Genova e Singapore come due Città di Mare che navigano verso il Futuro



Cooperation

### International Panel in Evento Combinato Live e Virtuale

### Business Renaissance by Strategic Engineering @ Cities living by the Sea

1100-1230 GMT+1, February 12<sup>th</sup>, Blended Event @ Shipping 4.0 Piano 4 piano, Sala Cuspide B, Magazzini dell'Abbondanza, Via del Molo 65, Porto Antico, Genova, Italy Simulation Team, Genoa University, J.Cook University Singapore & Shipping 4.0 A.G.Bruzzone, STRATEGOS Genoa, R.Dillon, JCU Singapore

Il concetto di *Smart City* sta evolvendo, così come il Mondo stesso, quindi richiede nuove Strategie, infatti è evidente che sia lo Shipping che i Porti devono essere pronti a rinnovarsi e adottare l'Ingegneria Strategica per un vero *Rinascimento Aziendale* **STRATEGOS** dell'**Università di Genova** & il **Singapore Campus** della **James Cook University** insieme a **Shipping 4.0** invitano a partcipare a questa Tavola Rotonda per discutere sul

<u>Futuro delle Città di Mare</u> alla luce dell'Ingegneria Strategica, delle Enabling Technologies, dei nuovi Business Models e dei Big Data. L'Obiettivo è identificare come far fiorire una Business Renaissance dopo l'attuale crisi. Questa Riunione mette a Sistema Istituzioni & Aziende coinvolte in Shipping 4.0 a fianco di giovani Ingegneri Strategici per discutere sui reali Interessi, Aspettative & Idea relative ad Applicazioni & Aspetti capaci di supportare l'evoluzione dello Shipping, dei Porti e dele Città di Mare, come Genova & Singapore. Il Focus è su Soluzioni Reali & Efficaci per le nostre Città, ponendo attenzione ad aspetti come Innovazione, Competitività, Sostenibilità, Robustezza, Resilienza e Qualità della Vita



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Same Day, 1230-1300 GMT+1, STRATEGOS Student Pitch Awarding Ceremony

URL: www.simulationteam.com/strategos/challenges/jan2021 Email: agostino@itim.unige.it, roberto.dillon@jcu.edu.au



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### Genoa and Singapore as Two Maritime Cities leading the Future



### **International Panel Blended Event**

### Business Renaissance by Strategic Engineering @ Cities living by the Sea

1100-1230 GMT+1, February 12<sup>th</sup>, Blended Event @ Shipping 4.0 Piano 4 piano, Sala Cuspide B, Magazzini dell'Abbondanza, Via del Molo 65, Porto Antico, Genova, Italy` Simulation Team, Genoa University, J.Cook University Singapore & Shipping 4.0 A.G.Bruzzone, STRATEGOS Genoa, R.Dillon, JCU Singapore

The Smart City concept is evolving as well as the World and requires new Strategies, while it is evident that Shipping & Ports should be ready to renew themselves and to adopt Strategic Engineering for a real Business Renaissance

STRATEGOS at Genoa University & Singapore Campus of James Cook University with Shipping 4.0 invites you to Participate into this Round Table Blended Event as to discuss on

on the *Future of Cities living by the Sea* based on *Strategic Engineering, Enabling Technologies, new Business Models* and *Big Data*. The Goal is to identify how to flourish a Business Renaissance after the current crisis. This Meeting brings together **Institutions & Companies** of Shipping 4.0 as well as young *Strategic Engineers* to discuss on real *Expectations, Interests & Ideas* about Applications & Aspects to support evolution of *Shipping, Ports* and *Cities by the Sea*, such as Genoa & Singapore. The Focus is on *Real & Effective Solutions* for our Towns, emphasizing crucial aspects such as *Innovation, Competitiveness, Sustainability, Reliability, Robustness, Resilience* and last, but not least, the *Quality of Life* of *People* 



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Same Day, 1230-1300 GMT+1, STRATEGOS Student Pitch Awarding Ceremony

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### Genova e Singapore come due Città di Mare che navigano verso il Futuro



Joint Cooperation

### International Panel in Evento Combinato Live e Virtuale

### Business Renaissance by Strategic Engineering @ Cities living by the Sea

1100-1230 GMT+1, February 12<sup>th</sup>, Blended Event @ Shipping 4.0 (tentative link here) Simulation Team, Genoa University, J.Cook University Singapore & Shipping 4.0

### Obiettivo

Il concetto di *Smart City* sta evolvendo, così come il Mondo stesso, quindi richiede nuove Strategie, infatti è evidente che sia lo Shipping che i Porti devono essere pronti a rinnovarsi e adottare l'Ingegneria Strategica per un vero *Rinascimento Aziendale*; infatti questa nuova Disciplina combina Al, Modeling & Simulation, Data Analytics in closed loop con la realtà a supporto dei Decisori Strategici per comprendere meglio gli eventi avvenuti, la situazione attuale e le conseguenze delle decisioni critiche per avere successo a fronte di rischi e opportunità

**STRATEGOS** all'**Università di Genova** & il **Singapore Campus** della **James Cook University** insieme a **Shipping 4.0** invitano a partcipare a questa Tavola Rotonda per discutere sul

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Chairs: Prof.A.G.Bruzzone, STRATEGOS Genoa & Prof. R.Dillon, JCU Singapore

### Participanti

Dr. Giovanni Caprino, DLTM Director, Italy Ing. Francesco Faccio, Idexe Consulting Partner, Italy Prof.Jean-Guy Fontaine, JGF Senior Partner, France Ing. Giulio di Gennaro, Technical Director Corepower, UK Dott.Stefano Negrini, Technical Director, Terminal Bettolo Ing. Georgia Cesarone, Education Director at Start 4.0, Italy Ing. Stefano Fasoli, Info Logistics, Cetena, Italy Prof. Laura Gaggero Research Pro-Rector Unige, Italy Prof. Rocco Giordano, Direttore Sistemi di Logistica Ing. Domenico Rocco, Sales Manager Fincantieri Group

AI Artificia JAMES COOK UNIVERSITY SINGAPORE

Al Artificial Intelligence IA Intelligent Agents M&S Modeling & Simulation

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Genoa and Singapore as Two Maritime Cities leading the Future



### Business Renaissance by Strategic Engineering @ Cities living by the Sea

1100-1230 GMT+1, February 12<sup>th</sup>, Blended Event @ Shipping 4.0 (tentative link here) Simulation Team, Genoa University, J.Cook University Singapore & Shipping 4.0

### **Objectives**

The *Smart City concept* is evolving as well as the World and requires new Strategies, while it is evident that Shipping & Ports should be ready to renew themselves and to adopt *Strategic Engineering* for a real Business Renaissance; this new Discipline combines AI, IA, Modeling & Simulation, Data Analytics in closed loop with <u>Reality</u> to support Strategic Decision Makers to better understand the past events, current situation & consequences of their major decisions to succeed while facing risks and getting opportunities

STRATEGOS at Genoa University & Singapore Campus of JCU with Shipping 4.0 invites you to Participate to this Round Table to discuss on the <u>Future of Cities living by the Sea</u> based on Strategic Engineering, Enabling Technologies, new Business Models and real Data. The Goal is to identify how to flourish a Business Renaissance after the current crisis by bringing together Institutions & Companies as well as <u>Strategic Engineers</u> to discuss on real Expectations, Interests & Ideas about Applications & Aspects to support evolution of Shipping, Ports and Cities by the Sea, such as Genoa & Singapore. The focus is on Real & Effective Strategies for our Towns, emphasizing crucial aspects such as Innovation, Competitiveness, Sustainability, Robustness, Resilience and last, but not least, Quality of Life of People

### Chairs: Prof.A.G.Bruzzone, STRATEGOS Genoa & Prof. R.Dillon, JCU Singapore

### **Participants**

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Dr. Giovanni Caprino, DLTM Director, Italy

Dr. Francesco Faccio, Idexe Consulting Partner, Italy Prof. Jean-Guy Fontaine, JGF Senior Partner, France Dr. Giulio di Gennaro, Technical Director Corepower, UK Dr. Stefano Negrini, Technical Director, Terminal Bettolo Dr. Georgia Cesarone, Education Director at Start 4.0, Italy Dr. Stefano Fasoli, Info Logistics, Cetena, Italy Prof. Laura Gaggero Research Pro-Rector Unige, Italy Prof. Rocco Giordano, Direttore Sistemi di Logistica Dr. Domenico Rocco, Sales Manager Fincantieri Group

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Joint Cooperation





# Singapore & Genoa are two major Cities... & Ports

Singapore is one of Largest Transhipment Port Worldwide and one Leader in terms of Operations and Technologies, but is located in a small Island

Genoa is one of Largest Ports in Mediterranean Sea & a Gate to Europe www.itim.unige.it/strategos



www.jcu.edu.au

The Shipping is Providing new Challenges to Port Cities to be Competitive and Successful in a wide World









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## Business Renaissance requires Art, Excellence, Money & New

Just to compare with old Ages, to evolve in a Business Renaissance it is necessary to have Money and Ideas as well as to develop Exellence and New Views

In Logistics, Steam Ships & Trains date back to over 200 years ago, while Containers have already <sup>3</sup>/<sub>4</sub> of a Century

Current Crisis requires to Rethink and Re-Engineer Processes and Business based on Enabling Technologies



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Views

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## Business Renaissance @Cities by the Sea & Stratecic Engineering

Smart City is evolving as well as the World & it requires new Strategies: there is a Student Pitch to look at Strategies for the Coastal Cities off the Future, on new Ideas & impact Presentations on Original Solutions by Data & Models

Student Teams are encouraged to participate to this Experience by preparing proposals Dealing with critical emerging issues

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Passage

Sea Rout

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### Simulation Team... & Genoa

### **Genoa is very active** in developing M&S, as well as AI Solutions



### Genoa activated **STRATEGOS Initiative as one** of first world MSc in Strategic Engineering

McLeod Institute of Technology & Interoperable Modeling Simulation Genoa



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M&SNet

Genoa



In Genoa we have several

active Entities in terms of





A.G. Bruzzone

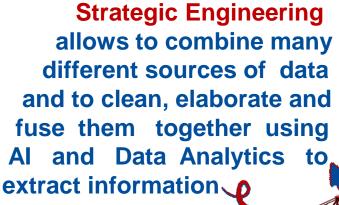
**STRATEGOS Council Chair** President Simulation Team











This allow to know what happen in the past and what is happening now to get a good picture of the present and to understand it better by our up-to-date



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The Models are used to simulate the situation and the impact of our decisions, but also to consider all possible alternatives in terms of situation changes and other players moves.

> So the Decisions are made with benefits of Results of Simulation & Smart Systems & Al

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Real impacts of our actions on field refine dynamically refine our models by Machine Learning









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## The Strategos...



ή Στρατηγία κάλλιστα προμηθείται τά
τε ἄλλα καὶ περὶ τὸ μέλλον ἔσεσθαι,
οὐδὲ τῆ μαντικῆ ὄἴεται δεῖν ὑπηρετεῖν
ἀλλὰ ἄρχειν, ὡs εἰδυῖα κάλλιον τὰ περὶ
τὸν πόλεμον καὶ γιγνόμενα καὶ γενησόμενα

Socrates in Laches, 198 E, 423 B.C.











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## The Strategos...



Lê o conscidera e mirë comme di senplici strumenti pe focalizâ a seu energia, cöse che peuan ese cangiæ quande cangian e prioritæ: de neuve peuan azonzise e de atre peuan ese eliminæ

> Christopher Columbus, Memorial, 1501 A.D.

> > Genuense

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...looks at goals as to simply tools to focus positively the energy, these can be changed as his priorities change, new one added & others dropped

JAMES COOK UNIVERSITY singapore





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## Strategic Engineering & STRATEGOS



Strategic Engineering is a new Discipline, devoted to combine <u>Modeling & Simulation,</u> <u>Data Analytics & Artificial</u> <u>Intelligence in closed</u> <u>loop</u> to support the Strategy Development & Decision Making

A Strategy is not a Plan, a Strategy is the ability to well direct your own resources to achieve major Goals for your own



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STRATEGOS aims to develop an International Capability in Strategic Engineering and it's the 1<sup>st</sup> Master of Science in Italy and among first ones worldwide on this subject

STRATEGOS promotes the new ways to use Quantitative Modeling and Analysis by preparing the new generations of Experts, among Engineers, Managers ( Officers able to interact directly with Top Decision Makers



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#### **Important Partnership with** 2 íP major Agencies & Companies ANTYCIP THALES **STRATEGOS** Genuense Athenaeum SEASTEMA amiu Horsa devLab ORDINE DI MALTA Sala Istituto Affari HITACHI BRANDNEW Inspire the Next **Currently, many** accenture Major Companies, Institutions and rulex ANSALDO Agencies are in Kibernetes active Partnership LEONARDO **STRATEGOS** with on Workshops and **BearingPoint** DITEN Exercises, as well as on VEGA researc - MYMBIE DIEC Internships (6 months), Summer RI DISPO Stages (3-6 weeks) & Projects tenova SOBEAN CONSULTING NeMeA Sistemi Genuense URL: www.simulationteam.com/strategos/challenges/jan2021 Errail: agestino@itim.unige.it, roberto.dillon@jcu.edu.au Athenaeum SINGAPORE





## Off-Shore & Coast as Strategic & Critical Resources

Study of Modern Complex Marine & Port Scenarios

Advance Analysis of Opportunities & Risks related to Safety and Security in Off-Shore & On-Shore Critical Infrastructures

Creation of Effective & Efficient Teams skilled in Strategic Engineering with Trans-Disciplinary view & using new Technologies with Subject Matter Experts, Port Users, Marine Players, Engineers & Scientists

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To identify solutions to reduce Vulnerabilities by Policies & Procedures, Organization, Technology, Virtual Laboratories, Individual and Collective Training

Organization of Mobile, Live, Virtual & Constructive Exercises, Virtual Table Top Experience & Workshops







**Shipping 4.0: International Panel** 

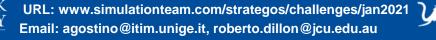


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Nowadays, there are new Threats in Physical World and in Cyber Space that need to be considered

At the same time New Solutions Exists to improve Safety & Security in Extended Maritime Framework dealing with Cyberphysical Systems, GPS Spoofing, Hybrid Operations and Media or Cyber Attacks to Critical Infrastructures









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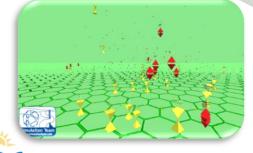
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# Web Services as Enablers as well as Vulnerability Sources

In modern World, the problems are multi domain including Space and Cyber Space, so the new Models & Solutions that are based on Strategic Engineering should be able to identify new vulnerabilities, to reduce them as well as to investigate how to get benefits of new Enabling Technologies



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covid-19: De safe

Strategic Engineering allows to consider the pandemics aspects and to study new technologies, policies, organizations and processes to operate during covid-19 and win the competition challenge







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## New Business Sectors are arising.... & pretty promising

New Business Sectors are emerging as major leading areas characterized by high value for Leaders and fast Market frameworks

Games are Larger & more profitable Than Movie Industry, ~160MUSD/year with 10% trend



Manufacturing & Logistics could be heavily by a complete revolution due to advances on Addictive Manufacturing

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## James Cook University Singapore Campus

R.Dillon Head of School of Technology James Cook University Singapore Campus

Digital Business represents a major opportunity for new Generations and it is framed into a Campus in Singapore of the James Cook University (JCU)



Singapore is one of most dynamic Cities world wide located in the Strategic Straits of Malacca and Singapore that connect East to West over Seas

JCU is an Australian University very active and Characterized by innovative Initiatives as well as by International Classes













## Singapore during the pandemic: a "Smart City" under pressure

## Singapore economy shrinks a record 5.8% in a pandemic-hit 2020:

- First annual contraction since 2001
- Worst recession since independence.

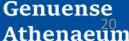
### Most affected sectors:

### Construction, Aviation and Tourism















## **Singapore during the pandemic:** a "Smart City" under pressure

Embracing telecommuting saved the Technology and Financial sectors.

Working from Home created other problems... (cyber security risks etc.)



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Tourism Aviation



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### **Shipping 4.0: International Panel**





### Genting Cruise Line's Dream Cruises and Royal Carribean International

4N Ocean Getaway	fr S\$279 p.p
Departures:	
2021	Book Now
<b>Jan</b> 7, 14, 21, 28;	
Feb 4, 11, 18, 25;	
<b>Mar</b> 4, 11, 18	

DAY	PORT	ARRIVE (LOCAL)	DEPART (LOCAL)
1	Singapore		5:00 pm
2	Cruising	-	-
3	Cruising	_	-
4	Cruising	-	-
5	Singapore	6:30 am	

URL: www.simulationteam.com/strategos/challenges/jan2021 Email: agostino@itim.unige.it, roberto.dillon@jcu.edu.au THURSDAY, FEBRUARY 4, 2021 | THE STRAITS TIMES

S'poreans, Italians 'most vacation deprived' in Expedia poll

Amid pandemic, S'poreans used 10 vacation days in 2020 instead of 15 days

Ng Wei Kai

Singaporeans, along with Italians, felt most vacation deprived last year in a new survey by travel booking company Expedia.







## Can't fly on a A-380, but can still eat in there!



Restaurant A380@Changi

Temporary conversion of an A-380 plane into a restaurant. Bookings from Oct 12.

Cabin class	Price (excluding GST)	Miles redemption
Economy	\$50	6,250 KrisFlyer miles
Premium Economy	\$90	11,250 KrisFlyer miles
Business	\$300	37,500 KrisFlyer miles
Suites	\$600	75,000 KrisFlyer miles

### Note: \$100 = 63 euro

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that an extra package to have the menu brought home and reheated by a Chef was added for **\$900!** (~560 Euro)





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We are moving into a fast evolving Situation were incremental capability of Technology is really revolutionary and we had to identify who is among our Colleagues that one that holds this Revolution into his ideas and



Francesco Faccio, Idexe Consulting Partner, Italy



Kodak Invented it too early & failed

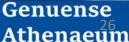
Capacity 0.01 Mega Pixel



Smart Phones In every pocket

**12 Mega Pixel** 





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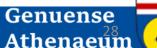
Georgia Cesarone, Education Director at Start 4.0, Italy

Security and Safety are crucial issues and there is a need to address the get a global view on this subjects











# Renaissance based on Excellent Solutions





Stefano Negrini, Technical Director, Terminal Bettolo

We should look at technology as a Tool and work to create a real Business Renaissance emphasizing main Values and Quality



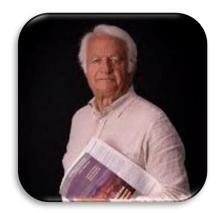








## Work together using Strategic Engineering



Rocco Giordano Direttore Sistemi di Logistica

Strategies are the key point and there is a major need to use a synergic view to compete in new markets and realize successful solutions. Strategic Engineering is a great approach to succeed







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## Comprehensive View on Main Issues to Restart



Stefano Fasoli Info Logistics, Cetena, Italy

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A modern, practical and comprehensive view on main Issues is crucial to succeed nowadays in a global competitive environment















Domenico Rocco, Sales Manager Fincantieri Group

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Singapore and Genoa are very different, but represent great opportunities for Companies and young Engineers working @ Sea









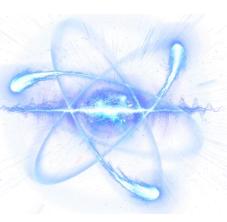


## Old Applications and New Technologies



Giulio di Gennaro Tech.Director Corepower, UK

Not only Digital, but even Hard Solution could renew the world at Sea: including New Ideas such as new Nuclear Power Solution to be used on Ships and Offshore facilities



CORE-POWER













### Each Crisis is an Opportunity to improve

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Today, we are applying solutions, ready since 20 years, just because we get an hard kick by covid-19 crisis. These solutions will stay applied in different way



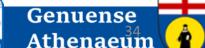
Today, we are developing new solutions that will be ready for next crisis, but that could be useful even today for other purposes















# Digital Solutions are just the Starting point... but Fundamental

Marine World is experiencing new Products, such as Predictive Maintenance Services driven by remote Services using AI & Modeling based on Real Time Data



Traffic at Sea is going to address major Changes including Autonomous Surface Vessels & new Threats such as Cyber Ones



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Current Crisis requires to Rethink and Re-Engineer Processes and Business based on Enabling Technologies



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## Marine Environment is very Challenging

Sailors know the Storms and Marine Sector has Major Challenges at Sea

Even greater Challenges are Emerging from current Situation:

Climate Change

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- Water Resources
- Digital World Competition
- Cyber & Media Threats
- Automation & Autonomous Systems
- Demographics (Positive & Negative)

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KNM Helge Ingsta, Nov.8, 2018 "unsinkable" due to its construction with water-tight zones designed to keep the warship "intact and operable"

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# There are Opportunities to rethink drastically Old Economy

Old Business Old and Economy still are verv important and could be reorganized based on new **Technologies from Fishing to** Shipping as it happen with Lodging and Bookstores



In Logistics, Steam Ships & Trains date back to over 200 years ago, while Containers have already <sup>3</sup>/<sub>4</sub> of a Century Current Crisis requires to Rethink and Re-Engineer Processes and Business based on Enabling Technologies











## Intuitiveness for Decision Making based on New Solutions



The new Solutions by Strategic Engineering are focused on making Intuitive, Immersive & fully Interactive the New Technologies to engage directly Decision Makers This is the reason why in STRATEGOS there are strong foundations in Computational Intelligence, Simulation & Engineering, but also modules of Economics, Int. Affairs and Open Source Intelligence allowing to speak directly with Top Decision Makers

This allows to understand their real needs, their degrees of freedom and constraints as well as to help them in the Strategic Management









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### Sea & Naval Strategies & their Risks

Strategic Engineering allows to address multiple aspects related to Port and Maritime Environment also considering the complexity of this framework dealing with 6 dimensions: Sea Surface, Coastal Areas, Underwater, Air, Space and Cyber Space







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## Logistics as Complex Systems

Strategic Engineering is very well addressing issues related to Logistics that are usually affected by the well know & critical VUCA factors (Volatility, uncertainty, complexity and ambiguity). Its use could provide a very Strategic Advantage









## New Components introducing new Opportunities & Challenges

सेमलेशन टीम

The brave new modern world is proposing new Technologies and solutions that create Opportunities, but also introduce new Challenges.

The Strategic Engineering is a proper Approach to deal with these Issues & to shape new solutions



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## Logistics Infrastructures as Complex Systems

Strategic Engineering by addressing preventive maintenance & new service solutions is crucial to develop the new Infrastructures for Logistics and Transportations





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STRATEGO

### Urban Logistics & Transportation Renuense Athenaeum

Urbanization is an explosive phenomenon affecting all the Nations: so Towns are struggling with critical issues related to last mile logistics as well as with transportations.

Strategic Engineering allows to consider the multiple layers and their interactions to properly evaluate alternative Strategies



JAMES COOK UNIVERSITY

SINGAPORE









**Shipping 4.0: International Panel** 

