REAL-LIFE CASEBOOK

Deliverable 5.3

FOREWORD

Herewith we proudly present deliverable 5.3; the TEAMS Digital Case Book. This real-life casebook is the result of the combined efforts of all project partners during the execution of the TEAMS project. The Digital Case Book deliverable is part of the TEAMS Blueprint and the book can be found on the TEAMS website (https://www.project-teams.eu/) as well as the individual cases.

The TEAMS project aims to close the gap between industry and education by means of the use of real-life business cases in education. The philosophy of the project is a strong involvement of the maritime business environment. The use of real-life cases and the possibility to present solutions for actual challenges to representatives of companies or industry partners, has proven to rocket the motivation of students to achieve success. By storing these cases, the TEAMS Blueprint is enriched with a maritime business context that can be used over a longer period of time and across various levels of education and locations.

In order to collect real-life cases, based on actual challenges within maritime business, a large number of companies has been consulted in three different countries; Ireland, Belgium and The Netherlands. The real-life cases were conceptually developed as a result of all collected challenges and enriched where possible with potential sources or contacts. Furthermore, the educational institutes have set the level of required knowledge and determined the possible case questions, based on the EQF level of the students.

All cases have been tested in the involved countries with actual groups of students, resulting in minor adjustments to the original cases from time to time. The final real-life cases are combined in this casebook, sorted by the partner and comprise a total of 21 cases.

We trust these real-life cases may be beneficial to other European parties in the maritime sector, wishing to use the TEAMS methods as well. It goes without saying we would be more than pleased to add newly developed real-life cases to the book as well. Please feel free to contact us and share your cases!

TEAMS project team
HZS
JAMK
MTU
NMTF
STC

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Deliverable 5.3

Kathy Speelman

1 - GENERAL INFORMATION

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EDUCATIONAL PROGRAMME(S)	Master in nautical sciences
YEAR(S) / GROUP(S)	Masteryear / eight groups
LEVEL	Master Level (EQF 7)
CREDITS	ECTS 3 credits

2 – REAL-LIFE CASE

NUMBER	**Teams.21.HZS. 01**
TITLE	Marine insurance case study
SUBTITLE	NEW DIAMOND – fire in the engine room
SUMMARY	While under time charter to Indian Oil Corporation (IOC) on a laden voyage from Mina Al Ahmadi, Kuwait to Paradip on the east coast of India, a boiler exploded in the engine room onboard the VLCC NEW DIAMOND resulting in the death of a Filipino seaman and injuries to the 3rd engineer. At the time, the vessel was about 38 miles off the coast of Sri Lanka. Based on what the students have learned during the lectures on marine insurance, they should decide, as a group, which subjects they need more in-depth knowledge on to offer a solution for their case.
DESCRIPTION	1.Applying theory into practice You first explore the *theory* of a subject and then apply it to *an actual situation* (a case study) 2.Team Learning You form groups with your fellow entrepreneurs, and as a *team,* you can learn from each other 3.Learning by doing By working as a team and trying to find answers for the situations described in the case studies, you will see things (theory) from a different perspective (practical) and thus acquire *more profound insights*. 4.Ownership Learning is a process where *personal commitment* is needed. This means that you are responsible to *yourself*, your team members, and your coaches to acquire knowledge about specific subjects.
SKILLS TO DEVELOP *(based on the Blueprint)*	This case will address the following skills: • Learning and research • Leadership and management • Business competences • Communication
EXPECTED OUTCOME(S) *(not to be published)*	Students are expected to formulate a well-founded answer to the questions in the specific case study. They should identify the key components, set their learning goals as a team, and determine which components in the assignment they need to expand their knowledge.

	The students make a bibliography of articles, texts, books, webpages, contacts, ... that they consulted for research.
	Learning and work are a shared team responsibility. The responsibility of each team member must be agreed upon in writing. Their final paper should reflect the recapitulation of what they have learned as a team.
POSSIBLE CASE QUESTION(S)	• On what basis would this casualty be covered under the policy?
	• Would underwriters have a potential defence against the claim? Consider various possibilities so far as the cause of the explosion/fire is concerned:
	− Were the H&M underwriters correct in declining a claim for CTL (condemnation) under the NMIP?
	− What would have been a fair amount for a compromised total loss?
	− Will underwriters settle any other costs in addition?
	− Who will be entitled to the proceeds of the sale (scrap value of the vessel)?
	− Would they have a valid claim under the policy, bearing in mind that they claimed the vessel to be a CTL and decided not to repair it?
	− Why did salvors not invoke SCOPIC? What would have been the approximative value of the cargo?

2 – REAL-LIFE CASE

NUMBER	Teams.21.HZS.02
TITLE	Marine insurance case study
SUBTITLE	MSC FLAMINIA – Explosion/fire in the cargo hold
SUMMARY	While proceeding from Charleston (USA) to Antwerp, the MS FLAMINIA, a 6.750 TEU container vessel, suffered an explosion/fire in hold no. 4. Containers with divinylbenzene (DVB) shipped by Deltech (manufacturer) and Stolt (freight forwarder) were stowed in this hold. DVB is a product that self-polymerises and generates large amounts of heat if exposed to 30°C and above temperatures for a prolonged period. Based on what the students have learned during the lectures on marine insurance, they should decide, as a group, which subjects they need more in-depth knowledge on to offer a solution for their case.
DESCRIPTION	1. Applying theory into practice You first explore the *theory* of a subject and then apply it to *an actual situation* (a case study) 2. Team Learning You form groups with your fellow entrepreneurs, and as a *team,* you can learn from each other 3. Learning by doing By working as a team and trying to find answers for the situations described in the case studies, you will see things (theory) from a different perspective (practical) and thus acquire *more profound insights*. 4. Ownership Learning is a process where *personal commitment* is needed. This means that you are responsible to *yourself*, your team members, and your coaches to acquire knowledge about specific subjects.
SKILLS TO DEVELOP *(based on the Blueprint)*	This case will address the following skills: • Learning and research • Leadership and management • Business competences • Communication
EXPECTED OUTCOME(S) *(not to be published)*	Students are expected to formulate a well-founded answer to the questions in the specific case study. They should identify the key components, set their learning goals as a team, and determine which components in the assignment they need to expand their knowledge.

	The students make a bibliography of articles, texts, books, webpages, contacts, ... that they consulted for research. Learning and work are a shared team responsibility. The responsibility of each team member must be agreed upon in writing. Their final paper should reflect the recapitulation of what they have learned as a team.
POSSIBLE CASE QUESTION(S)	• To what extent the shipowner would have recourse against MSC under the CP for the losses they incurred due to the casualty? • Will the vessel remain on hire, or will she be off-hire during the time lost on account of the casualty? • Would the owner be liable for damage to any cargo on board? • H&M – fire damage, salvage/GA • HI/FI? • LOH • P&I – crew and cargo claims – Does the carrier have any liability for damage to the cargo assuming the Bs/L incorporate the Hague-Visby Rules? • FD&D – recourse against charterers/shippers/NVOCC

2 – REAL-LIFE CASE

NUMBER	**Teams.21.HZS.03**
TITLE	Marine insurance case study
SUBTITLE	WAKASHIO – grounding on coral reef
SUMMARY	The WAKASHIO, a 203.000 DWT 102.000 GT Panama registered Capesize Bulk Carrier, ran aground at full speed on a coral reef in a UNESCO protected area close to Mauritius Island 25/07/2020 when on passage from China via Singapore to Brazil under charter to MOL (Mitsui OSK Lines). The vessel was in ballast but had about 4.000 MT of bunkers on board. The grounding caused the vessel's engine room to flood. Based on what the students have learned during the lectures on marine insurance, they should decide, as a group, which subjects they need more in-depth knowledge on to offer a solution for their case.
DESCRIPTION	1. Applying theory into practice You first explore the *theory* of a subject and then apply it to *an actual situation* (a case study) 2. Team Learning You form groups with your fellow entrepreneurs, and as a *team,* you can learn from each other 3. Learning by doing By working as a team and trying to find answers for the situations described in the case studies, you will see things (theory) from a different perspective (practical) and thus acquire *more profound insights*. 4. Ownership Learning is a process where *personal commitment* is needed. This means that you are responsible to *yourself*, your team members, and your coaches to acquire knowledge about specific subjects.
SKILLS TO DEVELOP *(based on the Blueprint)*	This case addresses the following skills: • Learning and research • Leadership and management • Business competences • Communication
EXPECTED OUTCOME(S) *(not to be published)*	Students are expected to formulate a well-founded answer to the questions in the specific case study. They should identify the key components, set their learning goals as a team, and determine which components in the assignment they need to expand their knowledge.

	The students make a bibliography of articles, texts, books, webpages, contacts, ... that they consulted for research.
	Learning and work are a shared team responsibility. The responsibility of each team member must be agreed upon in writing. Their final paper should reflect the recapitulation of what they have learned as a team.
POSSIBLE CASE QUESTION(S)	- Will this casualty be covered under the policy? - Is the vessel an actual or constructive total loss? - How much will shipowners recover under the H&M policy? What about the cost of initial salvage expenses incurred (excluding the wreck removal), considering salvors invoked SCOPIC? - The vessel was insured under a HI/FI policy based on the Institute Time Clauses Hulls Disbursements & Increased Value 01/10/83 for an agreed value of US$ 9M. Do shipowners have a valid claim under this policy, and to what extent? - The shipowners also had concluded a LOH policy based on the NMIP 2019 Chapter 16. Would they be able to claim anything under this policy? - Which aspects of the case will or would be covered by the P&I club?

2 – REAL-LIFE CASE

NUMBER	Teams.21.HZS. 04
TITLE	Marine insurance case study
SUBTITLE	The collision between SANCHI and CF CRYSTAL
SUMMARY	The SANCHI, a crude oil tanker, was on a voyage loaded with about 111.000 MT of condensate from Iran to South Korea when on 06/01/2018, she entered into a collision with the CF CRYSTAL, a dry bulk carrier loaded with 64.000 MT of grain from the west coast of the USA to South China in the East China Sea at about 160 nautical miles off Shanghai. At the time of the collision, the weather conditions were fair with good visibility.
	Based on what the students have learned during the lectures on marine insurance, they should decide, as a group, which subjects they need more in-depth knowledge on to offer a solution for their case.
DESCRIPTION	1. Applying theory into practice You first explore the *theory* of a subject and then apply it to *an actual situation* (a case study) 2. Team Learning You form groups with your fellow entrepreneurs, and as a *team,* you can learn from each other 3. Learning by doing By working as a team and trying to find answers for the situations described in the case studies, you will see things (theory) from a different perspective (practical) and thus acquire *more profound insights*. 4. Ownership Learning is a process where *personal commitment* is needed. This means that you are responsible to *yourself*, your team members, and your coaches to acquire knowledge about specific subjects.
SKILLS TO DEVELOP *(based on the Blueprint)*	This case addresses the following skills: • Learning and research • Leadership and management • Business competences • Communication
EXPECTED OUTCOME(S) *(not to be published)*	Students are expected to formulate a well-founded answer to the questions in the specific case study. They should identify the key components, set their learning goals as a team, and determine which components in the assignment they need to expand their knowledge. The students make a bibliography of articles, texts, books, webpages, contacts, ... that they consulted for research.

	Learning and work are a shared team responsibility. The responsibility of each team member must be agreed upon in writing. Their final paper should reflect the recapitulation of what they have learned as a team.
POSSIBLE CASE QUESTION(S)	• Which insurers are concerned and should hence be notified by the owners of both vessels (assuming the vessels are fully insured for all marine risks)? If the vessels are insured based on named perils policies, what would be the allegation of the cause of the damage/loss? Which loss/damage and liability will be covered by the respective insurances? • What action should the master of CF CRYSTAL take immediately and soonest possible after the collision? What evidence should be collected/retained? What should they be mindful of when surveyors and/or lawyers representing the SANCHI board at the port of refuge for surveys and investigations?

2 – REAL-LIFE CASE

NUMBER	**Teams.21.HZS.05**
TITLE	Marine insurance case study
SUBTITLE	EVER GIVEN – grounding in Suez Canal
SUMMARY	The EVER GIVEN, a 20.388 TEU 219.079 GT cellular container vessel owned by the Japanese company Shoei Kisen Kaisha and time chartered by Evergreen, ran aground on 23/03/2021 and blocked all traffic through the Suez Canal for six days. The vessel was almost fully laden with boxes underway from the Far East to Rotterdam. Based on what the students have learned during the lectures on marine insurance, they should decide, as a group, which subjects they need more in-depth knowledge on to offer a solution for their case.
DESCRIPTION	1. Applying theory into practice You first explore the *theory* of a subject and then apply it to *an actual situation* (a case study) 2. Team Learning You form groups with your fellow entrepreneurs, and as a *team,* you can learn from each other 3. Learning by doing By working as a team and trying to find answers for the situations described in the case studies, you will see things (theory) from a different perspective (practical) and thus acquire *more profound insights*. 4. Ownership Learning is a process where *personal commitment* is needed. This means that you are responsible to *yourself*, your team members, and your coaches to acquire knowledge about specific subjects.
SKILLS TO DEVELOP *(based on the Blueprint)*	This case addresses the following skills: • Learning and research • Leadership and management • Business compentences • Communication
EXPECTED OUTCOME(S) *(not to be published)*	Students are expected to formulate a well-founded answer to the questions in the specific case study. They should identify the key components, set their learning goals as a team, and determine which components in the assignment they need to expand their knowledge.

	The students make a bibliography of articles, texts, books, webpages, contacts, ... that they consulted for research. Learning and work are a shared team responsibility. The responsibility of each team member must be agreed upon in writing. Their final paper should reflect the recapitulation of what they have learned as a team.
POSSIBLE CASE QUESTION(S)	- Discuss the various legal and insurance aspects of the EVER GIVEN and the blocked/diverted vessels

2 – REAL-LIFE CASE

NUMBER	Teams.21.HZS.06
TITLE	Marine insurance case study
SUBTITLE	M/S Smooth Seas hull damage
SUMMARY	In July, the handysize bulk carrier "M/S Smooth Seas" (29 561 dwt, 18 259 gt) proceeded to port with a cargo of 20.000 tons of rice when it struck a reef in Australian water at almost full speed. The grounding caused by the watch officer has set a course, which brought the vessel too close to the reef, resulting in a large tear in the hull below the waterline. Hold no.2, which held 4000 tons of rice, was breached. Although badly damaged, the vessel stayed afloat and was not in danger of sinking, and there was no escape of oil from the vessel. Based on what the students have learned during the lectures on marine insurance, they should decide as a group which subjects they need more in-depth knowledge to offer a solution for their case.
DESCRIPTION	1. Applying theory into practice You first explore the *theory* of a subject and then apply it to *an actual situation* (a case study) 2. Team Learning You form groups with your fellow entrepreneurs, and as a *team,* you can learn from each other 3. Learning by doing By working as a team and trying to find answers for the situations described in the case studies, you will see things (theory) from a different perspective (practical) and thus acquire *more profound insights*. 4. Ownership Learning is a process where *personal commitment* is needed. This means that you are responsible to *yourself*, your team members, and your coaches to acquire knowledge about specific subjects.
SKILLS TO DEVELOP *(based on the Blueprint)*	This case addresses the following skills: • Learning and research • Leadership and management • Business competences • Communication

EXPECTED OUTCOME(S) *(not to be published)*	Students are expected to formulate a well-founded answer to the questions in the specific case study. They should identify the key components, set their learning goals as a team, and determine which components in the assignment they need to expand their knowledge.
	The students make a bibliography of articles, texts, books, webpages, contacts, ... that they consulted for research. Learning and work are a shared team responsibility. The responsibility of each team member must be agreed upon in writing. Their final paper should reflect the recapitulation of what they have learned as a team.
POSSIBLE CASE QUESTION(S)	• Discuss the insurance implication of these losses depending on whether the insurance was based on the Institute Time Clauses (hulls) (1/10/83) or the Nordic Marine Insurance Plan and depending on which Institute Cargo Clauses the cargo was insured under.

REAL-LIFE CASES
TEAMS.21.MTU

Deliverable 5.3

Daniel Manning

1 - GENERAL INFORMATION

AUTHOR(S)	Robert Lynch (Halpin) Daniel Manning (NMCI,MTU)
ORGANISATION (S)	Halpin Research Centre, the National Maritime College of Ireland (NMCI) and Munster Technological University. (MTU)
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EDUCATIONAL PROGRAMME(S)	Maritime Studies
YEAR(S) / GROUP(S)	This case was designed for and tested on 1st, 2nd and 4th-year students
LEVEL	EQF 6, Ordinary Degree or Honours Degree
CREDITS	The case study is an integral part of an existing module. The overall module may be worth 5 or 10 ECTS.

2 – REAL-LIFE CASE

NUMBER	**Teams.21.MTU.01**
TITLE	Surges in containerised cargo demands
SUBTITLE	N/A
SUMMARY	The containerised cargo sector is a dynamic, multi-modal transport operation, requiring operators to consider and plan an array of logistical factors while making critical business decisions under immense time constraints. Global challenges such as Covid-19 amplify the challenges associated with these factors in a number of ways.
	For example, markets such as the United States, traditionally strong, had experienced significant growth when the markets re-opened post-Covid. However, the reliance on rail transport for internal distribution can result in a slower turnaround time for containers, limiting the potential scope for operators to maximise the potential to capitalise on transport opportunities.
	Furthermore, downturns in what might be considered traditional industries, which would have long standing relationships with containerised cargoes such as the automotive sector, have also added to the internal transport/slow turnaround challenges as the scope to return containers loaded with cargo, e.g. continuously trade throughout the transport lifecycle, has been reduced.
	Elsewhere, however, other, more emerging sectors have experienced exponential growth. A significant upturn in global construction has seen a surge in demand for commodity items globally. These markets also present the opportunity to trade via the entire transport lifecycle of a container and do not pose the same inland transport challenges.
	Customer relationship management has traditionally been key for the sector. However, inland transport challenges and downturns in traditional markets such as the automotive sector limits their ability to trade. This case will challenge students to determine the best strategy for shipping companies nowadays.
DESCRIPTION	In addressing this case study, students will need to address the following: • Apply basic analysis skills of the containerised cargo sector. Establish the value of the sector and the primary market focuses. • Consider current trends and medium to long-term projections in terms of the market and potential future focuses. • Regardless of the proposed strategy, consider: o Strengths, Weaknesses, Opportunities, Threats

	o What drives your decisions, economic, customer-related, or strategic business benefits? o Your customer's perspective – what will their concerns be? o How would you communicate your strategy with your customers? o How will you measure success?
SKILLS TO DEVELOP *(based on the Blueprint)*	This case will address the following skills: • Learning and research • Problem-solving • Critical thinking • Teamwork • Decision making • Marketing and sales • Business competences • Financial, economic and global awareness • Communication
EXPECTED OUTCOME(S) *(not to be published)*	• Analyse, in basic terms, market compositions. • Increased understanding of current, medium and long-term shipping trends. • Develop decisions/strategies which are customer centred and based on market trends. • Understand the customer's perspective. Develop a basic strategy for communicating the outcomes with your customers.
POSSIBLE CASE QUESTION(S)	Customer relationship management has traditionally been key for the sector; however, inland transport challenges and downturns in traditional markets such as the automotive sector limits their ability to trade. Do they: 1. Attempt to strike a balance between the traditional customer base and the more emerging markets? 2. Focus solely on where the demand is now? 3. If an attempt is made to strike a balance, what do they do about the slow turnaround and limited trade opportunities for our containers? 4. Consider something else not outlined here? Additionally, regardless of what option they proceed with, how should they engage with their customers, and what should they focus on from a customer relationship management perspective?

2 – REAL-LIFE CASE

NUMBER	**Teams.21.MTU.02**
TITLE	Adapting to customer delivery expectations – challenges for containerised cargo operators
SUBTITLE	N/A
SUMMARY	Consumer demands and expectations concerning delivering goods have changed exponentially throughout the last decade. Global players such as Amazon provide fast turnaround assurances meaning customers expect even faster deliveries. This change has arrived at a time when containerised cargo ship design has focused primarily on increasing carrying capacity and propulsion (e.g. bigger, faster ships) as a means of increasing trade potential and consolidating fleets. While the increased capacity provides certain scope, it does limit the ability to be more dynamic in addressing the demands of global customer expectations. Additionally, situations like those experienced in SUEZ 2021 highlighted certain limitations imposed by focusing on increased carrying capacity throughout the sector. This experience has caused certain industry stakeholders to question current strategies and pose the question to assess the need to 'de-scale' and consider smaller ships to increase fleet sizes and provide more potential for dynamic planning.
DESCRIPTION	In addressing this case study, students will need to address the following: • Apply basic analysis skills of the containerised cargo sector. Establish the value of the sector and the primary market focuses. • Consider current trends and medium to long-term projections in terms of the market and potential future focuses. • Understand customer needs in terms of both online purchasing from consumers and key global stakeholders such as Amazon. • Identify the rationales and benefits of increasing fleet capacity. • Consider from a multi-stakeholder perspective the effects of "de-scaling", for example, on; Trade managers, Vessel operators, port managers, Multi-modal transport operators, etc.
SKILLS TO DEVELOP *(based on the Blueprint)*	This case will address the following skills: • Learning and Research • Problem-solving • Creativity • Critical thinking • Teamwork concerning entrepreneurial skills

	- Decision making - Commercial aspects of shipping - Marketing and sales - Business competences - Communication
EXPECTED OUTCOME(S) *(not to be published)*	- Analyse, in basic terms, market compositions. - Increased understanding of current, medium and long-term shipping trends. - Increased understanding of customer needs. - Informed decision making through market analysis and multi-stakeholder perspectives.
POSSIBLE CASE QUESTION(S)	- What is the value of this market to the containerised shipping sector? - Outline some of the key challenges that the industry faces in this regard. - In the broad sense, how can the industry adapt to meet the dynamics of customer expectations? - What benefits has the industry experienced from increasing capacities? - What possible effects could "de-scaling" have on the sector?

2 – REAL-LIFE CASE

NUMBER	Teams.21.MTU.03
TITLE	Achieving zero carbon emissions within Maritime Transport
SUBTITLE	N/A
SUMMARY	Industry targets have been set to reduce carbon emissions throughout the sector drastically. The IMO's ambitions are to reduce carbon emissions by at least 40% by 2030 and at least 70% by 2050 compared to 2008. While these ambitions have been set, a lack of coherence from a regulatory perspective has hampered the industry's progress to date. Major players within the sector have lobbied policymakers for the development and implementation of a clear strategy; however, this has yet to be delivered despite the level of ambition associated with these goals. The lack of clarity has also placed additional burdens on vessel owners, with vessel operators exploring numerous propulsion options. While numerous options such as methanol-fuelled vessels are proving promising, a lack of regulatory focus results in owners being slow to invest as vessel lifecycles are generally 30 years+. Additionally, a lack of steady fuel supply chains for cleaner fuels such as methanol means that there is a minimal incentive for vessel owners to make use of non-traditional fuel sources.
DESCRIPTION	In addressing this case study, students will need to address the following: • Research and analyse global fleet compositions. • Present a breakdown of propulsion types in use. • Outline shipbuilding R&D efforts focused on reducing emissions. • Identify the key stakeholders associated with policymaking and regulatory developments. • Understand the business implications, particularly in relation to investing in R&D and vessel construction or modification. • Define key communication points to address critical concerns.
SKILLS TO DEVELOP *(based on the Blueprint)*	• Learning and research • Creativity and innovation • Leadership and management • Marketing and sales • Business competences • Communication
EXPECTED OUTCOME(S) *(not to be published)*	• Analysis, in basic terms, of global fleet compositions. • Increased understanding of current, medium and long-term shipping trends concerning zero carbon emissions.

	• Increased awareness of policymaking and regulatory stakeholders. • Informed decision making by considering business implications and multi-stakeholder perspectives.

POSSIBLE CASE QUESTION(S)	• Are the targets set for 2030 achievable within the current state of play?
	• In addressing this question, consider:
	  o The scale of the current global fleet;
	  o An estimated breakdown of vessels using heavy fuel oils versus those using cleaner fuel types, e.g. non-sulphur such as methanol, LNG etc.;
	  o What propulsion themed R&D are vessel owners engaged in, and how near is it to be operational;
	  o Any developments taking place at a policy or regulatory level.
	• Define the business implications for vessel owners regarding the lack of clarity and the proposed 30-year vessel lifecycle model.
	• How can the industry effectively communicate its concerns?

REAL-LIFE CASES
TEAMS.21.NMTF

Deliverable 5.3

Annette Opstal

1 - GENERAL INFORMATION	
AUTHOR(S)	Annette Opstal (NMTF) Lotte Monhemius (NMTF) Sander den Heijer (NMTF) Arnold de Bruijn (NMTF) Alco Weeke (STC) Lucie Saxton-Van Dam (STC)
ORGANISATION (S)	NMTF STC *To compose this real-life business case, maritime umbrella organisations were consulted by NMTF.
EMAIL	opstal@maritimetechnology.nl
EDUCATIONAL PROGRAMME(S)	Maritime Officer / Dual licensed officer
YEAR(S) / GROUP(S)	Management Level (3rd-year students)
LEVEL	EQF 4 / VET
CREDITS	The VET system in the Netherlands does not make use of ECTS. However, the case equals 40-80 SBU (study load hours) per student.

2 – REAL-LIFE CASE

NUMBER	Teams.21.NMTF.01
TITLE	The contribution of sustainable shipping to decarbonisation
SUBTITLE	How can shipping contribute to the UNSDG (United Nations Sustainable Development Goals)?
SUMMARY	Determine why shipping is a fantastic modality in terms of contribution to the UNSDG at current and in the foreseen future? In which ways can the sector help to attain these goals. Prepare a pitch of a maximum of 5 minutes highlighting the results of your research.
DESCRIPTION	When conducting the research, the students will need to take the following aspects into account: - Available maritime strategies, such as the "Maritiem Masterplan" and the "Nederlandse Maritieme Strategie 2015-2025". - Acquire knowledge and insight in the UNSDG - In which manner shipping is an inseparable aspect of reaching the UNSDG now and in the future. Sources: Maritiem Masterplan, Nederlandse Maritieme Strategie 2015-2025, Marin, TNO, KVNR, Global Centre for Maritime Decarbonisation
SKILLS TO DEVELOP *(based on Blueprint)*	This real-life case addresses the following skills: - Learning and Research - Problem-solving - Critical thinking - Leadership and management - Global awareness - Marketing and sales - Communication
EXPECTED OUTCOME(S) *(not to be published)*	- Increased understanding of UNSDG - Increased analytical skills by addressing a case from a sector's perspective - Increased understanding of the added value of shipping - Improved argumentation skills
POSSIBLE CASE QUESTION(S)	- What are the UNSDG? - On which Development Goals may shipping have an impact? - Which contribution can shipping make to these selected goals in terms of sustainability? Which data are available? - Which sector strategies exist? And which part of these strategies can contribute in the future to the UNSDG?

2 – REAL-LIFE CASE

NUMBER	**Teams.21.NMTF.02**
TITLE	Digitalisation of shipping; the advantages for the sector
SUBTITLE	How can the digitalisation of shipping contribute to the UNSDG (United Nations Sustainable Development Goals)?
SUMMARY	Determine to which extent digitalisation in shipping can contribute to the UNSDG now and in the future? In which way can the sector help attain these goals by digitalisation? Prepare a pitch of a maximum of 5 minutes highlighting the results of your research.
DESCRIPTION	When conducting the research, the students will need to take the following aspects into account: - Available strategies, such as the "Maritiem Masterplan" and the "Nederlandse Maritieme Strategie 2015-2025". - Acquire knowledge and insight in the UNSDG - In which manner shipping is an inseparable aspect of reaching the UNSDG now and in the future. - What are the technical possibilities of digitalisation in shipping, and which ones will contribute to sustainability? Sources: Maritiem Masterplan, Nederlandse Maritieme Strategie 2015-2025, Marin, TNO, KVNR, SMASH
SKILLS TO DEVELOP *(based on the Blueprint)*	This real-life case addresses the following skills: - Learning and Research - Critical thinking - Marketing and sales - Global awareness - Communication
EXPECTED OUTCOME(S) *(not to be published)*	- Increased understanding of UNSDG - Increased analytical skills by addressing a case from a sector's perspective - Increased understanding of digital possibilities in shipping - Increased awareness of the contribution of the sector to sustainability - Improved argumentation skills
POSSIBLE CASE QUESTION(S)	- What are the UNSDG? - On which development goals may digitalisation of shipping have an impact? - Which digitalisation options will have the most significant effect on sustainability in and emission-free shipping

2 – REAL-LIFE CASE

NUMBER	**Teams.21.NMTF.03**
TITLE	Feasibility study on 3D printed parts onboard a vessel
SUBTITLE	For which spare parts is it technically possible and economically feasible to have these designed to print onboard?
SUMMARY	Execute a feasibility study on the possibilities of 3D printing of spare parts onboard. Is it technically possible and economically feasible to design spare parts in 3D, install a printer onboard and print these parts onboard when needed instead of keeping spare parts in stock? Include in your study the impact on the services of maritime equipment suppliers.
DESCRIPTION	When conducting the feasibility study, the students will need to take the following aspect into account: - What are the technical (im)possibilities of 3D printed parts? Which type of parts can be 3D printed (not massive) - Select a specific set of spare parts for which you assess the technical and economic feasibility for printing onboard - The onboard requirements of a 3D printing installation - The advantages of 3D printing of parts vs stock of spare parts - The impact on equipment suppliers and their services when 3D printing of the selected spare parts is feasible Source: Damen, Royal Roos
SKILLS TO DEVELOP *(based on the Blueprint)*	This real-life case addresses the following skills: - Learning and research - Creativity and innovation - Leadership and management - Knowledge about a sales environment and changing industry - Business competences - Communication
EXPECTED OUTCOME(S) *(not to be published)*	- Increased understanding of stock management of spare parts - Increased analytical skills by addressing a case from more perspectives - Increased understanding of the interacting chain of suppliers by addressing their perspective - Improved argumentation skills
POSSIBLE CASE QUESTION(S)	- Is it possible to 3D print spare parts onboard vessels? - If so, which parts are most eligible for 3D printing? - What type of 3D printing machine is needed? - What are the (dis)advantages of 3D printed parts? - What are the economic aspects of 3D printing vs stock - What is the impact of 3D printing onboard on suppliers of parts? What will change?

2 – REAL-LIFE CASE

NUMBER	**Teams.21.NMTF.04**
TITLE	Installation of a scrubber (or any other retrofit onboard a vessel)
SUBTITLE	Modifying a vessel by a scrubber installation; why and how would this be executed?
SUMMARY	Find a case of a ship and a desired retrofit. Investigate the arguments whether to perform the modification and research the impact of such a project across several axes.
DESCRIPTION	Perform research on ship modification. Find out if any modifications are scheduled or recently performed at the ship manager of your preference. Choose one modification to research further. Define the scope to make the assessment feasible. Focus on the business point of view; why would a shipping company want to install a scrubber? Or focus on the technical point of view of what is needed to install such an apparatus. Can you define arguments on whether to execute a retrofit? Are rules and regulations foreseen? Is it possible to estimate costs and the return on investment? Define the impact of downtime of the vessel. Prepare a pitch in which the student shows insight into ship management's technical and/or financial aspects. The ship's layout, operational profile, fuel costs, environmental impact and rules and regulations will most likely be described. This is known to be a complex business case due to uncertainties of future (local) legislation and fuel prices. Compose a plan of approach to preparing the docking if needed. Think of all aspects such as money, people, location. Helpful sources: scrubber types, IMO
SKILLS TO DEVELOP *(based on the Blueprint)*	This case will likely address the following skills: • Learning and Research • Critical thinking • Problem-solving • Leadership and management, decision making • Financial and economic awareness • Risk management • Communication
EXPECTED OUTCOME(S) *(not to be published)*	• Increased understanding of ship management • Increased understanding of shipowners' perspective • Increased analytical skills by addressing a case from more perspectives, technical and economic • Increased communication skills through interviews • Improved presentation skills

POSSIBLE CASE QUESTION(S)	• Why would you install a scrubber?
	• Why not?
	• Why on this vessel?
	• How does it work?
	• What is the financial impact?
	• What is the technical impact? (Is it even possible)
	• What is the environmental impact? (Waste?)
	• What/who is needed for the execution of the retrofit?
	• Make a SWOT analysis of the case to help you understand whether the retrofit is desired

2 – REAL-LIFE CASE

NUMBER	**Teams.21.NMTF.05**
TITLE	How to prevent cargo loss at sea?
SUBTITLE	Who is responsible for cargo loss at sea, and which measures must be taken to prevent future cargo losses?
SUMMARY	Take the MSC Zoe cargo loss as your case starting point and analyse the accident and the role of responsible parties. What can be done to prevent similar future accidents and environmental disasters from happening in Dutch coastal waters? Prepare a pitch for one or more responsible players from your analysis and persuade this player to take action with valid arguments and a sense of urgency and highlight the recommended actions.
DESCRIPTION	• What are the results/consequences of this accident? • Which cause(s) have led to the cargo loss? • Which players are responsible for these causes? • Which solutions can you think of the minimise the risk of future cargo loss in Dutch coastal waters? Convince an identified player of its responsibility and present one or more possible solutions to this player. Which action do you need this organisation to take? Useful sources to include in your analysis are Dutch Safety Board (Onderzoeksraad voor Veiligheid) and MARIN.
SKILLS TO DEVELOP *(based on the Blueprint)*	• Learning and research • Creativity and innovation • Leadership and management • Business competences • Communication
EXPECTED OUTCOME(S) *(not to be published)*	• Analyse in basic terms • Increased understanding of risks of cargo loss and importance of lashing • Increased understanding of environmental hazards caused by cargo loss • Informed decision making through analysis and multistakeholder perspectives • Increased ability to argue and persuade others of a standing point • Better trained presentation skills

POSSIBLE CASE QUESTION(S)	• What happened to or onboard the MSC Zoe to cause the cargo loss? • What were the results of the cargo loss to the environment? Which measures have been taken to prevent environmental hazards since? • What is the main cause of the cargo loss? • What could have been done to prevent this cargo loss? Think, e.g. about changes in design, stability, maximum load capacity, new lashing standards, rules/regulations such as accident fines for shipping companies or the closing of coastal waters for cargo ships or a ban on the shipment of plastic granules?

2 – REAL-LIFE CASE

NUMBER	Teams.21.NMTF.06
TITLE	The future of fleet ownership
SUBTITLE	Given recent mondial shifts in ownership for a range of modalities, it seems evident that asset management of ships may alter as well in the future. Visualise your ideas on future fleet management by merchant shipowners [1][2]
SUMMARY	Take the internship companies of your project group as an example. Define several types of ship management and determine what these companies can choose. Analyse the pros and cons of these types of fleet management and the attitude towards leasing constructions by shipowners. Present a SWOT analysis of fleet ownership versus leasing constructions for shipowners.
DESCRIPTION	To make a SWOT analysis of fleet management, you will need to understand asset management and the vision of fleet owners.
SKILLS TO DEVELOP *(based on the Blueprint)*	This real-life case addresses the following skills: • Learning and research • Creativity and innovation • Leadership and management • Marketing and sales • Business competences • Communication
EXPECTED OUTCOME(S) *(not to be published)*	• Increased understanding of asset management • Increased understanding of shipowners' perspective • Increased analytical skills by addressing a case from more perspectives • Increased communication skills through interviews • Improved presentation skills
POSSIBLE CASE QUESTION(S)	• Which shifts in ownership can be seen in other modalities? E.g. Amazon owns its aircraft fleet, Uber, the largest taxi company without its own taxi fleet, swap bicycles, etc. • What are the (dis)advantages of fleet management in the own hands of the shipping companies? • Determine the core business of the shipowner by means of interviews. Shipping goods or asset management? Which activity is the most profitable? • Are there examples of leasing constructions within the maritime industry?

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[1] This real-life case can be used for other segments of the maritime sector as well, e.g. dredging/civil engineering or passenger shipping.

REAL-LIFE CASES
TEAMS.21.STC

Deliverable 5.3

Alco Weeke

1 - GENERAL INFORMATION

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LEVEL	EQF 4 / VET
CREDITS	The VET system in the Netherlands does not make use of ECTS. However, the case equals 40-80 SBU (study load hours) per student.

2 – REAL-LIFE CASE

NUMBER	Teams.21.STC.01
TITLE	Zero emission internSHIP
SUBTITLE	In what ways can the vessel of your internship reduce its emissions?
SUMMARY	You have recently returned from your first internship on board a vessel. You will no doubt have gained a lot of knowledge and experience. Take your internship vessel as your case. How can this vessel become a zero-emission vessel or have a lower emission rate if that is unrealistic? Present your recommendations for proposed alterations to the shipowner.
DESCRIPTION	To come to a list of recommendations, you will need to understand emissions and technical solutions better to minimise emissions available and realistic for your vessel.
SKILLS TO DEVELOP *(based on the Blueprint)*	This real-life case addresses the following skills: • Learning and research • Creativity and innovation • Leadership and management • Business competences • Communication
EXPECTED OUTCOME(S) *(not to be published)*	• Increased understanding of emissions • Increased understanding of emission-reducing solutions • Increased understanding of shipowners' perspective • Increased analytical skills by addressing a case from more perspectives • Increased communication skills through interviews • Improved presentation skills
POSSIBLE CASE QUESTION(S)	• What are the emission rates of the vessel? • Which technical solutions can reduce these emissions? • Which solutions may work for this vessel, given its operations and lay-out? • Take the economic effects of solutions into account. Will these result in lower costs of operation, a new customer base, etc.? • Can you come up with a clear and elaborated recommendation to the shipowner to reduce the vessel's emissions?

2 – REAL-LIFE CASE

NUMBER	Teams.21.STC.02
TITLE	Education vs high-tech equipment and technology
SUBTITLE	Ways to close the gap between industry and education concerning new high-tech equipment and technologies
SUMMARY	You have recently returned from your first internship on board a vessel. You will no doubt have gained a lot of knowledge and experience. Take your internship vessel as the starting point for your case. You will undoubtedly have come across high-tech equipment and technologies during your internship that you have not been trained on at school. Can you find ways to implement these new technologies at school so that you can be trained on and familiarised with new equipment in a safe environment? What is needed to close the gap between industry innovations and the VET institutes?
DESCRIPTION	To come up with recommendations to close the gap between industry and education concerning innovative techniques, you will need to understand better how innovations come to market and IPRs. Furthermore, you will need to understand better high-tech equipment and solutions with the potential to scale up drastically and, in addition to that, are helpful to be implemented in education in an early stage. Finally, you need better to understand public-private partnerships (PPP) and their conditions.
SKILLS TO DEVELOP *(based on the Blueprint)*	This real-life case addresses the following skills: • Learning and research • Creativity and innovation • Leadership and management • Business competences • Communication
EXPECTED OUTCOME(S) *(not to be published)*	• Increased understanding of the innovation process • Understanding of scale-up potential of high-tech systems • Increased understanding of PPP's • Increased analytical skills by addressing a case from more perspectives • Increased communication skills through interviews • Improved presentation skills
POSSIBLE CASE QUESTION(S)	• What does the innovation process of high-tech systems look like from R&D to installation onboard? • How do you define high-tech systems that have the potential for significant scale-up? • How do educational institutes stay afloat with the level of innovation in their course material? • What methods can be used in a PPP to bring innovation to education, and what are the conditions?

2 – REAL-LIFE CASE

NUMBER	**Teams.21.STC.03**
TITLE	Implementation of an autonomous shipping concept in the Netherlands
SUBTITLE	How can autonomous shipping contribute to a safe and sustainable way of maritime transport?
SUMMARY	Using digital tools and smart onboard systems may reduce or even eliminate the need for the crew onboard certain ships. The use of autonomous ships can be an outcome in specific areas where they will be able to replace vessels with a specific operational profile. It may even reduce CO_2 reductions. This case will provide you with a better insight into using digital solutions and the innovations available. It will provide you with the tools to properly assess the usability of autonomous ships.
DESCRIPTION	Think of an example of a ship type and location where autonomous ships can be used. For example, a ship to transport small packages through the harbours of the water-rich city of Dordrecht in the Netherlands. Research the possibilities and challenges of such a concept. What kind of ship and logistical environment will be needed? Are there already rules and regulations to comply with? What local circumstances are needed to be able to implement such a concept?
SKILLS TO DEVELOP *(based on the Blueprint)*	This real-life case addresses the following skills: • Learning and research • Creativity and innovation • Leadership and management • Business competences • Communication
EXPECTED OUTCOME(S) *(not to be published)*	• Increased understanding of available autonomous shipping solutions • Awareness of local logistical possibilities • Understanding of local rules and regulations • Creative thinking of an innovative concept • Increased communication skills through interviews • Improved presentation skills
POSSIBLE CASE QUESTION(S)	• Which kind of autonomous ship can be used for a specific purpose? • For what kind of transport can the autonomous ship be an outcome? And why? • What kind of environment is needed to implement such a system? • In what way will this contribute to CO_2 emission reduction? • Make a SWOT analysis of the solution

2 – REAL-LIFE CASE

NUMBER	**Teams.21.STC.04**
TITLE	Fit for purpose and zero emission;
SUBTITLE	The optimum renewable energy carrier for a vessel and route
SUMMARY	Determine a vessel type, type of transport and a set routing. Research renewable fuels and energy carriers for propulsion and determine the best energy carrier for your vessel and routing. Show insight in your research by motivating your choice.
DESCRIPTION	To come up with a recommendation for the best possible energy carrier, fit for purpose for your vessel and routing, you will need to investigate all possible energy carriers, pros and cons, variables and options on your route. This will provide you with a better understanding of the technical options available to shipping companies. If you also consider the investment needed, you may be able to provide an even better picture. Sometimes the technological best option is not the most economical one.
SKILLS TO DEVELOP *(based on the Blueprint)*	This real-life case addresses the following skills: - Learning and research - Creativity and innovation - Leadership and management - Marketing and sales - Business competences - Communication
EXPECTED OUTCOME(S) *(not to be published)*	- Increased understanding of available energy carriers - Knowledge concerning the pros/cons and limitations of energy carriers - Increased analytical skills by addressing a case from more perspectives, both technical and economic - Assessment skills to determine the carrier fit for purpose - Increased communication skills through interviews - Improved presentation skills
POSSIBLE CASE QUESTION(S)	- Which energy carriers are available? - What are the features of each energy carrier? Make a SWOT analysis - Which features may apply to your vessel and routing? - What investment is required for these carriers? - Which energy carrier is most fit for purpose and why?

2 – REAL-LIFE CASE

NUMBER	Teams.21.STC.05
TITLE	Digital innovations in shipping operations
SUBTITLE	A solution to lower the CO^2 footprint in shipping?
SUMMARY	Digitalisation can indeed lower the CO^2 footprint of shipping. Therefore, smart shipping solutions are an integral part of the Maritime Masterplan 2030 in the Netherlands. Besides cybersecurity solutions, these smart shipping solutions focus on smart monitoring & maintenance and autonomous shipping. This case will provide you with a better insight into the digital solutions and innovations available. It will provide you with the tools to properly assess the usability of your vessel.
DESCRIPTION	Focus on a specific type of vessel and routing and start your case. Determine which digital solutions may be helpful for your vessel to limit your CO2 footprint and contribute to the sustainability of operations. Research these solutions even better to determine which solutions may contribute the most, make a SWOT analysis of these solutions and present the best possible option(s). You also take into account the economic feasibility.
SKILLS TO DEVELOP *(based on the Blueprint)*	This real-life case addresses the following skills: • Learning and research • Creativity and innovation • Leadership and management • Marketing and sales • Business competences • Communication
EXPECTED OUTCOME(S) *(not to be published)*	• Increased understanding of available digital smart shipping solutions • Awareness of CO^2 footprint of your vessel • Increased analytical skills by addressing a case from more perspectives, both technical and economic • Assessment skills to determine the best digital solution • Increased communication skills through interviews • Improved presentation skills
CASE QUESTION(S)	• Which digital smart shipping solutions are (or will be) available? • What are the features of each solution, and what is the contribution to lowering your CO2 footprint? • Make a SWOT analysis of the most interesting solutions • Which solution is most fit for purpose and why?

2 – REAL-LIFE CASE

NUMBER	**Teams.21.STC.06**
TITLE	Digital innovations for safety and security in shipping operations
SUBTITLE	How can digitalisation contribute to safer and more secure shipping operations?
SUMMARY	Digitalisation can contribute to safer operations at sea. However, increased digital solutions also demand more attention for cyber security. How can digital solutions contribute to safer operations at sea? This case will provide you with a better insight into the digital solutions and innovations available to secure safer shipping operations. It will provide you with the skills to properly assess the usability of your vessel.
DESCRIPTION	Focus on a specific type of vessel and routing and start your case. Determine which digital solutions may be helpful for your vessel to increase safety at sea, but simultaneously do not lose track of the cyber vulnerability of each solution. Safety and security should go hand in hand. Research these solutions even better to determine which solutions may contribute the most, make a SWOT analysis of these solutions and present the best possible option(s). You also take into account the economic feasibility.
SKILLS TO DEVELOP *(based on the Blueprint)*	This real-life case addresses the following skills: • Learning and research • Creativity and innovation • Leadership and management • Marketing and sales • Business competences • Communication
EXPECTED OUTCOME(S) *(not to be published)*	• Increased understanding of available digital solutions for safer operations • Awareness of cyber security for digital solutions • Increased analytical skills by addressing a case from more perspectives, both technical and economic • Assessment skills to determine the best digital solution • Increased communication skills through interviews • Improved presentation skills
POSSIBLE CASE QUESTION(S)	• Which digital solutions are (or will be) available to ensure safer operations at sea? • What are the features of each solution? • Make a SWOT analysis of the most interesting solutions for your vessel and route • Which solution is most fit for purpose and why?