growth will continue. When asked to estimate the extent that they currently use VSAT technology and whether this will change in the next one and five years, respondents showed an increasing dependence on satellite connectivity. Currently, the use of VSAT for <25 per cent, 25-50 per cent, 50-75 per cent and >75 per cent of the time on board shows that most people (54 per cent) believe they are using VSAT for 25-50 per cent of the time, with 36 per cent using it for less than 25 per cent of the time and only 11 per cent using VSAT for more than 50 per cent of the time. In one year's time, 18 per cent predict they will use VSAT for less than 25 per cent of the time, 50 per cent will use it for 25-50 per cent of the time and 32 per cent will use it for more than 50 per cent of the time. Meanwhile, in five years, only 13 per cent will use VSAT for less than 25 per cent of the time, while 53 per cent of respondents predict they will use VSAT for more than 50 per cent of the time, with 14 per cent using it for more than 75 per cent a time. This represents a 42 per cent increase in large scale VSAT usage by 2025 (from 11 per cent to 53 per cent), compared to 34 per cent in 2019.

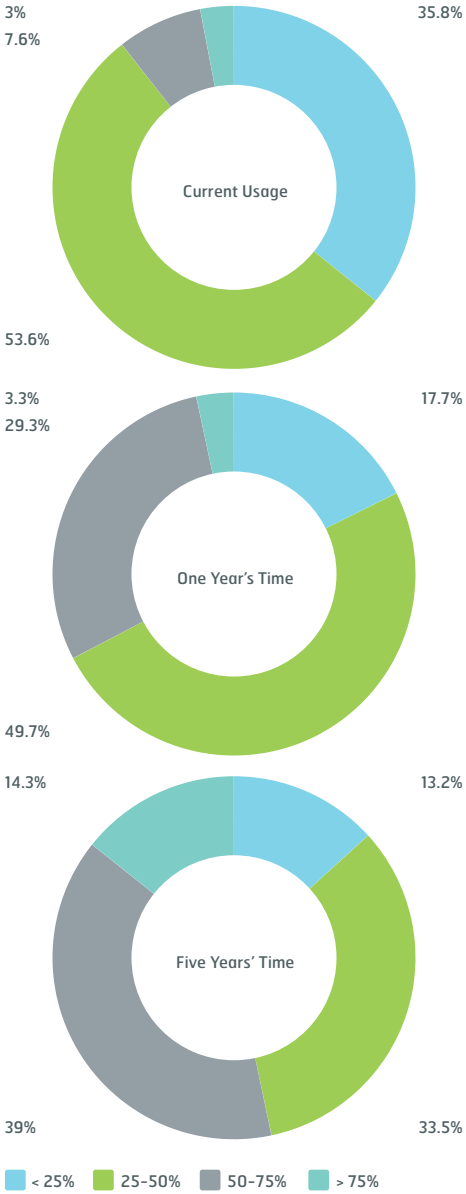
42% increase in VSAT usage by 2025, with 53% of respondents predicting they will use VSAT for more than 50% of the time in the next five years

Satcomm Needs - Demand for Coverage

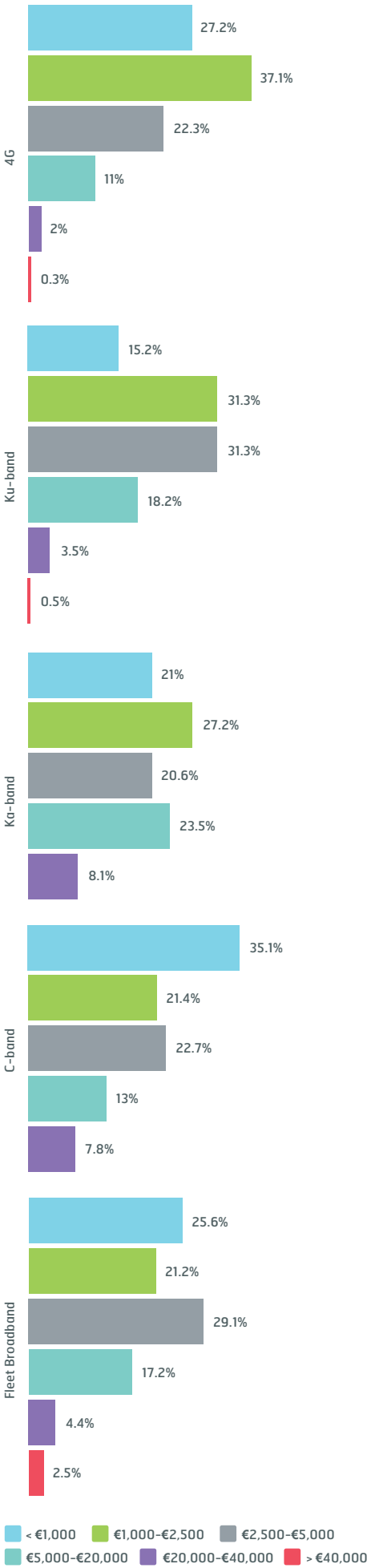


Ranked from 1-8, 1 being the most important compared to other satcom needs

VSAT Usage



Monthly Spend

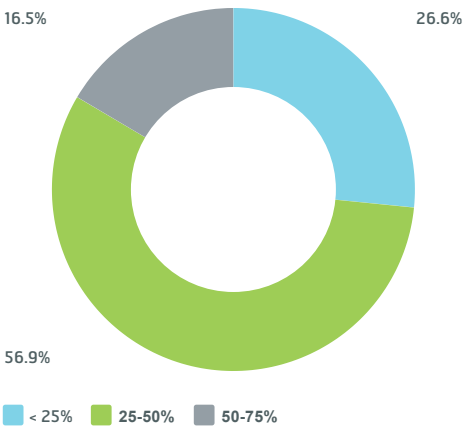


SPEND ON CONNECTIVITY INCREASING

There is a corresponding readiness to increase spending on satellite communications in the future. Currently, 73 per cent of people are spending less than 10k (Euros) per month on satellite connectivity, but in five years' time 61 per cent will spend more than 10k. Currently, 45 per cent fell below 5k for monthly expenditure, decreasing to 35 per cent in one year and then 27 per cent in five years. Currently, 47 per cent fall within the 5-20k bracket, increasing to 51 per cent in one year. Only 9 per cent spend more than 20k per month on satcomms currently, increasing to 14 per cent in one year and 29 per cent in 5 years.

Professionals predict they will increase spend on connectivity

Percentage Change in Satcomm Budget Spend



61% will spend more than €10k per month on satellite connectivity in 5 years' time, with 29% predicting they will spend more than €20k

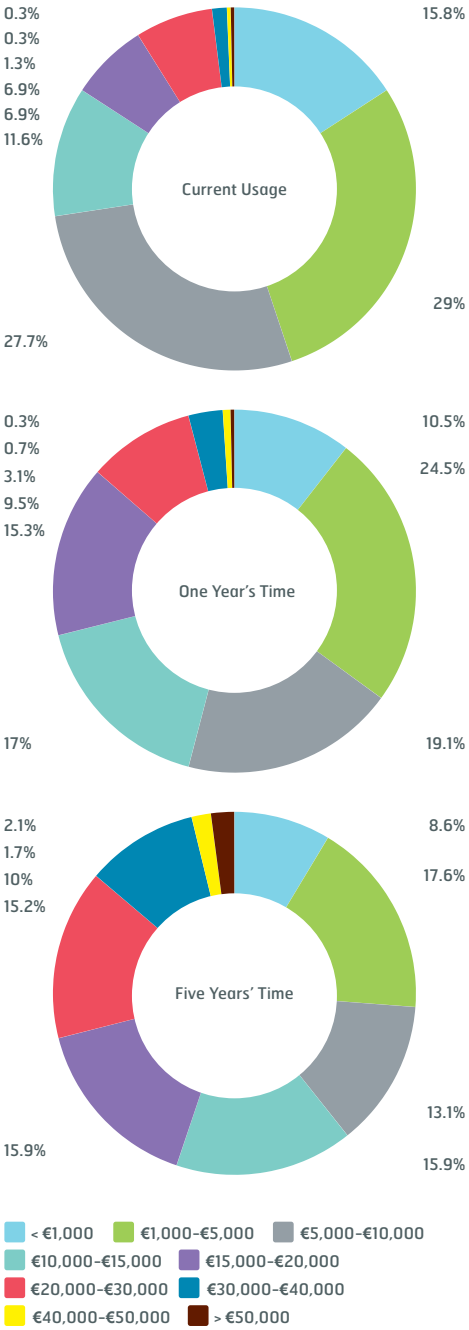
In the 2019 report, 52 per cent fell below 5k for monthly expenditure, decreasing to 43 per cent in one year and then 31 per cent in five years. 35 per cent fell within the 5-20k bracket, increasing to 58 per cent in five years. Only 14 per cent spent more than 20k on satcomms, increasing to 16 per cent in one year.

In terms of the vessel's satcomms budget, 74 per cent of respondents expect it to increase by more than 25 per cent. Meanwhile, 38 per cent say the average age of hardware is between one and two years, supporting the trend that the average age of hardware is decreasing as satcomms becomes more popular.

GLOBAL COVERAGE IS KEY

Respondents were also asked to assess and prioritise their satcomm needs, such as global coverage, connectivity speed, bandwidth, price and customer support. Backing the evidence that today's superyachts demand reliable global coverage to support worldwide itineraries and remote sailing, coverage is ranked of high importance when compared to other satcom needs, with 55 per cent ranking it above average importance.

Current Spend on Satcomm



CONNECTIVITY PROVIDING BOTH OPERATIONAL AND LEISURE BENEFITS

Onboard satellite communications can provide a huge number of different advantages and benefits for the owner, crew and guests. Digitalised and connected superyachts can tap into applications ranging from media content streaming, emailing, instant messaging and social media browsing, while they are also able to maximise the use of more vessel-focused functions such as weather forecasting and routing, navigation chart updates, chartering applications and video surveillance. Fuel optimisation, environmental concerns and regulation compliance are further examples of the drivers of the increase in demand for satellite connectivity for operational uses.

GROWTH OF VSAT FOR REGULATION COMPLIANCE

As in the previous reports, operational usage continues to drive VSAT growth, as professionals seek to use connectivity to manage onboard safety, navigation, IoT and regulation compliance. While all areas show increased usage in the next five years, it is the predicted growth of operational usage specifically for regulation compliance that stands out. Currently, 12 per cent say regulation compliance accounts for more than 50 per cent of operational usage, growing to 17 per cent in one year and 23 per cent in five years' time.

CYBER SECURITY NEEDS GREATER FOCUS

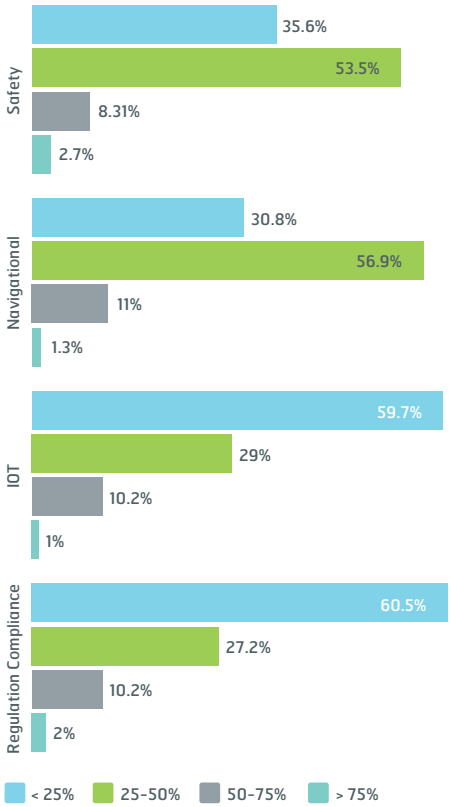
With the increasing prevalence of digitalisation in the superyacht sector, the risk of cyber-attacks also continues to rise, elevating the need for professionals to protect themselves and their vessel with an in-depth, multi-layer cyber defence solution, not just a standard antivirus program. An important cyber security deadline could be one factor driving the focus on connectivity for regulation compliance with the imminent 2021 IMO deadline requiring many superyachts to comply with stricter cyber security requirements. Leading the industry in providing robust and accessible cyber defence systems for superyachts, Inmarsat is helping superyacht professionals build cyber security resilience ready for alignment to the IMO regulations. Its Fleet Secure Portfolio, including Fleet Secure Endpoint and Fleet Secure Cyber Awareness, will enable those vessels affected, including yachts over 500 GT and those with more than 12 passengers, to have a comprehensive solution for incorporating cyber risk management into their safety management systems.

New regulations include the imminent 2021 IMO deadline for stricter cyber security measures

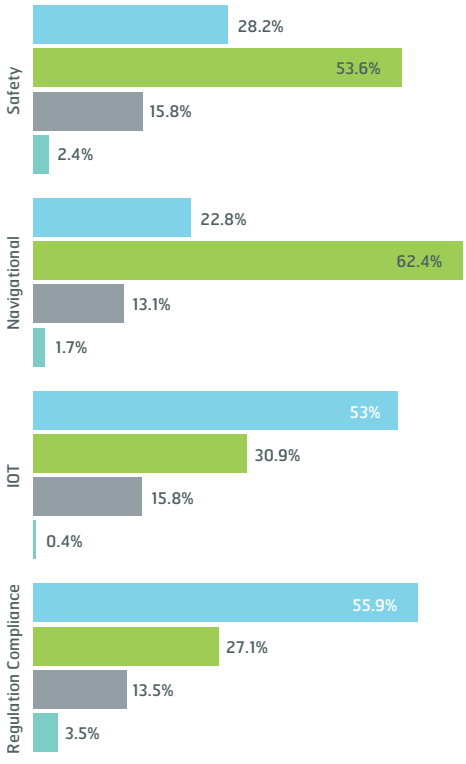
The growth in operational usage is also evident in the areas of safety, navigation and IoT. Currently, 11 per cent say safety accounts for more than 50 per cent of operational usage, growing to 23 per cent in five years' time. For navigational purposes, such as route optimisation, weather routing and ECDIS, 11 per cent say it accounts for more than 50 per cent of operational usage currently, growing to 22 per cent in 5 years, supporting the common desire to reduce emissions, save fuel costs and minimise any environmental impact. Meanwhile, IoT usage, including fuel emissions, hull performance and remote monitoring, is another important driver for demand, with 11 per cent saying it accounts for more than 50 per cent of operational usage currently, growing to 19 per cent in five years' time.

11% increase in use of VSAT for regulation compliance, with 23% predicting they will use VSAT for regulation compliance for more than 50% of the time by 2025

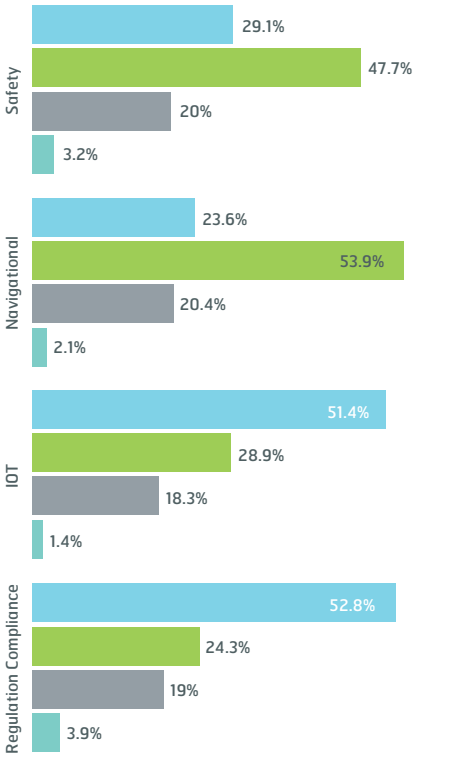
Current Operational Usage



Operational Usage in One Year's Time



Operational Usage in Five Years' Time



LEISURE USAGE DRIVES VSAT DEMAND

Operational use of satcomms is essential for maintaining an efficient and safe vessel, but the expectations of reliable onboard connectivity for leisure use, such as TV over IP and internet access, and for crew welfare purposes, are also evident. The captain, owner, guest and crew are already demanding a similar experience that they are used to at home, with streaming, apps, web browsing and emailing all at their fingertips, wherever they may be on the world's oceans. The demand looks likely to increase significantly, with respondents becoming more reliant on satcomms to satisfy their entertainment needs and ensure their leisure time is as enjoyable as possible.

NEW FOCUS ON CONNECTIVITY FOR CREW WELFARE

With attention to crew welfare also now widely highlighted as an important aspect of vessel management, the access to onboard connectivity should be prioritised as an effective means for them to manage their lives and maintain their own morale and wellbeing. Crew, as well as passengers, wish to be confident they can safely bring their own devices on board and use high-speed internet for social media and other uses to stay in touch with family, friends and news from home. Inmarsat

Superyacht guest and crew becoming more reliant on satcomms for entertainment and leisure

has introduced Fleet Hotspot, a unique self-serve portal, to answer this demand by offering onboard Wi-Fi to crew and passengers, with no interference to the vessel's critical operations and business traffic. One of the benefits of Fleet Xpress, the Fleet Hotspot solution enables users to manage their high-speed internet usage, accessing the service on their own devices as required and paying in their own currency using a range of electronic payment options.

For crew, 15 per cent say TV over IP accounts for more than 50 per cent of usage, jumping to 24 per cent in one year and 44 per cent in five years' time. By 2025, 87 per cent predict TV over IP will account for more than 25 per cent of usage. There are similar predictions for the growth of leisure use for internet access. For crew usage, currently 25 per cent say internet access accounts for more than 50 per cent of demand, growing to 42 per cent in one year and 61 per cent in five years. By 2025, 93 per cent say internet access will account for more than 25 per cent of leisure demand.

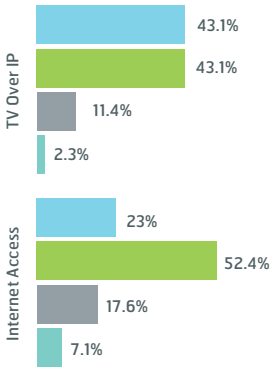
GUESTS ALSO RELY ON ONBOARD TV AND INTERNET

Currently, for guests on board, 13 per cent say TV over IP accounts for more than 50 per cent of usage, growing to 23 per cent in one year and 48 per cent in five years. By 2025, 86 per cent predict TV over IP will account for more than 25 per cent of usage. Meanwhile, currently 25 per cent say internet access accounts for more than 50 per cent of guest usage, growing to 40 per cent in one year and 57 per cent in five years. By 2025, 92 per cent say internet access will account for more than 25 per cent of leisure demand.

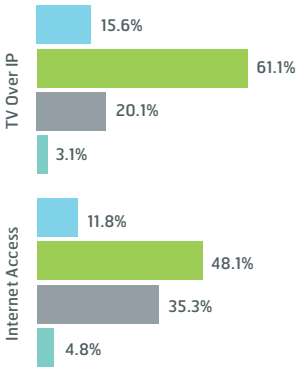
The 2020 results build on the 2019 responses, which revealed that by 2024 75 per cent believed TV over IP will account for 25 per cent or more of leisure demand, with 27.3 per cent believing these services will account for 75 per cent or more.

35% increase in guest usage of connectivity for TV over IP and 29% increase in crew usage for TV over IP by 2025

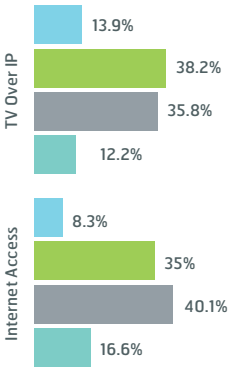
Current Guest Usage



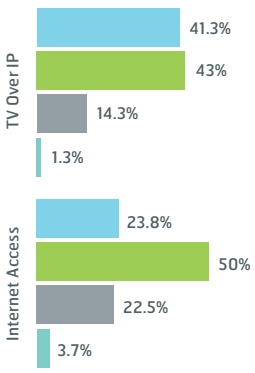
Guest Usage in One Year's Time



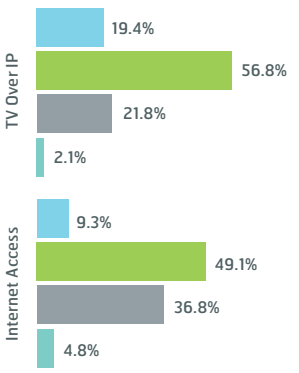
Guest Usage in Five Years' Time



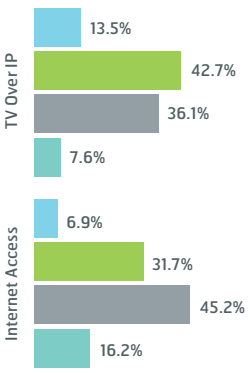
Current Crew Usage



Crew Usage in One Year's Time



Crew Usage in Five Years' Time



< 25% 25-50% 50-75% > 75%

SATELLITE CAPACITY INCREASES TO MEET NEED FOR SPEED

In line with the increase in demand for operational and leisure connectivity predicted over the next five years, superyacht professionals also expect an increase in MIR and CIR upload and download speeds. The desire for quicker speeds in turn indicates the need for increased satellite capacity and coverage to provide the connectivity needed by superyachts and expedition vessels now and into the future. Inmarsat is meeting the demand by tripling the number of satellites servicing its Ka-band Global Xpress network, the high-capacity VSAT constellation behind its Fleet Xpress high-speed mobile broadband service. The investment in satellites and leap in technology due to the extended GX network and transformed FX capacity significantly advances the global capabilities, capacity and agility of the service for current and future customers, providing guaranteed global bandwidth for crew communications, weather routing, real-time business updates, personal messaging and recreation.

EXPECTATIONS SOAR FOR DOWNLOADS AND UPLOADS

For MIR download speeds, the 2020 feedback shows that 69 per cent believe current speed is more than four Mbps. 14 per cent believe their download speed is less than two Mbps, while 72 per cent think it falls between two Mbps and 16 Mbps. The CIR data is very similar to MIR responses for download speeds, with 67 per cent believing it is more than four Mbps. 11 per cent believe their download speed is less than two Mbps, while 82 per cent think it falls between two Mbps and 16 Mbps.

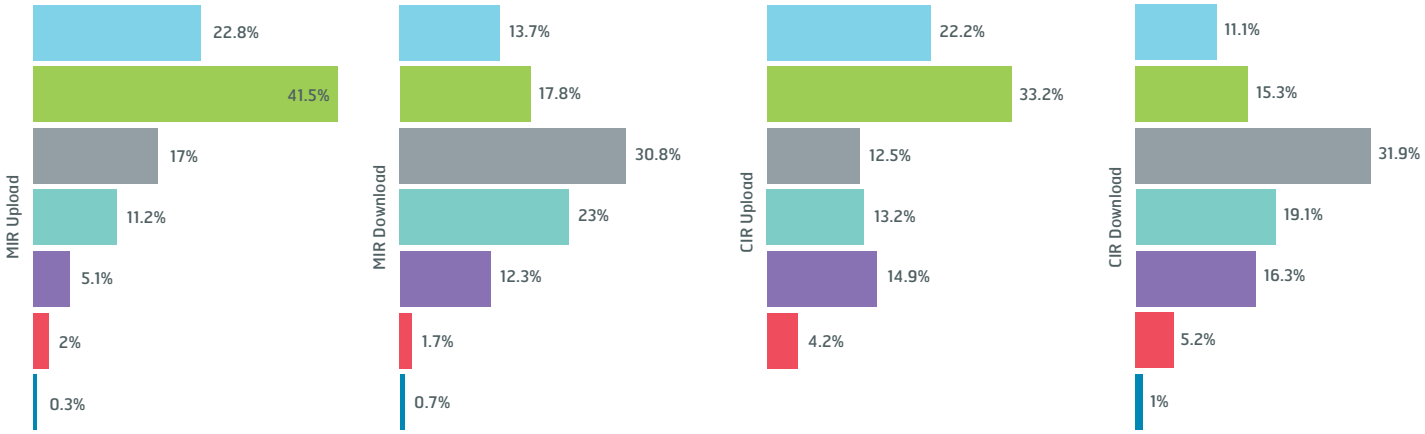
However, in one year's time, 91 per cent expect their download speed to be more than four Mbps, with 39 per cent predicting it will be more than 16 Mbps and 11 per cent expecting more than 24 Mbps. In five years, expectations rise again, with 95 per cent predicting their download speed to be more than four Mbps. 62 per cent expect it will be more than 16 Mbps and 26 per cent predict more than 24 Mbps.

26% expect their download speed will be more than 24 Mbps by 2025 and 76% expect their upload speed will be more than 8 Mbps

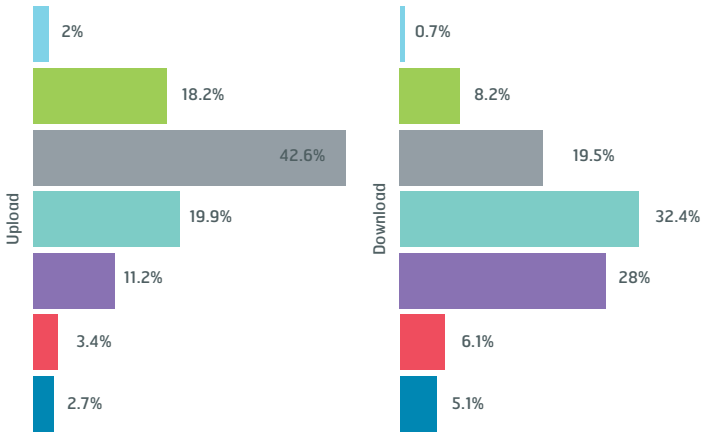
For uploading, 82 per cent of respondents feel that their MIR upload speeds fall within the three slowest categories, with 23 per cent believing their speed is less than two Mbps, 42 per cent opting for between two and four Mbps and 17 per cent at four to eight Mbps. 18 per cent believe their speed is more than eight Mbps and only two per cent of respondents believe that their MIR upload speed is more than 24 Mbps. The responses about current CIR upload speed show slightly higher levels compared to the MIR data, with 67 per cent feeling that their CIR upload speeds fall within the three slowest categories. 32 per cent believe their speed is more than eight Mbps and four per cent believe their speed is more than 24 Mbps.

However, the expectation is that within one year, upload speeds will increase, with 80 per cent predicting their upload speed will be more than four Mbps, 37 per cent predicting their upload speed will be more than eight Mbps and 17 per cent believing it will be more than 16 Mbps. In five years, expectations jump again with 94 per cent believing their upload speed will be more than four Mbps. 76 per cent predict it will be more than eight Mbps, 34 per cent believe it will be more than 16 Mbps and 10 per cent think it will exceed 48 Mbps.

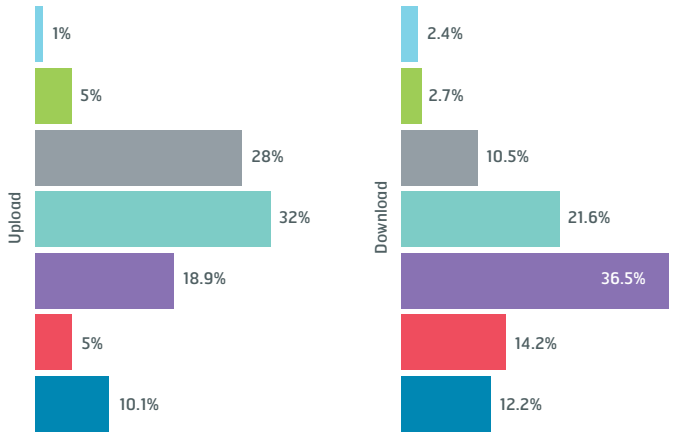
Current Upload/Download Speed



Desired Upload/Download in One Year's Time



Desired Upload/Download in Five Years' Time



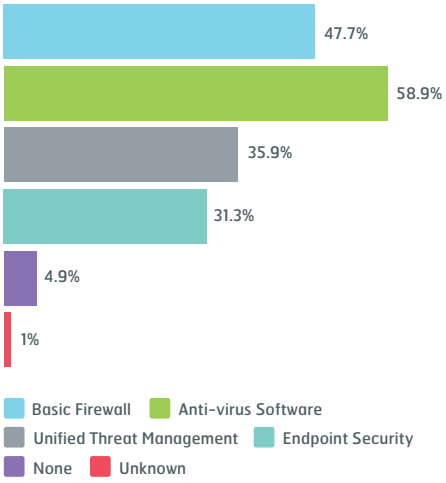
< 2 Mbps | 2-4 Mbps | 4-8 Mbps | 8-16 Mbps | 16-24 Mbps | 24-48 Mbps | > 48 Mbps

GREATER FOCUS NEEDED TO MANAGE CYBER RISK

As superyachts become more digitalised and connected, there is a corresponding increase in the risk they face due to targeted and untargeted cyber-attacks, wherever they are in the world. Many superyachts have High Net Worth Individuals on board, plus high complexity of systems and good internet connectivity, which means the cyber threat is high for attacks on a yacht's IT and OT systems, ranging from ransom and theft attempts on passengers to industrial espionage and breaches of privacy. However, it remains evident that the cyber security measures in place on superyachts are often not powerful enough, leaving the vessel and those on board vulnerable to harmful and costly incidents. New IMO regulations which affect many superyachts will soon be enforced as a means of improving the immature position of the yachting world to cyber security, requiring vessels to incorporate cyber risk management into their safety management systems by January 2021.

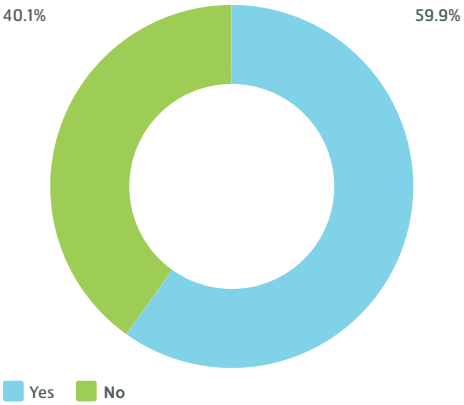
To help superyacht captains and crew maintain a secure system core on board, Inmarsat has developed its Fleet Secure Portfolio to provide a comprehensive multi-layer cyber defence solution and provide a greater sense of control and awareness over their environment. It consists of Fleet Secure Endpoint, a powerful multi-layered endpoint security solution to prevent attacks whilst removing infections and threats throughout the onboard endpoints, and Fleet Secure Cyber Awareness, cyber security training specifically targeted for seafarers, raising awareness to assist in preventing threats before they get on board. The Inmarsat solution will ensure alignment to the IMO regulations, whereas a basic firewall will not ensure compliancy.

Security Measures Currently in Place

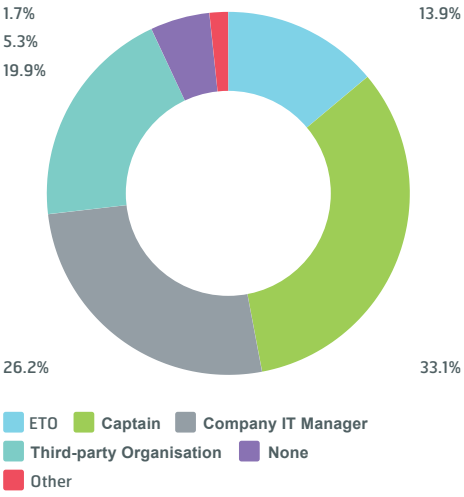


40% still do not know the difference between anti-virus software and network endpoint security

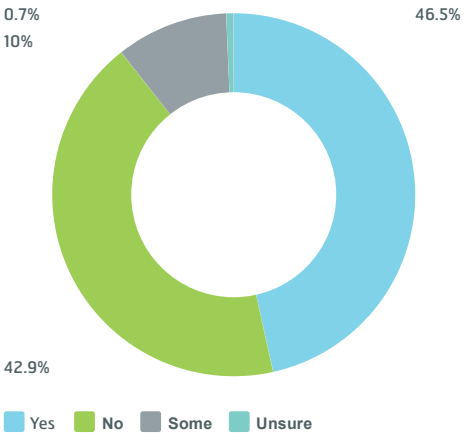
Awareness of the Difference between Anti-Virus Software and Network Endpoint Security



Currently Managing Cyber Security



Current Cyber Security Training for Crew



CYBER SECURITY AWARENESS

The responses to the 2020 survey questions on cyber security confirm that there remains a lack of awareness about cyber threats and cyber security requirements, as highlighted in both the 2018 and 2019 reports, leading to low cyber resilience. With standard anti-virus no longer adequate protection, superyachts are advised to use a multi-layer cyber defence solution as a minimum and add a capable UTM for full network solution. However, when asked about their awareness of anti-virus software and network endpoint security, 40 per cent indicated they did not know the difference. Although this is an improvement on the 2019 data which suggested 83 per cent did not know the difference, it is still a concern that many superyacht professionals believe that a standard anti-virus program will cover all their cyber security requirements. When asked about the cyber safety measures currently used, only 31 per cent indicated that endpoint security is used, while 36 per cent said they had UTM in place. The most popular measures were basic firewall (48 per cent) and anti-virus software (59 per cent). Again, this indicates a strengthening in cyber security measures since 2019, when only 4 per cent said they had endpoint security, with 19 per cent using UTM.

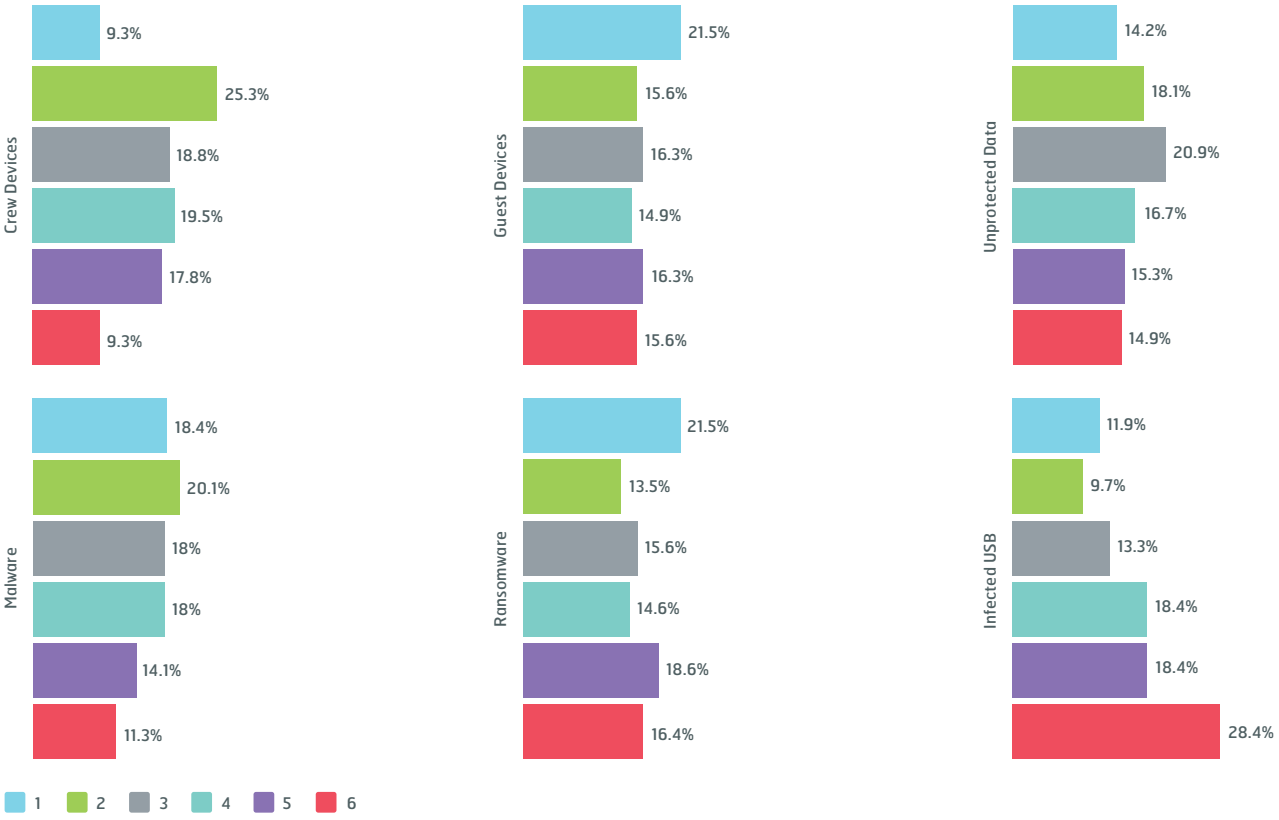
Superyachts should use a multi-layer cyber defence solution as a minimum and add a capable UTM for full network solution

Despite the evidence that many superyacht professionals are not cyber security experts, only 20 per cent use a third-party organisation to manage their cyber security on board, while 26 per cent indicate that a company IT manager takes responsibility. In 2019, 33 per cent said they use a third-party organisation. A high number, 47 per cent, indicate that the ETO or captain manages the security, which is less than the figure of 60 per cent from the 2019 survey, but still not ideal with such a large percentage of superyacht professionals admitting a lack of knowledge about the most effective security measures.

TRAINING FOR CYBER RESILIENCE

As the cyber threat level increases, a training and awareness program of the security features in the ISM is essential to ensure all crew and other personnel know the risks regarding their own devices and the vessel's systems. Superyacht vessels investing in training as part of steps to protect their vessels are better equipped to understand their assets and ensure they are in a stronger position. The ideal scenario is that cyber security training should be available to all crew, yet 43 per cent said their vessel's crew had not completed training. When asked about the biggest cyber security threats, most people indicated that guest devices (21 per cent) and ransomware (21 per cent) were the most dangerous, closely followed by malware (18 per cent), though crew devices were also considered high on the list with 34 per cent placing this risk in their top two. Infected USBs were considered the lowest risk by the most people (28 per cent).

Threats



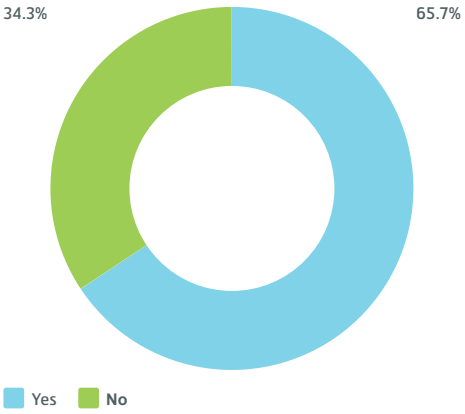
Ranked from 1-6, 1 being the greatest threat

MORE YACHTS COLLECT AND ANALYSE ONBOARD DATA

The collection and storage of data is becoming a more significant factor in maximising operational efficiency, ensuring vessels can develop reports and metrics to increase performance. The 2020 survey indicates that most (66 per cent) respondents indicate they use onboard sensors to collect data, and of those 70 per cent are using applications to analyse data, so it is clear that data is an important resource for many superyachts. For the most secure method of gathering and accessing data, Inmarsat created Fleet Data, a secure IoT platform that is easily and fully scalable. It extracts the data from onboard sensors and uploads it to a secure central cloud-based database for easy access with no additional airtime cost. Users can access onboard sensor data from a simple dashboard and use Application Program Interfaces (APIs) for easy customisation and analysis.

66% use onboard sensors to collect data

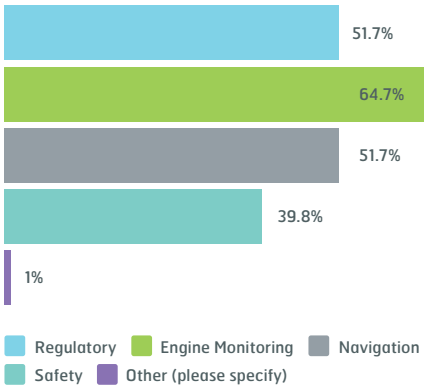
Usage of Onboard Sensors to Collect Data



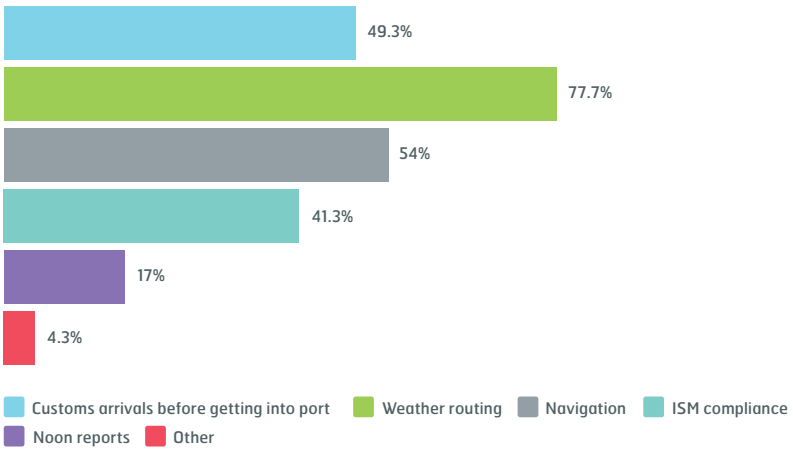
For the respondents who indicated they collect data, it was engine monitoring (65 per cent) that emerged as the top reason, followed closely by regulatory and navigation (both 52 per cent). Nearly 40 per cent used data for safety reasons. 63 per cent of respondents send data collected to shore. Of the respondents who did not collect data, 56 per cent would consider using it for regulatory reasons, 53 per cent for engine management, 52 per cent for safety and 47 per cent for navigation. Providing a dedicated bandwidth service, Inmarsat's Fleet Connect is one means for yachts to allow Application Providers to have a two-way communication channel to the vessel independent of the vessel owner's primary bandwidth.

When asked about the use of VSAT for safety and regulation, the overwhelming first choice was weather routing (78 per cent), with navigation (54 per cent), customs arrivals (49 per cent) and ISM compliance (41 per cent) also significant. Most respondents (73 per cent) were aware of safety services integrated into their communications.

Data usage



VSAT for safety and regulation



APPENDICES

QUESTIONS SUBMITTED TO THE MARKET

What is your current position?

How many years have you been in your current position?

What is your gender?

What type of vessel do you currently work on?

What percentage of time do you spend in each of these regions?

For how many weeks of the year is your vessel fully operational?

Rate in order of importance when assessing and prioritising your satcomms needs.

What communications technology do you currently have on board? And what is your monthly spend for each of the selected?

For what percentage of time do you currently use VSAT connectivity, and how much do you expect it to be in one and five years' time?

What is the age of the current satcomm hardware?

Who manages your budget for satcomm services?

Please estimate how much you spend per month on satcomm, and how much you expect to be spending in one and five years' time?

By what percentage do you expect the yacht's satcomm budget to increase or decrease over the coming 24 months?

Do you have a portal to control vessel bandwidth usage for the following?

Please estimate your operational usages for connectivity currently, in 1 year's time and in 5 years' time.

Please estimate your guest usages for connectivity currently, in 1 year's time and in 5 years' time.

Please estimate your crew usages for connectivity currently, in 1 year's time and in 5 years' time.

If known, please state your current upload and download speeds.

What would be your desired upload and download speeds in the next year?

What would be your anticipated upload and download speeds in five years' time?

Do you have any of the following cyber safety measures?

Are you aware of the difference between anti-virus software and network endpoint security?

Who currently manages your cyber security?

Are you aware of the International Safety Management (ISM) code? If yes, have you updated your ISM?

What do you think your biggest cyber security threat is?

How many connected devices do you have on board?

Have your crew ever completed cyber security training?

Do you use onboard sensors to collect data? What are you using that data for?

Are you using applications to analyse data? Do you send data collected to shore?

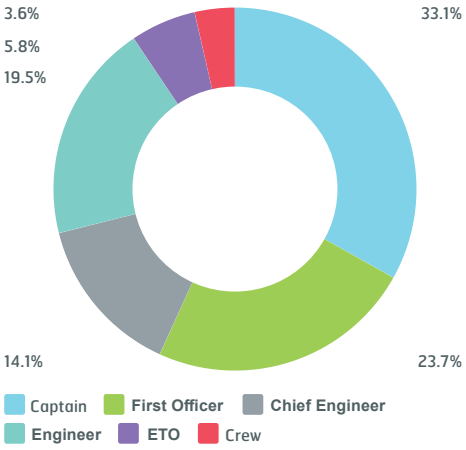
Have you considered using sensors to collect data for any of the following?

How do you use VSAT for safety and regulation?

Are you aware of any safety services integrated into your communications? What are they? Are you aware of: ECDIS updates, VDR in the cloud, IoT in the cloud?

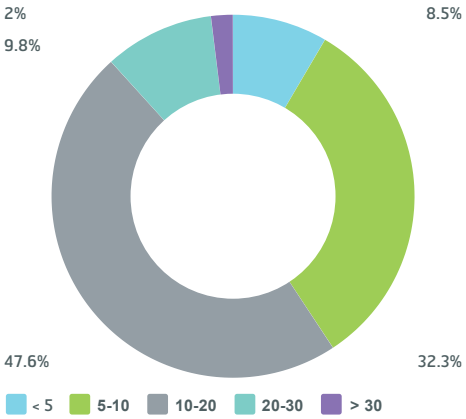
INSIGHT FROM QUESTIONS

1. Position

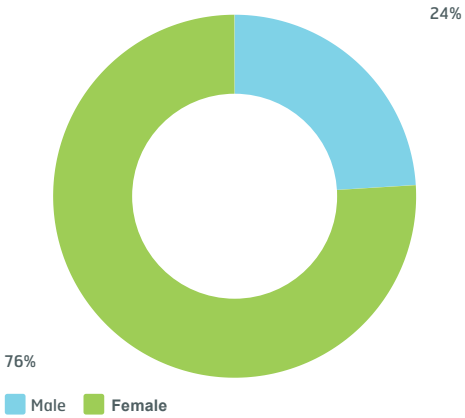


Role	Percentage
Captain	33.12%
First Officer	23.7%
Chief Engineer	14.29%
Engineer	19.48%
ETO	5.84%
Crew	3.57%
Total	100%

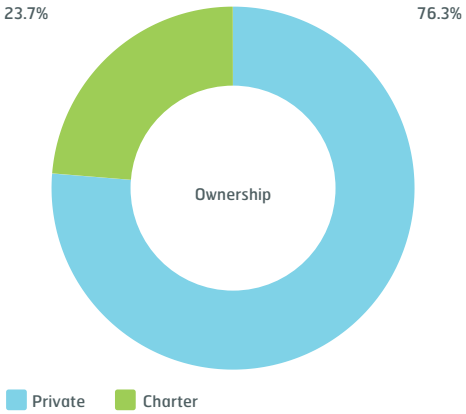
2. Years in current position

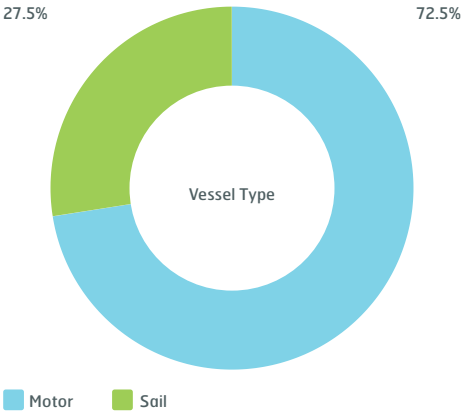


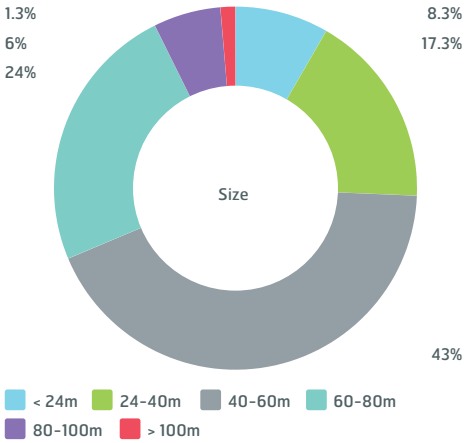
3. Gender



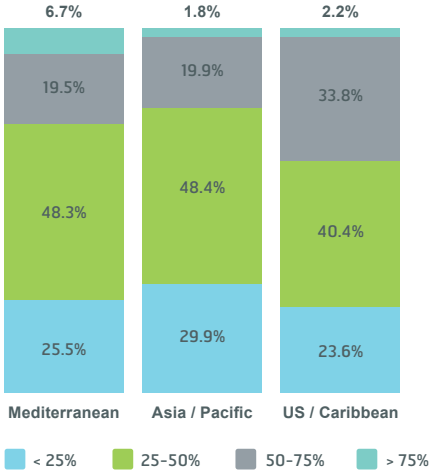
4. Yacht type breakdown (Private/Charter; Motor/Sail) & Yacht size breakdown



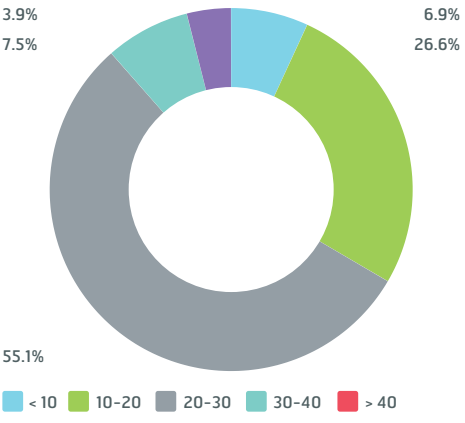




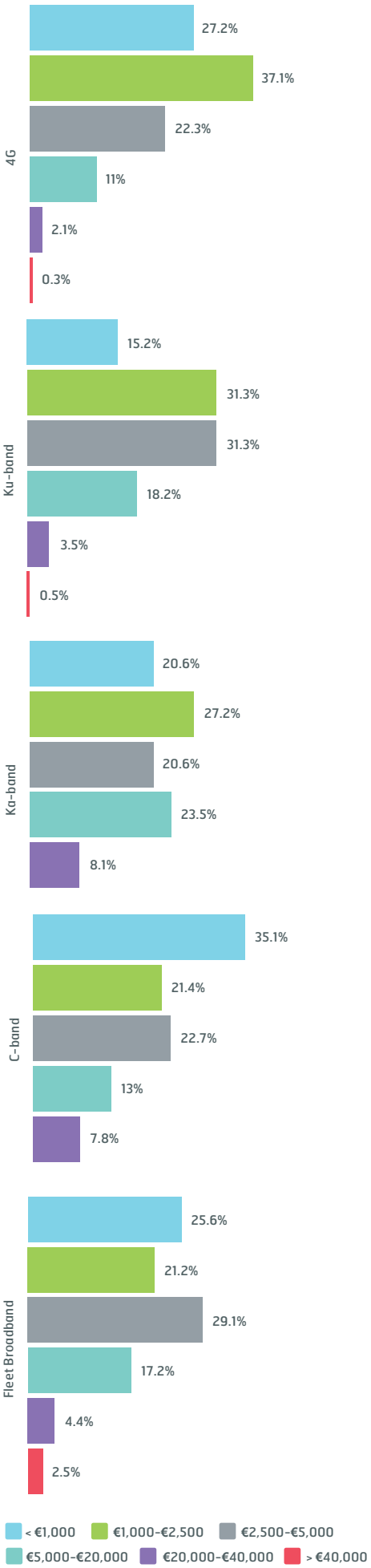
5. Time spent in selected regions



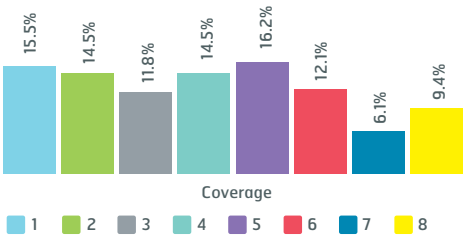
6. Weeks yacht is fully operational



8. Monthly spend



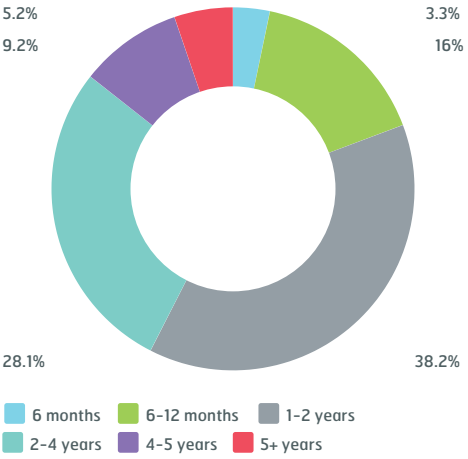
7. Demand for coverage



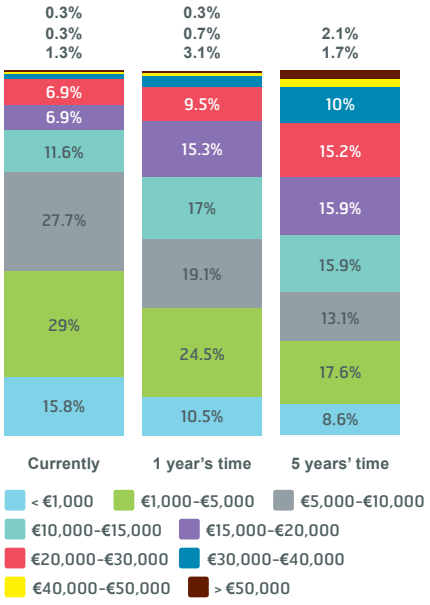
Ranked from 1-8, 1 being the most important compared to other satcom needs

9. VSAT connectivity usage

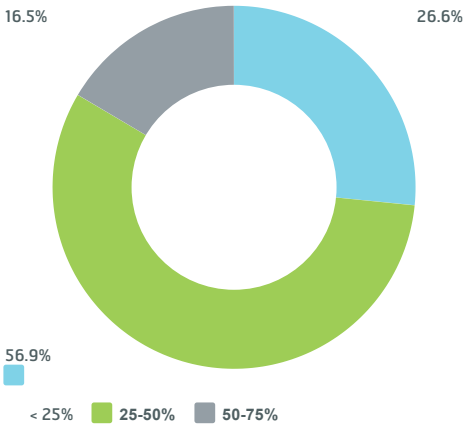
10. Age of satcomm hardware



12. Current satcomm monthly spend and expectation in 1 and 5 years

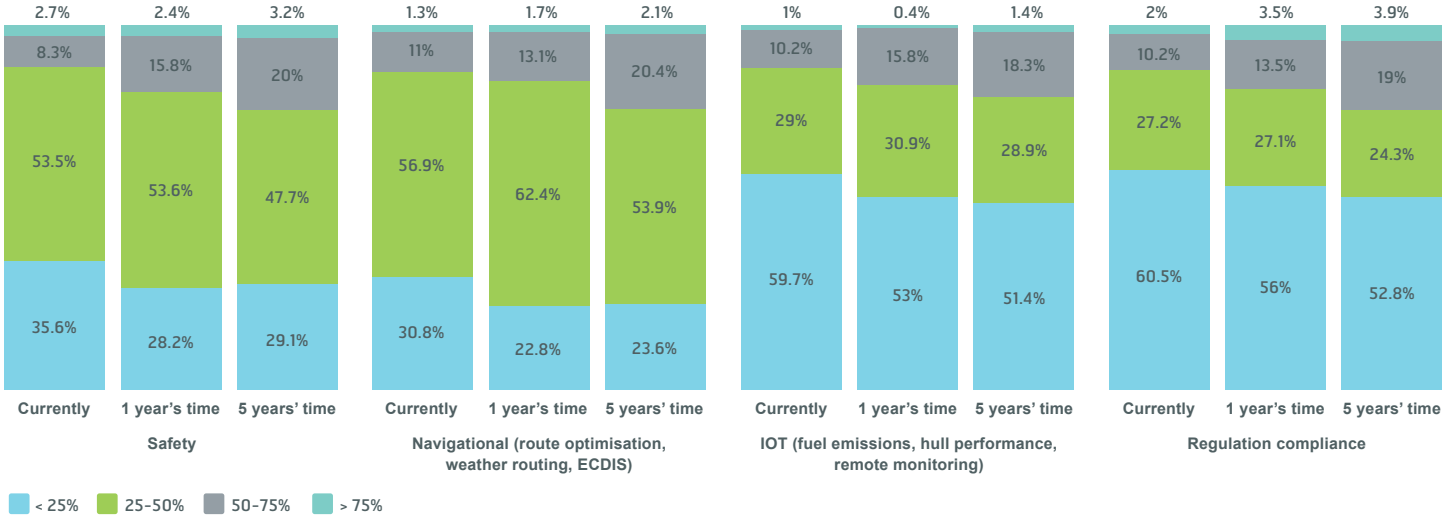


13. Expected increase in yacht's satcomm budget over next 24 months

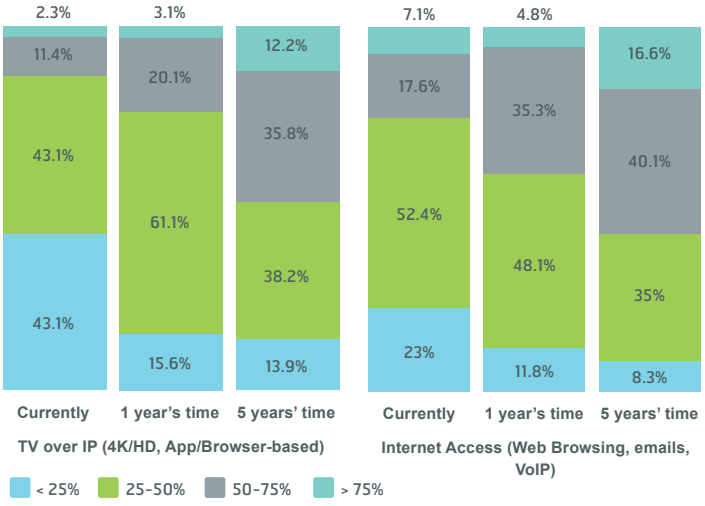


Percentage increase in budget

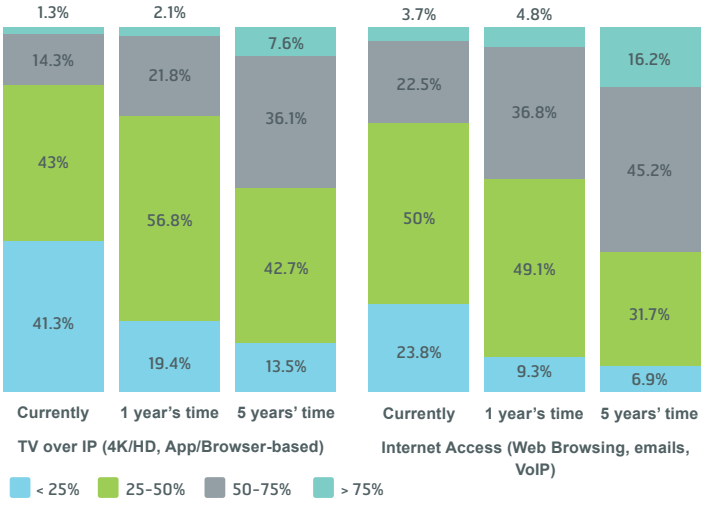
15. Operational connectivity usage



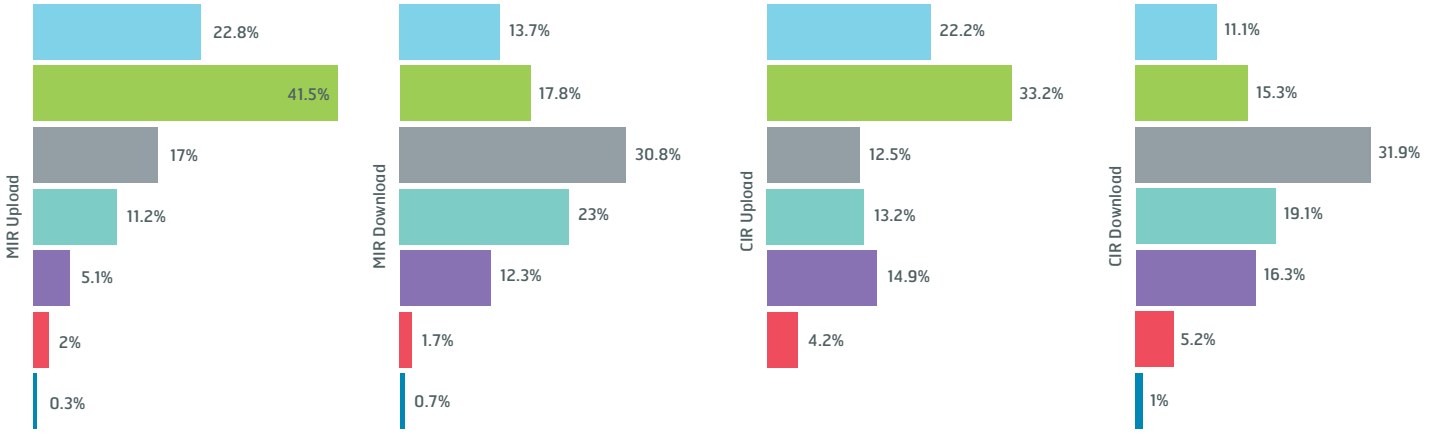
16. Guest connectivity usage



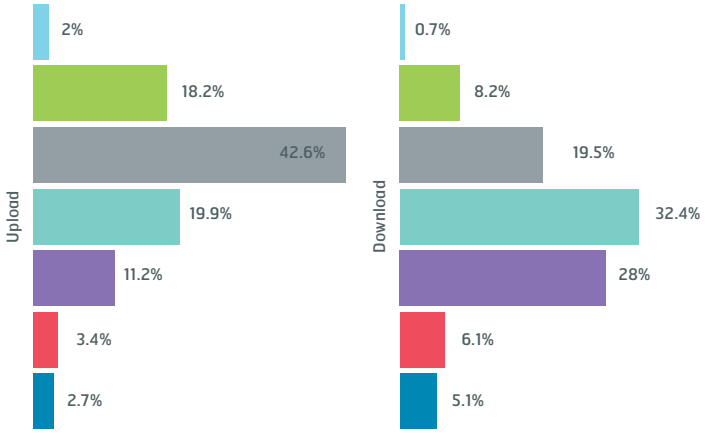
17. Crew connectivity usage



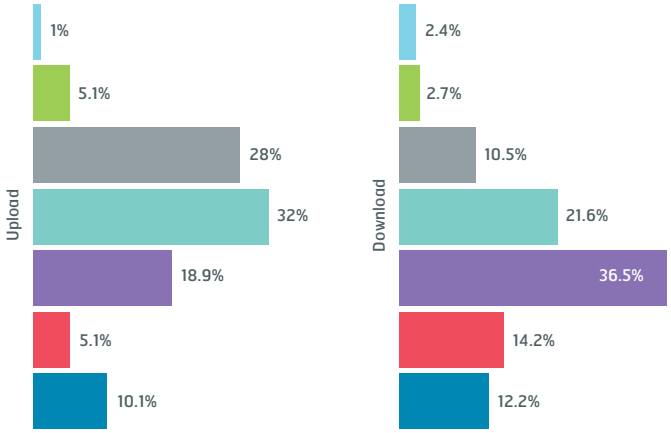
18. Current upload/download speed



19. Desired upload/download in 1 year

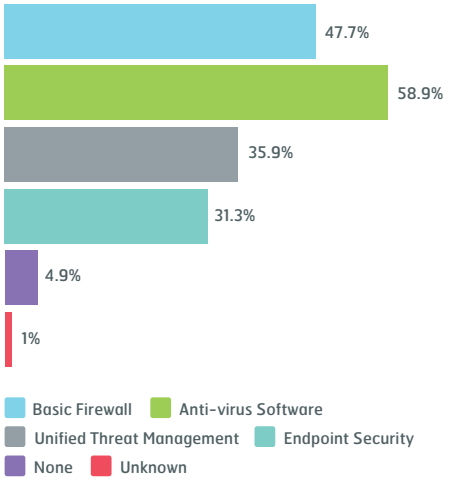


20. Desired upload/download in 5 years

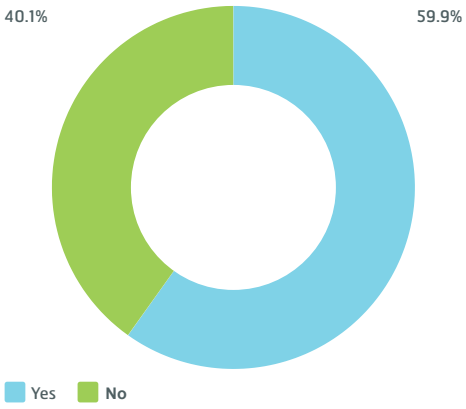


< 2 Mbps | 2-4 Mbps | 4-8 Mbps | 8-16 Mbps | 16-24 Mbps | 24-48 Mbps | > 48 Mbps

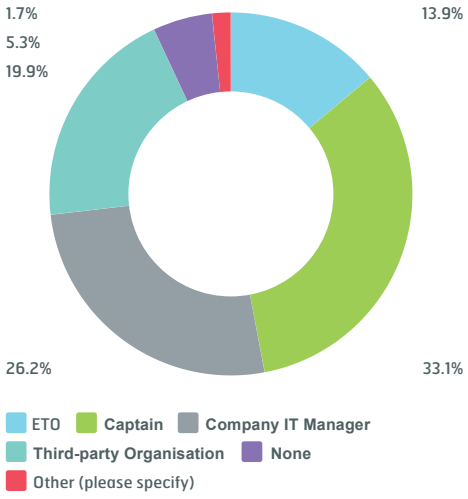
21. Cyber security measures in place



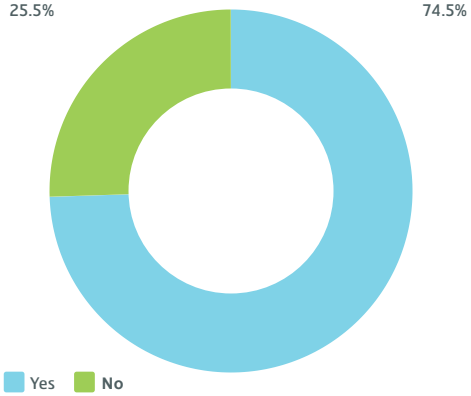
22. Awareness of difference between anti-virus software and network endpoint security



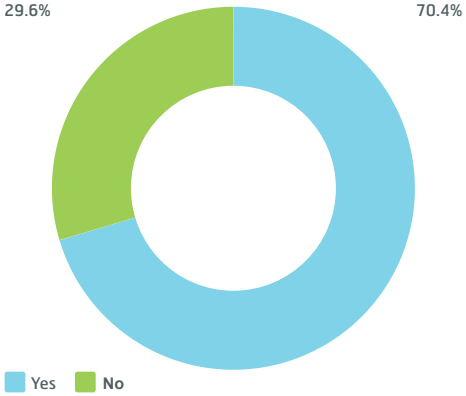
23. Cyber security management



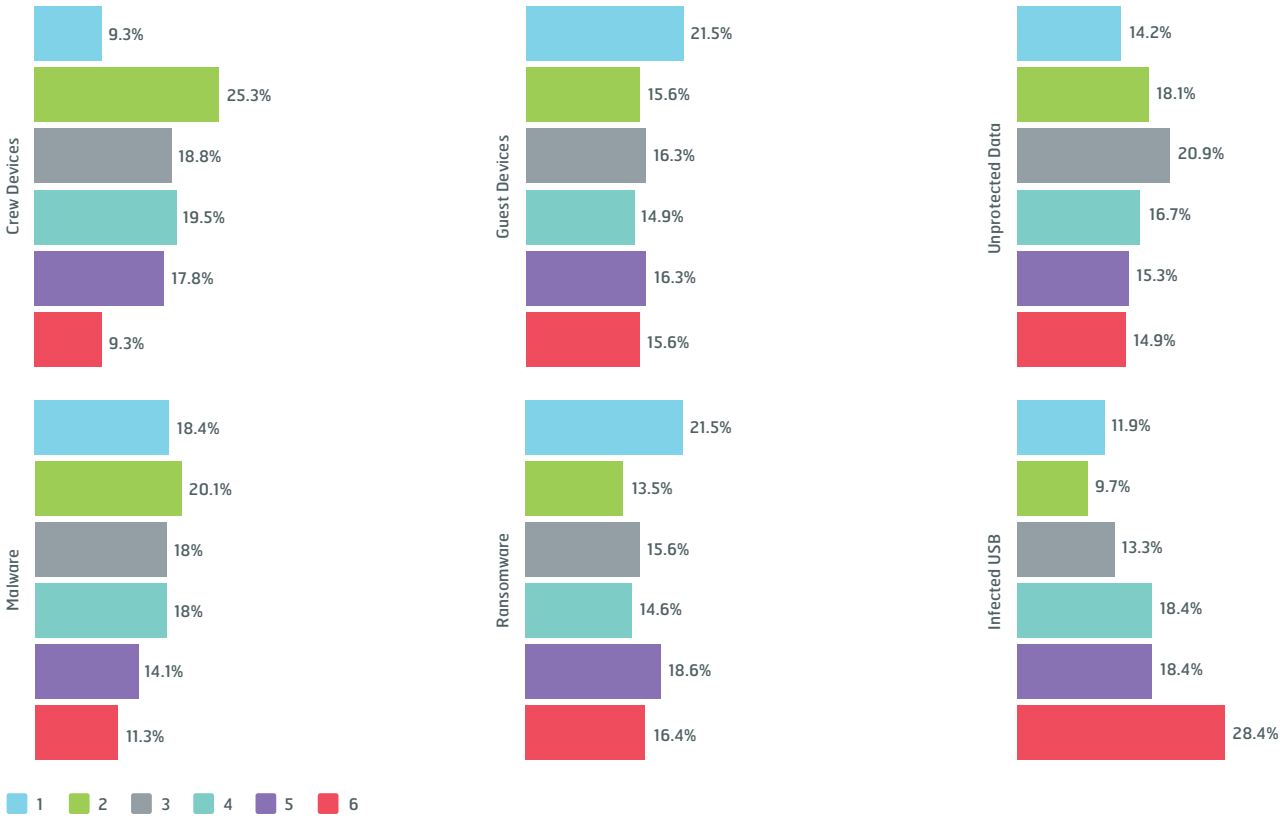
24. Awareness of ISM code



25. Updating ISM

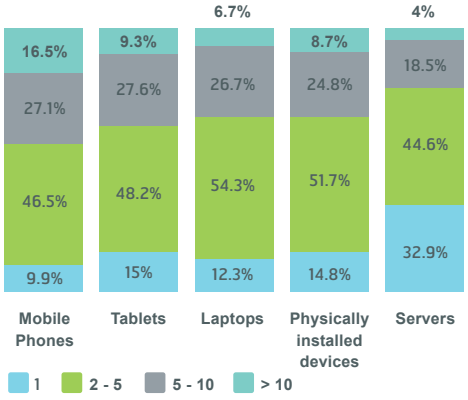


26. Cyber security threats

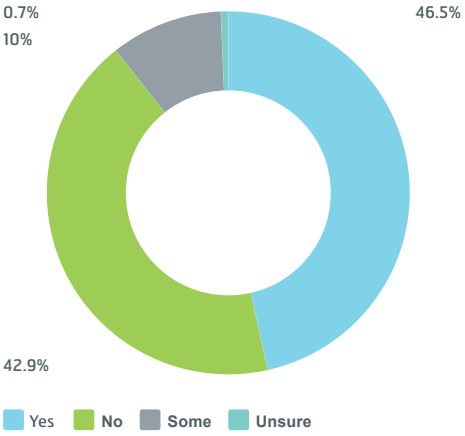


Ranked from 1-6, 1 being the greatest threat

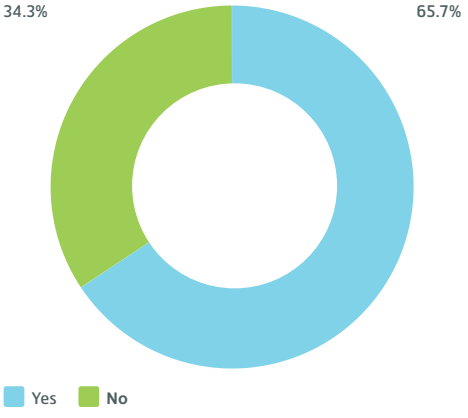
27. Connected devices onboard



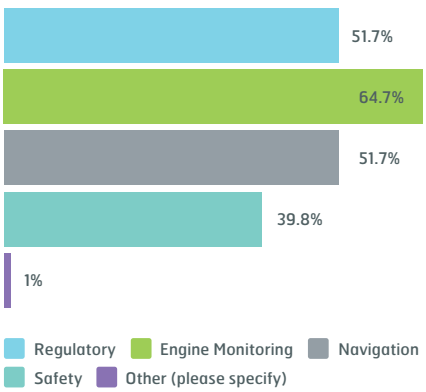
28. Cyber security training for crew



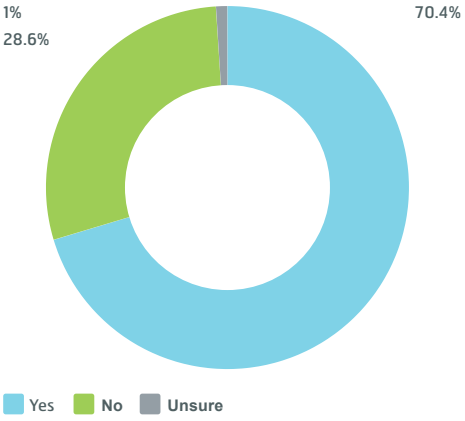
29. Usage of onboard sensors to collect data



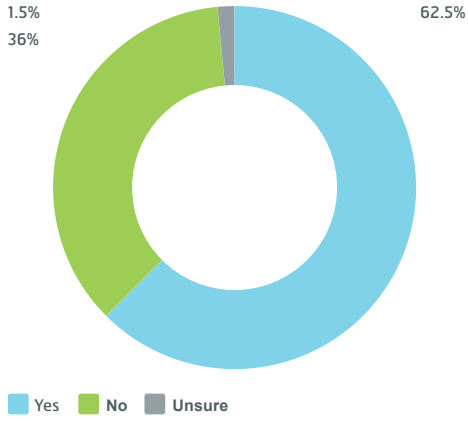
30. Data usage



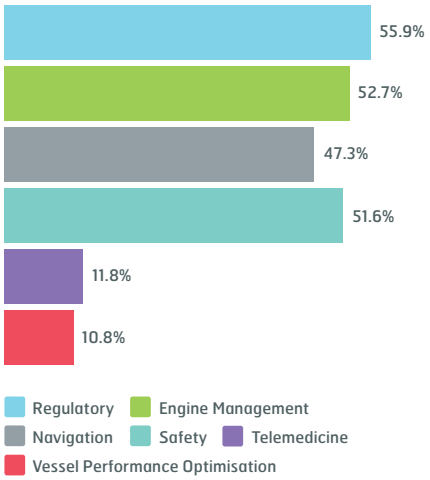
31. Applications to analyse data



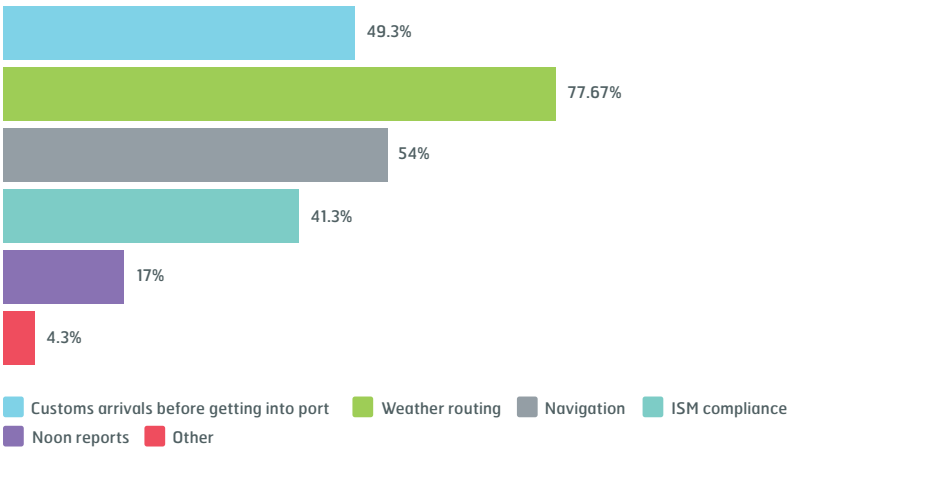
32. Sending data to shore



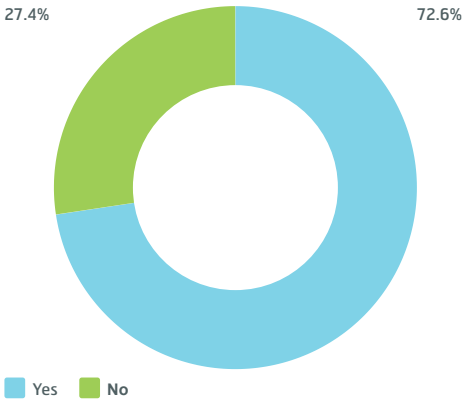
33. Data collection expectations



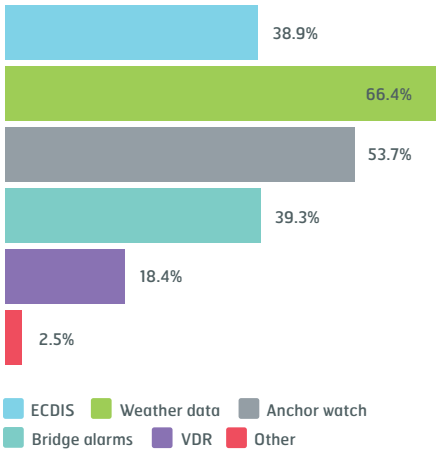
34. VSAT for safety and regulation



35. Awareness of safety services in communications



36. Safety services integration



37. Safety services awareness