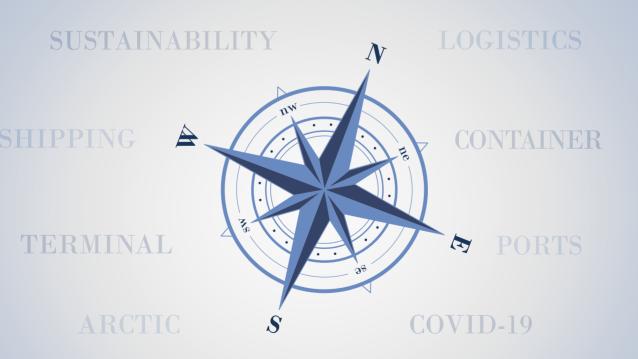


Italian Maritime Economy

The impact of Covid-19 on maritime transport: strategic routes and global scenarios
Intermodality and sustainability as keys to the Italian recovery

7th Annual Report

2020



MEDITERRANEAN

SOUTHERN ITALY

Please visit the Permanent Observatory on the Economy of Maritime Transport and Logistics

Constantly updated research material available on the website

www.srm-maritimeconomy.com



ITALIAN MARITIME ECONOMY

The impact of Covid-19 on maritime transport: strategic routes and global scenarios

Intermodality and sustainability as keys to the Italian recovery

Annual Report 2020

The analysis contained in this report represents the result of a specific SRM project and does not claim to be comprehensive. In addition, it does not undertake or represent in any way the thoughts and opinions of SRM's founder and ordinary members.

The research is exclusively aimed at cognitive and informational knowledge and is not, in any way, an opinion, a suggestion of investment, a review of companies or individuals mentioned. All the interviews carried out for the case studies and whose text has been regularly approved by the interviewees have been edited by SRM, which is, under no circumstances, responsible for the facts, opinions, news and data referred to, as in the case of chapters not directly processed by SRM.

The faithful reproduction of text, even partial, cannot be carried out without the authorization of SRM. The use of this research and of the information herein contained is only allowed for the purpose of studying and researching the industry and shall be carried out quoting the source.

The illustrations and visualization data present in this report should be considered as images and not as maps, therefore the equivalence of areas and borders, for instance, is not respected.

Publication based on data information available at June 2020

Graphic & Editorial Design: Marina RIPOLI (SRM)

ISBN: 978-88-6906-142-4

© 2020 Giannini Editore Naples - 6/b, via Cisterna dell'Olio www.gianninispa.it

"Joins the sea that separates the countries" Alexander Pope

Published by



RESEARCH AUTHORS

(Authors details on page 209)

Research Director:
Massimo DEANDREIS

Head of Research Area Maritime & Energy: Alessandro PANARO

Reaserach Team:

Olimpia FERRARA (Coordinator), Michele ACCIARO, Marco BIRAL,
Anna Arianna BUONFANTI, Gokce CELIK,
Jonas COELHO RIBEIRO DE RESENDE, Jiadong FU,
Xiaoying GENG, Pino MUSOLINO, Sergio PRETE, Dario RUGGIERO,
Pietro SPIRITO, Yijie SU, Thierry VANELSLANDER, Edwin VAN HASSEL,
Shunyi WANG, Kai XU, Yushan ZHENG.

ACKNOWLEDGEMENTS AND NOTES

The 2020 Annual Report on *Italian Maritime Economy* is part of a broader research project launched by SRM and called 'Permanent Observatory on the Economy of Maritime Transport and Logistics', from which the specialized website www.srm-maritimeconomy.com was born. This has the primary aim of monitoring and analysing the dynamics and economic impact of the sector in the economy of the country with a European and Meterranean scope.

We wish to thank all the **supporting partners** of the project: Assoporti (Italian Ports Association), Port Network Authority of the Ionian Sea, Port Network Authority of the Central Tyrrhenian Sea, Port Network Authority of the Sardinian Sea, Port Network Authority of the Central North Adriatic Sea, Confetra, Contship Italia, Federagenti, Fedespedi, Grimaldi Group, Lotras, Morandi Group, MSC CROCIERE, Unione Industriali Napoli.

A special thanks goes to all the founding and ordinary members of SRM, in particular to INTESA SANPAOLO, COMPAGNIA DI SANPAOLO, ALEXBANK, INTESA SANPAOLO FORVALUE and INTESA SANPAOLO INNOVATION CENTER for cooperating in the presentation and spread of the results of this research. We would also like to express our gratitude to the *Desk Shipping* of Mediocredito Italiano for the active participation in this research project.

Chapters VIII-IX-X-XI are part of a broader research on the Arctic Maritime Route carried out by Intesa Sanpaolo and SRM with the collaboration of the University of Antwerp and the Shanghai International Shipping Institute. A special thanks goes to Intesa Sanpaolo President Gian Maria GROS-PIETRO for the support provided in the design and promotion of this study. We would also like to thank Giovanna PALADINO, Head of the Technical Secretariat of the Presidency, who was amongst the promoters and coordinators of this work.

We also thank the different banks of INTESA SANPAOLO for collaborating in the phase of data and information gathering and for the help in spreading the results of the research.

A special thanks also goes to: Gian Enzo DUCI, Marco PAIFELMAN, and Michele PAPPALARDO (President, Secretary General and member of board Federagenti), Vito GRASSI e Michele LIGNOLA (President and General Manager Unione Industriali Napoli), Giuseppe ROCCO (President Logistics, Intermodality and Transport, Unione Industriali Napoli), Emanuele GRIMALDI (CEO, Grimaldi GROUP), Paul KYPRIANOU (Director, External Relations Manager, Grimaldi Group), Guido NICOLINI and Ivano RUSSO (President and General Manager, Confetra), Daniele TESTI (Marketing & Corporate Director, Contship Italia), Daniele ROSSI (President, ASSOPORTI and Port Network Authority of the Central North Adriatic Sea), Armando DE GIROLAMO (Sole Administrator, Lotras), Pietro SPIRITO (President, Port Network Authority of the Central Tyrrhenian Sea), Massimo DEIANA e Natale DITEL (President and General Secretary, Port Network Authority of the Sardinian Sea), Andrea MORANDI (CEO, Morandi Group), Silvia MORETTO and Stefano BRAMBILLA (President and Secretary General, FEDESPEDI).

A heartfelt thanks goes to Sergio PRETE and Fulvio Lino DI BLASIO (President and Secretary General, Port Network Authority of the Ionian Sea) for the great support they have provided to the activities of the Observatory.

A heartfelt thanks also goes to Umberto MASUCCI, national president of THE INTERNATIONAL PROPELLER CLUBS for his steady support and encouragement as well as for the help in terms of networking provided to the research activities. At the same time, we wish to thank all the local presidencies of the Propeller for the collaboration they have provided to the phase of spreading the results of this work.

This work was possible thanks to some significant scientific missions SRM carried out and which made it possible to sign agreements with prestigious centres of studies and to gather data, information and documents which resulted in considerable value added to this publication.

During the different missions and through direct visits of the ports, it was possible to comprehend the most interesting port models and maritime phenomena currently affecting the various global situations.

In particular, in February 2020 a mission was carried out in **Antwerp** which made it possible to implement a programme of technical meetings aimed at gaining indepth knowledge of topics connected to the Arctic Maritime Route. To this end, we wish to thank Prof. Thierry VANELSLANDER of the University of Antwerp for the organizational and operative support provided.

SRM is also a member of the **Global Shipping Think Tank Alliance** forum of international studies specialized in maritime and logistic matters, coordinated by the **SISI-Shanghai International Shipping Institute** and **KMI-Korea Maritime Institute**. Every year, the prestigious meeting is hosted by one of the members and in 2020 this event was delivered in the form of a webinar on 27th of April due to the Covid-19 restrictions on travel.

Finally, a special thanks for their collaboration goes to: Silvia COPPOLINO (Port Network Authority of the Ionian Sea), Fiorinda CORRADINO (Port Network Authority of the Central Tyrrhenian Sea), Tiziana MURGIA (Assoporti), Teresa PUGLIESE (Mediocredito Italiano), Paola RUSSO (Unione Industriali Napoli), Felicetta STANCO (Unione Industriali Napoli).

TABLE OF CONTENTS

Pr	Preface		
Int	FRODUCTION	15	
	Part One		
	PORT INFRASTRUCTURES FACING THE CHALLENGING COVID-19 PANDEMIC		
	Tapter I $-$ The new face of maritime transport in a new-normal economic faped by Covid-19	ERIOD	
1.	Global maritime transport and the factors that are shaping the 'new-normal' trend	21	
 3. 	The growing role of the Mediterranean and of its ports in global shipping The performance of the Italian port system	26 29	
4.	The impact of the Covid-19 pandemic on international maritime transport	32	
 6. 	The Italian Shipping Scenario in the shadow of the Covid-19 crisis Conclusions	40 43	
Sta	ntistical Appendix	45	
	AAPTER II — RESULTS OF AN IMPACT ANALYSIS OF COVID-19 ON MARITIME CONTAINS PORT-EXPORT IN ITALY AND IN THE MEZZOGIORNO	ERISED	
1.	The reference framework for Italy	57	
2.	The impact of Covid-19 on maritime containerised traffic in Italy and the Mezzogiorno: import-export data	59	
	TAPTER III – THE DIFFERENT "APPROACHES" OF MANUFACTURING FIRMS: CORRIDOR GISTIC EFFICIENCY, "ENEMIES" OF COVID-19	S AND	
1.	Foreword	63	
2.	Efficiency in logistic corridors: a step to pursue	64	
3.	Logistics process management	68	
4.	The demand for sustainability in logistics by manufacturing companies	70	
5.	Logistical challenges and Quality Logistics Italian Index (QLI ²)	72	
6.	The case of the prosecco district of Conegliano Valdobbiadene	74	
7.	Conclusions	76	

	TAPTER IV $-$ New horizons for maritime infrastructure: Ports 6.0 as lution to economic shocks	A POSSIBLE
1.	The different generations of port	77
2.	Functions of port management bodies	84
3.	Functions of the port Network Authority in Italy	86
4.	Ports 6.0	87
	Part Two	
	Sustainability and Intermodality as crucial assets for the future of ports and shipping	
	TAPTER $V-Low$ -Carbon Shipping: how decarbonisation is changing ansport	G MARITIME
1.	Foreword	97
2.	The scale of the challenge	98
3.	Beyond the IMO: the EU position	100
4.	Tightening regulation	102
5.	Compliance options: energy efficiency improvements	104
6.	Alternative fuels	107
7.	Alternative forms of propulsion	109
8.	Options to decarbonise	110
9.	Conclusions	112
Сн	iapter ${ m VI-Sustainable}$ ports and the relationship between ports and t	ERRITORIES
1.	Sustainability applied to urban models	115
2.	Sustainable ports	117
3.	Actions and measures for the sustainability of ports	119
4.	Case study. Port Network Authority of the North Adriatic Sea	123
5.	Conclusions	126
Сн	apter VII – The Parabola of intermodality in Italy	
1.	The innovation of freight villages	127
2.	The lack of stable policies aimed at boosting intermodality	129
3.	The different role of railway companies	133

PART THREE

THE NEW CHALLENGE OF THE ARCTIC ROUTE

CHA	APTER VIII – THE ECONOMIC SCENARIO OF THE ARCTIC ROUTE	
1.	Foreword	137
2.	The Northern Sea Route: a new economic scenario	138
3.	Different routes and new perspectives of the routes along the Arctic	140
4.	Investment and perspectives of the NSR	142
5.	Traffic trends of the NSR: Ships and Cargo	145
6.	Comparison between Global Routes	150
7.	China's interests in the NSR	153
8.	China-Russia oil traffic	155
9.	The Russian ports of the Arctic	155
10.	Conclusions	156
	apter $\mathrm{IX}-\mathrm{The}$ challenge of Arctic preservation: environmental and clmework	IMATIC
1.	The shape of things to come: an overview of climate change in the Arctic	161
2.	Canary in the coal mine: estimating the impacts of global warming in the Arctic	166
3.	Promoting the proactive governance and the sustainable development of the Northern Sea Route	173
	APTER X – The impact of Arctic Container shipping on the Hamburg - Le inge Ports; a Case Study of the port of Antwerp	Havre
1.	Foreword	175
2.	Literature Review	177
3.	Shipping line's expectations on possible Arctic crossing	180
4.	Scenario development	180
5.	SWOT analysis on port of Antwerp if NSR becomes viable	184
6.	Conclusion, discussion and future research	186
	APTER XI – AIS-BASED COST ESTIMATION OF BULK CARRIERS PER VOYAGE ON ARCT. RTHEAST ROUTE	IC
1.	Foreword	187
2.	Analyzing fuel oil costs using AIS data	188
3.	Cost estimation	194
4.	Conclusions	198

Bibliography	199
ABOUT THE AUTHORS	209

The Annual "Italian Maritime Economy" Report of 2020 comes out at a particular and delicate moment for our economy: a pandemic of global dimension has had, and is still having, negative impacts on all the main international, economic and financial indicators, with repercussions also on the maritime sector: import - export, added value, port and logistic traffic and many others; and obviously it has had devastating effects on the health systems of various countries, including Italy, one of the first to be affected.

On the one hand, the virus has brought negative numbers and problems of various kinds to be faced, while on the other, it has made Italy more aware of the importance of having an efficient logistics system: logistics has been recognized as an "essential sector" that cannot be stopped; it is the enemy of pandemics as it means digitalization of processes, organization, tracking and smoothness of the passage of goods, all principles that go against the spread of contagion, one of the main problems (if not the main one) that we had to face.

The principle is clear: the more logistically performing a country is and the better it deals with economic shocks, the more efficient and effective its infrastructure is and the better it is able to cushion the impacts of phenomena like this one we are experiencing.

This is the dogma that the report wants to bring to the attention and, to tell the truth, it is the idea that SRM has been highlighting for years now, showing and analysing phenomena such as naval gigantism, strategic naval alliances, the Belt & Road, the North African Ports. All of these can be faced only if we give a great competitive impetus to our ports, our shipping sector and our maritime logistics, the mainstays of our economy.

Unfortunately, I must point out that the publication contains a lot of negative data and analyses with dark considerations for our short-term future, but it also shows that on the horizon we could embark on a new path of growth by creating new port and logistical models and we could also introduce mechanisms that allow us to have a system that is more resilient to shocks of this kind.

The research also proposes and explores in depth what the drivers on which the growth of our ports, first and foremost intermodality, could be based.

It is significant that work on these issues is hosted and authored by the Presidents of the Port Network Authority of the Central Tyrrhenian Sea (ports of Naples, Salerno, Castellammare), the Port Network Authority of the Northern Adriatic Sea (Venice, Chioggia) and the Port Network Authority of the Ionian Sea, as well as the University of Hamburg, which has been collaborating with us for some time in the drafting of the volume.

These players, together with the Observatory's partners who are always present and active, accompany us on our growth path, offering ideas, reflections and analyses and allowing our researchers to carry out important scientific missions during which they can find out more about port models, traffic routes, problems and emerging and prospective maritime phenomena.

SRM's Observatory, therefore, continues its activities whilst constantly and closely monitoring the dynamics and phenomena that characterise the Mediterranean in the global maritime scenario.

The current moment is difficult but we will be able to get out of it because Italy has an industrial system that has its own strength as well as important maritime and logistic infrastructures on which we will have to work, above all for the future, so that emergencies like this do not catch us unprepared but rather reactive and resilient.

A special thanks goes to the Director, to all the researchers, and to the communication staff of SRM who have worked from home overcoming many operational difficulties and who very much wanted the Report to be published ensuring that the quality of the analysis and the development of contents be always up to date and of interest. These contribute to understanding how significant and important this sector is for Italy, as well as protagonist role that Southern Italy can play in this context.

Paolo SCUDIERI

15[™] Arctic Shipping Summit 2019, Conference proceedings.

5ST EASTERN ECONOMIC FORUM (2019), Conference proceedings.

ALPHALINER (2019), Top 100: Operated fleets

ALPHALINER (Various Years), Weekly Newsletter

Andrews J., Babb D., Lin Y., Becker A., Ng A.K.Y. (2018), "Implications of climate change for shipping: Opening the Arctic seas", *Wiley Interdisciplinary Reviews: Climate Change*, 9(2), e507 - 2018. DOI: 10.1002/wcc.507

Anon (2018), "Facts & Figures", *Portofantwerp.com* https://www.portofantwerp.com/sites/portofantwerp/files/POA Facts and Figures 2018.pdf

Anon (2014), "Opportunities and challenges: economic, social, and political impacts of climate change in the Arctic", *ACCEL* [https://accelfellowship.wordpress.com/opportunities-and-challenges-economic-social-and-political-impacts-of-climate-change-in-the-arctic/]

Anon, "CAFF Arctic Wetlands workshop", Arctic Council [http://www.arctic-council.org/]

Anon (2017), Review of Maritime Transport

ANON, Главная [http://www.nsra.ru/en/home.html]

Anon (2019), "MSC PSA European Terminal (MPET)", *PSA Antwerp* https://www.psa-antwerp.be/en/terminals/msc-psa-european-terminal-mpet]

Anon, Northern Sea Route Information Office, *Transit Statistics*, CHNL Information Office [http://www.arctic-lio.com/]

ARCTIC COUNCIL (May 2019), "Arctic Climate Change Update 2019", *Arctic Monitoring and Assessment Programme* [https://oaarchive.arctic-council.org/bitstream/handle/11374/2353/ccupdate18.pdf?sequence=1&isAllowed=y]

Arctic Logistics Information Office, Northern Sea Route Information Office, *Transit Statistics* [http://www.arctic-lio.com/nsr_transits]

ASSOPORTI (Various Years), Statistiche portuali

AVVISATORE MARITTIMO (Various Years), various articles

Bailly D., Cudennec A., Jacquot M., Quillérou E. (2017), "The Arctic: opportunities, concerns and challenges", *Ocean Climate* [http://www.ocean-climate.org/wp-content/uploads/2017/03/the-arctic 07-9.pdf]

Bank of Italy (15 May 2020), The impact of the COVID-19 pandemic on the italian economy: illustrative scenarios

BANCHERO COSTA (Various Years), Bancosta Weekly

BANCO DI NAPLES (Various Years), Rassegna Economica, Naples

Bebbington T. (9 November 2017), "50,000 TEU... the Future or Not?", *Maritime Executive* [https://maritime-executive.com/editorials/50000-teu-the-future-or-not]

BEKKERS E., FRANCOIS J.F., ROJAS-ROMEGOSA H. (2017), "Melting ice Caps and the Economic Impact of Opening the Northern Sea Route", *The Economic Journal*, 128(610), pp.1095–1127

BEKKERS E., FRANCOIS J.F., ROJAS-ROMEGOSA H. (2015), *Melting Ice Caps and the Economic Impact of Opening the Northern Sea Route*, Discussion Paper 307, CPB Netherlands Bureau for Economic Policy Analysis

Borgå K. (2019), "The Arctic ecosystem: A canary in the coal mine for global multiple stressors", *Society for environmental toxicology and chemistry*, 11-02-2019 [https://doi.org/10.1002/etc.4360]

Borgerson S.G. (2008), "Arctic Meltdown: The Economic and Security Implications of Global Warming", *Foreign Affairs*, Vol. 87 No. 2 April, 2008 [http://www.jstor.org/stable/20032581]

BOUMAN E.A., LINDSTAD E., RIALLAND A.I., STRØMMAN A.H. (2017), "State-of-the-art technologies, measures, and potential for reducing GHG emissions from shipping—A review", *Transportation Research Part D: Transport and Environment*, 52, 408-421

Brown I. (17 September 2019), "How can we make ports more sustainable and why it matters?", *Earth Institute, Columbia University* [https://blogs.ei.columbia.edu/2019/09/17/port-sustainability-index/]

BRS Group (2019), Annual Review

BURKETT V. (2011), "Global climate change implications for coastal and offshore oil and gas development", *Energy Policy*, 39(12) 2011 doi:10.1016/j.enpol.2011.09.016

Business Index North (2018), "Maritime Activity in the Northern Sea Route", *Maritime Transportation in the North*, Issue 02/ March 2018

CARBONE S.M., MUNARI F. (2019), I porti italiani e l'Europa, Milan, p. 109

Censis – Federazione del mare (2019), Sesto Rapporto sull'economia del mare. Cluster marittimo in Italia, Europa e Mediterraneo

CENTRE FOR HIGH NORTH LOGISTICS (CHNL) (2020), NSR Shipping Traffic – Research activities on the NSR in 2019

CENTRE FOR HIGH NORTH LOGISTICS (CHNL), Business Index North Report 2019: Maritime Traffic and Transportation Infrastructure along the Northern Sea Route

CHIRCOP A. (2017), "The imo, Its Role under unclos and Its Polar Shipping Regulation", *Governance of Arctic Shipping*, pp.105–143

CLARKSONS RESEARCH (2020), Seaborne Trade Monitor

CLARKSONS (2018), *Retrieved* [https://www.clarksons.net/n/#/sin/timeseries/]

CLINGENDAEL SILK ROAD HEADLINES (Various Years), various articles

Comiso J.C. (2012), "Large Decadal Decline of the Arctic Multiyear Ice Cover", *Journal of Climate*, 25(4), pp.1176–1193.

CONFINDUSTRIA MEZZOGIORNO-SRM (Various Years), Check-up Mezzogiorno, Rome

CONFITARMA (2017), Assemblea Annuale, Rome, 20 June 2017

CONTSHIP (Various Years), Newsletter

Cui J., Liu D. (2017), "Key Must-pass Sea Areas along Arctic Northeast Route", *China Maritime Safety*, 2017, 12, 21-23

DEANDREIS M. (10 July 2020), "China's Infrastructure and Logistics in the Mid-Med", *China in the Middle East/Mediterranean ("Mid-Med")*, a joint project of Tel Aviv University's Department of East Asian Studies and the Moshe Dayan Center, with the ChinaMed research network

DEANDREIS M. (13 February 2020), "La centralità del Mediterraneo nei traffici internazionali", *MedComTrasporti 2020*, Palermo

DEANDREIS M. (30 January 2020), "Lo shipping non è un'isola: il gigantismo navale, la BRI e la concentrazione dei traffici", *Shipping, Forwarding & Logistics meet Industry*, Milan

DE LANGEN P. (2018), "Ports will become a driving force for the new economy", *Piernext-Innovation by the Port of Barcelona* [https://piernext.portdebarcelona.cat/en/governance/ports-will-become-a-driving-force-for-the-new-economy/]

DE LANGEN P., HAEZENDONCK E. (2012), "Ports as Clusters of Economic Activity", *The Blackwell Companion to Maritime Economics*, New Jersey, pp. 638 e ss

DIDENKO N.I., CHERENKOV V.I. (2018), "IOP Conference Series: Earth and Environmental Science", Economic and geopolitical aspects of developing the Northern Sea Route

DING K., LIU L., WEI G. (2017), "Current Navigation Status and Maritime Support Capability of Arctic Northeast Route", *Marine Technology*, 2017, 05, 40-43

DONG J., LIU L., WEI G. (2018), "Navigation Environment of Key Waters and Main Ports Along Arctic Northeast Route", *Marine Technology*, 2018, 03, 43-46

Drent J. (1993), "Commercial Shipping on The Northern Sea Route" in The Northern Mariner/ Le Marin du Nord III, No. 2 (April 1993), 1-17

Drewry Maritime Research (2020), Containership Cancelled Sailings and Waiting Times weekly Report

Drewry Maritime Research (May 2020), Container Forecaster. Quarter 1 update

Drewry Shipping Consultants (Various Years), World Container Index

EGER K.M. (2020), "Arctic ecosystems and the impact by shipping activities", *ARCTIS Database*, [http://www.arctis-search.com/Arctic+Ecosystems+and+the+Impact+by+Shipping+Activities]

European Commission (2019), Communication From the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions - The European Green Deal, COM(2019) 640 final

EUROPEAN COMMISSION DG ENVIRONMENT NEWS ALERT SERVICE (2013), Science for Environment Policy Probability of rapid increase in trans-Arctic shipping routes is confirmed, SCU, The University of the West of England, Bristol

Eurostat (Various Years), Maritime ports freight and passengers statistics

Eurostat (Various Years), Maritime transport statistics - Short sea shipping of goods

FERGUSON S. (2007), "Ride the wave", Engineering, 248 (4) 2007

FINANCIAL TIMES (2010), *Green vision: the search for the ideal eco-city* [https://www.ft.com/content/c13677ce-b062-11df-8c04-00144feabdc0]

GAZPROM-NEFT, Novoport. Project overview.

GAZPROM-NEFT (2020), *The Novy Port project* [https://www.gazprom-neft.com/company/major-projects/new-port/]

GEERLINGS H., VELLINGA T. (2018), "Sustainability", *Ports and Networks*, New York, p. 297 GILL A., SEVIGNY D. (January 2015), "Sustainable Northern Development – The case for an Arctic development bank", *CIGI Papers*, No. 54

GILLE J., VAN HUSSEN K., WHITEMAN G., YUMASHEV D. (2017), "Towards a balanced view of Arctic shipping: estimating economic impacts of emissions from increased traffic on the Northern Sea Route", *Climatic Change*, 2017 doi:10.1007/s10584-017-1980-6

GLOBAL SHIPPING THINK TANK ALLIANCE (Various Years), Atti dei Plenary Meeting [www.gstta.org]

GRAS R. (2019), "Ports as innovation hubs: an opportunity to boost the area's economic growth", *Piernext-Innovation by the Port of Barcelona* [https://piernext.portdebarcelona.cat/en/economy/ports-as-innovation-hubs-an-opportunity-to-boost-the-areas-economic-growth/]

GRZELAKOWSKI A., MATCZAK M. (2012), Współczesne porty morskie. Funkcjonowanie i rozwój, Publishing House of the Polish Naval Academy, Gdynia, p. 3

GUNNARSSON B. (2016), "Future Development of the Northern Sea Route", *The Maritime executive* [http://www.maritime-executive.com/editorials/future-development-of-thenorthern-sea-route]

GUNNARSSON B. (2016), "Developing the Northern sea Route" in "Arctic Shipping uncertain waters", *The Circle WWF Magazine*, No. 3/2016, pp. 10-12

HAEZENDONCK E., LANGENUS M. (2018), "Integrated ports clusters and competitive advantage in an extended resource pool for the Antwerp Seaport", *Maritime Policy & Management*, 46(1), pp. 74–91

Hänninen N., Pavlov V., Pongrácz E. (2020), Arctic Marine Sustainability, doi:10.1007/978-3-030-28404-6

Heininen L., Exner-Pirot H. (2020), Climate Change and Arctic Security, doi:10.1007/978-3-030-20230-9

HELLENIC SHIPPING News (17 December 2019), Far East Russia Crude Oil Exports: A Legitimate Tanker Play?"

HOFFMANN V.H., TRAUTMANN T., HAMPRECHT J. (2009), "Regulatory uncertainty: A reason to postpone investments? Not necessarily", *Journal of Management Studies*, 46, No. 7 (2009): 1227-1253

HUANG L., LASSERRE F., ALEXEEVA O. (2015), "Is China's interest for the arctic driven by arctic shipping potential?", *Asian Geographer*, 32(1), pp. 59–71 [https://doi.org/10.1080/10225706.2014.928785]

HUGHES E. (2016), *Recent developments at IMO to address GHG emissions from ships*, [http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Default.asp]

HUMPERT M., RASPOTNIK A. (2018), *The Future of Arctic Shipping Along the Transpolar Sea Route* [https://arcticyearbook.com/arctic-yearbook/2012/2012-scholarly-papers/20-the-future-of-arctic-shipping-along-the-transpolar-sea-route]

HUMPERT M. (2018), "Maersk Considers Sending Container Ship Through Arctic But Questions Remain", *High North News* [https://www.highnorthnews.com/en/maersk-considers-sending-container-ship-through-arctic-questions-remain]

HUMPERT M. (2013), "The Future of Arctic Shipping: A New Silk Road for China?", The Arctic Institute

Humpert M. (2020), Novatek to order up to 42 new Arc7 LNG carriers totaling \$ 12bn

Husseini T. (2018), "Oil spills in the ocean: why the Arctic is particularly vulnerable", *Offshore technology*, 14-10-2018 [https://www.offshore-technology.com/features/oil-spills-in-the-ocean-arctic/]

Infocamere, Movimprese, Database

INTERNATIONAL MONETARY FUND (June 2020), World Economic Outlook

Intesa Sanpaolo – Banca IMI (March 2019), Macroeconomic and Fixed Income Research Intesa Sanpaolo – SRM (May 2020), The Arctic Route. Climate change impact, Maritime and economic scenario, Geo-strategic analysis and perspectives

INTESA SANPAOLO (Various Years), La bussola dell'economia italiana

ISTAT (2016), Banca dati sul Commercio con l'estero: Coeweb

ITF-OECD (2018), *Decarbonising Maritime Transport: Pathways to zero carbon-shipping by 2035* [https://www.itf-oecd.org/decarbonising-maritime-transport]

Jacobsen S., Gronholt-Pedersen J. (14 June 2019), "Maersk explores Arctic shipping route with Russia", *Reuters* [https://www.reuters.com/article/us-arctic-shipping-maersk/maersk-explores-arctic-shipping-route-with-russia-idUSKCN1TF0WW]

JOC (Various Years), various articles

JOCHMANN P., SCHRODER C., REIMER N. (2017), Environmental impact of exhaust emissions by Arctic shipping, 24-10-2017, doi:10.1007/s13280-017-0956-0

KARIMPOUR R., DOCKSTHEFUTURE (2018), China's Polar Silk Road, a threat or an opportunity Khon V.C., Mokhov I., Semenov V.A. (2017), "Transit navigation through the Northern Sea Route from satellite data and simulations", Environmental research letters, 12(2) 2017

KNOWLER G. (October 2019), "Msc says no arctic shipping route", *Joc* [https://www.joc.com/maritime-news/msc-says-no-arctic-shipping-route 20191017.html]

KOKHANOVSKY A., TOMASI C. (January 2020), "Climate Change in the Arctic", *Physiscs and Chemistry of the Arctic* [https://doi.org/10.1007/978-3-030-33566-3]

KOVALENKO A.S., MORGUNOVA M.O., GRIBKOVSKAIA V.V. (August 2018), *Infrastructural Synergy of the Northern Sea Route in the International Context*, Researchgate publications (uploaded February 2020)

Lammers L.P. (2009), "The possibilities of container transit shipping via the Northern Sea Route - Using backcasting to gain insight in the paths that lead to a feasible Arctic shipping service. Delft University of Technology", *Transport Infrastructure and Logistics (TIL)*

LEE P., LAM J. (2016), "Developing the Fifth Generation Ports Model", in LEE P., CULLINANE K. (ed.), *Dynamic Shipping and Port Development in the Globalized Economy*, Palgrave Macmillan, London 2016, p. 188

LEE T., KIM H.J. (2015), "Barriers of voyaging on the Northern Sea Route: A perspective from shipping Companies", *Marine Policy*, 62, pp.264–270

Li Y. (2014), "Study on Statistical Algorithms of Ship Energy Consumption and Carbon Emissions Based on Ship Trajectory", Research Report of Major Discipline Project of Applied Fundamental Research Sponsored by the Ministry of Transport (2014329810120), Shanghai, Shanghai International Shipping Institute

LI Z., YOU X., WANG W. et al. (2015), "Economic Significance Analysis on Container Shipping Through Arctic Northeast Route", *Journal of Jimei University* (Philosophy and Social Science Edition), 2015, 18(01), 34-40

LIKHACHEV A., ROSATOM (April 2019), 5th International Arctic Forum "The Arctic – Territory of Dialogue"

LIU J. (2015), Economic Significance Analysis on Arctic Northeast Route Based on International Shipping Cost, Dalian, Dalian Maritime University

LIU Y., FAN H., GUO Y. (2016), "Economic Significance Analysis of Arctic Northeast Route - Case Study of Container Shipping", *Journal of Shanghai Maritime University*, 2016, 37(1) 13-18+31

Lu D., Park G.K., Choi K., Oh S. (2014), "An Economic Analysis of Container Shipping Through Canadian Northwest Passage", *International Journal of E-Navigation and Maritime Economy*, 1, pp.60–72

MEDIOCREDITO ITALIANO'S DESK SHIPPING – SRM (2017), Shipping Updates

MELIA N., HAINES K., HAWKINS E. (February 2017), "Implications from Opening Arctic Sea Routes", Foresight — Future of the Sea Evidence Review, Government Office for Science-Foresight

MELIA N., HAINES K., HAWKINS E. (2016), "Sea ice decline and 21st century trans-Arctic shipping routes", *Geophysical Research Letters*, 43(18), pp.9720–9728

MOORMAN Y., STOEL E., HEEMSKERK K., MERMANS S. (2016), Arctic Routing: From Rotterdam to Yokohama or San Francisco via the Arctic, Rotterdam Mainport University.

NATIONAL BUREAU OF STATISTICS OF CHINA, Statistical Database

NOTTEBOM T. (2019), "PortGraphic: Top15 container ports in Europe in 2018", *PortEconomics* [https://www.porteconomics.eu/2019/02/22/portgraphic-top15-container-ports-in-europe-in-2018/]

NOTTEBOOM T. (2011), Current Issues in Shipping, Ports and Logistics, University Press Antwerp, Brussels, p. 503

NOTTEBOM T. (2010), "Concentration and the formation of multi-port gateway regions in the European container port system: an update", *Journal of Transport Geography*, 18(4), pp.567–583

NOTTEBOOM T., RODRIGUE J. (2009), "The future of containerization: perspectives from maritime and inland freight Distribution", in *Geojournal*, Vol. 74, No. 1, pp. 7-22

OECD (June 2020), Economic Outlook

OECD (June 2020), International Trade Pulse

OECD (2019), ITF Transport Outlook

OLMER N., COMER B., ROY B., MAO X., RUTHERFORD D. (2017), *Greenhouse Gas Emissions from Global Shipping: 2013-2015*, International Council for Clean Transportation, Washington DC

PANAMA CANAL AUTHORITY (Various Years), Transit Statistics

Panaro A. (22 July 2020), *COVID-19: a new challenge for Med Ports* in "Italy and Turkey. important maritime countries in the Mediterranean" organizzato da Propeller Club Port of Istanbul and Propeller Club Italy

PANARO A. (21 July 2020), COVID-19: a new challenge for Mediterranean area in "III Egypt-Italy Dialogue in Maritime Sector" - Preparatory meeting

Panaro A. (9 July 2020), Intervento al terzo incontro del ciclo "Parliamo di Porti ai tempi del COVID-19 – Approfondimenti e proposte per il rilancio" organizzato da Assoporti e The International Propeller Clubs

PANARO A. (29 June 2020), Impatto del COVID-19 sulla competitività portuale nel Mediterraneo, in "Blue Economy Summit", 3° Edizione

PANARO A. (2020), Logistics and Maritime Transport: How Covid-19 will Impact Trade and Economy in 5th Plenary Meeting of the Global Shipping Think Tank Alliance, 27 April 2020

PORT TECHNOLOGY (Various Years), various articles

PROTECTION THE ARCTIC MARINE ENVIROMENT (PAME) (2018), Ships in the Polar Code Area 2017

PRUYN J.F. (2016), "Will the Northern Sea Route ever be a viable alternative?", *Maritime Policy & Management*, 43(6), pp.661–675

PSARAFTIS H. (a cura di) (2016), Green Transportation Logistics, Springer, Cham, pp. 267-297

QIAN Z., Xu L., YAN X. et al. (2015), "Navigation Strategy and Economic Significance of Arctic Northeast Route", Chinese Journal of Polar Research, 2015, 27(2), 203-211

QUILLÉROU E., JACQUOT M., CUDENNEC A, BAILLY D. (2017), "The Arctic: opportunities, concerns and challenges", *Ocean Climate* [http://www.ocean-climate.org/wp-content/uploads/2017/03/the-arctic 07-9.pdf]

RAMASWAMY V. et al. (2001), "Radiative forcing of climate change", Climate Change 2001: the scientific basis [https://www.ipcc.ch/site/assets/uploads/2018/03/TAR-06.pdf]

RODRIGUE J.P. (2017), The Geography of Transport Systems, fourth edition

RODRIGUES J. (2008), "The rapid decline of the sea ice in the Russian Arctic", *Cold Regions Science and Technology*, 54(2), pp.124–142

ROGERS T.S., WALSH J.E., LEONAWICZ M., LINDGREN M. (2015), "Arctic Sea Ice: Use of Observational Data and Model Hindcasts to Refine Future Projections of Ice Extent", *Polar Geography*, 38(1), pp. 22–41

ROSEN M.E., THURINGER C.B. (2017), Unconstrained Foreign Direct Investment: An Emerging Challenge to Arctic Security, CNA Corporation (US)

Schipper C.A., Vreugdenhil H., de Jong M.P.C. (2017), "A sustainability assessment of ports and port-city plans: comparing ambitions with achievements", *Transportation Research Part D - Transport and Environment*

Selley R.C., Sonnenberg S.A. (2015), *Elements of Petroleum Geology* [https://doi.org/10.1016/C2010-0-67090-8]

SENGUPTA S., MYERS S.L. (24 May 2019), "Latest Arena for China's Growing Global Ambitions: The Arctic", *New York Times* [https://www.nytimes.com/2019/05/24/climate/china-arctic.html]

SHEPARD W. (27 March 2020), "China's 'Health Silk Road' Gets A Boost From COVID-19", Forbes

SIDDI M., FINNISH INSTITUTE OF INTERNATIONAL AFFAIRS (2018), *The Arctic Route for Russian LNG Opens* [https://www.aboutenergy.com/en_IT/topics/arctic-route-for-russian-lng-opens. shtml#]

SKJÆRSETH J.B., SKODVIN T. (2003), Climate change and the oil industry, Manchester University Press

SMITH T., RAUCCI C., HOSSEINLOO S.H., ROJON I., CALLEYA J., DE LA FUENTE S., WU P., PALMER K. (2016), CO₂ emissions from international shipping. Possible reduction targets and their associated pathways, UMAS: London, UK

SOLDATKIN V., JAGANATHAN J. (2019), "Russia ups LNG race with green light on \$21 billion Arctic LNG-2 project", *Reuters* [https://www.reuters.com/article/us-russia-energy-novatek-lng/russia-ups-lng-race-with-green-light-on-21-billion-arctic-lng-2-project-idUSKCN1VQ0IH]

SØRENSEN C.T.N., KLIMENKO E. (June 2017), Emerging Chinese–Russian cooperation in the Arctic, Possibilities and constraints, Stockholm International Peace Research Institute (SIPRI), Policy Paper No. 46

Shipping Italy, Daily newsletter, various articles

SRM (May 2020), "COVID-19 Results of a brief investigation: the Logistics and maritime Italian operators' sentiments", White book on assessing the economic impacts of COVID-19 in maritime industry and responses, GSTTA

SRM (April 2020), COVID-19 Observatory on Maritime Transport and Logistics

SRM – Contship (2020), Corridors and logistical efficiency of territories. The role of sustainability and district tradition in enhancing the value of Italian manufacturing

SRM – Alexbank (2018), The Suez Canal after the expansion. Analysis of the traffic, competitiveness indicators, the challenges of the BRI and the role of the Free Zone

SRM (2018), Analysis of Maritime Clusters. A Focus on Singapore

SRM (2018), Belt and Road Initiative, Position paper

SRM (2018), The Suez Canal after the expansion. Analysis of the traffic, competitiveness indicators, the challenges of the BRI and the role of the Free Zone

SRM (Various Years), Italian Maritime Economy. Annual Report, Giannini Editore, Naples

SRM – ENERGY SECURITY LAB, POLITECNICO DI TORINO (Various Years), MED & Italian Energy Report. Annual Report, Giannini Editore, Naples

SRM (Various Years), Maritime Indicators

STAALESEN A. (September 2019), "Big growth in Russian Arctic ports", *The Barents Observer* [https://thebarentsobserver.com/en/industry-and-energy/2019/09/big-growth-russian-arctic-ports]

STOPFORD M. (2009), Maritime economics, Routledge, London

SUEZ CANAL AUTHORITY (Various Years), Suez Canal Report

TAVASSZY L., BEHDANI B., KONINGS R. (2018), "Intermodality and Synchromodality", *Ports and Networks*, New York, p. 251

Tavasszy L. *et al.* (2011), "A strategic network choice model for global container flows: specification, estimation and application", *Journal of Transport Geography*, 19(6), pp.1163–1172.

THE ECONOMIST (26 July 2018), All under heaven. China's belt-and-road plans are to be welcomed and worried about, Cover Story

THE MEDITELEGRAPH (June 2018), *Yamal LNG ships first LNG cargo to Spain* [https://www.themeditelegraph.com/en/shipping/2018/06/23/news/yamal-lng-ships-first-lng-cargo-to-spain-1.38083487]

The State Council Information Office of the People's Republic of China (January 2018), China's Arctic Policy

TRAUT M., LARKIN A., ANDERSON K., McGLADE C., SHARMINA M., SMITH T. (2018), "CO₂ abatement goals for international shipping", *Climate Policy*, 1-10

UNCTAD, COMMITTEE FOR THE COORDINATION OF STATISTICAL ACTIVITIES (May 2020), *How Covid-19 is changing the world: a statistical perspective*

UNCTAD (June 2020), Global Trade Update

UNCTAD (2019), Review of Maritime Transport 2019

UNCTAD, Liner Shipping Connectivity Index Database

UNCTAD, Port Liner Shipping Connectivity Index Database

UNCTAD (1999), "The Fourth-Generation Port", in *Ports Newsletter*, No. 19, p. 10

UNCTAD (1992), Port marketing and the third generation port, TD/B C.4/AC.7/14

UNCTAD (1991), Geneva 1990, Port marketing and the third generation port, TD/B C.4/AC.7/14. Ginevra

Unioncamere, SI.Camera, Camera di Commercio di Latina (2019), VIII Rapporto sull'Economia del Mare

UNITED NATIONS, Sustainable Development Goals Knowledge platform [https://sustainabledevelopment.un.org/?menu=1300]

UNITED NATIONS CLIMATE CHANGE SECRETARIAT (2019), 25 Years of Adaptation under the UNFCCC. Report by the Adaptation Committee [https://unfccc.int/]

VERHOEVEN P. (2015), Economic Assessment of Management Reform in European Seaports, Antwerp

VERHOEVEN P. (2011), The ESPO Fact – Finding Report, 2010 Edition

WALKOWSKI D. (2015), Arctic shipping & liability for harm to natural resources, The Maritime Commons: Digital Repository of the World Maritime University [https://commons.wmu.se/shiparc/2015/allpresentations/19/]

WANG B. (2017), "Oil Transportation Analysis of Arctic Northeast Route", *Shipping Survey*, 2017, 01, pp. 32-35

WANG H., LUTSEY N. (2013), Long-term potential for increased shipping efficiency through adoption of industry-leading practices: ICCT White Paper [http://www.theicct.org/sites/default/files/publications/ICCT ShipEfficiency 20130723.pdf]

WANG Y., SHOU J. (2013), "Design and Economic Significance Analysis of China-Europe Route That Runs via Arctic Northeast Route", *Marine Technology*, 2013, 02, pp. 21-24

WAN Z., GE J., CHEN J. (2018), "Energy-Saving Potential and an Economic Feasibility Analysis for an Arctic Route between Shanghai and Rotterdam: Case Study from China's Largest Container Sea Freight Operator", *Sustainability*, 10(4), p. 921

WARSTILA (2020), *White Paper – The Future of Shipping* [https://www.wartsila.com/marine/white-paper/the-future-of-shipping]

WATTERS S., TONAMI A., *The Future of Arctic Shipping Along the Transpolar Sea Route*, [https://arcticyearbook.com/articles/11-thefuture-of-arctic-shipping-along-the-transpolar-searoute]

WILMSMEIER G., MONIOS J. (a cura di) (2020), Geographies of Maritime Transport: Transition from Transport to Mobilities, New York, Springer-Nature, in stampa

World Commission on Environment and Development (1987), *Our common future*, Oxford, Oxford University Press

WRIGHT R. (2017), "Container shipping faces critical moment after years of losses", *Financial Times* [https://www.ft.com/content/8b633cfa-e7f0-11e6-967b-c88452263daf]

WRIGHT P. (2013), "Impacts of climate change on ports and shipping", *Marine Climate Changes Impacts Partnership Science Review*, pp. 263–270

YAO M., Hu M. (2014), "Impact of Opening Arctic Northeast Route on Sino-European Trade - Analysis Based on Gravity Model of Trade", *Marine Economy*, 2014, 4(5), pp. 9-15

ZHANG C. (2020), "China's "Arctic Silk Road projects", *Chinadilogue* [https://chinadialogueocean.net/12569-chinas-arctic-silk-road-projects/]

ZHANG X. (2016), "Commercial Sailing Practice of Yong Sheng Ship on Arctic Northeast Route", World Shipping, 2016, 39(05), pp. 8-14.

ZHAO H., HU H., LIN, Y. (2016), "Study on China-EU container shipping network in the context of Northern Sea Route", *Journal of Transport Geography*, 53, pp. 50–60

ZHENG L. (2016), "Arctic Northeast Route: Interests of Route-side Countries and Freedom of Navigation", *International Forum*, 2016, 18(2), 39-46+80

ZHU S. et al. (2018), "The environmental costs and economic implications of container shipping on the Northern Sea Route", Maritime Policy & Management, 45(4), pp. 456–477

This report was designed and coordinated by SRM.

The contributing authors are:

Research Director

Massimo DEANDREIS, General Manager, SRM

Head of Research

Alessandro PANARO, Head of "Maritime & Mediterranean Economy" Dept., SRM

Chapter I -The new face of maritime transport in a new-normal economic period shaped by Covid-19

Anna Arianna BUONFANTI, Researcher, Maritime Economy Observatory, SRM

Chapter II - Results of an impact analysis of Covid-19 on maritime containerised importexport in Italy and in the Mezzogiorno

Chapter VIII - The economic scenario of the Arctic Route

Olimpia FERRARA, Head of Maritime Economy Observatory, SRM

Chapter III - The different "approaches" of manufacturing firms: corridors and logistic efficiency, "enemies" of Covid-19

Dario RUGGIERO, Researcher, Maritime & Energy Dept., SRM

Chapter IV - New horizons for maritime infrastructure: Ports 6.0 as a possible solution to economic shocks

Sergio PRETE, President Port Network Authority of the Ionian Sea

Chapter V - Low-Carbon Shipping: how decarbonisation is changing maritime transport Michele ACCIARO, PhD, Associate Professor of Maritime Logistics e Head of Logistics Department, Kühne Logistics University, Hamburg

Chapter VI - Sustainable ports and the relationship between ports and territories Pino MUSOLINO, President Port Network Authority of the North Adriatic Sea

Chapter VII - The parabola of intermodality in Italy

Pietro SPIRITO, President Port Network Authority of the Central Tyrrhenian Sea and Professor of Transport Economics at the University of Naples 'Federico II'

Chapter IX - The challenge of Arctic preservation: environmental and climatic framework Marco BIRAL, Credit Analyst, Technical Secretariat of the Presidency, Intesa Sanpaolo

Chapter X - The impact of Arctic Container shipping on the Hamburg - Le Havre Range Ports; a Case Study of the port of Antwerp

University of Antwerp: Thierry VANELSLANDER, Professor at the Department of Transport and Regional Economics; Edwin VAN HASSEL, Senior researcher at the Faculty of Transport and Regional economics; Gokce CELIK, Researcher, University of Antwerp; Jonas COELHO RIBEIRO DE RESENDE, Researcher

Chapter XI - AIS-based Cost Estimation of Bulk Carriers per Voyage on Arctic Northeast Route

Shanghai International Shipping Institute (SISI): Kai XU, Chief of Shipping Informatization Research Department; Shunyi WANG, Port & Shipping Researcher; Xiaoying Geng, Port & Shipping Researcher; Jiadong FU, Port & Shipping Researcher; Yushan ZHENG, Port & Shipping Researcher; Yijie SU (Port & Shipping Researcher)



177, Via Toledo | 80134 Naples, Italy Phone: +39 081 7913758-61 comunicazione@sr-m.it | www.sr-m.it

President: Paolo Scudieri

General Manager: Massimo Deandreis

Board of Directors: Gregorio De Felice, Elena Flor, Piero Gastaldo, Stefano Lucchini, Pierluigi Monceri, Marco Musella, Giuseppe Nargi

The composition of the Scientific Committee is available at www.sr-m.it

Board of Auditors: Danilo Intreccialagli (presidente), Giovanni Maria Dal Negro, Lucio Palopoli

Supervisory Body (art.6 D.Lgs. 231/01): Gian Maria Dal Negro

Ethics Committee (art.6 D.Lgs. 231/01): Lucio Palopoli

COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV GL
= ISO 9001 =

SRM uses a Quality Management System in compliance with the UNI EN ISO 9001 Regulations for the following fields: Design and carrying out of studies, researches, conferences and seminars on economic and financial matters of the Southern Italy, Mediterranean Area and Maritime; publishing activities and management of the periodical output in the economic and financial field of the Southern Italy, Mediterranean Area and Maritime.

Shareholders











For its scientific project, the Maritime Economy Observatory avails itself of the support and of the technical and operational contribution of national and international player from the logistics/maritime industry:





























SRM is part of the Global Shipping Think Tank Alliance



This year's Report devotes much of its analyses to the impacts of the Covid-19 pandemic on ports and maritime logistics. The phenomenon, in fact, has had considerable negative effects on all the indicators that measure the state of health of the sea economy and the economy in general.

The scenarios drawn are characterized by a decrease in the volumes of goods moved, caused by the closure of companies as a result of the various lockdowns that have occurred in different countries, which has resulted in a substantial negative impact on the main economic parameters such as import-export, value added, goods traffic and employment. In this volume, SRM has carried out a detailed analysis of the various aspects with which the phenomenon is manifesting itself and has also tried, with reasoned estimates, to gauge the impact of the Coronavirus on our logistic system at a national level. In the first part of the volume, important events such as blank sailing, the reduction of the Suez Canal passages and the new configuration of world traffic have been monitored whilst providing an overview of the most recent trends of international trade maritime flows.

In addition, a specific analysis is dedicated to providing a strategic vision on what could give our infrastructure more resilience to economic and health shocks in terms of drivers and port models for the future such as intermodality and sustainability, on which the second part of the research is focused. The third part, on the other hand, offers a focus of perspective, dedicated to a topic of great interest that is gradually rising to the forefront given the phenomenon of climate change: the Arctic sea route. This analysis has been carried out by SRM and Intesa Sanpaolo, with the collaboration of prestigious international study centers such as the University of Antwerp and the Shanghai International Shipping Institute.

Ultimately, SRM intended to offer a contribution of analysis and knowledge of all the components that make up a maritime world destined to change in some of its aspects: more digitalisation and more investments in improving the efficiency of our logistics seem to have become strategic imperatives for Italy. The challenge is open.

SRM

Study Centre based in Naples, connected to the Intesa Sanpaolo Group, originally an intellectual and scientific safeguard, has the objective to improve the knowledge about Italy's territory in terms of infrastructural, productive and social assets with a European and Mediterranean vision in mind. Specialized in the analysis of regional dynamics, and with a particular eye on the Southern Italy, it runs two reasearch observatories monitoring maritime transport, logistics and energy.

www.sr-m.it

