ASIAN MARITIME SERVICE TRENDS

The Digital Future of Asia’s Maritime Market
Bringing High-speed Connectivity to the Sea
Report Findings Puts Japanese Shipowners at Forefront of Maritime IoT

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Asia & Pacific Ocean Maritime SATCOM Markets by the Numbers

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This month our magazine focuses on the future of Asian maritime satellite services for both GEO and NGSO systems. Our contributing experts address the 5 principal maritime markets: bulk and container vessels, tankers, offshore oil and gas, passenger markets, and fishing and leisure. According to Brad Grady of NSR, at “over $545M in retail revenues expected by 2027 in Asia, and $425M in the Pacific Ocean, these regions will be 20% of a [global] $4.7B Market opportunity by 2027.”

As you might expect, maritime mobile users are increasingly moving to higher bandwidth, unmetered VSAT services and offshore oil and gas and passenger cruise ships are migrating to LEO/MEO HTS services. The maritime satellite business is big and growing and that is good news for our industry. What is driving these gains? Moving from paper logs to digital (emails and cloud-based systems). Real time monitoring of onboard equipment. Tracking engine and emission, ballast water and optimizing fuel and routing, etc. But don’t be fooled – according to NSR, narrowband MSS services are also significant, and still earns twice the revenues of MSS broadband services.

Stephen Conley of SES says that “2018 was the year that digitalization went mainstream in shipping.” He explains that the list of digitally-enabled solutions include: crew management, blockchain, data from connected sensors enabling predictions for time-to-failure of system parts, performance optimisation control rooms and autonomous ferries, which in turn are driving greater security, reliability, efficiency, transparency and profitability. As for what is next, Conley states that “2019 promises to be a year of disruption… in three major categories: political, technological and regulatory.” We are all familiar with automobile telematics, but Conley describes satellite delivered marine telematics and how it is being used to lower costs and achieving peak performance.

According to Taksin Upalangama from Thaicom, “while North America and Europe focus on cargo, passenger and offshore oil and gas, Asia Pacific see fishing as its business anchor….with the ten ASEAN countries accounting for around one fifth of global marine fish production…” He also suggests that satellite will play a critical role in combating IUU (illegal, unregulated and uncontrolled) fishing.

Finally, Wei Li of Inmarsat describes a recent research project on the use of IoT solutions in the supply chains of companies in the maritime, transport and logistics, energy, mining and agriculture industries across multiple countries. Li focuses on the different attitudes and satellite IoT activities of ship owners in Greece (the nation with the largest number of ships), Germany and Japan, detailing shipping’s mixed feeling toward the embrace of new technologies, satellite connectivity (Ka vs L-band), data ownership, latency, security, network costs and the need for data analytics remote support.

We also have an interview with Sjoerd De Clerk, VP Asia for Newtec which covers a broad set of issues ranging from their growth strategy for Asia, video markets, new technology, IFC and, yes, maritime satellite services!

Enjoy our excellent articles which delve into these and other maritime satellite service issues and describe a wide range of growth opportunities for our satellite industry.
2018 was the year digitalisation went mainstream in shipping, and I firmly believe that 2019 and 2020 will be the years we finally start to see maritime digitalisation achieve its full potential.

Crew management apps, newbuilding loans on the blockchain, data from connected sensors enabling predictions for time-to-failure of system parts, performance optimisation control rooms, autonomous ferries... the list of new digitally-enabled solutions launched in the past couple of years is nearly endless. Many of these have come from the traditional centres of innovation such as Scandinavia or the U.S, but a growing number are coming from Asian and Asia-based innovators. The longer-term aims behind all of these projects — and the many, many more which are out there — are to drive greater security, reliability, efficiency, transparency, and profitability by using digitalisation as a way to achieve bigger, otherwise unattainable goals.

It’s a sentiment that’s shared by Mark O’Neil, President & CEO of Columbia Marlow Shipmanagement. He noted in late 2018 that “Digitalisation and technology are means to an end, but optimisation of what we do, reducing the costs, doing things more for less and better is what we’re all about”.

However, we’re not there yet. There’s still plenty that remains to be done. To a large extent progress varies hugely depending on the sector within shipping. For example, as we’ve seen in many parts of the container sector, manual and analogue processes — or “relics” as I’ve heard some millennial seafarers describe them — continue to hold back progress. In large part carriers recognise the opportunities available to them, but the arms race for ever larger vessels has left many of them with limited money to invest.

The Global Supply Chain

In an address to the Copenhagen Business School, back in October 2018, Maersk head of strategy Morten Bo Christensen said, “If you are a customer of the shipping industry, it is really not a great experience.” It’s not a novel idea, but to hear it from a spokesman for the world’s biggest container line speaks volumes. To support his argument, Christensen pointed out that a container transported from Kenya to the Netherlands could easily involve 30 different parties and more than 200 pieces of documentation alone. His proposed solution? “The most important thing we can do is try to digitalise the data flows.”

When it works well, the shipping industry is very straightforward. A regular and reliable procession of container carriers leaves Asian ports such as Ningbo, Busan, and Colombo and transits the world with the fruits of its countries’ innovations.

However, the links between it and other parts of the supply chain are rarely seamless. A number of container lines have recognised this, and are increasingly playing a more integrated role in global supply chains. This is taking them well beyond the simple transport of goods, and into a more complex position.

But to succeed in this new realm, as McKinsey & Company partner Steve Saxon has frequently noted, will require them to become more digital — or risk being left behind. All supply chains now involve a range of inter-modal connections and there are very few shippers who need a simple port-to-port move these days. Mr Saxon believes that there is a real danger that the container lines end up as “the dumb pipe in the middle,” and innovative startups take advantage of their hesitancy to monetise the more profitable customer relationships at either end.

The Year Ahead

2019 promises to be a year of disruption. Some of it will bring much-needed positive growth. However, when you shake up the status quo, uncertainty inevitably precedes it. Over the next 12 to 24 months, we’ll see it in three major categories: political, technological and regulatory.

The challenges shipping as an industry faces are only a threat if they’re accompanied by a mindset that treats them as such. Take the global sulphur cap – otherwise known as IMO (International Maritime Organization) 2020 – that arrives on 1 January 2020, and the Ballast Water Convention, an environmental protection measure that entered into force last year and aims to stop the spread of potentially invasive aquatic species in ships’ ballast water tanks.
Both will bring additional red tape to the sector, but they also represent a major opportunity for shipping to demonstrate unequivocally to the wider world that it’s cleaning up its act and as a consequence see an improvement in its global reputation. Though some will remain sceptical, there’s significant demand from end users for this. In 2017, Swedish furniture and homeware group IKEA warned shippers that they would lose IKEA’s business transporting their goods if they didn’t comply with IMO 2020. In a service business, being accountable to customer demand is paramount, and a steady stream of big name brands have since made similar promises.

One other important consequence of challenges like these is that they’re forcing shipowners and charterers to become much more efficient.

Technologies such as marine telematics, for example, solve a very real problem. However, it’s not a complete solution to improved operations. At present, planned – or interval-based – maintenance is the industry default. But doing things the way they’ve always been done comes with major inefficiencies and substantial added costs, such as off-hire penalties and drydock charges. By using marine telematics, ships can enable the highest level of condition monitoring in real time and ensure their vessels are reaching peak performance on every voyage.

Making this change does require an adjustment. The largest of which is the need to have reliable and consistent high-speed data collection. Without this capability, your systems can’t share the information they have collected, and you still require a sailor and a notepad to jot down the key parameters. The net effect on your ship is broadly similar by using either process, but the ship incurs inefficiency penalties and wastes valuable man-hours if the operation is not digitalised.

Ensuring the good environmental, efficiency, and safety performances of a vessel are critical to the overall results of a fleet. In my conversations with owners and operators across the region, I’ve noticed a real change over the last 12 to 18 months in terms of appreciating what digitalisation can do for their ships. There’s usually a variation from country to country, but it’s a sentiment that has been echoed from Taiwan to Thailand. One aspect that many of them hadn’t fully considered until recently, however, was the connectivity they’d need to attain a performance level that goes beyond industry standard. In their – and my – experience, it’s proved impossible to achieve without a connected maritime solution that’s underpinned by high-quality satellite broadband. Ideally it would also combine advanced wide-beam and high-throughput satellite capabilities, high-performance ground infrastructure, and VSAT terminals optimised for the specific ship on which it’s operating.

The Global Impact of Better Connectivity
Connectivity is the key enabler of smart shipping and the digital transformation in the maritime sector. At a corporate level it’s becoming a no-brainer to invest in the technologies that can drive better numbers in the P&L (profit & loss), but we’re also seeing the role it’s playing at an individual level.

Though the working life of a seafarer is one of enormous opportunity, it has also historically been one that required you to stoically endure the absence of loved ones for weeks and months. It’s a burden that few other professions can sympathise with, and until recently a challenge to which few solutions existed. For today’s seafarers, modern technology has mitigated that challenge and the improvements in crew welfare have been substantial and sustained. In fact, for many mariners it’s become a deal breaker when they consider their choice of employers. There’s now a justifiable expectation that they’ll be able to regularly speak to those that matter most to them.

For the most part, communicating with friends and family thousands of miles away is about continuing the routine conversations they’ve always had – finding out how your children are doing in school, finalising the choice of your summer holiday destination, or celebrating a school friend’s birthday. However, it also provides enormous reassurance to know that if an emergency occurs, there are systems in place to make sure that you can be there for your loved ones. Gone are the days of this being available only on a best effort basis – the correct connectivity partner ensures this is always on and always available without limits.
We've only really begun to scratch the surface of what digitalisation can achieve in shipping, but already we're starting to see the ways in which definitions of best practice are being redefined. Take for example the many attempts to introduce electronic bills of lading since the 1980s, but pickup has really increased in recent years as there has been greater recognition that adoption of digital technology is likely to be essential to remaining competitive in the future.

And from recruitment and retention, to apps and automation it’s seamless connectivity that’s driving their performance. The unreliable and expensive connectivity of the past no longer has to be a limitation; this is due to responsible satellite companies ensuring the high spec service level agreements flow direct to the end user so that the seafarer gets exactly what they have paid for and often even more.

As one of my old professors at university used to tell me, “If you can’t measure it, you can’t improve it.” I always intuitively understood that better data leads to better decision-making, but seeing it positively change the way an entire industry works is a feeling like no other. If you invest in the right partnerships to drive your digital transformation, you might just feel it too.

Stephen Conley is responsible for developing and maintaining an in depth understanding of the maritime market and ship owner and operator’s connectivity requirements. Insights from Stephen and his team is used to drive the innovation input cycle for SES Network’s Product Line Management. This enables development and successful delivery of market-leading connectivity products and service solutions for the commercial shipping market and related logistics and transportation sectors. Stephen joined SES in 2012, working first with the European development team in the Netherlands before relocating to Washington DC to head up Product Development for maritime. He is currently based in Miami, with a global responsibility to develop SES Network’s maritime segment. Previous experience includes a mixure of technical and business roles, including network operations, sales engineering, capacity procurement, asset management and yield management for some of the world’s most successful service providers and teleport and satellite operators.
Fast and reliable internet connectivity is critical for every part of the world – on land, in the air and at sea. It’s the lifeblood of every business because, without it, maintaining competitiveness, growth, and operations is incredibly difficult.

The Asian maritime industry is no exception. It is under significant pressure to transform in the age of the digital economy. Yet, at present, many offshore and fishing businesses in the region still lack access to modern satellite communications, which is critical for connecting crews and vessels.

The bar therefore needs to be raised among the satellite and communications industries to bring more affordable and reliable high-speed connectivity to the sea.

Asian maritime broadband – a growing market

The Asia Pacific region is home to one of the fastest growing maritime markets in the world, making it a lucrative opportunity for the broadband industry. It currently boasts 20,000 ships – including merchant, passenger, offshore and fishery ships – out of the 70,000 that operate globally. (Maritime SATCOM Markets, 6th Edition, NSR, July 2018)

New initiatives mean this figure is only set to rise. The Chinese government, for example, has adopted the One Belt One Road (OBOR) initiative to create a sea route – also known as Silk Road Economic Belt – linking China’s southern coast to east Africa and the Mediterranean. It could turn out to be the largest ever infrastructure project, helping create a new era of globalisation.

Meanwhile, the Thai government plans to improve existing connectivity to neighbouring countries. Its Eastern Economic Corridor (EEC) initiative will create established sea routes from Thailand to Myanmar, Cambodia and Vietnam as well as transform the country’s biggest seaport into the marine hub of South East Asia, all of which will act as an important support valve for China’s OBOR project.

Simply put, there is no question that merchant, passenger, offshore and fishery ships will increase in the region – and perhaps even more so for fisheries.

While North America and Europe focus on cargo, passenger and offshore oil and gas, Asia Pacific sees fishing as its business anchor. It is a vital sector, with the ten ASEAN (Association of Southeast Asian Nations) countries for example accounting for around one fifth of global marine fish production, undoubtedly contributing to their respective local economies.

Yet, illegal, unregulated and uncontrolled fishing is all too common in the region, costing marine businesses – and the government – billions of dollars.

Fisheries are regulated by IUU (illegal, unregulated, uncontrolled) laws to combat this serious issue, and the development of Asia Pacific’s new e-market to sell fishing products right from the ocean to consumer will also help. But imagine the impact satellite communications on-board ships would also have on IUU. It would enable greater levels of surveillance and policing across the vast seas.
The challenges holding maritime operators back

What’s clear, then, is that maritime businesses need superior broadband connectivity not only to help them transform for the digital future but to take advantage of the rising traffic across the sea too. And this means maximising every opportunity and mitigating every threat (like IUU) that could thwart growth – keeping Asia’s offshore and fishing industries above water.

The problem is that, compared to other sectors, maritime is underserved and lags effective broadband technology. But this isn’t the case for all regions. In fact, North America and Europe are well ahead of Asia Pacific in maritime broadband services.

So what exactly is holding the region back?

First, there are many remote areas without access to communication networks which of course makes communicating extremely difficult, therefore slowing down operations. Furthermore, of those that do have access to a satellite, the coverage is often poor or unreliable.

Second, businesses need to safeguard the running of their vessels and improve operational efficiency. This means minimising the risk of a network failure or physical or cyber security breach – both of which could bring damaging consequences.

However, when in the middle of the sea, a secure, resilient network along with 24/7 service support often might seem like too big of an ask for some businesses.

Third, offshore and fishing operators are under pressure to meet rising data demands but existing communications solutions offer too low a bandwidth for them to keep up. They require more and more data, routed through the internet rather than radio, to connect their crew and passengers, improve safety and increase operational efficiency – all without the connectivity limitations often expected at sea. This calls for innovative services and technologies capable of providing reliable high bitrates to both fixed and mobile devices anywhere and anytime.
Finally, there is a requirement to improve crew welfare and safety should a medical emergency occur but also to enable crew, who typically spend long periods of time at sea, to use online services and call their families from their own mobile devices. More often than not, connectivity is seen as a luxury feature on-board a ship, limited to captains and senior officers who can afford to install and invest in new broadband equipment. However, it needn’t be that way. Is this really achievable?

Why broadband is a viable solution

Ultimately, businesses need the best maritime service experience possible. They need high-speed, reliable and secure connectivity everywhere at sea – including remote areas – to support efficient and competitive vessel operations and to power the personal and ever-changing connectivity needs.

It might seem like a big ask but, with the right broadband communications solution, it is certainly achievable. Asia Pacific is seeing a rise in maritime mobility services that provide tailored solutions on an end-to-end basis and help create a unique experience for businesses.

VSAT Broadband technology, for example, is fast becoming the silver bullet for delivering high-speed internet across the region and helping businesses build the maritime industry to operate the ship of the future which is propelled by digitalization – boosting efficiency and operations. Designed to aid the maritime industry’s digital transformation, broadband connectivity supports high data rates, providing constantly high bandwidth for operational efficiency with wide area satellite coverage.

Moreover, the broadband service can incorporate an L-band backup solution so, should the worst happen and a network failure or security attack occur at sea, businesses can keep their vessels connected during a loss of service – therefore minimising disruption and even a loss in revenue.

What’s also attractive about the broadband connectivity proposition is that it has become more affordable. Maritime businesses can expect to pay the same price as legacy technology but with superior results. At a price point well below the USD1,000 mark per month per ship, for example, they can benefit from at least 30 Mbps with 10 GB with broadband connectivity, compared to just 200-600 Kbps with a 25-75 MB allowance.

Broadband at sea in action

Uniwise, one of Asia’s leading offshore support vessel operators, has tapped into broadband technology to improve its vessel operations. It is using the Nava maritime broadband system from Thaicom to help it focus with traditional L-band. Mbps with 10 GB with broadband connectivity, compared to just 200-600 Kbps with a 25-75 MB allowance. Thaicom Nava service, along with our integrated fleet management solution on board our ships, will help us to remain competitive and improve the efficiency of our offshore support business. The integrated fleet management solution will also support crew welfare and enable crew to use online services or call their families at home by using their own mobile devices at sea.”

The future of Asia’s maritime market is therefore incredibly exciting but it will only become a reality if governments and businesses invest in the right communications technology. They will all need to rely on very high levels of reliable high-speed broadband connectivity to facilitate these smart ship applications. After all, connectivity is the key enabler of smart shipping.

The bottom line? Offshore and fishing operators in Asia Pacific urgently need to increase operational efficiencies on board as well as connect crews and passengers to high-speed internet anywhere and anytime. The right technology will help them swim – not sink – propelling the much-needed digitalisation of the maritime sector.

The future is now

It’s apparent that satellite broadband connectivity can get maritime businesses online, all the time, at sea. Each and every one of these businesses can, and should, take advantage of the digital age. But the digital world moves so fast that they need to start planning now which solutions will best be able to meet future demands too.

Disruptive technologies have been taking the main stage in recent years with artificial intelligence, big data, cloud computing and social media. These all also have the potential to impact the Asian maritime industry, so mustn’t be ignored.

In 2019 and beyond, Asia will start to see its maritime industry transform like never before. These disruptive technologies will be able to remotely monitor a ship and assess its health in real-time, accurately forecast the weather, and much more. In fact, change is already happening. China’s first smart ship is now in operation, meanwhile Japanese shipping companies are developing self-piloting cargo ships that use artificial intelligence to plot the safest, shortest, and most economical routes.

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Taksin Upalagama, a Mobility Business Director at Thaicom, is one of the pioneers of the satellite mobility business in Asia. With more than 20 years of experience in the satellite industry, he was involved in the deployment of Asia’s first airline offering passengers satellite broadband in-flight connectivity. Taksin is now focusing his efforts on the Asian satellite maritime market, both in terms of technology and business models for the benefit of people working at sea.
New research commissioned by Inmarsat suggests that the maritime industry is more amenable to the analytic, management and operational tools available via the Internet of Things (IoT) than many have supposed, with Asian shipowners taking a lead.

Findings in a new report from satellite operator Inmarsat suggest that, if regulations are driving reluctant parts of the maritime industry towards adopting IoT-based solutions, a distinct group of owners is also emerging which sees a wider gateway to a more efficient industry.

Published as part of the Inmarsat Research Programme 2018, the satellite group’s ‘Industrial IoT: land and sea’ research report is based on 750 interviews by researchers at Vanson Bourne exploring use of IoT-based solutions in the supply chain, among respondents in maritime, transport and logistics, energy, mining and agriculture. With 125 respondents representing shipowners large and small, the report provides probably the most detailed account of maritime attitudes towards the IoT ever undertaken, across a full range of types.

Report Findings Puts Japanese Shipowners at Forefront of Maritime IoT

Wei Li, Market Intelligence and Competitive Intelligence Manager, Inmarsat

As the nation claiming the biggest slice of owned ships, Greece is the largest constituent, with 25 respondents, but Japan is close behind (20), followed by Germany (15); container ships represent the largest ship type, with vessels otherwise split among tankers, bulk carriers and offshore vessels.

The report provides Inmarsat with a benchmark for its strategy to power shipping’s data revolution via high speed Ka-band available on Fleet Xpress and expanded data use on L-band channels, but it also provides insights into regional variations in attitudes. For example, shipping culture explains why 60% of Japanese shipowners see IoT Data as their own property, 30% believe it is owned by the IoT investor, and only 10% think it falls to the ship manager. In Greece, 27% believe the ship manager owns the data (compared to 13% for the IoT investor and 47% for the owner).

 Again, shipping’s mixed feelings towards new technologies is well known, but this is an ambivalence that is not preserved uniformly where the IoT is concerned. While the report’s largest group of IoT ‘laggards’ is indeed within maritime, with 25% of respondents said to qualify, no Japanese owner was identified as an IoT laggard.

Meanwhile, 100% of Japanese owners strongly agreed that satellite connectivity provides the crucial support required to develop an IoT-based communications network; in Greece, the same proposition attracted strong agreement from only 76%. Again, Japanese owners are showing themselves as far more likely to share data: 50% said they would make such data available company-wide. Among Greek owners, 0% opted for this level of transparency.

When asked specifically about network provision, Japanese owners cited coverage (65% of respondents) and latency (65%) as factors of greater significance to IoT connectivity than security (50%) and network cost (40%). Greek owners took an opposing stance, citing as key factors network cost (56%) and security (44%) over coverage (36%) and latency (24%).
However, the IIoT (Industrial IoT) on Land and at Sea report also provides Inmarsat with significant guidance on underlying attitudes towards existing and anticipated use of IoT-based solutions, and perceptions on how they can improve shipping’s business intelligence, vessel performance and crew welfare. One area of focus will be technologies which enable greater uptake of IoT solutions overall.

Under International Maritime Organization rules, all passenger ships and ships other than passenger ships of 3000 gross tonnage and upwards built on or after 1 July 2002 must carry Voyage Data Recorders to assist in accident investigations, Inmarsat has already prioritised using VDRs to help overcome barriers to digitalisation. It will launch Fleet Data early in 2019, developed with Danelec Marine to combine adapted VDRs with dedicated bandwidth, so enabling the pre-processing and uploading of data to a secure cloud-based platform and accessing Fleet Data’s Application Process Interface (API).

On the global scale, 51% of respondents say that revenue generation is not a consideration, but 75% say that they have realised, or expect to realise savings using the IoT. Route optimisation is typical, where web-based packages are identified by 57% of global respondents as in use or on trial, where many solutions today use shipboard processing power.

Available regionalised data indicates that 55% of owners in Japan see improving resource efficiency within the organisation as a key driver for the adoption of IoT-based solutions. In fact, the four leading uses Japanese owners expect to put data gathered using IoT-based solutions are: monitoring productivity (cited by 55%); managing stocks/assets (55%); identifying cost savings (50%); and monitoring environmental changes (50%). The numbers contrast with the way Greek owners appear to see greater benefit in using data as a tool to enhance Health and Safety (in 48% of cases, against Japanese citation by 30% of respondents).

The impetus to monitor environmental change using IoT-based solutions sees Asian owners responding strongly to global fuel sulphur limits from 2020, and the EU Monitoring, Reporting and Verification scheme and the IMO equivalent within SEEMP (Ship Energy Efficiency Management Plan). Some 65% of overall respondents say they already use IoT-based solutions to monitor consumption. A further 9% say they will do so within a year, with deployment projected as reaching 100% by 2023.

However, when it comes to the factors likely to drive the maritime sector to greater use of IoT-based solutions, operational efficiencies are only part of the picture. Cutting marine insurance premiums is cited by 70% of respondents as one of the most important drivers for adoption, and in Japan the stimulus is even more pronounced, having been identified by 85% of owners. The finding is especially interesting, given that the industry also self-selects as a ‘laggard’ when it comes to taking steps to remedy its cybersecurity shortcomings.

As far as cyber vulnerabilities are concerned, targeted attacks are considered a less likely cause for concern than other challenges: 39% of global respondents, and only 35% in Japan, cited external attacks as a leading IoT security challenge. A larger group specified data collection and storage methods - precisely the same proportion among Japanese owners as was the case overall (55%).

However, key owners in Asia diverge with their global peers on other cybersecurity concerns. Owners in Japan appear less worried about network security (cited by 40%) than owners overall (50%), but more so about the challenges posed by mishandling of data (65%) than is the case globally (44%). Given that concerns are principally ‘inward facing’, 53% of owners in Japan cite ‘security’ as an area where additional skills are needed.

The industry’s lack of cyber preparedness raises a deeper malaise over more full-blooded commitment to IoT-based solutions in some quarters. Overall, the industry’s lack of decision-making skills is the most frequently cited impediment to uptake (by 56% of respondents), and the point is made even more strongly in Japan, where this rises to 67% of owners. That the issue is specific to shipping is in no doubt: considering the 750 respondents across all sectors, only 37% of those in the Asia Pacific/Japan market identified the need for additional skills in decision-making as relevant, in line with the 38% raising the issue in the EMEA region.
In contrast, Maritime Japan appears ahead of the curve when it comes to the technical skills that will support IoT deployment: only 20% of Japanese shipowners feel they need additional technical support skills, while that proportion across all industries in Asia amounts to 38%. Again, Japanese owners do not see lack of in-house skills as a key barrier to IoT-based solution adoption, given that it is noted as an issue by only 25% of owners; this compares to its citation by 68% of respondents from Greece.

Not do owners in Japan chime with their peers on the main obstacles to optimised IoT-based solution. While the time lag between data collection by sensors on the ship and dispatch ashore and its availability for use.

While the time lag between data collection by sensors on the ship and dispatch ashore and its availability for use by analysts is cited by 50% of the overall maritime audience (11% above any other explanation), only 35% of Japanese owners raise the issue. In fact, as a frustration, the lag is surpassed by the ‘security and privacy concerns’ cited by 40% of respondents in Japan.

Caution is advised when basing any assessment of the maritime industry’s readiness to adopt IoT-based solutions on owner testimony alone, given that marine equipment (engines, propulsion systems, electrical plant, bridge equipment, etc.) can contribute 70% of a new ship’s value: suppliers are making much of the running on connectivity, data analytics remote support. Indeed, some 64% of maritime respondents said that they would use an external partner to facilitate either ‘some’ or ‘as much as possible’ of their efforts to develop IoT-based solutions.

Nevertheless, one of the report’s most striking maritime findings is that respondents expect average expenditure per business on IoT-based solutions to amount to US$2.5 million over the next three years. This is less than the figure established for the logistics sector, but significantly ahead of average spend projected by respondents in agriculture and mining.

Overall, when compared to other sectors, shipping is engaged with the IoT to an extent that undermines the stereotyping peddled by its futurist critics: 34% of maritime respondents claim ‘full deployment’, compared to 21% of all 760 respondents (and just 2% in the mining sector). Here too, however, it appears to be the forward-looking strategies being adopted in Asia that are making a strong contribution to engagement overall: in Japan, 55% of respondents consider themselves ’fully deployed’ today, rising to 100% within 18 months. The equivalent constituency in Greece reports 0% deployment in 2018, rising to just 40% in 18 months.

Wei Li currently leads market intelligence activities to support Inmarsat in market strategy, product development and the design of next generation satellites. Prior to joining Inmarsat, Wei spent 8 years at Euroconsult, where as the senior consultant, led consulting projects for satellite companies, investors and government agencies. He was also the editor for various Euroconsult titles including Maritime Satcom Report, and Satellite Operator Report.
Interview with Sjoerd De Clerck, Vice President, Asia, Newtec

Sjoerd De Clerck joined Barco NV in 1986 as a Product Support Engineer and has held the last decades several VP roles within the company. For two years, until 1994, he was active in M&A activities for the company until he founded the Control Room Division based on an external acquisition. In 2000, Sjoerd started the Digital Cinema Division where he was responsible for P&L responsibilities where he managed the R&D, sales and customer support teams. From 2006 he became responsible for the European and South American growth markets and was promoted to the Vice President of Customer Services EMEA-LA in 2009 before joining Newtec as VP Asia of Sales end of 2016.

Question
You have stated previously your growth strategy for Asia is built on 3 pillars, Partnerships, Service and focus on HTS, could you elaborate where you are in that strategy?

Over the last year we have added sales and service people in India, Indonesia and the North East Asia region and have expanded our certified partner network with new members in The Philippines, Korea and Australia. That growth will continue. Satellite is a ‘people’ business, having the right professionals in place is essential in working with and supporting system integrators, service providers, satellite operators and end users and as our market share continues to grow, so must our support network.

On the HTS front we were of course very proud to announce our partnership with Kacific and it will be a pleasure to work with the team to make Kacific1 which will bring new and additional affordable connectivity in Ka-band over Indonesia, the Philippines and the Pacific. In addition, we are looking forward to being involved in the many HTS launches planned over Asia Pacific in the years to come. Overall, HTS has become a clear growth-driver for us.

Question
The video market is in some turmoil at the moment with the future of satellite deemed uncertain. Can you comment?

Markets and technologies change, and video is no stranger to that with linear TV giving way to OTT and consumer preferences changing. Although this is most definitely a potential threat to the old business models, it is first and foremost a formidable opportunity for forward-looking broadcasters to enter the multi-service play, offering their customers a combination of linear and OTT rather than one or the other.

With billions of connected devices such as phones and tablets at people’s fingertips, it’s no wonder that users are turning to new ways to consume content: anytime, anywhere and on any device. It is essential that service providers offer content that is ready to be viewed on consumer devices. However, at the same time, it is imperative to keep costs under control. Converting as much unicast transmission as possible to multicast transmission avoids sending multiple copies of the same content across the network, thus saving a huge amount of bandwidth. Satellite provides the ideal solution for OTT services due to its ability to distribute content over vast geographical areas, its scalability, its cost-effectiveness and its ability to reach remote areas. Broadcasters can benefit from the new revenue generating opportunities the two-way communication OTT offers.
But let us also not forget that good old DTH is far from dead, and in fact is in some territories still expanding! Dish TV in India is a prime example of that and we are happy that via our certified partners, Horizon Broadcast (HBE) and Mediakind, Dish has selected our modulators for the significantly higher efficiency and bandwidth savings they bring. This makes Dish TV one of the best equipped broadcasters in the region.

**Question**

Newtec is known as a technological innovator and for being at the forefront of technology. What can we look forward to from Newtec?

Our Mx-DMA® technology has had a huge impact on the segment of the market where efficiency and bandwidth savings matter most, the midsegment - between TDMA and SCPC. Going forward we will expand that stronghold both upward, with even faster SCPC modems and downwards with efficiency improvements for the TDMA market. Next to that, our Newtec Dialog® family is expanding with our XIF accommodating the tens- to hundreds of beams of the new generation HTS satellites.

**Question**

Which market segments will Newtec be focusing on in 2019?

We have been very successful in broadcast and broadband, especially with the Universal Service Obligation (USO) projects bringing Internet to the unconnected, and that focus remains, but it is an undisputable fact that the fastest growing segment is mobility.

In terms of inflight connectivity, we have established a strong partnership with Panasonic Avionics which is a world leader in inflight connectivity. Our work within the commercial aviation industry has expanded significantly. Since we announced the partnership, Panasonic now has 350 aircraft flying with its Gen 3 Newtec modem to provide inflight connectivity and plans to have 1,000 completed later this year. The Newtec modem offers Panasonic’s aero customers up to 20 times the bandwidth of its original solution and can facilitate the increasing bandwidth coming on stream as HTS and Extreme-Throughput Satellite (XTS) services continue to be layered over the Panasonic’s existing global network.

Panasonic’s network is built on Panasonic’s high throughput satellite service, which covers all dense mobility traffic areas around the globe with high throughput spot beams and wide overlay beams that support Panasonic’s global inflight television service. Along with the Newtec modem, this supports the provision of inflight services such as fast internet, video streaming, VoIP applications, improved TV picture quality and a broader channel choice, the capability to offer 3G phone services, and greater bandwidth for crew applications.

Going forward, the maritime market is set to be a key one for Newtec. We are now bringing forward the technologies that allow ultra-high throughput, beam switching, intelligent bandwidth allocation to the maritime market where you may expect some significant announcements shortly. The cruise line market is for us an obvious target in view of its supreme high technical requirements, but let’s also not forget that 9 of the 10 largest container ports in the world are in Asia and that we are home to the largest fishing fleets in the world, so those markets segments are therefore of prime importance too.

Another important segment will be cellular backhaul. The part that satellite has to play in mobile connectivity is already being seen across the world, with a rising number of mobile network operators choosing to use satellite for cellular backhaul when delivering 2G, 3G and 4G services. Satellite has a major part to play in terms of delivering these services to regions with limited or no terrestrial infrastructure.

There is certainly much to look forward to and we look forward to strengthening our presence in all of our market segments, enabling efficiency, scalability and cost effectiveness.
Asia and the Pacific Ocean continue to be a core component of the maritime SATCOM Markets. Doubling in size over the next years in terms of retail revenues, everything from Fishing vessels to high-end super yachts to large ocean-going cruise ships are requiring more connectivity, which in turn is producing more retail revenues for service providers. At over $545M in retail revenues expected by 2027 in Asia, and $425M in the Pacific Ocean, these regions will be 20% of a $4.7B Market opportunity by 2027.

The importance of Asia and the Pacific Ocean is not news, over the decade-plus of research NSR has published on the Maritime SATCOM markets, Asia is always a key component of that market. However, there is a subtle shift occurring under all of these top-line figures – the growing importance of tanker traffic as macro-economic growth requires more petroleum consumption, a weakening of container traffic as global trade faces political headwinds, and on-going challenges in offshore Oil & Gas activities with crude pricing challenges.

Moreover, the increasing presence of China-based capacity offerings and China-centric initiatives within the region does give some pause to how much of this growth outside companies can really take advantage of. Amongst all of these macro-economic trends, there is a clear trend that across all of the end-users segments in the maritime market, the demand for connectivity is increasing. MSS customers are migrating to higher-throughput, unmetered VSAT-plans, smaller vessels are adopting MSS plans, and the high-end customers in Offshore Oil & Gas and Passenger Cruise are on the path to adopt Non-GEO HTS services from LEO and MEO.

All told, navigating a path to revenue growth is only becoming more complicated, in Asia especially, and across the maritime SATCOM marketplace generally.

So, how should an incumbent player or a new entrance in Asia Pacific approach the Maritime SATCOM Markets in Asia and the Pacific? Each segment of the maritime market requires a slightly different approach, with different macro and micro-economic factors influencing the adoption and utilization behaviors of end-user.

### Asia & Pacific Ocean Maritime SATCOM Markets Cumulative Retail Revenues

<table>
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<tr>
<th>Region</th>
<th>2017</th>
<th>2027</th>
</tr>
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<tbody>
<tr>
<td>Asia</td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td>Pacific Ocean</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>Rest of World</td>
<td>79%</td>
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### Asia & Pacific Ocean Maritime SATCOM Markets Retail Revenue Market Share

- **Bulk & Container Vessels – 42% of Retail Revenues in 2017**
  
  At over $2.6B in cumulative revenues from 2017 to 2027, one cannot become a significant service provider, satellite operator or any other form of maritime market player without addressing the needs and requirements of this segment. Generating almost $1B more cumulative revenues than the next closest market, the market is one of the cornerstones of the maritime satcom markets. Currently, the market is undergoing a migration towards higher vessel provisioning. By 2027, revenues from narrowband MSS services enabling M2M/IoT, lower-end voice or data, and other lower throughput services, towards higher-end broadband connectivity choices. Overall, Broadband plays across both VSAT and MSS will be about $1.8B of that $2.6B in cumulative revenues.
Just what is driving this higher bandwidth requirements? Higher reporting requirements for digitalization efforts primarily. From internal corporate reporting moving from paper logs to emails to more complex cloud-based systems, and port/cargo logs moving to digital forms, these processes are one of the core drivers of enabling higher throughput services. Even moving from a few Kbps of throughput to 1-5 Mbps of connectivity enables an entirely different operational paradigm for Bulk & Container vessel operators. Beyond that, monitoring onboard equipment is another driver of connectivity demand and retail revenues. Tracking engine and emission output, ballast water, optimizing fuel/routing, and keeping charts onboard updated are becoming the ‘must-do’ items on IT planners to-do list. Lastly, comes access to better crew connectivity services as/where required by law or company policies.

Overall, for success in this market players in the value-chain need cost-effective offerings that can scale across throughput ranges. Onboard equipment should be sophisticated enough to enable various throughput provisioning, and increasingly able to host a growing requirement for value-added services across both operational and crew welfare applications.

**Tanker Vessels – 20% of 2017 Retail Revenues**

At $1.9B cumulative revenues, this is another ‘must address’ market. Already a strong adopter of onboard technology, and higher bandwidth connectivity services, the increased demand for petrochemical products in the region will drive more tanker traffic into the area. Over the next ten years, NSR projects that tanker vessels will account for 30% of retail revenues vs. 20% of revenues in 2017. What that means for the value-chain is simple – more investment into bandwidth and below-deck infrastructure to accommodate vessels with higher throughput requirements.

Unlike bulk & container vessels, tanker vessels tend to have more onboard monitoring infrastructure with higher company & regulatory requirements to report status on shipboard infrastructure and cargo. FSS C and FSS Ku-band will be a major source of revenues over the time period, as the large installed base of vessels continues to generate revenues throughout the time period, and service providers integrate GEO-HTS options into their networks. GEO-HTS Ka-band will be a sizeable growth opportunity, accounting for over $400M in cumulative revenues. For MSS-based services, Narrowband opportunities will be a key source of revenues, yielding double the revenues of MSS Broadband-based services. Even as we see new builds adopting VSAT connectivity straight from the shipyard, and older vessels starting a slow migration towards VSAT connectivity as well applications like IoT, Voice, and safety-centric services will yield drive narrowband revenues independent from an overall migration towards higher throughput services.

Overall, investments in higher bandwidth offerings are key for the tanker markets. Given the relatively large pool of vessels adopting SATCOM connectivity, terminal manufacturers can leverage this sector while building cheaper terminals to target high-cost sensitive sectors such as leisure or fishing. Service providers meanwhile, will continue to find success in balancing the budgets of merchant end-users against their increasing needs for guaranteed connectivity.

**Offshore Oil & Gas – 17% of 2017 Retail Revenues**

Coming in at just under $1B in cumulative retail revenues, the market will be slightly out-paced by the growing passenger segment by 2027. Over the next ten years, the market will undergo a transition from FSS-centric connectivity towards HTS (in both GEO and Non-GEO). Digital oilfield programs will continue to expand, yet overall activity and macro-economic conditions remain a hinderance on the market. In short, more connectivity per-site, with a challenging prospect of growing the number of sites needing connectivity.

Challenges to operations in the region, and a market for Oil & Gas which favors low-cost production, will mean that new exploration and activity campaigns will be limited. Without those events, the need for high-end seismic vessels, sophisticated drill-ships, and the associated supporting vessels remain low. That said, vessels and sites which are operating in the region are demanding more connectivity. Overall, the name of the game for service providers and satellite operators is providing more connectivity to current customers.

**Passenger Markets – 13% of 2017 Retail Revenues**

With a growing market for river, ferries and ocean cruises in the Asia and Pacific Ocean Regions, this market will more than double over the next ten years, providing over $1B in cumulative retail revenues from 2017 – 2027. What’s driving that growth? Just as in land-based consumer-facing markets, the need for constant connectivity from personal devices. No longer are families expecting to take to the seas and leave the world behind – they want to have instant access to their network of friends and family to tell them what they are doing, and not miss out on life ashore.

For Passenger vessel end-users, that means designing more complex onboard infrastructure. Not simply higher provisioning of satellite services (that’s generally the easy part), but redesigning WiFi access point layouts, running more fiber and ethernet throughout their ships, and deploying monitoring solutions that enable per-device Quality of Service measurements. For service providers, this opens new opportunities for systems integration, and perhaps new revenue streams in managing additional onboard infrastructure beyond satellite-centric equipment.

Alongside all of these infrastructure changes, onboard applications and guest experiences are digitizing. No longer are guests simply given a print-out of the day’s activities, they want real-time access via an app-enabled experience. That in-turn places additional emphasis on local servers, and for the most sophisticated deployments, a cloud-centric approach that requires extensive WAN (wide area network) connectivity (aka, additional satellite bandwidth.) With higher throughput offerings from both GEO and Non-GEO HTS, the satellite sector does stand ready to enable all of these new applications and services – at the right price.

**Fishing & Leisure – 9% of 2017 Retail Revenues**

Rounding out the maritime SATCOM market in Asia and Pacific Ocean Regions, fishing and leisure will collectively account for around $900M in cumulative retail revenues between 2017 – 2027. As with other segments, the need for connectivity is growing, however, these segments are just beginning on their connectivity journey.

For fishing, that is mostly mandates for catch and position reporting, which have yet to translate into higher levels of shipboard connectivity for crew or vessel operations. In leisure, the lower level of vessel utilization and that most vessels operate close to shore, limits the pool of addressable vessels. Both however, are starting to take advantage of the newer (and usually cheaper) wave of services aimed at expanding this lower-end segment of the market. While there is still a long way to go to unlock the hundreds of thousands of fishing and leisure vessels out there, the satellite industry is working tirelessly to introduce lower cost terminals, and cheaper connectivity plans.
Asia and the Pacific Ocean Regions are a cornerstone of the Maritime Satellite Market. Investments in new GEO-HTS connectivity, a focus on shipboard applications and services, and tuning offerings across the range of end-user demands are the key factors of success. As with all areas of the satellite sector that is facing significant changes, maritime markets are steaming ahead to higher levels of connectivity demand, and more revenues for satellite operators and service providers alike.

Brad Grady has been involved in the Satellite Communications industry since 2005, joining NSR in 2010. He is NSR’s Energy market subject matter expert, and a core member of NSR’s mobility research practice for both civil and government markets. He regularly provides his insights and analysis to NSR’s single-client consulting practice, and is also a regular contributor to leading industry publications and forums. Before joining NSR, Grady served as the Sustainable Development Projects Coordinator Intern with the Global VSAT Forum where he worked regularly with the GVF Secretariat and the Regulatory Working Group on many of the forum’s initiatives. Working with the Regulatory Working Group, Grady helped develop and implement various RWG initiatives aimed at protecting satellite spectrum, increasing awareness of satellite services, and working to promote regulatory reforms across the globe.

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APSCC aims to exchange views and ideas on technologies, systems, policies and outer space activities in general along with satellite communications including broadcasting for the betterment of the Asia-Pacific region. Conferences, forums, workshops, summits, symposiums, and exhibitions are organized through regional coordination in order to discuss issues that affect the industries and to promote and accelerate the efficient introduction of outer space activities, new services and businesses via satellites.

In order to disseminate industry related information, APSCC publishes a quarterly satellite magazine as well as a monthly e-newsletter, which are distributed worldwide to members and others. The quarterly magazine and other publications are available on the Web at www.apscc.or.kr.

Editorials and Inquiries

Inho Seo, Editor
Asia-Pacific Satellite Communications Council
1-1092, 170 Soejum-ro Bundang-gu, Seongnam-si, Gyeonggi-do 13350 Rep. of KOREA
Tel: +82-31-783-6247 / Fax: +82-31-783-6249 / E-mail: editor@apscc.or.kr / Website: www.apscc.or.kr

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