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To what extent can fast-speed and affordable satellite internet on board ships positively impact seafarers?

By

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Abstract

The internet access on board ships is linked to seafarers' happiness and satisfaction in the shipping sector. In this paper, the reasons behind such statement is explored qualitatively via undertaking two hour in-depth interviews with seventeen seafarers and one welfare consultant. While taking into consideration the shipping companies' efforts in terms of corporate social responsibility towards seafarers' welfare and considering the most recurring concerns in literature i.e. the physical and mental fatigue, the social isolation, seafarers' inability to take shore leaves or repatriation to shore, observing the seafarers' generational changes, satellite internet technology as of the year 2022 in practice, and the future applications of high-quality internet access on board. The conceptual framework suggested strong links between the quality of internet access on board ships and the seafarers' welfare, especially for seafarers who were born after the 90s and joined seafaring in late 2000s up to date. The research concludes that if shipping companies proactively installed and provided high-quality internet on board ships for seafarers' personal use (i.e. high-speed, affordable or free, and unlimited) would not only improve seafarers' welfare in terms of social responsibility, but also increase work productivity on board ships and unleash unprecedented applications for both the companies and the seafarers.

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List of Abbreviations

Introduction and Background

The internet is a valuable commodity on a ship. It is the only way for seafarers to communicate with the external world as well as their families back home. While the internet has become a crucial component of many people's daily lives, it is something that seafarers rely on to stay connected and sane. As indicated in a report by the International Labour Organization (ILO) in 2022, seafarers are one of the most vulnerable groups in the world, they are frequently exposed to hazardous working conditions and have little or no access to social protection or health care. A lack of access to reliable, fast-speed internet can make it even harder for seafarers to do their jobs effectively (International Labour Organization, 2022).

According to a published study in 2018, conducted by the Seafarers' International Research Centre (SIRC) of Cardiff University between 2011 and 2016, which was based on a questionnaire answered by approximately 1537 seafarers, the study indicated that there was a significant improvement in internet access for seafarers on cargo ships. In 2011, 61% of respondents indicated that they had no internet access at all on board, compared to just under half of respondents 49% in 2016. Additionally, the provision of free and unlimited internet access has increased the most, from 12% in 2011 to 19% in 2016. From the standpoint of ensuring seafarer well-being, such a provision is preferable to one that imposes time or cost constraints on seafarers. However, there has been a significant increase in the number of respondents who stated that they had free internet access but had limited access in terms of time allocation, which increased from 7% in 2011 to 12% in 2016 (Sampson et al., 2018).

In May of 2022, the ILO had issued an amendment to the Maritime Labour Convention of 2006 aiming to improve seafarers' welfare on board ships mandating internet access at reasonable costs to be provided by shipowners and port states for seafarers allowing them to have social connectivity on board and while staying in ports (International Labour Organization, 2022).

Future research is required to assess the relationships between psychological health, social media use, and various neutral outcomes like general job satisfaction, resilience, and subjective happiness among seafarers in order to better understand the impact of social media on seafarers' overall mental well-being (Zamora et al., 2021).

The current study aims to assess the positive effects of high-speed, low-cost satellite internet on seafarers on board ships by first assessing seafarers' health and welfare through in-depth interviews of about two hours long and interview questionnaires with seafarers and experts in seafarers' welfare. This assessment focuses on multiple factors which seafarers commonly face, such as physical fatigues, mental fatigues, social isolation experiences, inability to return to shore, inability to rehabilitate to shore, openness to express with their co-seafarers about their challenging situations while on board and the reasons behind these factors; as well as assessing their psychological defense mechanisms when confronted with all of these challenges, and taking into account their perspectives on their employer or shipping companies in general in terms of the support they received for the challenges they faced, and the influences of existing internet access options on board, together with the potential future applications of having fast speed and affordable internet access on board ships. It also highlights the challenges which 'the digitally connected generation' of seafarers encounter, considering this generation's activities are broadly known for being online thru social media when being onshore.

This study also investigates, from the perspective of seafarers, shipping companies' efforts in corporate social responsibility toward their seafarers, examining the shipping companies' awareness of these issues and their motivation to take action to address seafarers' challenges following the Motivation Theory. This study seeks to answer not only how high-speed and affordable internet access on board ships may improve the welfare of seafarers, but also how this may affect shipping companies. In addition to considering the technical and economical constraints which challenged the shipping industry to have fast-speed and affordable internet on board ships. This research also takes into account the Maritime Labour Convention efforts in encountering the seafarers' welfare challenges on board as well as the internet access requirements on board.

The internet on board ships works similarly to the way it does on land. Broadband satellite service provides high-speed Internet access to vessels at sea the same way that it does to people on land. Ships communicate with satellites via a small dish antenna, which is typically mounted on the vessel's mast. A network of coaxial cables then distributes the broadband satellite signal throughout the ship. Passengers and crew use this service by connecting their personal laptops, tablets, or other devices to the ship's network jack. The signals are then downlinked back to the satellite's ground station and retransmitted to the ship via the satellite's uplink. Email, Internet access, and messaging are all possible with the broadband service.

However, when it comes to seafarers' internet access, the current technological and economic constraints on board are limiting it in terms of coverage, quality, and affordability. There are several technical challenges associated with internet connectivity on board ships. One issue is that ships frequently sail in areas with poor or no cellular coverage, which can have an impact on the quality of the internet connection available for personal use by seafarers onboard. Another issue is that maritime satellite connections can be costly with low speeds, especially when compared to terrestrial broadband connections. However, this will likely change soon, due to the R&D efforts of companies such as Inmarsat and Space-X, and due to certain regulatory changes, which mandate internet access for seafarers as part of their rights on board.

It is also worth mentioning that the international maritime organization, IMO, has developed its own set of standards to provide connectivity on board ships. The IMO developed a common platform that will be used by all ship owners and operators across the world. The first generation of this platform was known as the Industry 4.0 platform and it was developed by a consortium of ship companies, including Maersk Line, Rolls-Royce, and CMA-CGM. The Industry 4.0 platform was launched in 2016 and it is being used on ships operating in the Mediterranean Sea and the Atlantic Ocean. The platform supports a wide range of wireless technologies such as LTE, Wi-Fi, satellite communications and GSM (Ahn et al., 2022). Such initiative may significantly contribute to reducing internet access challenges for seafarers on board ships and unleash potential applications for the seafarers onboard as well as applications for the shipping companies. On the other

hand, there are also possible negative impacts due to such connectivity as will be discussed in later chapters.

To summarize on understanding the potential impacts of unlimited, fast, and affordable internet access on seafarers, an assessment of maritime health and welfare of seafarers, an assessment of current efforts by shipping companies, and the current internet access technical constraints on board are investigated through in-depth two-hour interviews with seafarers. The majority of studies in the literature assert the importance of internet access for seafarers on board. However, they do not address how this will affect seafarers' welfare or how it may or may not benefit shipping companies from a business standpoint, assuming that such technologies are also implemented on board.

Research Question:

“To what extent can fast-speed, unlimited, and affordable satellite internet on board ships positively impact seafarers?”

Sub-Research Questions:

1. What are the positive impacts on seafarers of having fast and affordable internet on board ships?
2. What are the reasons and factors causing these positive impacts?
3. What is the link between these impacts and seafarer productivity?
4. What are shipping companies doing in terms of Corporate Social Responsibility when it comes to internet access on board?

Literature Review

1. Literature Review Introduction

In order to answer the research and sub research questions and develop the hypothesis, literature review about the current state of knowledge is started by building up based on the concepts from previous studies and linking it to internet access for seafarers on board. The concepts covered are as follows:

First, the concepts in relation to maritime health and seafarers' welfare from various aspects such as the physical and mental fatigues, social isolation, the 'digitally connected generation' who were born after the year 1997 and their lifestyles in relation to having internet access, and seafarers' ability to return to shore and their ability to rehabilitate to shore.

Second, concepts relating to the internet access and its normal applications in society on shore, the current state of the art internet technology and internet access on board ships, and the best practices of having high speed affordable and unlimited internet access on board.

Then, followed by concepts from literature, from the perspectives of International Labour Law and Motivation Theory, on topics in relation to company social responsibility towards previously introduced topics on maritime health and seafarers' welfare and shipping companies' efforts in providing internet access on board.

2. Maritime Health and Seafarers' Welfare

Being a seafarer is a stressful occupation by nature because of all the stressors that might influence them. Some of the challenges of seafaring, like working and

living in the same cramped environment of the ship, eating unhealthy or unfresh food, having limited social contact and being away from loved ones for extended periods of time, having sleep disorders due to different shift hours and jet lags, regular physical demanding duties for certain positions on board, shortage of crew members and being overloaded with tasks, unable to go on shore leave, engine excessive noise and vibrations of the vessel, and ship's motion in rough weathers and seas, can all be grouped into major stressors for seafarers. Other than the fact that it is a hazardous environment which can cause accidents. According to Hystad and Eid (2016), many stressors associated with seafaring are regarded as chronic.

2.1 Seafarers' Physical and Mental Fatigues

According to Paukstat in 2017, increased port visits and, to a lesser extent, fewer days at sea can contribute to increased levels of fatigue (Pauksztat, 2017). It has been highlighted that today's shorter ship stays in ports and lower personnel numbers have made seafaring a very stressful occupation (Wadsworth et al., 2008). Fatigue is a recently identified job hazard that affects short-sea mariners more so than deep-sea mariners (Shan and Neis, 2020). Due to fierce competition and massive trade volumes, seafarers became sleep deprived and fatigued (Oldenburg et al., 2009). These studies indicate that reduced dwell times at ports due to technological advancements in terminals productivity is causing physical stress for seafarers especially if the shipping company has more frequent voyages, more stopovers at shorter distances, such that the trade routes between China, Japan, and South Korea for Bulk Carriers.

Long work hours increase the possibility of fatigue at sea and can have severe repercussions on the shipping industry (Wang, 2012). Seafarers are thought to become fatigued as a result of work stress, high workload expectations, a lack of crew members, lengthy shifts, irregular work schedules which disrupt their biological cycles, lack of sleep, and substandard safety standards (Slišković

and Penezić, 2015). The Maritime Labour Convention of 2006 took into account fatigue and stress and stipulated that the maximum seafarer contract is two years of uninterrupted service at sea (Maritime Labour Convention, 2006). To better understand the reasons for fatigue, a group of researchers performed a study. They found that three main causes—sleep history, circadian aspects, and task-related aspects responsible (Paterson et al., 2014). Physical fatigue is a significant challenge that seafarers encounter in their daily duties, according to these researches and regulations, and it is regarded as a part of their employment contracts that they must accept, and as part of unstated terms and conditions.

About half of the Lithuanian and Latvian seafarers who participated in the study said they had experienced psycho-emotional stress after about three months at sea (Salyga and Juozulynas, 2006). This research adds that the mental fatigue starts after around a certain period of time, and the longer the seafarers stay on board, the more the possibility that they encounter more mental stressors, which evolves after to impact physical shape; as per numerous studies which have reported hearing and vision loss, obesity, and illnesses affecting the circulatory, digestive, and musculoskeletal systems in mariners (Hansen et al., 2011; Nas and Fişkın, 2014; Oldenburg et al., 2015). This can be extreme if it is not observed by the senior positions on board or shipping companies according to a study's analysis which demonstrates that there is an increased prevalence of stress and fatigue among seafarers and suicidal thoughts as reported by their peers (Mellbye and Carter, 2017). It is believed that the simple access to suicide by drowning, selection effects in seafarers, prolonged absence from family and social networks, strong alcohol use, and psychoses all increase the risk of suicide in seafarers (Roberts et al., 2009).

The performance of seafarers is significantly impacted by high levels of fatigue (Hystad and Eid, 2016). Fatigue in seafarers is linked to 26% of shipping incidents (Gander et al., 2008; Strauch, 2015). These studies establish that

seafarers' fatigue can cause accidents or asset losses for shipping companies if it is not taken seriously.

Since different ratings have distinct job demands, the risk of fatigue differs based on the seafarer's rank (Mansyur et al., 2021). The differences in duties and employment perks differentiates between physical and mental fatigue levels, especially considering certain positions like masters have shorter periods on board than other seafarers as per some shipping companies' internal policies.

With regards to mental fatigue and internet access, studies suggests that having access to the Internet or outside assistance may improve the mental health and fatigue of seafarers (Jensen, 2021; Lefkowitz and Slade, 2019; Sampson and Ellis, 2021).

According to existing survey studies which shed light on the need for a quick and stable Internet connectivity on board and suggested that internet performance affected seafarers' mental health and fatigue indirectly rather than directly, however, little is known about how having access to the Internet affects the mental health or fatigue of seafarers (Lefkowitz and Slade, 2019; Slišković and Penezić, 2016).

Many academics have proposed reducing labour hours, enhancing working conditions for mariners, and providing free Internet access so that they can stay in touch with their families and friends in order to reduce physical and mental fatigues on seafarers (Nguyen et al., 2014).

According to survey-based research, the COVID-19 pandemic had a greater impact on mental health issues and chronic fatigue (Zamora et al., 2021). Also another study concluded that industry representatives, maritime administrations, and welfare organizations should prioritize making sure that external support is accessible and available during COVID-19, and regulations

should be reviewed to include the offering of free, quick, unlimited, and stable Internet access for all crew members (Pauksztat et al., 2022).

2.2 Seafarers and Social Isolation

For mariners, a very socially isolated population, the reliance on close relationships and immediate family as a support system may be particularly crucial (Thomas et al., 2003). In principle, among the most often stated psychological pressures for seafarers are the extended absence from one's home and family, and the social isolation on board (Carotenuto et al., 2012; Gerstenberger, 2005; Iversen, 2012; Oldenburg et al., 2009). Seafarers perform their duties under demanding conditions due to the nature of the maritime industry, including isolation from ordinary routine, long working hours, tight organizational structures, and high levels of stress and fatigue (ILO, 2015). These findings have established that the social isolation is a common challenge for seafarers due to the nature of the working conditions.

The psychological effects of working on a ship, such as social isolation and loneliness, were consistently reported by seafarers (Kobayashi and Steptoe, 2018). In addition, this may have a significant impact on their dietary behaviours and weight gain (Henriksen et al., 2014; Liu et al., 2018). These researches reveal how mariners' physical characteristics change as a result of social isolation.

During the COVID-19, seafarers were not able to go onshore for lengthy durations. Thus, having to spend a lot of time at sea and being socially isolated for a long time because of port restrictions may make mental health issues more severe for seafarers (Baygi et al., 2022a).

Working in the maritime industry is linked to unique psycho-social stressors like extended family separation, loneliness, and isolation due to multicultural

crews (Sampson, 2003). This study has shown that multinational crews may occasionally be to blame for social isolation.

Some of the challenges of seafaring, like working and living in the same congested environment of the ship, eating unhealthy or non-fresh food, having limited social contact and being away from loved ones for extended periods of time, engine noises and vibrations inside the ship, and rolling of the ship due to rough seas, can all be grouped into major stressors for seafarers. Numerous seafaring-related stressors are regarded as chronic (Hystad and Eid, 2016). According to this study, it defined the social isolation as one of the chronic issues for seafarers.

Many seafarers' spouses also face social isolation, and they long to connect with and talk to people who share their problems and experiences (Foster and Cacioppe, 1986; Thomas et al., 2003). These studies indicate that the social isolation on board ships not only affects the seafarers' but also their families, increasing the challenges for seafarers and mental pressures. According to Thomas (2003), there are several ways to lessen the effects of social isolation on seafarers' families, including shorter trips and greater internet connectivity.

The use of digital technology on board lessened seafarers' homesickness, but in a fragmented way (Jensen, 2021). This study proves that the internet access on board helps in reducing social isolation and mental fatigue for seafarers but not entirely.

Long-term social isolation without access to the internet has been identified as a significant psychosocial stressor that adversely affects the health and job satisfaction of seafarers (Slišković and Penezić, 2016). This study emphasizes the value of internet connectivity for mariners since it helps them feel less isolated from society. Other previous researches have also revealed how digital connectedness may mitigate the negative consequences of social isolation at sea (Mellbye and Carter, 2017; Trout, 1980).

2.3 Seafarers and The 'Normally Connected Generations; Millennials, Generation Z, and Generation Alpha'

There is a mix of generations of mariners that are currently enrolled in the maritime sector and each generation possesses a distinct set of features and attributes that may have an impact on how they interact with people and react to their environment, therefore this tendency calls attention to the generational gap has an impact on seafarers' retention (Emeliza T. Estimo et al., 2020). Similarly, the level of expectations in the maritime sector varies between generations (Cahoon, 2008). Moreover, one of the main reasons it is challenging to retain seafarers to work onboard ships is due to the difficult nature of the maritime sector (Thomas et al., 2003).

The working conditions on board ships, which includes internet access for seafarers, must be improved in order to satisfy the demands of the current generation of job searchers and entice young people into the maritime business (Caesar et al., 2015).

There are few researches in literature which address the challenges that the new generations of seafarers face in terms of digital connectivity and internet access, or what constitutes 'reasonable internet access' for these generations. However, it has been brought up in the context of business by a number of marine organizations, manning agencies, and shipping firms. As stated by Mark Charman (2018), who is the CEO of a maritime recruiting agency, the maritime industry faces significant difficulties in attracting generation Z (*Attracting Millennials and Gen Zs*, 2018). Among many of these challenges that the maritime industry faces is making the environment attractive for Generation Z and certainly Generation Alpha is the internet access on board ships. Technology is a significant component of their identity (Gaidhani et al., 2019). There is a progressive increase in the number of employees belonging to

Generation Z entering the workforce; nevertheless, organizational HRM practices have not yet changed to address the concerns of Generation Z, which results in a higher employee turnover ratio among Generation Z workers (Chillakuri and Mahanandia, 2018).

In order to shed light on the criticality of the challenges of internet access on board in terms of its quality, David Appleton (2016), a professional expert in the maritime field, mentioned that “only around 50 per cent of seafarers have access to the Internet onboard, and when they do it is often poor quality, and then they have to pay through the nose for it”. He also indicated that “the youngest of those starting their jobs at sea and graduating from school in 2017 or after were born in or after 2001, and these young people genuinely have no idea what life was like before smartphones, Facebook, Twitter, or Instagram. They not only expect to be connected constantly, but they also demand it.” He also added that the anticipated scarcity of officers to fulfil demand is a well-known issue which will not be resolved in the near future. He also referred to BIMCO/ICS manpower report which had predicted that there would be a deficit of about 16,500 officers which was predicted to increase to 92,000 in 2020 and 147,500 by 2025 (“BIMCO/ICS Manpower Report predicts potential shortage of almost 150,000 officers by 2025,” 2016; David Appleton, 2016). This shortage as per the report is due to expected demand increase for the maritime transport sector. However, taking into consideration that most of newly recruited seafarers would be among the new generations, this basic requirement of a high quality internet access for these generations requires extensive investigation, research, and focus to resolve anticipated challenges which threat business continuity for the maritime transport companies.

There are other issues relating to internet access for all seafarers. While having access to the internet has increased well-being for seafarers, it can also introduce a different type of stressor as they become aware of minor family issues or receive bad news while on duty offshore, which causes them to worry

and become less focused on their work (Dolan and Ender, 2008; Slišković and Penezić, 2016).

2.4 Seafarers' Ability to Return and Rehabilitate to Shore

Living and working in an enclosed, remote setting, away from home, with no ability to leave the workplace for a set time period, which may operate as a chronic work stressor, is one fundamental quality of seafaring (Doyle et al., 2016).

Seafarers find it challenging to take shore leave due to post September 11 security measures, particularly in US ports (Kahveci, 2007). In a bizarre case, a seafarer who walked a few meters ashore to use a public phone was sentenced to jail and deported (Balbaa, 2005). Balbaa had referred into his research an emphasis on how crucial shore leave was to hard-working individuals arriving in port after days or even weeks of solitude at sea, at a time when the maritime industry is already facing a global shortage of qualified officers, such restrictions may easily dissuade aspiring recruits from joining the ranks (Balbaa, 2005).

The issue of lack of shore leave has been cited in many resources in literature (Clare, 2014; Kahveci, 2007; Oldenburg and Jensen, 2012; Walters and Bailey, 2013). In extreme cases, 30% of British suicides between 1976 and 2005 listed work-related issues as a significant contributing factor, which included the cancellation of shore leaves, indicating that unfavorable working circumstances are a contributing factor in a high number of suicides among seafarers (Roberts et al., 2009).

Furthermore, because of intense competition and huge trade volumes, seafarers do not receive sufficient shore leave (McVeigh and MacLachlan, 2019). While seafarers may have once taken advantage of long shore leaves, shipping innovation caused less time in ports which made

seafarers nostalgic for the days of sailing feel even more constricted and bored (Sampson and Wu, 2003). Other than the fact that shore leave varies based on the shipping segment. For example, for at least four months, tanker crew members work in a closed society apart from shore-based life (Baygi et al., 2022b). This is due to the fact that tankers do not spend long times at ports in contrast to container ships which can stay at port for days while loading and discharging containers.

Many mariners were refused to get their shore leaves during the COVID-19 pandemic and often were unable to travel home, leaving some seafarers trapped on a ship for much more than a year. These behaviours hindered seafarers from getting access to crucial services like health care and family communication (Vandergeest et al., 2021). To prevent the COVID-19 disease from spreading during the Pandemic, several port authorities have forbidden seamen from disembarking when they arrive at the port ("Recommended framework of protocols for ensuring safe ship crew changes and travel during the coronavirus (COVID-19) pandemic," 2020). Shore leave would be reduced as a result of modifications to port infrastructures and tighter global security measures. The COVID-19 Pandemic in particular had prohibited mariners from disembarking to perform crew changes, causing seafarers employed on board ships to extend their time at sea for many months, considerably beyond the authorized restrictions (Doumbia-Henry, 2020).

As concluded by Hebbar and Mukesh (2020), long-term confinement at sea without shore leave is likely to have negative effects, especially on the seafarer's health, work performance, and emotional condition. Threats to seafarers' mental health have been recognized as coming from reduced shore leave and increasing multinational crews (Borovnik, 2011; Iversen, 2012). Due to a heavy workload while ships are in port, a decline in minimum manning requirements, the locations of ports, and current security measures, shore leave for seafarers is quite challenging (Idnani, 2013).

It is also demonstrated that staying on a ship varies based on positions on board and varies based on seafarer's nationality (Oldenburg et al., 2009). Hence, this indicates that the seafarers' ability to return to shore varies accordingly.

In addition, mariners whose ship may be berthed far from a city center in ports with often very substandard public transportation infrastructure add up to this issue of lack of shore leave, which if granted, reduces the time and quality of seafarers' rest time (Sampson and Wu, 2003).

The inability to return home in case of a medical emergency or a family emergency on shore has a significant impact on seafarers' mental health and well-being, as seafarers often find it difficult to repatriate to shore in the middle of a long voyage, and sometimes a lack of facilities and medical assistance can make it difficult for them to get the help they need (Hebbar and Mukesh, 2020).

3. Technology On Board Ships

3.1 Internet in Society

In today's world, using the internet on a regular basis is essential. It is used for communication, conducting business, play, and work. Given how pervasive the internet has become in modern society, it is difficult to imagine life without it.

A few of the various uses of the internet in society include meeting people who were previously complete strangers, connecting with professionals from all disciplines globally, linking businesses with one another, and extending the reach of personal and business communications other than connecting with loved ones when separated (LaQuey et al., 1993). It had an impact on how we

socialize and engage with one another through video calls and instant messaging.

Growing multibillion businesses globally such as the rise of online advertisement businesses thru social media platforms, the rise of online shopping and selling physical merchandise or selling digital products (Ahn et al., 2000; Jusuf, 2022). In addition to other common activities like reading books online, listening to music online, online banking services, playing online video games that helped create the lucrative multibillion e-sports industry, streaming services to watch movies and series.

The emergence of "influencers" by blogging, vlogging, and building their audiences of people of similar interests; partnering with companies looking to market their products to certain audiences and demographics that follow these influencers based on their niches. Internet usage for commercial purposes also includes activities like online freelancing and taking professional courses.

There are also academic uses for internet such as online research, knowledge transfer and knowledge sharing, seeking higher education online since universities started offering courses remotely (Rahmat et al., 2021). Other than the cultural and language exchange, which, due to internet, globalization has been strongly shaping communities around the world (Clarke, 2008).

Then there are applications for the fourth industrial revolution, the internet of things, and trending digital transformation, all of which require connectivity and the internet (Götz and Jankowska, 2017). Likewise, big data established the foundation for artificial intelligence, with the Internet effectively serving as a bridge to connect the big data (Ternes et al., 2020).

As long as access to internet is self-regulated with awareness, it can increase happiness (Veenhoven and Vogelaar, 2019). On the other hand, internet had negative impacts such as pornography, rise of the dark web, online scams,

etc., other than the behavioral impacts like internet addiction (Awan et al., 2021; Ferrara et al., 2017)

3.2 Internet Broadband On Board Ships

3.2.1 Inmarsat

Inmarsat is a British mobile satellite communications company, offering global voice and data communications services via satellite for commercial and governmental entities. It has been a long-time leader in satellite communications on a worldwide scale. It was founded in 1979 by the International Maritime Organization (IMO) as part of an initiative to improve safety of life at sea communications following the 1978 wreck of the MV Argo Merchant ("About us - Inmarsat," n.d.; Ilcev, 2020).

The company used its INMARSAT-3 satellites to operate a global GEO system and offer voice and data services (Franchi et al., 2000). It provided coverage over the world's oceans and continents, excluding polar regions. Since Franchi et al.'s paper was published, the satellite internet technology has progressed, dropping the costs of satellite launches dramatically. Geosynchronous Earth Orbit (GEO), Medium Earth Orbit (MEO), and Low Earth Orbit (LEO) satellites are the three categories of satellites in orbit that provide worldwide service (Sheng et al., 2019). Where LEO allows lower latency.

The fifth generation (Inmarsat-5) satellite internet of Inmarsat, which is in geostationary orbit (GEO), can provide Ka-band services with data rates of 50 Mbps forward and several Mbps reverse (Hadinger, 2015). With this being the furthest orbit, at this speed, it is indicating that the LEO could reach multiple times higher speeds with lower latency.

3.2.2 Competition between satellite internet providers

There are numerous projects seeking to dominate the satellite internet, which mostly are focusing on the medium and low orbits in order to achieve higher speed with more bandwidths and lower latency covering different locations, airplanes, or ships, eventually increasing internet speed for all locations, planes, or ships. This is possible nowadays due to advances in space industry which reduced costs that made it possible to launch more satellites, in addition to advances in antenna receiver technology that also lowered costs for ends users (Jia et al., 2021).

According to Chris Young (2022), in a test conducted in April of 2022, OneWeb measured download speeds of 165 Mbps, upload speeds of 30 Mbps, and latency of 45 milliseconds. Also, Amazon revealed that it would compete with SpaceX's Starlink service by launching more than 3,000 Project Kuiper satellites into LEO. Another constellation of 1,600 LEO satellites is being planned by the Canadian company Telesats, which promises to deliver gigabits per second speeds. By the end of 2022, SpaceX plans to launch the first of its Project Kuiper prototype satellites (Young, 2022). SpaceX Starlink alone has around 40,000 LEO satellites planned to be launched (Cao et al., 2022).

Such global competition will help to lower satellite internet prices further, making it possible for seafarers to reap high speeds, lower latency, unlimited, and affordable internet; similarly, to the rest of the population on shore, or at least bridge the gap of digital connectivity, and unleashing potentials of countless applications for shipping companies as well as the seafarers, leaving room for investigations as to the current qualitative research on how it would impact the seafarers.

3.3 Best Practices of High Quality Internet Access On Board

Assuming the provided internet on board is high speed, unlimited, affordable by the crew, and available all the time as to what the current technologies can provide, and its expected potentials in the very near future. There are many applications which can be considered as best practices on board that can benefit both the shipping company and the seafarers at the same time. The following are some of the practical applications which were covered in literature.

3.3.1 Training and Development

More often, shipping companies offer offline e-learning courses for the seafarers on board, which are pre-installed on ship's business computers. Also, there are website offering official courses for seafarers such as STCW courses. The integration of contemporary training approaches, such as e-learning and internet learning, in the acquisition of competencies and further growth of seafarers is encouraged by recent changes to the STCW code (Velasco et al., 2018). A university in South Africa which had conducted research aimed at offering online courses for chief officers while being distant in addition to the related professional courses, especially during COVID-19 with the possibility of seeking postgraduate courses online (Masuku, 2021). Such applications are possible to be conducted on board if the internet access allowed.

Enhancing the knowledge and skills of mariners would improve navigational safety, effectiveness, and efficiency as well as marine environmental protection, combined with the fact that seafarers must continuously improve their knowledge and abilities to attain better opportunities in the global labour market (Bauk and Fajardo-Flores, 2020).

Although these studies indicate potentials of training on board due to online access, however, they do not take into consideration that this may not be the case due to rest time limitations for seafarers, and that this may add more physical fatigue to the seafarers if seafarers were not aware enough to limit their time for online courses during their rest hours.

3.3.2 Mental Wellbeing

Research suggests that Internet connection or online assistance support can improve mariners' mental health and fatigue (Jensen, 2021; Lefkowitz and Slade, 2019; Sampson and Ellis, 2021). It was shown that higher quality characteristics of internet access would also improve the satisfaction for seafarers (Slišković and Penezić, 2015). The use of technology on board reduced seafarers' homesickness, but in a fragmented way (Oldenburg and Jensen, 2019).

Higher quality Internet access certainly help with the seafarers mental wellbeing, but it does not solve all issues on board. Especially with the possibility of conducting unlimited voice and video calls with their family and friends, which naturally improves their mental wellbeing. However, it also brings other stresses for the seafarers (Dolan and Ender, 2008; Slišković and Penezić, 2016).

This would also allow the seafarers to seek online psychological support services, as there are many services online that provides these services, enhancing the mental wellbeing of seafarers. Furthermore, internet connectivity increases seafarers' happiness on board, as it is considered one of the major factors in the happiness index according to a study (*Seafarers Happiness Index Quarter 4 2021*, 2021)

3.3.3 'Normal Transactions in Life'

With the possibility of granting unlimited, high speed, available internet access on board ships, almost all applications of society on shore can be performed while being on board, without worrying about the data bundle limitations, being conscious about paying extra fees, worrying about privacy as in the days when seafarers used to send their emails to their family and friends thru the captain on board or thru the shipping company's emails forwarding service which are mostly not considered as private due to the nature of the process. According to a welfare organization's 2019 online survey of 2000 seafarers, expensive or slow connections make living on board extremely irritating for seafarers ("Seafarers Happiness Index," 2019). One of the best practices on board is for seafarers to be connected with family and friends via not only instant m

As to other internet uses in society which can work on board, starting with online banking services, unlimited instant messaging, audio and video calls, running an online business, online shopping, online gaming, watching movies and series via online streaming services, online music streaming services, reading news and books online, watching live matches and live news via internet (Blank and Groselj, 2014). In addition to renewing sea service certifications and licenses online and taking its mandatory refresher courses online, applying for other jobs or seafaring contracts, online shopping, blogging and vlogging, and meeting new people virtually, learning new skills like playing a guitar, etc.

4. Corporate Social Responsibility in Maritime Shipping

The term Corporate Social Responsibility (CSR) was first defined by Howard Bowen in 1953 in his book *Social Responsibilities of the Businessman*, where he referred it to mega corporates' and businessmen's duties to pursue policies, make decisions, or follow actions that are desirable in terms of society's values and goals (Bowen et al., 2013). He also mentioned that the motivation for these duties are driven by the fact that mega corporates and businessmen have significant wealth and influence at their disposal, and that they should not neglect society's values, although he considered the CSR as voluntary. Extrinsic and reputational reasons were frequently the triggers for corporations to begin engaging in CSR, but leading businesses today are equally driven by intrinsic and strategic reasons (Tulder, 2018).

As CSR is voluntary, businessmen and mega corporates may not take a stand on important social issues if they are not interested or forced by a regulator. The definition of CSR and its conception had evolved and altered into different versions along the following decades after WWII up to today as a result of societal and economical changes and historical events (Latapí Agudelo et al., 2019). In an interview, where the council of 170 ship operators' counsel representative was quoted, he appeared to be admitting that regulations are required in the shipping industry and that CSR has not been sufficient to protect seafarers' living conditions on board ships (Sampson and Ellis, 2015).

In a capitalist world, the main driver for businessmen and mega corporations is to make profits and seek growth to increase market share, therefore economists needed to establish new business models that effectively tackle modern world societal issues and continue making profits for businesses, by making societal issues as core objectives that can generate or increase business profits directly and indirectly, or induce significant cost savings while actively resolving these societal issues.

One of the latest concepts is the Shared Value Creation (SVC) as defined by Professors Michael Porter of Harvard Business School and Mark Kramer of

Amsterdam UMC in their article at Harvard Business Review (Porter and Kramer, 2011). This new philosophy of business that emerged focused on creating value for all stakeholders, not just the shareholders; with the stakeholders being the employees, customers, suppliers, partners, and the community. They have argued that businesses have been too focused on maximizing shareholder value, to the detriment of other stakeholders such as employees, customers, and society at large. They also have described the business environment as having three distinct value chains: a product or service value chain i.e. the traditional way of thinking about value creation in business, a financial value chain i.e. the way investors and analysts think about value creation, and an impact value chain, where, shared value companies are those that intentionally seek to create value for all three of these value chains whilst taking into account its multiplier effects (Porter and Kramer, 2011). They have provided examples of actual professional environments that had successful positive impacts as proof of concept such as IBM, Google, Intel, Nestlé, Johnson & Johnson, Wal-Mart, and Unilever (Ghasemi et al., 2014; Smith, 2016; Spitzack and Chapman, 2012). Additionally, this new philosophy had different stakeholders within its ecosystem which included governments and non-government organizations alike (Kramer and Pfitzer, 2016).

In line with Captain Deepak (2021), after World War I, the "treaty of Versailles" by the United Nations led to the creation of the International Labour Organization (ILO) in 1919, with 39 conventions, 29 recommendations, and one protocol relating to mariners have been adopted since 1920. The majority of these are legal documents combined into one convention by the Maritime Labour Convention of 2006. These comprised laws governing basic rights, labour laws, employment conditions, and social security status (Deepak Mantoju, 2021).

Ever since its inception, organizations and regulatory bodies such as the International Labour Organization (ILO) and the International Maritime Organization (IMO) have been working to resolve many issues for the maritime society from the perspective of legislation, but these organizations are unable to do so without the major support from shipping companies and shipowners. For

example, a recent study on the retention of junior Chinese seafarers is due to the lack of shared value creation which led to many Chinese seafarers feeling their companies are only driven by profit margins without regards to their safety and welfare, leading some of them to leave for other companies which were driven by safety standards and welfare of their crews (Wu et al., 2021). Hence, indicating that some shipping companies are looking for ways to create shared value for all stakeholders including the seafarers, but many other companies are doing the bare minimum in order to cut costs and induce more profits. The study also hinted from seafarers' perspective that this condition varies from country to country globally, which might be linked to each society's values, as well as its corporates' cultures.

According to Bloor et al. (2013), shipping industry can be seen as an example of some of the issues that arise as a result of the legislative gaps generated in globalized regimes characterized by decentralized governance, making it particularly relevant with respect to the practice of CSR (Bloor et al., 2013). However, it has already been established that the need for effective CSR is most evident in environments where regulation is inefficient or non-existent (Sampson and Ellis, 2015). Due to insufficient international support, flag states have disregarded several ILO guidelines, and other regulatory attempts to control standards thru conventions have completely failed, consequently, the adoption of the Maritime Labour Convention in 2006 (MLC 2006) in this context has been considered a regulatory success (McConnell, 2011; Sampson and Ellis, 2015; Zhang and Phillips, 2016). Finally, a study suggested that shipping companies in South Africa, the USA, the UK, and Denmark are only semi-mature when it comes to CSR maturity, because it has only reached the level of CSR reporting and has not yet offered any definitions of sustainability or particularly strong evidence of transparency and accountability (Lauesen, 2016).

4.1 Compliance to Maritime Labour Convention 2006 (MLC)

the shipping industry has been facing a number of challenges in recent years, including declining revenues, increasing regulations, poor seafarers' living conditions on board, and other environmental pressures. In order to address these challenges, the shipping industry had to create shared value for all its stakeholders, including the seafarers. The ILO is taking steps in this direction to support the shipping industry in creating shared value, which is being done through a number of initiatives, including enhancements of ILO's MLC 2006.

The MLC 2006 set the basic standards for the welfare of seafarers as mandatory ("Maritime Labour Convention, 2006, as amended," 2020). As per MLC's Article I, the Convention commits to fully implementing its provisions in the manner outlined in Article VI in order to guarantee every seafarer's right to a respectable job, where Article VI sets standards and codes that makes it mandatory on all ratifying countries. These standards and codes include maximum working hours and mandatory rest hours to avoid physical fatigue for seafarers, provisions relating to mental fatigue and addressing mental occupational health impacts, maximum continuous service contracts for seafarers' to avoid long term fatigue, provisions related to noise and vibration exposure, seafarers' cabins and their sleeping areas to have specific technical aspects to avoid sleeping disorders, provisions to provide recreational facilities for the seafarers' use, communications means like internet access on board for the seafarers to contact their family and friends, shore-based welfare facilities for seafarers' use during port stays, the rights for seafarers to have shore leave, and the rights for seafarers to return to shore or home in case of emergency, including, budgeting and financing mechanisms to support these requirements.

With regards to the working hours, the developed legislative framework of MLC attempts to prevent excess physical and mental fatigue among seafarers and to enhance the productivity of work onboard. Nevertheless, according to a previous study, seafarers' right to rest is routinely violated due to other factors like decreased crew numbers, quicker vessel turnarounds with shorter

reduced port stays, increased administrative duties, and unscheduled inspections (Jepsen et al., 2015). It is argued because the necessary requirements' compliance is only documented on paper which is kept for audits, is largely done to confirm the ships' profitability. It also argued in historical MLC seminars and workshops that significant challenges for certain nations, especially those with less developed economies, is their inability to fulfil the legal drafting duties necessary to implement the MLC, 2006 (McConnell, 2011).

There are many researches in literature that are critical of the current status of the MLC. As an illustration, the results of a study in 2017, demonstrated that, despite almost 200 years of legislative identification of the unique vulnerability of seafarers, they are still at danger since victimization, abuse, and mistreatment are tolerated (Carey, 2017). Furthermore, one study called for the development of the relatively weak requirements currently demanded by existing regulations of the MLC, which, should be a top priority for the international community in order to guarantee higher levels of seafarers' welfare globally (Sampson and Ellis, 2015). Likewise, as per a different study conducted to analyse the impact of MLC, the author, who was a seafarer himself, stated that regardless of how excellent the convention is, if the implementation is not done correctly, the reputation of the convention will quickly deteriorate (Deepak Mantoju, 2021).

4.2 Motivation Theory

Corporate social responsibility (CSR), as previously stated, appears to be a challenge in and of itself in the shipping sector for some shipping companies, which may perhaps be related to corporations' and businesses' motivations to address seafarers' welfare, other than the occasional in compliance with the bare minimum and basic of regulations that have taken almost two centuries to develop in order to articulate the basic human rights of seafarers aboard.

Ineffective CSR and in compliance to MLC regulations give the impression that the shipping industry still has a long way to go to take its social responsibilities for the welfare of seafarers. Such issues are not sustainable for businesses.

Tulder defined CSR in the international environment and outlined the fundamental challenges for these enterprises to apply it beyond the regulations. These challenges are summarized as a result of the international environment's various legal systems, volatility of the markets, and the governance gap (Tulder, 2018). According to him, this governance gap replaces the laws by norms, morals, and voluntary activities, and when it comes to sustainability of businesses, international governance gaps give these businesses the freedom to adopt more stringent sustainability initiatives but also less stringent ones. Thus, in order to get it right, an alternative and a holistic approach is to begin with investigating international businesses' motivation towards their sustainability and adopting it as a business model (Tulder, 2018).

He claims that company size is a major factor in determining the success of its initiatives, and that there are two types of motivation that can be either positive or negative. The positive motivation 'i.e. intrinsic' would be as voluntary inspiration from morals, while the negative motivation 'i.e. extrinsic' would be to promote or protect the company's reputation. He believes that if both motivational categories are handled separately without a mix or a combination of both as a trade-off, the results will be insufficient. For the negative motivations, numerous problems with international responsibility were the direct outcome of a crisis, a scandal in public affairs, or the force of oppositional social movements, where, in most of these situations, businesses essentially complied with local legal requirements, but with a significant amount of moral outrage and protest globally demanding that the law is insufficient and that the mega international companies are ought to have additional actions (Tulder, 2018). As for the positive motivation, he asserts that businessmen frequently use their moral drive as justification for their sustainability plan. But it can be

difficult to combine "strong morals" with regular commercial operations. For businesses that are serious about implementing it, moral leadership solely has substantial operational consequences.

A deeper comprehension of factors far greater than the intrinsic moral considerations is also necessary to advance International Corporate Responsibility, especially in a world of volatility, complexity, uncertainty, and ambiguity as a result of political, economic, and technological constant changes, and hence, considerations frequently call for thinking in terms of business rather than morality which emphasize existentiality over morality and strategy above ethics (Tulder, 2018). Thus, Tulder further established that the motives can be primary and secondary, where the primary motives can be extrinsic, intrinsic, or mixed depending on the international company's existing capabilities and willingness, while the secondary motives can be tactical 'i.e. short-term' or strategic 'i.e. long-term' as illustrated in Figure 1.

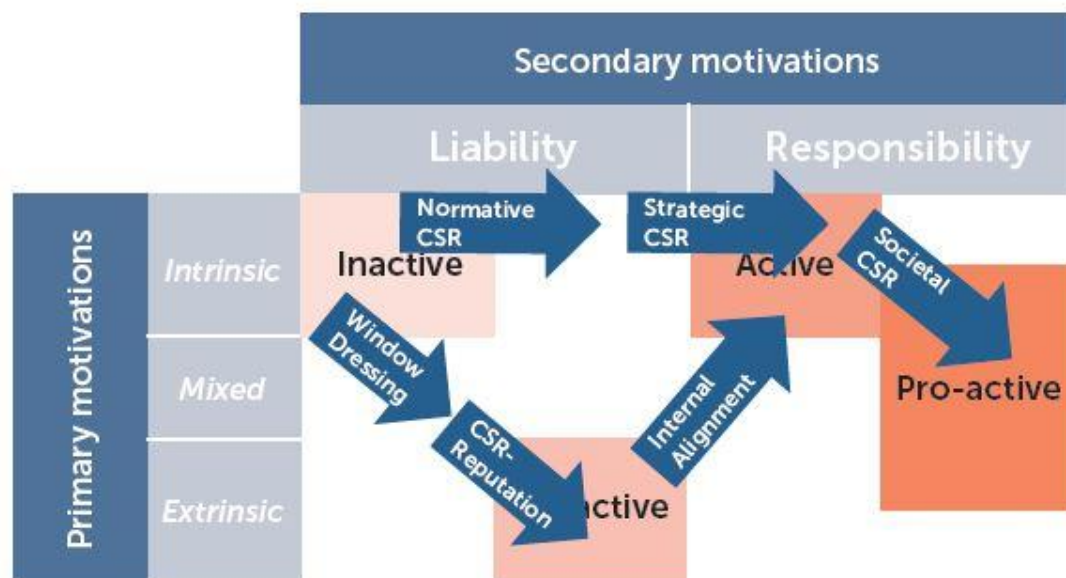


Figure 1: Primary and Secondary Motives (Tulder, 2018)

In relation to the basic circles of sustainability (of which all sustainability issues fall under), behind the motives, he categorizes them according to their types under three urging themes. These categories are Ecological, Societal, and Economical. He also scales sustainability issues based on realism “ground” and aspiration “cloud”, where he is aiming to achieve the realistic solutions according to the business models he proposes in his book. His approach is comparable to Shared Value Creation concept, but with a trade-offs system and a more international focus highlighting the unique challenges for international businesses specifically due to the governance gaps.

Depending on motivation dynamics and its trade-offs between what ‘can be done’ in terms of financial and commercial viability and ‘what is the intent’ in terms of social norms and societal requirements, a transitionary matrix was created as illustrated in Figure 2. The matrix’s starting point is based on the existing standing points of the international corporate, including its own requirements, restrictions, and difficulties, in relation to each sustainability issue, and what it hopes to accomplish (Tulder, 2018).

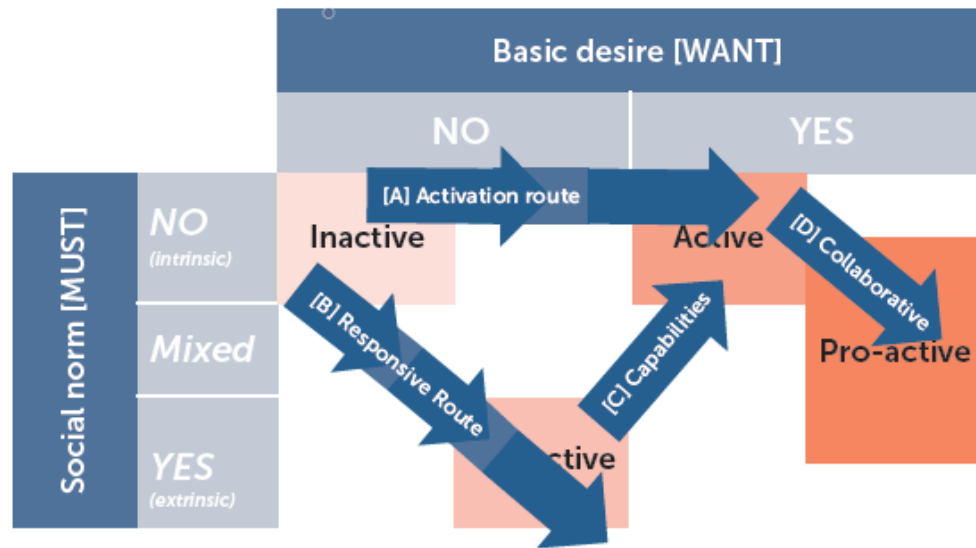


Figure 2: Four Transitions – Dynamic Motivation (Tulder, 2018)

The concepts established by Tulder are relevant since the maritime shipping industry functions in a global setting. He calls for realistic and viable solutions financially and commercially, while addressing intrinsic and extrinsic motives in both short and long terms. The wellbeing of seafarers and improvement of internet access would be the sustainable initiative that shipping corporations would take in the context of the current study to reap profits while at the same time resolving significant social issues associated to seafaring lifestyle on board.

Conceptual Framework

The literature review chapter outlined the current state of internet access on board as well as its likely future developments in light of recent technological advancements, the welfare of seafarers in terms of physical and mental exhaustion, social isolation on board, recent and future recruits of seafarers from the generations who have grown up with extensive digital connectivity and are now experiencing difficulties on board with unavailable or slow and limited internet speeds, and the lack of sufficient CSR in the

shipping industry. It was also established in the literature review that the existing approaches must be replaced with new concepts and different paradigms for maritime shipping companies to progress in terms of social responsibility. Moreover, based on the literature review in the preceding chapter, the conceptual framework for the current study is presented in this chapter, which will serve as the foundation for the subsequent chapters' design.

To begin with, it is well-established that seafarers demand high quality internet access on board ships, which was adopted by the regulators, i.e. the International Labour Organization (ILO), and that internet has direct and indirect positive effects on enhancing seafarers' happiness and satisfaction on board. However, the researches do not explain how or why high quality internet access on board would improve seafarers' welfare in terms of the common challenges that they face on board, nor how would it impact the shipping companies given that majority of shipping companies are reactive when it comes to adopting technologies or rarely adopting novel approaches (Jian et al., 2022).

The framework depicted in Figure 3 includes the established facts demonstrated in the literature that high quality internet access with moderate usage is associated with seafarers' happiness i.e. coloured in black in the diagram. It also includes the mediatory variables summed under two main blocks which shows gap in the literature when it comes to internet access on board i.e. how will high quality internet access impact seafarers and the shipping companies. The first mediatory block is about how it will improve seafarers' welfare on board based on the established common challenges in the literature review chapter, and the second mediatory block is related to the interactive impacts on shipping companies' sustainability goals in relation to seafarers' welfare.

Hence, conclusions may be drawn about how can high quality internet improve seafarers welfare on board, and improve progress in shipping companies' CSR while trying to recommend shipping companies into adopting a proactive approach towards improving the seafarers' welfare and benefiting from such approaches in terms of business.

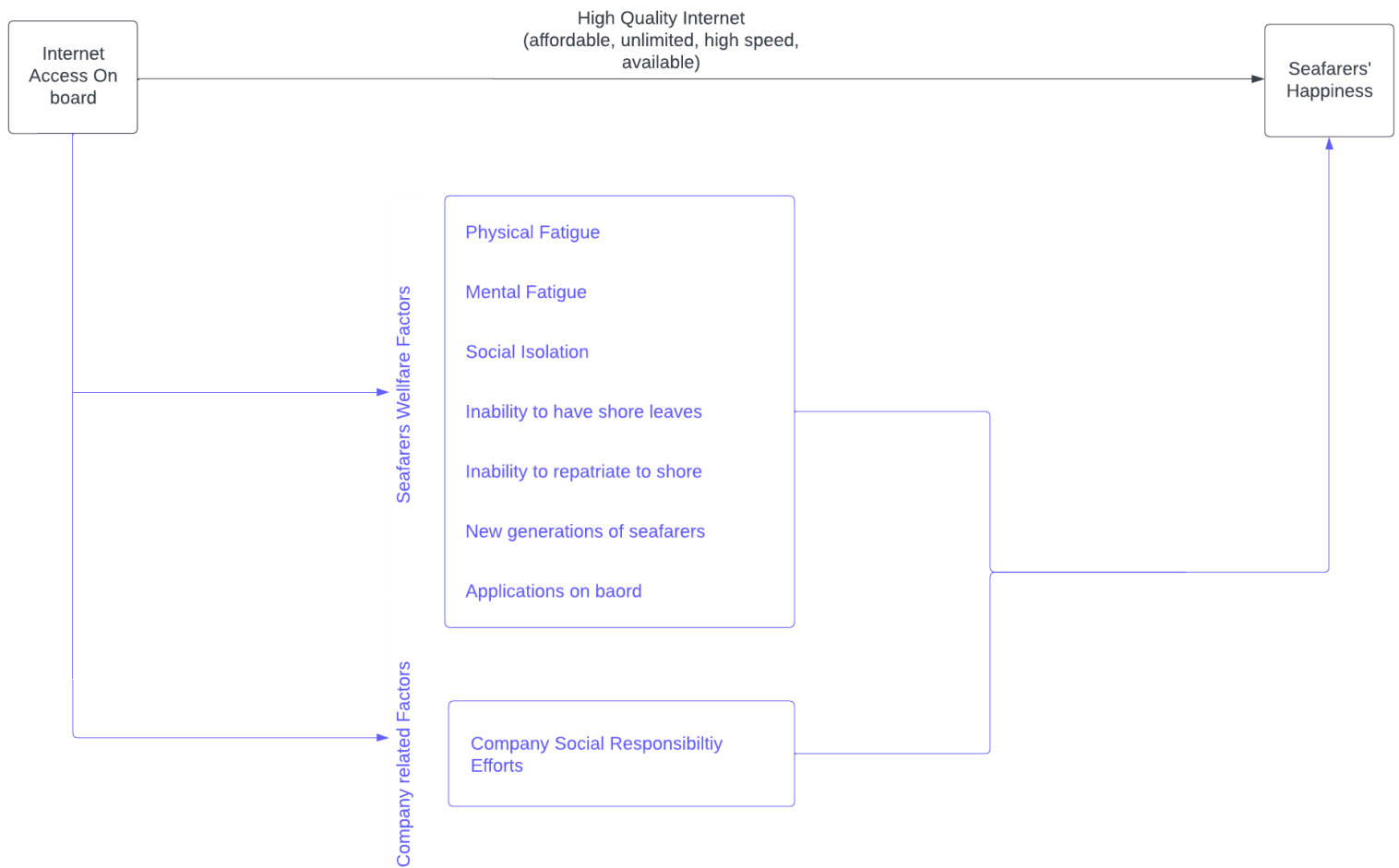


Figure 3: Exploratory Conceptual Framework

Research Method

The research started with a literature review process, understanding the key conclusions about the aspects of seafarers' health, welfare, current internet technologies on board and expected technological progress in the internet service on board ships, and corporate social responsibility in shipping. This chapter demonstrates the research approach taken to answer the research question and its sub questions.

On the basis of this literature review, a questionnaire for interviews was developed. Eighteen interviews have taken place of which seventeen former and present seafarers, as well as an expert in seafarers' welfare working at a seafarers' welfare centre in Europe, were interviewed for two hours each. The interviewees' backgrounds, nationalities, ages, maritime shipping segments, cargo trades, corporate origins, and positions on board were diverse. The diverse backgrounds of the interviewees were chosen to reflect the dynamics that may influence the welfare of seafarers and to present a more complete picture.

In general, the questions focused on the wellbeing of the crew members on board as well as the availability of internet connection on board. The welfare concerns of the seafarers centred on issues such as physical and mental fatigues, their encounters with social isolation, the difficulties faced by the younger generations of seafarers also known as "the digitally connected generation" when it comes to being disconnected from having internet access on their digital devices while on board, the inability of seafarers to take shore leave or repatriate to shore including during the outbreaks of the COVID-19 pandemic, and more. The questions concerning internet connectivity inquired about its quality on board, whether or not it is present at all, how seafarers would use it, and seafarers' thoughts regarding the efforts that shipping companies are making in regard to all of these topics.

The Interview questions were developed to be more exploratory and to steer clear of the personal biases of the researcher while conducting the interviews. This was of utmost importance when it came to the digitally connected generations, which were more of observations resulting from a combination of global trends, shifts in behaviours as a result of firstly the generational changes accompanied by technological advances and secondly a recognized STCW study which forecasts seafarers shortage in the near future that was reaffirmed by executives in the industry as an emerging concern, especially considering that previous studies also forecasted increase demand for seafarers in the future. It is worth mentioning that the retention concern in relation to generational changes is also tackled in other industries on shore (Chillakuri and Mahanandia, 2018).

The responses were then evaluated according to whether the shipping companies are motivated by factors that are intrinsic, extrinsic to their company. Also, investigating different ways in which shipping companies might become more active or proactive rather than reactive, while maintaining a more tactical and strategic frame of mind.

Results

There were eighteen interviewees and the following information is summarized to provides broad and general details about them. Seventeen crew members and one welfare consultant were counted. One of the seventeen seafarers had experience in heavy lifting, one in cruise lines, four seafarers worked in liner shipping, and nine of the interviewees had experience in bulk shipping. The ages of the participants that were interviewed ranged anywhere from 23 to 47 years old, and they represented generations X, Y (often known as millennials), and Z. The interviewees if they did not belong to Generation Z or Alpha themselves, they had prior experience working alongside members of those generations. In this study, the generally connected generations is referring to the late Millennials, Generation Z, and Alpha. The aboard-ship experiences of the seafarer interviewees ranged from one year to twenty-three years. Some of the interviewees have had previous experiences in seafaring, but had already quit seafaring either due to shift of careers or retirement. The interviewees came from a variety of different countries, including the Philippines, India, Egypt, and Norway-the Netherlands, however, the majority of the seafarers were from the Philippines. Employer origins for the interviewed seafarers ranged from Philippines, Greece, Singapore, India, Denmark, Germany, Syria, Lebanon, Turkey, and Canada. Due to the unique nature of each interviewee's personal experiences and statements under in each section of the study, the basic individual backgrounds of the interviewees are needed to be identified first, and they are as follows:

The consultant, Bilenda, worked for a welfare centre in the Netherlands funded by Danish shipping companies. She is familiar with seafaring considering one of her parents was also a seafarer himself.

Daniel, a 28 years old millennial seafarer from Philippines, worked as an apprentice officer on board a 240 meters long ice class crude oil tanker with company origin based in Greece. About his experience, he had 6 years of experience as a seafarer with an average of 9 months contract annually, an average of 14 days per voyage being offshore, and an average 2 port stops of about 19 hours each. His typical shipping routes were Europe-Asia, Africa-Europe, Europe-Asia, sometime Middle East specifically to and from Iraq. He had 12 hours shift while being offshore, and 6 hours shift while at ports. His crews were on average 24 in total 8 of them being in the engine department and the rest in the deck department. When asked whether his shipping company considers safety or business efficiency, he answered that he believes that his shipping company is advocating for seafarers' safety as he stated, "the safety of the people cargo and the overall health of the vessel is always priority" and "business operation can be delayed if something happened".

Presant, a 45 years old Generation X seafarer from India, worked his way across the ranks on board crude oil tankers and LPG tankers carrying Ethylene, Propane, and Butane with company origin based in Singapore. About his experience, started as a cadet until he became a master mariner, he worked 23 years on board ships where spent his last two years as a master mariner, then shifted to on shore career in inspection and auditing roles. His average contracts' duration as a master were 3 months, while as an officer 6 months, with the voyage duration of 14 days on average, working 10 hours while being offshore and 12 hours at ports. When asked whether his shipping company considers safety or business efficiency, he answered "companies are taking interest for their working culture, they need to improve the safety standards and improve the working environment" indicating that the companies are focusing on safety but still there is a need to improve.

Jade, a 23-year-old Generation Z seafarer from Philippines, worked as a cadet on board tankers and bulk carrier. He had 3 years of experience as a seafarer, with an average contract duration of 6 month, average voyage duration of 25 days, 10 hours offshore shift and 6 hours shift at ports. During COVID-19 he was not on board.

Aragon, a 28 years old millennial seafarer from Philippines, worked as an able seaman on board Handymax bulk carriers carrying sugar, steel coils, and rice, for 5 years with an average contract duration of 9 months and a variable voyage duration between 5 to 14 days as his shipping company had tramping business model i.e. it would seek any available charter on spot. His offshore shifts were 10 hours, and 6 hours at ports.

Hidoe, a 29 years old millennial seafarer from Philippines, started as a cadet until he was promoted as an able seaman on board small 124 meter long chemical tankers. He had a total experience of 5 years as a seafarer with an average contracts duration of 9 months, an average voyage duration of 19 days, an extreme number of about 25 ports stops due to tramp shipping business model with an average port stay of 24 hours each. His typical shipping routes were regional in Asian ports like South Korea, Japan, China, and Malaysia. About his working hours, he stated “we had a policy that stated you cannot work 14 hours in two consecutive days, but in reality we are working 10 hours daily, and sometimes 12 hours a day or more” indicating that his previous shipping company was not compliant with the MLC rules about the rest hours. His shift at ports was 6 hours. In his experience, he had 24 crew members on average on board. He quit seafaring at the age of 25, to seek a bachelor’s degree and a career in Law. When asked whether his company focuses on safety or business efficiency, he answered “safety, considering it is a chemical company which has high safety standards.”

Sunny, a 30 years old millennial seafarer from Philippines. He worked as a cadet on board 190 meters bulk carrier carrying bulk cargos and wood logs. He also worked on LPG vessels. He had 7 years of experience as a seafarer. He quit seafaring recently in mid-2022. His average contracts durations were 7 months, average voyage duration of 22 days with 7 port stops. His typical shipping routes were between Canada, New Zealand, and China. When asked whether he thinks his company cared about safety or business efficiency, his general answer was “safety, especially due to COVID19 and considering my contracts were specifying that I am not able to go to shore due to safety.”

Gideon, a 30 years old millennial seafarer from Philippines, started as a deck cadet and moved up the ranks until he became a second officer. He worked for various shipping

companies in bulk shipping, liner shipping, and heavy lifts shipping. He had 9 years of experience as a seafarer. His latest contracts in heavy lifts had an average voyage duration of 27 days, where his shipping routes were between Europe and the Middle East. He did not have shift hours in his contract, but it included lump sum working hours without limits clauses. He mentioned that he had limited number of officers with him on board. When asked whether he thinks his company cared about safety or business efficiency, his answer was company efficiency rather than safety.

Chester, a 35 years old millennial seafarer from Philippines, he had 13 years of seafaring experience of which 8 years were as a third officer on board ships. His shipping company originates in India, where it specializes in bulk shipping carrying corn, grains, and sugar. His typical routes were from sources of the cargo like Ukraine, the USA, and Australia to demand countries like China. His average contracts durations were 9 months, with an average voyage duration of 21 days with 2 port stops. When asked about his shift hours, he stated “we do not have overtime, our contract is only shifts, hence, if I do not finish certain tasks I have to finish it in my rest hours without payment, with similar contractual terms when I was a cadet”, but his port shifts were fixed at 6 hours. When asked whether his company focuses on safety or business efficiency, he answered “safety more than business efficiency, but both in general.”

Francis, a 24 years old Generation Z seafarer from Philippines, he had worked as a cadet for a total of 1 year on board containerships ships but had to quit seafaring due to a family tragedy. His contracts durations were 6 months each. His company originates in Denmark. His typical shipping routes were between Asia, Europe, North America, South America, and Africa. His average voyage duration was 21 days for international voyages and 1 day for domestic voyages, specifically in the USA. His offshore shifts were 12 hours consisting 8 hours day shift, and 4 hours evening shift. Whereas his port shifts were 6 hours. He believes that his company focuses on seafarers safety as he mentioned “crew safety is the priority, every week we have drills and meetings about safety.”

Jose, a 28 years old millennial seafarer from Philippines worked as able seaman on board bulk carriers carrying grain, coal, and iron ore. His shipping company originate in

Germany. He had 7 years of seafaring experience, with an average contract duration of 9 months, an average voyage duration of 17 days with 2 port stops. His typical shipping routes were between South America to Central America, North America and Turkey. His shift was 9 hours offshore and 6 hours at ports. When asked whether he thinks his company focuses on safety or business efficiency, he answered that his company focuses on safety, but had conservative comments on its recreational facilities specifying the internet access.

Hanei, a 28 years old millennial seafarer from Philippines worked as a third officer apprentice on board Handymax and Panamax bulk carriers carrying coal, coils, and steel products. He had 8 years of seafaring experience with an average contract duration of 10 months. His average voyage durations were 19 days with 4 port stops. His shipping routes varied between regional i.e. within South America, and international routes i.e. between China, Middle East, and Australia. His shift hours offshore were 8 hours, and at port 12 hours.

Jefferson, a 28 years old millennial seafarer from Philippines worked as an able seaman on board bulk carriers carrying corn, grains, copper, steel beams, and fertilizers. He had a total of 4 years of seafaring experience, which were not continuous, as he tried to balance between his family life and work life considering he had a newborn baby. His average contracts duration were 9 months with an average voyage duration of 30 days. His last contract had 5 ports stops, but before it, he mentioned he usually had only one port stop. His typical shipping routes were South America to Asia and Middle East to Central America. His shifts were 8 hours offshore, and 6 hours at ports. He went on board the same ship for all his years of experience, and his number of crew members declined from 21 when he was a cadet to 19 in his most recent position as an able seaman. He believes that his company focuses on safety.

Mahmoud, a 28 years old millennial seafarer from Egypt, started as cadet and moved up the ranks until he was promoted to a second officer. He worked for various bulk shipping companies originating in Egypt-Syria, Lebanon, and Greece. His experience was in small 6000DWT bulk carriers, carrying cement component. He had 4 years of experience in

seafaring which had the most extreme working conditions. His average contracts duration were 12 months, as he justified "because I was studying Computer Science on board via an online University, I worked 12 months to pay my university tuition fees". His typical shipping routes were between Europe and the Middle East i.e. the Red Sea, Black Sea and Mediterranean sea. When asked about his shift hours, he stated, "on paper it is 8 hours, but in practice it is 12 hours with 4 hours unpaid" and at ports he had 6 hours shift. The number of his crew members were 20 on average. According to his personal experiences, he believed that shipping companies neither focused on safety nor business efficiency.

Jeannu, a 26 years old millennial seafarer from Philippines, worked as cadet previously and his latest position is an ordinary seaman. He had 4 years of seafaring experience, with two years in tramping bulk shipping and the other two in liner shipping. He had an average contracts duration of 10 months, with an average voyage duration of 23 days He had on 2 port stops on average, each port stops lasts around 23 hours. His typical shipping routes were between China, USA, and Australia. His offshore and port shifts were 6 hours.

Roedi, a retired 47 years old Generation X seafarer from Philippines, started his seafaring career as a cadet in 1998 until his retirement in 2019, when he retired at the age of 42. His experience was mostly in Panamax and Cape Size bulk carriers carrying iron ore and coal. His average contracts durations were 12 months. His typical shipping routes were between Brazil and China which had an average voyage duration of 30 days with 1 port stop of about 72 hours. When asked about his working shift hours, he stated "Before MLC 2006, we used to work 12 hours a day for 7 days a week, including half a day on Sundays, and during the half when we had rest time, we used to fulfil our weekly needs like doing our laundry. We used to have a saying the 'Monday-Sunday' referring to the Sunday as continuing the same duties as Monday of the following week. Then, when MLC came into effect, things started to ease a little bit, but only in some of the companies that enforced it, as still there are some companies that did not, and seafarers would have to threaten the companies by approaching the International Transport Workers' Federation (ITF) to meet their rights." he is indicating the changes that occurred after the MLC 2006

regulations were established which changed his shift hours to 8 hours offshore and 6 hours at ports, and that shipping companies are extrinsically motivated. The number of his crew members were 18 on average.

Jay, a 31 years old millennial seafarer from Philippines, worked as an oiler on board a 13000 TEU containerships. He started as a trainee and had 10 years of seafaring experience. His average contracts durations were 9 months with an average voyage duration of 14 days and 7 port stops. Each port stop is around 24 hours. His typical shipping routes were between Asia and North America i.e. China, Japan, Singapore, and the USA. His company originated in Canada and the number of his crew were 25 on average.

Arthur, a 35 years old millennial seafarer from Philippines, worked as a storekeeper on board some of the largest cruise ships in the sector. He had 9 years of experience as a non-marine seafarer. His average contracts duration were 10 months, and had an average voyage duration of 7 days with 5 port stops. His shift hours offshore and on ports were 11.5 hours, but sometimes at ports during loading of provisions, which was once a week he would work for around 16 hours. Considering he worked on board cruise ships, his average crew number was 1200 personnel. His cruise line company originated in Germany.

Physical Fatigue Experiences

When asked about physical fatigue whether they experienced it or not, almost all seafarers' responses were confirming that they have encountered physical fatigue on board, except for Presant who mentioned that he did not experience physical fatigue but more of the mental fatigue as he stated "we expect it based on the contract terms and conditions. I have not actually experienced physical fatigue, since you as a crew member, you might not complain because you know it is in your contract and you should be able to work". The seafarers who had experienced physical fatigue have responded with the following, Sunny mentioned "that is common", Gideon stated "in every contract, fatigue is

normal for Seafarers, especially at ports where we lack rest time" indicating commercial pressure by the shipowners to reduce the port time in order to reduce port charges. Chester reported "we know our limits once we feel fatigued. As a third officer, it is more on mental fatigue rather than physical fatigue. Whereas for the ratings, it is more on physical fatigue rather than mental fatigue." Hanei also confirmed Chester's statement "as a rating for the past 8 years, I get on board physically thin and would leave the ship muscular". Arthur, who is working on board cruise ships stated, "we experience physical fatigue most of the time."

When asked to explain their physical fatigue experiences, Daniel stated "sometimes the schedules of the vessels at port is expedited, so the previous vessel finishes earlier than schedule, then our vessel enters earlier. This causes physical fatigue for us, as sometimes we enter the port during our rest time after our shifts is already finished i.e. during our sleeping times, which also causes sleep difficulties. This is an issue most officers face, especially in high traffic ports." He also added, "some of our voyages are between Europe to Africa, and sometimes Iraq, which causes weather changes from colder to hotter areas; our bodies have to adjust to the weather condition, which adds to our physical fatigue sometimes. For example, we had one seafarer who had a mild heat stroke in September in Iraq." He also, mentioned "after 4 to 5 months on board, I notice the physical stress. With the scattered sleeping schedule, I notice my body starts to feel heavy". Daniel also attributed the physical fatigue due to shortage of crew members, sleeping disorders, changes in shift hours as he stated, "we have 4 to 5 hours of sleep, then work for 4 hours, with 2 hours of breaks, then sleep for another 4 to 5 hours", ship motion if the bad weather persists as he mentioned "I feel seasick by the 4th day. Although, It depends from different person to another person. Pills do not work for some seafarers," and physically demanding nature of the job especially at ports.

Jade reported "there will be times that you will not have sick leave. Like if you are sick, you have to work because it's your duty hour". He also added, " long working hours is such a hassle, because if an emergency occurred, and you have been already working on your original shift then try to rest, and then this emergency occurred or provisions like that, you have to do it and you cannot say no. So you need to push your body through to

your limits", "mainly long hours at ports for us cadet", and "seafarers prefer long voyages, because we would be more relaxed with less work especially for the officers, but as for the engineers they would have more work only if an emergency occurs". Jade attributed physical fatigue to various reasons "with regards to the rest hours, we have a guideline, but sometimes it's not being implemented because of the job nature and some emergencies". He also added another reason "with regards to safe manning, I believe that there should be more crews on board for emergencies" indicating that he feels the minimum safe manning is contributing to physical fatigue, as it does not cater for standby personnel on board especially in emergency failures on board "if an emergency occurs, for example if you are familiar with a freshwater generator, it generates water from sea. So it is like we have this part called 'the three way valve', in which, it will redirect the flow back to the and then what happens here is that we don't have these spare parts. So if the alarm comes, we redirect it manually. So you would get a lot an alarm at midnight, you need to go down and do your work manually. I have had it like for three nights, go down at the middle of the night because of that alarm". Also about the nature of the physically demanding job "you need to work at the very high temperatures sometimes, if you are in the engine department" and "one time my captain was storing the drinking water gallons in a full room which was the pilot/security guards' room. So when there is a pilot on board, I would have to relocate them but I was unable to seek support as I was the lowest rank on board." Jade mentioned that he would encounter such physical fatigue experiences by sleeping more. Also, he mentioned that his company is strict about the rest hours in a positive way which helps him counter his physical fatigue.

Aragon also had similar statement to Presant about the physical fatigue i.e. he encountered physical fatigue but the mental fatigue had a higher impact on him. His physical fatigue experience was mainly due to shortage of crew members, long working hours, and ship motion. As he stated, "sometimes at ports, even when it is my off duty time, I am tasked to be on duty".

Hidoe's physical fatigue experience "we had an emergency and we were awake for more than 24 hours, to the point that just being awake for five minutes was very difficult, and after that emergency my next duty shift was already started again so I did not sleep. So

in my next shift, I felt like I needed to really close my eyes. The officers would allow us a couple of hours to rest, being considerate about the situation, and considering our company is transporting chemicals safety was mandatory". He attributed the reasons for physical fatigue to long working hours as he stated "especially sometimes additional hours are not captured or paid for", shortage of crew members, sleeping disorder during emergencies, ship motion "only on the first contract and during stormy weathers, especially considering our vessel is a small chemical tanker, and tank cleaning tasks can cause high physical fatigue during stormy weather" indicating the smaller the vessel the higher chances to have seasickness and higher ship motion increases the physical fatigue especially if the task was physically demanding in the first place. He also mentioned the physical demand nature of the job stating "as we have daily, weekly, monthly, and half annual maintenances, along with other different tasks. We have to ensure that our equipment are ready in case of emergency", and "chemical tank cleaning is physically taxing because we would be working for 12 hours straight every day". Hidoe's physically demanding position was a result of the regional nature of his shipping routes in Asia and the high number of port stops.

Sunny mentioned his unique experience with wooden log cargo "especially if you work in a log ship like ours, it is very tiring." His reasons for his physical fatigue experiences were due to physical demand nature of the job as he stated, "my ship had more heavier log lashing equipment than other ships." He also added another reason which is due to ship motion during stormy weathers.

Gideon reported his physical fatigue was related to the segment he was working in as he stated "container shipping can be stressful, in comparison to bulk shipping. Also heavy lifts is less stressful, as we stay on board 4 to 5 days during loading and 15 days of voyage or sometimes 30 to 40 days of voyage, so we have a lot of rest in comparison to container shipping and bulk shipping". He attributed his physical fatigue experiences to various reasons such as the long working hours as he stated "especially for officers we have lump-sum working hours. So there is no limit for our work time. As long as there is an ongoing demand for work, we need to work." He also added reduced port stays and shortage of crew members as he mentioned "especially at ports, with many duties, the

officers are limited and our company's shore staff would demand we work 24 hours of continuous work, and sometimes these port stays extend up to a week, so physical fatigue is really normal for us seafarers" indicating his companies based on his experience are pushing the seafarers beyond their limits especially at ports to reduce port charges, also the physically demanding nature of his job especially at ports. He also added the sleeping difficulties as he mentioned "it is a challenge because you know, the time zones really affects our body, in every different country we proceed with different time zones. So our bodies' biological clock adjust". One last reason for Gideon was noise and vibration on board, as he reported "I have an experience with a vessel which had strong vibration. it was in the bulk shipping company and I think it was because of the design of the ship, maybe because the shipowner had cheap arrangements for the ship's design. So the insulation for vibration was quite poor and the vibration was quite strong, especially when you are on the higher deck levels. Sometimes, when you are already in deep sleep, but the vibration is quite strong, you would eventually wake up and it would disturb your sleep".

Chester reported "physical fatigue is mainly due to lack of sleep, as a third officer, because of shifts changes." He also mentioned other reasons like shortage of crew members, sleeping disorder especially during emergencies, lack of sleep and short amount of sleeping time, and the physically demanding nature of his job.

Francis stated his experience related to the ports his ships had visited "especially in Chinese Ports, where we go of the coasts of China with multiple port stops every day," and he attributed his physical fatigue due to many ports stops and long working hours specifically at ports. He also stated a reason related to certain ports having poor quality of service "sometimes it is because some ports in South Africa have poor service quality when they are securing the cargo on board that we have to rework it".

Jose reported his experience "it is mostly due to long working hours and frequent shift changes, as we do not have a fixed time to rest. Specifically, when we arrive at ports, the shift changes from offshore shift hours into port shift hours." He also attributed his physical

fatigue reasons to sleeping difficulties and ship motion “when the weather is extreme, we get seasickness. We can barely sleep and eat.”

Hanei pointed out that the frequency of his tank cleaning due to the route being regional “my voyages are mostly regional in South America, so we would have many port stops, and as a result, the tank cleaning frequency is high.” He also mentioned shortage of crew members “especially in ports. Considering our working hours should be 8 hours, but due to shortage of crew members, we would have to work for 12 hours”. When discussing sleeping difficulties, he stated “although I do not face it much, but one of my co-seafarers have this issue. Also, when I am assisting my second officers during his watch. So I would have to adjust my sleeping patterns accordingly, the shift changes plays a big role in my physical fatigue.” He further attributed his physical fatigue to ship motion “during stormy weathers, I can handle it but for other seafarers, some of them cannot,” and the nature of the job being physically demanding “I would enter the ship physically thin, then after the contract I would be muscular” indicating that his job would have an impact on his physical shape.

Jefferson shared one of his most extreme physical fatigue experiences as he reported “when we were in route to Australia and the charterer requested that the cargo hold has to be painted before arrival, I endured extreme physical stress, we did it manually, as we had no machine. We had only two weeks to paint the entire cargo holds. In addition, the seas in Australia were quite strong, and we were painting the cargo holds with the hatch covers being closed, preventing adequate ventilation. We worked constantly for 19 hours every day from 7AM to 2AM and some days went up to 4AM.” Indicating the combination of physically demanding job with the extreme weather conditions has an impact on the physical fatigue. When he was asked what the reasons were, he mentioned “the captain was workaholic, he was very young, and just demanded we finish the job by any means. Although he was kind and would care about the safety of his crew, he was under pressure by the charterer”. He also reported other reasons like shortage of crew members which was an issue that had increased over time, and sleeping difficulties due to personal relationship issues at home.

Mahmoud reported “we practically work for 12 hours a day against the official papers which states 8 hours” and “there is this one month we worked continuously, and we only had 2 hours to sleep. We kept on working due to engine emergency many failures as the ship was 44 years old”. He also added other reasons like shortage of crew members, sleeping difficulties, ship motion “quite often, we have new cadets who experience seasickness which causes significant physical fatigue for them”, and the nature of his duties “as a second officer it was not physically demanding, but when I was a third officer, it was; as I was in charge on the safety of the equipment on board.”

Jeannu highlighted his physical fatigue due to shortage of crew members specifically. He also added the sleeping difficulties due to shift changes, noise at ports in containerships terminals “being in containership, the noise of the container handling at port is usually making high noises that somehow increases my physical fatigue.” When asked whether the nature of his job was physically demanding, he answered “especially in my container shipping experience. As for the bulk shipping, it was not that much, considering we were given enough time to clean the cargo tanks. Except occasionally when the voyage duration was very short. For example, we usually clean the cargo tank in 5 days, but once, we had a 3 day voyage. We were working after midnight, exceeding the normal working hours.”

Roedi reported “sometimes you feel tired after a couple of months on board already.” When asked about the reasons, he mentioned “long working hours, especially if you have a strict chief officer or chief engineer on board” indicating that the personality of the seniors ranks on board can have an impact on the physical fatigue. He also added the ship motion “I like being on 9-cargo-hatches vessels, as the bigger vessels have less ship motion in rough seas, but in small vessel it was very difficult that I could not sleep, especially in the Bay of Biscay and the English Channel in Europe, even though weather was not rough” indicating that ship motion increases on board smaller vessels. Another reason he mentioned is related to the cargo type and cargo changes in bulk shipping as he mentioned “sometimes, when the cargo is cement related, the tank cleaning process would be difficult, but considering most of our cargo were iron ore and coal, the tanks were easy to clean. Also, the change of cargo makes a difference, for example, once we

unloaded cement, then the following cargo loading was grains, it was the most difficult that I have experienced and it was stressful.” He also reported some of his physically demanding tasks in the past “especially for ratings, it is difficult. As a third officer, we have to carry equipment inspections everyday like the firefighting equipment. It is physically demanding because we have to carry them sometimes”

Jay highlighted that he is used to experience physical fatigue "especially if there is a lack of rest during the nights". He attributed it to other reasons like shortage of crew members, long working hours, sleeping disorders due to emergency repairs during rest times, and sleeping difficulties due to ship motion in extreme weathers particularly for new seafarers. He further added "by experience, I got used to it. Although, at first I did not know how to do the job as it will give you physical fatigue, stress and at the same time, your officer would be shouting at you as they expect you to know your duties. After gaining experience, you would know when to expect the job to be physically demanding and you would rest in advance. Also, when the officers are shouting at you, your physical awareness would be lowered down i.e. due to morale and thinking about the job or the stress of it, you may forget about your physical condition" indicating that due experience he was able to reduce his physical fatigue by resting in advance.

Although Arthur had 1200 crew members on board with him on the cruise ship, he mentioned sometimes they have shortages due to various shifts and various roles "as a seafarer on board a cruise ship, it's really challenging for us because most of the time we are always scheduled for loading based on the voyage schedule, considering 5 stops on average per week i.e. loading passengers luggage, consumable items, and beverage provisions, where we usually load 20 truck loaded with 34 pallets in each truck. And if the ship was newly constructed as to my last ship, we worked in the final phase to install passengers and crews' equipment before the ship's final delivery". He also mentioned the nature of his job is physically demanding "it includes heavy lifting, multitasking, quick responses as per schedule to various departments on board the cruise ship. For example, we need to frequently shift frozen meats of about 22kg into the trolley, if the load was higher, we put it in pallets as some boxes would weigh 50kg" and "working a chiller or

freezer store on board a cruise ship in negative 16 degrees Celsius for a whole day also causes physical fatigue".

Mental Fatigue Experiences

When asked about mental fatigue of the seafarers and their concerns, all the seafarers and the consultant had reported that they encountered mental fatigue themselves or have had fellow seafarer who had mental fatigue issues. The consultant, Belinda, stated that "many seafarers reported during COVID-19 lockdown, seafarers were trapped, which affected their mental welfare" suggesting that the pandemic had a significant impact on seafarers being unable to take their shore leaves as per the MLC 2006 regulations. In addition, she stated, "there are cultural barriers about speaking out, it is usual in the maritime culture for seafarers not being open about expressing their feelings" implying that in the maritime industry, a seafarer's background plays a role in their willingness to communicate and disclose their problems with physical and mental fatigue. Also she mentioned "when it comes to spirituality, the centre is neutral about religion, as we can only refer seafarers if they needed to know about places of spirituality and connect the seafarers with contacts for their spiritual requirements" as some seafarers reported their defence mechanism against mental fatigue is seeking faith. She also mentioned "high quality food and skilful chief cooks on board to cater for various cuisines helps in increasing the seafarers' welfare on board" i.e. some shipping companies with multinational crews would attempt to hire only the best chiefs in order to increase seafarers' welfare. At a certain point in the interview, she was asking the interviewees to use inclusion terms like the word 'seafarers' instead of 'seamen' to include both male and female seafarers which is considered as one of efforts by some of the European shipping companies to promote inclusion and diversity awareness that may eventually reduce mental fatigue for seafarers with certain backgrounds. Further, she reported "services of the welfare centre include seafarers library for magazines and books, which are exchanged between the centre and the ships via agents. Sometimes, especially during COVID-19, even exchanging the books was difficult to do" indicating some seafarers who

were interested in reading may encountered issues to attain books on board during COVID-19. This issue is mentioned due to the fact that MLC 2006 requires recreational facilities including a library, and due to the fact that some of the seafarers mentioning reading as one of their defence mechanisms against mental stress on board. She also mentioned about mental fatigue “some of the issues that seafarers encounter that usually affects their mental health are not being able to attend funerals, wedding, or their child births, etc. Seafarers are not able to be there, so can you imagine a seafarer cannot attend their Parents passing away?!” indicating that certain important events in seafarers’ lives are missed which adds to their mental fatigue. Bilenda mentioned that she would notice the seafarers being physically and mentally fatigued, which is quite often i.e. she can see it on their faces, moods, looking tired, or sometimes being unable to even say 'Hi' due to their mental fatigue. She brought up “when seafarers are mentally stressed out, any issues onboard are resolved onboard which is between seafarers and their companies. However, the centre has a hotline, but seafarers are usually afraid to talk because of fear of losing their jobs which they want to keep.” According to her experience, the larger the ship, the larger and better the ship's recreational facilities are, typically.

Daniel stated that he has rarely experienced significant mental fatigue on a regular basis. He reported that the lack of mental fatigue he experienced on board was due to the positive rapport he shared with the rest of the crew. About his mental fatigue experiences, he mentioned his first contract as a seafarer, his grandmother passed away, which had contributed to his mental fatigue on board at that time. Another time, he reported “right before one of the New Year’s Eve, I boarded a ship in November and a childhood and a good friend of mine since kindergarten had committed suicide. This had added to my mental fatigue significantly while I was on board, causing also sleep difficulties and sadness.” Other smaller factors, such as having too many tasks on board, have also contributed slightly to his mental fatigue, as he elaborated “they are doable jobs, but too many sometimes, which requires more time. And short port time causes higher pressure.” Another small factor he mentioned was lack of deep connections with the other crew members, or finding it difficult for them to relate to some of his problems that he encountered. He explained it further, "we tend to keep it to ourselves, there are moments that we really really like to keep it to ourselves. For example, not everyone in your

workmates, not everyone there can understand your predicaments and your struggles you are facing. You can talk to other seafarers, but you feel like there is always a barrier" i.e. certain forms of emotional support can only be provided by close family members or friends, neither of which are available on board ships. To elaborate further, he also mentioned an issue that one of his colleagues encountered on board "one of my friends on board opened up to an officer and the officer tried to support him but he really did not understand his situation as the officer could not relate to his concerns" i.e. due to the limited number of crews on board ships and the absence of various backgrounds on board as a result of this limitation, mental fatigue may often increase due to such void as he also stated "different cultures, different age gaps, different outlooks on life, but mainly age gap is a barrier for deep connections. Even though we are 24 crew on board, there is always at least someone you can talk and relate to". When asked how he typically combats mental fatigue, he explained "connecting with family online and socializing with other crew members on board", "thru the 180MB per \$20 data bundle, it is one of the ways to cope up with the mental fatigue", "listening to music and I play guitar", "I'd play LAN games with my fellow crew members, if there is no huge age gap on board. But on other vessels I have been onto, I could not because the crew members did not really relate to gaming due to age gap. Although in that case, on weekends we play basketball or have karaoke party," and "I daydream about having a motorcycle on shore, as it is one of my hobbies. I tend to think of it as a reward for myself if I can buy it, after the end of a contract for example." When asked whether he thinks that shipping companies are aware about fatigue in general, he mentioned "I think shipping companies are aware about these issues as you can talk to management or office personnel to address your personal and work issues" indicating that his company is reactive about physical and mental fatigue.

Presant mentioned some of his previous crew members' experiences with mental fatigue after being on board for few months "a crewmember who joined a month ago wants to leave. He claimed he had a family issue. But after investigation, it turns out he was earning more in his previous company. So, he is getting less payment in comparison with his peers in other companies. In my opinion, considering that different nationalities have different wages, he had experienced this as a mental stress" indicating that moving to a lower paying contract would contribute to seafarers' mental fatigue. He also added

another reason that may add to mental fatigue which is related to multinational crews if the crews tended to isolate as groups “So for crew members, you have different nationalities. For example, you have got probably Ukrainian you got Chinese or Indian, Filipino, and you got Burmese; in one ship we had so many crew members, but then you have pools again. And the flux stays the same, you got Burmese they would stay together, you have got Chinese they would stay together, you've got in Ukrainians they would stay together. So invariably you have pools on board and it is difficult to combine them together” indicating this can be a source of miscommunication and social isolation for crew members who do not have other crew members on board whom they can relate to. In Presant’s statement, he also suggested that the same pools of multinational crews can also be a source of defence mechanism against mental fatigue “seeking seafarers that have similar background to you”. He also believed that shipping companies are aware about the physical and mental fatigue, as he stated “they are trying to make the seafarers' open up about their problems. They are trying to increase senior officers' awareness.” He further explained “depending on who you are, assume that you have a personality that falls into a different colour band than mine. If we were to collaborate, I would recognize that you had a particular kind of personality. As a result, I will need to have a specific way of communication with you. Others have distinct personalities, and they would recognize that I am wearing a different colour band of personality; therefore, I require a particular kind of treatment. As a result, companies have resorted to conducting personality assessments and mental evaluations. A lot of things they have taken down already, and one of the things they did was attempt to pair up different personalities on board the ship to have a good working and functioning teams on board” hinting that HR in shipping companies or manning agencies had started to address issues that may occur among seafarers in advance. In addition, in extreme cases when it comes to suicides, he mentioned “the organization offers a free channel through its safety management system for employees to report any incidence that they believe poses a risk to their lives, is offensive, or is otherwise problematic in any way, and the employee can quickly and anonymously report the incident to the office”, and “let's imagine that you are the superintendent for a large corporation such as Anglo Eastern, you've got let's say, 23 daily reports of unpleasantness and unhappiness from seafarers. Now, you have to sort

through all of them to determine which one of them actually has to be pursued, which one is truly significant, and which one has the potential to become a huge issue. The next step is to act against them. In this sense, companies are aware of these circumstances” implying how senior officials in companies sort out the reported concerns on board.

Jade reported his mental fatigue experiences on board due to his senior officers, “I can bear the mental fatigue because I'm not that much of a family oriented person, but you can still feel it when the mental fatigue comes from your work, from your seniors, and all the other seafarers on board.” He indicated other reasons like homesickness, and financial pressure from his family to support them as “I feel homesickness from time to time. So, I try to be busy as much as possible to get rid of this feeling by video games”, and “high expectations from my family, related to Filipino culture, to provide for them; but they do not have the awareness that I am still a cadet.” He also reported many other reasons for his mental fatigue such as the multinational crews as “some seafarers on board do not know how to get along”, the age gap “considering I am always the youngest on board, being a cadet, I would have to be very patient with my seniors on board, due to age and rank difference” and “you really need to take a drink, especially when you have many older seafarers that are seniors. You have to get along with them and talk to them, so you really have to drink alcohol to socialize with them”, and the multibackground crews “if you don't drink, you will be isolated, finish. And being around East European crew members, it was vodka on board, although it was only on Saturdays.” Considering that Jade is a 23-year-old Generation Z seafarer who was born in 1999, he had several factors that minimally contributed to his mental fatigue, although such things vary from person to person. Nonetheless, it is one of the perspectives that shipping companies must consider. Jade reported his defence mechanism against mental fatigue as “for mental, I play video games, offline if we were offshore, as there is no internet, and online if I was at port.” He responded negatively when asked whether he believes shipping companies are aware of physical and mental fatigue, as he mentioned “my company's personnel on shore do not know the situation on board, because if they create a welfare program, it would be just more work and paperwork for them.”

Aragon highlighted that his mental fatigue reasons as related to family problems on shore as he mentioned “sometimes when you talk to your family you may have problems on shore, that adds to your mental fatigue, so sometimes having short calls is good. Often you cannot think properly or focus on your work.” suggesting that higher quality internet access can also affect him negatively. Another reason he mentioned “sometimes there are issues between crews because of favouritism exercised by the captain on board” He implied that such behaviours by senior crew members fostered envy among the crew members. He listed homesickness as one of the causes of his mental fatigue. He also reported age gap was an issue for him “being with older senior seafarers on board sometimes is difficult, because they are not willing to listen to younger peers about work, considering they have more experience.” When questioned about his mental fatigue defence mechanism, he mentioned communicating with his family, watching pre-downloaded movies offline, and trying to keep negative thoughts aside by focusing more on his work. When asked about whether he thinks shipping companies are aware about physical and mental fatigue, he mentioned that they are aware “but business is business” i.e. they are only considering business operations in his opinion.

Hidoie explained his experiences “I personally do not have issues with being away from family, as I am used to being away since I was young, but especially on the first few months or the first contract, you experience mental fatigue as you would miss your family. So you have to work it out with the work pressure” indicating that the first contract can be very challenging for new seafarers. He also mentioned missing out on family gatherings as “mostly, it is about family reunions that I feel left out and stressed, as I would not know about such reunions until after 2 weeks or so.” He also observed his colleagues’ mental fatigue as he stated, “I see my colleagues sometimes crying because of missing their relatives”. Considering Hidoie experienced a significant physical fatigue due to many and frequent port visits around Asian ports, he mentioned that “physical fatigue adds to the mental fatigue. Hence, you would be fighting yourself to continue the work” suggesting that extreme physical fatigue contributes heavily to mental fatigue. One of Hidoie's instances of mental fatigue was caused by a mixture of factors, such as the death of a relative on shore, lack of high quality internet access, and his company’s process to approve his repatriation request, he mentioned “my uncle passed away while I was on

board, and I was unable to return home, which was emotionally distressing for me because even calling home is difficult when you're in the middle of the ocean due to the fact that during my time in 2018, the internet was extremely slow and we had only 25MB of data. Therefore, by the time you launch Messenger, the data will have already expired. As for the repatriation to shore, the company and the agent demanded an excessive number of documents, which was really psychologically taxing because the company kept giving me documents to complete this and that, despite the fact that I was already mentally exhausted" suggesting that providing high-quality internet on board and decreasing paperwork for seafarers' repatriation requests in the event of a family emergency, such as a family member's death, can dramatically reduce mental fatigue among seafarers. Hideo also noted that too many jobs and responsibilities contributed to his mental fatigue, and during his first few contracts as a seafarer, when he was 18 years old, he experienced mental fatigue due to the age gap. His defence mechanism against mental fatigue was by expressing his concerns to his fellow seafarers, sleeping, playing LAN video games with other crew members, reading books, and watching movies. He believes that shipping companies are aware about physical and mental fatigue, as he explained "the company was providing free sim card, the food was very good, they provided us books. The company was trying to make it comfortable for seafarers' as much as possible. It used to provide monthly seminars and provide booklets and sometimes videos in USB, about social isolation and mental problems" indicating that his company had intrinsic motive related to morals and extrinsic motive to comply with MLC 2006 recreational facilities clauses.

Sunny stated, "since I am new to the maritime shipping industry, I was not very exposed to people who are fond of shouting when they want someone to do something, so I get really tense." indicating that he, despite being 30 years old, is not accustomed to being around some difficult seafarers' personalities. He added further, "there was a time, on a Sunday during our rest time, when my chief officer scolded me in front of many people due to a personal matter unrelated to the job. And as I was really emotional at the time, I cried and stayed in my cabin. Although, he later apologized." Another case he mentioned "there is also a crew member who gets angry if I correct him, despite the fact that we are almost the same age; this contributes much to mental fatigue. As an environmentalist

myself, he was requesting that I toss certain equipment overboard, which is against the rules and regulations, and I would reject and argue with him that I would not do it" indicating that due to the tough environment in which they operate, seafarers tend to develop strong personalities and resiliency over a long career offshore, but new seafarers who previously held shore-based occupations may find the transition to be difficult, especially in relation to communication. In addition, Sunny highlighted additional reasons of mental fatigue such as long-distance relationships. His defence against mental fatigue consisted of sleeping, and online/offline mobile/laptop gaming. When asked whether he thinks shipping companies are aware about physical and mental fatigue, Sunny answered "yes, we have online articles and news about accidents on board other vessel that they provide us with. It also depends on the sentiments of the senior officers on board" indicating that his shipping company was fairly reactive.

Gideon attributed his mental fatigue due to his work as he had many tasks and responsibilities at short time intervals. He highlighted that mental fatigue on board varies between seafarers based on their personalities. He illustrated one of his mental fatigue experiences as "some seafarers have shouted at me and as I have taken it personally before, and I've also seen other seafarers taking it personally. Because when you are upset and someone shouts at you, you would react immediately and do unnecessary things. So, as a second officer with my crews, during dangerous mooring operations, an hour before we start, I would usually tell them that shouting is common and nothing is personal." His methods to counter the mental fatigue were reading, engaging with the crew, and physical exercises. He commented "engagements with other seafarers in the crew is a good counter for fatigue, but if the internet connection is quite good, then communication with the family is really a good counter for mental fatigue, it makes you relaxed" indicating that high-quality internet access can help seafarers counter mental fatigue. When asked whether he thinks shipping companies are aware about mental fatigue he mentioned "Yes because it is part of the safety management system (SMS), although it is sometimes quite challenging for shipping companies to implement and hence, it depends on the company if it is a good or bad one. But they are doing the bare minimum to meet the regulations" indicating that it varies from one company to another, but generally shipping companies are reactive and externally motivated via regulations.

Chester attributed it to many reasons as he stated “homesickness, sometimes there's a plenty of occasions that some of my beloved family or close friends passed away, before I went on board that when they passed away, I was not able to attend their funerals, or visit them in their sickness. Communication is important.” He also mentioned discrimination sometimes, in his unique experience he pointed out “when the officer is younger than the ratings, the officer cannot give orders, as bad ratings sometimes get angry when someone's younger than them is giving them the order. Although It depends on person to person.” He also reported his fellow seafarers’ mental fatigue, “some of my crew members became so upset because they were unable to sleep or because they were unable to take holidays or they must work beyond their rest time. So they simply shout their rage and I am usually aware about their rage.” He attributed it to having too many responsibilities as a third officer which occasionally demanded him to finish the job in his rest time without compensation. He also mentioned the multinational crews as a mentally fatiguing experience “I joined this company seeking a promotion, as my previous company had a mixed crews but the majority of promoted officers being of one certain nationality, leaving us the Filipinos behind. But mostly it was because of the captain wanted to promote his co-nationality seafarers” and in the same context he stated “If you do not have a connection with a captain or top officer in that company, you will not be able to advance in your career” indicating that some companies do not have adequate systems or are not keen into seafarers’ career growth. His ways to counter the mental fatigue on board were watching movies, listening to music, blending with other seafarers on board, drinking alcohol, and playing LAN video gaming with other seafarers. He believes shipping companies are aware “my company always prioritises safety of the crew, they provide the crew with free emailing services for them to use it with their families, they have a monthly budget of \$100 for recreational or welfare facilities” indicating that his company is only complying with the MLC 2006 regulations about on board and onshore recreational facilities, which is an extrinsic motive.

Francis have shared his mental fatigue experience due to family matter on shore, “when I was on board, my father hit a child in a car accident and the child died. I continued the remaining 5 months of the contract on board”, he also mentioned other factors like homesickness especially during holidays like Christmas when he would be extremely

homesick, and being disconnected from his family and friends. One of the incidents on board that he encountered, considering he was a cadet, "I was just calling everyone up to the bridge to have them sign some documents as per the captain's request, but one seafarer became really angry because I asked him to come to the bridge; he wanted that I go to his cabin as he considered himself to be senior in terms of ranking position. It is related to the background of certain personalities, although most of the ranks are nice on board" indicating that sometimes senior ranking positions may be abusive towards lower ranks or ratings which adds to the mental fatigue of the other seafarers. Francis reported his means to counter both physical and mental fatigue as "excessive smoking, I would consume one pack of cigarettes a day if I was really stressed on board. Also, watching movies offline and console gaming on board." He believes that shipping companies are aware about mental and physical fatigue as he stated "they are open about that, they would always say 'if you need someone to talk to, come talk to me' and similar things, but it's just up to the person if he wants to talk or not" indicating that his senior officers were proactive about determining any concerns, but it more of a personal initiative by his officers.

Jose illustrated his mental fatigue due to long contracts "if the contract duration is longer, I noticed in my behaviour that I tend to get angry easily. Mostly such behaviour would occur after being around four months on board." He also reported one of his fellow seafarers mental fatigue issues "one of my fellow seafarers was not allowed to repatriate to shore when his father passed away, he had mental fatigue." When asked what reasons he would attribute his mental fatigue to, he mentioned being disconnected from family and friends, homesickness, and personal family matters on shore as he would not be able to focus on work. Specifically he stated "my experience is that my ex discussed with me some problems and we had limited and poor internet on board, so, when the internet disconnects, we could not settle the matter right away, it took about two to three days to reconnect. So, not being able to resolve the issues at that time increased my mental fatigue" indicating that low quality internet access on board was significantly adding to his mental fatigue that he was unable to focus on his duties. He also mentioned other minor reasons like having too many responsibilities and having multinational crews. His defence mechanism against physical and mental fatigue were mainly socializing with co-seafarers,

watching movies, reading eBooks, and drinking alcohol. He believes that shipping companies are not aware about the fatigue issues, as he mentioned they had no surveys about them.

Hanei's fatigue experiences were due to his position on board "the senior level officers are usually very stressed mentally. I have experienced this stress as a rating assisting my second officer in his watch, so I have to also adjust my sleeping patterns." He also reported one of his mental fatigue experiences due to lack of internet access "in my first contract in 2014, being disconnected from family and friends, and homesickness really had a significant impact on me, especially that the internet access was not easy to have compared to nowadays. Still, nowadays, sometimes I would still feel it" indicating that high quality internet access can significantly reduce mental fatigue for seafarers, specifically for new seafarers. He also reported another experience that added to his mental fatigue, "a very strong typhoon that hit my hometown in 2021 and destroyed everything, at that time I was on board. Although I had internet access on board, my family in my hometown did not as the typhoon had destroyed the city's infrastructure. Being disconnected from my family and friends and not knowing what happened to them and what is their situation at that time gave me significant mental fatigue. At that time, I could perform my work duties but not to the fullest considering my morale was low" i.e. having a disaster at home and although internet access was an indirect reason but the lack of it played a role in increasing seafarers' stress, even if the disconnection were from on shore. Hanei also mentioned that high number of responsibilities were a factor in increasing his mental fatigue as a trainee officer, but not as a rating. He also reported that sometimes with multinational crews, he would encounter racism, although it did not have a significant impact on him. In the same context, he mentioned "I've witnessed some seafarers not being promoted due to their nationality or race." His defence mechanism were watching offline movies, communicating with my colleagues on board, seeking his faith, and connecting with my friends and family online if there is internet access. When asked whether he think his company is aware about physical and mental fatigue, he answered "yes, they have frequent surveys every 3 months. I believe it is not enough, because based on what I saw, they are just giving this feedback or suggestion, but they are not

actually putting it in action” indicating that his company is either inactive or reactive and would only recommend solution without taking actions.

Jefferson reported one of his fellow seafarers mental fatigue experiences “In my prior contract, my third officer was a Cadet but an apprentice third officer. He couldn't sleep from mental fatigue. After our trip, he called our office after a week on board. He wanted to go home because he couldn't sleep. We also advised him. Our second officer offered him sleeping medications to rest. We helped him with paperwork because he was overwhelmed. Three months later, he had adapted” showing that the transition towards the third officer position can be a significant mental fatiguing experience. When asked to explain further about this incident, he mentioned reasons due to many tasks and responsibilities for third officers which caused his colleague to have ‘analysis paralysis’, and the high marine traffic as at that time they were crossing the Singapore strait. Jefferson also mentioned his own mental fatigue was due to personal relationship issues involving a cheating partner that he could not sleep and started smoking in addition to being disconnected from family and friends, and homesickness. His defense mechanism on board against mental fatigue were excessive smoking, coffee drinking, and isolating himself in his cabin while listening to music. He mentioned “It's like the cigarette is my companion.” He thinks shipping companies are aware about physical and mental fatigue of the seafarers but would dismiss these concerns due to operational demands from the charterers.

Mahmoud had one of the most extreme working conditions and experiences among all interviewees, he shared his mental fatigue experiences when he was a seafarer. He was trapped in a warzone, as one of his shipping companies that he worked for was contracted by the United Nations to supply aid in Yemen, where his ship was hijacked by the rebels by force to take the cargo on board. He mentioned “now, I am handling traumas that I had from the life offshore and from my maritime college. Currently I am already taking medicine and consulting with a therapist.” He mentioned many traumatic experiences being on board “some of my traumas were because of a lot of things that happened on shore, and I was not aware off due to being offshore. I had an aunt, and she was one of the last members of my family who were still alive, she got really sick and the people

around her were not able to provide money to put her on a necessary medical operation, and I was not there. So, she died because she did not have that operation. Although I had the money at that time, but I was on board a ship, and I did not know about that. It was happening in one day and we had no network on our ship” indicating that the lack of internet access was a huge factor in this incident that caused him tremendous mental fatigue as if he had internet access, he could have known about these issues in real time situation and transferred the money via online banking services. He also mentioned the feeling of burnt out on board as he was working to pay his other degree’s tuition fees. He also added other factors increasing his mental fatigue on board, being disconnected from family and friend and homesickness as he mentioned “I had to cancel a contract once to go back home, because I worked for two years without meeting a friend. Considering, I don't have a lot of family members, but I have a lot of good friends and I'm attached to those friends since we were young”. Also, in relation to having stressful crew members, he mentioned “we had a fellow seafarer, a third officer, who had bipolar disorder and had episodes of mania on board. Working with such seafarers is mentally fatiguing as I was also his second officer”, and “I tend to meditate five times a day and I am a vegan. Consequently, sometimes, I was judged and peer pressured by co-seafarers on board”. He further mentioned that being a second officer on board with too many responsibilities had added to his mental fatigue as he was in charge of the navigation, voyage planning, and cargo planning. He mentioned other factor that was a source of mental fatigue among his colleagues, “sometimes there are trigger negative social media post which could impact whoever is reading them” suggesting some of the negative impacts of internet access if the seafarers were not self-aware. When asked about his defiance mechanisms towards the mental fatigue, he answered “I did not have time for recreational activities as I was studying for my computer science degree. Technology is my obsession, so studying computer science on board was my coping defense mechanism as a reward”. According to his experience, he believes that shipping companies are not aware about physical and mental fatigue issues as he mentioned “they only do 'on paper'” illustrating a very critical point of view towards the shipping companies that he worked at.

Jeannu highlighted the major reason for his mental fatigue as being disconnected from family and friends. He also mentioned reasons that have reduced his mental fatigue as

he stated “sometimes, if the atmosphere and the relationship between crew members is good, then you won't feel any homesickness” as he also mentioned some crew members can be difficult to work with. His defense mechanism against mental fatigue, other than socializing with crew members, were watching movies and listening to music. He believes that the shipping companies are becoming aware as he stated “they are increasing the wages or having an additional compensation. During our pre-departure meeting, they would include awareness about mental health. For example, awareness about bullying on board, and awareness about depression” demonstrating that shipping companies are utilizing incentives to minimize mental fatigue and attempting to raise awareness.

Considering Roedi had been a seafarer since before the MLC 2006 rules establishment, he shared many mental fatigue experiences. He mentioned after being promoted to third officer he encountered loss of appetite to eat, excessive weight loss, lack of sleep, and overthinking due to work pressure. He also remarked that after a lengthy career at sea, he had become accustomed to being disconnected from his family and friends, although he mentioned “homesickness, when my son is having special occasions like his graduation from school, and I am not there due to being offshore. Also, when he was young, when I used to go back home, he could not recognize me”. He shared other experiences when he had a family problem on shore that he was not able to resolve in the year 2003, “there is this one time when my wife was very sick, and I was unable to transfer money at that time. At the same time, I did not know what is happening back home, so I was stressed, I could not focus at work, and I would lack sleep. If I was working alone at that time, I could have slept while on duty which is dangerous.” signifying the importance of having an Internet connection on board that provides access to online banking services for seafarers. The lack of internet access at the time contributed to his mental fatigue, which put the assets of his shipping company at risk. He also stated having an excessive amount of responsibilities as a result of being a third officer and having delegated tasks from his superior officers and captains. He also noted that he is accustomed to working with multinational crews, but when he was exposed to new nationalities with whom he was unfamiliar, he experienced several miscommunication incidents that led to many arguments and disputes between himself and the other party, which added to his mental fatigue as he explained “for example, my captain was South

Korean when I was recently promoted to third officer, and I am not used to communicating with seafarers from South Korea, so at that time it was difficult as I could not understand him or the tasks he wanted me to perform, so I was being shouted at. Although, I am used to the shouting, but being unable to communicate or understand different crew adds to mental fatigue and really affects mental health as you would always be angry.” He also agreed with other seafarers that mental fatigue due to high number of responsibilities in comparison with ratings, however, he highlighted that after being promoted, the transition from ratings to officers is challenging. He also agreed with other seafarers that most of the fatigue is mental rather than physical. When asked about his defense mechanism against mental fatigue he answered “in relation to my wife's sickness, I tended to isolate myself in my cabin and keep my issues to myself, because if I let my emotions out there, especially with the miscommunication issues with the captain and him shouting, it would have affected my job, and I would have entered in a very intense fight with him, or I would have displaced my stress on him.” He also reported other defence mechanisms such as the casual alcohol drinking on weekends, socializing with his co-seafarers and seeking their support especially if it was a burdening issue that he could not handle or needed to vent it off, and seeking his belief to relief some of the stress. When asked if he thinks that shipping companies are aware of mental and physical fatigue issues he answered “yes, they would always ask seafarers if they have concerns. The superintendent would conduct regular meetings with seafarers to discuss any issues” indicating a reactive procedure.

Jay mentioned being disconnected from family and friends although it varies from person to another on how they deal with this issue and having a family problem on shore. Although he mentioned his company is providing internet access onboard his ship which helped him to counter these issues as he stated, “my family were one message away”. He mentioned homesickness at the beginning of his seafaring career. Also, Jay mentioned issues with other seafarers that were difficult to deal with. He also reported one of his colleagues’ mental fatigue issues in relation to his wife having miscarried during her pregnancy after this incident he was unable to focus at work and had to sign off the ship and repatriated within a week. When asked about his defense mechanism against mental fatigue he mentioned playing guitar and drums, listening to music, playing LAN

video games with co-seafarers, the occasional parties on board, and watching movies. When asked whether he thinks the shipping companies are aware about physical and mental fatigue he answered “yes, they are giving training on how to cope up with the mental and physical fatigue on board. For example, my company organizes a game, which is TikTok videos creation competition within each ship and between ships of the same company, and the winning seafarer or crew would get a prize. It helps as all crews would try to come up with creative ideas on how to win this game. Although the internet is limited, the videos are uploaded at ports when there is better internet. In addition to table tennis competition and basketball competition on individual ships, as our company would arrange game nights.” Hence, his shipping company would encourage creating recreational videos for social media while being on board, as a counter measure against mental and physical fatigue on board. Although the seafarers would not have internet access until they reach port areas, revealing a strong relationship between high-quality Internet connectivity and the effective reduction of mental fatigue among seafarers, in addition to his company being proactive with regards to seafarers’ welfare.

Arthur attributed his mental fatigue on board cruise ships due to being disconnected from family and friends, living in a confined space, family problem on shore, and homesickness. He also mentioned that he would quite often notice fellow colleagues crying due to similar reasons. Also, considering his crew consisted of 1200 members, he mentioned he would occasionally have issues with other crews, and he highlighted the racism as an issue. His defense mechanism was naturally different than other seafarers considering his sector, as he would ask his superior to take a walk around the cruise ship, he would get to make new friends with other colleagues in the crew bar, playing musical instruments in the recreational room, and utilizing the basketball area on board as his company would set a schedule for the crew to use certain passengers’ facilities. When asked whether his cruise line is aware about such mental fatigue concerns, he answered in a definitive way, as he mentioned they had HR personnel and a training manager on board, and his company would create programs and organize events so that the crews are relieved from work stress on board.

Social Isolation Experiences

After defining the social isolation as an involuntary experience which causes negative emotions and self-isolation. When seafarers were asked about social isolation experiences, many different experiences were shared.

Daniel did not encounter it himself but had three fellow seafarers who had experienced it. The first one had debt-ridden family issues and negative news from his family added to his stress so he would isolate himself, the second was scolded due to his poor work performance, so he was taking it personally, and the third one had a gender confusion and was bullied by some seafarers on board. When asked how they would usually tend to counter their social isolation, he mentioned the first one would listen to music and watch movies as he would not maintain a ten minutes conversation with others, the second one had repatriated to shore two months earlier than his contract completion, and the third seafarer was very picky when choosing other seafarers to be around with. When asked whether he thinks shipping companies are aware about social isolation he answered negatively since the seafarers are outsourced thru manning agency for limited period contracts. Hence, the shipping companies were not really building up on seafarers' morale.

Presant expressed that due to the position, he would naturally feel socially isolated on board considering he was the highest-ranking position on board as a master mariner. However, he believed that social isolation itself does not occur because seafarers would usually tend to segregate themselves out of convenience, or perhaps due to the nature of their shifts if it was different than the shifts of other crew members. When asked how seafarers' would encounter social isolation issues on board, he answered "if it's a crew member, they speak first to the duty officer with whom they're keeping watches. If the duty officer was considerate, he would speak with the deck management officers or the chief officer. I try, considering being a master mariner on board, to discuss it with his watchkeeper to try to resolve issues or concerns, that's the best way to go about it, but it all depends on the seafarer, too, if he doesn't open up, then nothing changes" indicating there is a lack of anonymity when reporting issues on board sometimes, and certain

professional barriers may stand against the seafarer to express some concerns. When he was asked whether shipping companies are aware about social isolation issues, he mentioned “nowadays the company cultures in big companies, they want seafarers to speak out and tell their problems. Company’s culture has a huge influence on addressing issues on board, and seafarers’ ability to express their concerns” highlighting that such concerns are being noticed and considered by shipping companies, especially in large shipping companies. When he was asked what shipping companies are actually doing to counter social isolation issues, he reported that they are trying to make the seafarers open up about their problems and trying to increase senior officers awareness.

Jade had encountered social isolation himself, as he mentioned “although it is a Filipino crew for my ship, but we have different backgrounds, different local languages; so sometimes we cannot get along on board” indicating he encountered it due to different crew backgrounds on board even though they had the same nationality as him. He also reported social isolation due to being the lowest rank on board as a cadet. In extreme cases, he explained “If the personnel are not social, the ship becomes a ghost ship, leaving you with nothing to do but play with your phone, which is not enough”. When asked how he would counter such issues, he mentioned playing video games and drinking alcohol with peers when he had another cadet of the same background.

Aragon had also experienced social isolation on board due to age gap and different positions on board, as he would try to avoid problems or confrontations with other crew members. He mentioned he would do the bare minimum in terms of communicating with other seafarers until he ends his contract. He also mentioned because his co-seafarers thought the master was favouritizing him while he was merely doing his job. When asked how he would counter the social isolation, he mentioned he would be focusing on his job and not disclosing any personal or work issues to his co-seafarers, watching movies, using social media in particular the apps that consumes the lowest data. When asked whether he thinks shipping companies are aware about such issues and what they were doing about it, he answered “yes, they are providing a hotline for seafarers to call if we have concerns”.

Hidoie did not experience it himself, except for the first few months as a seafarer, which was due to age gap until he got used to it. Also, he mentioned that his crews were easy to work with. When asked whether he thinks shipping companies are aware he answered positively, as his senior officers and captains would ask about their seafarers' welfare usually, which is an important matter for them, and his company would send them awareness via posters, booklet, or digitally via USB.

Sunny reported he did not experience social isolation but mentioned that his company created an app in which he can report any concerns anonymously. Gedeon also did not encounter it himself but observed fellow seafarers who experienced it due to discrimination. Also, Chester, reported that some of his captains had experienced it that he did not eat and would isolate himself in his cabin for days to the limit that his chief officer took charge of his duties as he was unable to handle his duties, and the chief cook would send the food to the master's cabin. When asked about the reasons, he mentioned because he was recently promoted as a master. When asked what his defense mechanism was, he mentioned the master would heavily drink alcohol. Chester also reported that his company would send monthly emails to increase awareness for the seafarers.

Jose mentioned he is an extrovert, but he mentioned that he tended to keep such concerns to himself. As he explained that loneliness for example, cannot be supported by his fellow seafarers on board, unlike his family's support which can help. Suggesting that the lack of deep connections and lack of seafarers relating to his problems on board increased social isolation.

Hanei reported that he was depressed during his first contract, as he was overthinking about his colleagues' attitudes towards him, and also because of being disconnected from family and friends on shore, being homesick, and having the feeling of boredom associated with the social isolation. He mentioned at that time he would usually be eating alone. He explained further, "if you're having this social isolation and you have a lot of time on board. So, you have these deep thoughts on your mind" indicating that ship's environment amplifies social isolation and mental fatigue dramatically. In addition, he

added that he had no internet access, except for emails at that time, and the satellite phone was expensive to use. When asked how he did he counter this issue, he mentioned that he would have to lessen his overthinking and would try to seek positive thoughts.

Jefferson reported his social isolation experience as well as one of his fellow seafarers, were due to relationship issues involving cheating. He would counter it the same way as his mental fatigue's defense mechanism and would try to steer his thoughts away by focusing on his job. He mentioned if shipping companies were aware of such social isolation issues, they would not do anything about it.

Jeannu reported his social isolation was because of the long duration of his contracts and the hardship of the job itself. He would be feeling burnt out, and he mentioned that socializing takes energy. He also reported an experience that one of his fellow seafarers encountered, his colleagues were very social, but after he encountered a family problem on shore relating to financial debts and his family was blaming him, his colleague started isolating himself, and would be heavily drinking alcohol during rest time. When asked whether he thinks shipping companies are aware about social isolation, he answered "no, some senior officers on board would casually ask about how other seafarers are feeling, but the default answer is 'I am fine', so that's why they would not know that something is wrong" indicating that shipping companies' approaches are ineffective and reactive.

Roadi highlighted that almost all seafarers would encounter this issue at least once. As he mentioned he was socially isolated when his wife was sick. He also attributed it to reasons like when the crews are not in good terms on board or multibackground crews. He illustrated that if a seafarer was having social isolation, it is better off to quit and return to their families as it has serious implications if they were unable to adapt. When asked how he countered such issues, he reported that he would be sleeping, watching movies, or secretly drinking alcohol as his company had 'zero alcohol policy'. He believes that shipping companies are aware, as he used to have researchers going on board to ask about social isolation issues, other than the fact that his superintendent would listen to his concerns as in the mental fatigue concerns. He added further, if the superintendent did not resolve these issues, the seafarers would be complaining and escalating their

concerns to unions or regulators, indicating the extrinsic motive due to pressure from regulators. His company would occasionally send memos about incidents on board other ships.

Jay reported on his first contract, he experienced social isolation due to seniors shouting at him and talking negatively with him; he was new to the seafaring lifestyle and did not expect it. He also reported that one of his fellow seafarers was an introvert, but the other seafarers thought of him as mentally ill, hence, other than the fact that he was an introvert, this was adding social isolation on him. When asked about his defense mechanism, he mentioned relating and seeking guidance from the seafarer with the closest background to him. Also, about his fellow seafarer's defense mechanism, he mentioned "he was drinking alcohol whenever possible as our company policy allowed two bottles of beer per day. I really think he has been drinking more than that, as he was trying to pass the nights just to work in the morning again". He mentioned he was not sure when asked whether the shipping companies are aware about social isolation or not, but he stated "there is a form that we can use to report our complaints or issues to the company. It is usually resolved because it has different levels. It would first go to the master on board, then the company. It was not there since I started, but I think it came from the rising issues about bullying and harassment incidents on board" suggesting that his company is reactive towards this issue.

Seafarers Suicide and Suicidal Thoughts Experiences

When asked about whether they knew a fellow seafarer who had committed suicide or had suicidal thoughts and what were the reasons, the seafarers had shared many stories. Daniel reported one of his colleagues from the colleagues from college had fellow crew mates who had committed suicide while being on board due to a relationship issue onshore. Aragon had reported an incident in his company which was related to excessive financial debts.

Presant reported that he would hear about it quite often among seafarers, he attributed such incidents to various reasons, as he stated “in my personal opinion, the immediate finger pointing, which is not supposed to be done, comes on to senior officers. Common questions arise for the senior officers on board are first ‘why could they not I identify the mental distress this person was going through?’ and second ‘what could have been done to save this person on board?’. Whatever the work culture, working hours, or the stress on board, all of them can always be resolved on board, but that was not done or was not able to be done by the senior staff on board” suggesting that senior officers on board are mandated to know the mental and emotional state of the other seafarers on board. He also attributed it to seafarers abuse on board and incompliance with the MLC 2006 regulations, as he stated “as per the Maritime Labour Convention, all the crew members have the basic rights, which is established and nobody is supposed to feel threatened. Nobody is supposed to feel stressed out on board. They are given the work hours, rest hours, and relaxation time. You cannot physically touch a crew member on board, that is a strictly prohibited, but despite that, there are sometimes cases happening. And If that happens, it's a very difficult situation to resolve but those cases have been generally coming down”. Although he highlighted “but the main cause can be because his issues were not addressed immediately. Sometimes the crew member may have some issues at home. Because of the internet, social media, he gets to know of this, and he can commit the suicide also, but that's clearing the ship staff completely” signalling that receiving negative news from on shore due to internet access can trigger suicidal thoughts, which is one of the negative impacts of internet access on board.

Hido reported one of his fellow seafarers had suicidal thoughts, relating to wife's infidelity including pregnancy, as he was traumatized after he received the negative news from the hospital, when, he transitioned from extreme happiness to depression in one week. Hideo explained that his fellow seafarer after the incident attempted to jump overboard multiple times, that the rest of the crew had to lock him in a room and tried to take care of him. Hideo also reported “I have heard of other cases of suicides among seafarers because of social isolation, there are instances like that on board. And sometimes there are also other instances due to a group of seafarers not liking the other seafarer. So the seafarer becomes very isolated and alone that he would seek to commit suicide, because he

cannot bear the mental pressure” showing that social isolation and bullying were some of the reasons of seafarers suicides, signifying that the ship’s environment amplified suicidal thoughts.

Sunny reported one of his colleagues had a fellow crew mate who had committed suicide. Sunny also disclosed that he had suicidal thoughts while being on board as he stated, “personally, I had suicidal thoughts when I had a tough fight with my girlfriend. I just tried to think about my family afterwards and what my mom will feel, so it was done. It was five months after being on board.” When he was asked about the reasons, other than the relationship issues, he answered “I think it was just because I was on board very far from people” suggesting that his suicidal thoughts were due to being disconnected and being isolated on board due to ship’s environment in addition to the relationship problems. Sunny further explained, “I do not communicate with my family that much, but the only communication was with my girlfriend, so if that is cut down or I’m having troubles with it” indicating his relationship was the only emotional support he had on shore, and after his fight, he felt socially isolated on board afterwards for few days. Sunny further clarified, “when I was having these thoughts, I will just accept tasks or jobs that are very dangerous, for example, cleaning the crane wires which are 10 meters above ground or going at the fore part of the vessel even if there are huge waves, in my thinking, even if I get washed down so be it. These were my suicidal thoughts” indicating that he was trying to be reckless on board. Not only the ship’s environment can amplify negative thoughts and induce mental fatigue, but the ship’s environment and its surroundings also make it easier to commit suicide. It is worth to note that Sunny’s internet access on board was of poor quality, which will be described in the following sections.

Gideon stated that he did not know a fellow seafarer that had committed suicide except he heard from his colleagues, however, in his circle of colleagues and friends, he mentioned that they had suicidal thoughts as he mentioned “some of my crewmates they were open and mentioned these kinds of situations with us.” He reported “I remembered one of the seafarers who was described as ‘the weakest persons on board’ and was negative thinker, because of his experience from before when he had a very bad experience that devastated him as a person. So during his contract, I always observed

as his officer that he's alone and all other crew members that time said that he has a problem mentally. So, as his officer, I tried to speak with him and connect with him. Eventually, he opened up his experience which was really bad. Sometimes, also during my watch at Port when we were together as he was my watchman, he would open up with some negative thoughts related suicide. I eventually scolded him. Sometimes this kind of weak personality, you need to provoke them for them to develop a stronger personality. It's difficult because this kind of people, It's not only one day they will be thinking about this" highlighting that suicidal thoughts in this case were attributed to being socially isolated and former emotional trauma. When Gideon was asked about what other reasons for suicides or suicidal thoughts according to his experience, he stated "because of being new to responsibilities, they cannot handle the pressure, or the pressure of work from their senior officers sometimes. And because on ships, if you feel heavy hearted and then you encounter some problems, as I told you earlier, you have a lot of time to think on board." He further clarified "sometimes they share this kind of thoughts they had before, when they encounter too much pressure in the job, not having a good relationship with the other crew members, they are being separated from the other crew members and they feel like they are isolated and alone. Adding to it, an external trigger with a problem or bad news on shore. That's when they feel heavy hearted, and it seems like for them as if it is the end of the world and that they want to surrender. It's accumulative, it cannot be happening due to just one scenario. After that, they share this kind of thoughts, they also share the positive side to give some advice for others to avoid it in the future. We tend to have open forum by ourselves to discuss these issues, and many captains would advise that seafarers should treat each other as family, in case of issues or concerns and would help avoid such concerns" indicating that him and his colleagues would try as an initiative to share their negative experiences and thoughts to avoid them in the future. When he was asked if the lack of or poor internet access played a role, he answered "if we are going to relate this to internet access, for example, if you are prone to these types of thoughts and you have a limitation on your internet access, you have a limitation on your ability to communicate with others. So, it appears that you are cut off; what will you do next? Eventually, you're going to think and think and think, and you won't be able to sleep. This will be amplified by working conditions and being on a ship, and

you'll eventually consider suicide.” on board a ship, he argued that the limited data and poor internet quality would result in excessive time for thinking and overthinking.

Hanei reported two cases of suicides, as he stated “I know two seafarers, the first one was my best friend who was also my neighbour. He was a seafarer on board another ship and was reported ‘missing on board’, and we never saw him again. His parents mentioned that he was struggling with work pressure as he was recently promoted as a third officer at that time. He had asked his family to go home as he cannot bear the pressure. He worked for a week on board after starting his first and last contract as a third officer, and after that week he went missing, and until today the Hawaiian Coast Guard is unable to find his body” indicating further as to what most the interviewees had repeatedly mentioned that being promoted to third officer is one of the most challenging experiences which in this case had resulted to suicide. He also reported the second suicide case, “a fellow seafarer who had realized his long term partner cheated on him and got pregnant, so he hung himself on board.”

Jefferson reported one of his seafarer friends has been ‘missing on board’, and he indicated “I think a common reason for seafarers committing suicide is due to cheating partner in personal relationships.”

Mahmoud also reported one of his friends who was also a seafarer had committed suicide. He mentioned “in his cadetship, he committed suicide in his cabin because he couldn't take it with all of the work pressure as his ship had a lot of deficiencies. He was a working student as an able seaman. He complained about issues with other crews on board on daily basis. His chief officer was racist towards him, and his captain was inhumane. There was not much human interaction on board” indicating the extreme conditions his friend was working in, which was a Syrian shipping company, and the reasons due to racism, toxic crew members especially the senior positions on board, ships with continuous deficiencies i.e. very old vessels, and working as a student in such extreme conditions.

Jeannu had reported one of his classmates from his maritime college had committed suicide, as he stated “his last position was a third officer, it was his second time on board

as a third officer. The speculation about the reasons was due to the work pressure. He could not handle the pressure from his captain, he could not take it because his captain was too old. His crewmates said that he was always being scolded by him or the captain was always dissatisfied with his work. Also, his sister died due to cancer right before he went on board” representing various reasons with a lot of time to think intensified by the ships’ environment, work pressure while lacking support from his close family and friends in the period after his sister passed away. Moreover, Jeannu himself had suicidal thoughts as he stated, “I’ve also had these suicidal thoughts about three times in my last contract, but it was more of passing thoughts”. When asked about the reasons, he answered “for me, it was mostly due to stress from work. because if you look at it, you are on a ship filled with strangers, you don’t have any family members or any of your closed ones. That’s maybe why I think most seafarers think that they cannot open up with their crewmates. For me, it was not triggered by anything else, except due to how I see the outlook of my life and being left out.”

Roadi mentioned he would hear about suicides from other ships. He highlighted that suicide rates among seafarers had increased during the COVID-19 Pandemic as he mentioned “I was interviewed by two International TV Channels about seafarers suicides due to being trapped on board as a result of the COVID-19 restrictions. The journalist reported 20 suicide cases when I was discussing with them. Other suicides that I know, a friend of mine who is a policeman had committed suicide because of being very stressed about contracting COVID-19, and the seafarers had similar stresses also. But about the suicidal thoughts, I have heard it a lot. In fact, I have created a page in social media because of it. I had to create this page because I felt like seafarers do not have 'an outlet i.e. vent off', as during COVID-19 and after my retirements, some of my fellow seafarers stated that ‘they would want to fight the chief officers or engineers if they are unable to go home’. So I would recommend them to use TikTok to vent off, send the videos to me and I would make them go viral. So my previous captains took notice of this, and now adapting the same technique i.e. they would encourage their crew members to create TikTok videos and make TikTok competition to vent off the stress” signifying that the Internet was very effective in alleviating the unpleasant emotions associated with suicidal thoughts,

particularly during COVID-19. Yet, high quality Internet access was mostly limited only at ports. He further added “if there is no internet, what would they do?”

Jay reported that his company and previous companies and senior officers tend to resolve the issues before they become extreme i.e. they are proactive when it comes to such issues.

Arthur reported, considering he had 1200 crew members on board cruise ships, “one crew member committed suicide while I was on board, during the COVID-19 pandemic. We also have cases on board other cruise ships.” When asked what the reasons were, he answered “as disclosed, the speculations were due to mental stress and overthinking”.

Seafarers and The ‘Normally Connected Generations; Millennials, Generation Z, and Generation Alpha’

Among the interviewed seafarers only two were from Generation Z, these were Jade and Francis, the rest of the seafarers were mostly millennials, except for two Generation X seafarers.

When Jade was asked how he would feel if he had a mobile signal on his mobile phone, he answered that he would be very happy. Furthermore, when he was asked if he usually actively search for mobile signals while being on board, he affirmed that he does, and he would usually buy roaming sim cards to get as much connectivity as possible, especially when he knew that they were near lands. He highlighted that at ports, once he has a local sim card or his roaming sim card, “I would be speaking a lot with my parents and my girlfriend for lengthy periods that sometimes I would sleep at around 1am, so it impacts my actual resting time”. When he was asked how he would adapt to digital isolation on board as a result of no internet access, he reported that he would be playing offline games, and waiting to use high-quality internet for his normal apps at ports indicating that he is trying to adapt similarly to the previous seafarers. He also mentioned that he did not use satellite phones because it is very expensive, except once for emergency and it was a 5-minute call costing him \$10. He reported that internet access can be a source of

happiness but at the same time, it could increase stress if he received bad news from home. He believes that internet access on board should be unlimited in terms of data bundles, and that if shipping companies were concerned about the welfares of the seafarers or the safety of their assets, they can limit the access to two hours per day for instance.

Francis stated, “digital connection is a necessity nowadays”. He shared his digital isolation experiences as he stated, “so for me, I always use my gadgets, but being on board with limited internet with speeds of just 1Mbps, I really feel like I have almost no access, just to chat and call sometimes. But for online videos and stuff, I don't have. We are very limited to the internet since my company blocked websites like YouTube and Netflix, but if the internet was good, we can watch Facebook and TikTok videos” although his shipping company was providing him unlimited internet access with a relatively decent speed of 1Mbps and fairly some blocked streaming sites, Francis felt as if there is almost 'no internet access on board'. In comparison to what other seafarers have reported, this is extremely radical, as to what will be explained in later sections regarding internet access on board and indicating the significant amount of data the digitally connected generations actually need on board. Although he mentioned he did not actively search for mobile signals considering his company is providing internet access on board, but he mentioned only at ports he would buy local sim cards as roaming services is expensive in his opinion. When asked about how did he adapt to the digital isolation which he explained earlier, he mentioned "I just didn't mind that much, as long as I could keep in touch with my family and loved ones via audio calls. Sometimes if connection is stable and available, I used to have video calls, but it's really not that good” indicating that the having proper means of communication with his family and friends due to the good internet access on board was sufficient enough. When asked whether he thinks shipping companies are aware about such issues relating to his generation and the following generations, he answered “yes, they are aware that 1Mbps speed is not enough, and they are aware about the need for internet access for all seafarers in general”. Considering Francis was working for one of the large liner shipping companies, he added further, “I noticed the seafarers in bulk shipping are really digitally isolated with the Internet, as I see some of them go out of their cabins to the aft of the ship just to have a mobile signal”.

He also felt lucky about the internet access he had on board as he mentioned “some other ships that don't offer Wi-Fi and being on board for many months without communicating with your family and friends that would be really emotionally exhausting”. When asked about whether his mobile phone distracted him during work, Francis answered "no, we always leave our phones if we go to work. it's not a company policy, it is just pure discipline. As the higher rankings would recommend that we leave our mobile phones in the cabin, so we can focus on work and not get distracted in order to avoid accidents” indicating that even though the internet access was unlimited on board his ship with a decent speed such controls were merely recommendations trusting that the seafarers would be self-aware. When being told about the previous generations of seafarers who mostly spent their time offshore as seafarer, he mentioned “that is really emotionally exhausting” and " I had a fellow seafarer who was 58 years of age and still working as a seafarer" indicates the generational changes and outlooks on seafaring as a long term career. He also stated “I noticed that my generation of seafarers prefer not being offshore for longer times or not seeking the offshore career and offshore life for a long time. For contracts duration, most of my generation of seafarers tend to lessen the duration of the contract to 6 months plus or minus 2 months, although it could be different from nationality to another. For example, I noticed the Dutch officers tend to spend less of about 3 months offshore only”. When asked about how long did he consider the seafaring lifestyle, he mentioned “I am saving up money to start a business or something similar, but there are others would do it for passion”, and “Philippines is a third world country, so we also need a lot of money in order to survive. Money is significant factor in deciding to seek seafaring career” indicating generational and perspective changes unless if the money is their only motive or their passion for seafaring lifestyle. When he was asked ‘do you think it would attract your generation more to have high-quality internet?’ he answered “yes, it will attract the future generations even more. because I think my generation now, if we get to choose between \$200 higher salary versus a company with a lower salary but has high speed internet, we will choose the high speed internet with lower salary rather than the high paying salary with limited internet access” Present also agreed with this statement although both are from different generations.

The other interviewed seafarers from other generations have highlighted similar digital isolation concerns related to the new generations of seafarers. Although they also shared similar thoughts as the Generation Z, but they all highlighted that the new generations need for high quality internet access is much more than their generation or the previous generations.

Daniel mentioned his fellow seafarers from the new generations, i.e., Generation Z and Generation Alpha, were complaining about the limited data on board and they were wishing for unlimited, a better, and a faster internet. Although he mentioned for those who were focused, and career driven did not mind the poor quality or limited internet as long as they can communicate with their families and friends. He further added, “as a millennial, even when I was 21 years old in 2016, I also wanted more internet on board. I also made my adjustments then because I was very engaged in social media. So, when I went on board a ship and I was forced to just settle with just Facebook’s Messenger and WhatsApp, but I wished to have the faster and unlimited internet”. When asked, as a millennial how would he feel when he has a mobile signal on his phone, he answered “feeling of Joy, especially when you are near land and you have a sim card that works”, and when asked if he actually searches for mobile signals while being on board, he responded “yes we tend to seek it, and we search for the mobile signal during our voyages in advance. Our favorite destinations are between Europe and Turkey, because the voyages are near coastal areas which has mobile signal coverage” although he mentioned his company’s policy prohibited them from using mobile phones while working, and when asked whether his company is aware about such issues, he mentioned that they are aware, but they are doing nothing about it except providing the bare minimum internet access.

Presant, as a Generation X seafarer, mentioned that he had fellow seafarers from Generation Z, he did not hear many concerns from them considering his company provided internet access with free data. Also, considering the new generations of seafarers seek information online, they tend to correct their senior officers if they were wrong about technical facts. He argued “the new breed of shipping officers or maritime officers and crews coming up are very well conversed and well informed. However, also

the attitude might be a problem, as the way the present it to the senior officers as if they know everything” highlighting one of the awareness issues that would be recommended when internet access is provided on board. When Presant was asked about how he would feel when he had a mobile signal on his phone, he answered “we tend to need it sometimes to call family, especially at ports, if agents and company provided local sim cards with additional charges. Although it is less exciting since we already have free data on board.’

Aragon, as a millennial seafarer, felt that he relates to the Generation Z concerns as he mentioned that they had internet access on board, but he mentioned “2GB of data per months is enough for me, but I feel for new generation of seafarers, they tend to need more data of about 3GB”. He further illustrated about the new generation of seafarers, as he stated, “most of the seafarers from these generations take internet access for granted, but for myself, I am fine with basic communication with others thru instant messaging”, and “some of these seafarers, when they have internet, they are not sleeping at the right time or having a good amount of rest. They cannot work properly” indicating one of the negative impacts of the internet access on board as to other seafarers who reported similar issues. When asked how his fellow seafarers from Generation Z or Alpha are coping up with the digital isolation on board, he mentioned playing LAN video games on board, watching pre-downloaded movies, watching recorded and pre-downloaded NBA Basketball matches, and creating social media videos offline then uploading them when there is internet access at ports. When asked whether he thinks shipping companies are aware, he mentioned that they are aware, but they are doing the bare minimum, indicating that they are interested in complying with the regulations only, although he also mentioned some international unions would be distributing free sim cards for seafarers.

Hidoe mentioned, as a millennial, he had fellow seafarers from Generations Z in his last few years as a seafarer, and they were trying to adapt similarly to the previous generations i.e., by bringing their own laptops, gaming consoles, pre-downloading digital materials, and having a roaming sim card. When he was asked how he felt when he had a mobile signal on his phone, he answered, “happy, as sometimes you will feel sad if you were texting already but did not receive a message because of a lost signal. Also, it will

really motivate you to work once you talk to your family and friends, because you feel at ease when you know that they are safe back home and they will also feel at ease when they know that you're safe on board. However, if you receive bad news, it will also affect your performance at work". Hideo also reported that he would be seeking mobile signals when his ship is around 25 miles off a coast. When asked whether shipping companies were aware of such issues, he mentioned that before 2018 they had no internet access, but in his last contract in 2018 his company started providing internet access on board for free.

Gideon, as millennial hinted that some of new generations of seafarers might be discouraged to connect with other seafarers on board in comparison to the previous generation, as he stated "I observed this kind of digital isolation and social isolation challenges for them, because eventually, they have grown up socializing with apps like Facebook or other social platforms. And when they come on board ships, where they would have to daily engage with their crew mates, but they have this difficulty to connect sometimes. And I think that's related to the social isolation as well, as some of them when they encounter a difficulty to connect with other crew members, they isolate themselves from the other seafarers on board, and then they focus on their mobile" thru observing other seafarers' statements and feedbacks, this might be mostly the case in the first few contracts they experience with many other factors influencing this, taking into account the statements of the previous generations, but such statement cannot be generalized. When he was asked to explain further, he mentioned "I observed this in my previous contracts, as a second officer, the younger guys sometimes have difficulties to engage with their fellow seafarers and they are focused more on their devices as such they would feel like they are isolated and connected to the ship only for work. There are no deep connections between crew members as in the old days, because sometimes, if they were used to use the internet, then they will only engage with other crew members in a superficial manner, and it would be more of a superficial connection, and they would tend to focus more on the virtual connection with their other friends on shore" although other seafarers from previous generations shared the same feedback, it is still not a general rule, until proved with evidence. Gideon also mentioned some of his fellow officers on board other vessels reporting some of the seafarers from Generation Z with

them had quit due to the limited or inability to properly communicate with their families and friends in addition to homesickness, although he reaffirmed it happened only few times. He further added “but Internet connection can alleviate this homesickness as it is a big help for homesickness”. When how did he feel as a millennial when he had a mobile signal on his phone, he answered “happy, it is a different feeling of excitement”. He also confirmed that he would be actively seeking mobile signals as he mentioned “we would know how far the islands and lands are to seek it. Even if the land was 50miles away, I would still be checking for mobile signal. Also, we prioritize between the roaming rates and compare them with the local sim card rates. For example, if we traveled to Netherlands, we register our mobile data package only in the Netherlands carrier connection. So, when we are going outside Netherlands like Belgium, we need to make a new registration and buy another data bundle. We do it in every country”. When asked whether he thinks that shipping companies are aware about such issues, he answered “not sure, they will eventually have to know about it. I think if they will miss this kind of issues with the new generations, I guess they are going to have a lot of problems in the future”. Further about his digital isolation experiences as a millennial, he reported that the transition from shore where the internet is rather good, to being on board where the internet’s quality is poor “there is a gap and this difference is huge, it's really difficult”. He continued explaining further on new generations feel about the internet access on board, as he mentioned “sometimes the internet is their motivation to continue or internet is the deciding factor if they're going to be happy, or if it will be difficult for them during that contract. So even for me as a millennial, sometimes I experienced it, if I'm going to join a ship, I want to know if there is a good internet. So, if there is a good internet, I am mentally preparing myself that I will have a good contract. But if I knew that the ship is having a very bad connection, I would ask myself 'what would I do for these 10 months of contract without good internet connection?'" indicating that internet access fills some sort of a void that seafarers have on board, considering their very limited activities. When he was told about the forecasted seafarers shortage report, he stated “maybe the only thing that the shipping company can do in the next years is to provide high speed internet or increase seafarers’ salaries, so it will be more attractive for the new generations”.

Another millennial, Chester's company started providing internet access, he mentioned that his fellow seafarers from the later generations are so eager to have it, as they would tend to ask about internet access as soon as their vessel enter the port. He also mentioned that his fellow seafarers from these generations told him that they are willing to pay triple the monthly amount for internet data bundles that previous seafarers would usually consume "this new generation of cadets that I worked with, even though that I am third officer, and I am earning more money than them, they are they spending more money for the satellite internet access than myself. I consume \$20 per 100MB monthly, but they spend \$60 per 300MB monthly". He also reported similarly to other seafarers, he would be seeking mobile signals and he indicated that all his fellow seafarers would stay awake if the mobile signal were available in the middle of the night. On other concerns related to the digitally connected generations, Chester mentioned "considering they tend to vlog offline and upload their vlogs when they reach ports, when our company provides this pre-departure meeting for the crew that will be joining the ship, there will be one or two individuals who are asking 'is it permitted to record themselves working for the purposes of blogging'" indicating that some of their activities on board also naturally demands internet access. He believes that his shipping company is aware about such concerns of the digitally connected generations, as he explained his company started providing internet access on board, indicating that it is to be compliant with the MLC 2006 rules.

Jose, himself a millennial, sailed with fellow members of Generation Z and Generation Alpha whom last was born in 2002, he mentioned "being digitally isolated on board is difficult for them, i.e., generations Z and Alpha, as well as for us, the millennials. Given their familiarity with the digital world, they board a ship with extremely restricted internet connectivity and social interaction with individuals outside the ship. My shipmates of these generations would typically debate and criticize the limited Internet connectivity on board. Aside from this, they can manage and adjust to the situation as have all seafarers before them" emphasizing the necessity for Generation Y, Generation Z, and Generation Alpha to have access to high-quality internet. When asked how they felt when they had a mobile signal, When asked how they felt when they had a mobile signal, Jose responded that they tend to be busy on their phones, although he disclosed that they did not actively look

for mobile signal except at ports, as their voyages were international and far from land, therefore they did not receive mobile signals. Regarding their defense mechanism against digital isolation, he mentioned that they play offline games on their mobile phones and laptops, much like past generations of seafarers, except that their activities are more digital but offline. When questioned if he believes shipping companies are aware of this concern for his generation and subsequent generations, he replied that they were aware but were doing nothing to address the issue and disregarding it. About himself as a millennial, Jose revealed "I noticed the previous generations tend to stay on board their career lifetime, but for my generation as a millennial, I really I don't want to stay for too long as a seafarer, because I think I would sacrifice half of my life. I plan to quit seafaring by the age of 35 which is 7 years from now, summing to a total of 15 years on board. I can say this is the general mindset of seafarers of my age or generation. I had a seafarer from Generation Alpha, who quit seafaring after having one contract as a seafarer then he shifted to another career, also around 20 out 50 (i.e., 40%) of my batchmates from 2015 had already quit seafaring. The reasons my batchmates are staying as a seafarer is due to the high salary, and the reasons that are making us want to quit seafaring are due to being away from our families, lack of communication with our family and friends, and very limited internet access"

Similarly, to Jose, Hanei, another millennial who sailed alongside fellow mariners from Generation Z and Generation Alpha. He mentioned since they had internet access on board already, his fellow seafarers of those generations only complained about the affordability of the data bundles on board, as he mentioned it costed them \$10 per 50MB of data. He added further, "I would spend \$50 per month for 250MB, and they would spend twice this amount \$100 for 500MB" indicating that the Generation Z and Alpha tend to spend more data than the millennials as to what Chester also reported earlier and in Hanei's case it was twice. Hanei also said that he would be ecstatic to get a mobile signal on his phone, but that they only got it at anchorage due to his voyages being far from coasts. When asked if he actively sought mobile signals at anchorage, he responded that he would actively seek mobile signals in lands direction. Hanei noted that in addition to the \$50 he would spend on internet connection on board, he would spend an additional \$50 on local sim cards with data packages during port stays. When asked about their

coping mechanism towards the limited data and pricey internet access on board, he replied that they coping with the same conditions as past generations, but he explained that they would use VPN to prevent data usage from all apps, in addition to socializing with crewmates as they would read or watch certain online trends while at the port and then talk about these trends while at sea after leaving the port, indicating that not only some seafarers would be pre-downloading movies and series, eBooks, sport matches, and music, but also would be saving certain discussions for the voyage. Hanei responded negatively when asked if he believes shipping companies are aware of the digital isolation his generation and following generations experienced due to the poor quality of internet access on board, as he also stated, “the companies right now are just focusing on the critical aspects. For example, they would only take actions if a seafarer's family member died. They would not do anything about the little problems”. Hanei expressed about his seafaring career lifetime “my father was a seafarer; he spent all his career life on board. For me, I want to quit seafaring by the age of 35. Summing to a total of 14 or 15 years on board. For my fellow batchmates, they do not see themselves being too old and still working on the ship”, and “I think the new generations now are not looking to be in the shipping industry for too long. Some of them mentioned they intend to be in seafaring for only 6 to 7 years. I think they manage their financials better than us the millennials or the previous generations”

Jefferson is also another millennial who had voyaged with seafarers from Generation Z and Alpha. He stated that they are eager to play video games online, but they are unable to do so. He also reported a similar remark to Joes and Hanei, stating that he would pay \$12 per month for 50MB of internet connection on board, while his fellow seafarers of the subsequent generations would pay \$48 per month for 200MB. Although they criticized the extremely limited applications of their internet access, which only allowed them to use instant messaging, lacking access to social media and streaming services. When asked how he felt when he had mobile signal, he answered he would be happy, and when asked further if he actively sought it, he mentioned at port and near lands as he would buy local sim cards with competitive rates. He clarified that he used to get sim cards from Thailand and the United Kingdom, where coverage is available throughout Asia and Europe at the most affordable prices. When asked what their coping mechanism was towards the

limited internet access, he mentioned the same activities that previous seafarers stated which were watching pre-downloaded movies and playing offline and LAN video games. When asked if he believes shipping companies are aware of the digitally connected generations' internet access concerns, he responded "yes" and explained that his company recently began installing satellite internet on board for seafarers' personal use and began providing the first 50 MB of data free of charge. However, he was dissatisfied when he compared his company's internet access to that of Maersk, which offered unlimited internet access to seafarers on board, he did, however, add that his company is better situated than other shipping companies that did not offer internet access. He further explained that due to the very limited internet access his company provided, he applied for Maersk's job postings as he felt that they cared about their seafarers. This demonstrates that internet access is a major criterion for seafarers when deciding which shipping company to apply to, as well as a determining factor in the seafarers' minds as to whether the shipping companies care about their seafarers. In addition, Jefferson reported "I think my generation and the following generations are wiser financially, as to what I could understand from talking to my fellow senior seafarers from previous generations. Our generation tends to quit seafaring by the age of 40 after about 20 years of service, unlike most of the previous generation of seafarers who tend to spend their career lifetime on board. Also, for generations after me like Generation Z, I have known many of them, they tend to stay on board for five contract only i.e. around 5 years of seafaring service, as they would build assets during these years to quit seafaring".

Mahmoud is also millennial, and in his last contract, he had one fellow seafarer of Generation Z. However, Mahmoud had no internet access on board. He mentioned "my colleague experienced it as most of the new generations on board" and when asked whether his colleague used to actively seek mobile signals he replied, "every once in while he would be asking about the network signal availability like 'when will there be a network?' and 'after how many days?'". He went on to describe that he and his crewmates, including the captain, would mark the locations of mobile signals on voyage charts and schedule what days it would be available. He further explained "for instance, some captains may push the voyage planner to maintain the journey routes close to land regions that may receive mobile signals, so long as it does not significantly impact the

voyage. As a second officer and voyage planner, I used to challenge the captains over this matter. Some captains, due to their decades-long experience with certain routes, tend to know where the cell towers and signals are by heart". According to In Mahmoud's experience, the cadets on board did not have much free time because they were being groomed to become officers; therefore, when he was asked how his colleague coped with digital isolation, he stated that he was being mentored by the senior officers even during his rest time. However, he mentioned one unique story about him, "once, a member of his family was attempting to reach him; in the Egyptian tradition, families are often quite close-knit, and they expected him to respond as if he were on land. So, his relatives were concerned" indicating that internet access is essential when it comes middle eastern cultures, since some seafarers' families would be anxious if the seafarer did not have internet access. When questioned whether he believes shipping companies are aware of digitally connected generation issues on board, he responded that, in his experience, they are not. When Mahmoud was asked about how long he wanted to stay as a seafarer, he responded "I was thinking about staying 10 years offshore, but I stopped after 4 years", and when asked about seafarers from the later generations, he responded "I have been talking to one of the new generations of seafarers, he intended to stay on board for 5 years to save money and quit seafaring. Most of them, I think they would have this mentality of getting the ranks like being a chief officer or a master. And after that of a couple of years, applying for something on shore, whether it takes five years or seven years".

Jeannu, a millennial, had fellow seafarers from Generation Z and Alpha. He stated, "my main concern is the connectivity of the seafarer with his family on shore". He indicated that they tend to excessively stay on their mobile phones, and that especially in their first contracts usually would be struggling to adapt with the poor internet quality. When asked, how he felt when there is a mobile signal on his phone, he answered similarly to previous seafarers that he would be busy on his phone connecting with his family and friends. He also revealed that he actively sought for mobile signals, particularly during his container shipping experience, as he knew in advance which days, he would have mobile signal on board. Additionally, he mentioned that used to have three days without mobile signal. When asked how his fellow seafarers of Generation Z and Alpha were coping up with the

lack or limited internet access, he replied “they would just sleep to pass the time on board. Stay in their cabins listening to music or watching movies, even though they are extroverts. However, we would invite and encourage them to join us to play LAN games with the rest of the crew on board”. When asked whether shipping companies are aware about the digitally connected generations concerns, he replied negatively and stated that his senior officers would be selling sim cards to the rest of the crew because neither his shipping company nor his manning agency would offer anything. When asked how long he believed he wanted to remain a seafarer compared to subsequent generations of mariners, he reported “I noticed the previous generations tend to stay on board their career lifetime, but for my generation, as a millennial, I plan to have a total of 10 or 11 years as a seafarer. Some of my batchmates already shifted their career to shore. As for Generations Z and Alpha, I have met some who are passionate about seafaring and would want to spend all their career lifetime on board ships, but I think they aim to stay as a seafarer for 10 years maximum”.

Roedi is Generation X, he had many millennials colleagues but also had fellow seafarers of Generation Z in his last contracts before retirement. He mentioned that the digitally connected generations would typically complain about the fact that there was no internet on board, as he has never been on a ship that provided internet access for seafarers’ personal use except for sending emails. He observed that they tend to get easily bored when there is not internet access especially if they did not have devices like gaming consoles on board. He mentioned, “if there is internet, it is uplifting to them”. He also reported that they would be happy when they have mobile signals available. Roedi indicated that not only the digitally connected generations of mariners but also himself would be actively searching for mobile signals, as he demonstrated that he would usually have mobile signals approximately fifteen miles off coasts. He also reported “now my ex-manning agency is trying to persuade new seafarers into applying with them or applying for seafaring lifestyle. Even if the salary is not attractive, it would convince the new seafarers to join” indicating that shipping companies and manning agencies are reactive towards offering internet access for seafarers on board. When asked what he observed digitally connected generations were doing to cope with the lack of internet on board, he responded, “staying in their cabin, playing video games, and watching movies on their

personal devices, unlike in the past we had VHF in the messroom, and crew members would socialize during their rest periods”. When asked whether shipping companies are aware about such issue concerning the digitally connected generations, he answered “yes, due to the expected shortages of seafarers in some countries, the shipping companies started to outsource its manpower and would establish training centers in other poorer countries, even if the country is not known for having a strong maritime sector. For example, some nations started developing maritime in Ethiopia. I have witnessed this in my own company (i.e., his manning agency)” indicating that shipping companies and manning agencies are reactive to external influences and would disregard concerns in the pursuit of their own business interests. When told about one of the other seafarers who had 20 out of 50 of his batchmates leaving seafaring, Roedi mentioned "most of the seafarers of my generation stayed on board all their career lifetime, because we did not have many choices and many were coming from poor families", "in the early 2000s I have read a study, which concluded that seafarers at that time would spend 30 years on board and 5 years only in the house", and "I talked to young South Korean officers, they mentioned that in their country, they do not want to go onboard ships anymore and they do not want to become a seafarer. They would rather seek other sectors" indicating that in some advanced nations, seafaring has no longer become attractive, in comparison with other jobs. Also, indicating that if the country is not poor, its general population may not prefer a seafaring lifestyle.” suggesting that for those nations having less fortune in terms of financial resources, they might be willing or forced to accept the seafaring life as a lifestyle to get better pay, but in the advanced nations with higher income, this may not be the case considering various better alternative conditions or more competitive pay. He further elaborated “they also expressed challenges finding a partner or getting married, as in the South Korean culture, the women would not prefer her husband's seafaring lifestyle" indicating social pressures which may also add to the shortage of seafarers. He observed, “I noticed a big difference; the new generations tend to save money and invest it later. So, most of them (i.e. referring mostly to millennials and Generation Z seafarers; as he retired in 2019) are planning to quit seafaring after spending between 5 to 10 years in seafaring as a career. As they have other opportunities on shore such as working online or having an online business" when being asked to

reaffirm if any of the millennials or Generation Z seafarers had discussed if they want to spend all their career lifetime in seafaring, he answered "I have never heard any of them saying this. Unless if his family is used to seafaring careers, or his parents were seafarers perhaps", and "in my opinion, the latest generations will not have the tolerance for hard labor conditions similar to the seafarers who served before the implementation of MLC 2006 rules" illustrating the generational and legal framework changes in 21 years.

Jay is another millennial who has spent the past five years with mariners from Generations Z and Alpha. Even though he himself is a millennial, he did not mind the limited data on board. His comments about Generations Z and Alpha mirrored those of earlier seafarers, confirming the following: the digitally connected generations typically complain about poor internet access, i.e., in his case it was the low speed and limited internet on board, they tend to engage in more digital activities, and they consume and purchase more data bundles than previous generations of seafarers, including the millennials. However, he added that they would usually buy 'unlimited' data bundles on the local sim cards when they reach ports, also he mentioned that instant messaging and audio and video calls are sufficient for his use, but for the other seafarers of the digitally connected generations needed high quality internet access to watch videos social media requiring more data and speed. This implies that even though they already had internet access on board that was adequate to make audio and video calls, they still believed it was insufficient and deemed the internet access to be of poor quality. Jay also stated, "the first thing they always ask about on board a ship is 'how much is our free data here?' regardless of how many years they have been seafaring". He further reported "for the younger generations, I can see that they are eager to go work in countries other than my own. For example, they want to go to Italy, Germany, or Europe something like that, because of the social media pages of other seafarers working aboard taking selfies on board and posting it directly on Facebook and other social media sites since they have better Internet access on board" indicating that some of the new generations of seafarers would actively look to apply for shipping companies within advanced nations with better internet connectivity on board, and would not prefer their country's shipping companies or manning agencies if there was no internet access on board or if it was of poor quality. Aside from the fact that it is influenced by social media and the online

activities of other seafarers in these nations. Asked about how he felt when he had a mobile signal on his phone, Jay answered "It's quite hard to divide your time, because at ports, it is the only time that you have a good and fast internet while at the same time you have duties to perform on board and you have to take some rest during your rest time. I would usually ask myself, should I call my family? or should I rest for tomorrow's big job?" considering he used to have seven port stops on average, and at ports with better mobile signal connectivity and higher quality internet, he found it difficult to balance between his personal desire to communicate with his family and resting for the physically demanding jobs on the following day. He mentioned that he would actively seek mobile signals. He also had a similar answer to previous seafarers when asked about how did his colleague from Generations Z and Alpha cope with the poor-quality internet access, he stated that they would be playing LAN video games and socialize with other crew members. When asked if he thinks shipping companies are aware about such concerns related to the digitally connected generations, he responded that they are aware considering they know about the need for seafarers to communicate with their families already. When he was further asked to explain what the shipping companies were doing about it, he mentioned that his company is trying to increase the monthly free data bundle, and that he believes that his company adjust the data allowance automatically based on the consumption of each individual seafarer to balance their needs for data. When he was asked how long did he or his younger fellow seafarers planned to continue their seafaring career, he reported "as a millennial, our generation is more into saving money. Actually, ten years for me is already long as I spent 10 years on board now, and I think I will serve as a seafarer for 3 years more. I have been thinking about ending my seafaring career, because I need to start a family and consider having and raising kids which is very difficult to do as a seafarer. I asked one of my fellow seafarers, he is a 25-year-old young engineer (i.e. late generation Y or start of Generation Z), I don't think he will stay longer because he already owns a house and already had saved money. He worked already for 5 five years as a seafarer".

Seafarers' Shore Leaves and Repatriation to Shore

When asked if they were prevented from taking shore leaves, all seafarers who worked during the COVID-19 Pandemic stated that they were not permitted to take shore leaves because to restrictions imposed by governments, port states, or their own shipping company. In addition, with regards to repatriation to shore based on their own request or due to their contracts' expiry, during COVID-19 they had to extend their contracts on board. In both scenarios of the lack of shore leaves and inability to repatriate to shore, the seafarers had resulted in tremendous mental fatigue on board.

Bilenda indicated that even if the seafarers were allowed to take their shore leaves, it is quite challenging for seafarers to get on shore due to poor transport infrastructures between ports and urban areas in general, as the shipping companies would delegate such concerns to the vessel's agent to handle and sometimes would not have readily transport means to shuttle them or that the shipping companies would save costs by leaving it to the seafarers to arrange their own transportation, as she stated "the transport method between Rotterdam's port and the welfare centre in Brielle is a major issue for seafarers". She added that in extreme instances, which occurred frequently, seafarers would be stranded at the port. She elaborated further, "shipping agents were a bridge between the welfare centre and the seafarers, and it is by accident that the seafarers are often aware that there are places designated for their welfare. Usually the agents just want to complete their business without much care about what is going on with the seafarers, how they feel, or treating them in an objective way" indicating that there is a hidden issue that seafarers quite often encounter, considering they would have to deal with an intermediary persons or organizations.

Bilenda wanted to stress on the intermediary persons or organizations, thus, she stated "the disconnect between the welfare centre and seafarers, is due to the middlemen i.e. the agents. The first person seafarers see is the agent. So seafarers ask 'what they can do' and 'how can they do it' during their on shore stop, that is if they were even allowed to get onshore", "pilots also can be middlemen sometimes to bridge the gap between the welfare centre and ships' crews", and "there was this one time when the seafarers tried

to go on shore leave, but due to agents' negligence and not processing their papers, they were not allowed to go on shore. Although, the agent was in close proximity to the port area and the ship. Some of the manning agents have never been onboard a ship. They do not see the point of view of the seafarers and this is another communicational gap. Another example, once I had a request by a captain that they did not have charcoal on board and wanted 100kg of it. The agent only arranged for one bag, which is far below than what the crew needed for their requirements. So I had to arrange for it based on my personal initiative, buy it and arrange for its transportation until delivery to the ship”

She mentioned some barriers that obstructs seafarers' ability to get on shore, especially in high marine traffic ports like the Port of Rotterdam, “Surveys, inspection, customs, operations onboard usually would not allow seafarers to go on shore, mainly due to Rotterdam Port having a very busy traffic. Hell breaks loose when seafarers reach Port of Rotterdam!”. She also observed that there are differences between segments when it comes to seafarers' shore leave permission as she stated “there is a huge difference between container vessels versus tankers at anchorage, due to different ways of loading, different cargos, and port stays time. The seafarers of the tankers cannot go on shore while their vessel is in the anchorage area.” Also, she mentioned that seafarers were dissatisfied with the short port stays "due to short stays at port, the seafarers have complained about it. Imagine working on a vessel for a full month, and when your vessel arrives at anchorage area, you only have few hours for your shore leave. The seafarers would feel bad when they are about to return to their ships quickly, especially for officers which is even more difficult for them to be relieved to go on shore leave due to their duties". Additionally she highlighted that not all ports allow seafarers to go on shore, “terminals' protocols vary from port to port, but most would not allow seafarers to get out of the vessel without permission from security, sometimes welfare representative would go to the port and get the seafarers by him or herself” indicating in countries which do not have seafarers' welfare centres, the seafarer might not know how to get on shore. Also she stated “there are many reasons that stand against seafarers' ability to go on shore leave. These reasons could be visas, paperwork, bad flights sorted, the manning agent, etc..” During COVID-19, she was allowed onboard sometimes, although the seafarers were not allowed to go on shore. She would, as an initiative, usually check the marine

traffic online and would know if the crew were onboard waiting, especially at anchorage. She also reported various seafarers' cases. The first one was being on board for two continuous years during COVID-19, the second one was about a seafarer who needed a dentist but was not allowed to go on shore although it was a Danish shipping company, and the third case was related to crew rotation issues which was about a chief cook who was not allowed to go on shore for 10 months because his captain and because there was no reliever for him.

Bilenda also mentioned issue of seafarers' inability to repatriate to shore, as one of the seafarers she encountered could neither repatriate for medical attention, nor able he was to go on shore, as she stated "any issues for seafarers onboard, the It starts with the captain, and captain would have to call the agent to arrange for the repatriation and resolving this issue. The seafarer's captain did not allow his crew to be healed anywhere in the world! such issues has been a huge and increasing for seafarers in the last few years. Sometimes it is the port authorities or governments, not just captains that would not allow seafarers to go on shore. Even if the resources are available. The Law is not effective."

Daniel reported that his company's policy did not allow for seafarers to go on shore due to COVID-19, even after the restrictions were lifted in most countries. Considering Daniel was working in tankers segment, he mentioned that the shore time was not sufficient for him and his crew members to go on shore, other than the fact that they were not allowed to go onshore. He also reported that during COVID-19, he was unable to repatriate to shore after his contract expiry and eventually, he had to extend it, despite the fact that he highlighted "our productivity was lower because our mental state required us to be home". When he was asked whether shipping companies were aware about such issues relating shore leaves and repatriation to shore, he answered positively and gave an example that one of his fellow seafarers who had his father passed away on shore, his company arranged for his repatriation.

Presant mentioned he was not working as a seafarer during the COVID-19 Pandemic, but he stated "my fellow seafarers, due to Covid-19, it was extremely bad situation from

policy point of view, they're on board for about 15 months, they have not been able to step out of the working environment to relax a little bit outside, because of so many constraints and so many restrictions despite having COVID been literally over since January of 2022; still crew members are not able to go ashore, which is amazing by any standard. All other industries, you name it, have opened up already, but in the maritime shipping it is still an issue for some seafarers. He explained even if the seafarers were allowed to go on shore, "when seafarers have the option to go out for these few hours, they have the following concerns: is the port is allowing? are the shops open on shore at this time? Are there any restrictions for COVID-19 i.e. quarantine, vaccination, PCR test? are masks mandatory? is my nationality allowed to go outside? there were a lot of countries which had stipulated surely sign off is not allowed, except for medical emergency", and "even if the seafarer is successful to go on shore, still, you need to be clear of the alcohol levels before you report to duty, which is 4 hours before returning to duty, and it should be less than probably 20 mg per ml consumed in your blood; you might be tested randomly thru urine, blood, or breath which is done monthly; if a seafarer got any one deviation, he is sacked right then and there; this high standards of restrictions is usually in tankers with zero alcohol policy, but not much in bulkers and containers". When asked what the coping mechanisms were the seafarers would do or have, he answered "all you can do on shore, considering the restrictions and standards especially on board tankers, is have a sip of a coffee, mall shopping or sightseeing. No alcohol in your free time, unless if it can be drained from your body before you report back to duty, and now my current company would not allow seafarers' to have alcohol even during the shore leave."

Although he was not employed during the COVID-19 outbreak, he returned to seafaring once most of the counties restrictions were lifted, Jade experienced inability to take his shore leave in some countries due its COVID19 restriction measures. In addition to being not allowed to go on shore in US ports. When asked about how did he cope up with the situation on board, he mentioned playing video games and seeking internet connection to communicate with his loved ones. He believed shipping companies were aware about the seafarers' shore leave issues but were unable to do anything about it. Also, when asked about repatriation concerns, he stated that he had not encountered any, but that

his company would not permit seafarers to return to home upon request if it was unable to locate a substitute or if it simply declined seafarer's request. Regarding medical repatriation, his company would repatriate the seafarers without hesitation. This shows that his company's seafarers may occasionally experience substantial mental fatigue if they had a pressing problem on land or at sea that they needed to return home. In his opinion, the shipping companies are compliant with the repatriation to shore MLC regulations.

Aragon reported inability to take his shore leaves during COVID-19 in all countries, and in some countries post-COVID-19. He stated that while he was stranded on board, he would try to communicate with his friends and family. He did not encounter repatriation issues, but he mentioned a similar statement to Jade's as he stated, "if it is not medical emergency, you have to stay on board until they find a replacement, and there is no replacement you are not allowed to repatriate to shore". He thinks shipping companies are aware about shore leave and repatriation to shore issues only in cases of medical emergency as he mentioned his company would evacuate the seafarer via helicopter until the seafarer's recovery and return to service on board. When asked if shipping companies were compliant with MLC 2006 rules regarding repatriation to shore, he mentioned only during medical emergencies; indicating that if his company was unable to find a replacement, the seafarers would be stranded on the ship, or at least he would be waiting for a lengthy period of time until his company manages to find a replacement, that is only if his company accepted his request in the first place. This means that the minimum manning on board does not cater for additional emergency crew members and is enforcing the bare minimum requirement without a backup plan, and that his shipping company was reactive towards such concerns considering it does not have a crewing backup plan available.

Hidoe mentioned that he did not encounter any issues regarding shore leave requests as he quit seafaring in 2018 before COVID-19. He had the highest number of ports stops among all seafarers. Although he mentioned some countries would not allow him to go on shore due to visa requirements as mentioned "some countries are off-limits for seafarers. For example, if we do not have certain IDs as Filipino seafarer in American and

Chinese ports, we cannot go on shore. Our company allowed as long as we have completed our work. but we must return two hours before our duty.” Hideo commented on having shore leaves as necessary for himself as he stated, “just to maintain my sanity” implying that shore leaves allowed him to relieve any work-related or mental fatigue-related stress. About repatriation to shore, Hideo shared one of his experiences that it took a long time to fulfil his request due to documentation processing by his company and his agent, as he stated “my uncle had died when I was on board and I could not go home, which was mentally distressing for me, because even calling home was very difficult when we were in the middle of the sea. Considering in 2018, the internet was very slow and I think we only had 25MB. So by the time you open messenger, data would have already been expired. As for the repatriation to shore, the company demanding documents was very mentally stressful because the company kept sending me documents to do this and do that, without them knowing that I was very tired mentally already” demonstrating that even if seafarers were permitted to repatriate to land, documentation may be a hurdle or cause delays, which could render the reasons for repatriation to land obsolete, which may further increase the seafarer’s stress and mental fatigue. When asked about whether he thought shipping companies were aware he answered “the companies were aware, but the seafarers can't do anything if they were not allowed to go back to shore if they were sick as we would also afraid to lose our jobs; and if we filed a complaint against the captain, the captain would be removed from the ship, but the shipowner will face challenges due to this change and this would impact our job with our manning agency” indicating that the seafarer might be forced to accept the shipping company’s decision if it declined the seafarer’s request out of fear of losing his or her job, and indicating that if it was an emergency at home, the seafarer would encounter severe stress and mental fatigue. He also mentioned “It also depended on the captain, if you did not have an understanding or strict captain, MLC 2006 rules will not matter” suggesting that sometimes the regulations are ineffective due to masters’ personalities and decisions. He also reported “it really depends on the company on the on the part that you're going to work for” showing that he was lucky enough that his company allowed him to repatriate as other companies would not. When he was asked whether he thought shipping companies were compliant to repatriation to shore in cases of medical emergencies, he

mentioned that one of his colleagues had a medical repatriation once, and his position was vacant for one month, so his crew members distributed his tasks among themselves until his return to the vessel. Hence, he believes that shipping companies are compliant with the repatriation to shore regulations.

Sunny started seafaring mid-2021 where his contracts, ever since, were including clauses prohibiting him from having any shore leave, indicating that even when COVID19 restrictions were lifted off in almost all countries around the globe, some of the shipping companies were still using the COVID-19 as an excuse to prohibit seafarers from taking shore leaves, whether it is for the company's convenience or cost saving measures. It may be the case that these companies are reducing their business risks, however, there are many alternative measures that can be taken to mitigate this concern, and some shipping companies might have abused the COVID-19 Pandemic as an excuse. Additionally, about the repatriation to shore issues, he shared the story of one of his colleagues, "my chief officer had an issue where he had to go home because his mother was very sick that time. The company promised that he would go home, but it took a very long time. In fact, it was already when his mother had passed away. And only then they had allowed him to go home. It took them 3 ports to fulfil his request which is equivalent to more than 21 days. The first port was China, and China's ports were strict at that time due to COVID19 even if it was an emergency. The second port, the agent failed to process the papers. Even though, he arrived at his home 40 days after she passed away already. He was very mentally fatigued during the time he was waiting on board," and "when his mother was the ICU, my chief officer was very sad. And I do not know how to explain his expression, but he was not motivated to work" reaffirming the same indications that were reported by the other interviewees, and in this case, the reasons were due to papers processing, failure by agent to process papers, and the port not allowing seafarers entry. When asked whether he thought his shipping company is aware about such concerns relating to repatriation to shore, he answered "they were aware only after this incident, which was brought up to the executives of the company" highlighting a very reactive company or perhaps due to COVID-19 it was an exceptional case. Nevertheless, Sunny believed that his company was compliant with repatriation to shore regulations.

Gideon have had encountered many issues relating to shore leave and repatriation to shore. About shore leave, he stated “due to COVID-19 restrictions in some countries now. When I re-joined my vessel in 2021, most of the ports we visited were closed, we cannot go outside, except in Europe. And before COVID-19 it was okay, as long as it was during rest hours and able to come back before the next shift. But it also depends on the chief mate, he is on duty 24 hours but his shift replacements are not i.e. the second or third officers, as there should be a duty officer in every shift cycle” indicating that other than COVID-19, the duties of some seafarers on board were sometimes not allowing them to go on shore as to what Bilenda stated earlier. When asked whether he thought shipping companies were aware about shore leave issues, he answered “In my opinion, the shipping companies sometimes would prefer that their crews do not go to shore, and would prefer to restrict the seafarers from doing so, to avoid potential problems” although his company used to allow seafarers to take shore leaves before COVID-19, he believed that shipping companies tend to abuse the COVID-19 as an excuse to prohibit seafarers from taking shore leaves. Regarding his negative repatriation to shore experiences, he mentioned that during the COVID-19 pandemic, he was not permitted to repatriate to shore until months after the expiration of his contract, although he felt fortunate that his country was on one of the ship's voyage routes, allowing him to disembark at that time. He further stated, “I have also my some of my colleagues and my batch mates as well, that have submitted emergency request to go home, but there is no possibility to go home because of this restriction during COVID. Especially off the coasts of Africa”. He stated about seafarers request to repatriate to shore “for medical emergency, the company policy states that we have to be evacuated in cases of medical emergency, but for other reasons, it depends on the severity of the situation and it also depends on the 'nearest port of convenience'”. When he was asked what reasons could he attribute failure to repatriate the seafarer to shore, he answered “it's not really that it is not allowed, but the process is like 'impossible', or 'extremely difficult', sometimes it is up to the company, sometimes it is up to the captain, sometimes it is up to the agent, and sometimes it is up to on whether or not there is reliever or not”. He further explained that “it affects you mentally, it will make you out of focus with your job. Especially on board a ship, you have a lot of time to think. So, if you have something like an emergency at home, you have a

lot of time to think about it. So it will stimulate your life, you will become sad, lonely, frustrated, and anxious” indicating that shipping companies failure to repatriate the seafarers to shore if the request was from the seafarers himself leads to overthinking and mental fatigue considering the ship environment can amplify negative thoughts, and the activities on board are limited. He reported, as his defence mechanism against the potential mental fatigue and overthinking issues on board “before I join a ship, I would tell my family if there was a problem that they can handle, just do not tell me and do not contact me if you can handle it and manage it. But if it is related to who is sick or it's related to something imminent inform me. Because what can I do if I am miles and miles away? unless if it financial, then, we can transfer a hefty amount thru banking services online” signifying that he would try to prevent mental fatigue relating to repatriation to shore in advance by sorting it with his family. He further added about any family emergency on shore “as a seafarer, father, and a husband, they rely on you on certain decisions to take, if you will have a limited internet connection, you can make daily interactions. And then you would know the small things about them, for example, if they have engaged to something or they experienced something, you would be updated in real time. So, you can eventually evaluate the situation properly, you can give your insights, your advice properly, because of the almost real time information and the details from them. So, you can give them instruction more accurate” emphasizing that internet access in general helped him with family emergencies on shore to the point that he would not consider repatriation to shore, especially if the internet was of high quality to allow him to make audio and video calls. He also elaborated, “as a seafarer, before we go on board, we need to consider the extreme scenarios, for example if somebody dies from our loved ones, we cannot do anything at all.” Hence, his defence mechanism against repatriation to shore is preventing the need for it by mental preparedness, sharing with his family in advance how his perspective on board would be if his family dropped him bad news that he was unable to resolve, and guiding his family needs and decisions via internet access. When asked whether he thought shipping companies were aware about seafarers’ repatriation to shore matters, he answered “if it is not really a pressing matter for them. They do not care”, but when asked if they are compliant to the MLC 2006 regulations in terms of these issues, he answered positively.

Chester mentioned about his shore leave experience, “before COVID-19, we were permitted to go outside and it was easy to do so. But during and after COVID-19, as a result of company policy i.e. they issued a memo stating that crews are not permitted to leave the ship”, when he was asked to reconfirm that this is against the MLC regulations, Chester answered “yes of course”, and he mentioned that his company is aware about the seafarers need to take their shore leaves, but it is still not allowing them to go on shore, abusing the COVID-19 Pandemic as an excuse even after the COVID-19 restrictions were lifted already. About repatriation experience, he mentioned one of his former captains who had his sibling passed away, “It occurred to my former captain. Sadly, his sibling, who is also a seafarer, died in an accident on board, and he simply slipped into the cargo hold and died. Therefore he requested from our organization to allow him to travel home, because we were passing by Algeciras Port. It took him one month to go home after his father passed away already.” When he was asked what the reasons for such significant delay were, he mentioned that their vessel were passing by the Algeciras Port, and his company denied the captain’s request claiming that the port required 14 days quarantine, but as the vessel was moving already such quarantine requirement was not feasible, and his captain was unable to repatriate to shore.

Francis, who had a family emergency at home regarding the car accident, did not request for shore leave or repatriation to shore. Also, he was a seafarer before COVID-19, but had to quit seafaring after the first contract due to this accident. He believes that his shipping company was aware about seafarers’ concerns regarding shore leave and repatriation to shore, and in fact, was encouraging its own seafarers to go on shore and repatriate to shore in cases of emergencies. He also mentioned that one of his fellow seafarers required a medical repatriation which was fulfilled without any issues. He also mentioned that in his employment contract and his company policies “we have this policy that if you have your parents or siblings suddenly died, then you could ask for repatriation to shore or shore leave” indicating that his company genuinely taken these issues seriously.

Jose stated about his inability to take shore leaves during the COVID-19, “we could not go to shore and we were restricted, it was just like a prison in the ship”. He highlighted

that his company would repatriate seafarers for medical emergencies, but for other cases of emergencies, it has to be evaluated by the company, as he reported one of his fellow seafarers who had a family emergency at home and the company declined his request to return home. He further reported “in case of family emergency back home, it is up to the company if it wants to allow the seafarer to go back home. If the travel expenses are high, they would definitely not allow the seafarer to go back home. I had a fellow seafarer who had this issue when his father passed away, and the excuse of the company was that the nearest port was not a port of convenience, but the truth is that it was because of the high costs. But he was repatriated two weeks after his father passed away” indicating some shipping companies would consider business efficiency and cost savings at the expense of seafarers’ welfare, and that his company was compliant with the MLC 2006 regulations but without being considerate for the seafarers’ themselves, suggesting that MLC 2006 regulations needs enhancements.

Hanei stated about his inability to take shore leaves “before COVID-19 it was fine to go ashore, as it helps mentally. however, for all my contracts in the past two years since COVID19, I am not allowed to go ashore, it was initially because of the Pandemic, but then the principal of the ship does not allow us to go ashore now due to safety considerations. I actually feel like the ship is a prison. At the end and I believe that the emotional wellness is also a big part, so the shipping companies should allow us.” When asked to further elaborate the reasons, he answered “the company is using the COVID19 safety measures as an excuse not to allow us to go on shore, even if the restrictions in the country we are visiting are lifted”.

When asked about any failure to repatriate to shore experiences, Hanei mentioned he did not encounter any. He stated “the company would repatriate the seafarers only in case of necessary medical emergency, if it is the evacuation is possible at all. Otherwise, we would wait until we reach the nearest port. The company would also repatriate the seafarer only if one of his immediately family members dies. Hence, they would act based on the necessary medical emergency, but for the other reasons, they do not care much” indicating that his company is reactive and is seeking to comply with the basic MLC 2006 regulations.

Jefferson mentioned that he spent a full year on board without being able to take a shore leave, except in a Canadian port after around 7 months on board. He also reported that some of his colleagues were stranded for 19 months offshore because of COVID-19. He stated "I would understand the company is also trying to prohibit us from going on shore, as it is quite dangerous if we had a voyage and one of the seafarers has COVID-19. Although nowadays some companies are allowing shore leave and other seafarers are now less concerned about COVID-19" this statement matches the other interviewees feedback. About repatriation experiences, he stated "one of my colleagues requested for repatriation but the company asked him that the airfare fees are charged on him, as his reason to repatriate was not as stated in the contract. Another colleague had who had his father passed away, the company repatriated him in about two days because we were at the ports that time." When he was asked about whether he thought shipping companies were aware about repatriation to shore, he answered "yes, but it depends on the company and it also depends on the captain."

Mahmoud, who had shared the most extreme experiences relating to repatriation, "I had an injury in my arm that required hospital but I dealt with it according to what I know. I was working for a company contracted with the United Nations. I did not know that we would be trapped in a conflict zone, we were in Yemen and nobody was allowed to have shore leaves because of the local Militias." He also stated "due to COVID19 quarantine requirements, my repatriation and signoff was delayed for two weeks. But I managed to go back." When asked about the reasons, other than the warzone conflict areas and COVID-19, he mentioned "the companies that I worked for would wait until we reach the cheapest port possible. As an extreme example, we had a crew member, our chief engineer, who passed away on board, it took 5 days to reach the port. He had a heart condition for three days before he passed away, and nobody cared." He also added about his company, "if the seafarer would ask for repatriation during the contract, the company would negotiate so that it tries to not to pay the seafarer his salary as some sort of contract breach" indicating in his company, if the seafarers requested to go on shore due an emergency back home, there is a chance the seafarer would lose the whole contract including whatever he served, which is more of a bargain.

Jeannu mentioned he experience the inability to take shore leaves due to COVID-19, as well as reasons related to ratings' stating, "because rest hours are not sufficient or shift hours are not suitable for the seafarers to go on shore". About his inability to repatriate to shore experiences, he reported that due to COVID-19 he stayed on board for 6 weeks after one of his contract's expiry dates. Also, he reported "one of my fellow seafarers had an emergency on board, and some ports were not allowing him to go on shore. And another fellow seafarer could not repatriate to shore based on his request due to a medical emergency with one of his family members, the company did not allow him repatriate to shore. So, he stayed on board for the remaining two months until his original contract completion date." When asked to explain other reasons other than COVID-19, and company declination that he indicated earlier, he responded "sometimes, the agent is not allowing the seafarer to go on certain ports due to its high expenses. And if there is no replacement for the seafarer requesting repatriation in the middle of the contract, then the company would not allow him to repatriate to shore." He believes shipping companies are not aware about the seafarers shore leave necessity and their requests for repatriation to shore, as he stated that he is working for shipping companies via manning agency, and that "it is not their main concern." When asked whether he though shipping companies are compliant with MLC 2006 rules in terms of seafarers' shore leaves and seafarers' repatriation to shore, he answered, "yes, although sometimes it is depending on the country of the ports and the agent, the shipping companies are not really doing their best. They would only implement what stated in the contract, which is 'the death of an immediate family member'" establishing that some shipping companies are very reactive towards seafarers' welfare, and would act mainly due to regulations influences.

Considering he retired before the COVID-19 Pandemic, Roedi had experienced inability to take his shore leave in one of Saudi Arabian ports in 2016, attributing it to the country's local laws restrictions, similarly to what other interviewees had indicated earlier. He also experienced inability to take shore leaves due to other reasons, as he stated "when we stopped in India, the port would not allow all seafarers on board to go ashore due to some of existing the seafarers on board holding Pakistan's nationality" indicating that sometimes seafarers are stranded due to geopolitical tensions. Considering he had been a seafarer between 1998 until 2019, Roedi also commented "even after MLC 2006

implementation, due to short stays at port. For example, 18 hours stay at port is not enough after a month of international voyage”, and “after 9/11 terrorist attacks, ports’ security measures has become more difficult” pointing out that in the last two decades, short port stays and terrorist attacks had made it quite difficult and challenging for seafarers to take their shore leaves. He further clarified that sometimes the short stays at ports is attributed to the size of the vessel requiring less time in port. He also indicated that the older generations of seafarers tend to stay on board at ports, if the port stay time was short, and they would only be satisfied with the use of local sim cards as he claimed “I think when the seafarers get more senior as a seafarer, they tend to stay on board if these two conditions apply” i.e. he meant the local sim card and short port stays. Further about inability to take shore leaves, he reported “my friends, ex crew mates, and seafarer cousins, all have been on board for around two years due to COVID-19 restrictions and they were mentioning it was very difficult. And I would encourage them not to be reckless on board” indicating that some of the seafarers he knew that were stranded on board ships during COVID-19 and had to keep on extending their contracts, had encountered severe mental fatigue that they were unable to control their rage. About his inability to repatriation to shore experiences, Roedi mentioned “in the late 90s and early 2000s, it was difficult to repatriate to home, we had to wait for months after the contract completion if it was not convenient to for the company repatriate us, whether because of the 'port of convenience' or cost related”, and another experience due to lack of a reliever after his original contract’s expiry “once in 2017, I had completed my contract, and the manning agency did not have a replacement seafarer, they told me this on the last day of my contract. I was not allowed to repatriate to shore and I had to accept contract extension for an additional 3 months on board. Also, the captain was not trusting the junior ratings with the duties on board. It slightly added to mental fatigue considering me and my family's expectation that I would be going home by the end of the original contract. It was acceptable at that time because the captain was good.” When asked whether he thought the shipping companies were aware and compliant with seafarers’ repatriation to shore regulations, he responded “yes, shipping companies are aware, but it depends on the company. For my company, it would allow us to go home if we requested, especially if the contract was near completion date of about one month. If it was in the middle of the

contract, the seafarer would have to bear the airfare ticket costs. And the company would pay only in case of wife or kids passing away, not parents nor other family members.”

Jay’s experience with shore leaves was also good up until the COVID-19 Pandemic happened, when his company started implementing a 'no shore leave policy' even if the port itself allows seafarers to disembark. He also expressed his frustration “we are quite jealous of some of our fellow seafarer friends, they are showing us pictures that their company allows them to go on shore. So I think it just depends on the company”. When asked about how was he coping up with this condition, he stated “Now, if seafarers needed anything, they would be requesting the agent in advance to fulfil our needs” i.e. seeking the agent to provide necessities, and local sim cards at ports or scavenging on the good internet at ports due to mobile signal availability to communicate with family and friends. His condition also matches some of the other interviewees who had no shore leave policy in their companies. When asked if he thought shipping companies were aware, he mentioned that they were aware and compliant with the MLC 2006 regulations, as he explained, “if you have a family member passing away, they will let you sign off in the nearest port. But for other kinds of personal emergencies or family emergency at home, I am not sure that is easy to do, you have to make up some issues like saying 'my back hurts or other medical conditions'. Though if a seafarer got sick, we have medicine on board for mild illnesses, but they will evacuate the seafarer if needed” suggesting that because some shipping companies are not fulfilling their seafarers’ request to repatriate, some of the seafarers would be inclined and forced to make up medical excuses in order to get repatriated. He further clarified, “the company would consider the nearest port of convenience, and would consider the factor of ticket price. It would also have to consider reliever issues. If something happened, there is no immediate backup seafarer and they have to search for one”

Arthur on the other hand, as a seafarer on board cruise lines, also had encountered inability to take shore leave due to COVID-19 restrictions, as he stated “during COVID-19, we were not allowed as cruise line crews to go outside. Although the passengers who are usually 2400 passenger, but 1200 during COVID-19, were allowed to go outside under certain protocols according to the assigned guide of each group of passengers.

Only the crew members have to quarantine for seven days, but passengers were not required to quarantine, except that they were not allowed in certain facilities within the cruise terminals. Starting this year until now in mid-2022, we are allowed to go on shore". When asked about his repatriation to shore experiences, he mentioned he did not have any issues, as he reported "we have a designated crew handler, in case of emergency, we can get a ticket on the same day. It just depends on the availability of flights" indicating that because the cruise ship was consistent of 1200 crew members on board, it would be easier to have such services handled officially by designated employee, in addition to the fact that cruise lines are more noticeable for the public considering they are serving passengers, which adds more pressure on the cruise lines to fulfil the needs of its employees on board i.e. to promote its reputation and maintain its image, which is distinct from shipping companies whose seafarers encounter substantial governance gaps.

Current Internet Broadband On Board Ships and Best Practices of High Quality Internet Access On Board

Bilenda highlighted one of issues regarding internet access on board, as she stated, "the challenges that most of seafarers will not have time for internet, except during off time and breaks" indicating that seafarers might not have the time on board to use it". She further added, "the internet technology on board is never like normal internet access on shore and its technology" considering the satellite technology is different than internet technology provided on land, or based on tower cells, as she further explained "seafarers of the new generations are struggling with the differences in internet access between being onboard versus being onshore. For example, one of the shipping companies made apps for seafarers, but the seafarers do not even have time or internet access that is as good as the onshore internet capability. Hence, the shipping companies need to take the point of view of the seafarers into consideration at all times." She mentioned "most of the Danish vessels have decent internet access, but other areas in the world have limited data per week which have a lot of issues. Sometimes they go for days without internet, even captains cannot send emails sometimes" as she also observed that seafarers

sometimes when they are taking their shore leaves would visit the welfare centre just to have a good internet connection which is something they lack on board the vessel during voyages.

When asked about the current internet quality on board, Daniel reported multiple issues, as he mentioned he was unable to use it for audio, or video calls except for low data consuming instant messaging apps like WhatsApp and Facebook Messenger. As he also mentioned “you have to disable all other data consuming apps.” Another issue he reported, “during the death of my loved ones, all I was doing is chatting with family and friends, although the data was limited to 180MB and speed was an issue, I was trying to make video calls during these stressful times to understand what state the other person was having, for me to support them”. He was asked about the speed and affordability of the current internet on board, he answered, “slow, video calls can be pixelated and you may not understand the other person” and “we pay for it, \$20 for 180MB of data which is not reasonable and it is barely used for messenger only. I pay for this bundle 3 or 4 times per month i.e. a total of 80\$ per 720MB per month. It would amount up to 4% of my monthly salary”. He reported that his company had a dedicated computer on board, but for business use only, as the personal use would be via each seafarer’s personal devices. The reason this piece of information was raised, due to the fact that some shipping companies do not provide internet access for seafarers personal use, i.e. as in the old practices since the 2000s with only emails access. When he was asked whether he thought, if all seafarers were connected to higher quality internet, the socialization among seafarers on board would change, he answered “not necessarily, for example, at ports, we have mobile signals but we still carry on with the karaoke nights on board.” Daniel further stated, “only at ports we can communicate via audio and video calls with family and friends, and have normal apps usages. But then we have to buy the sim cards and top it up. And we have satellite phone which charges \$20 per 30 minutes of audio call. We rarely use it, only during emergencies back home. Some of my colleagues use it, considering they are married,” and “Because of limited internet, we play LAN games on board”.

He answered positively in each application in terms of training, productivity, mental wellbeing, normal transactions of internet uses, when he was asked if high quality internet access i.e. high speed, low latency, free or affordable, and available internet access which satellite technology competitors seem to have already tested on board some ships. Hence, in terms of training he would consider seeking a higher education degree online while being on board, renewing his sea service license and certificates online stating “renewing of COC certificate would be easier and less of a hassle, especially if we have online access to certificates and online. Unlike before, as you have to wait till you go home to process everything”, seeking e-learning or online courses via the various official platforms for various professional degrees stating “especially if you're aiming for a higher rank, that you need to review, you need to study and you need to prepare for the examination this with high end with high speed internet and unlimited accessibility”, and seeking awareness online about latest safety practices like the COVID-19 awareness during the Pandemic or latest work practices. In terms of work productivity, such internet access would increase his productivity as he stated “having a happy crew of course; as we experience homesickness, isolation, stress, and fatigue, and there is no one other than your loved ones and family who can truly relieve this type of sadness and homesickness. Having constant communication with them would significantly reduce feelings of loneliness compared to, say, just waiting until you return home”, and he would consider connecting with experts in his field of work online. In terms of mental wellbeing, he answered positively when he was asked whether such internet access would have supported in all the previous issues that were discussed i.e. physical and mental fatigue, social isolation, the concerns of digitally connected generations of seafarers, inability to take shore leaves and inability to repatriate to shore. Also, he answered positively when he was asked whether he would consider seeking online psychological support services while being on board in case he needed or would at least seek his family and friends for such concerns, and when he was asked whether such high quality internet access would convince him to stay on board longer during his contracts, he answered “yes, definitely.” In terms of the normal transitions in life i.e. the applications that on shore society uses frequently but seafarers may find it challenging considering the current low quality of internet, like internet banking services or online gaming, he answered positively for both

and he stated on online gaming “currently we play at anchorage especially, because we then have signal and better internet thru local sim cards.” However, when he was asked whether such internet access would have reduced harmful habits such as excessive smoking or heavy alcohol drinking, he answered negatively stating “I think no, because it is a seafarer’s habit”

Presant’s experiences with internet access is positive as he mentioned “with high-speed internet on board, you are linked to your family 24/7. I do not think family disconnection is a problem, in my experience,” “I do not feel it is an issue as of now with the internet on board”, and “with the one megabyte-per-second speed it suffices for voice calls, but for video calls, you have to use the local sim card when there is a signal”. When he was asked about its affordability, he answered “\$20 per 1GB or 2GB” and when he was told about Daniel’s internet access of 180MB per \$20, Presant replied “that’s probably very difficult join, it is too expensive”. He mentioned, “masters on board have privileges since they have access to satellite internet or satellite phone for business purposes, which some also use for their personal purposes every once in a while, as they have the access granted already.” When he was asked whether his company provided a computer on board, he answered “yes, but for business and training purposes, with restricted access for social media or entertainment. For personal use, we have term called “BYOD” which stands for ‘bring your own device’”. When he was asked what he thought as ‘reasonable amount’ as per the MLC 2006 regulations, he answered “yes, it is reasonable, but I wish there were some companies who would reduce the price for such data, because it is extremely expensive for a newcomer. For example, for trainee semen it is really expensive, \$20 minimum is too much; 1GB should be priced at \$5”, and “complying with the MLC rules is correct, but the rules have led a loophole that you shouldn’t be overcharged \$20 for 128MB or 1 GB. That is what the company is making profit out of it, which, they shouldn’t be doing as it is totally unethical”. He further clarified, “some companies provide 24/7 onboard free data companies with no limits, although other companies charge per gigabyte. But with the new technology coming in, the shipowners need to take a stand for their ship owning companies, for their ships, and for their seafarers”, and “every day you have new technology coming in at cheaper costs, for a mobile or satellite connectivity, or broadband with your VSAT connections, you have

different new types of connections coming on board, but it depends on whether the shipowner is willing to implement that expensive equipment on board your ship". Presant further mentioned that internet access and its package is a major factor when deciding to join a company or a ship as he stated, "you may think if I had more data, it would have been great, and that's one choice when you go home on shore and consider joining a company, perhaps, maybe I get extra or free data". He expressed that with the high quality internet on board, "you have your family connected all the times as it if you are living in the same house. How do you complain that?!". When asked about the new satellite internet potentials, he reported "it is going to keep the seafarers motivated and charged for the duties on board also, you know, queries which might come up to their mind; to their jobs; to the task to be done, and also keep them well-connected with their families which will help them emotionally and more." When present was asked about the potential applications for him as a seafarer with such high quality internet speed, he answered positively, as in terms of training he considered seeking an online higher education degree as long as it does not require intensive studies or physical attendance like a medical degree, he also considered renewing his sea service certificates online, and e-learning and professional courses online; although he mentioned time might be a challenge but it is possible. In terms of productivity, when he was asked whether it would affect his work positively or negatively, he answered ""not sure if good Internet connection also means good productivity at work, but I would like to think so, because a lot of queries can be easily answered by internet for the junior staff. So, it should have it should be a good indicator for positive productivity." When asked whether he would use it to connect with experts in his field online, he replied "the internet as of now is being used for troubleshooting onboard problems, for example, you got on machinery or you got a computer that is not working, now you can just connect with an expert from the shore with WhatsApp video calling or you got the desktop to be remotely controlled or taken over by the IT staff on shore, then it is operating normally and the issue is rectified. So this is already in progress", and "the engine department as the chief engineer he's likely or most likely will be the person to connect for a technical issue, not the second nor the third engineers for that for that matter, he will have to consult with another expert chief engineer to do the consultation with". Presant particularly stated that for him as a master mariner,

he tended to have a tremendous amount of paperwork, and such high internet access would open the potential to reduce paperwork on board.

Jade, as a generation Z seafarer, had a different perspective as he stated "I would prefer to play online video games but because of the internet on board, I cannot. I play online video games when the vessel is docked at port. if you're online, well, there's a very big difference between offline and online games, because online you can play the game with your other friends on shore, you can talk with them, you can see each other, so it's much more you don't feel like you're on a ship", "we use firewall to save data, to block all other apps from consuming data except the allowed ones", and "I could only use it for basic instant messaging". He reported that not all ships that he worked on had internet access, as he worked for a ship that only provided emails "we could only use an email app which sends the emails via the captain, but it is not private and would take 3 to 4 days to deliver. No computer was provided on board for ratings" indicating an old practice in the shipping industry in the late 90s and early 2000s with the exception of a dedicated app. He further reported, "tankers do not stay for long hour in port, so we do not have much time to use internet via sim card, and we are working more at ports at the same time." In addition, he reported that he had only 250 megabytes of data on board the ships that had internet, which he thought was not reasonable. When he was asked whether communication among seafarers would change if high quality internet access was provided, he answered, "according to what I've seen, it will separate the crew, because they will be at their own cabin, looking at their phone, not talking much to each other." When Jade was asked about the potential applications if such high quality internet access was provided on board, in terms of training, he stated he would be seeking a higher education degree online, renewal of his sea service certificate online as long as his government continued providing this service online i.e. after COVID-19, seeking e-learning and professional courses online although he stated "everything is online now nowadays where we are getting more and more online as days pass by, but for my field you need to have this actual and manual skills (i.e. physical training)", and seeking awareness about issues like the Pandemic although he highlighted that it would increase his stress. Also in terms of work productivity he mentioned it would impact him positively if he managed to control himself with internet use and was self-aware, but if not, it may impact negative as he

mentioned “if you do not control yourself, it will not make you sleep and would increase your physical fatigue.” In terms of mental wellbeing, Jade mentioned such internet access “would at least minimize my homesickness,” and he would use it for online psychological support services or seek his family for emotional support. He answered negatively when asked if such internet access would have encouraged him to stay on board longer than his usual contracts’ durations. In terms of normal transactions, he mentioned he would use it for online banking services, online gaming, and it would act as a buffer or reduce harmful habits although it depends on the person.

Aragon criticized “because it's the company that provides the internet, you cannot do anything about the limited data except using your sim card if there is a signal”. When asked about the quality of internet on board, he answered “slow but better than 5 years ago, as you can browse social media. We can use it instant messaging only, and Facebook Lite,” and about its affordability “one company I worked for had the first 50MB for free, then any extra 50MB costs \$8. It is very expensive, I would spend \$40, which affect my financials, especially for Filipinos, \$40 is too much in my home country. Another company had 1 gigabyte per month for free” When asked what he would consider as reasonable use, “at least 2 gigabytes per month”. He further added “at ports, we have 6 hours shift and 6 hours of rest. I use 2 hours to browse the internet before going to sleep”. When he was asked about the potential application of high quality internet that he may consider using, in terms of training he stated that due to the short rest time he might not be able to seek a high education degree on board, but for his sea service certificates, e-learning courses, professional certificates, and awareness about latest work practices and safety practices, he would use it. In terms of work productivity, Aragon reported that such high quality internet access may impact his work productivity negatively, unless if it is controlled, it would have positive impacts. He also mentioned that he would use it to contact experts in his field in relation to work activities. In terms of mental wellbeing, he mentioned that such internet would support all his previous issues that he discussed earlier, and would seek his family for emotional support rather than online psychological services. In addition, he mentioned that it would encourage him to stay longer on board. With regards to the normal transactions, he mentioned that he would open an online business particularly, seeking online banking services, and playing online video games

rather than LAN games on board. Furthermore, he believed that such high quality internet access would reduce harmful habits of seafarers on board like excessive smoking and alcohol drinking. Other than reducing the amount of his paperwork on board.

As Hideo quit seafaring in 2018, he mentioned “for the most part, we did not have internet access, except on the last vessel in 2018, but the internet was very slow. The data bundle was 2GB per month for free although messages could not go through due to low quality. And when there was no internet on board, I could only send emails via captain and it would take 5 days to arrive to my family, so I could not contact my family. And when I am on shore, I would seek family and friends as a defence mechanism to destress.” When he was asked to further elaborate on the quality of internet access at that time, he mentioned “it very slow as it was ten times slower than my internet connection on shore. Even now I am not having the best internet on shore, considering the video meeting is being interrupted due to low quality internet. The internet was so slow that sometimes even the instant messages are not sent or received properly, which usually made us more stressed, especially when the messages or conversations were important ones and then suddenly there is no internet and we would have to wait for it to be available again after two days. It makes overthink and have stressful thoughts in our minds, we cannot sleep sometimes” indicating that low quality internet has a direct impact on seafarers welfare, and he mentioned having two gigabytes per month for free which he could use for instant messaging only. Considering he did not have internet access on most of the ships, he mentioned that they used to have a computer provided by the company but he stated “it was for business use, and the same PC was used by us to send emails to our families. Sometimes we could not use it for personal use, because it was occupied by other seafarers for business use, or perhaps only during weekends” and he further criticized about the availability of this computer, “there is always an issue like that, because it being occupied by other seafarers for business use. As normally you will be waiting for it to be free, and your rest time is finished without using it yet”. Although he had two gigabytes of internet access in his last ship, he felt that is not sufficient for his use. He also added “according to my colleagues they mentioned that internet on board is now faster. They can have video calls, although they want to play online video game, they still cannot.” When he was asked whether high quality internet access would affect socialization

among crews, he answered, “Yes, it will. But in a positive way, as it will increase their overall morale and motivation, which would have positive impacts among themselves.” Considering Hideo had witnessed the transition when some shipping companies started providing internet access on board for seafarers’ personal use, he observed that this had impacted seafarers’ happiness on board. When he was asked about the applications of high quality internet access like seeking a higher education degree, he thought it would be difficult, because of the time zone differences, as he stated “I’m imagining in case of emergency I’m in the middle of a class, and considering time zone difference, which may cause safety issues on board that companies would not allow” he is assuming that the education would be live and not pre-recorded. When asked about other training applications, he mentioned he would use it for his sea service license renewal online if such training if such training required one hour per day only, as he mentioned the time constraints due to his work back then was a challenge, and he added “actually because of COVID19, many seafarers’ training courses have become online already”. Also about e-learning courses, he mentioned “in my last vessel, we had online and offline monthly e-learning courses with exams on board to be compliant with our duties and responsibilities, and the company would monitor our progress and grades.” He would also use such internet access to be familiar with the latest work and safety practices. With regards to productivity, he mentioned that high quality internet would have impacted him positively as he stated “because when we are cleaning the chemical tanks, we sometimes have issues and need to communicate with the shipper directly to know about his transported chemical and then would adjust our working schedules and decide whether to proceed with the tank cleaning or not according to this information. As sometimes we would be cleaning chemical tanks for 3 days, then we receive the information back from the shipper after 3 days, causing us to re-work our tank cleaning and waste time that we could have prioritized for other tasks” indicating that it would not only positively impact his work productivity, but also connect him with experts in his field, or in this case the chemical cargo owner, and reducing the probability of reworks on board. He further added, “we already have group chat among my batchmates from the seafaring academy, we use it to ask questions on how to do certain tasks and it is very helpful, especially for our fellow marine or chief engineers.” Also about reducing paperwork he mentioned, “It would

reduce paperwork and also it will help us finish the paper faster, because we can look for references and resources online. But I believe the papers and documents will increase in general as years go by due to regulations like company documents, covenants, maritime loss, IMO documents etc. I am assigned at the accounting office now, for me, I think the vessel has more paperwork compared to the accounting firm" especially during his request to repatriate to shore due his uncle passing away and being mentally fatigued as he stated earlier. In terms of mental wellbeing, when asked whether such high quality internet access would have supported him in all the previous issues discussed, he answered "it would be very helpful," and when asked whether he would use online psychological support services or seeking his family for emotional support he answered positively but would prioritise seeking his family first. When asked whether such internet access would have encouraged him or convinced him to stay longer on board, he answered about short term contracts, "yes, it would have increased my stay on board longer than 9 months contract. I would even go for up to 16 months! because my friends who were working during COVID-19, they stayed 2 years on board and for them it was slightly okay because there was internet access, and the reason they continued is internet access mainly in addition to the extra salary". In terms of the normal transactions of internet use, he mentioned he would use it for online banking services as he had already used it in ports due to the good network, considering the internet on board was of poor quality. He stated "also, if the data given was low, or chances it will be unavailable on board, I would not risk losing the data just to access banking services." When he was asked whether it would reduce excessive smoking or alcohol drinking, he answered positively, stating "because I think mostly the smoking and drinking is due to peer pressure, so having internet access on board will somehow minimize it".

Sunny reported his current internet access on board is not sufficient as he stated "the price is high. The free data is 100MB per month, and for additional 200MB we have to pay \$20. I would recharge it twice per month, and compared to other ships this is ridiculous. My stepfather is also a seafarer and on board his ship, they have 1GB per week if I am not mistaking. I can only use it for instant messaging". He reported "all seafarers on board demanded more data than 100MB", and "for seafarers with family on shore, basically unable to communicate with family". Sunny reported that his company provided

free unlimited emails in addition to the 100MB monthly free data, to communicate with his family and friends, but he mentioned "it would take 15 minutes to send or receive on email. To complete a single conversation, it is going to take 30 minutes at least for just one conversation to send and receive". When Sunny realized that MLC 2006 does not dictate a minimum data bundle or internet quality, he commented "this is very tricky". He believed if high quality internet access on board was provided, the communication between seafarers would be impacted positively. When asked about the potential applications of high quality internet, in terms of training he would seek a higher education degree online during his rest time as he mentioned "I can still do it and have enough time to sleep." He mentioned would use it to renew his seafaring certificates although stating "some certificates do require physical attendance currently". As for online e-learning courses, he would use it considering he had already attempted to complete an online course before but with pre-downloaded course materials. He mentioned he would also use it for latest practices and awareness. In terms of his work productivity, he mentioned it would impact him positively, as he reported "especially considering some of my jobs is helping my chief officer, I would usually use the computer and I would use the internet to be familiar with certain commands", and also declaring that he would be motivated to work. In addition, he would seek other experts in his field, and he mentioned it would be reducing the paperwork. In terms of mental wellbeing, when he was asked whether high quality internet access would have supported in his previous issues discussed highlighting that fact that he is one of the seafarers who reported having suicidal thoughts, he answered positively and stated "because you're going to temporarily forget all your issues when you are connected to the internet. It is not like you are going to search on how to commit suicide. When you're connected to the internet, you are going to seek the happy stuff." i.e., it would redirect his thoughts into happy thoughts as he also reported "most of us use TikTok". Also, when he was asked if he would use it to seek online psychological services, he answered that he would use it if he had a serious issue. When asked whether high quality internet access would have encouraged him to stay longer on board, he answered "I think it will not affect my will to stay much longer on board, but if I was an officer, probably yes, because I'd be earning more the longer I stay." Hence, high quality internet can work as an indirect motivator in addition to making more money. Finally, in terms of

the normal transactions, he mentioned about online banking services that he would definitely use it as he stated "If I had to put that on a list, I will be number one" and he elaborated "there was one time when I was using the banking app, and then I wasn't able to conduct a single transaction, and my internet allowance got wiped out without me being able to do that transaction", also for online gaming he mentioned "I would most definitely play online games if I had such internet, as I play offline games to cope up with the current internet", and the harmful habit he highlighted that it may introduce other harmful habits as he stated "I do not drink alcohol or smoke, but it may be used also for online gambling as to one of my crew members".

Gideon reported that he had 200 megabytes of data per week which was controlled and allowed for two hours per day, he also reported that his satellite calls was expensive costing \$23 per 45 minutes and rarely used except for emergencies when they had no internet availability on board stating "some areas in Atlantic and Indian Oceans as well as polar areas have no satellite internet coverage". He reported various issues other than internet coverage stating "affordability is a big concern. Slow speed is also an issue that frustrates us", "internet speed is dependent on the coordinates of the vessel's location since it is a satellite based", "unable to use it to watch videos, because videos demand high data consumption", "I can play with mobile games but limited, very limited. I did play online, I mean tried, but I discovered that it's too demanding with data, so mostly I did it in ports", and "I tried many apps to find the app with the lowest data consumption, such as WhatsApp, Viper, IMO, Messenger Lite, etc.". He also mentioned that one of the companies he worked at before had provided only 180MB per month with an additional bundle option of about \$10 per 40MB, while his last company would charge \$10 per 100MB. He reported that he can make audio and video calls, but the data limit was his concern, and he criticized "1GB per month is nothing you know, so I think they want to stick with the bare minimum, if they can provide it cheaper than this they will provide". When asked whether high quality internet access on board would impact seafarers' socialization among themselves, he replied "I noticed in new generations of seafarers, because sometimes, if they are used too much to use the internet, then they will only engage with other crew members in a superficial manner. It would be more of a superficial connection, and they would like to focus more on the virtual connection with other friends

on shore", and "I think it will affect the communication between crews on board, because most of the focus of the crews would be on their devices when there is internet is already outside of the ship". He debated when asked about why most shipping companies did not adopt such high-quality internet technology onboard, "maybe because sometimes the company have a contract with an existing internet provider, don't know about the technology development, and also sometimes the transition is quite difficult for some companies". When asked about the potential applications of high-quality internet, in terms of training, Gideon mentioned that he can seek a university degree online while being onboard "It is manageable especially for officers, due to shift coordination among themselves", and "I think so because some classes you can access them with a flexible time. Unless if it is a very serious degree that requires practical and physical attendance like being a medical doctor for example that is not possible". About his sea service certificates renewal online "I think it's possible and it's a good thing, but time zone differences might be an issue", and about e-learning courses online he also mention it is manageable as he stated "my previous captain and chief mates, they needed this because we intended to have a voyage to northern parts of Russia before, so it requires 'polar certificate', and they managed to get their training online. They managed to get the class online and scheduled the class when we stayed at port. It is STCW approved course, and STCW courses can also be provided online. Some of the STCW courses, requires certain experiences on board, and If you meet the requirements, then you can have these online courses including the examination processes", and explained "especially if you are an officer of the ship for example, you have a long voyage, you can open these courses to your co-officers, and then you can manage your own times (i.e. schedule between the officers)". He mentioned he would also use it to learn the latest safety and work practices. In terms of work productivity, he reported high quality internet would impact him positively if there was a limitation or controls imposed on the crew and he highlighted cybersecurity might be an issue to be considered. When asked about whether he would seek experts in his field, he answered "yes, actually we have experienced it in my previous ship, we used the satellite phone. As long as you have this fast mode of communication. For example, in any emergencies, you can share ideas, and if you face some issues with your engine and if your chief engineer or your second

engineer cannot solve the issue, then they can communicate with experts immediately. Because sometimes there is a limitation in the knowledge of your technical officers and chief engineers, which are not 100% about all the issues in board. Sharing of videos and photos with more details, and sharing of the problem and issues of the machinery, you can take a photos and videos and ask about which procedure to do, you can have a live feedback and action, you can document what you did, then send it to your company for them to evaluate if you did it correctly". He also mentioned it would reduce his paperwork on board although he stated even if there is a high quality internet on board, the system of the company may be bureaucratic and may not adapt to reducing paperwork. He further added "I expect evolution for virtual assistant works to assist us on our duties".

In terms of mental wellbeing, he answered positively, when asked whether such high quality internet would have had supported him in all his previous issues discussed, when asked if he would seek online psychological services, and if such internet access would have encouraged him to stay longer on board accepting longer contracts duration as he clarified "because if you connect with your loved ones frequently, you will not feel the distance. Although my fiancé might not agree with this". In terms of normal transactions of high quality internet use, he mentioned about online banking services that he frequently used it on board, he also stated about online gaming "I would, as I already tried to do it with the current internet provided" as he clarified "sometimes my co seafarers share ideas and they would be asking to play console games online in the messroom or in the recreation room, they are dreaming of it! because when I was a cadet with some of the crew we sit on the table, and are using our laptops playing Counter Strike on LAN, and some other guys are dreaming to play Dota online on board". When asked whether such internet would act as a buffer or reduce harmful habits, he answered "I don't think so, it depends on the person". Another application he mentioned about online guidance for seafarers' children if they were working remotely as a parent seafarer on board, "I observed this issue with my previous senior seafarers, most of their children grew without really good guidance, because their father is very far most the time and they do not communicate much. So, it's really quite challenging, but the internet also it's a good thing for seafarers as fathers, because they can monitor their children and connect with them. It's also a good side of the internet. Because you can talk with your children every day,

you can ask them what happens in their daily activities, you can spend time with them online and relate more to them. Also with your wife, you can you know, even though your miles away or continents away, but you can communicate in real time virtually as if you're at home”.

When asked about his experiences with the current quality of internet on board, Chester replied “Very limited. Although the last 3 ships, we had no internet except for satellite phone calls which was \$20 per 20 minutes of calls, so if there is an emergency back home, we receive it by email, then we purchase the satellite phone access for 20 minutes”, he also added about its speed, “Slow, It's only for sending a mail, we cannot make calls”, and further explained that there is no free data even for the first allowance. “Even though 100 megabytes will not do a lot for you, but if you're on board for a long time you will accept it” as he stated he conditioned himself to the provided internet access and would buy this bundle once a month. Chester criticized his company’s current internet access as he stated “\$20 for 100MB is not reasonable and expensive, and that the shipping companies should provide between 3GB to 5GB of data per month”. He had shared various negative thoughts about his experience with current internet access on board as he stated, “I only had one ship that had internet, I joined seafaring since 2010”, “we inquired about internet with one of the company's superintendents as we requested if they could supply internet to our ship, since other ships already had internet. And he simply stated to us, 'you know, how the internet functions on the ship, one month's allocation of 40GB is paid for by our company’. In my opinion, for one month, the company can divide the 40GB into 20GB for the vessel's internal training purposes and 20GB for the crew, which will be covered by the crew in terms of cost, but the company did not accept our proposal. The superintendent stated that they merely pay for a smaller allocation, smaller package, or smaller gigabytes. And they must pay more if they wish to provide more data to the crew” indicating a cost sensitive company. He further clarified when he had no internet on board, where the ships were around 60 years old, that he would use company’s provided computer although he reported an issues that it would be busy because it was used for personal and business purposes with many seafarers using it, also he expressed “for example, I will type my message, and then later another crew member will input their message and push send. However, it will not send until the captain

opens the satellite internet portal; we require the captain to do so. So that all the gathered messages will be transmitted at the same time only once the captain opens the portal. The captain is the administrator of the internet and the gatekeeper. That's the problem", he further expressed his frustration "If I send a message now, the recipient will receive it six hours later. Then he will respond, and I will perhaps receive his response five hours later". He was extremely critical about his company as he reported "the company is saving money", "the company might think in the long run, if they installed new internet connection on board, maybe the ship will serve and last for only three more years (as he mentioned he had no internet on board the 60 years old vessels)" demonstrating that his company have better problems to solve other than internet although the equipment can be transferred to other vessels, and "I talked to one of my friends. He said their company provides 2GB per month for free, and if you finish the 2GB, you will purchase 1.5GB for \$20" indicating that Chester not only demanded higher quality internet, but also actively compared his internet access versus other companies and other seafarers". He also mentioned, "there is a business that I wished to establish, but because of no internet access or very limited internet access, I was unable to continue as I was unable to monitor it" indicating that some seafarers on board had plenty of time to the point of opening an online business while being on board. He elaborated, "the issue is that the manning agency will decide which shipping company I will go on board with, so whether there is internet access or not I would not know beforehand". He highlighted "because for those who are first time on board or others that encountered already higher data availability, maybe they will demand for more speed, it is an issue for them maybe, but for me the minimum will do. For me 0.2 Mbps speed is enough. The rest is while docking at port, I would make the video calls" this is a high indicator that seafarers' have different internet perspective due to generational changes. When he was asked if high quality internet was provided, would socialization among seafarers on board change, he answered "I guess yes, as I noticed that at ports during the break time, there will be no crew staying at the recreational room". He stated that "majority of my fellow seafarers, when they are assigned to new vessels by the manning agency, the question that always exists is whether or not the vessel has internet access". He expressed his desire to have high quality internet on board stating "I am already looking forward for the high-quality satellite

internet. As I actually when I have free time at home, I keep on searching on YouTube if there is a small dish, but mostly the dishes (i.e. antenna) are big in size and not portable” When he was asked about the applications of high quality internet access, in terms of training, he answered positively for seeking an online higher education degree, online sea service certificates and e-learning platforms stating “during this pandemic, we must complete refresher courses and trainings including simulations that we could complete at home; all we needed was an internet connection with at least 3MB/S”, and he would use it to be familiar with the latest safety and work practices on board stating “considering I did not have internet access or I had very limited internet in my last four ships”. In terms of work productivity, he mentioned high-quality internet would impact him positively clarifying “there's a plenty of upgrades during our work on board, if such internet is provided, we can search for information easily. Also, for instance, I am responsible for the accrual accounting and salaries, and if I encounter any issues, I can simply submit a real-time message to the company”. He added about connecting with experts in his field “especially when it comes to training for new equipment installed” and “if we have a technical problem on the on-board computer, we would need for IT to remotely control the computer. So due to no internet access or very limited internet access, we wait until we reach the port to resolve these issues” although Chester mentioned that this computer is sometimes the only means to communicate with his family, as three out of four ships he went on board did not have internet access at all. He further elaborated “it will also win-win situation for the shipowner, if there is a technical problem and we don't have connection, we cannot rely on the limited information on board to troubleshoot these technical problems”. About reducing the printed papers on board, “if we have high quality internet connection, a stable connection, the company would just provide one application that includes all of the reports and manuals, we don't need to open any physical books or print papers. The company already provided an app, but there is not internet connection”. Chester also reported one of the applications of high-quality internet on board, “many cases in the maritime industry with seafarers just gone missing on board, which are still unsolved problems. It is in the news sometimes; we do not know if they jump or if there is a problem that they encountered with another crew member” suggesting that shipping companies can use install CCTV cameras on board and connected online; virtually

monitoring workplaces or the ship as an asset, from land. In terms of mental wellbeing, he responded positively that high-quality internet would have supported him in all his previous issues discussed, although he stated he would seek his family for support rather than an online psychological services, and reported that such internet access would have encouraged him accept longer contracts. In terms of the normal transactions of internet, he mentioned that he would definitely use online banking service as he explained "currently I would keep a stash of cash with my wife in case of emergency or in case my relatives needed the money. I would have to use the \$20 per 20 minutes of satellite phone to call her" indicating that his wife was the temporary solution for being unable to use online banking services on board except at ports. He further emphasized on the importance of online banking services on board "in my previous ship, one of my uncles had recently passed away. And my family needed money to cover the funeral costs as it was during the pandemic, so I have informed my employer that I need to give some money to my mother for my uncle's burial. It took three to four days before the money can be transferred, but if internet was provided, it would not have been an issue". About online gaming, he stated "I do play games online while on shore, but I am unable to play on board, because there is no internet. Also, my co-seafarers play LAN games on board while offshore, and once we reach the port, we play online games". He also believed that high-quality internet access may reduce harmful habits as he stated, "It will lessen such activities, but it still depends on person to person". He reported that via high quality internet "I want to open an online business like freelancing, or at least trading"

Francis, as a Generation Z seafarer, most of his experiences with internet on board were explained in the digitally connected generations' results. Although he had one of the best internet accesses among the other interviewees, still he criticized "I felt like I had almost no internet access". When he was asked to describe the quality of the internet he had on board, he replied "the speed is 1MB/S, free, unlimited data, not all websites and apps are accessible". He stated "I think reasonable is that we are be able to use internet access for recreational use, like online games and video streaming stuff, including, the freedom of conducting the normal things that we would do at home without issues. Now, it is just limited to chatting or calls" when he was further asked about whether he expressed this statement on behalf of Generation Z only or not, he answered "this for all seafarers". He

believed that communication among seafarers would change if high quality internet on board was provided. When he was asked about the applications of high-quality internet access he would use, in terms of training he stated he would be seeking higher education online while on board stating “there are multiple schools that offer online education. I think I would do it, since we have free time on board, and I don't want to stop learning”, seeking his sea service certificates renewal online “that would be a really great advantage, especially for my place, since the queuing lines are taking so long”, and seeking e-learning one courses “we had offline e-learning on board, but our scores were uploaded to the company platform online”. In terms of work productivity, he mentioned it would impact him positively “due to online recreational activities during the rest hours, and potential online courses which would help my duties at work”, and he would be using it to connect with experts in his field online, but he felt the paperwork on board may not reduce due to the existing practices on board as he stated “they always require signatures from the captain, so we have to print them out”. In terms of mental wellbeing, he mentioned high-quality internet access would have supported him in all the issues he discussed earlier, “I believe I would use more of the psychological online services, rather than talking to family. Because I think that if I talk to my family about problems on board, then my family would be worried about that”, and he reported “it would perhaps increase my willingness to stay on board for 9 months, from the original 6-month contracts that I had before” about whether such internet access would have encouraged him to stay longer on board. In terms of the normal transactions, he mentioned he would be using it for online banking services as he had already used it with the existing internet, he would also use it to play online games stating “especially if the ping and latency were low”, and considering Francis mentioned earlier that excessive smoking was his defense coping mechanism against mental and physical fatigue; when he was asked whether high-quality internet access would act as a buffer or reduce that habit, he answered “I think it would reduce very much”.

Jose reported his issues with existing the internet on board “I think the 200MB per week is not enough”, “we complained multiple times to our superintendent that internet data is not enough, but they would not take actions”, “I had this issue with my ex when the internet disconnected in the middle of the conversation which added mental fatigue to me for few

days". He explained that it was free up 800MB per month, but expensive for additional data which costed him 20\$ per 100MB, as he mentioned "I would wait for the data plan to refresh, as the 200MB availability refreshes every week". When he was asked about the speed, he mentioned that it was decent and can use it for instant chatting. He mentioned he can use it for audio calls and social media, but in an extremely limited manner because of the data allocation. When asked how much data he would consider as enough, he reported "30GB per month or at least 5GB as a minimum". He thought that high-quality internet access on board would not reduce the communication between seafarers, but he noticed the tendency of seafarers to be busy on their devices at ports due to internet access availability. Although he observed the internet access on board evolving since he joined in 2015, Jose expressed his thoughts that poor quality internet access was one of the factors that he would consider quitting seafaring stating "the reasons that are making us want to quit seafaring are due to being away from our families, lack of communication with our family and friends, and very limited internet access" as indicated earlier in the digitally connected generations' results. With regards to the applications of high-quality internet access, he answered positively for all applications in terms of training, work productivity, mental wellbeing, and normal transactions, except that he did not have much paperwork on board, and did not play online games, and it would not convince or encourage him to stay longer as he felt that the nine months contract duration was his maximum already. He also believed that it would reduce harmful habits.

Hanei reported the issues with internet access that he experienced relating to extremely limited data, slow speeds, and pricing; stating "it is really expensive \$10 for 50MB", "unable to have audio or video calls due to very limited data", and "considering the very limited data, if you accidentally click on a pictures or videos, it will wipe out your data bundle". He would use it for instant messaging only. He believed that shipping companies should have provided at least 2GB per month for free. He also believed that communication among seafarers would change if high quality internet on board was provided. About the applications of high-quality internet, Hanei answered positively that he would use them all in terms of training, work productivity, mental wellbeing, and normal transactions, however, it would not encourage him to stay longer on board as he

considered the ten months duration was his maximum. He mentioned that he felt very happy once when his wife sent him good news from home, that he was motivated and inspired to work. He also shared about having the possibility to connect with experts in his field or other fields due to high-quality internet while being on board, stating “during medical emergency on board in the middle of the ocean, one thing that I observed that the officers when they have the internet access, they would seek consultations from medical doctors online by exchanging emails. Then the doctor will prescribe certain medicines and would give instructions on what to do properly to ease the pain of the crew. It was a mild medical emergency but not an extreme one”. He reported that it will impact his work productivity positively but stressed that seafarers should be able to control themselves from excessive use. He also praised the possibility of online psychological services, as he considered socializing and seeking crewmembers only for support was not enough. He expressed that, for his online gaming activities, he desired more rest time at ports as he only had high-quality internet access there, and that such issues would be eliminated if high-quality internet was offered on board. When he was asked whether he would use high-quality internet, once he become a parent seafarer, to virtually guide and mentor his children, he answered “yes, considering my father was a seafarer himself, I barely knew him because he was away for too long. When he used to come home, there was a little bit of awkwardness for me as a child, and I was not comfortable being around him compared to my mother. This is actually why I would also want to limit my seafaring career up until 35 years of age. Also, I am planning to get married soon, I would use it, it will help very much. For example, we could attend the child's graduations virtually, as in all the special events in my entire life, my father could not attend due to the nature of his job. As teenager, I could not relate to him although I needed his guidance. Now that I am a seafarer myself, I relate to him more than before as a child and as a teenager”.

Jefferson reported one of the major issues he had due to poor quality internet access, as he stated “less communication with my family, because if I want to, I would have to spend a lot on the data bundle. Affordability and very limited internet data are an issue for me”. When he was asked about the speed, he mentioned “I tried video calling and it worked, but the very limited data of 50MB per \$12 is an issue” as he also mentioned he would be only using it for instant messaging, or limited audio calls considering it is less expensive

than the satellite phone. He had observed the technological changes as a seafarer as he stated, "when I was a cadet, we had no internet access except for the satellite phone \$40 for one hour of calls", and "our company started providing satellite internet for seafarers' use in 2017, they started adopting it slowly on our ships. Although is not free, but somehow it can remove your boredom in the ship". When he was asked what he would think as reasonable data, he mentioned "I think \$10 per 100MB is reasonable" contradicting many other seafarers who reported before him that the 100MB is not sufficient. He also believed if high quality internet was provided on board, seafarers would stay in the cabins most of the time resulting in less socialization between crew members. Regarding the applications of high-quality internet, Jefferson responded that he would use all of them i.e., for training, work productivity, mental health, and routine transactions and uses. During his time on land between contracts, he stated he would self-study 'bookkeeping,' which is more of an accountant skill he desired to master i.e., he would use online e-learning platforms while being on board. He also mentioned that high-quality internet access on board would impact him positively justifying "because I will be communicating with my family and friends every day, which will induce high morale". In addition, other than the online psychological services, he reported other applications like seeking his general practitioner online for mild medical needs as he explained "during and after COVID-19 on shore, I am already virtually seeking medical consultations from my GP online. For example, I had continuous cough and cold for 3 weeks, and I was seeking my GP thru my mobile online". He also believed it would help reduce suicidal rates among seafarers as he demonstrated "I think with high-speed unlimited internet access, the suicide rates of the seafarers would decline. A session with phycologist would cost around \$40, and some health insurances would cover it for free. I am one of those people who would share a problem with a stranger rather than a friend or family". Even with his extremely limited data, he had already utilized online banking services, he said. About the possibility of guiding his child as he grows, while himself being a seafarer, he mentioned "It will be of great help if I can always communicate with my child while I am on board. Also, because my father worked abroad when I was a child, I did not feel the need for a father figure because I did not feel close to him as my father; I would simply recognize him as my father". Nevertheless, he mentioned high-quality internet on board

would not encourage him to stay longer, stating “6 to 9 months is already enough for me. As for me, my mind is always with my family back home while I am on board” as he also reported he had a new-born baby. He also believed that harmful habits may not reduce due to high-quality internet, as he considered habits are difficult to change.

During Mahmoud's experience as a seafarer, he had no access to the internet except in ports. Even he claimed that the cost of the sim card would be deducted from his wage. Although he had a business computer on board, he did not mention any connection internet. He believed that communication among seafarers would change if high-quality internet was provided. Regarding the applications of high-quality internet, Mahmoud stated that he would utilize all of them, including training, work productivity, mental wellbeing, and normal transactions. In particular considering the fact that he was a working student who was studying computer science degree while being on board, via pre-downloading the materials offline at port stops using local sim cards. He also mentioned “I am currently renewing my sea service license online”. Moreover, he stated about reducing paperwork on board “actually, me myself, I'm working on this project to create a system that will digitally regulate ISM for shipping companies”. Mahmoud stressed out if such high-quality internet on board was provided “but I would have to be aware about the internet usage during my rest time”. About mental wellbeing and high-quality internet access, he mentioned it would have supported it him and his fellow seafarers in all the previous issues discussed stating “to start from scratch, I would not have these mental fatiguing accumulative experiences that caused these emotions, in general. So, if it was from my first contract and I had such high-quality internet access, of course, I would have a completely different lifestyle” indicating the significant impact on his seafaring experience. He further added when asked if he would have used high-quality internet to seek an online psychological service, “I actually used an online app called 'Shezlong', it's something virtual like the couch when you sit so you can speak to the psychiatrist”. He answered when asked whether it would have encouraged him to stay longer on board, “as I told you, you know, I don't even go out of my room. So, I would prefer to be on the ship if such high-quality internet access was available”. However, Mahmoud believed that such internet access may not reduce harmful habits, but add new one as he gave an example, “if the social circles online between seafarers were the same

as on board, it may amplify the negative thoughts” hence if the seafarers were sharing the same online community which had negative thoughts shared; as he explained further, “Especially when 20 people have the same social media account and can communicate what's going on amongst them. Most crew members will add each other meet on Facebook, 20 people expressing the same sentiments daily, even on social media. Although I recommended my co-workers not to add me on social media to avoid this issue, it still happened”. About online guidance of a seafarer parent with a child, “at least the seafarer would have the option to be a virtual father”.

Jeannu reported, "for my bulk carrier experience, the 50MB per month is not enough for one month, and the extra data of \$10 per 50MB is really expensive. The emails are not private when there is no internet access as in my containerships experience”. He also mentioned he could only use it for instant messaging services. When he was not provided internet access on board, he reported that he was sending his personal emails via the company-provided computer on board, although the emails contents were not private and was monitored by his captain, as he was the gatekeeper. When asked how much data is considered reasonable in his point of view, he answered “it should be at least 1GB per month for free, and the additional bundle should not be expensive”. When asked whether communication between seafarers would change if high-quality internet access was provided on board, he stated “it depends on the crew, maybe their exposure to their crewmates would be less, I think, because of the internet connectivity”. When asked about all applications he would consider of high-quality internet access on board, he answers were positive similarly to the other seafarers. However, he mentioned it would not encourage him to stay longer on board, as his maximum was ten-month contract. When he was asked if would have used the online psychological services to support his previous issues, considering he had suicidal thoughts in his last contract questioning his sense of worth, he reported “yes, because we have a lot of applications now that can help us in dealing and coping up with stress problems. I have used it, but it was not a specialist, it was an artificial intelligence (AI) psychologist” although he mentioned he would be seeking his family’s support online before approaching the online psychological services. He believed that such internet access would have reduced harmful habits. He also mentioned that he was already playing LAN games, and if given the opportunity to play

online video games on board, he would definitely do it. He highlighted that he was used to seeking his batchmates from the maritime college online to seek some technical answers.

Roedi did not have personal internet access on board during his twenty-one years of experience as a seafarer, except at port via local sim cards, or seeking satellite phone calls as an alternative. He reported that in his experience “there is a Norwegian port that provided free Wi-Fi internet access for us, /which we were very happy about”. He explained “in all my years of experience until retirement, we had no internet access on board for our personal use. Except for the satellite phones, and the emails forwarded by the master and the shipping company. The satellite internet equipment was installed on my last ship in 2019, but it was not active yet for the personal use of the seafarers as it was intended for weather forecasts”. He stated, “the internet access was introduced on board some vessels for seafarers' personal use around the year 2015 or 2016, but it depends on the company”. At ports Roedi reported he would use the available internet for instant messaging, audio and video calls, and social media. He believed if high-quality internet access was provided on board, communication among seafarers would negatively change, as he also mentioned “the new generations of seafarers including the millennials usually do not go outside their cabins anymore as they have their own laptops. In the past, we used to gather in the messroom and would watch movies together since we did not have laptops”. When he was asked about the applications that he would use onboard if high-quality internet access was provided on board, he answered positively, except for seeking a higher degree online or playing online video games on board considering he stated, with internet access “I only browse the internet, watch movies, listen to music, read news, social media, open or monitor a business online. I can do gaming but for officers, we do not have much time, maybe ratings do”. He had additional comments “I think it should be regulated”, and “family issues is expected to affect the seafarers' focus at work with such internet access”. About online sea service licenses and certificates renewal, he stated “because sometimes I am in the middle of the contract and I do not want to go home on shore yet, and I want to continue on board, but my COC was already expired. This will be a big help”. With regards to all the issues and experienced Roedi had, when he was asked if such high-quality internet would have supported him

during these issues, he answered “yes, it will make a huge impact. You do not have to go home or go on shore” i.e., the perspective of a Generation X seafarer with 21 years of experience on board whom had worked in shipping before MLC 2006 implementation. He further added, “most of the time I would be using this if I was having internet access” (i.e., referring to the online psychological services). When he was asked if such technology on board would have encouraged him to stay longer on board accepting longer contracts durations, he answered “yes of course. I used to have contracts between 9 months to 12 months, with such internet access, I am willing to extend for 3 months and stay on board for 15 months. Especially if I am having bank loans to buy a house, it will be a real motivation for me to stay on board” representing the perspective of a Generation X seafarer with a high tolerance and mental strength considering what he had encountered pre-MLC 2006 rules. He also expressed earlier that some of the mental fatigue was related to being away from his children when they were young, being unable to attend their special events like graduation, thus, when he was asked whether he would have used such internet access to guide and monitor his younger children, he answered “yes, this will be a big help, especially if you hear something good even be inspired”.

Jay reported, “the only issue for me is the data bundle, as we can already have video calls, but it is very limited” as he highlighted that he needed better internet on board to properly communicate with his family. He reported that his company started providing internet access on board his ship in 2020, as he mentioned it became a requirement by the regulator. When he was asked about the provided internet’s speed, he replied “the speed is very slow. It also depends on the location of the ship and the coverage” similarly to what other seafarers had reported. When asked about its affordability and bundle details, he stated “200MB per month for free, then \$20 per 100MB. I tend to consume 500MB per month or spend about \$25 to \$35 monthly”. He reported his uses were instant messaging, and audio and video calls. When he was asked what he thought was a reasonable amount of internet data, he reported “with regards to the data bundle, there are times that we want to talk with our families longer than usual, maybe the whole night. Because there are times that we miss them so much, but if your bundle is limited, then you have no choice as it will cut off. So, I think around 3GB per month for instant messaging and audio calls would be enough”. When Jay was asked if he believed

communication among seafarers on board would have changed, he responded “I think it will lighten up seafarers’ moods based on the news they get from their home”. When asked about whether he would prioritize contracts with better internet connectivity on board, the seafarer answered "when we sign a contract, we don't ask if the ship has internet on board already, because we already expect that the ship already has some internet on board. Although, we would not know what data bundle is provided" indicating that he was expecting to have available internet on board, contradicting other interviewees who had reported that their companies did not provide internet access on board. When he was asked if he knew fellow seafarers on board other ships with unlimited internet access, he stated “whoa! I'm quite envious with them because they mentioned their internet is very good. It's unlimited. They can watch YouTube, they can surf almost every website. These companies are getting quite popular among seafarers because of the internet access now”. When he was asked about the applications as well as the impacts of high-quality internet access on board, he answered positively on all of them, however, he highlighted that seafarers have to be self-aware about its use. He mentioned he would surely use the online psychological services while being on board. When asked would it encourage him to stay longer on board if such internet access was provided, he stated “I am not sure that it would, but I would assume that it would be okay to extend depending on the environment and conditions, but I might be lured into accepting to extend”. He shared an experience that he had due to poor internet access on board, “it is very helpful to have banking services due to high-speed internet, because it happened to me due to low-speed internet on board, that when I open online banking and I'm in the middle of the loading screen of the bank application and the Internet was cut off. And then you know, because of that, the bank application thinks that I am hacking my own account, just because of the very low internet speed, so it locked me out of my own account. It added to my anxiety”. About online gaming he mentioned “I am already playing online mobile games, but I can only do so when we are at port. I am not expecting to play it during voyages in my rest time due to the very limited internet access”. Although he did not smoke, and consumed alcohol occasionally, he reported about his fellow seafarers with harmful habits “I think they will stick to these habits, especially for the older

generations in their 40s. But for the younger generations, I think it would reduce these habits”.

Arthur had the same internet access on board as the passengers, except that he reported that the crew paid half the price of the passengers' bundles, as he stated, “it costs ten Euros per 1GB”. Although he mentioned it was very slow, and he could only use it for instant messaging and audio calls. He also mentioned that his cruise line company had provided 500MB internet access at cruise terminals for free which was valid for one month. He wished that he could use it for streaming services on board. His answers were positive when he was asked about the applications and impacts of the high-quality internet access. However, since he had HR personnel and a training manager on board with him, he mentioned he may seek them rather than online psychological services. Similarly, to the other seafarers, Arthur highlighted that with such high-quality internet access, the seafarers have to be self-aware or the companies should add control measures. When he was asked if he had such internet access, would it encourage him to stay longer on board, he answered “yes. I could extend it for longer periods, but the contract's maximum is 11 months as per my company's policies”.

Corporate Social Responsibility in Maritime Shipping

About CSR and shipping companies in terms of seafarers welfare, Bilenda mentioned “the technology is getting better, but the welfare for seafarers is just getting smaller. The seafarers are invisible to the society. It took an incident like Ever given for the society to notice the seafarers” suggesting the governance gaps, and physical boundaries that seafarers are not observed as similar to the other professions on shore. She also noticed and indicated that the Danish seafarers are employed by their companies, but other nationalities are employed by manning agents, indicating that there is a gap of taking responsibilities and accountabilities between manning agencies and shipping companies by having a mixed of outsourced and employed crews, which is another issue other than the international governance gaps. Considering she mentioned the welfare centre was funded by Danish shipping companies, she was asked further whether it was P&I clubs

funding, she mentioned “the difference between P&I clubs and this NGO welfare centre is that if P&I clubs had shortage of funding, they would close it immediately” indicating that P&I Clubs funding for welfare centres is not effective for seafarers welfare in the long term, as some shipping companies would consider that P&I clubs are assuming such responsibility. Also, she mentioned “the motives of the Danish shipping company is a historical practice and law that they had to contribute to welfare centres, so some vessels were flagged out to cut costs” indicating even the welfare centre budget is considered a pure external pressure on shipping companies and not internal motive. As there are unions exerting external organizational pressures. She clarified “not all seafarers know about their wage deductions for the funding of this welfare centre. They do not even know about the welfare centre sometime. Usually, the manning agencies hide this fact from seafarers, but the Danish shipping companies are transparent with their seafarers about it” demonstrating that ILO laws on welfare facilities on shore and its expenditure is an external pressure as regulations on the shipping companies, which, most shipping companies typically do not implement on their own initiative.

Daniel believed that shipping companies cared about seafarers welfare and according to his feedback it seems that the companies he worked for were inclined to be having extrinsic motive, as he mentioned that they took feedback from crews thru online surveys and interviews during their leaves or while they repatriated on shore, and that they were reactive to crew complaints. He mentioned examples to indicate his company’s efforts, “considering when we complain to our company about food shortages on board, the company adjusts its budget,” “during COVID-19, special protocols and safety measures have been added by the company”, “the company is strictly following guidelines and the STCW and the IMO. So, I believe they take decisions based on the rules and regulations, when they are acting upon such issues,” and “when I compare internet access limits with other shipping companies, I feel like my company is giving little amount of data limit, which is also paid. So I feel like they are providing the bare minimum, while other companies are providing free internet.” When he was asked whether his company cared about its seafarers to protect its reputation or image, or perhaps seafarers retentions, he answered “yes, as all companies do. But with regards to retention, it is also depending on the appraisal of your previous contract, as I am working with the same company for 6 years

now" as he is referring to his manning agency, of which shipping company is outsourcing its manpower demands. When he was particularly asked about whether shipping companies were compliant with MLC regulations about the 'reasonable amount' of internet access, he answered negatively. When he was asked what he would recommend shipping companies to do, his answer was "The upgrade of the internet on board should be one of the company's top goals, as we are transitioning to a digital world and it is one of the most significant things in this generation, both for comfort and for knowledge. What would you do if anything similar to the COVID-19 occurred? and you did not have sufficient Internet access? How may a person become aware of global events? or what is the status of his family? or community?." When he was asked if he thought that shipping companies would benefit if they had improved the internet access, he answered "although it may induce additional expenses, but it will result in high morale and motivated workers."

Presant believed that shipping companies cared about seafarers' welfare, as he stated, "the company provides all details of the contract of the seafarers in accordance to the contract and MLC 2006, if the seafarer is not happy about anything he can report it to the office". He also referred that his shipping company translated this care by hiring an excellent chief cook on board its vessels, as he stated "Chief Cooks on board are very important nowadays, because with multinational crews. Your chief has to be able to make four different cuisines on board, which, is very difficult. He needs to comply with internal standards also, and then he can really make everybody on board happy". He felt his company was compliant with MLC 2006 with regards to 'reasonable amount' of internet access, when he felt that the internet access or additional bundles for seafarers should be cheaper. He also clarified "every day you have new technology coming in at cheaper costs, for a mobile or satellite connectivity, or broadband with your VSAT connections, you have different new types of connections coming on board, but it depends on whether the shipowner is willing to implement that expensive equipment on board your ship" and he further criticised, "when it comes to the ship management company which is different from the ship owner or ship owning company, they decide to make some extra bucks by charging the poor seafarers. Although they can easily charge the shipowner, or if the shipowner is really concerned about the welfare and wellbeing of

his seafarers, then he has to take the bill for it" indicating that to advance seafarers' welfare via internet access, shipping companies should be proactive.

Jade was critical about shipping companies, as he answered negatively when he was asked about whether shipping companies cared about seafarers, and stated "my company have issues with spare parts, so when you have a failure on board, you tend to be creative with the solution, and we have a lot of trouble shooting and emergencies as a result. An example, if you are familiar with a freshwater generator, it generates water from sea. So it is like we have this part called the '3-way valve', in which, it will redirect the flow back to the and then what happens here is that we don't have these spare parts. So if the alarm comes, we redirect it manually. So if like for example, if you would get a lot an alarm at midnight, you need to go down and do your work manually. I have had it like for three nights, go down at the middle of the night because of that alarm ", and "we have budget for recreational facilities but I had not in all my 3 contracts went on board witness new things for recreation like a TV or new things to play with. the charter or with the shipowner of the ship make sure we are trained enough, but for recreational things it is not enough", and "seafarers cannot do anything about this actually. Because if we do not like the company, we quit, and the company can always find replacement and here lies the problem". Jade provided numerous examples indicating that some shipping companies are inclined to cut costs when it comes to seafarers' welfare facilities without considering the end user, who are the seafarers, and also during planning of company's activities, as some companies may factor cost savings by not having mandatory spare parts on board without considering the challenges faced by seafarers to resolve it later. When he was asked whether his company at least cared about its reputation or image, he continued to answer negatively as he mentioned that his company had a bad reputation among seafarers. When particularly asked about whether his shipping company was compliant with MLC 2006 regulations with the 'reasonable amount' of internet access, his answer was that his company provided the bare minimum. When he was asked what he would recommend shipping companies to do, his answer was "at least, they should sell some more data, as we need more, because sometimes if there will be an emergency and your data is finished, it will be a problem" indicating his willingness to pay for more internet if offered extra bundle at extra charges, noting that he

is a Generation Z seafarer. He also added, “the company should set a plan, provide us a recreational facilities when we are at Port. For example, they need to provide transportation for us at the port so that it can get us at least to malls or to visit to places if we have the time” referring to similar issued raise by Bilenda. When he was asked what his company would benefit if it provided more data bundle on board, he answered “its crew will want to be on the company for a long period of time, if they have these internet perks actually, considering training on new crews is costly”.

When Aragon was asked whether thought shipping companies cared about seafarers in terms of welfare, he answered negatively and mentioned that they are doing the bare minimum as he stated, “just to pass the requirements of the MLC only”. He had the same answer was when he was asked whether his company provided ‘reasonable amount’ of internet access on board. When he was asked what he would recommend shipping companies do with internet access in particular, he mentioned that shipping companies should provide more data and higher speed internet access, as he stated “they should provide at least 2GB per month, according to what I think is fair, but younger generations want more”. When he was asked to elaborate how would this benefit shipping companies, he answered, “For Filipino seafarers, when we apply for a job offshore, we're always asking if there is an internet on board and what is the data provided”, and “if they provide better internet, their crew will be happier or have higher morale, and they will be motivated to work faster in a more aggressive way”.

Hidoe shared similar thoughts to Aragon about shipping companies and mentioned that his company would try to add incentives for seafarers to join them and retain the existing seafarers. He also mentioned that although the shipping companies would only care about seafarers for reputation and image, however, they are also compliant with the MLC 2006 regulations with respect to internet access. When he was asked what he would recommend shipping companies should do, “I want them to provide fast, unlimited, and affordable internet access onboard.” When he was asked how would this benefit shipping companies, he answered “it will be easy for shipping companies to attract seafarers”. Also, when challenged by a statement of another interviewee’s point of view that such internet access would cause more physical fatigue for seafarers by staying not having a

sufficient resting time due to such internet, he urged “if the seafarer has the means to communicate with his family and friends on shore, this alone will increase their mental health, and they would sleep well i.e. comforted and relaxed from anxiety. it is harder to sleep without knowing what is happening with your family, so it is less stressful if you can communicate with them.” He also added, “sometimes actually most seafarers would have only one hour of rest because of the internet access” indicating that it should be controlled to mitigate such potential issue.

Sunny thought that shipping companies cared about seafarers since one of his crew mates had reported something to the office and received a response. The motivation theory indicates that his company is reactive to social welfare issues, even if the seafarer felt that this was company's initiative. When asked to elaborate, he stated that “they were providing us with means to communicate our concerns.” When asked whether he thought his company had its reputation and public image or seafarers’ retention as a motivation, he answered “yes, in my contract there were two salary increases which I consider as some sort of motivation for the seafarers” indicating a reactive incentive to retain seafarers in terms of seafarers’ welfare, as when he was further asked whether he thought his company was compliant with the MLC regulations in terms of ‘reasonable amount’ of internet access, as he replied “no, the price is high” referring to the additional data bundle after the monthly free data expiry. When asked what he would want shipping companies do, he answered “I wish they would increase the data allowance per month”. When asked how would shipping companies benefit if they implemented his request, in terms of cost, he thought it would not benefit the company, but he thought it would benefit the organization by reducing stress and loneliness for personnel on board.

Gideon believed that his company was operating only in response to legislative obligations in relation to seafarers welfare, as he assumed that other shipping companies were doing the same. When he was asked to reconfirm further, he mentioned that “shipping companies just comply with bare minimum. It is really true”. He further explained, “shipping companies are reluctant to adapt technologies or innovations or cope up with trends. We can observe this as seafarers, a lot of companies they do not like to adapt with new technologies, maybe because of the expense, it's quite expensive

for new technologies to be adapted on board every ship” demonstrating that shipping companies are reactive as a result of technological breakthroughs and their installation expenses. Based on his experience, he claimed that his company cared about seafarers because of the SMS, auditor, MLC officer, and Port State control, mentioning that the company must treat the crew properly which show clearly that his company was driven by regulations. When he was asked whether the company’s image was also a driver, he answered “most of the companies really like to keep their image good.” When he was particularly asked about whether his company was compliant with the phrase ‘reasonable amount’ of MLC 2006’s internet access, he answered positively, but he recommended “they should provide more data for internet access for the crew. I cannot specifically gauge ‘what is enough’ but based on ‘how productive is the crew’ as sometimes if you have good internet access, you are more motivated to do your job more productively. Because if crews had well communication with their families, the uncertainties and worries of the heart would be removed” implying that high quality internet access can some of the mitigate mental fatigue of the seafarers. When he was asked whether his recommendation would benefit shipping companies, he answered “yes. But you have to remind the crew with the objectives of providing such internet access, so that they do not abuse this internet access i.e. by being aware about the negative impacts, especially for operations” showing that it would have a favourable effect on shipping companies so long as seafarers are aware of the negative effects of internet use and use it moderately.

Chester also believed that his company was responding to external pressure from regulation, specifically the MLC 2006 regulations, and preserving its public image in regard to the welfare of seafarers, as he mentioned that they had a free hotline via satellite calls and posters on board to address any concerns. Although it was effective, as he was unaware of any seafarers expressing suicidal thoughts, motivation theory would need the company to take extra steps. In addition, his former employer was not keen to recognize the career advancement of its mariners due to racism or favouritism on the part of the ship's captain. He also believed that his company was not compliant with the ‘reasonable amount’ of the internet access as per the MLC 2006 regulations, and he demanded for more, and he stated that if higher internet data were provided the crew would be motivated to work with a greater morale. Furthermore, about shipping companies compliance with

the repatriation to shore and its adequate implementation, he stated “it is better for the company and the seafarer, considering that if a family member dies, the seafarer will be devastated and unmotivated to work, and may cause an accident or commit suicide on board; at the same time, if the seafarer want to repatriate to home in such emergency, it is not his intention to be unemployed or stay without a salary in the midst of such a crisis” criticising that if the seafarer wanted to repatriate to shore due to an emergency, it is not that he is willingly wanting to be unemployed, but due to basic human instincts.

Francis, whom had worked in one of the most reputable companies in the sector, mentioned that his company would proactively care about its seafarers as he stated “they really care for their crew” as his company was keen in terms of seafarers welfare, and in terms of internet access on board, as it was the best in comparison with the other interviewees feedback, and the fact that other interviewees mentioned that they attempted to work for this company in particular due to its seafarers’ high morale as a result of the company’s efforts, which included proactive actions on board its fleet against bullying, harassment, racism, gender sexism, and discrimination against sexual orientation and gender identity. In addition to the immediate adoption to the latest technologies, as his company was among the first companies to provide unlimited internet access on board. Francis also stated “we conducted weekly safety awareness sessions, the company is open about hearing any issues, they would encourage us to go on shore leave” indicating that his company was also pushing seafarers to take their shore leaves believing it would positively contribute to their welfare. When he was asked about whether his company was also driven by its public image, he mentioned “yes, especially for gender discrimination. The company is promoting a healthy environment on board,” in fact the seafarer was sharing only positive thoughts about his company and was embracing his multinational crews experiences which had given him a rich experience in terms of being open towards knowing seafarers from other cultures, which were very friendly overall. He mentioned also that the company did not have a policy prohibiting mobile phone use during work hours, and that his seniors and masters on board did not force the crew to leave their mobile phones in their cabins during duty, but were merely recommending it for the safety of the crew and the vessel, and the fact that Francis himself was taking this recommendation seriously and was genuinely believed that it was for his own safety first.

Although he believed that his company was more than compliant with the MLC 2006 regulations, he felt the exception was that satellite phone calls were quite expensive even if he rarely used it. He praised his company further, “If the company was just motivated due to MLC 2006 regulations, then it could have provided the bare minimum and for pure business operations”. He was asked what he would recommend his company do further, he answered “they have to provide access to better internet like what was its name? ‘Elon Musk’s internet’? since you are away from home, you are isolated on the ship, it would be better to have greater internet access” indicating that although it is one of the best companies providing internet access on board, it is not yet up to Francis’s expectation, who is a Generation Z seafarer. It is worth to note that this is the only seafarer who actively talked about the future aspect satellite internet and specifically referred to SpaceX’s technology. When he was asked to how it would benefit his company, he mentioned “I think they will have a happier crew. It will result in less stress on board and less accidents due to mental fatigue; from being disconnected from their families and friends that leads seafarers to be stressed causing accidents. The only thing that keeps the seafarers going on is their families, so they can contact them anytime and it would be a great motivation for them” indicating that 1 megabyte speed and unlimited internet access is not perfect, considering he mentioned that there were areas that were not covered by internet, as he reported one of his voyages had 19 days without internet coverage.

When asked about whether shipping companies cared about seafarers’ welfare, Jose answered “I believe not genuinely, they care about the business matters rather than the seafarer” as he explained, “the company has programs and provides internet access, but it does not actually take actions when we requested the company multiple times to provide certain recreational equipment or facility, or they would provide the lowest quality or the lowest cost available. For example, we are in bulk shipping, and sometimes when we discuss with our colleagues in the tankers segment, they have better internet and more data bundle while for us our company provide us the bare minimum. The tankers segment for example, have 2GB per day, while we have 800MB per month” suggesting that different shipping segments have different welfare conditions, and the ‘reasonable amount’ also differs. When Jose was asked whether his company was considering its seafarers’ welfare to promote public image, he answered “not really, they can have

replacement seafarers when they need. But the company tends to promote its images for officers and ranked positions, but not ratings, so they want to retain certain positions” indicating that his shipping company is doing the bare minimum for pure business objectives, pressured by a shortage of officers. When asked whether his company was compliant with the MLC 2006 regulations when it comes to ‘reasonable amount’, he answered, “they are providing internet just to comply with the MLC rules” and “yes, they're compliant, but not to the point that they care for the seafarers”. He also recommended that shipping companies increase the data bundles, enhance the internet speed, and improve availability, as he believed that seafarers would be happier, motivated to work, and more productive.

Hanei had criticised shipping companies stating, “they only act based on the mandated rules, other than that they do not care”, and “there is a budget for the recreational facilities of about \$300 per month, but actually we only have the basic recreational facilities to comply with the MLC rules, and it is never upgraded or renewed. Sometimes, we request certain recreational equipment but they do nothing. Even the basketball ring and ball net on board, we bought it and installed it at the expense of the crew.” He also believed that shipping companies cared about seafarers welfare due to public image pressures. When asked whether his company was compliant with the reasonable amount of internet access as per MLC 2006, he answered ““I think it is not, as the price is really expensive for me. They can do much better than that, as one of my colleagues was working in a different company in container shipping, and they used to give weekly data for free, and when he joined our company, he was shocked”. When asked what he would recommend shipping companies do, he responded “if they can, it should be unlimited for free, or at least the price should be reasonable.” When further asked if he thought it would benefit the shipping companies, he replied ““if we compare two companies with the same wages, the seafarer will prefer the company with better internet access. So it will be more attractive for seafarers to join. They will have higher morale and motivation.” Furthermore, he was asked about what the shipping company would benefit if it had implemented the shore leave policies as per MLC 2006 “if they do, the mentality of the crew would significantly enhance. So the shipping companies will also benefit.”

Jefferson also had also criticised his company when asked about whether they care about seafarers' welfare as he mentioned "my company would manipulate the working schedules so that it will not exceed more than 12 hours of work per day. As in the case when we were having paint jobs off Australian seas, we were working more than 12 hours a day, but they were writing it off as 12 hours only." i.e. forgery and in compliance with ILO, MLC, and Local Australian Laws. Also he stated, "when it comes to safety equipment on board like safety gloves they would only provide us 2 per month and we need more. when it is about the gym equipment, they are providing the bare minimum for example, we only have 3 sets of dumbbells. I can feel the difference between my company and other shipping companies when I am talking with my seafarer friends. The recreational facilities budget is allocated but not consumed by our company." Furthermore, he reported "my company is always hiring new crew members and not caring much about the existing crew members" indicating that his company is outsourcing its manpower frequently and not caring much about retention as it would prefer contract based agreement with its crews. Currently, I am thinking about resigning from this company and apply to another thru my manning agency." He felt that his company is only concerned about its public image, and that the internet access he had was not reasonable compared to other companies. He would recommend that his company to reduce the price of internet on board or provide it for free as he stated, "allowing instant messaging for seafarers will be of great help to the seafarers". When he was asked how it would benefit his company, he mentioned in terms of cost it would not, but "if the company cared about its seafarers, it would reflect on us as seafarers, we will have high morale and would be motivated to work".

Mahmoud had high criticism towards his previous companies, as he felt they did not care about seafarers welfare at all, sharing statements like "we can talk 'theoretically' about the MLC 2006 rules, but I prefer to speak more about what is practically or actually happening on board", "one of the ships I worked on was 44 years old, it had many engine failures, for a month I worked with my crew members continuously to troubleshoot engine failures. That time we had only 2 hours of sleep per day. I worked for another company, which I did not know its exact terms (i.e. would be actively working in dangerous areas), that it had a contract with the United Nations and I was working in a conflict warzone",

"one of the companies are I worked for is a 'substandard' to the MLC rules i.e. it is almost meeting the MLC rules, which was the best in my experience", "the companies that I worked for would wait until we reach the cheapest port possible. As an extreme example, we had a crew member, our chief engineer, who passed away on board, it took 5 days to reach the port. He had a heart condition for three days before he passed away, and nobody cared. because the captain did not make the decision to get a helicopter, because we were like 30 to 40 miles away from Ukraine. So it was really easy to get a helicopter from the port. The captain negotiated with the shipowner, and it did not work out. So the guy passed away", "when I am talking with my friends and colleagues working in the same company, there are many medical emergencies that occurs on board and the company did not act on them", "the company owners are investors and they are not educated. About 50% are regional shipowners and the other 50% is the principal. The structure of the 'company' is really random", and "if the companies I worked for i.e. the Syrian, Lebanese, or Greek, cared about the seafarers or provided anything that is good, it would be purely internal". When asked about whether public image was affecting his company, he answered "no, as these companies were contracting and outsourcing their manpower, so it was purely business context. It is only 'one contract' whether you realize it is a good or a bad one later on" indicating that in his experience, company's image is not a pressure due to the fact that the manpower is outsourced. He metaphorically illustrated "I always feel before having a seafaring contract that I am signing on to go to a prison to get some money."

Jeannu reported when he was asked whether shipping companies cared about seafarers' welfare, "I think now, they're just starting to notice" and "for my company, they do care about their own seafarers" referring to his manning agency. He also added "the manning agency would try to resolve issues for my fellow seafarers when they approach the company, and the company would include these concerns in their awareness programs and seminars. But for the shipowners and shipping companies, they do not care". He believed that his shipping companies he worked for did not care about seafarers welfare but his manning agency did, indicating that shipping companies would not be concerned considering they were outsourcing their manpower. On the other hand, he mentioned that his manning agency genuinely cared about its seafarers as when he was asked about

whether his manning agency was concerned about seafarers retention and public image, he answered “no, they would school you and they would teach you external additional stuff to help you get promoted to help your career growth, and to help you be self-aware about yourself.” He reported that shipping companies were not compliant with the MLC 2006 in relation to the reasonable amount of internet access, as he wanted and recommended shipping companies to provide more internet access on board and that they should take more care about the seafarers’ welfare. When asked why would shipping companies want to implement what he was recommending, he mentioned “to avoid accidents or problems on board. as life on board is already hard and they are just making it harder” and “if their employees are well taken care of, they will get good results” suggesting a reactive recommendation as per motivation theory.

Roedi stated “in my company in 2019, we had a lot of accidents on board and after conducting investigations, the results showed that it is because of seafarers’ physical fatigue and mental fatigue mainly due to stress, and lack of sleep. Before that, they were very minimal action to consider these issues as it was only to keep the records in paper, until they see the damage they would react, because it costs a lot of money” this is a high indicator that his shipping company is reactive and would act based on extrinsic motives only. Roedi also added “this means that their seafarers welfare programs were not working.” When asked about public image and seafarers’ retention as an external pressure on his company, he mentioned “they would give bonuses for the seafarers to come back for the same manning agency or shipping company, especially for officers, as they lack officers and the shortage for officers is quite significant” i.e. the manning agencies and shipping companies would care about the welfare of seafarers in a reactive way. Although Roadi did not have internet on board during his career lifetime until his retirement in 2019, when he asked whether shipping companies would be compliant with the reasonable amount of internet access as per MLC 2006 regulations, he answered “the shipping companies are only implementing this to comply with the basic MLC rules”, and when asked about his 21 years of experience as a seafarer on whether he thinks these companies are acting based on external regulations or internal motivation from the company itself, he answered “I believe it's due to the advancement of time, as they anticipate that in the future, everything will be on the internet, or at least the activities.

Therefore, they are compelled to implement internet connectivity" Roedi means shipping companies would act based on external pressure resulting from societal changes, generational changes, the demand change, and regulation changes that forces the shipping companies to change. He also added further, "in the 1998, due to technological advancements at that time, the IMO had changed its policies, as once there was a position as 'GMDSS Radio Operator', but after a while, the IMO removed this position and it became one of the officers' duties" indicating that shipping companies as well as the regulators of the industry are reactive to technological advancements.

Jay believed that shipping companies cared about seafarers' welfare due to internal motives, as he stated "they created a program for seafarers to reach out and connect with other seafarers of the same country with the same issues that they want to talk with. For example, due to the Russian invasion of Ukraine, our company arranges for Ukrainian seafarers to connect with each other, another example, is when there is a typhoon hit Philippines the company would arrange for Filipino seafarers to connect with each other". He further explained, "in terms of company social responsibility, after requests from our Ukrainian seafarers, my company started providing 'free calls' for our Ukrainian colleagues, for them to call their families at home". In addition, he also did not hear about any seafarers committing suicide or having suicidal thoughts. When he was asked about whether his company had its public image as an external pressure to care about its seafarers' welfare, he replied "I think somehow it is about the reputation, but it is more about the seafarers wellbeing while being on board" indicating that his company is genuinely caring about its seafarers. When asked whether he thought his company was compliant with the reasonable amount of the internet access on board as per MLC 2006 regulations, he answered "I cannot say it is reasonable, but I can say it is 'fair' considering it is enough for instant messaging and calling". Also, when asked what he would recommend shipping companies do about it, he replied "I can recommend them to provide unlimited internet data, or at least 3GB per month to allow seafarers to properly communicate with their families". Also in relation to the shore leave, he was asked similarly, and he replied "I would also recommend the companies to allow its seafarers to go on shore leaves, as it will relax the minds of the seafarers away from work. If the concern is COVID-19, the shipping companies can have a rapid COVID-19 test just to

avoid the virus infection, because it is still a risk for the ship when it is offshore, which also imposes safety concerns on the ship as an asset itself.

Arthur believes his cruise line cares about its seafarers as he mentioned "we have human resources personnel on board for the crew's concerns, and a training manager. We also have recreational facilities and activities for the crew". When he was asked would he consider his company driven by the public image, he mentioned "yes, considering it is cruise shipping and the passengers are dealing with the crews on board."

Discussion

As to what have been established in the literature review section, and was built upon in the research method and founding the interview questions upon it, and finally attaining the results after the interviews were completed. In this section, discussion takes place interpreting the results, and linking them to the literature review section.

The responses generally confirmed the literature review statements with regards to physical fatigue, mental fatigue, social isolation, the digitally connected generations concerns on board, shore leaves, repatriation to shore, the seafarers' demands to improve the current internet access on board, potential applications and impacts of high-quality internet which seafarers can implement while being on board, and the shipping companies' insufficient CSR efforts.

About physical fatigue, the results and interviewees' statements verified Paukstat's conclusions that increased port visits and short voyages have significantly increased physical fatigue for seafarers as well as Shan and Neis' research.

Also, confirming the fact that short port stays due to increased ports efficiency contributing to physical fatigue of seafarers confirming Oldenburg's findings.

Roedi's statement about his ex-company being reactive after the increased accidents within its fleet in 2018, which had its root causes due to its seafarers' high fatigue affirming the research findings of Wang, Gander et al., and Strauch.

Also, the causes of the physical and mental fatigue were further explored adding to the findings of Slišković and Penezić's study and including ships' technical capabilities and specifications in terms of vessel age, vessel design quality, and machineries' spare parts availability all of which had an impact on seafarers welfare on board adding to the nature of the work conditions that were stated in Slišković and Penezić's research. Also confirming Paterson's conclusions.

The statements of some of the interviewees also confirmed that the physical and mental fatigue develops by the time the seafarers commence their contracts, and signifies after about 3 months being on board affirming the findings of Salyga and Juozulynas'; which grows overtime to impact the physical status of the seafarers confirming the researches of Hansen et al, Nas and Fişkın, and Oldenburg et al. Adding further, especially during the first few contracts as to what many interviewees highlighted, and in cases of new promotions to a new role that is more stressful like becoming a recent third officer or a recent master mariner, which, if not captured by the senior officers or the company would develop into suicidal thoughts and suicide incidents reaffirming Mellbye and Carters' results. Asserting the ships' environment is a significant reasons for such issues to amplify the suicidal thoughts matching the circumstances that were set by Roberts et al. However, results also add the fact that there is always an external trigger which can be 'the tip of the ice-berg', as to being promoted to third officer, encountering cheating issues in intimate partnership or marriage, being with extremely abusive crew members, or having a close person passing away.

With regards to lowered work performance due to fatigue, the results had further confirmed Hystad and Eids, Dolan and Ender, and Slišković and Penezić's findings, but also elaborated how these impacts are developed overtime, hence, via loss of focus due to mental fatigue especially when there are external triggers on shore that seafarers are unable to resolve while on board, which may increase due to high-quality internet access.

Combined with the physical fatigue, developing overtime and eventually causing incidents.

All interviewees have agreed that the physical and mental fatigues vary based on ranking or rating Mansyur et al. but the results of the current study, had pointed out that ratings encounter more physical fatigue rather than mental fatigue, while officers and masters encounter more mental fatigue than physical fatigue with the exception of shift changes impacting officers' physical fatigue.

However, the results strongly support the suggested research findings of Jensen, Lefkowitz and Slade, and Sampson and Ellis that internet access can improve the mental health of seafarers. Adding many scenarios that the interviewees had encountered which internet access and its quality had a strong indirect and sometimes direct influence on their mental wellbeing on board. For example, the time that Roedi's wife was sick back in 2003, the experience when Mahmoud's aunt passed away without him knowing or being able to transfer money online, the times that many seafarers encountered in occasional events like having a close person passing away, the techniques that were reported by some of the interviewees that TikTok video and content creation helped in reducing seafarers' mental fatigue during COVID-19 while being stranded on board. In addition to the countless applications and uses that seafarers had used a defence mechanism involving internet access, starting by listening to music online, watching live sport, watching content via streaming services, being able to download eBooks, socialising with family and friends, etc. These results answer the questions that the two researches of Lefkowitz and Slade, and Slišković and Penezić when they questions how can high quality internet access affect the seafarers. The results further added countless means than the basic set of simply communicating with family and friends as reported in the study by Nguyen et al.

The results have also reaffirmed the calls by Paukštut et al. to provide high-quality internet access for seafarers, especially during the Pandemic. As the responses suggested in detail the countless uses that the seafarers would have if they had such internet access.

With regards to the social isolation, the responses suggested various reasons that causes the social isolation for seafarers, including the Pandemic, the lack of shore leaves, the multinational or multibackground crews, age gaps sometimes, rank and positions gaps, or the relatively limited number of personnel on board a vessel. Adding detailed scenarios and reasons to the conclusions of Slišković and Penezić, Thomas, Jensen, and Mellbye and Carter.

The responses also confirm that Cahoon's conclusions about the different expectations shifts due to generational changes have been proven. As it was illustrated with regards to internet access and its demand, the digital activities on board, and the outlook on seafaring career with the exception of those who are passionate or financially insufficient. Combined with the general technological advances, the different economical changes between generations, and societal changes.

Similarly to statements of Caesar et al. suggesting that internet access on board needs to be improved to attract the new generations of seafarers, almost all interviewees have reported that they are actively considering the internet access and its quality on board as a deciding factor when they apply for their contracts to the extent that compensation becomes secondary for some of them.

In addition, the internet access on board would effectively persuade seafarers to stay longer on board and accepting longer rotation which may help in reducing the impacts of the forecasted shortages of seafarers in the future. It would also slightly improve the retention of seafarers. Especially in new generations of seafarers confirming the findings of Gaidhani et al., and Chillakuri and Mahanandia. The responses strongly support the point of view of David Appleton when it comes to the need to improve internet access on board and its relation to the new generations of seafarers as well as the forecasted shortages of seafarers.

As stated earlier about the TikTok and content creation during COVID-19, similar applications and uses due to high quality internet access can also positively help seafarers in cases of lacking shore leaves, as well as the inability to repatriate to shore in case of a family emergency at home, or at least if delays were expected while processing

the seafarers requests to repatriate to shore. However, some of the interviewees have reported that in case of difficulties to repatriate seafarers for medical emergencies as reported in the study of Hebbar and Mukesh, internet access can reduce such concerns by having access to communicate with doctors on shore via live video feedback which may help in saving lives.

Responses suggested that considering tankers have relatively short ports stays in comparison to other segments in combination with the lack of shore leaves, tankers segment have better internet access, perhaps it is also related to the fact that in the tankers segment, most companies have long terms contracts with the charterers whom are relatively more stable than the fluctuating bulk segment or containers segment.

The responses also suggested that many shipping companies have taken COVID-19 as an excuse to prohibit its seafarers from taking shore leaves, even though the restrictions were lifted in most countries globally.

As to the current satellite internet technologies on board, most of the interviewed seafarers and their colleagues complained about either its quality in terms of coverage or speed, affordability, or data limitation. Even in the best case scenario of Francis's Danish mega shipping company, he had a period of more than two weeks without coverage. It seems as if LEO satellite internet technology is currently being expanded to cover all areas globally, confirming the statements of Young, and Cao et al. regarding SpaceX and Amazon's ongoing launches.

When Gideon's senior officer and captain were voyaging through the northern parts of Russia needing polar certificates as per the regulations, hence, with high-quality internet access on board, such scenarios are possible by attaining or renewing certificates while being on board. Especially if it was related to sea service certificates renewal, as many interviewees have highlighted that this would allow them to continue working on board without interruption or without having to end their contracts ahead of time. Also, some interviewees revealed during the Pandemic, such use would have been extremely useful especially for business continuity of shipping companies, as the crews were not allowed to return or crews were not allowed to board ships at that time; enhancing Masuku's

research when as he mentioned the South African University goals into digitalizing the STCW course via online platforms.

Indeed internet access on board would not resolve all issue that seafarers encountered as some of the interviewees have elaborated, which is matching the hints that Oldenburg and Jensen claimed in their study that internet access would reduce seafarers' mental fatigue in a fragmented way.

The potential applications of high quality internet access with regards to seeking online psychological service while being on board was not mentioned in the literature. The results strongly suggested that most of the interviewees would prefer to use such services primarily due to the high potential of experiencing mental fatigue on board. In that regard, a good number of the interviewees were already trying to use artificial intelligence applications tailored for psychological support. Therefore, shipping companies would need to consider this highly advanced opportunity to integrate it within their organizations, especially for the new generations of seafarers. In addition to seeking online psychological support with specialists. Other than the ordinary use of seeking an online general practitioner, which proved to be the case for Jefferson during COVID-19 while being on shore.

With regards to CSR, the results strongly support McConnell's criticisms, Carey's findings, the recommendations of Sampson and Ellis to enhance the MLC regulations. Most of the interviewees agreed with Deepak Mantoju's study claims, as they felt that the MLC regulations are inadequate due to its flawed implementation by the companies.

As to most of the interviewees' feedback, shipping companies in general in terms of seafarers welfare and mental health in the Motivation Theory, when recalling Figure 1, are mostly in the 'Liability' range of secondary motivations, and in the extrinsic range of the primary motivations; driven by reputation, regulatory changes, asset losses or incidents and investigations after the fact, providing the bare minimum to satisfy the rules in order to be able to continue operations, pressured by manpower shortages to react. Hence, needs internal alignment to be active, and the mix of motivations to be pro-active.

In extreme worst cases, as in Mahmoud's experiences, did not even have International CSR nor motivations at all, and the closest would be 'inactive' without any transition. The best examples supporting this statement was Roedi's experiences, who had witnessed the transition before and after MLC implementation in 2006.

On the other hand, in the best cases, Francis who showed a great example of a pro-active shipping company that is taking 'responsibility' in the tactical range and mixing the intrinsic and extrinsic motives in the strategical range; as he has been fiercely defending his company's reputation believing that his company genuinely cared for its seafarers, including the installation of the state of the art satellite internet services on board its fleet, and proactively approaching its seafarers to ensure their mental health and wellbeing is in the best status. In fact, other interviewees mentioned that they wished to work for Francis's company as it had one of the best reputations in the shipping sector.

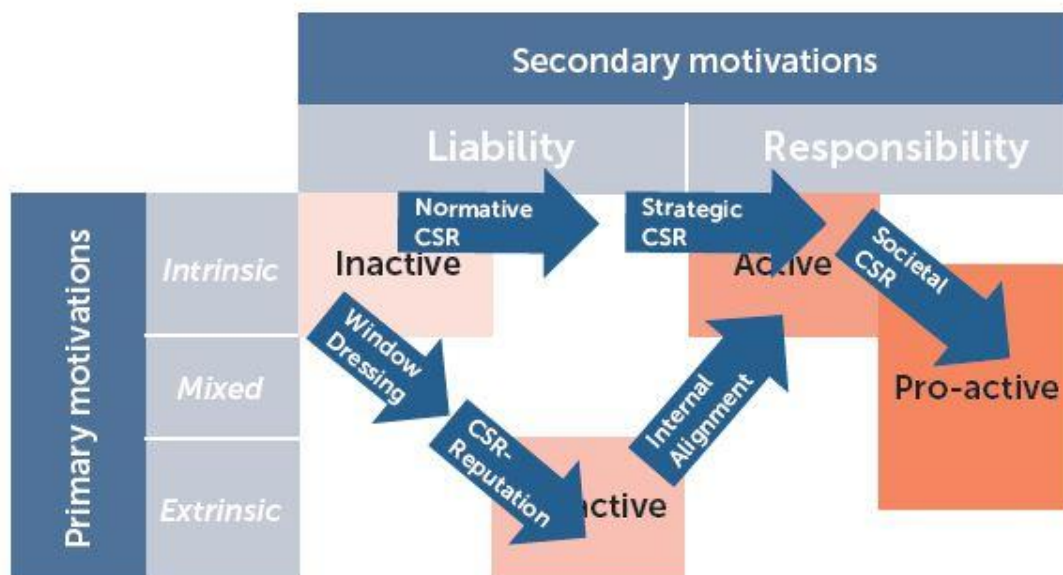


Figure 1: Primary and Secondary Motives (Tulder, 2018)

The same goes for the basic desire and social norms, when recalling Figure 2, most of the shipping companies did not have the desire to adopt International CSR efforts, and were extrinsic and strongly reactive towards seafarers welfare and mental health, including adopting the internet access on board. Perhaps being in the responsive route,

needing to expand its capabilities to be active, then seeking the collaborative path with the society afterwards. One could question perhaps it was due to the fact that Francis's company was one of the largest if not the largest shipping company globally, it the reason that it was mature in terms of capabilities and had the sufficient resources and scale, as per Tudler's claims about the impact of the size of the company, to be able to move across the collaborative paths. Noting that Mahmoud's previous companies were consisting of few passive investors or family companies hinting that its capabilities were the issue, and being small in size as per Tudler's claims.

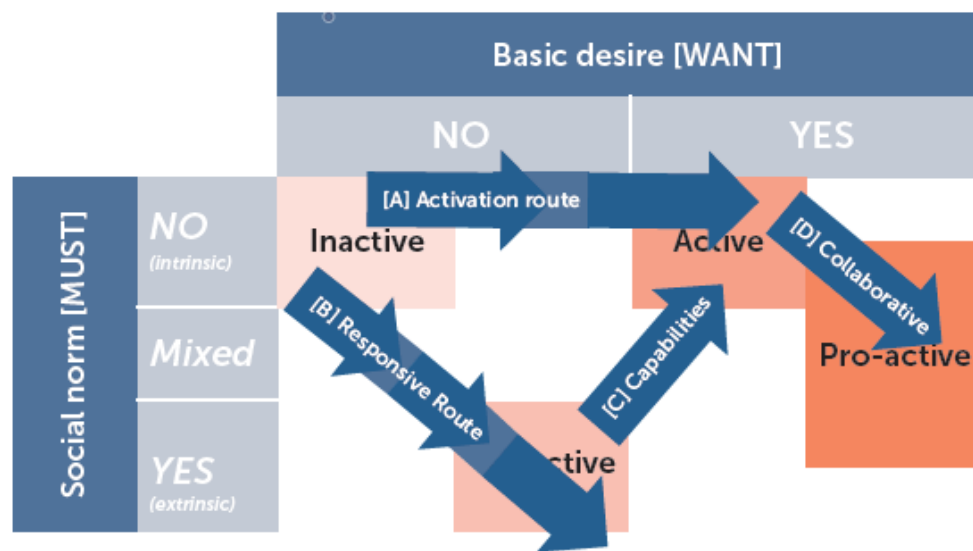


Figure 2: Four Transitions – Dynamic Motivation (Tudler, 2018)

Such findings are strongly critical to the calls for consortia block exemption regulation renewal for shipping companies, considering it would be very challenging for small shipping companies to transition towards the 'active' status by being able to grow in size as per Tudler's claims. Hence, it would be sustainable for Francis's company, but not for other smaller companies, as a result of the consortia.

Hence, recalling the conceptual framework in Figure 3, it is clearly possible to partially counter all 'Seafarers Welfare Factors' including the physical fatigue, if awareness and moderate use of internet access was applied, especially considering the studies in the literature as well as the feedback of the interviewees related the mental fatigue with the

impact on their physical condition, and would reduce the physical fatigue due lack of rest at ports i.e. if the seafarers were not as excited about the short window of high quality internet at ports as to the current practices; while at the same time improving company social responsibility efforts in the international space, in addition to benefiting from the indirect increase in its employees productivity, or the direct productivity for the companies which may arise from the high quality internet access itself.

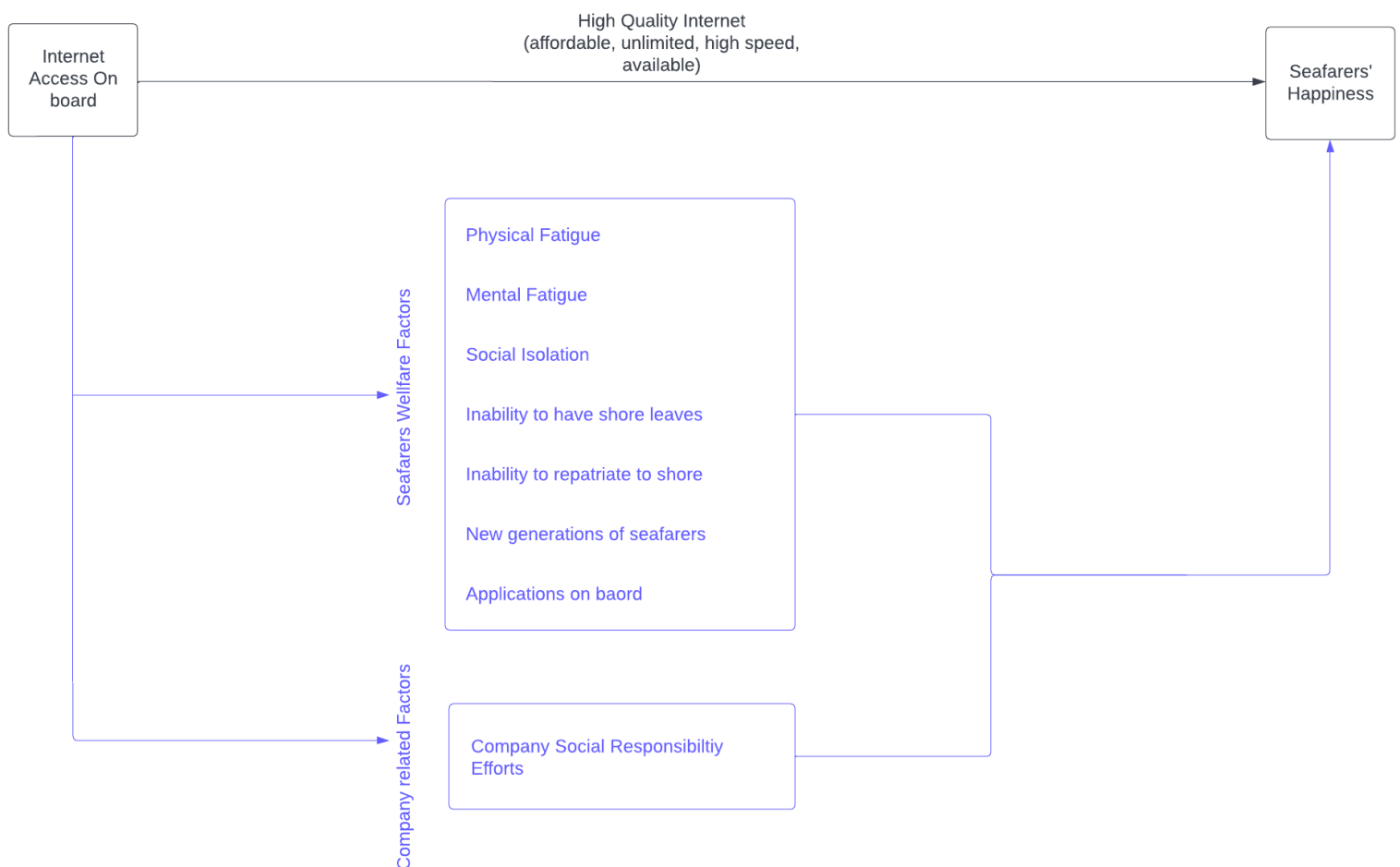


Figure 4: Exploratory Conceptual Framework

Out of all the interviewees, only one had felt that his company was proactive and was genuinely caring about its seafarers' welfare with regards to the previous topics discussed, including the internet access with the latest available technology. Most shipping companies are hesitant to take the initiative to improve internet access on board since they know it will increase their costs, which is a significant consideration in the shipping industry due to capital expenditures and operating expenses. Also considering it will not directly benefit them financially. These companies would rather wait until regulations force them to be at least active or reactive, or at least wait until a certain technology is mature; showing a disparity that shipping companies have in comparison with other sectors. Also, varies between the shipping segments itself, as to what the results suggested, especially when adding a unique segment which is cruise shipping as in Arthur's situation, where his company is under societal pressure due to the fact that the passengers can observe and strongly influence the image of the cruise company, in contrast to the other interviewees. The results also implied that the conditions of the seafarers' welfare on board vary based on the origin of the shipping company, as different societies have different principles, which is highlighting the major international governance gaps as Tudler highlighted in his book. To retain seafarers, ship owners and operators must pay attention to the needs of seafarers and implement measures that make them feel valued and included, compensation alone would not sustain their employment.

It is noticed that some shipping companies, according to the interviewed seafarers, have started deploying better satellite internet connectivity on board. Although the shipping industry is reactive when it comes to technological progress, and not all companies have such capabilities. It also varies from country to another, and shipping segment to another, which may be attributed to the fact that profitability varies based on the shipping segments (UNCTAD, 2021). For example, seafarers in European companies had better internet connectivity on board in comparison with their peers in Asian companies, as explained by the Filipino seafarers looking for shipping companies with better welfare and internet access in Europe. Also, many seafarers reported that their colleagues in the tanker segment have higher quality internet on board, and unlimited in the best cases. While it is observed that seafarers in the bulk shipping segment have had the lowest internet

quality when it comes to the availability on board at all, its speed, and affordability which was extremely expensive. However, there is not much quantitative evidence to support it, except that historically, the tankers have had better tolerance for shipping market fluctuations due to the fact that most of the tankers are dealing with long term contracts with a relatively stable customer i.e. the oil and gas sector, as was also observed that bulk shipping had significantly suffered during and post the 2008 financial crisis.

All seventeen of the seafarers and the welfare expert believed that having at least the basic internet access while at sea is vital, and they demanded that the decision makers should collaborate with the shipping companies to improve internet access on board ships. Taking into consideration the fact that, if there is no broadband available on board, they often look for network signals on their smartphones while they are sailing offshore near lands, and when they stop at ports, they look for local sim cards. It was also established that digitally connected generations are finding it challenging with the lack of internet, or poor internet quality on board. Also, seafarers would actively seek jobs in shipping companies with internet access, along with the fact that shipping companies and manning agencies had started to use internet access to attract seafarers

High-quality internet access had demonstrated that it would have a significant impact on the welfare of seafarers while on board, with the ability to properly communicate with their families and friends being the most important item on their wish list, especially since the majority of seafarers reported that a lack of or limited communications with their families had made a significant contribution to their mental fatigue on board. The high-quality internet was also directly linked to improve, or was reported that it can be used as a counter-action to many of the recurring seafarers' challenges on board like mental fatigue, social isolation, inability to take shore leaves, or inability to repatriate to shore in cases of family emergencies, in addition to the fact that the later generations are strongly demanding it due to their digital lifestyle's dramatical change from previous generations. For instance, during COVID-19, at the peak of the lockdown, seafarers who were trapped on board have reported that some masters and crews have started creating entertainment videos on TikTok while being on board, which was also supported by their shipping companies in order to maintain sanity on board, reduce aggression among stressed crew

members being unable to go to shore, even though the high-quality internet was unavailable on board to support it except during port stays. These shipping companies organized an online competition between seafarers to encourage them to create more of these videos. One of the seafarers, who has retired in 2019 after 21 years of seafaring experience, have reported that during COVID-19, he had to create a social media page in order to increase awareness for seafarers not to have aggressive behaviours on board, to be more self-aware, and encouraged them to upload more TikTok videos; as he recognises many of the mental stresses on board. Although he reported that suicide rates have increased among seafarers during COVID19, and he was interviewed about the topic on a global TV news agency to discuss these issues.

With regards to data demand, lifestyle and activities on board had dramatically changed across the different generations of seafarers, as Generation Z and Alpha who had activities demanding higher data consumption than their predecessors, with one common factor among all of the generations of seafarers, that is having to adapt to the digital isolation on board although it varied. For instance, It was noticed that many of the participants from millennials and the generation Z from the Philippines, play LAN games among themselves while being on board, and the same generations also played online games during their rest hours at port, wishing that they had high-quality internet access on board to support online gaming during their voyages. Considering some seafarers' felt as if it would connect them with the friends on shore as if they were at home. Some seafarers also reported video games on mobile, a gaming console or computer, as one of their coping mechanisms against stressors on board.

Along with the fact that their occupation is physically and mentally demanding, the majority of seafarers interviewed emphasized the severity of mental fatigue on board by providing numerous examples, and most of them possessed coping mechanisms that could have been greatly enhanced by high-quality internet access. It also seemed as if some of the seafarers would want to pass their time on board by mostly watching pre-downloaded movies, and with better internet connectivity most of the seafarers were willing to use high-quality internet for many applications that would have indirectly increased their morale and happiness. Some seafarers emphasized internet banking

services as one of the most crucial applications of high-quality internet, especially if the seafarer had relatives or dependents in need, which, if not covered in a timely manner, might significantly increase the seafarer's mental fatigue while on board.

The results indicated that one of the reasons of the shortage of seafarers is the generational changes, as the seafarers of older generations tended to continue seafaring for a significantly longer period than new generations of seafarers, with the reasons related to the fact that the new generations are becoming wiser financially and partially lacking proper internet access on board being unable to communicate with their family and friends or being isolated from the community on shore. In addition to outsourcing the manpower to less developed countries as to what Roedi had observed across his career lifetime, matching the statement of Ceyhun in his study “Enhancement of Seafarer Loyalty to the Company in Different Countries.”

It was noted that the ratings had greater physical duties on board, which contributed to higher levels of physical fatigue, but the officers had much higher levels of mental fatigue due to the high number of tasks and responsibilities. Also noted that the higher the number of port stops, the higher physical fatigue the seafarer encountered. In addition, the duration of the port stay also was another factor. The ports stops and port stay duration were typically changed according to the segment, as seafarers in tankers segment reported between 12 hours to 48 hours, while those in container ships reported between 2 days to 7 days at port; these impacts seafarers because shorter stay in ports meant less high-quality internet access. Many of the seafarers reported during rough weather it was difficult for them to sleep, which caused them to experience physical fatigue. Also many reported that during their first few contracts, they were challenged with sea sickness which causes them sleeping difficulties. Certain poor-quality ships with increased vibration had an impact on seafarers sleeping patterns. Although very few shipping companies have started implementing higher quality internet access already, when it comes to physical fatigue, evidently from interviewees' responses, high-quality internet access may increase the physical fatigue of the seafarers if they did control themselves or if they lacked awareness about their internet use during their rest time, however, most of them already acknowledged that this may be an issue. On the contrary,

the physical fatigue of the seafarers may reduce if they were not excited about having a better internet access or mobile signal at ports, as they would be able to rest more during their rest hours at ports and not distracted by the limited window of having high-quality internet access exclusively at ports.

Some of the mental fatigue challenges reported by the seafarers were related to the first contract, especially when they were quite young between the ages of eighteen to early twenties, as many had reported the age gap was an issue in their first few contracts as it led to social isolation sometimes, until they adapted to the situation. Also the position gap was highlighted by some seafarers adding to mental fatigue, especially for cadets being the lowest rank on board. Being with multibackground crews, whether due to nationality, age, position seniority, gender, sexual orientation, or even different cultures of seafarers the same nationality, can sometimes cause social barriers on board, and with the already limited number of crew members on board, this may cause social isolation. The social isolation and social barriers can be reduced via the high-quality internet access, as most of the interviewees reported their social isolation experienced due to the lack of someone on board that can relate to their problems, hence, being able to connect with their families or friends was countering such issues. In addition to the fact that most of the interviewees were willing to seek online psychological services, as some were using artificial intelligence mobile apps dedicated for psychological support, as it was also observed that such applications were becoming popular among the new generations. Although these applications are generic, shipping companies can consider adopting them and channelling it for seafarers; mainly due to the fact that there are many sources in the academic atmosphere and the general web that can feed such applications. With regards to its practicality, some of the interviewees that had severe mental fatigue, or those who had suicidal thoughts on board have already reported seeking such advanced technologies for support, while the rest were seeking ordinary psychologists online.

Out of the seventeen seafarers, seven seafarers had reported that they knew a fellow seafarer who had committed suicide, and one seafarer reported one of his colleagues' seafarer friends had committed suicide. For a sample of only eighteen seafarers, this is a substantially large number. The reasons were attributed to either personal intimate

relationship issues on shore, or, as it was particularly noticed, third officers who had recently been promoted experience significant mental fatigue, considering the transition from being an able-seaman with just physical works into a high accountability and greater responsibility role with more mental stresses, including being responsible for ratings and ship operations, voyage navigation and planning, and having many delegated tasks from the master or the senior officers. Other than committing suicide, many seafarers reported that either they had suicidal thoughts, or had a fellow seafarer having these thoughts. It was also observed that ships' environment in combination with seafarers' mental or physical stress, and any external triggers like having a close family member passing away or issues in the intimate relationship had led to many cases of seafarers' suicides, which is expressed in basic terms that the ships' environment amplifies negative thoughts, particularly when isolated from the general population.

In terms of technicality and feasibility, internet satellite providers are becoming more competitive, and prices are reducing as a result of this competition, in addition to the advances in rocket launching technologies which is also reducing the capital costs for these companies. One of its first live applications that had proved to be very successful is in Ukraine due to the Russian invasion in 2022, which had the country online via SpaceX's services. The same low orbit satellite technology is intended to be live by the end of 2023 according to SpaceX, with around 40,000 satellites planned to be launched by the end of 2022. The fact that these companies are launching mass numbers of satellites, would further cut the costs on the long run, making it feasible for airlines and shipping companies to implement considering it is even cheaper than the currently provided satellite internet access.

Conclusions

Returning to the research questions and its sub-questions, the research question: **“To what extent can fast-speed, unlimited, and affordable satellite internet on board ships positively impact seafarers?”** the research's answer and conclusion is that it

would effectively help in tackling mental fatigue or reducing it significantly under two conditions, seafarers' awareness about its negatives are required to be elevated, seafarers' close persons on shore have to also be mindful about the status of their family member or friend seafarer on board. Physical fatigue of seafarers may not reduce directly except at ports, but it would reduce indirectly if the mental fatigue was reduced. In terms of social isolation, if encountered, it has a significant impact to reduce it for seafarers especially with the ability to communicate with their families and friends. It would significantly reduce the stress and frustration with the lack of shore leaves or repatriation to shore, or during delays while processing repatriation requests.

To answer the sub-research questions, **“What are the positive impacts on seafarers of having fast and affordable internet on board ships?”** these impacts would be more significant on the new generations of seafarers. The seafarers would be happier, motivated, and more productive at work, especially with the many applications that they can use on board for both work and leisure. **“What are the reasons and factors causing these positive impacts?”** being able to communicate with family and friends, virtually widening the limited population on board and seeking people with similar backgrounds to the seafarers. Also, displacing the void that seafarers would feel on board due to ship's environment, and seeking virtual entertainment which acts as a frontier against the combination of negative thoughts and free time while on board. **“What is the link between these impacts and seafarers' productivity?”** the regenerative and high positive energy that the seafarers have after communicating with their families and friends, especially receiving good news from on shore or attending special ceremonies virtually such as a graduation of a child; in addition to the virtual entertainment which displaces negative thoughts or act as a buffer against negative emotions, eventually contributing to high morale and more productive seafarers. It would also indirectly positively impact the shipping companies, unleashing the potential of unprecedented applications; in addition to reaping off of the sustainable development in the international atmosphere. **“What are shipping companies doing in terms of Corporate Social Responsibility when it comes to internet access on board?”** currently most of the shipping companies are reactive to regulations of the MLC 2006, with the exception of the few major companies within the sector. Therefore, in terms of CSR, most shipping

companies either lack the desire to be 'active' as a result of their capabilities, or as a result of missing the internal alignment steps to take it as a responsibility. However, in large companies which have the capabilities and desire, they have already 'pro-active' in terms of international CSR.

The researcher acknowledges that high-quality internet access may not resolve all problems for seafarers but is recommending that it is linked to various professional and personal applications for both shipping companies and seafarers. In particular, if shipping companies have proactively adopted high-quality internet on board their fleets, with the fact that its costs would be reducing over time as clarified in the literature review section, tactically reducing costs and unlocking possibilities so that, metaphorically, ships becomes sort of a floating company base, it would unleash a wide range of applications for both the shipping companies and individual seafarers, while also advancing CSR strategically in various topics in seafarers' welfare like seafarers' mental fatigue, social isolation, reduce the impacts of inability to take shore leaves, reducing the impacts of short port stays pressure on seafarers due to increased business efficiency, attracting new generations of seafarers while maintaining sustainable growth and progressing in seafarers' retention, having motivated seafarers with better morale willing to stay on board longer, and not only increasing the welfare of the seafarers' but also their families.

This study did not examine the potential negative impacts of internet connectivity on seafarers' work productivity, the exact prices that shipping companies or shipowners must pay for infrastructure or subscriptions on board, the negative impacts on the physical fatigue as a result of such technology availability, or the negative impact that internet technology may have on the social behaviours of seafarers. Also, cybersecurity concerns, and seafarers' awareness about the impacts high-quality internet access were not addressed in detail.

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Appendices