

# Logistica e Trasporti in un Mondo a Due Velocita': Sfide e Opportunita' per Aziende e Neolaureati



*Academia, Industry  
& Students  
Get-Together*

**INVITO A  
TUTTI GLI  
STUDENTI  
DEL CAMPUS  
DI SAVONA**

## Meeting Program

Savona Campus of Genoa University

Palazzina Branca, Ground Level, SPES Conference Room

November 4th, 2011 - 9:30am

10:00 Welcome Prof. Agostino G. Bruzzone

10:20 Industry Managers on Logistics Networks (i.e. Eni Group, Coseva)

11:30 Game GLOOM among Students & Experts

12:30 PREMITELE Certificates

13:00 Closure

*Accesso gratuito e libero, per confermare la partecipazione  
contattare [alberto.tremori@simulationteam.com](mailto:alberto.tremori@simulationteam.com)*

*Per ulteriori informazioni e dettagli sull'accesso : [marina.massei@liophant.org](mailto:marina.massei@liophant.org) [www.liophant.org/siren/2011/2speed](http://www.liophant.org/siren/2011/2speed)*



Campus Universitario di Savona

[www.campus-savona.it](http://www.campus-savona.it) SPES Università degli Studi di Genova

# Logistics & Transportation in a Two-Speed World: Challenges And Opportunities for Companies & New Graduates



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*Free Attendance, Please Register by Sending an  
Email to [alberto.tremori@simulationteam.com](mailto:alberto.tremori@simulationteam.com)*



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[www.campus-savona.it](http://www.campus-savona.it) SPES  Università degli Studi di Genova

*for Further Information & Venue Details: [marina.massei@liophant.org](mailto:marina.massei@liophant.org) [www.liophant.org/siren/2011/2speed](http://www.liophant.org/siren/2011/2speed)*



# Logistics & Transportation Get-Together in Savona Campus



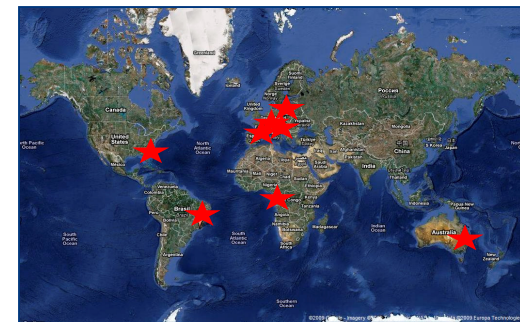
Simulation Team  
MISS DIPTM in  
Cooperation with  
Savona Campus  
Spes, M&S Net and  
MISS are glad to  
provide this  
opportunity to  
discuss on Logistics  
& Transportation





# Simulation Team

Universities, Research Centers and Companies operating worldwide in synergy for developing Innovative Solutions with a particular focus in Modelling and Simulation





# McLeod Institute Simulation Science M&S Net Genoa Center



Email: [agostino@itim.unige.it](mailto:agostino@itim.unige.it)

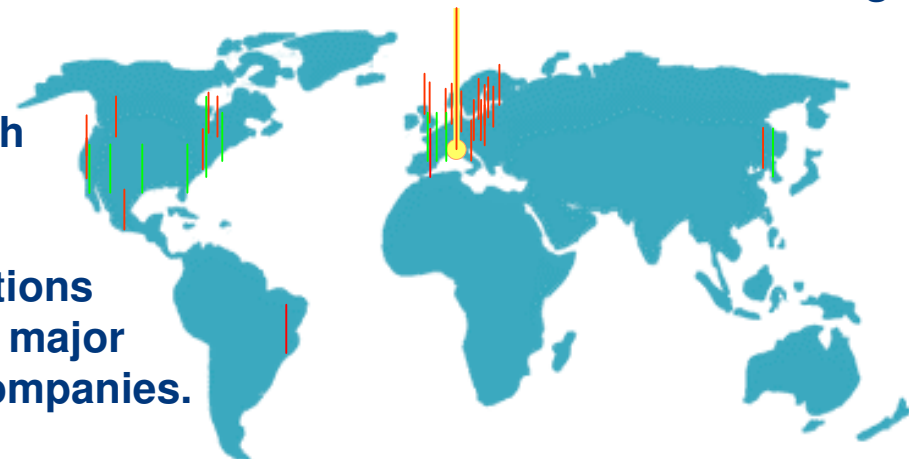
URL: [www.mcleodinstitute.org](http://www.mcleodinstitute.org)  
[www.m-s-net.org](http://www.m-s-net.org)



The research group of DIPTM of *Genoa University* is active from '60 in Simulation applied to Industrial Engineering and is part of MISS and M&S Net. The activities involve modeling, simulation, VV&A and analysis of Industrial Applications and Services (design, re-engineering, management, training etc.)

- as:
- |                       |                 |           |
|-----------------------|-----------------|-----------|
| Chemical Facilities   | Power Plants    | PM        |
| Harbor Terminals      | Environment     | Business  |
| Manufacturing         | Public Services | Logistics |
| Public Transportation |                 |           |

The Department staff is in touch world-wide with the simulation community and is present actively to conferences, exhibitions and working meetings with the major Associations, Agencies and Companies.



28 MISS Centers &  
34 M&S Net Centers World-Wide



# Simulation Team

# Simulation Team MISS DIPTM

The Simulation Team - DIPTM of *Genoa University* carries out many industrial simulation projects in cooperation with the large corporations and small and medium sized Enterprises; some example of recent industrial simulation project are following:



**Polimeri Europa ENI**



**Fleet Management Planning & Scheduling  
Chemical Plant Logistics Optimization**



**Ansaldo**

**Service and Optimization  
for Power Plant Design**



**Cetena  
Fincantieri**

**Simulation & Virtual Project Management  
of Car Deck Construction for Fast Ferry**



**COOP**

**Simulation for Re-Engineering Supply Chain  
in a Large Chain of Grocery Stores**



Members of MISS are appointed in several positions in simulation community such as:

- General Director M&S Net (34 M&S Centers worldwide)
- Board of Directors of SCS and Chairman of Technical Chapter
- Member of NATO SAS, MSG and NIAG
- Italian Point of Contact of ISAG (International Simulation Advisory Group)



# Simulation Team Savona Campus & Facilities



The University of Genoa includes a new campus in Savona about 2 km outside Downtown; bus services and large parking areas guarantee easy access

That structure has been obtained transforming Army barracks; today the campus includes a big park with facilities such as tennis courts and sport grounds

The campus holds Courses on Engineering, Communication Science, Medicine, Gyms, Economy and Education; new laboratories have been realised by different groups (Simulation Team Mobile Labs & HLA Lab, Combustion Lab, SIRE, CIMA Labs)



 **Campus Universitario di Savona**  
www.campus-savona.it SPES S.p.A.  Università degli Studi di Genova



# PREMITELE Program

*Preparation for Management within  
Innovative Transportation services and Evolving Logistics*



PREMITELE Program (Preparation Business Management, Transportation and Logistics) was established to provide Methodologies and Tools for Transportation Services and Logistics with special attention on the following issues:

- *Assessment and Forecasting of logistics demand while facing emerging behaviors and new trends*
- *Definition of Evaluation criteria and solution for Supply Chain Management (SCM)*
- *Planning and Management of transport and logistics services*
- *Technology Transfer and Skill Acquisition on logistics considering operations, economy, legal aspects, engineering*
- *Identification of customer needs*
- *Use of Models and Tools for operative, economic & financial analysis and evaluation of investments and management solution for transport infrastructures and logistics*
- *Marketing planning for new transportation services and logistics*
- *Development of systems of management and control for Logistics and SCM*
- *Support and Guide the public administrators and operators in decision making and in the definition and implementation of realistic and effective policies in Transportation*

The aim of the course and then PREMITELE the preparation of a new generation of experts that who could be valuable in business within the area of Logistics and Transportation Services, becoming the new leaders in this area to support developments and strategic decisions and their implementation. People involved in the program should have skills in the fundamentals of engineering, economics, and regulatory and procedural issues related to transport and logistics characteristic within their university education; the attendees are students of Engineering, Economics or Law Faculties with Genoa, Rome, Bologna, Trieste, Salerno Universities. The PREMITELE is founded by the Italian National Department of Transportation.







# PREMITEL

*Preparation for Management within  
Innovative Transportation services and Evolving Logistics*



The Comitato Centrale dell'Albo di Autotrasporto from National Department of Transportation and Infrastructures has initiated this new forms of collaboration with major Italian universities to prepare new professional figures related to the transport and logistics. The courses were developed in cooperation with University Faculties of Economics, Engineering, Law, Political Science, Computer Science; Prof. Agostino Bruzzone was the responsible for the part related to Innovation in Logistics & Transportation. A Major MIPET Goal is to create a link between Academia and this Business Sector, including Institutions as well as Enterprises



Ingegneria  
Università' di Genova



Giurisprudenza  
Università' di Bologna



Ingegneria  
La Sapienza Roma



Architettura  
Trieste



Economia & Scienze Umane  
Federico II Napoli



Economia  
Università' di Salerno



Ingegneria  
Liuc





## Industrial Guests



**Vincenzo Michelangeli**  
Director of Logistics  
Polimeri Europa Eni Group



**Polimeri Europa**



POLIMERI EUROPA  
AN ENICHEM | UNION CARBIDE VENTURE



**Giorgio Garassino**  
Logistics Responsible  
Piaggio Aero Industries



**Alessio Simari**  
Logistics & Operations  
COSEVA





## Who's Who *Agostino G. Bruzzone*

- Basic Engineering Studies in Italian Naval Academy, Pisa and Genoa University
- Mechanical Engineer
- Expert in Modelling & Simulation, Project Management, Operation Management, Industrial Plants & Logistics
- Expertise as Consultant and in Industry, Military Service and Academia
- Experience in Projects with Major Companies (i.e. IBM, LMC, Boeing, Fiat Group, COOP, Ansaldo, Selex, Solvay) and Agencies (i.e. Italian Navy, NASA, DGA, DoD, etc.).
- Full Professor in DIPTM, University of Genoa
- Visiting Professor in Several Universities in North & Latin America, Europe, Australia, Africa and Asia
- World Director of the M&S Net (34 Centers worldwide)
- Director of McLeod Institute of Simulation Science Genoa
- Project and Program Manager in R&D Projects and Joint Ventures with Industries and Agencies for several USD millions within last 10 years
- Director of the Master Program in Industrial Plants ("Impiantistica Industriale") for Genoa University.
- Founder and President of Liophant





# Logistics & Transportation in a Two-Speed World:

The crisis pointed out by Media is very relative in term of Geographic/Temporal Coordinates for Instance:

- **Automotive Vehicles: +17% Worldwide from 2006 to 2010**
- **Shipbuilding:**
  - 2010: Europe from 8% of World Market to 3% (-60%)
  - 2011: 200 Ship in Construction just in Shanghai Area

## GDP:

2010: Europe 1.5%	Italy 1.3%
USA 2.8%	Canada 3.1%
China 10.3%	India 10.4%
Brazil 7.5%	Chile 5.3



Vehicles Production 2006 to 2010

1	China	220.0%
2	Slovakia	155.1%
3	Argentina	124.1%
4	India	117.4%
5	Iran	95.7%
6	Romania	80.1%
7	Czech	77.9%
8	Uzbekistan	63.7%
9	Thailand	46.1%
10	Brazil	44.3%
11	Indonesia	42.5%
12	Mexico	40.4%
13	Poland	39.0%
14	Turkey	24.5%
15	Slovenia	15.6%
16	South Korea	15.5%
17	Hungary	10.4%
18	Russia	3.9%
19	Germany	2.6%
20	Malaysia	0.7%
21	Egypt	-0.2%
22	South Africa	-10.1%
23	Japan	-10.9%
24	Spain	-13.2%
25	Italy	-17.4%
26	Other	-20.9%
27	UK	-22.7%
28	Canada	-23.0%
29	Portugal	-27.6%
30	Taiwan	-32.0%
31	USA	-35.2%
32	Sweden	-35.9%
33	France	-37.2%
34	Australia	-38.3%
35	Netherlands	-47.9%
36	Serbia	-54.4%
37	Austria	-58.6%
38	Ukraine	-61.5%
39	Belgium	-63.6%
40	Finland	-70.0%



# Challenges & Opportunities for Companies & New Graduates

Companies, even in Italy, have to face the challenges, therefore some results are interesting and there are opportunities everywhere and everytime:

ENI	Revenues +12%	Profits 8.3GUSD	+37%	23rd World Company (previously 24th)
Generali	Revenues -4.6	Profits 2.2GUSD	+23%	33rd World Company (previously 19th)
ENEL	Revenues +8%	Profits 5.8GUSD	-22%	56th World Company (previously 60th)
EXOR	Revenues +7%	Profits 181MUSD	na	83rd World Company (na)





# The Logistic Networks

Every year millions of goods and containers move, through the Worldwide Logistic Networks, almost every kinds of material.

Nodes, Services and Infrastructures in the different Regions are key elements: Marine Ports, Dry Ports, Inland terminals, Airports, Highways and Rails

Therefore, Logistics is strongly related to their interoperability and requires Model able to consider all the interactions among flows and infrastructures



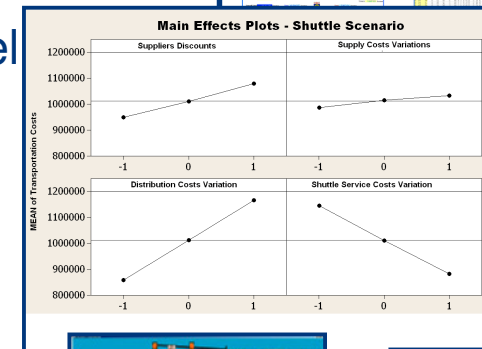
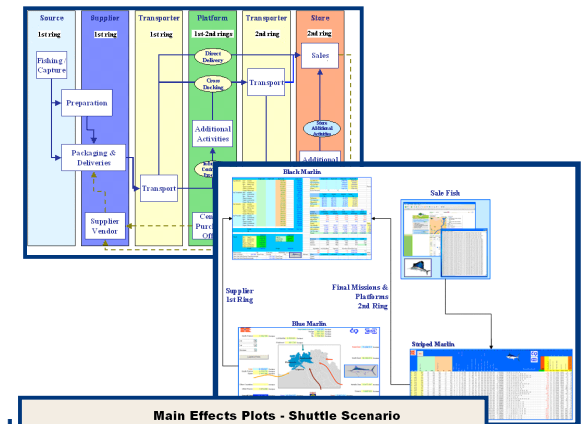


# Integrated Logistics and Transportation Solutions

There is a need for a complete re-organization and optimization of the main Logistics & Transportation (L&T) policies, processes and activities.

Multiple critical aspects characterize the re-organization and optimization process: huge spare parts assortment, decentralization of the vast number of suppliers (multi-region and multi-channel problem), different constraints concerning stocking rules, availability requirement, quick response, inventory control policies, etc.

- Subdivision of L&T processes and definition of the L&T constraints
- Definition of L&T scenarios and critical factors
- Evaluation of the impact of the critical factors on L&T times and costs (input-output analytical models)





# Simulation and Analysis of Logistics Networks

Integration of multiple Solutions for complex scenarios including transportation over a wide geographic area, considering Costs, Times, Constraints as well as all the major factors:

- Production Costs
- Logistics Fees
- Taxes and Duties
- Traffic Flows
- Weather
- Vehicle/Vector Saturation
- Logistics Reliability
- Logistics Processes
- Size Constraints
- Time Constraints
- Cost Constraints







# M&S Resources Allocation and Logistics Planning

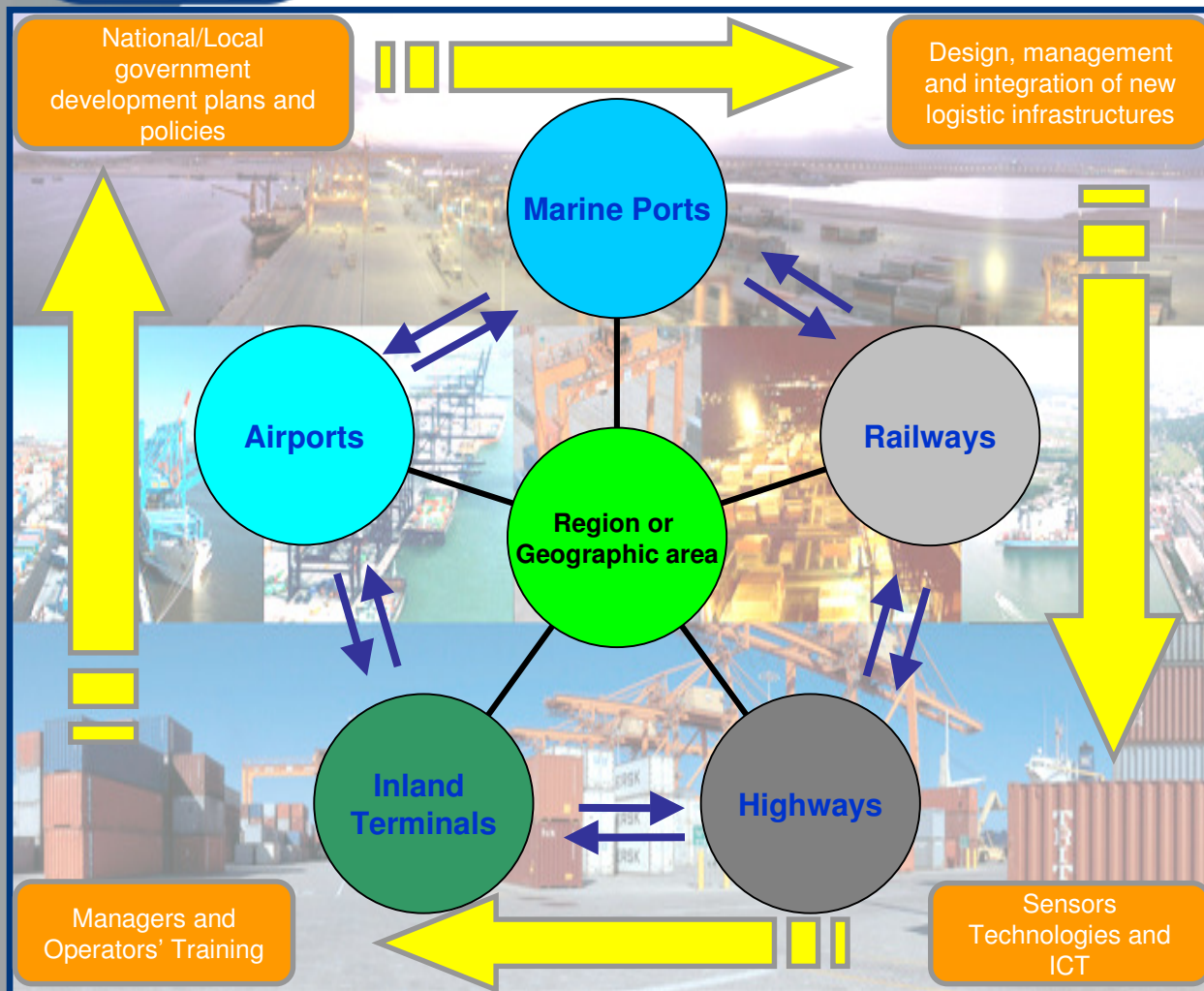
Simulation is able to support Logistics in terms of Operation Planning, Resource Management and Optimization

In addition Hybrid Simulation (intended as integration of Simulation with Intelligent Agents and Artificial Intelligence) supports scenarios evaluation and the identification of effective solutions in terms of costs, efficiency, productivity, robustness, etc.

The collage displays various simulation outputs: a 3D model of a cargo ship, a network diagram with nodes and edges, a data table with columns for 'split' and 'split' values, a map showing ship positions, a detailed data table with various parameters, and a 3D rendering of a port area with stacked containers.



# Modeling Logistic Networks



- Different Operations in different nodes
- Complex Systems integrations
- Stochastic factors and variables interact and dynamically evolve in time, space in the entire network
- Analytical approaches rarely succeed in properly identifying optimal solutions
- Complexity and Interactions among the networks require Modeling & Simulation (M&S)





# M&S Applications and Solutions to Logistics

- Evaluation of actual logistics efficiency and reliability
- Costs and Time analysis
- Definition of New Policy and Procedures
- Synergies among different solutions and resources

- Enhancement of system availability through Logistics
- Position Optimization for inventory and Services
- Resource Optimization for inventory and Services
- Definition of Service Enhancement Requirements
- Supply Chain Security Enhancement
- Logistics & Transportation scenarios analysis

Logistics plans and policies

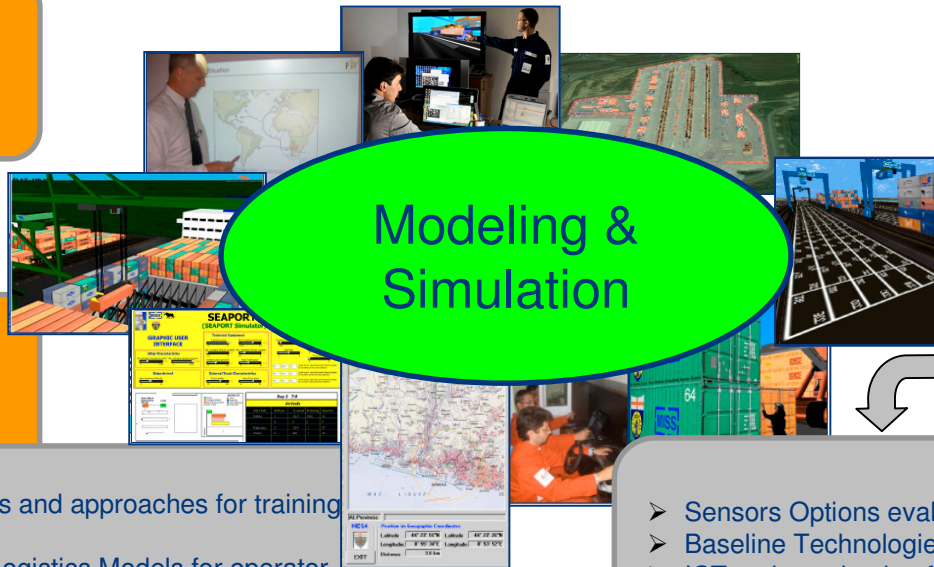
Design, management and integration of new logistic solutions

Logistics Planners and Operators' Training

Sensors Technologies and ICT

- Quantitative models and approaches for training Managers
- Interoperability of Logistics Models for operator training
- Complex logistics scenarios for Planners and Logistics Responsible

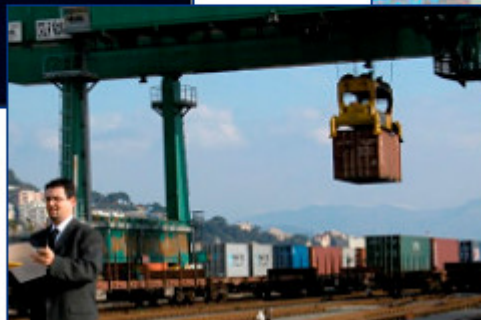
- Sensors Options evaluation
- Baseline Technologies Requirements
- ICT tools evaluation for information & data management





# Logistics Operation and M&S

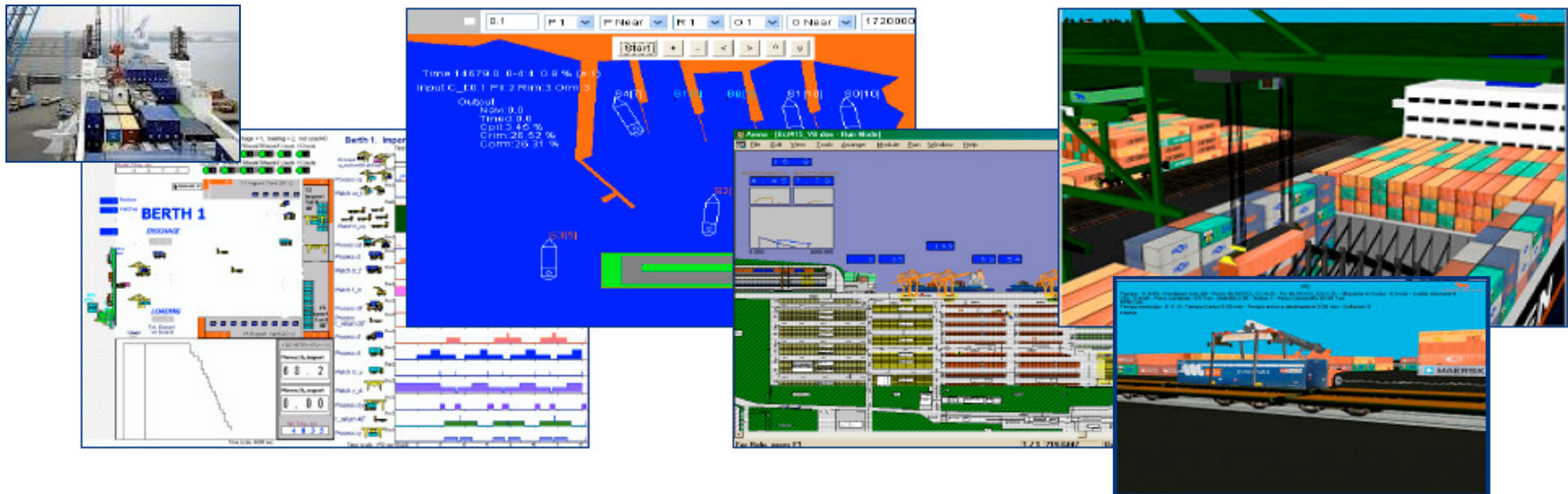
Modeling & Simulation is a powerful tool for supporting Logistics Operations. M&S provides strategic advantages for supporting the Analysis, Report phase as well as Operation and Training





# Feasibility for Logistics Planning

Today is critical to define Logistics Requirements as well as Logistics Planning for Overseas Operations based on: Cost Opportunities, Risks, Node Capabilities, Available Resources, Equipment Configurations, Timetables, Operation Planning, etc.



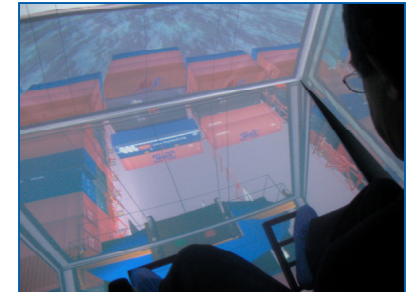


## Area: Virtual Simulation

Simulation Team is Involved in Development of Virtual Simulation with special attention to Driving Vehicles and Equipment within Logistics Environment.

These Virtual Simulation have been extensively used in Training Session for Professional Operators (trucks, inter-modal cranes, port cranes, etc.)

The solution in use are real-time distributed simulation based on High Level Architecture allowing composibility, modular approach and cooperative/competitive exercising



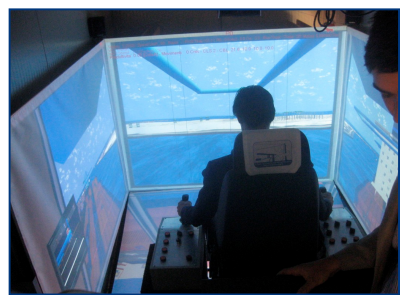
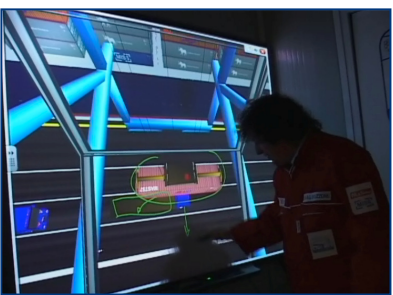
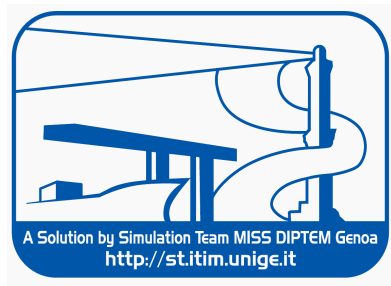
UNCLASSIFIED



Simulation Team

# ST\_VP, ST\_PT & ST\_RS

## Simulators



This new generation of simulator is mobile, real-time, scalable and interoperable and compliant with state of art technology and standards

Shelter & Facilities

ST\_PT Crane Sim

ST\_RS Truck Sim



# Atout of our Virtual Simulation



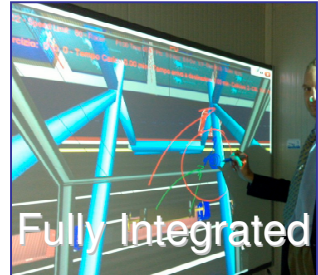
Training & R&D



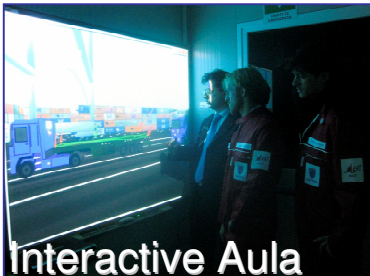
Cave H270° V130°



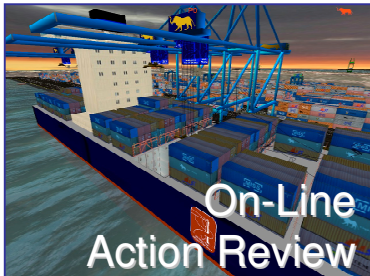
Containerized



Fully Integrated



Interactive Aula



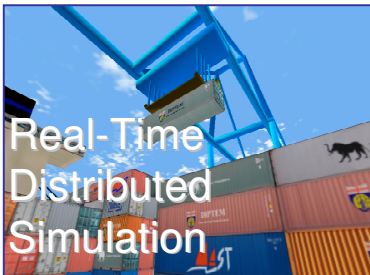
On-Line  
Action Review



HLA Federation



Full Motion,  
Sound  
& Vibrations



Real-Time  
Distributed  
Simulation



Bio-measures  
Integrated in  
Simulation



Strong  
VV&A



Scalable  
Solutions





# ST\_VP: Virtual Port Simulation



The **ST-VP** is the ultimate Port Crane Simulator developed by Simulation Team and includes all the different crane types and New Solutions for Operator Training, Safety and Security, Procedure Definition, Equipment Design and Virtual Prototyping



**ST-VP** is fully containerized real-time distributed HLA Simulator reproducing Port Operations. ST-VP is integrated in a 40' High Cube Container ready to be used on site immediately after arrival.



**ST-VP** Simulator allows to operate all the different Port Cranes in a Virtual World by an immersive Cave (270 ° Horizontal and 150° Vertical), reproducing Sounds, Vibrations, Motion in all weather conditions

**ST-VP** includes a Full-Scope Simulation for Training Operations & Procedures, an Integrated Class Room, the Instructor Debriefing Room, and secondary Interoperable Simulators of all the Port Cranes and a Biomedical Module for Safety, Ergonomic and Posture Enhancement.

**ST-VP** World is customizable for each Port, Crane & Procedure and Equipment.

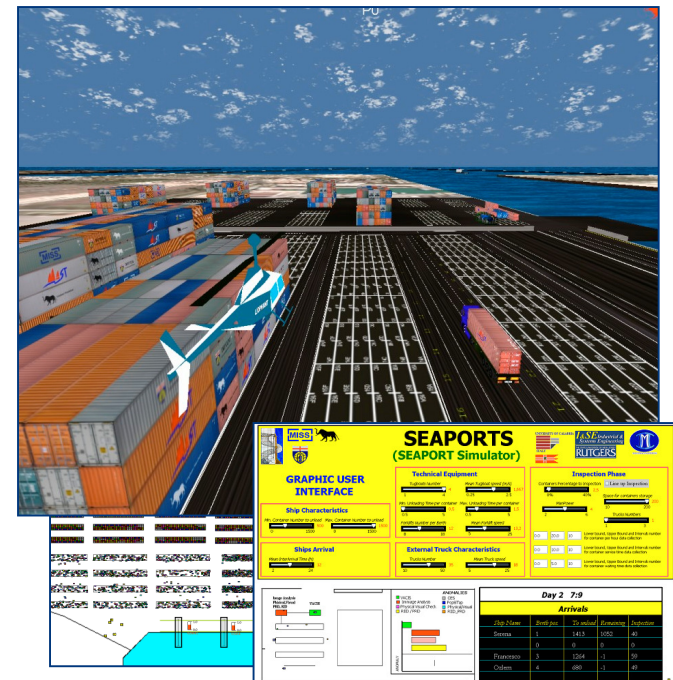




# Virtual Security Assessment and Training in Logistics

**VISAT (Virtual Security Assessment and Training) allows to Simulate Security Issues in Complex Framework such as that one related to Port Environments.**

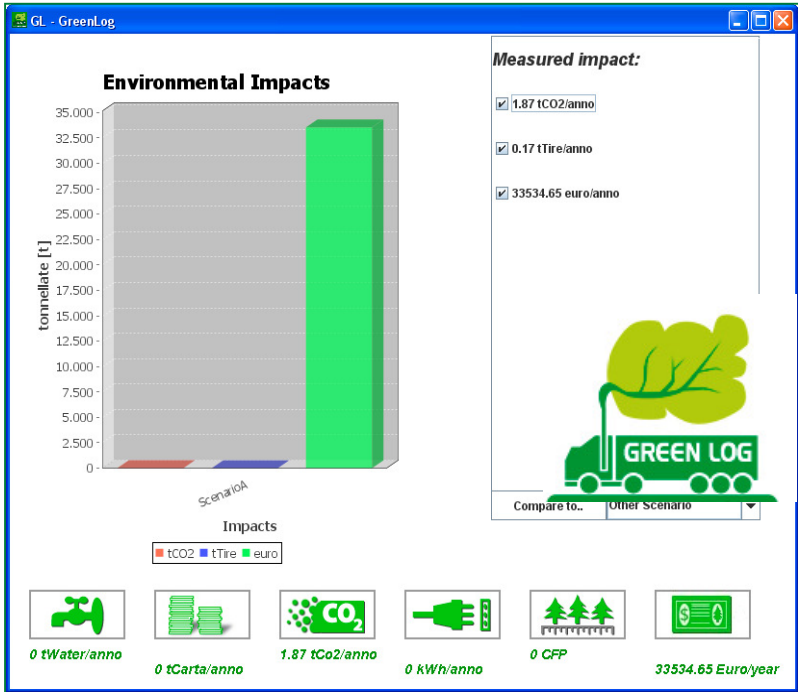
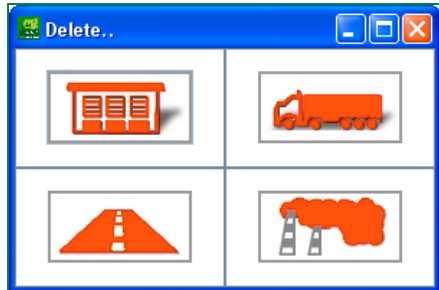
**VISAT includes Constructive Sim of organizations and layouts as well as Synthetic Environment for Virtual Sim supporting Distributed Cooperative Training among different Actors (i.e. Port Authority, Coast Guard, Custom Resources, Terminal Operators, Public Urban Authorities) within different Scenarios**





# Green Logistics Project

GreenLog Simulator was adopted by a the Green Logistics Project involving “Assologistica Cultura e Formazione” and Major Production, Logistics and Retail Companies.





# Industrial Guests



**Vincenzo Michelangeli**  
Director of Logistics  
Polimeri Europa Eni Group



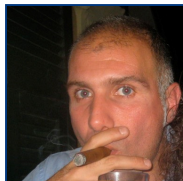
**Polimeri Europa**



**POLIMERI EUROPA**  
AN ENICHEM | UNION CARBIDE VENTURE



**Giorgio Garassino**  
Logistics Responsible  
Piaggio AeroIndustries



**Alessio Simari**  
Logistics & Operations  
COSEVA





# Vincenzo Michelangeli



Polimeri Europa



POLIMERI EUROPA  
AN ENICHEM | UNION CARBIDE VENTURE



- *Engineering Studies in Perugia University*
- *Electronics Engineer*
- *Experience*
  - *Development of Innovative IT Solutions for ENI Group*
  - *Project Manager of New Planning for Marine Logistics*
  - *Road and Ground Transportation Responsabile of Chemical Products*
  - *Marine Logistics Responsible for Polimeri Europa*
  - *Polimeri Europa Logistics Director*

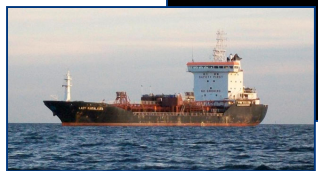




# Polimeri Europa



- *Chemical Company of ENI Group*
- *Leader in Europe on Several Chemical Products*
- *Among Leading Companies within Chemical Production Sectors in worldwide Chemistry*
- *6200 People*
- *7.2 M tons Chemical Goods/year*
  - *Basic Chemicals*
  - *Polyethylene*
  - *Styrenics*
  - *Elastomers*
- *6 billions Euro Sales*
- *2010 Investments: 240 MEuro*



2010 Figures

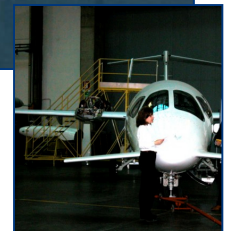




# Giorgio Garassino



- *Mechanical Engineer from Genoa University*
- *Experience*
  - *Original Developer of Production Plan*
  - *Logistics Responsible and Manager in Purchasing Office*
  - *Piaggio AeroIndustries Logistics Director*
  - *Logistics and Business Processes Consultant*





# Piaggio Aero Industries



- **Ownership:** Di Mase & Ferrari Families, Mubadala Development Company, Tata Ltd.
- **1400 People**
- **150 M Euro Sales**
- **25 P180 Planes Delivered each Year**
- **Increasing Business in Engine Production**
- **New Production Facility in Albenga**



2010 Figures





# Alessio Simari

- *Engineering Studies in Genoa University*
- *Management Engineer since 2003*
- *Experience*
  - *International Purchasing Manager, ESI Beauty Products*
  - *CEDI Responsible for CISA in De Fonseca CEDI (AL), Panasonic CEDI (MI), Autogrill CEDI (MI), Lavazza (To), Ferrero (Hendk Turkey)*
  - *Tobacco Automated Packaging & Logistics, Logista (AL, BO, TO, CA)*
  - *Chevrolet/DAEWOO Car Park Storage & Preparation (AL)*
  - *Logistics Re-Engineering COSEVA: CONAD CEDI Vado, Colussi Warehouse (CN), Agnesi Warehouse (IM)*
  - *WILMA Simulator for Logistics with Simulation Team Genoa University and Assologistica*



#### Year Activities

- 1'000.000 pallets
- 25 millions Packages
- 160'000 tons
- 500 Workers



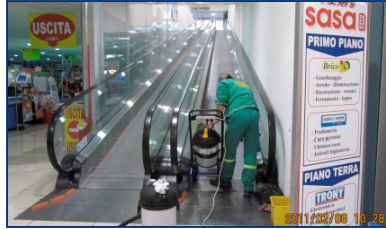


# COSEVA PluriServizi

*Quality* EN ISO9001:2008  
*Safety* OH SAS 18001:2007  
*Environment* EN ISO14001:2004  
*Ethics* SA 8000:2008



Year Activities  
 • 1'000.000 pallets  
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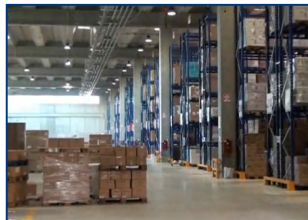
2010 Figures





# CONAD CEDI QUILIANO

CEDI Nordiconad: 40'000 m<sup>2</sup>  
35 Millions Euro Investment by GF Group (Orsero Group )  
Nordiconad Contract for using the infrastructure for 18 years  
COSEVA Logistics Service Provider



Year Activities

- 1'000.000 pallets
- 25 millions Packages
- 160'000 tons
- 500 Workers



Opening Ceremony  
September 16, 2011



# COLUSSI CEDI FOSSANO



Year Activities

- 1'000.000 pallets
- 25 millions Packages
- 160'000 tons
- 500 Workers

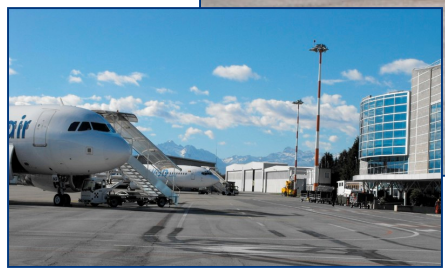




# LEVALDIGI AEROPORTO



Ryan Air  
Blue Air  
Belle Air  
Wizz  
Airabia

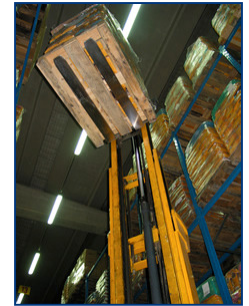


Year Activities  
• 1'000.000 pallets  
• 25 millions Packages  
• 160'000 tons  
• 500 Workers





# Aziende Logistiche in un Mondo a Due Velocità



La Logistica (CEDI, Trasporti etc.) a livello nazionale e' quasi integralmente terzializzata a Aziende di Servizi, spesso di tipo cooperativo per garantire la flessibilita' del lavoro.

Il settore ha una marginalita' limitata, ma rappresenta una strategicita' per il sistema paese supportando produzione, servizi etc

L'immagine offerta del Mondo prima e dopo la Grande Crisi del 2008 sembra mostrare effettivamente due Velocita': i Servizi Logistici Nazionali sono stati pesantemente penalizzati e colpiti

Nonostante questo fenomeno, e il fatto il nostro Paese sta vivendo una forte crisi economica, vi sono ancora opportunita' di Profitto dovuto al continuo aumento di terzializzazione da parte dei Clienti e ai margini di miglioramento dei Servizi Logistici





# GLOOM

*Game On Logistics Organization and Management*



**GLOOM is a Role Play Game focused on Logistics that is combining Student Team Working and Top Expert Interactions; the GLOOM aim is to introduce new generation University Students inside the complex reality of Business Problems.**

**In GLOOM student classroom is divided in Color Team (Red, Green, Blue, Yellow); several problems are proposed in generic form to students; in each case the teams are invited to pose a question to the Industrial Expert on the scenario to collect data and acquire knowledge.**



**Each team present a single question in public and get its reply passing the opportunity to the next team, the loop proceed until the problem is correctly solved or time exhausted; the first team able to provide the correct answer to the problem win the set**



# Case 1: Docking Bay Loading Operations

*Distribution Center: Grocery*



Stradella

Docks  
Number of Trucks  
Average Loading



Workers

Time for Operations  
Worker Productivity

## How Much it costs? [Euro/Week]





# Case 2: Marine Logistics

## Chemical Tankers

Product: XXX  
 Contract Type: Year Time Charter  
 Ship Loading/Unloading: 262 mt/h  
 Port Entrance/Exit: 45 min



5500 mt  
 18 Knots



Production Flows: 2'000 mt/day  
 Capacity of Tanks: 8'000 mt



Production Flows: 3'000 mt/day  
 Capacity of Tanks: 6'000 mt



Port Distance: 1125 Nautical Miles



# Define the Fleet? [Ship/Year & Capacity]



# Case 3: Warehouse Management

*Distribution Center: Grocery*



Stradella

Capacity  
Size



Commissionatore

Speed  
Capacity



Retrattile

Speed  
Capacity

## How Much it costs? [Euro/Week]



# PREMITEL Certificates



Ingegneria  
Università' di Genova



Giurisprudenza  
Università' di Bologna



Ingegneria  
La Sapienza Roma



Architettura  
Trieste



Economia & Scienze Umane  
Federico II Napoli



Economia  
Università' di Salerno



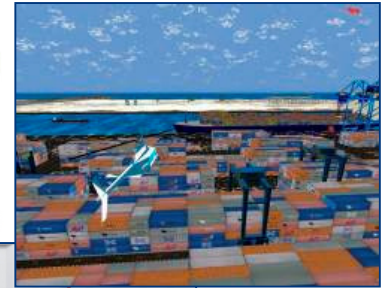
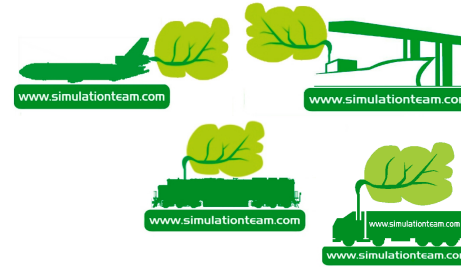
Ingegneria  
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# Simulation Team

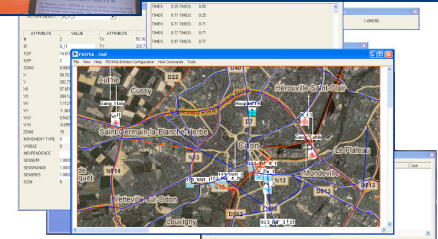


## References



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