

Maritime Census

Reporting Instructions

- a. In this survey, the reporting unit should be an establishment in Singapore, defined as a business unit in one location under a single ownership. Head office and branches of the same enterprise are required to submit separate individual returns. Similarly, for a multi-activity enterprise, units engaged in separate activities in the same location constitute distinct establishments and separate returns should be submitted (if distinction can be made for each activity and separate data available). Please do not provide consolidated data including your subsidiaries or associated businesses. If you are unable to do so, please contact us for assistance.
- b. This survey may require inputs from different departments such as Human Resource, Finance, Information Technology and Operations.
- c. The reference period for this survey is for calendar year ending 31 December 2022, unless otherwise stated. However, if your accounting year is different from the calendar year, you may report according to your accounting or financial year covering the major part of 2022. Where actual figures are not available or difficult to obtain, please provide your best estimates.
- d. Not all sections and questions may be applicable to your company.
- e. All dollar amounts should be reported in gross amounts excluding GST (including any grants / incentives received).

Section A: General Business Information

Question 3

- a. Please report the number of headcount as at 30.06.2023
- b. **Full-time onshore headcount** includes onshore and shore-based staff who are required to board vessels as part of their work (e.g., boarding officer, marine surveyors, cargo officers, etc.).
- c. **Foreigners** refers to non Singapore Citizens or Permanent Residents. They include work pass holders (e.g., Employment Pass / S Pass / Work Permit Holders) and intra-corporate staff on temporary passes of at least 12 months.

Question 4

- a. **Global Headquarters (HQ)** generally refers to the company having managerial control over all other entities globally.
- b. **Regional Headquarters (HQ)** generally refers to the company having managerial control over all other entities in the region (i.e. Singapore and at least one other country in Asia Pacific).

Section B: Financial Information (Income, Expenses, Net Income)

Question 1

Operating Revenue generally refer to fees or income earned from the provision of services and goods sold. Amount should exclude Goods & Services Tax (GST) and non-operating revenue.

Question 8

Operating expenses generally refers to all expenditure incurred in its business, with adjustment for changes in inventory. It includes remuneration, purchases, indirect taxes, work given out, rental, and maintenance of machinery and equipment, legal, accounting, and other professional services, rental and maintenance of premises, depreciation, transport and travelling, utilities, advertisement, entertainment, stationery and printing, postage and telecommunications, fuel, freight charges and other expenses that are connected with the establishment's operations.

Question 20

Net income generally refers to the income less the cost of goods sold, expenses, depreciation and amortization, interest, and taxes.

Section E: Technology & Digitalisation

Question 2

- a. **Autonomous systems (e.g. autonomous vessels, , autonomous prime movers)** refer to the use of A.I. and hardware such as electronic sensors to automate systems on ocean going vessels. This includes Maritime Autonomous Surface Ships (MASS).

- b. **Cargo management systems** manage the movement of goods and materials, including inventory, orders, shipments, and documentation, to streamline logistics operations and improve efficiency.
- c. **Cloud computing** refers to the on-demand delivery of rich computational & IT resources via the internet.
- d. **Crew management systems** manage crew scheduling, payroll, training, and certification for efficient and effective crewing of ships and vessels.
- e. **Electronic Chart Display and Information System (ECDIS)** is a computer-based navigation system used by ships to display and manage electronic navigational charts and other navigational information for safe and efficient navigation.
- f. **Emissions management** (e.g. emission monitoring, emission abatement) involves monitoring and reducing the emissions of pollutants and greenhouse gases from industrial and transportation activities. This can include technologies such as emission monitoring systems, emission abatement technologies, and carbon capture and storage systems.
- g. **Energy system** (e.g. electrification, alternative energy) refers to the infrastructure and technologies used to power ships and other vessels. This can include a range of sources and methods, such as electrification, and alternative energy sources such as wind, solar, and hydrogen.
- h. **Fleet management systems** refers to software applications used by shipping companies and vessel operators to manage and optimize their fleet of ships and other vessels.
- i. **Augmented / virtual reality for operations / training** refers to interaction with the real environment in a virtual environment and integration of virtual content with the physical environment. This is often used in seafarer's training to simulate real operational environments while they are on-shore or during their voyage at sea.
- j. **Internet of things (IoT) and sensors** refers to a system of interrelated computing devices that has the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

- k. **Artificial Intelligence (A.I.)** (e.g. Gen AI, AI assistants) refers to the study and use of intelligent machines and data to predict and mimic human action and thought. An example is the use of AI-based prediction engine for vessel arrival time to enable shipping companies to optimise their vessel scheduling.
- l. **Analytics (e.g. visualisation platforms, dashboards)** refers to the techniques of analysing big data to derive valuable insights such as the study of traffic data patterns to develop collision detection warning system.
- m. **Additive manufacturing** refers to the industrial production name for 3D printing, a computer-controlled processes that creates three dimensional objects by depositing materials, usually in layers. An example is the printing of on-demand spare part replacements.
- n. **Communications systems** (e.g. 5G, Satellite Comm, VDES) is a broad term that refers to the connecting and communicating between two or more devices using a wireless signal through wireless communication technologies and devices.
- o. **Cybersecurity solutions** refer to a range of technologies, processes, and practices designed to protect computer systems, networks, and data from unauthorized access, theft, and damage.
- p. **Safety and security systems** refers to a set of measures, protocols or devices designed to ensure the safety and security of ships, ports, and other maritime infrastructure or assets.
- q. **Mobile system** (e.g., mobile apps) refers to the use of mobile technology and wireless connectivity to enhance communications, productivity, and crew welfare such as the use of mobile-enabled applications (apps) for seafarers to monitor and report their health status and e-Bunkering platform for companies to place order, view live bunkering and track their orders with bunker suppliers
- r. **Modelling & simulation solutions & services** is the usage of models (e.g., physical, mathematical) as a basis for simulations to develop data utilised for maritime application.
- s. **Voyage planning and management systems** are software applications used by shipping companies to plan, manage, and optimize voyages.
- t. **General IT systems** refers to a broad category of software applications and hardware devices used to support various business functions and processes. These systems can include a range of tools and technologies, such as enterprise resource planning (ERP) systems, customer relationship management (CRM) systems, human resource management (HRM) systems, and office productivity software.

- u. **Robotics** refers to the use of automated machines and devices to perform tasks that are typically done by humans. In the context of maritime and related industries, robotics can include the use of autonomous underwater vehicles (AUVs) and remotely operated vehicles (ROVs) for hull cleaning and inspection, drones for various operations such as surveying and monitoring, and automated cranes and vehicles for cargo handling and transportation.
- v. A **stowage planning system** is a software used by shipping companies to plan and optimize the placement of cargo on a vessel.

Question 2, 3

Spending associated with digitalisation and technology (including innovation and R&D) activities include labour costs and capital expenditures (buildings, machinery, equipment, software etc.)

Section F: Cybersecurity

Question 2

- a. A cyber security risk management and governance framework includes establishing policies, procedures, and responsibilities to ensure that there is a systemic way of identifying and managing cyber threats and risks.
- b. A cyber security incident reporting plan is a step-by-step guide for organisations to follow when a cybersecurity incident has occurred to ensure that incidents are promptly reported, investigated, and resolved.

Section G: Corporate Decarbonisation/Sustainability Strategy

Question 1 and 3

Targets	2030	2040	2050
International Maritime Organization (IMO)	Reduce GHG emissions from international shipping by at least 20%, striving for 30%.	Reduce GHG emissions from international shipping by at least 70%, striving for 80%.	Net-zero by or around, i.e. 'close to' 2050.

Singapore's harbour craft	New harbour craft must be fully electric, be capable of using B100 biofuels, or be compatible with net-zero fuels such as hydrogen.		Net-zero by 2050.
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Question 2

- Energy Efficiency Existing Ship Index (EEXI) and Energy Efficiency Design index (EEDI) measure CO₂ emissions per transport work, considering the ship's design parameters. EEXI and EEDI are measures by the IMO to promote more environmentally friendly technologies and reduce the shipping industry's carbon footprint.
- International Maritime Organisation (IMO) adopted a mandatory Fuel Oil Data Collection System (DCS) for international shipping, requiring ships of 5,000 gross tonnage or above to start collecting and reporting data to an IMO database from 2019.
- The Global Reporting Initiative (GRI) Standards comprises of a modular system of interconnected standards – (1) the GRI Universal Standards, (2) the GRI Sector Standards and (3) the GRI Topic Standards.
- Sustainability Accounting Standards Boards (SASB) Standards aims to help companies disclose financially-material sustainability information to investor through identifying the subset of environmental, social, and governance issues most relevant to the financial performance within SASB's 77 Industry Standards.

Question 5

- Operations/Technical Services** refers to the provision of operational and technical management solutions in alternative fuel bunkering operations, as well as operations and maintenance of new propulsion technologies (e.g. methanol/ammonia engines).

- b. **Green Services** refers to services or practices to support environmental sustainability.
- c. **R&D Tech and Digital** refers to activities undertake to innovate, introduce or implement new products and services to reduce GHG / carbon emission.
- d. **Port Operations** refers to the technical management of port terminal digital or physical infrastructure and facilities to reduce GHG / carbon emission.
- e. **Policy** refers to deliberate implementation of guidelines, ideas or plans to seek to lower GHG / carbon emission.
- f. **Others (i.e. waste management, etc.)** refers to the adoption of best practices for environmental management such as ISO 14001 etc.
- g. **Alternative fuel bunkering operations** refers to the safe and efficient bunkering operations and maintenance of alternative fuel bunkering infrastructure.
- h. **Operations and maintenance of new propulsion technologies** refers to the testing, monitoring, installation, troubleshooting and analysing of new propulsion technologies onboard ships to reduce GHG / carbon emission.
- i. **Maritime Trade and Green Supply Chain Management** refers to the integration of sustainable environmental practices into the management of flow of goods and services.
- j. **Carbon Accounting** refers to taking stock of company's carbon inventory against industry and IMO standards and benchmarks.
- k. **Green Financing (Maritime)** refers to financing mechanisms such as but not limited to green bonds or capacity building of community enterprises on micro-credit to enable sustainable development priorities for the maritime sector.
- l. **Green Ship Brokerage and Technical Services** refers to the intermediaries' or negotiators' services between shipowners and charterers for low and zero-carbon marine fuelled vessels.
- m. **Future marine fuels (e.g., chemical, process engineering, etc.)** refers to the design or development / maintenance of processes to produce or use low and zero-carbon marine fuels including

biofuels, methanol, ammonia and potentially hydrogen that reduce carbon emission from life cycle perspective.

- n. **Carbon capture, utilisation and storage (e.g. mechanical, materials, or chemical engineering)** refers to direct capture of CO₂ before it enters the atmosphere and / or to provide assurance of the quality and standard of the captured CO₂ for downstream applications (utilisation) or storage.
- o. **Vessel electrification and battery technology (e.g. electrical engineering, etc.)** refers to the design and installation of electrical equipment / component on vessel or onshore to reduce carbon or GHG emission.
- p. **Design, build and MRO green ships (e.g. marine engineering, naval architecture, etc.)** refers to the design, development, production, and maintenance of the vessel equipment for low and zero-carbon marine fuelled vessels.
- q. **Research and Engineering in Maritime Decarbonisation** refers to the systematic process to build new technologies or products to lower carbon or GHG emissions.
- r. **Port Engineering** refers to sustainable port operations, assets, and infrastructure works at port terminal to reduce carbon or GHG emission.
- s. **Port ICT** refers to the adoption of technology, networking components, applications, and systems at port terminal to reduce carbon or GHG emission.
- t. **Sustainability Strategy** refers to formulation, implementation or execution of business practice or policy to drive economic, environmental or social sustainability.
- u. **Sustainable Business Development** refers to sustainability-centric or green energy initiative to support business growth or activity.

Section H: Increment, Bonuses and Hiring Intentions

Question 2, 3b, 4

- a. **Para-professionals/Support** refer to skilled, semi-skilled or unskilled roles without supervisory responsibilities. They typically do not

require tertiary education, though some may require some formal professional training and / or certification.

- b. **Professionals/Non-management** refer to individual contributors without specific supervisory responsibilities, although it may allow for coaching / mentoring less experienced staff. They typically require tertiary education or full trade qualification.

Question 4

- a. **Voluntary Turnover** refers to the percentage of employees who resigned voluntarily during the 12-month reporting period and exclude contractors or volunteer staff
- b. **Involuntary Turnover** refers to the percentage of employees who were retrenched or dismissed by the organisation during the 12-month reporting period. Only include contract staff who were retrenched or dismissed outside the terms of their contract (that is, do not include contract staff who left the organisation merely because their contracts expired). All redundancies should be included under involuntary terminations, regardless of whether they were voluntary or involuntary redundancies.

Question 8, 10

Fresh / Recent graduate refers to individuals who have completed within the previous two years, a qualifying associate, bachelors, masters, professional, doctorate, vocational or technical degree, or certificate from a qualifying educational institution.