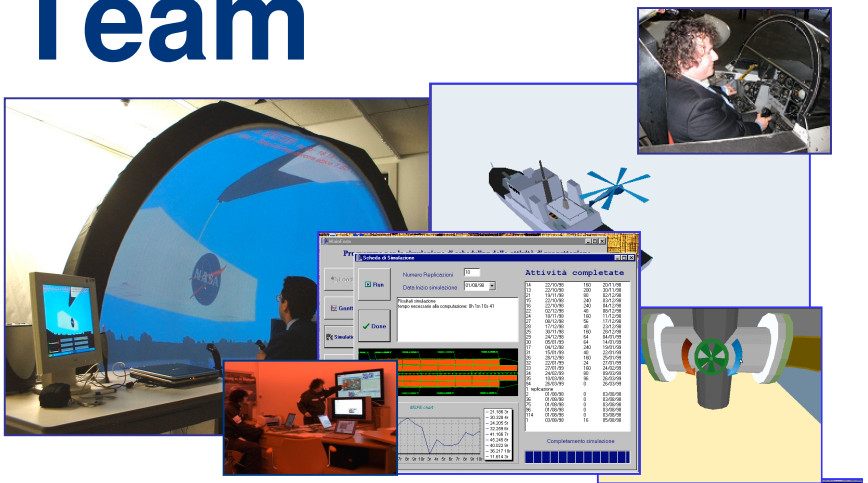
Simulation Team

M&S Projects from Simulation Team



Liophant Simulation

M&S Net

MITIM Simulation Team Genoa Center

McLeod Institute of Technology and Interoperable M&S Genoa Center

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www.simulationteam.com
www.liophant.org
www.itim.unige.it

ITALY

DIPTEM
University of Genoa

Simulation Team

Who Are We?

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

DIME
Università
di Genova

M&SNet
Genova

Liophant
Simulation

CentraLabs
Cagliari

CRiCS
Centre for Research
In Complex Systems

CSU
Australia

CIREM
Università di Cagliari

MSC-LES

Mik
Riga TU

DIPMEC
Università Calabria

SimCenter Universitat
Autonoma de Barcelona

LOGIXTICA

Università di Perugia

LSIS
Marseille

Rio de Janeiro
Brazil

Simulation Team
Genoa Center

McLeod Institute of
Technology & Interopeable
Modeling Simulation Genoa

IMS-LAPS
Univ.Bordeaux

DIPTEM
Università di Genova

Simulation Team

McLeod Institute of Technology and M&S M&S Net Genoa Center

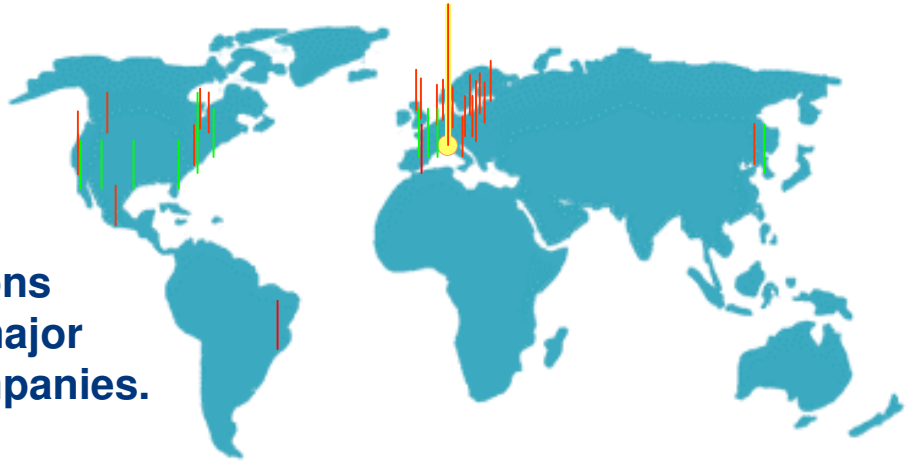
Email: agostino@itim.unige.it URL: www.mcleodinstitute.org
www.m-s-net.org

The research group of DIME of *Genoa University* is active from '60 in Simulation applied to Industrial Engineering and is cooperating with M&S Net and MITIM

The activities involve modeling, simulation, VV&A and analysis of Industrial Applications and Services (design, re-engineering, management, training etc.) as:

- Chemical Facilities
- Harbor Terminals
- Manufacturing
- Public Transportation
- Power Plants
- Public Services
- Assembling
- PM
- Environment
- Logistics

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.



34 M&S Net Centers World-Wide

Simulation Team

Simulation Team MITIM DIME

The Simulation Team - DIME 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 and NIAG
- Italian Point of Contact of ISAG (International Simulation Advisory Group)

DIPTEM - University of Genoa

DIPTEM was founded in 1997 as evolution of the Institute of Technology and Industrial Management (ITIM) that was operative from '60.
In 2011 DIPTEM evolved in DIME and it is currently composed by about 80 faculty members, 15 technicians and administrative, plus several PhD Students, external Researchers and Consultants. DIME teachers are involved in Undergraduate, Postgraduate and Professional activities in Engineering, Management.
DIME active in R&D Projects for major Institutions, Companies and Governmental Organisations. DIME co-operates actively with major Excellence Centers World-Wide.

University of Genoa: an Overview

The University of Genoa is one of the oldest in Italy and in the World (founded in 1471 AD), it is located in middle of Italian Riviera.
The students are about 40,000 (about 8,000 new entries), and the engineering departments has about 7,500 students (12% in Savona Branch Departments); in effect the Savona Campus Savona holds about 1,000 Engineering Students.
That campus is located about 2 km from Savona Downtown, in an old complex of barracks recently converted into new University Buildings (over an area of 200,000 m^2).

For further Information about the University of Genoa:
http://st.itim.unige.it
http://www.unige.it

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 Depts on Engineering, Economy and Education; new laboratories have been realised by Simulation Team (Cybersar Mobile Lab, HLA Lab).
Facilities for Professional Congress Centres are available in the surroundings


Savona Campus


Simulation Team Labs


Congress Centre

Simulation Team

Partners & Spin-Off

Former Students and Researchers from MISS DIPTEM Simulation Team created over the years spin off and companies that currently cooperate in M&S. For instance MAST srl (**M**anagement of **A**dvanced **S**olutions and **T**echnologies) is devoted to drive Innovation to Success in a wide spectrum of Application for different Business Sectors, Companies, Corporations, Agencies, Societies and Governmental Services and puts *Modeling and Simulation* to work by creating Outstanding Solutions Essential to a Better, Safer, Healthier and Wealthier Life operating worldwide.

Spin Off Partners offer a wide range of innovative products and services for markets including:

- Aerospace
- Defense
- Electronics
- Engineering
- Safety and Security
- Retail
- Environment
- Logistics
- Service to the Society (nutrition, health care)
- Petrochemical
- Energy and Power
- Shipping & Transportation

DLM Solutions
Simulating Real Processes for Better Decisions

Blizzard Srl
Software evolution

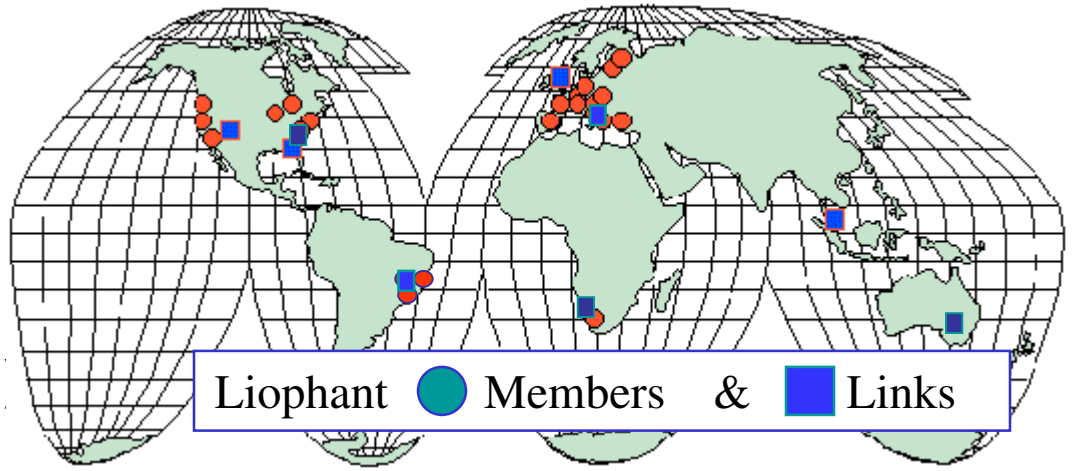
Simulation Team

Liophant Simulation

Email info@liophant.org

The *Liophant Simulation* involves World-Wide over 120 Scientists and Technicians working in Companies and Academia. The *Liophant* develops Advanced R&D Projects for Real Applications:

The *Liophant Simulation* promotes international Cooperations and exchanges with Excellence Centers World-Wide (i.e. NCS, KSC, VMASC, KPI



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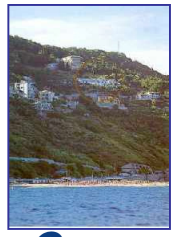
Simulation Team

The International Activity of Liophant Simulation

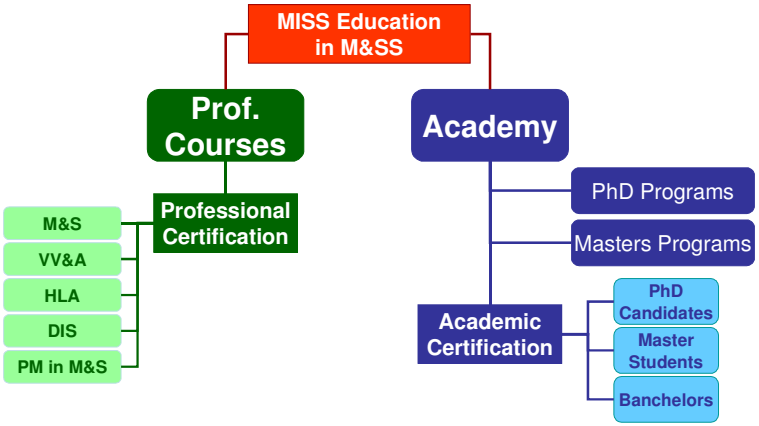
Simulation Team

Simulation Technology Transfer



Course Location

Since 2000 Simulation Team - DIPTEM support Professional and Academic MITIM International M&S Certification Program:



Lecturing

The Lecturers included experts from major excellence centres (i.e. Boston College, Genoa University, NASA, DMSO, National Center for Simulation, SAIC, Aegis, CSY., Riga TU, UCF , McLeod Institute of Technology and Inter.M&S).
The Professional course attendance (PM >100, M&S 60, HLA 40, VV&A 20) included Companies (i.e. Piaggio Aero Industries, Alenia Aeronautica, Alenia Marconi, SIA, Fincantieri, COOP), Academia (Pol.Torino, TU Delft, Univ.Marseille, Pol.Milano, Univ.Firenze, Univ.Bari, Univ.L'Aquila, etc.)
and National and International Services (i.e. Army, Navy, Air Force, Joint Forces)

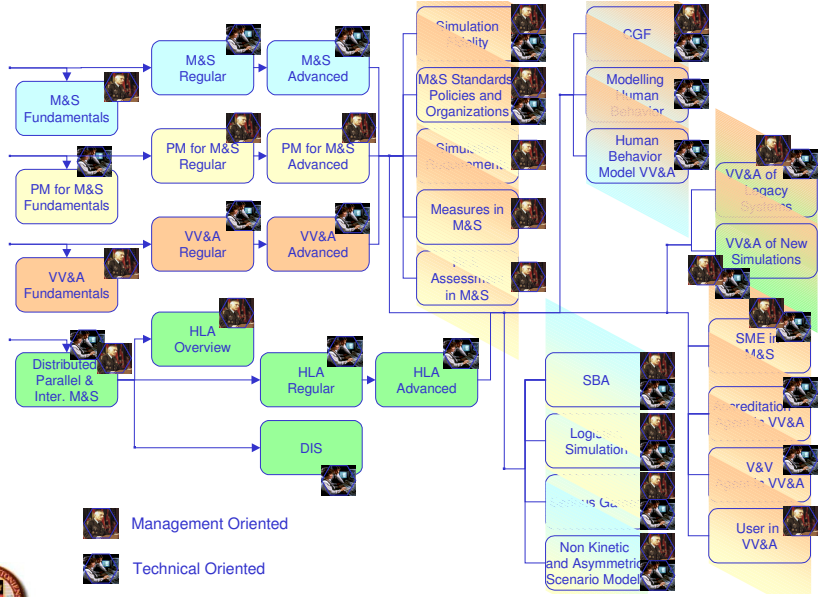
Team Working & Exercises

Simulation Team

SIREN
Professional Courses

The professional courses have been organized since 2000 for World-Wide professional experts and technicians, in English, Italian and French, including:

- PM: Project Management for M&S
- M&S: Modeling & Simulation
- Interoperability M&|S
- HLA: High Level Architecture
- VV&A: Verification, Validation & Accreditation
- RCM: Reliability Centered Maintenance



The courses include lecturing and exercises; teachers are usually world wide experts from major excellence centers (i.e. Boston College, MITIM Genoa University, NASA, DMSO, National Center for Simulation, SAIC, Aegis Technologies, CSU, Riga TU, UCF, M&S Net, etc.).

Simulation Team

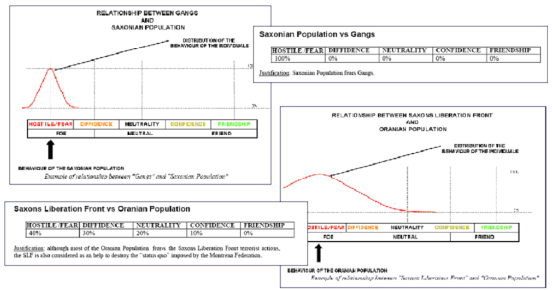
PIOVRA

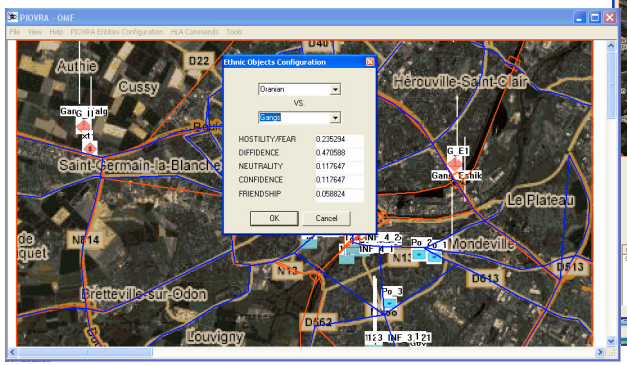
Polyfunctional Intelligent Operational Virtual Reality Agents

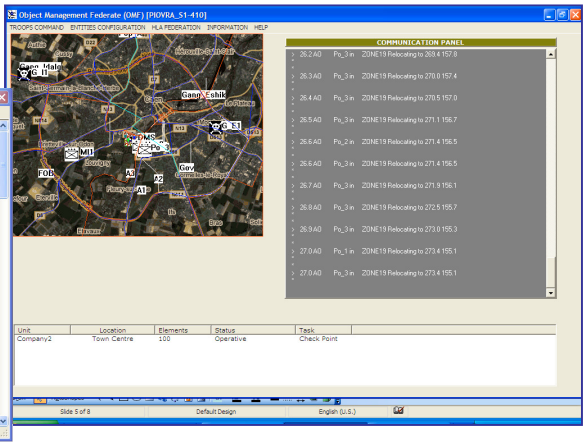
PIOVRA was an EDA Project developed in cooperation with Italian and French MoDs in partnership between MITIM DIPTEM & LSIS.

PIOVRA allowed to develop a new Generation of CGF able to simulate "Intelligent" behaviors, filling up the gap between user requirements and current available CGF performances

PIOVRA demonstrated the new intelligent agents directing the CGF as effective models integrated in HLA Simulation reproducing Urban Disorders integrated in a Theater Simulation







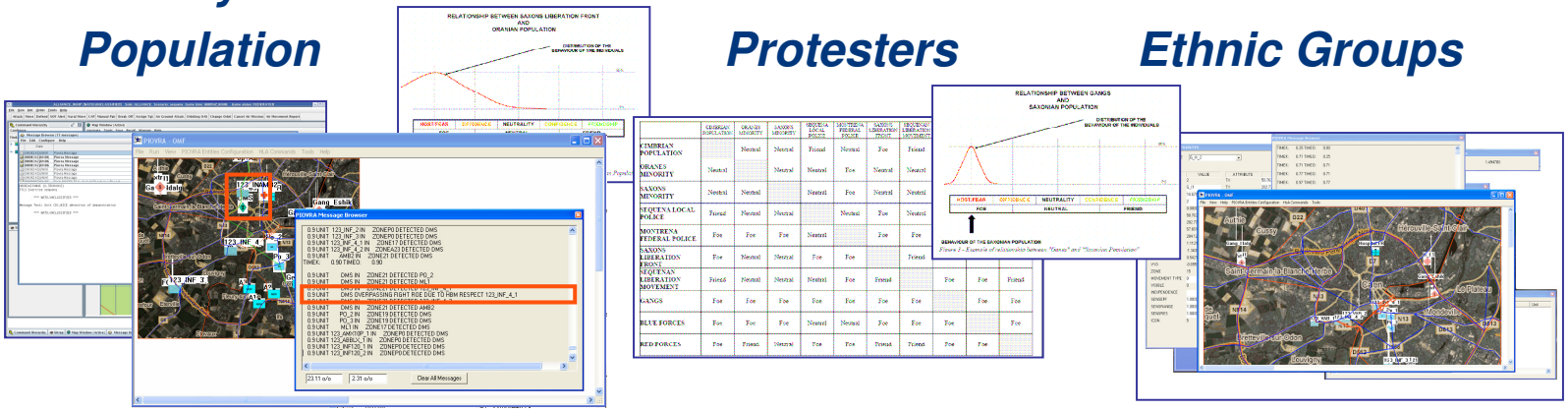
Simulation Team

RATS

Riots, Agitators & Terrorists by Simulation

RATS is a demonstrator based on Intelligent Agents for simulating Riots, Civil Disorders as well as Agitators and Terrorists actions within Urban Scenarios considering different entities and influence of Human Factors such as :

Paramilitary Forces	*Terrorists*	*Warlords*
Police Forces	*Firefighters*	*Health Care*
Military Units	*NGOs*	*Governmental Entities*
Population	*Protesters*	*Ethnic Groups*



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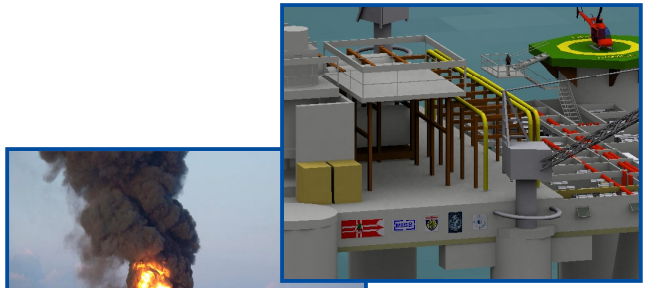
SGT-SDM

Serious Games for Training in Strategic Decision Making

ACT has activated the SGTSDM as a R&D Project to investigate the use of Serious Games for Training in Strategic Decision Making. The project involves an international team including ACT, NATO Defense College, ARRC, M&S COE, Simulation Team, MITIM DIPTEM University of Genoa and MAST.



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Simulation Team

SLAMS

Simulation Lean Advanced Mobile Solutions

New technologies make possible to develop simulation solutions tailored for smartphones and tablets; SLAMS (Lean Simulation Advanced Mobile Solutions) is a PNRM Proposal coordinated by University of Genoa with the aim to identify solutions for education and training for defense, this goal will be reached through models and simulators which are expected to take advantage from these hardware solutions.

In particular, Serious Games based simulators for training will be developed, in terms of approach and engines for games as well.

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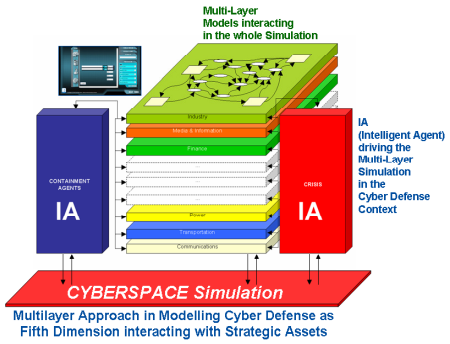
CRYSTAL

Cyber Reality Simulation for Threat Assessment and Defense Learning

The CRYSTAL is a PNRM Proposal to the Italian MoD coordinated by Genoa University. CRYSTAL Goals is to develop a simulation framework able to simulate Cyber Defense scenarios related to the Different Layers representing Strategic National Assets (i.e. energy, communication, finance, transportation); CRYSTAL is a modern interoperable architecture allowing a modular approach aimed at advancing the research in a Cyber Defense by using a federation of interoperable stochastic simulators driven by IA-CGF (Intelligent Agents Computer Generated Forces).



Simulation Team

IA-CGF UCOIN

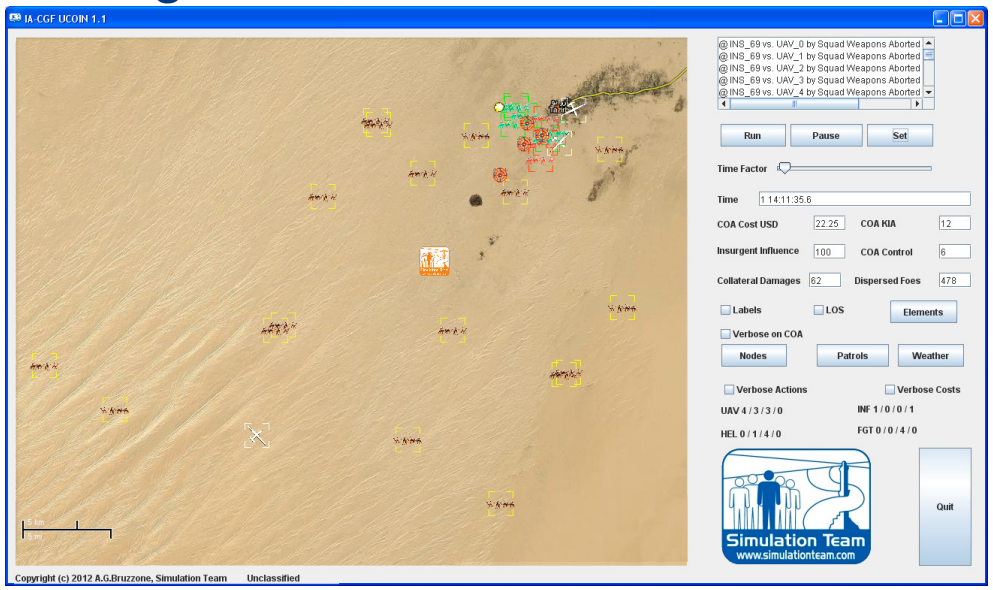
Intelligence Agent Computer Generated Forces UAV and Counter-Insurgency

www.liotech.co.uk

IA-CGF UCOIN is a Stochastic Simulator of Joint Operations involving UAV (i.e. Rapiers and Predators) for Counter Insurgency in coordination with other assets (i.e. ground units, attack helicopters, planes).

IA-CGF UCOIN allows to simulate complex scenarios where population and civilians are used to hide and shield insurgent activities and to estimate operative performance as well as collateral damages and costs.

IA-CGF UCOIN is a support to evaluate technological improvements as well as new operative policies, procedures and to experiment doctrine and enemy tactics evolution.



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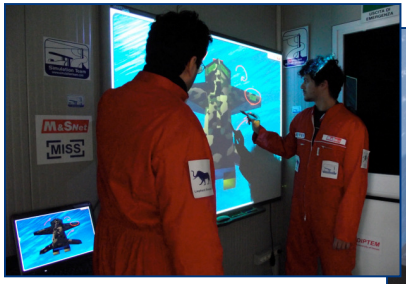
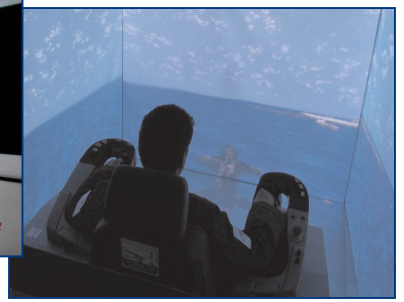
Simulation Team

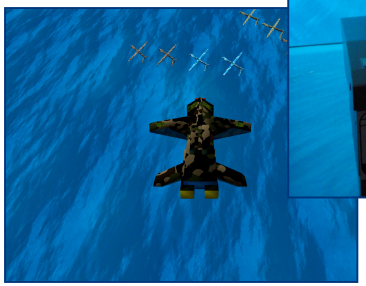
ST_VIV

Simulation Team Virtual Intelligent UAV & AUV





ST_VAV is a Real-Time Agent Driven Simulation of Autonomous Vehicles that operates as swarms and to test Virtual Manned Drone Concept within an HLA Federation (ST_VP Federation). This Synthetic Environment supports different types of UAV (i.e. Predator, Reaper and UACV) and AUV (autonomous underwater vehicle) such as sea gliders. Currently ST_VAV allows to manage different swarms of UAV (i.e. 12 Unmanned Aerial Vehicles) flying as a wing controlled by a Intelligent Agents or directed by an Operator immersed in the Simulation Team CAVE (Covering 270° Horizontal and 120° Vertical, 6 DOF and/or 3 DOF Motion Platform, 3D Stereo Surroundings) integrated with Biometric Devices (i.e. eye flickering, eye tracking, cardio frequency, muscular tone).



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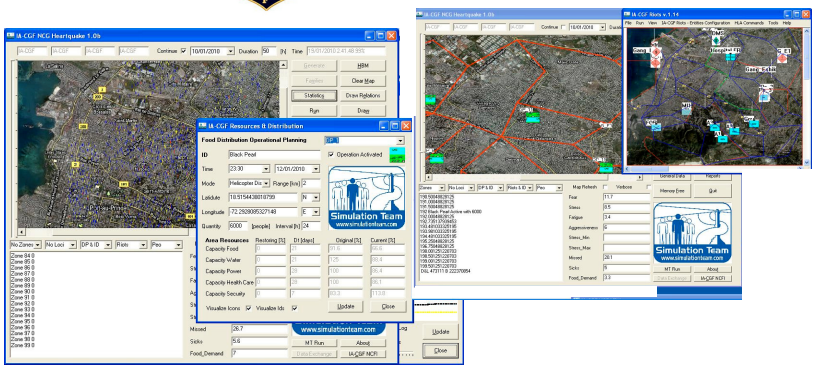
Haiti Case

IA-CGF NCF Riots & IA-CGF NCF EQ



The Demonstration was based Haiti Earthquake 2010 and presented by USJFCOM at ITEC within 2 months.

The demonstration was devoted to show the potential of interoperability in combining different simulators for full coverage of a complex problem such as that one of Haiti.

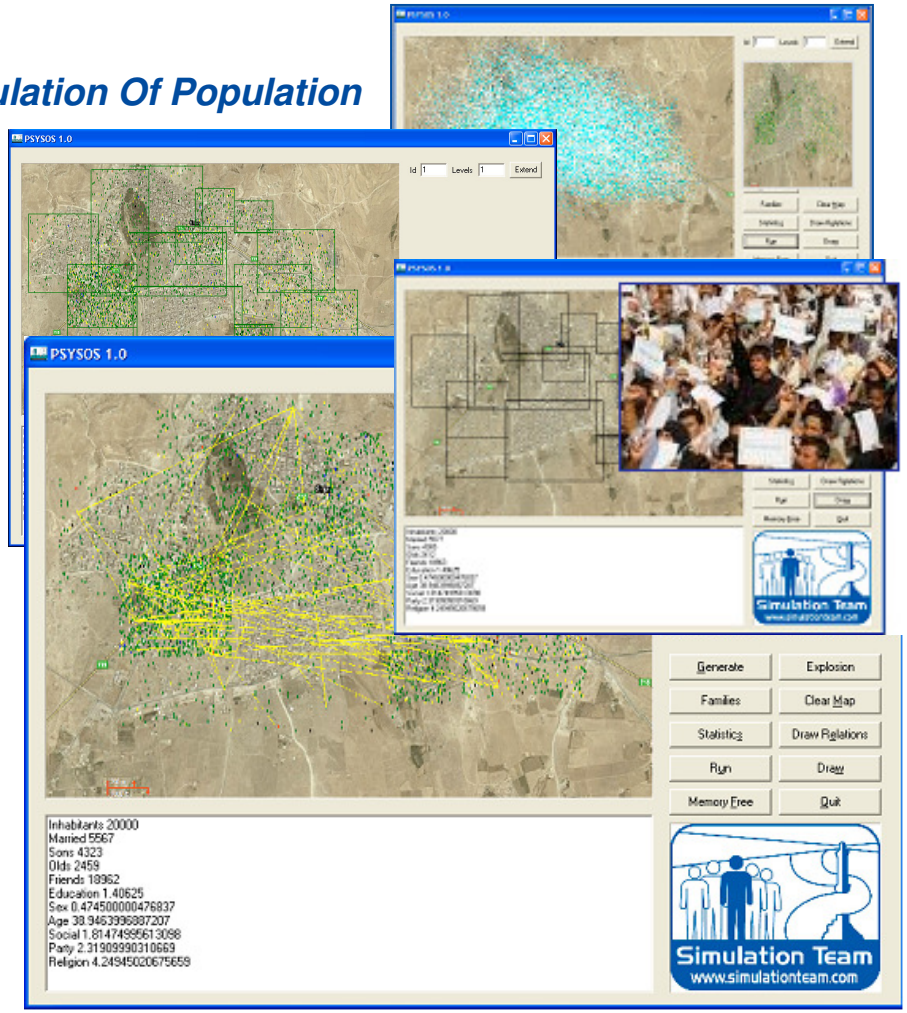
Simulation Team was involved by using his interoperable IA-CGF reproducing Population Behavior, Human Factors (famine, stress, diseases, fear, aggressiveness), Riots and Gang Activities as well as the impact of the Simulation Earthquake

Simulation Team

PSYSOP

Psychological and cultural Simulation Of Population

PSYSOP is a Simulator Reproducing a Town including Psychological and Cultural aspects affecting the Population behavior and reactions. The model includes social, cultural, educational, psychological, gender, age, religion and many other parameters including the social networks related to family and work environment and their influence on the scenario evolution.



IA-CGF MODULES

The new *IA-CGF* Modules devoted to create the simulation of complex Scenarios include:

- ***IA-CGF Units***
- ***IA-CGF Human Behaviors***
- ***IA-CGF Non-Conventional Frameworks***

IA-CGF Units

***IA-CGF Units* are a set of interoperable units with capability to be integrated in constructive simulation**

- Police
- Gangs
- Local Population
- Rioters
- Insurgents
- Terrorist
- Local Authorities
- Warlord
- Criminal Organizations
- NGOs (CIMIC ops.)
- Civil Personnel (CIMIC ops.)
- Domestic/National Situation (for instance for troops moral):
  - Population
  - Media
  - Lobbies
- International Public Opinion
- International Diplomacy
- New Threats (i.e. 2nd Generation Terrorists)

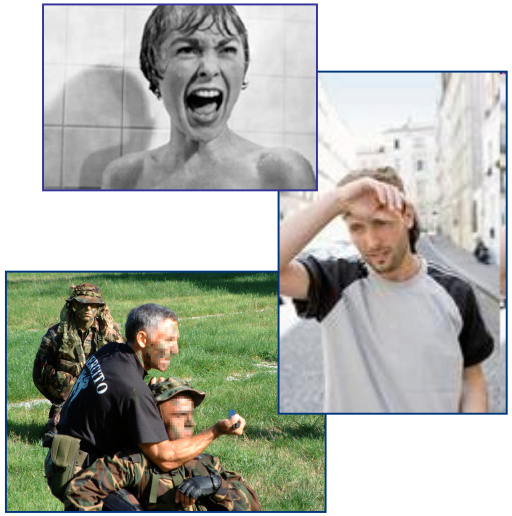
These are examples of non-conventional units controlled by IA-CGF

Simulation Team

IA-CGF Human Behaviors

Specific modules with *IA-CGF Human Behaviors*:

- Fear
- Stress
- Fatigue
- Training Level
- Aggressiveness
- Ethnic Factors
- Religious Factors
- Combat Skills/Experience



IA-CGF Human Behaviors operate as a set of further characteristics to be added to each unit in constructive simulation.

i.e. now in constructive simulation every unit in the scenario have infos about status and type of ammo, by IA-CGF it will be added dynamic information about level of fear and stress and the Units performing according to it

Simulation Team

IA-CGF Non-Conventional Frameworks

It is important to consider the integration in a scenario of the *IA-CGF-Non-Conventional Frameworks (IA-CGF-NCF)*, each simulating specific events:

- *IA-CGF CIMIC/HUMANITARIAN FRAMEWORKS*
  - Food Distribution
  - Reconstruction

- *IA-CGF Homeland Security and Civil Protection FRAMEWORKS*
  - Natural Disaster (i.e. Hurricanes, Earthquakes)
  - Man Made Disasters (i.e. Explosion, Hazardous Material Spills)
  - Evacuation
- *IA-CGF PSYOPS and INTELLIGENCE FRAMEWORKS*
  - Integration *Sibilla©* Serious Game for Intelligence Officers training

In non conventional scenarios for particular training purposes.
We can imagine to have active different non conventional Frameworks, in different locations, with different level of detail inside the simulated theater.

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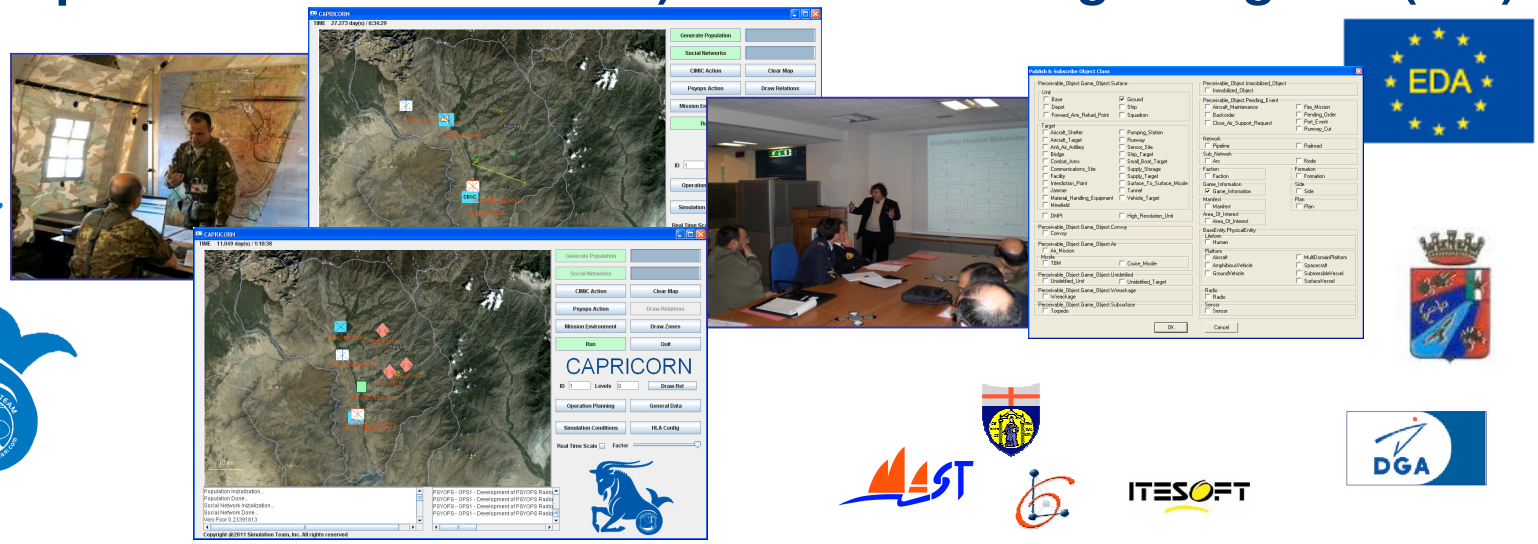
CAPRICORN

Civil Military Co-operation And Planning Research in Complex Operational Realistic Network

- **CAPRICORN is an active EDA R&D Project devoted to develop capabilities in the complex and critical sector of Military Operation Planning, specifically for asymmetric warfare scenarios involving CIMIC and PSYOPS, by using CGF (Computer Generated Forces) based on Intelligent Agents (IAs)**



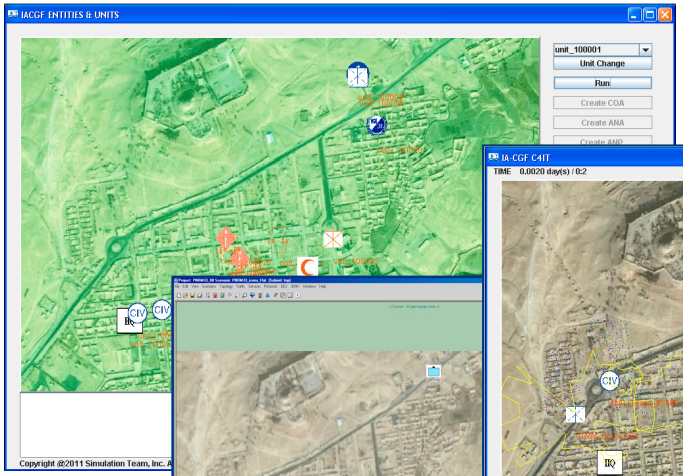
Simulation Team

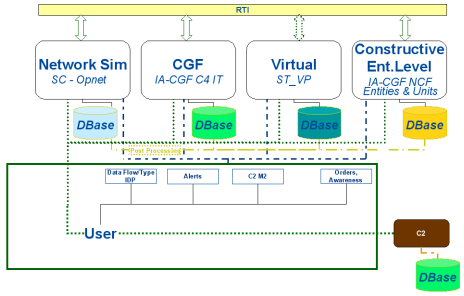
CeSiVa

CGF C4 IT

Computer Generated Forces C4 for Italian Army

CGF C4 IT Project allows to measure the effectiveness of different C2 Maturity Models involving local and coalition forces, police and other resources in an foreign urban framework. This Federation is based on use of IA-CGF and SC and is devoted to support Italian Army Simulation in term of experimentation and analysis of technologies and policies





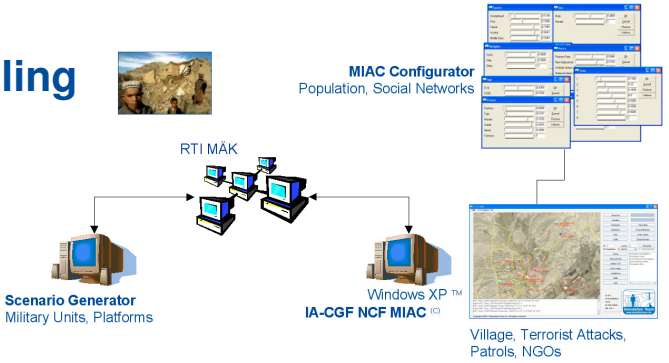
MIAC

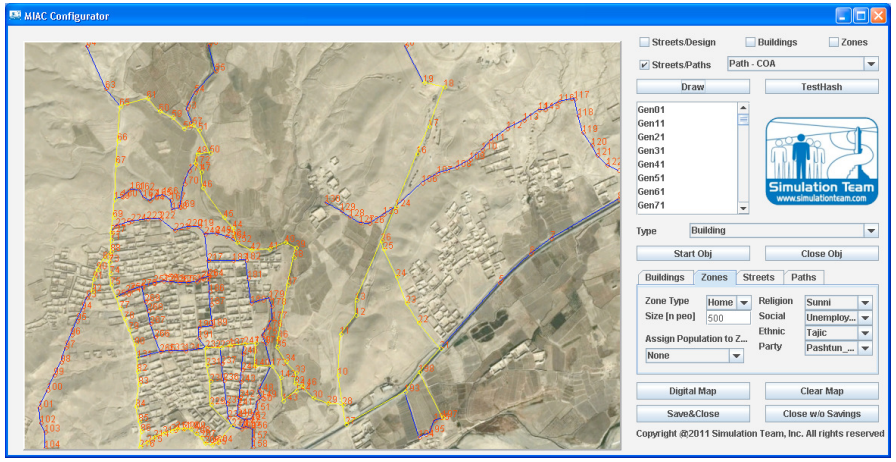
Models of Intelligent Agents for Computer Generated Forces

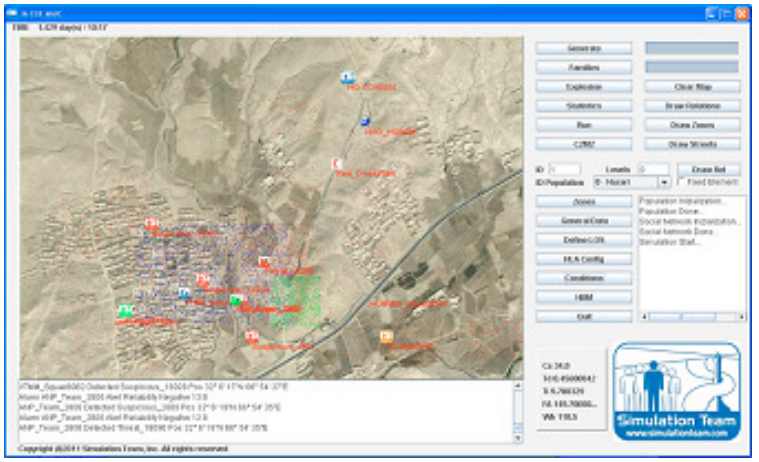
Simulation Team

SELEX Sistemi Integrati
A Finmeccanica Company

MIAC NCF and MIAC Configurator are designed to drive a Federation where the IA-CGF allows to reproduce population within an Afghan Village. MIAC Federation is designed to operate under HLA using RTI MÄK on Workstations using Windows XP™ O.S. and installing IA-CGF NCF MIAC© derived by IA-CGF NCF PSYSOP© MIAC is interoperable with other federates (i.e. Scenario Generators) while the MIAC Configurator supports the Scenario Definition





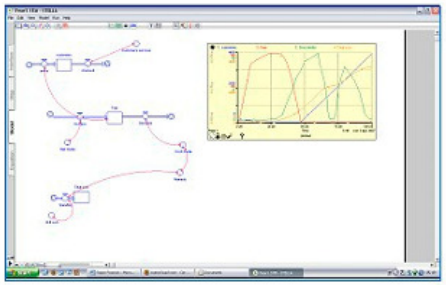


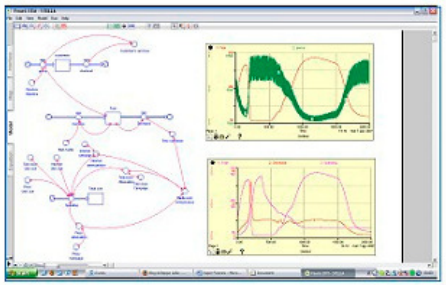
Simulation Team

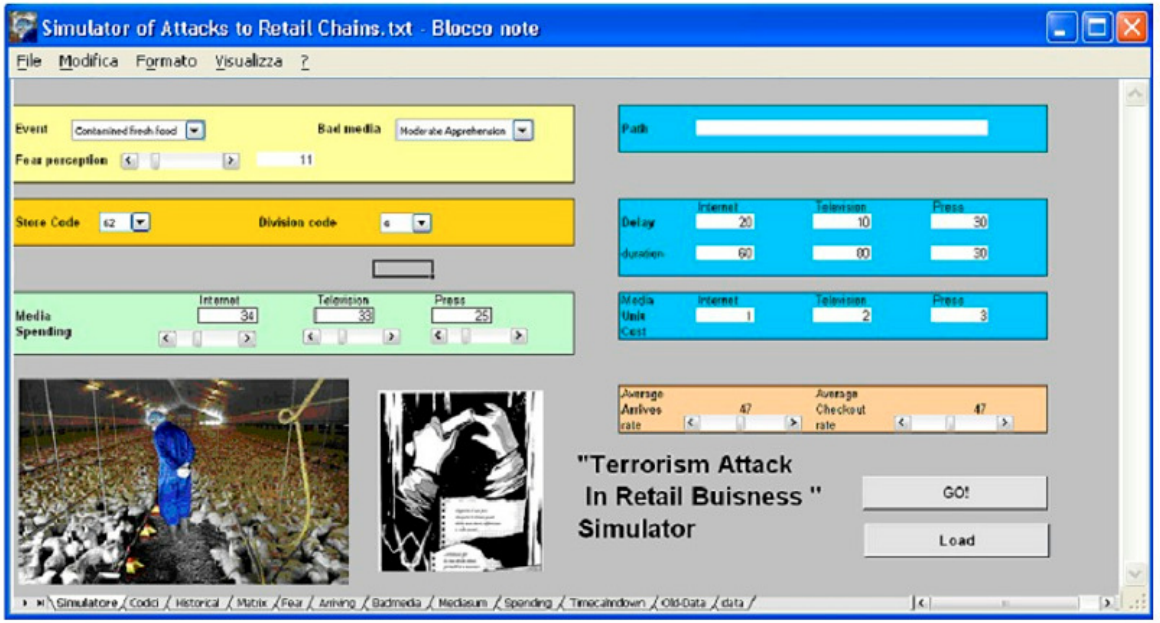
MOSCA

MO*delling Supply Chain Attacks*

MOSCA project is devoted to the development of Models for estimating the impact of attacks or disasters affecting supply chain of consumer goods; MOSCA includes dynamic impact of events on consumer emotions as well as effectiveness of countermeasures



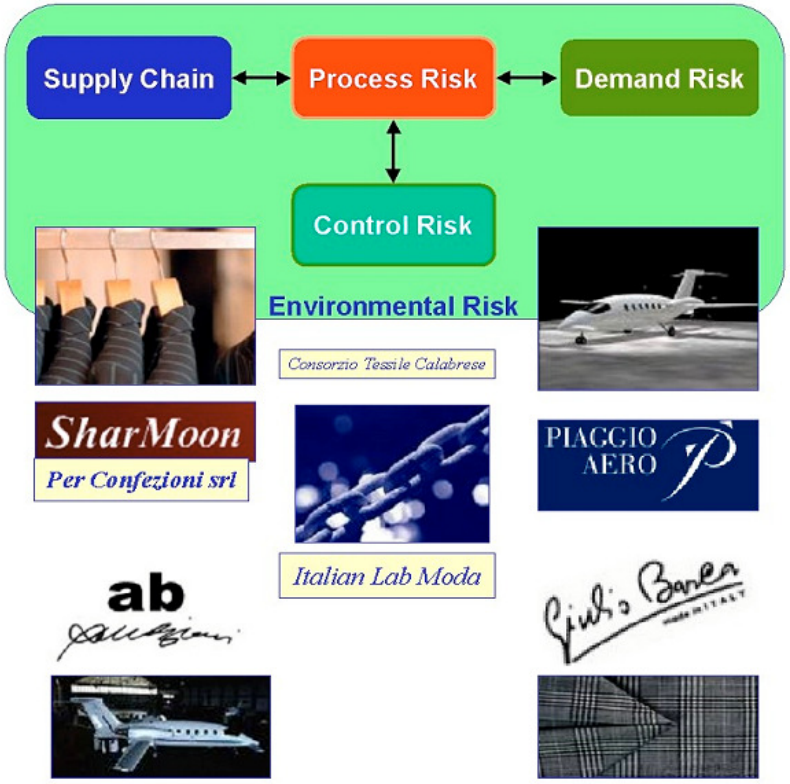




ASPID

Advanced Supply chain Protection & Integrated Decision support System

This research is focused on the development of innovative tools for analyzing and optimizing the risk related to the evolution of the elements in the supply chain. ASPID proposes an innovative use of modeling for evaluating the impact on the supply chain of different aspects such as international competition, know-how diffusion in new areas, critical events and disasters



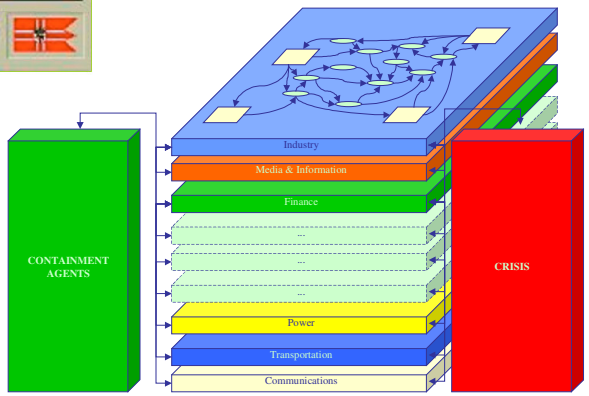
Simulation Team

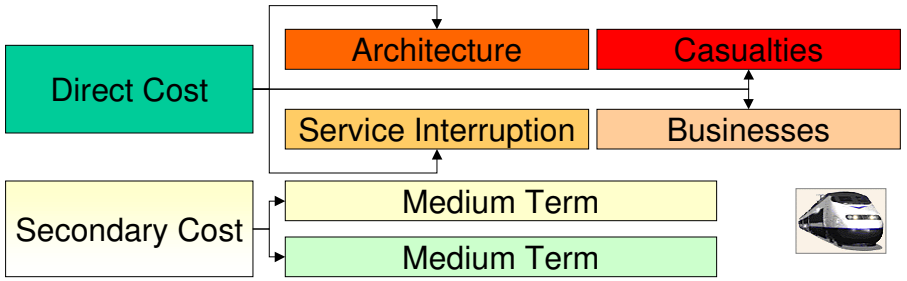
RAILSEC

Railways Security

The project concentrated in developing models for Risk Analysis related to Security in Rail Environments. The project develop emergency management and event simulators as well as model devoted to identify medium and long term effects in term of costs, resources and impact on the overall environment.

The project was developed in cooperation with Institutes in North America and focused on terrorist attack issues





DIPTEM
Università di Genova

Simulation Team
Genoa Center

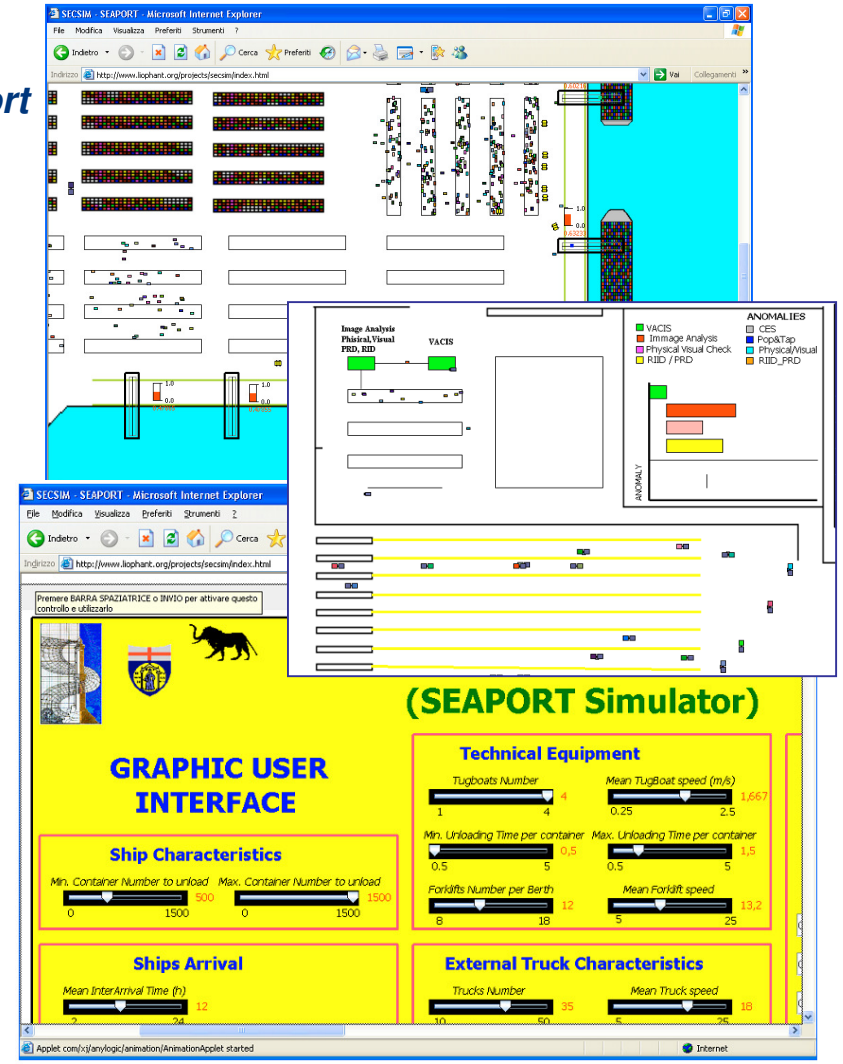
SESISEP

Security Simulation of Sea Port

The project concentrated in developing simulation models to support Security in Ports in term of Risk Assessment, Training, Security Solution Analysis, etc. The initiative is modeling ports, terminals, operative procedures, regulations & policies.

The model was successfully applied to evaluate the impact of ISPS, MTSA and SCI evolution in large container terminals. A demonstrator is available on:

www.liophant.org/projects/secsim

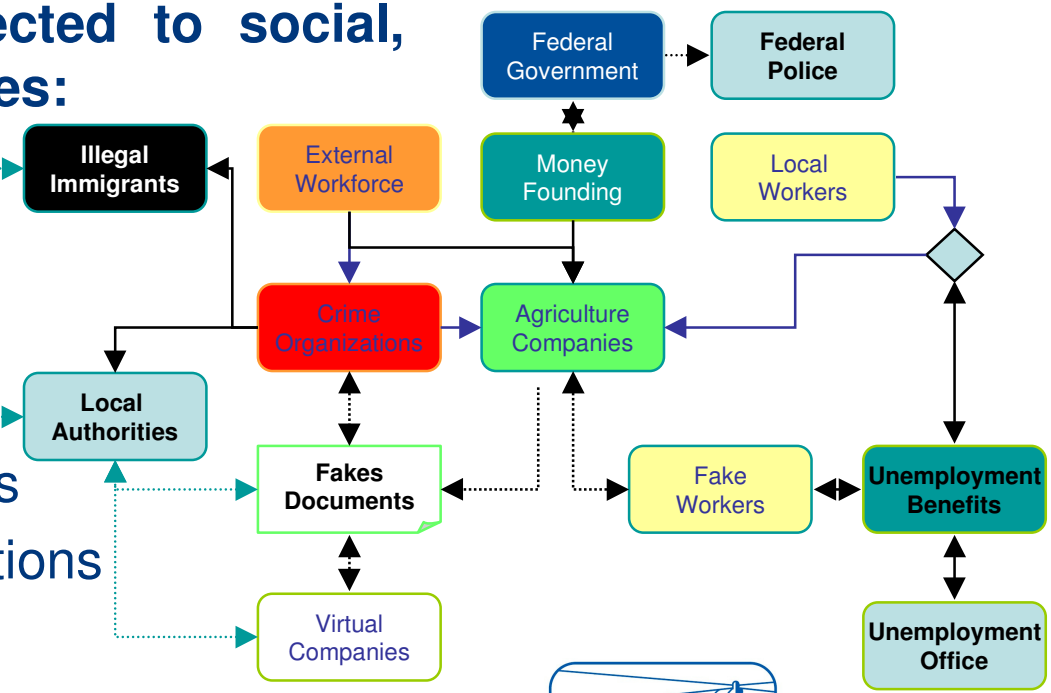


Simulation Team

INDASTRIA

This model is inspired by real case and simulate a region subjected to social, economic crisis, it includes:

- Small Region Simulation
- Social Multi Ethnic Reality
- Real & Fake Economy
- Civil Disorders
- Federal vs. Local Authorities
- Polices vs. Crime Organizations



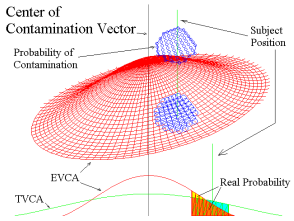
Simulation Team

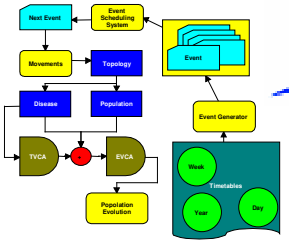
PANDORA

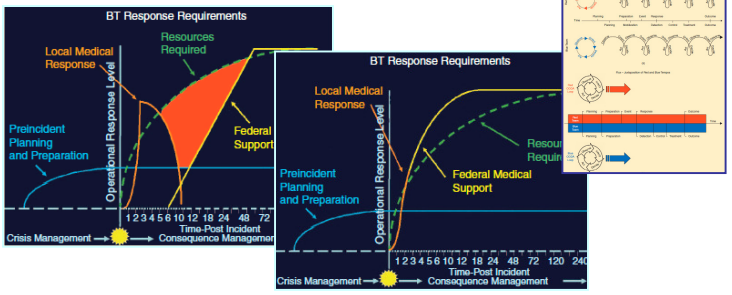
PANdemic Dynamic Objects Reactive Agents

CRiCS
Centre for Research In Complex Systems

- PANDORA addresses the dynamics of the spreading of a Pandemic and experiments are on-going on H1N1 influenza A virus by a joint simulation project involving USA, European and Australian R&D Centers (MITIM DIPTEM, Dartmouth College, CRiCS).
- PANDORA proposes to use an evidence-based approach whereby statistical data (census) and ethnographic surveys are source for the model and integrated with Human Factors representing the psychological and social parameters impact on people behaviors and their reaction to containment measures and policies
- PANDORA evaluates the efficacy and cost benefit of various mitigation strategies such as school closures, target anti-viral prophylaxis and other mitigation measures, level of absenteeism, and its impact on commerce, industry, economy and functioning of society as well as population attack rate, risks related to specific groups and on flows across State borders.



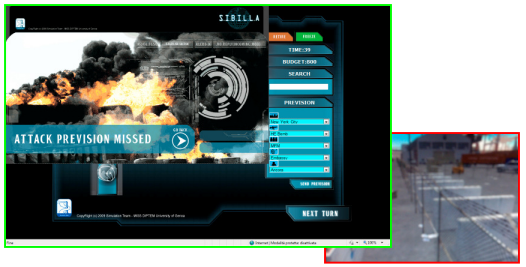




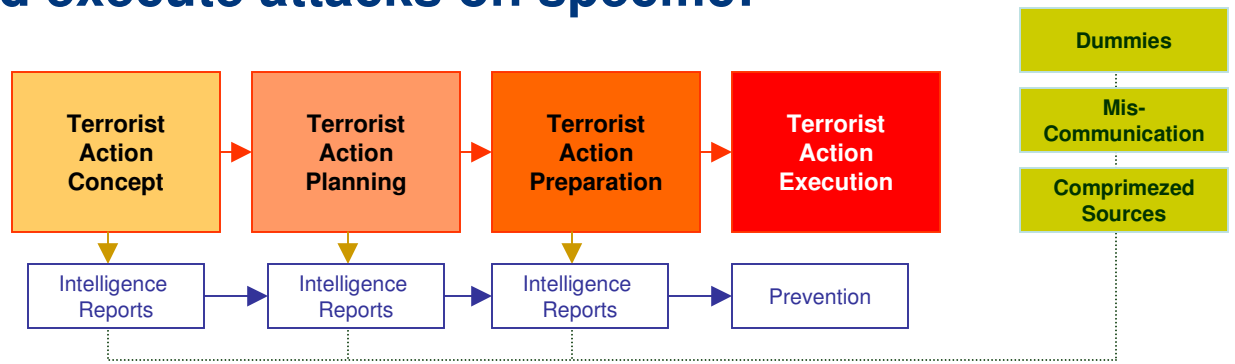
Simulation Team

SIBILLA

Simulation of an Intelligence Board for Interactive Learning and Lofty Achievements



- SIBILLA is multiplayer web strategy game that simulate Terrorist Actions organized by different organization directed by IA that plan, prepare and execute attacks on specific:
  - Location
  - Site
  - Time
  - Threat Type



- The intelligence reports are distributed among the players based on their capabilities and shared by a stochastic engine
- The Identification of the attacks in time is the key for individual success; the players cooperate and compete for budget and success
- Threat missed to be identified generate terrorist attacks that reduce global trust and support to intelligence agencies

Simulation Team

CUMANA

Cooperative/Competitive Utility for Management and Advanced Networking skill Acquisition

CUMANA is a Web Multiplayer Game that provides the opportunity to play interactively a cooperative/competitive game, in a distributed environment where different "Managers" operate concurrently with benefits and penalties connected to both common and individual objective achievements related to their role in their Corporation.

The main goal is to share information in order to support Decisions Making in a Corporation Framework based on market reports affected by risks

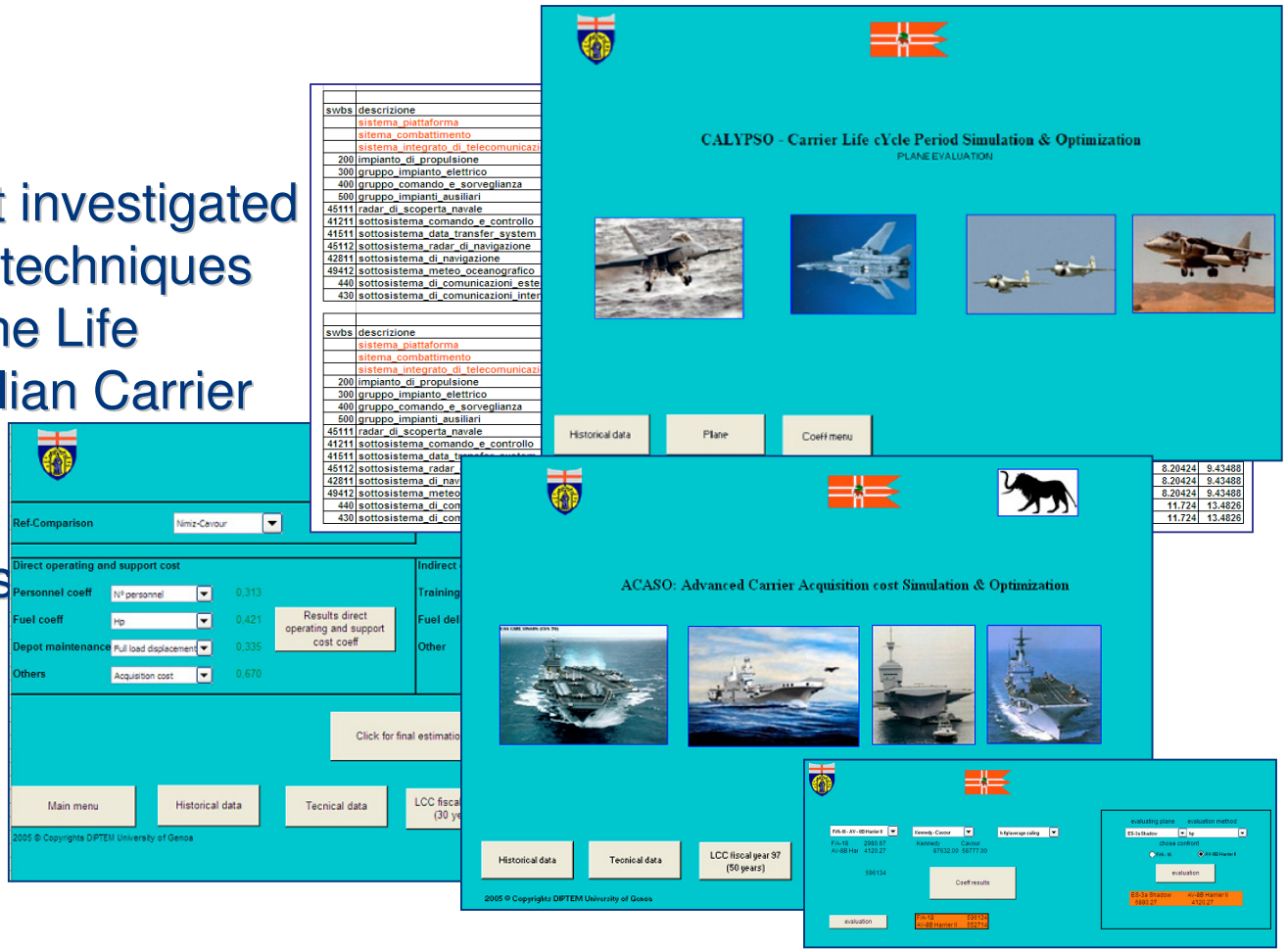
The Identification of the market event in time is the key for individual success of each player as well as the overall corporation, while risks not properly addressed generate losses for the whole players

Simulation Team

CALYPSO

Carrier Life cYcle Period Simulation & Optimization

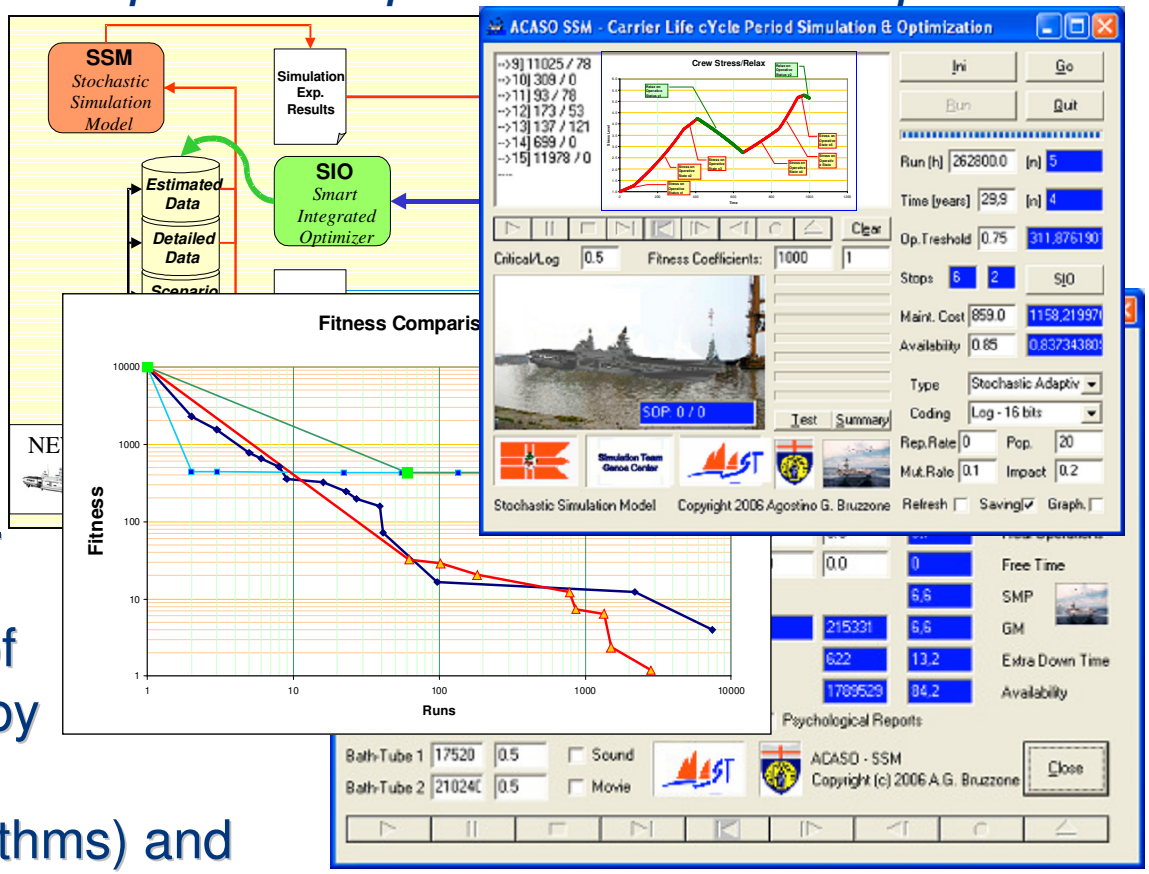
CALYPSO project investigated methodologies and techniques devoted to analyze the Life Cycle of the New Italian Carrier Cavour.
CALYPSO included development of Tools for comparing costs, operations and performances of different Carriers.



Simulation Team

ACASO

Advanced Carrier Acquisition and Operation cost Simulation & Optimization

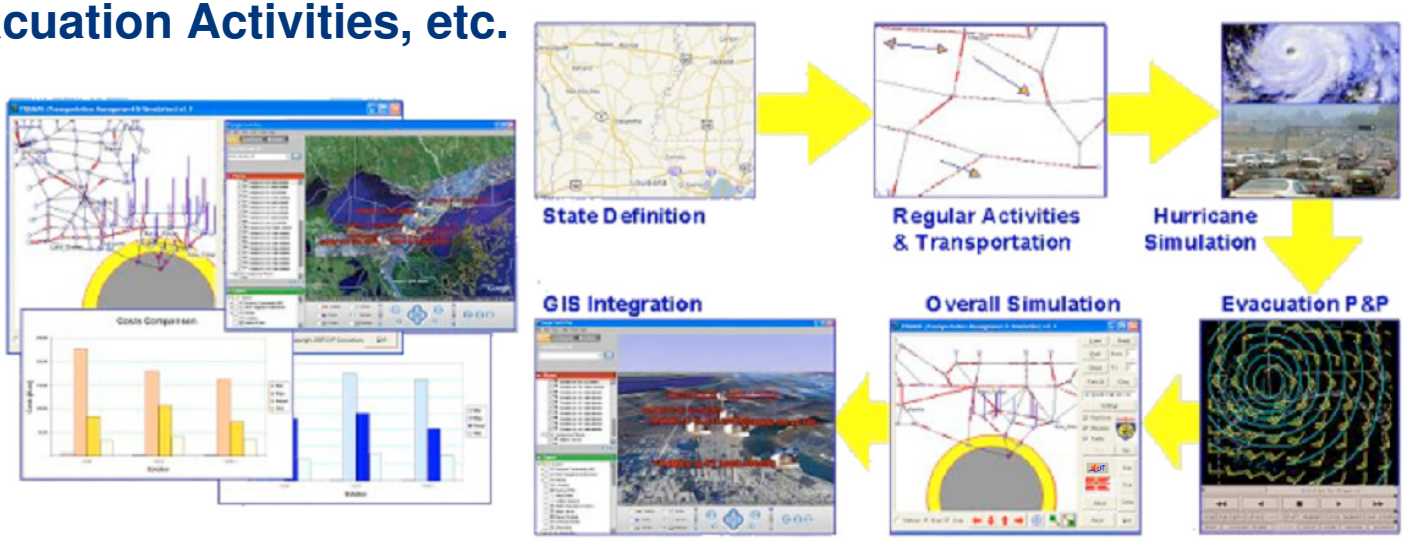


ACASO is a system for design new Vessel by simulating their performances in relation to their operative profiles and maintenance policies. The system estimates the unknown characteristics of the new Vessel Systems by applying advanced AI techniques (genetic algorithms) and evaluating different hypotheses and scenarios

Simulation Team

KATRINA LIKE

KATRINA LIKE was a Joint Venture that Demonstrated the possibility to Model a National Crisis and to Simulate a Wide Emergency; the Project successful demonstrated the Simulation of an Hurricane Impact on the Transportation Layers of Louisiana State Considering Traffic Cargo, Evacuation Activities, etc.



Simulation Team

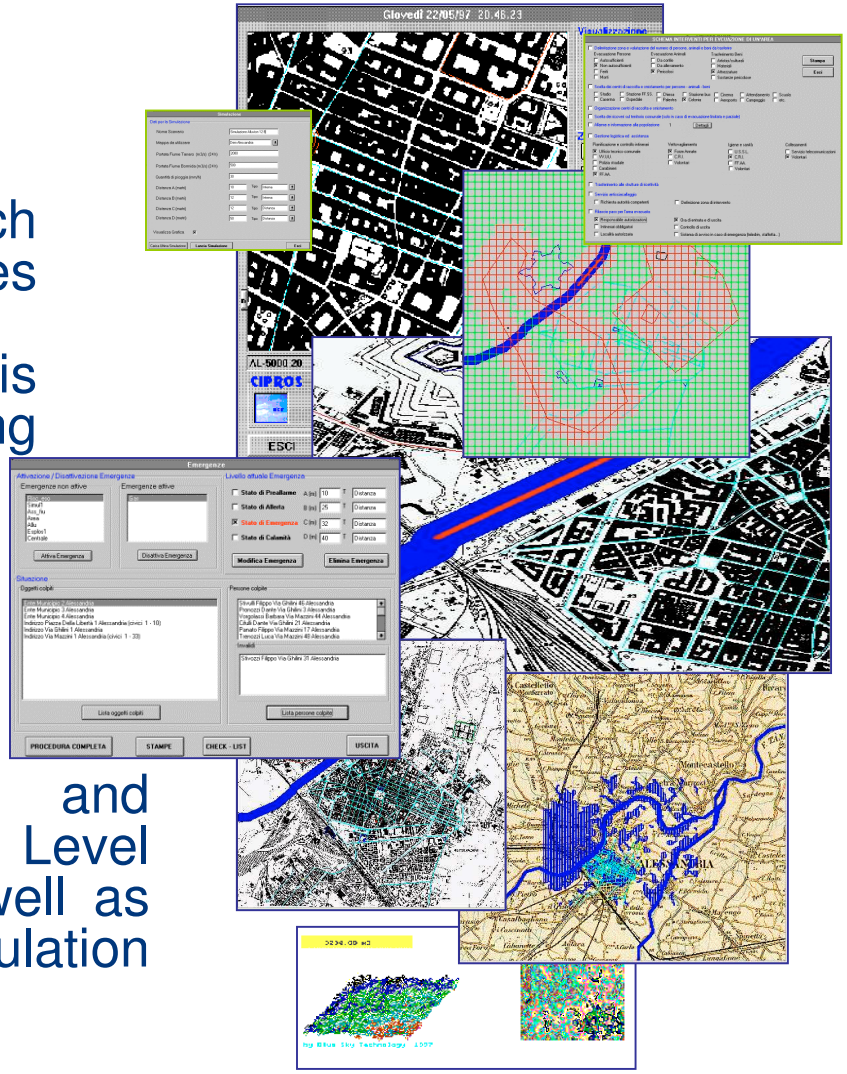
CIPROS

CIVIL Protection Simulator

CIPROS is a modular approach for Civil Protection that integrates GIS and Simulation.
CIPROS generates Crisis Dynamic Web Sites for supporting training and information share

CIPROS includes simulation of:
- Explosions
- Hazardous Material Fallout
- Flooding

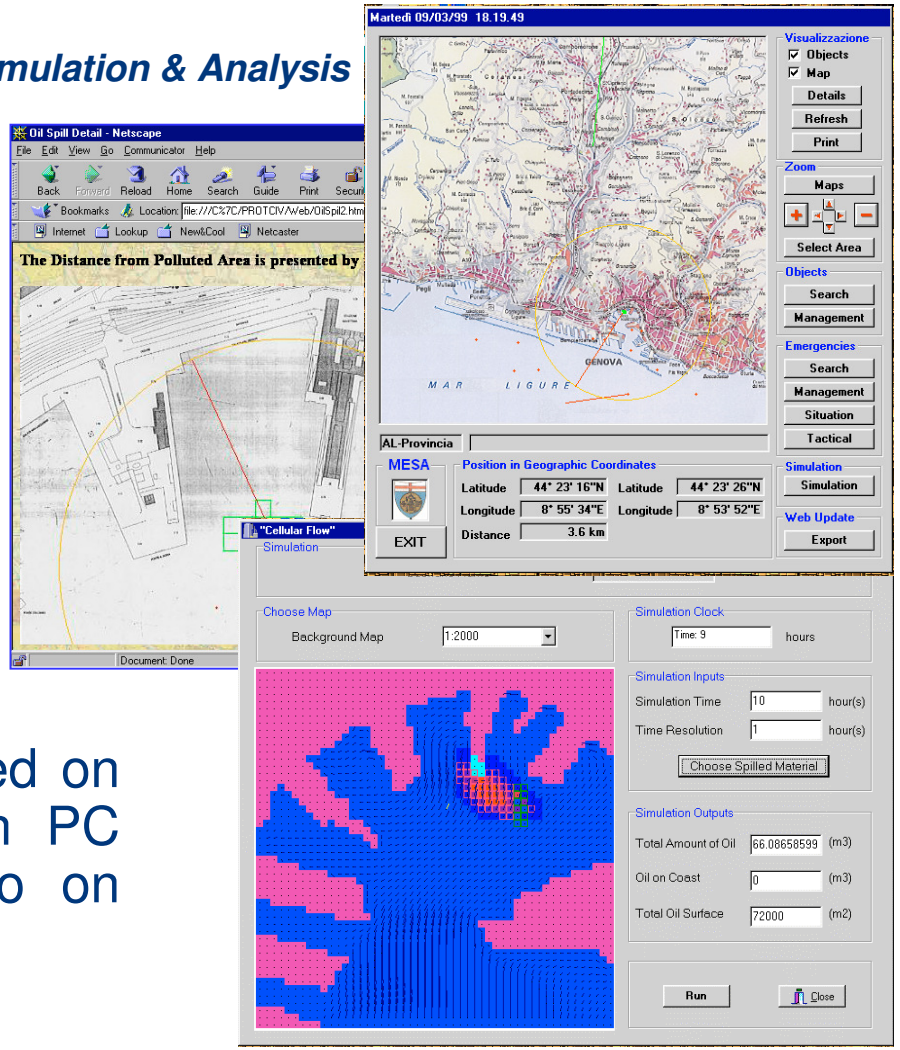
CIPROS support definition and management of different Alert Level and Threats Classification as well as evacuation Procedures for Population and people with impediments



Simulation Team

MESA

Maritime Environment for Simulation & Analysis



MESA is an integrated environment to perform simulation and risk analysis in ports and maritime sector.

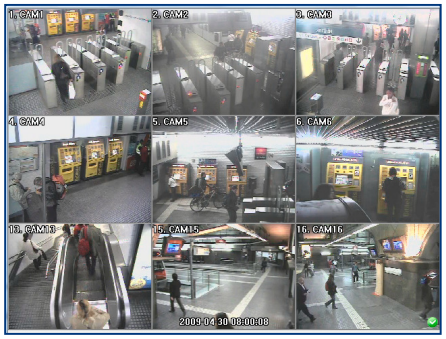
MESA is devoted to support port organizations, entities and operators in Emergency & Environmental Management.

MESA is a modular system based on combined simulators running on PC and providing direct output also on WWW servers.

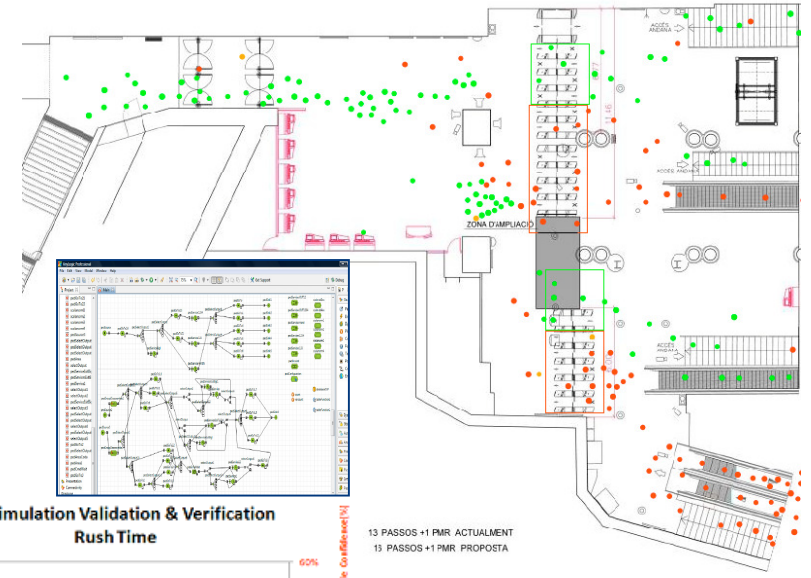
Simulation Team

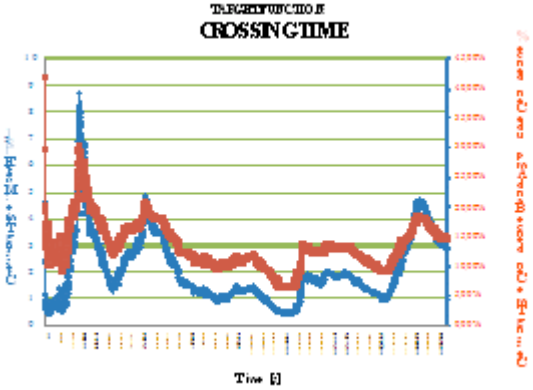
PEDES

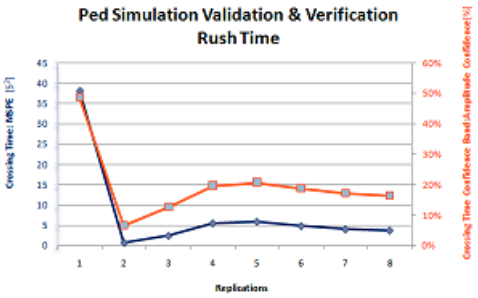
PEDEstrian Simulation

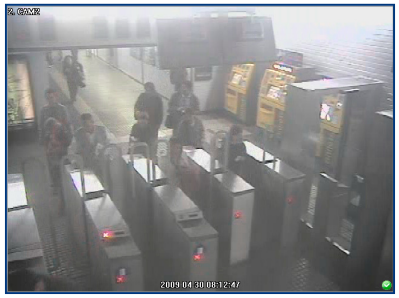


PEDES is a Simulation of pedestrian flows in mass transportation (i.e. underground) devoted to support functional analysis, safety and security solution design and analysis; PEDES is integrated with Human Behavior Models









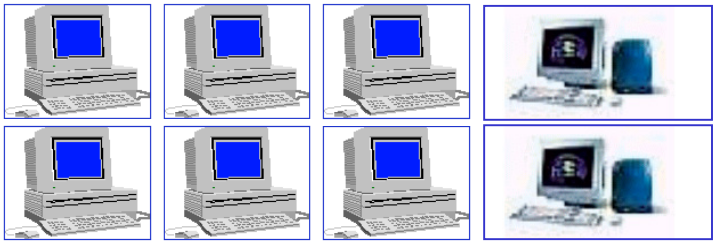
Simulation Team

Distributed Virtual Maritime Environment

Procedure Design, Risk Analysis , Re-Engineering

DIS
HLA

C/C++
Java



Distributed , Cooperative Planning and Management

Distributed Operation Control

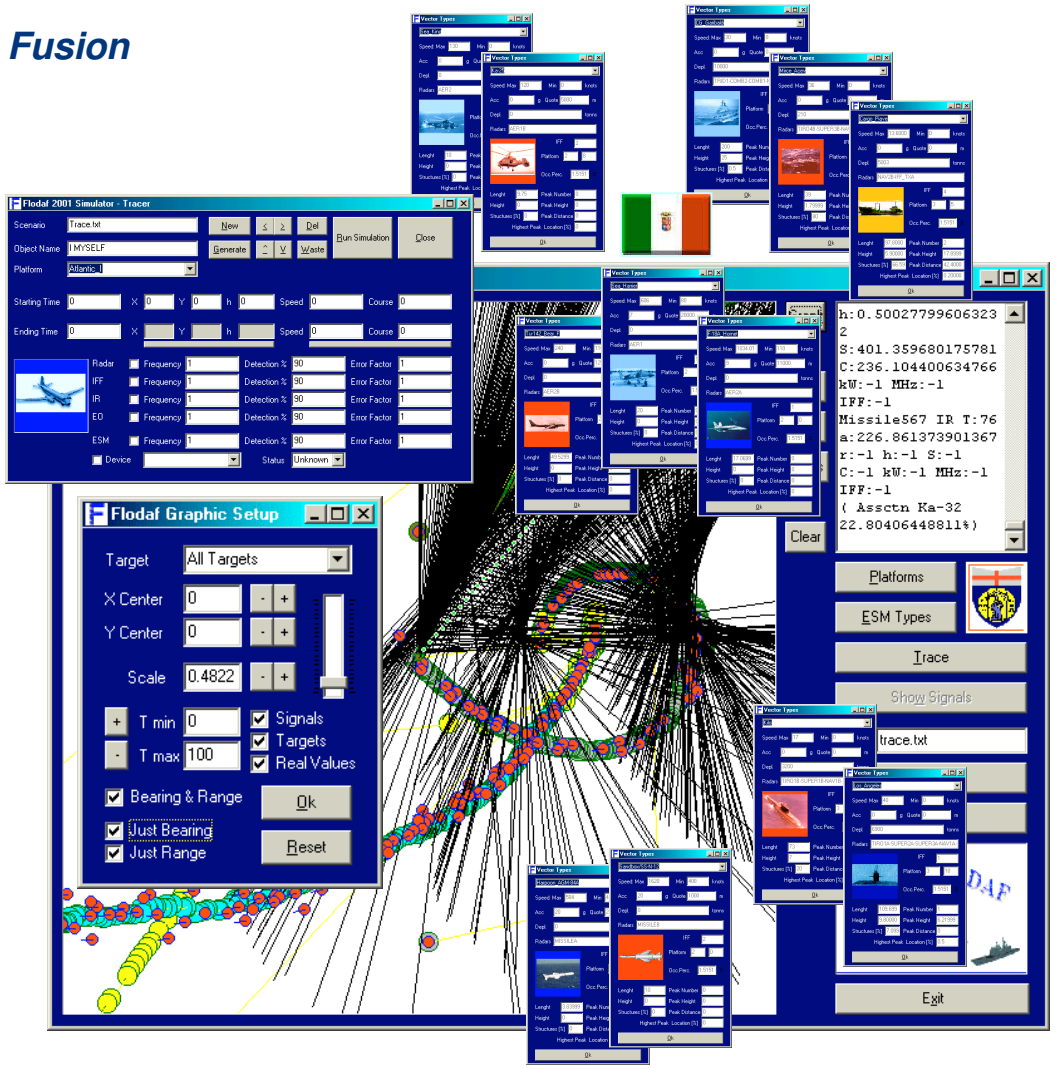
A Platform Independent Distributed Environment for Maritime Applications

Simulation Team

FLODAF

Fuzzy Logic Data Fusion

FLODAF is an tools to support engineering and performance estimation of Data Fusion Solution; this suite includes a Scenario Generator and a Simulator for analyzing the Data Fusion performances over complex Air-Naval scenarios including ships, submarines, missiles, airplanes and helicopters.



Simulation Team

FINCANTIERI

Orizzonte Sistemi Navali

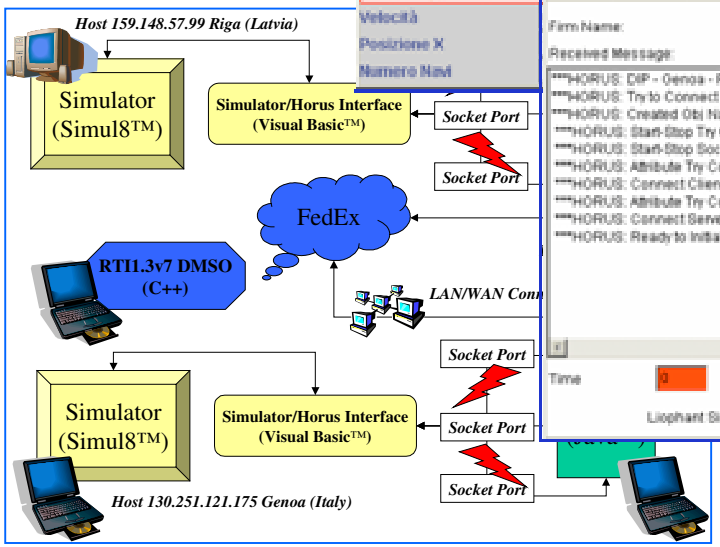
IDS INGEGNERIA DEI SISTEMI

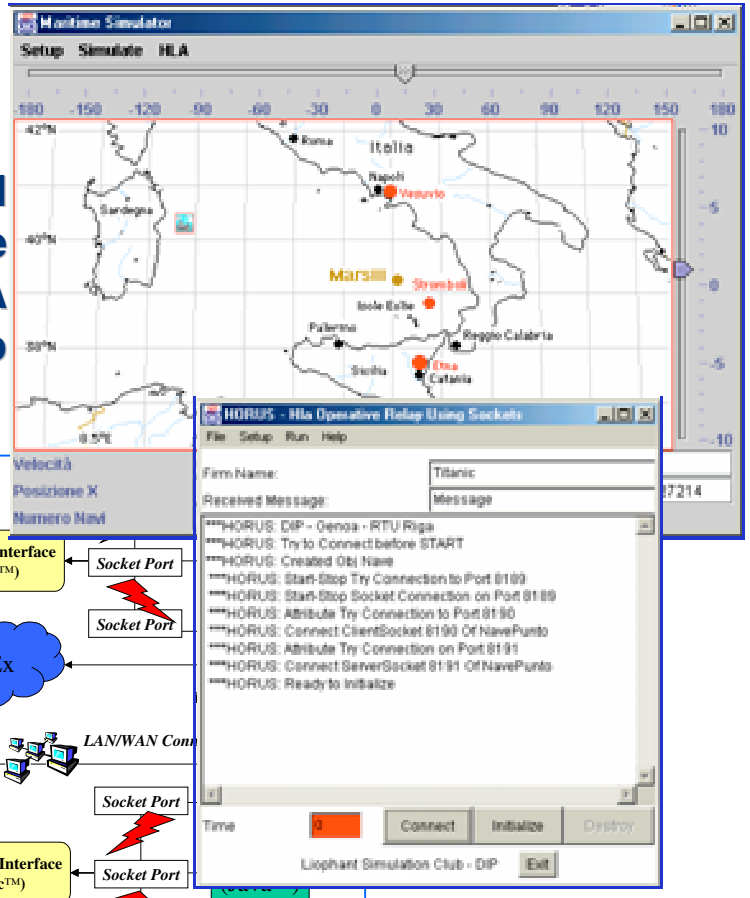
CETENA

VISION

Virtual Ship Simulation

DIPTEM, as reference point in Distributed Simulation and HLA in Italy, was in charge as responsible for defining VV&A procedures in VISION Project devoted to create a Virtual Ship using HLA.





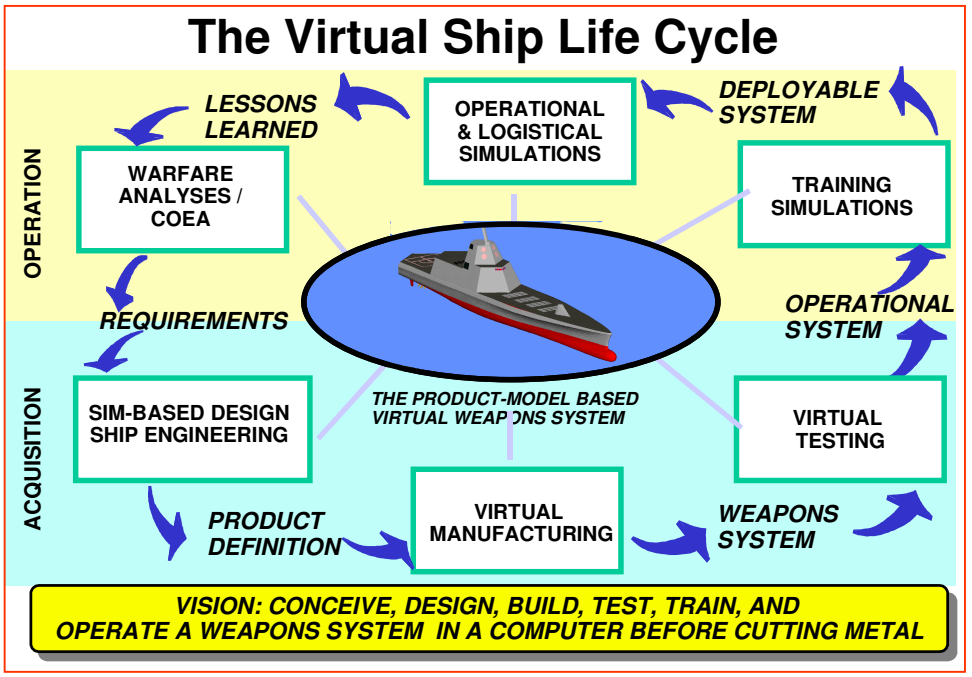
Simulation Team

NIAG SG-60

Simulation Based Design And Virtual Prototyping (SBD & VP)

The NIAG SG-60 is devoted to evaluating the effectiveness of SBDVP on Ship Design

The results of the SG60 Study include analysis of Virtual Prototype VV&A procedures, Simulation Based Acquisition impact in terms of saving, costs, resources

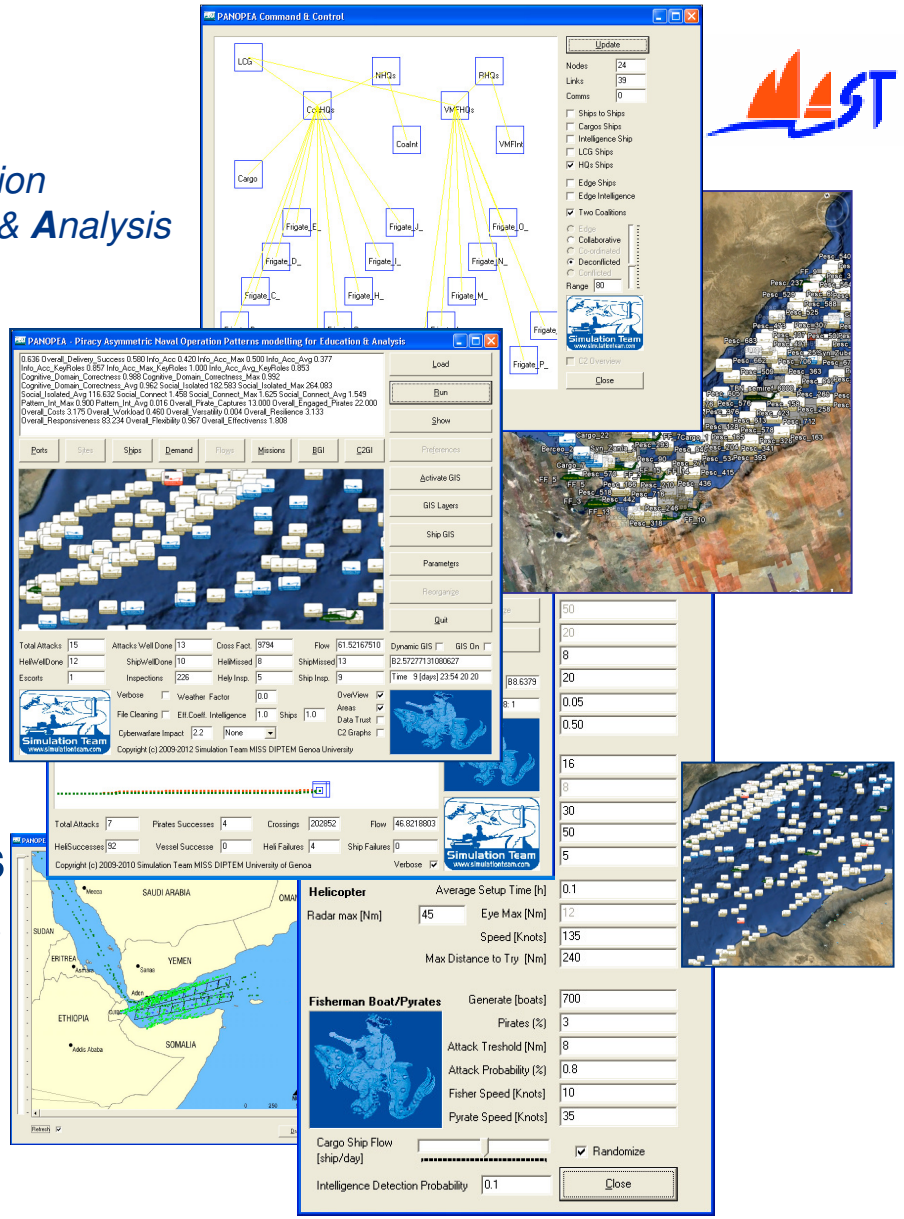


Simulation Team

PANOPEA

Piracy Asymmetric Naval Operation Patterns modeling for Education & Analysis

- **PANOPEA is a simulator for reproduction of Piracy activities and for evaluating different strategies in NEC C2 M2 (Netcentric Command and Control Maturity Models).**
- **PANOPEA reproduces military vessels and helicopters, ground base, cargos as well as fisherman and yachts traffic as well as Pirates**
- **Pirates are directed by Intelligent Agents and apply strategies for succeeding**



Simulation Team

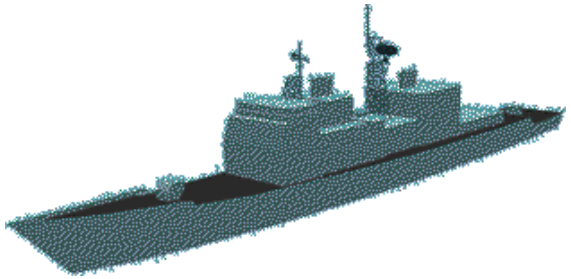
WSS&S

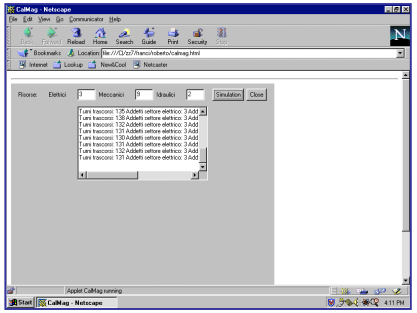
Weapon System Service & Simulation

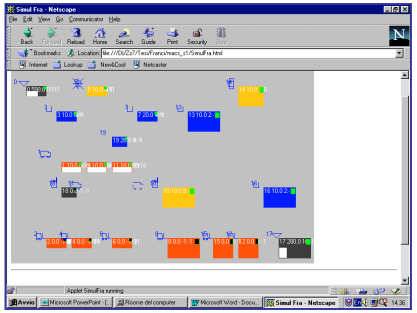
This Simulator is devoted to re-engineer Weapon System Logistics and Service.

The Simulator is operating in Taranto Base to support the service planning of Torpedo, Missile, Rocket Launchers and Naval Gun Systems.

The simulator is a web-based stochastic simulator and supports the concurrent service management; the model is object-oriented and the implementation allows to operate directly with regular browsers without any special requirements in term of platform or plug-ins..







Simulation Team

SAFETY FIRST

Training & Design for Ship Handling

The simulator includes a complete virtual reproduction of Genoa Harbor and it's devoted to the design and training of Harbor Technical Services Operators (Pilots, Tugs & Boat Men)

This simulation system is designed in order to be portable for cooperative training on web server just using regular browser with specific plug-in.

- *Full Interactive Real-Time for Training*
- *Faster than Reality for Procedure Design*
- *Virtual Environment of Genoa Port on a PC*

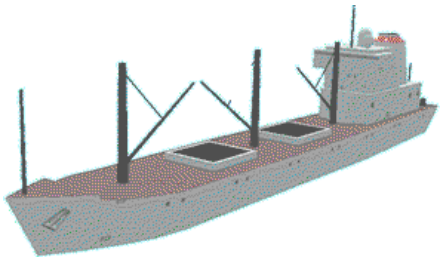
Simulation Team

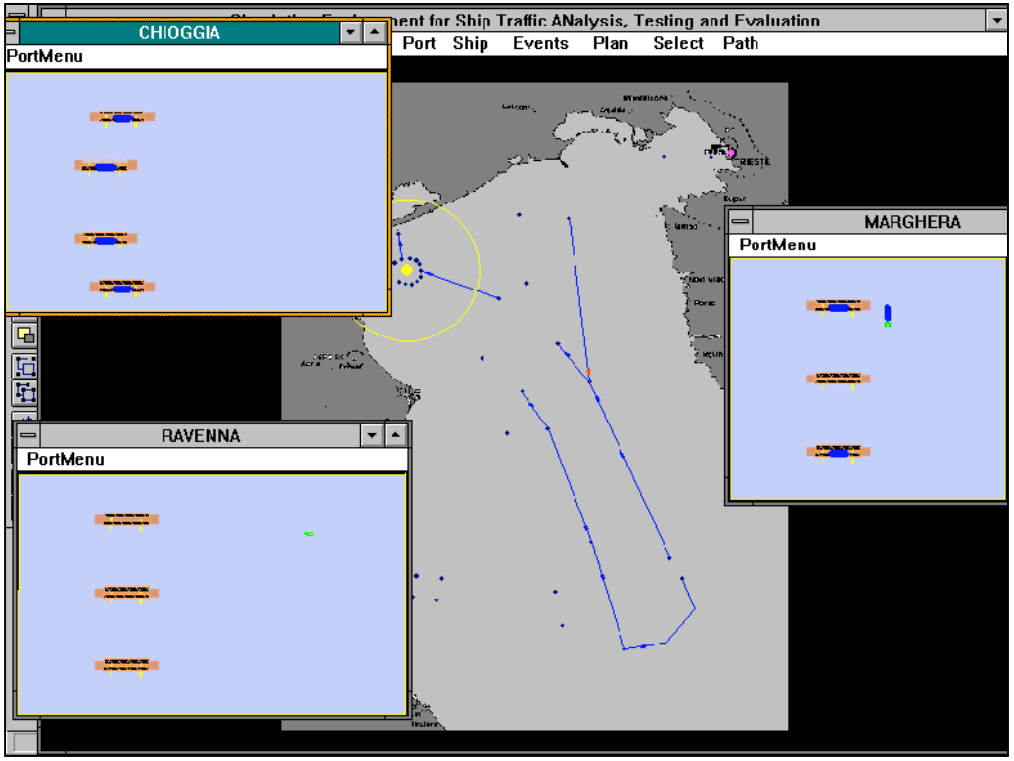
SESTANTE

Simulation Environment for Ship Traffic Analysis, Testing & Evaluation

The project supports the simulation of Maritime traffic in a wide area (i.e. Mediterranean Sea) by using Object Oriented Models.

SESTANTE allows to compute the flows and delays related to strategic investments over ports or maritime lines.





Simulation Team

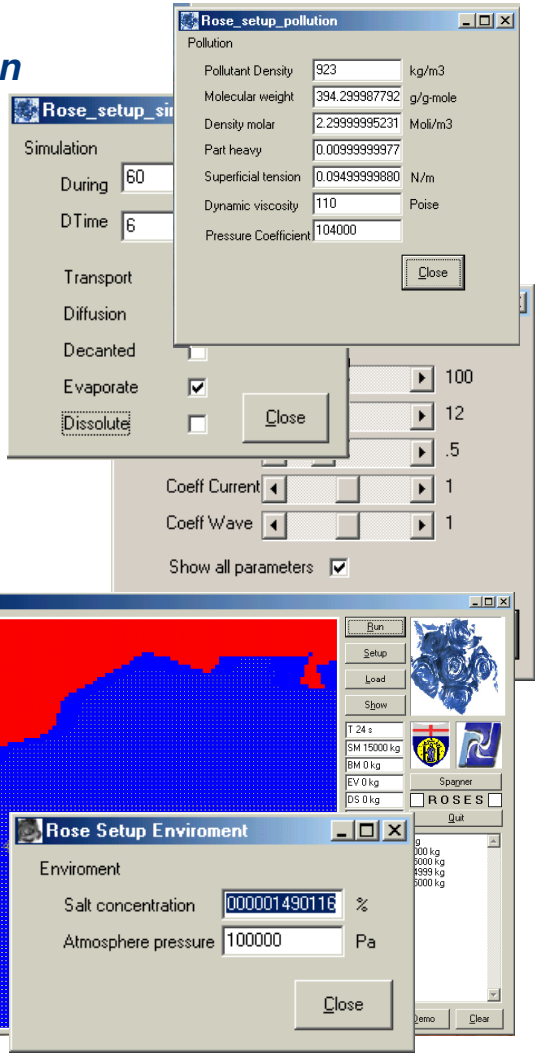
CETENA

ROSES

Reaction to Oil Spill Emergency and Simulation

The project is devoted to create an Oil Spill Simulator for CETENA including countermeasure models.
The Simulator was validated in relation to historical data available from previous cooperations (i.e. MESA, Kuwait University,etc.) and existing databases (i.e. Istituto Idrografico Italian Navy) in order to guarantee the result fidelity.

Roses reproduces both the oil spill physical phenomena and the countermeasures actions in order to provide estimations about risks, policy effectiveness and standing operating procedures.



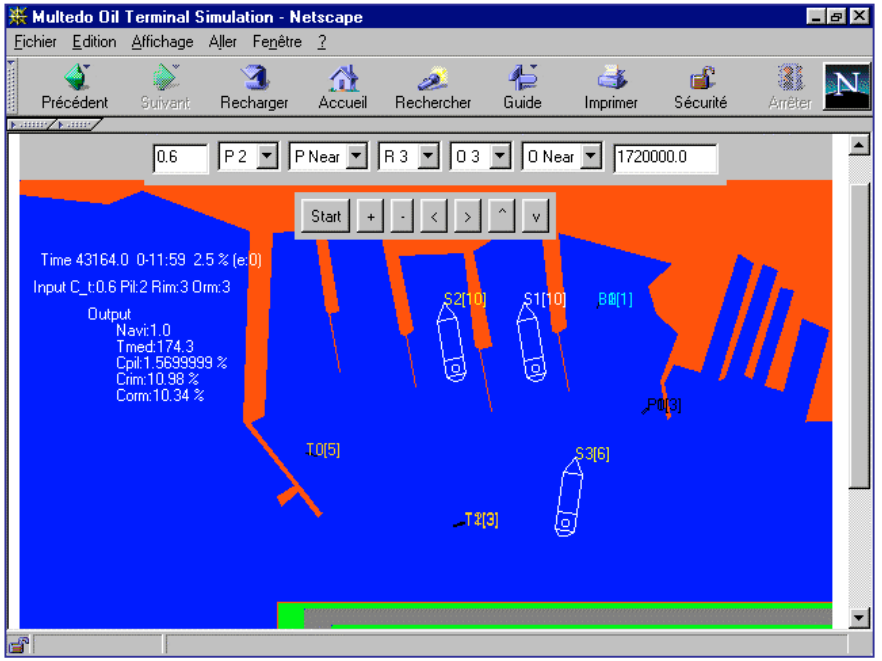
Simulation Team

POSEIDON

POrt Simulation Environment for Design of Operation and Network

This Project involves a web based, stochastic & combined (discrete & continuous) simulator.

- **Multedo Oil Terminal Genoa**
- **Vessel Traffic System**
- **Tankers**
- **Docks**
- **Pilot Boat**
- **Tugs**
- **Mooring Men Boats**



Demo is available at:

www.itim.unige.it/liophant/projects/poseidon

SIMILO

Ship MicroLogistics

The simulator *Similo* (Ship MicroLogistics), is an integrated approach to M&S and VR devoted to support on-board plants and processes; in this case the study focused on the crew mensa (cook-room) in development by CETENA/Fincantieri.

***Similo* model the interaction among people and his behavior in order to estimate support performance analysis (i.e. evaluation of external catering as substitute of kitchens in Fast Ferries).**

Java
Javascript
3DSMax

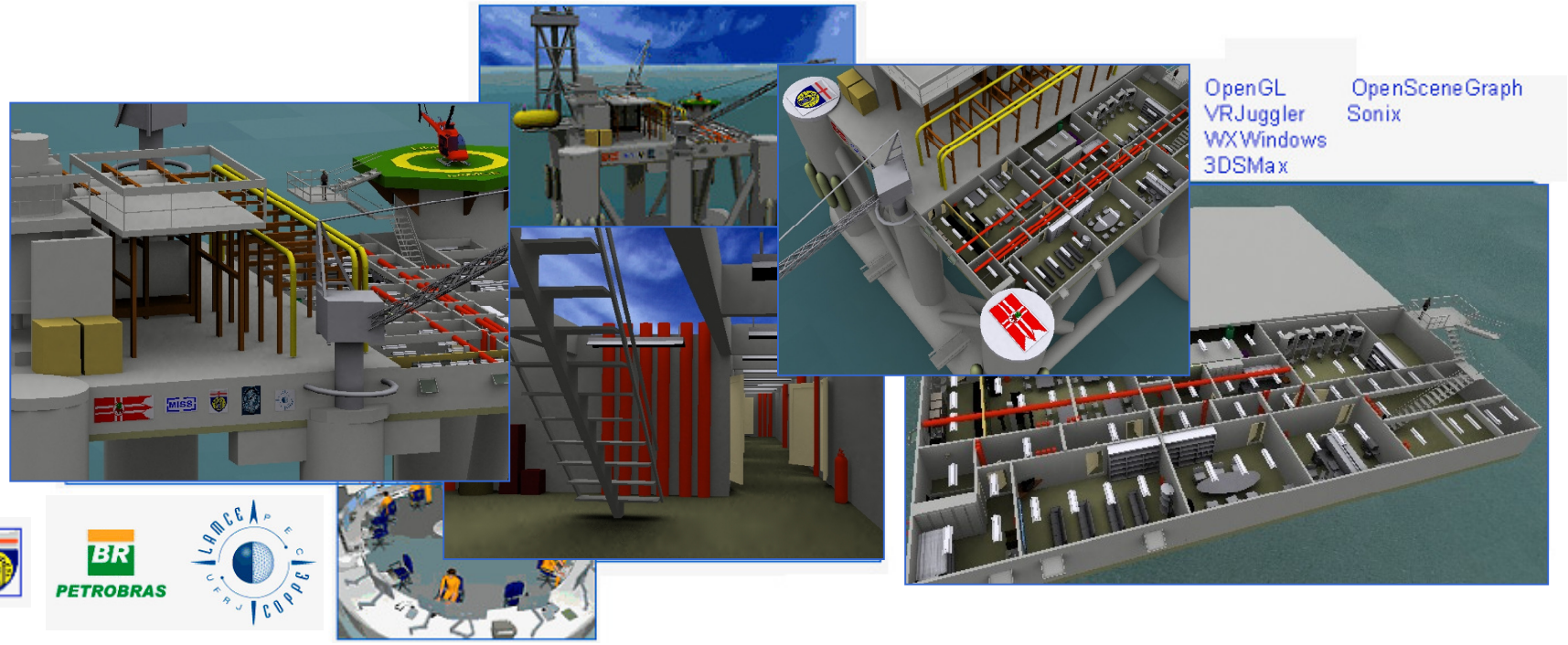
Vbasic
Maxscript
HTML

Simulation Team

Placra

Platform Crew Analyser

The Placra model was developed in order to reproduce the crew activities on Oil Platforms. Placra simulates crew activities

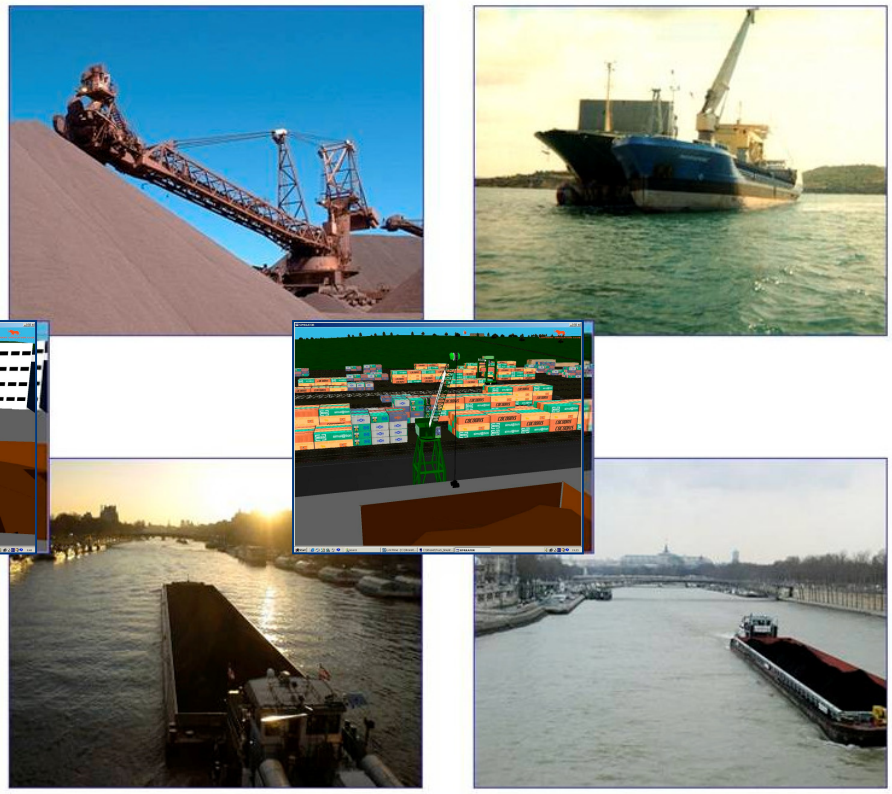


Simulation Team

DESU-BUMATRAS

Development Support for Front & Design in Bulk Material Transhipment System

DESU-BUMATRAS provided support to the development, validation of a Stochastic Discrete Event Simulator and on the related analysis on a Bulk Material Terminal & Transhipment Solution involving sea vessels & river barges

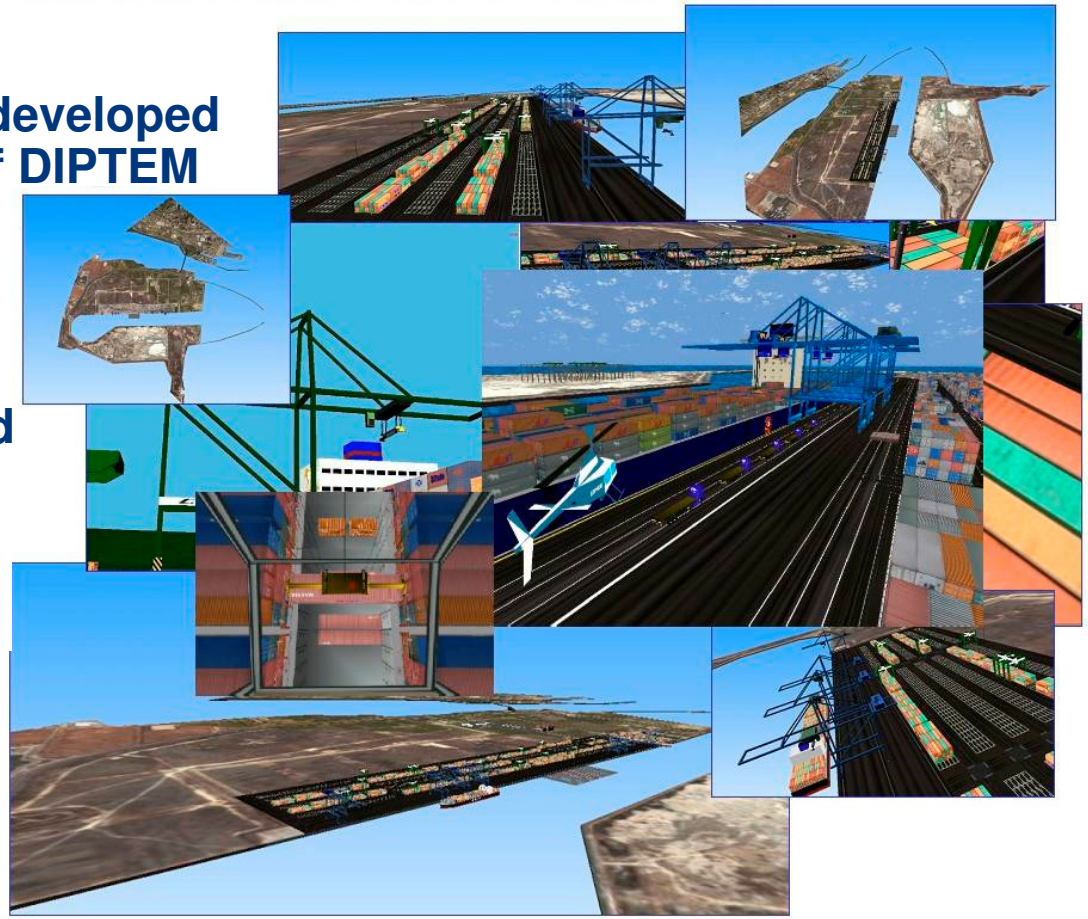


CYBERSAR
Portainer Simulator

Cyber Infrastructures for R&D in Sardinia-Portainer Simulator

Portainer Simulator developed as further evolution of DIPTEM Engine (Cocodris) by using ST_VP.

The System is devoted to Support Training and Virtual Prototyping by integrating Simulation and Biometrics Device



CYBERSAR

VIP-STRALO

Virtual Prototype by Simulation in Transportation and Logistics

VIP-STRALO goal is the creation of an innovative solution based on Interoperable Simulation for SBDVP (Simulation Based Design and Virtual prototyping) applied to Logistics, Transportation and Automation Sectors.

VIP-STRALO included the creation of two interoperable demonstrators:

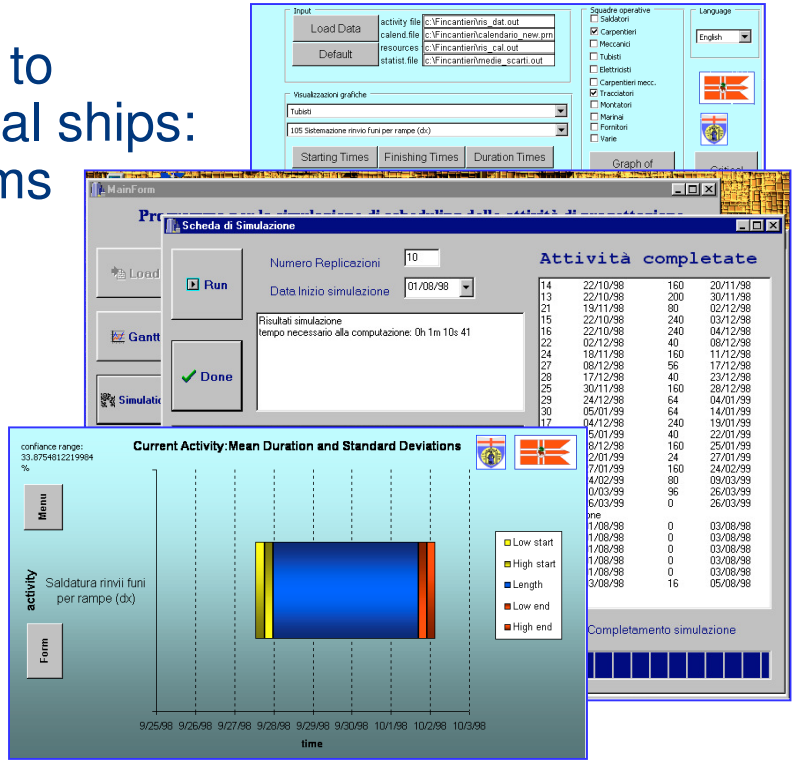
- **LOCRAS: Logistics Crane Simulator**
- **FEBO: Federation of Boats**

Simulation Team

ProSim

Project Management Simulation System

The project is a joint venture between Genoa University and Fincantieri, the major Italian Ship Yard Construction Company.
The project was tested in relation to their new generation of commercial ships: fast ferries for the car deck systems involving impact of R&D and prototyping issues.



ProSim has been already successfully applied to traditional ship construction problems for military ships and now is fully integrated with existing Project Management Software

Simulation Team

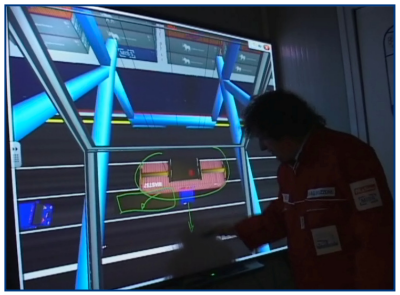
Interoperable Virtual Simulators

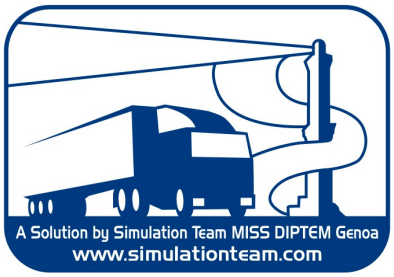
The Simulators developed by Simulation Team are an important support in Training both Operative Resources and Decision Makers. The Interoperability of our simulators is based on state of art standards (i.e. HLA High Level Architecture) and emphasize in addition to traditional
stand-alone training in Operating, even Concurrent Cooperative Training in Operations and Policies; Simulation Team collect long experience in Professional and Executive Training.

DIPTEM
Università di Genova

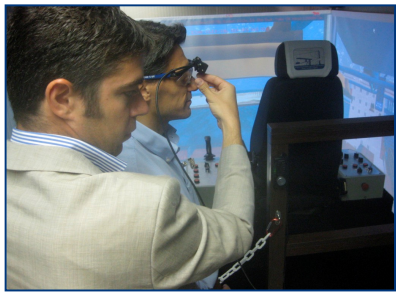
Simulation Team

ST_PT & ST_RS Simulators





Shelter & Facilities



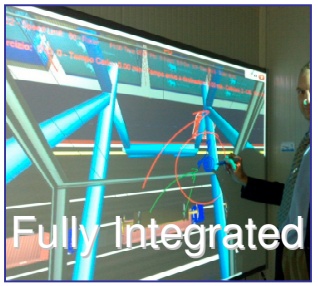
ST_PT Crane Sim

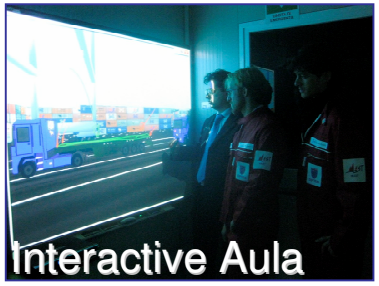
ST_PT Truck Sim

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

Simulation Team

Atout of our Virtual Simulation





Simulation Team

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

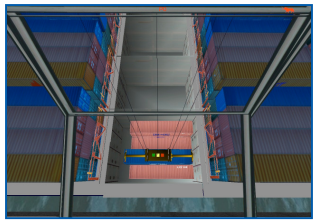
ST-VP includes a Full-Scope Simulation for Training Operations & Procedures, an Integrated Class Room, the Instructor Debriefing Room, and secondary Interoperable Simulators of all the Port Cranes and a Biomedical Module for Safety, Ergonomic and Posture Enhancement.

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

Simulation Team

ST_PT: Port Crane Simulation

The ST-PT is the Gantry Crane Simulator developed by Simulation Team and represents a New Solution for Operator Training, Procedure Definition, Equipment Design and Virtual Prototyping

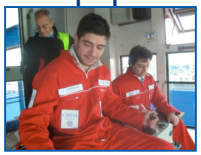


ST-PT is fully containerized real-time distributed HLA Simulator reproducing Port Operations. ST-VP is integrated in a 40' High Cube Container ready to be used on site immediately after arrival.

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

ST-PT includes a Full-Scope Simulation for Training Crane Operations & Procedures, an Integrated Class Room, the Instructor Debriefing Room, and secondary Interoperable Simulators of Trucks and Other Cranes, Biomedical Module for Ergonomic and Posture Enhancement.

ST-PT World is tailorable for each Port, Crane & Procedure and Equipment.



Simulation Team

ST_RS: Truck Simulation

The ST_RS is an Innovative Interoperable Truck Simulator fully integrated with ST_PT and Virtual Port; it provides opportunities for Training, Operative Planning and Terminal Procedure Redesign and Re-Engineering

ST-RS is fully containerized real-time distributed HLA Truck Simulator with Port & Inland Terminal and External Scenarios. ST-RT is integrated in a 40' High Cube Container ready to be used on site immediately after arrival.

ST-RS Simulator allows to operate Trucks in Terminal and over External Roads within a Virtual World by an immersive Cave (270 ° Horizontal and 130° Vertical), reproducing Sounds, Vibrations and Motion.

ST-RS includes a Full-Scope Simulation for Training Truck Driving, Logistics Procedures, an Integrated Class Room, the Instructor Debriefing Room, and secondary Interoperable Simulators of Different Cranes Cranes, Biomedical Module for Ergonomic and Stress Level Enhancement.

ST-RS World is tailorable for each Terminal Scenario, Truck, Procedure and Equipment.

Simulation Team

RESET

***R**iver **E**qual **S**hip Simulation in **E**xtensive **T**raining*

RESET is a project, devoted to creating a Federation for supporting training in river navigation and logistics. The Simulators includes:

- Barges
- Tanks

The RESET Federation includes the river dynamics for reproducing the maneuvering in condition affected by different streams, variable deep.

STICEL

Log.In.Form.

EURIDICE

Ministero del Lavoro e della Previdenza Sociale

Unione europea

RegioneLombardia

Simulation Team

INNOVARE

*Sviluppo **In**termodale **No**vara e **V**ercelli **A**bilita' **R**isorse Umane - **E**qual*

INNOVARE is a project, devoted to creating a Federation for supporting cooperative and competitive training in hinterland terminals. The Simulators includes:

- Reachstacker Simulator
- Truck Simulator
- Transtainers

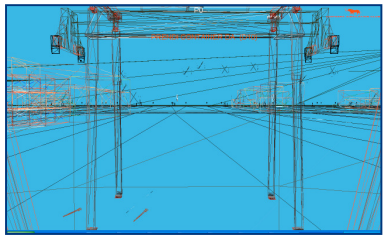
The INNOVARE Federation is centered on the Rail Terminal Simulation and CM operations.

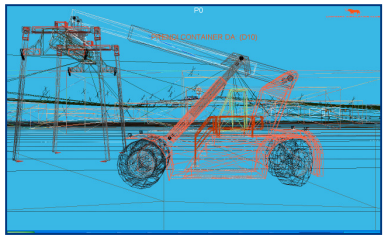
Simulation Team

Virtual Prototyping

The Simulation Team Solutions are very effective as support for Virtual Based Design and Prototyping measuring Real Overall Performances in the Virtual World by considering dynamic interactions among all the Elements and Entities.

Experience was carried out in Equipment, Control and Man-Machine Interface Re-Engineering





Simulation Team

SITRANET

SImulation for TRAiniNg & Education in Transportation

SITRANET is a project sponsored by EC, devoted to creating three simulators as training equipment for crane operators based on Virtual Reality.

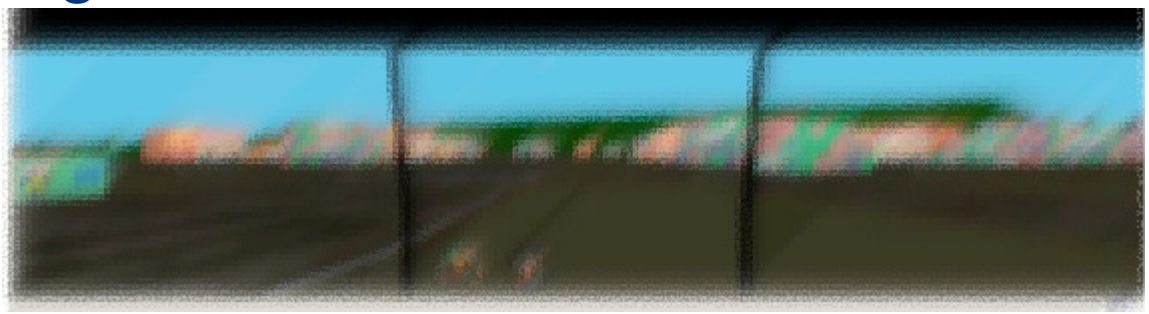
The Simulators includes:

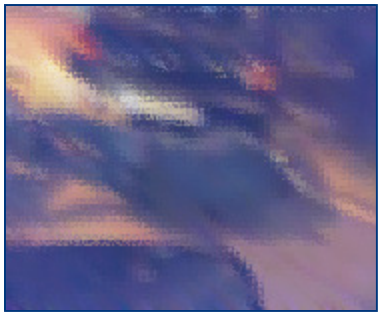
- **Special Crane Simulator**
- **Contstacker Simulator**
- **Truck Simulator**

The project technology leadership is assumed by DIPTEM. The SITRANET Simulator validation and verification involved over hundreds professional truck drivers and crane operators

Virtual Degenerative Operator Conditions

Simulation Team Solutions is proposing to start up a new project for Modeling the Degenerative Perception of Humans in Critical Conditions combining Simulation and Biomedical Measures. The Goal is to reproduce the Operator Perception under high stress or fatigue, or upon drug/alcohol abuse for creating a Virtual Framework devoted to develop possible MMI Aids and support definition of policies and regulations



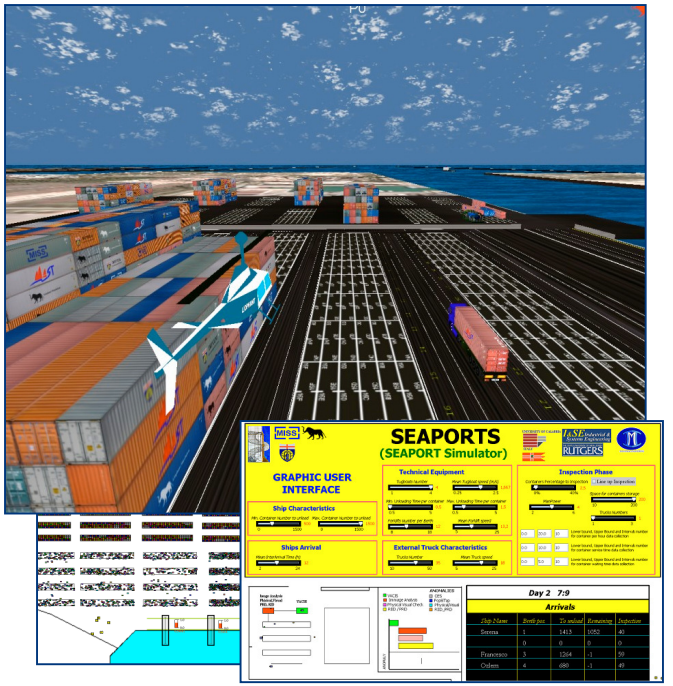


Simulation Team

Virtual Security Assessment and Training

VISAT (Virtual Security Assesment 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

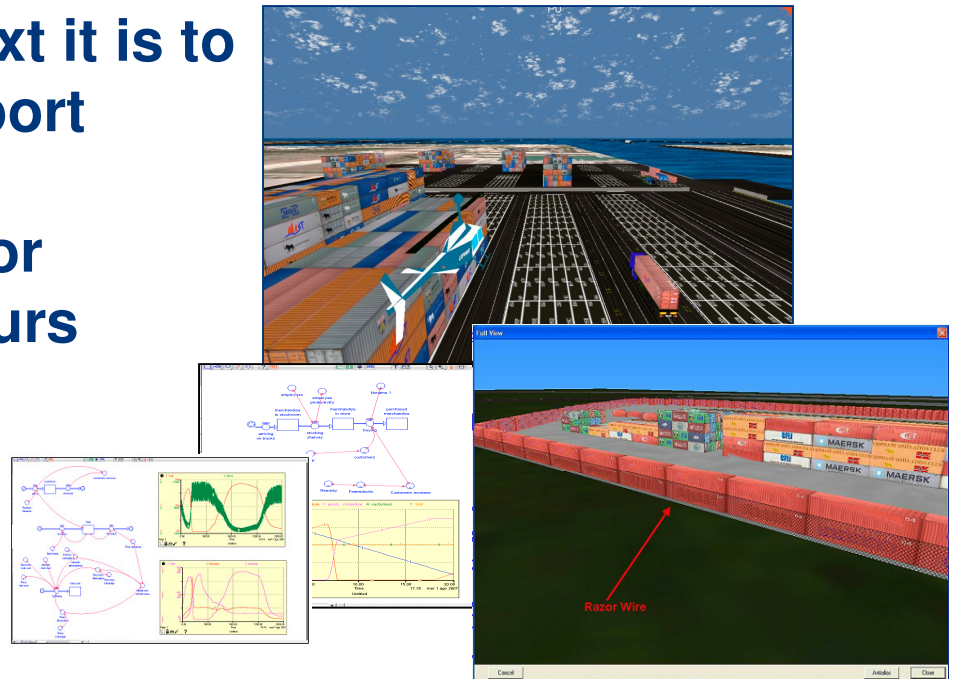


Simulation Team

Port/Terminal Security Simulation

Simulation Team is active in Modelling & Simulation for Guaranteeing Security in Maritime Environment especially in reference to Ports and Terminals

A major goal in this context it is to create solutions that support the Definition of operative and training procedures for security and safety harbours operations with strong emphasis on common standards and multi user framework



GreenLog Simulators

Simulation Team developed GreenLog Simulators for Analyzing Production, Logistics and Supply Chain.
GreenLog is a Web Based Simulation Engine devoted to evaluate Costs and Environmental Impacts of Productive, Logistics and Transportation Elements of the Supply Chain and Specific Modules have been developed for focusing on specific aspects:

- GreenLog Port
- GreenLog Ship
- GreenLog Crane
- GreenLog Warehouse
- GreenLog Train
- GreenLog Air
- GreenLog Heavy Haul

GREENLOG Project

Green Logistics Project

GreenLog is a web framework combining simulation and analysis techniques for self evaluating the Supply Chain efficiency in term of Costs, Quality and Environmental Impact. The GreenLog was developed by Simulation Team DIPTEM for supporting a Joint Venture on Green Logistics coordinated by Assologistica in cooperation with several major production, logistics and distribution companies operating in Italy

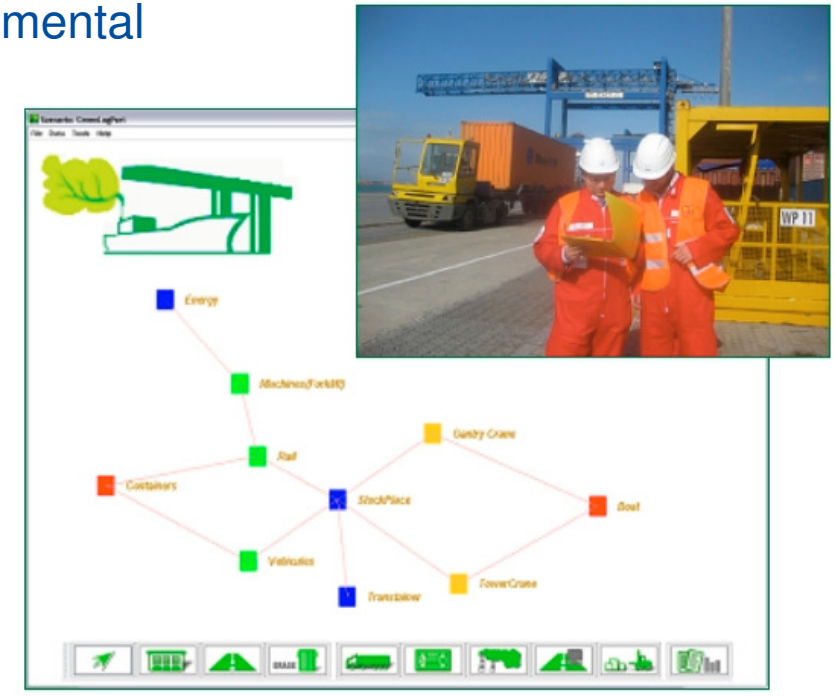
Simulation Team

GREENLOG Port

GreenLog Port Simulator

GreenLog Port is a specific Simulation Module devoted to support estimation of Environmental Impact in Ports

- Garbage & Port Waste
- Dredging
- Dust
- Noise
- Ship Air Emissions
- Air Quality
- Hazardous cargo
- Bunkering
- Port development
- Ship Discharge



Developed in Cooperation with Simulation Team & DIPTEM

MAST

Simulation Team

GREENLOG Ship

GreenLog Ship Simulator

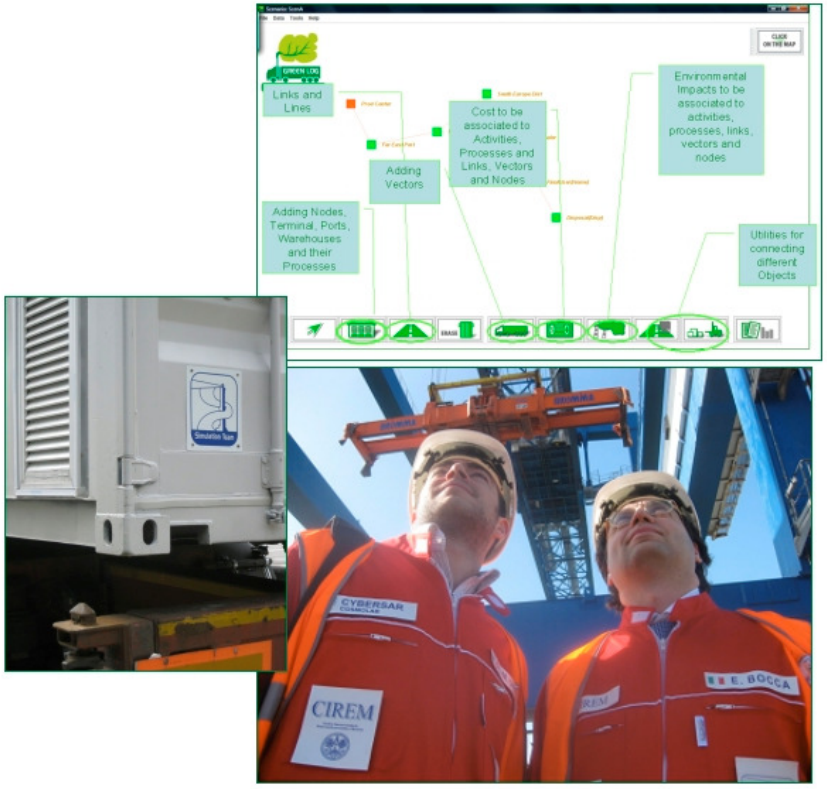
GreenLog Ship is a specific Simulation Module devoted to analyze the Environmental Impact of the Ship for supporting monitoring, alternative evaluation, saving and benefits from different solution in use, handling, operating as well as in Ship Design
GreenLog Ship Includes Air Emission, Consumption, Ship Paints, Garbage/Waste Disposal, Noise, Ship Discharges, Hazardous Cargo, Spills

Simulation Team

GREENLOG Crane

GreenLog Crane Simulator

GreenLog Crane is a specific Simulation Module devoted to analyze the Environmental Impact of Cranes and Handling Devices considering Operative Costs and Environmental Impact GreenLog Crane allows to estimate the benefits provided by innovative solutions in term of power saving,
oil spill reductions, better safety procedures and higher performances



Developed in Cooperation with Simulation Team & DIPTEM

MAST

GREENLOG Heavy Haul

GreenLog Heavy Haul Simulator

GreenLog Heavy Haul is a specific Simulation Module devoted to analyze the Environmental Impact of Trucks and Heavy Hauls considering Operative Costs and Environmental Impact

GreenLog Heavy Haul allows to estimate the benefits provided by innovative solutions in term of oil and gas consumption, tires, better safety procedures

and higher performances

Developed in Cooperation with Simulation Team & DIPTEM

MAST

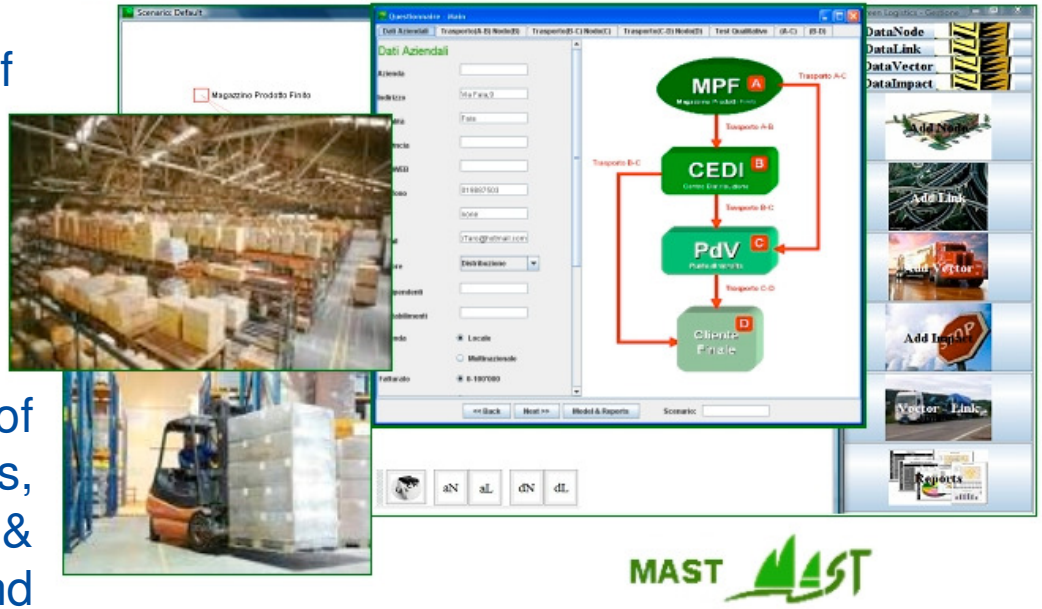
Simulation Team

GREENLOG Warehouse

GreenLog Warehouse Simulator

GreenLog Warehouse is a specific Simulation Module devoted to analyze the Environmental Impact of Warehouse and Logistics Platforms considering Operative Costs and Environmental Impact GreenLog Warehouse allows to estimate the benefits provided by innovative solutions in term of reefer solutions, infrastructures, power generation, handling devices & equipment, management policies and control systems

Developed in Cooperation with Simulation Team & DIPTEM



MAST

Simulation Team

GREENLOG Train

GreenLog Train Simulator

GreenLog Train is a specific Simulation Module devoted to analyze the Environmental Impact of Railways and Trains considering Operative Costs and Environmental Impact GreenLog Train allows to estimate all the different direct and indirect environmental impacts as well as the benefits from innovative solutions in term of power saving, waste reductions, better safety procedures and higher performances

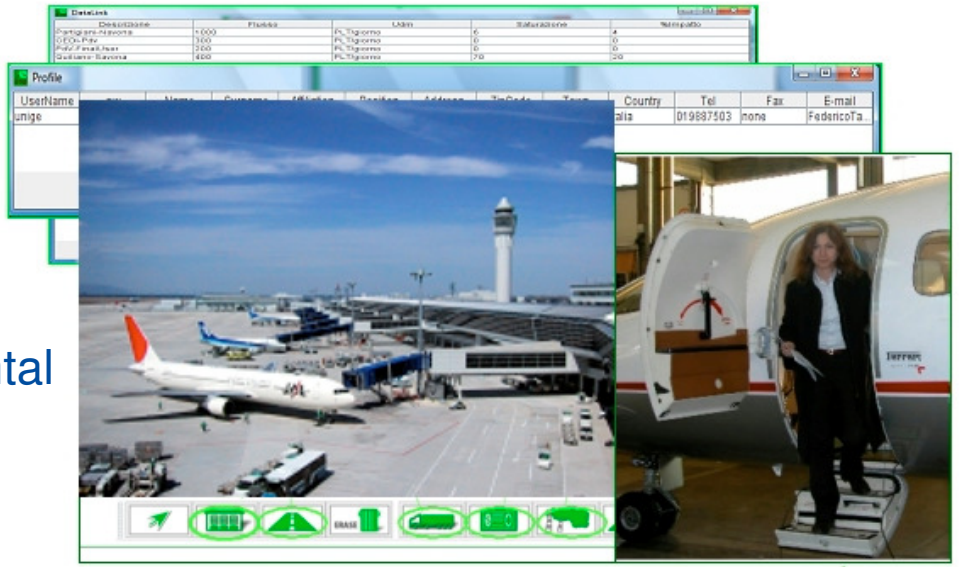
Developed in Cooperation with Simulation Team & DIPTEM

Simulation Team

GREENLOG Air

GreenLog Air Simulator

GreenLog Air is a specific Simulation Module devoted to analyze the Environmental Impact of Airports and Planes considering Costs and Environmental Impacts both of commercial and cargo operations. GreenLog Air allows to estimate all the different direct and indirect environmental impacts as well as the benefits from innovative solutions in term of management policies, power saving, consumption reduction, waste reductions, safety & security procedures and higher performances



Developed in Cooperation with Simulation Team & DIPTEM

MAST

Simulation Team

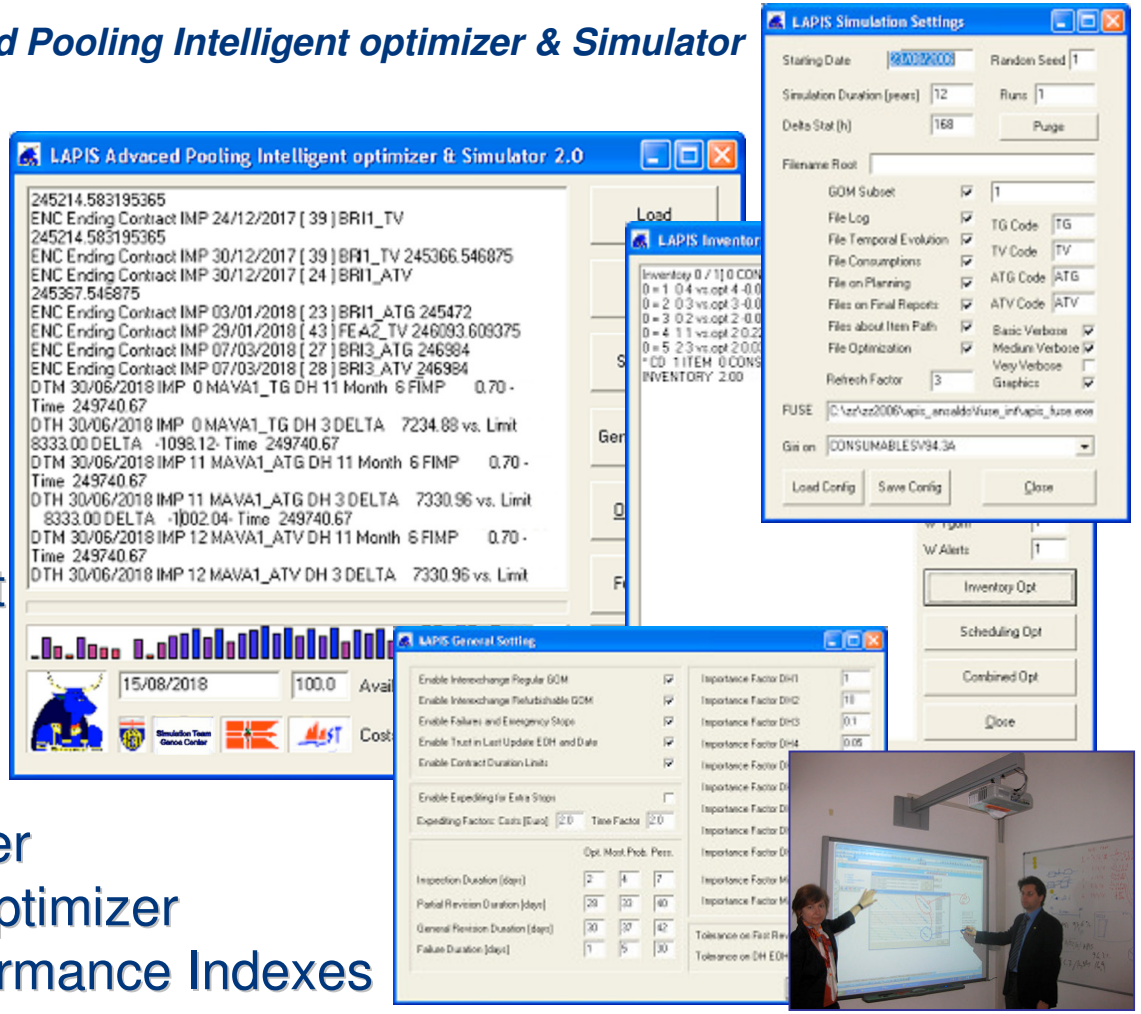
AnsaldoEnergia
A Finmeccanica Company

LAPIS

Lean Advanced Pooling Intelligent optimizer & Simulator

LAPIS is an intelligent decision support system for Service Division of Construction and Engineering Companies. LAPIS combines different modules:

- Service Model
- Inventory Optimizer
- Scheduling Optimizer
- Overall Resource Optimizer
- Metrics & Key Performance Indexes



Simulation Team

LEXIS

Layout Excellence Integrated Simulation

TESTED IN PIAGGIO AERO

Developed in Cooperation with DIPTEM University of Genoa

LEXIS (Layout Excellence Integrated Simulation) integrates Layout Optimization based on Genetic Algorithms, Modeling & Simulation and Virtual Reality. LEXIS was applied with success to new large Production Facility for Aerospace Industry. The system allows to consider costs, distances, times and all different production processes and internal and external logistics solutions

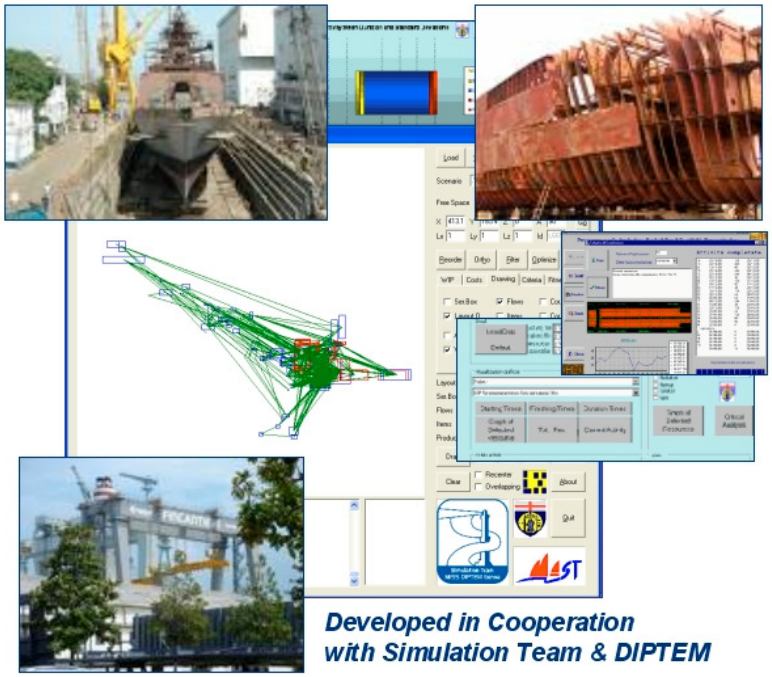
LEXIS
for Constructions

LEXIS (Layout Excellence Integrated Simulation) represents a solution for Optimizing Space, Planning and Operations in Constructions even considering the sequence of actions and the use of the equipment on the Construction Yard.

Developed in Cooperation with Simulation Team & DIPTEM

LEXIS for Ship Yard Constructions

LEXIS (Layout Excellence Integrated Simulation) represents a solution for Optimizing Space, Planning and Operations in Ship Yard Constructions as well as its management.



Developed in Cooperation with Simulation Team & DIPTEM

LEXIS for Port Terminals

LEXIS (Layout Excellence and Integrated Simulation) represents a solution to Optimize Terminal Layout and Area Assignments by combining a Smart Optimization Framework with an Interactive Dynamic Simulation of the Processes.
LEXIS includes possibility to consider external areas and outsource services

Developed in Cooperation
with Simulation Team & DIPTEM

MAST

Email: info@mastsrl.eu URL: www.mastsrl.eu

Simulation Team

VELA

Virtual Environment, Live systems and Augmented reality

VELA, Virtual Environment, Live systems and Augmented reality, is an innovative approach that allows by using new technologies to improve Safety through Virtual Environments, Augmented Reality & Phenomena Simulation.
VELA is an approach to support:

- **Safety & Security Assessment**
- **Training**
- **Operational Support**

Developed in Cooperation with Simulation Team

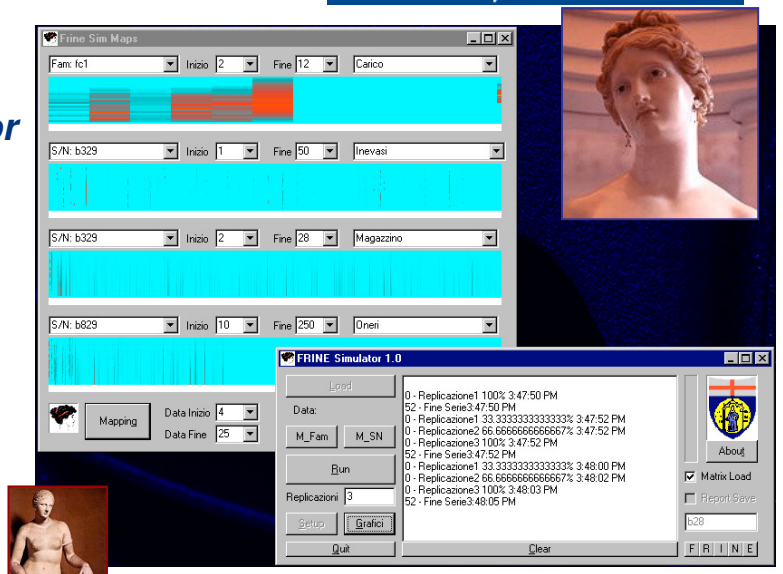
MAST

Simulation Team

Marconi

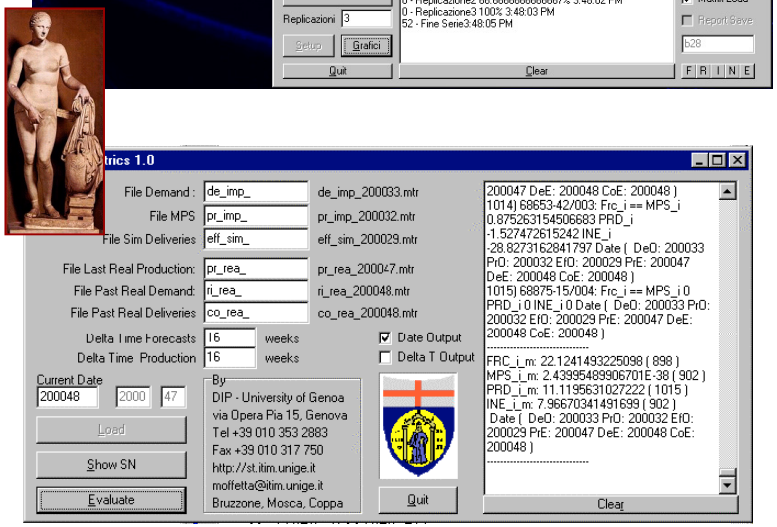
Frine

Forecasts Robust INtelligent Evaluator



FRINE is a modular approach for supporting inventory management, purchasing and outsourcing planning in telecommunication production industry.

FRINE includes: Frine Sim a detailed simulator for evaluating different scenarios, Frine ANN an intelligent forecast system based on Artificial Neural Networks and Commercial Data Fusion and a Frine Metrics for on-line performances measuring and controlling.



Simulation Team

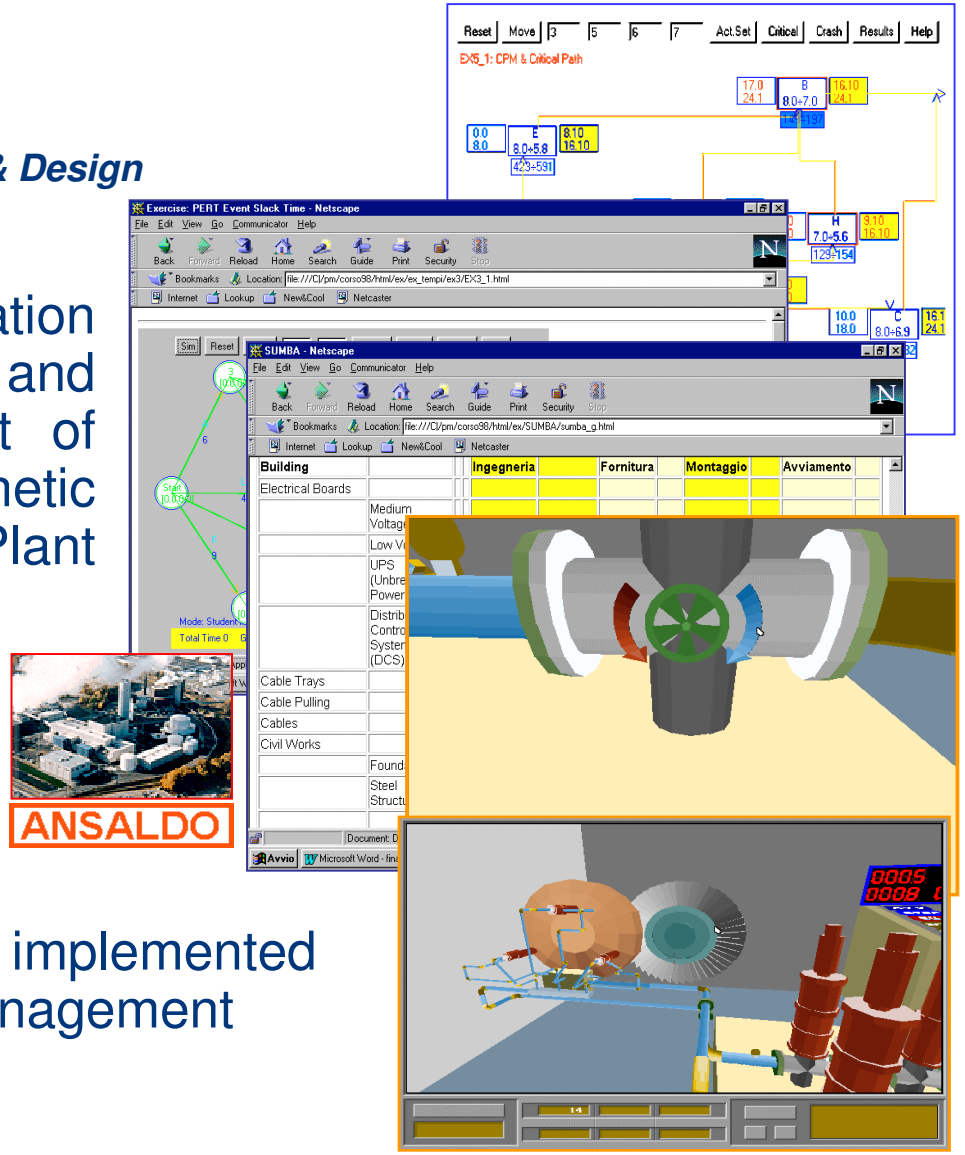
VAED

Virtual Aided Engineering & Design

VAED is a joint cooperation between Genoa University and Ansaldo for the development of Distributed Synthetic Environment for Power Plant Design.

A prototype has been developed and used for supporting design of Burners, Piping, DCS of a Gas Turbine in joint project with Siemens.

A set of demonstrators has been implemented and tested to support Project Management applied to these projects.

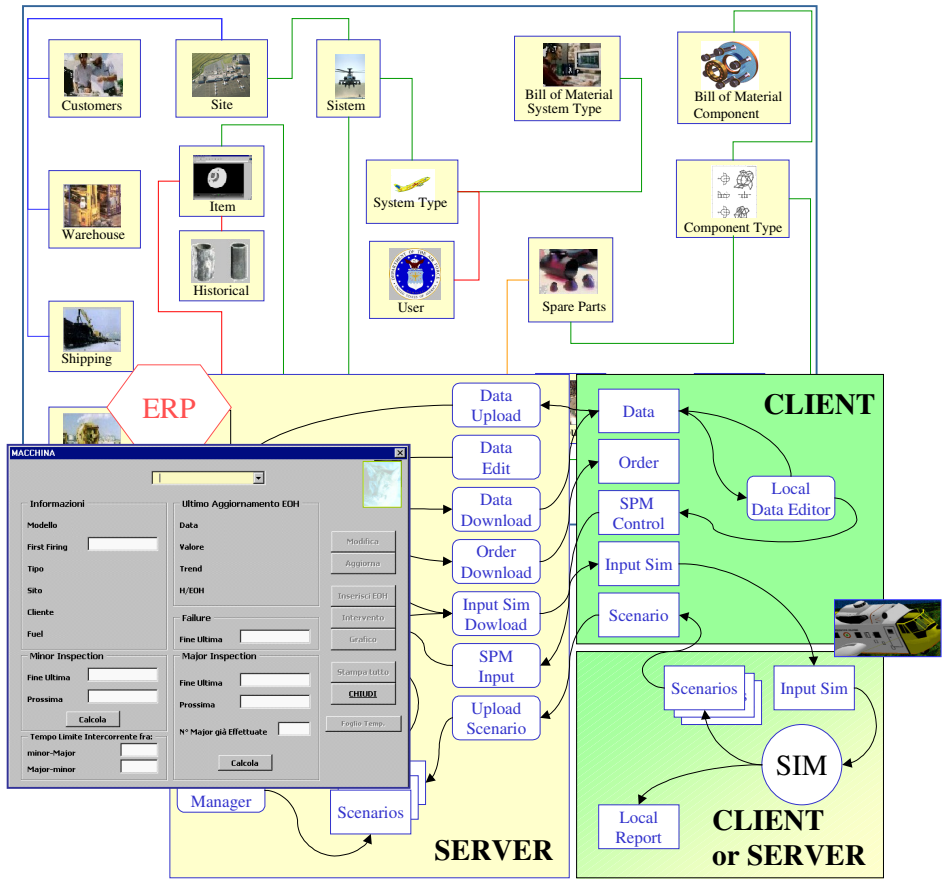


Simulation Team

COUGAR

Controller & Organizer for Ultimate Government of Availability and Reliability

COUGAR is the innovative system for the Service and Maintenance of complex systems (i.e. Helicopters). The system is designed to satisfy the requirements connected with the maintenance management of helicopters taking care of both pre-planned and emergency actions.



DIPTEM
Università di Genova

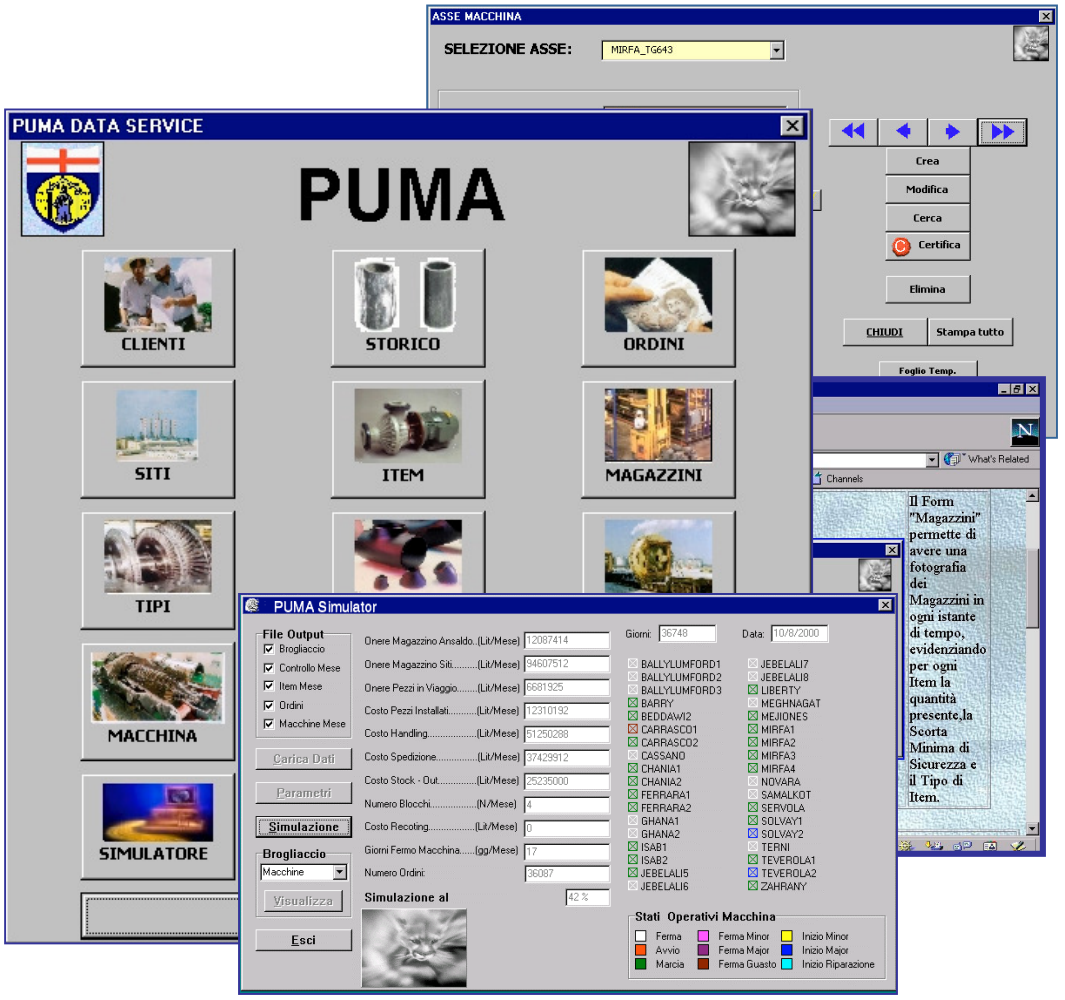
Simulation Team

ANSALDO

PUMA

Project for Ultimate MAintenance

PUMA is the innovative system for re-organizing Gas Turbine Service in Ansaldo Energia.
The system allows to manage resources, spare parts, internal/external warehouses, shipping and scheduling of all the maintenance operation for over 50 power plants distributed world-wide.

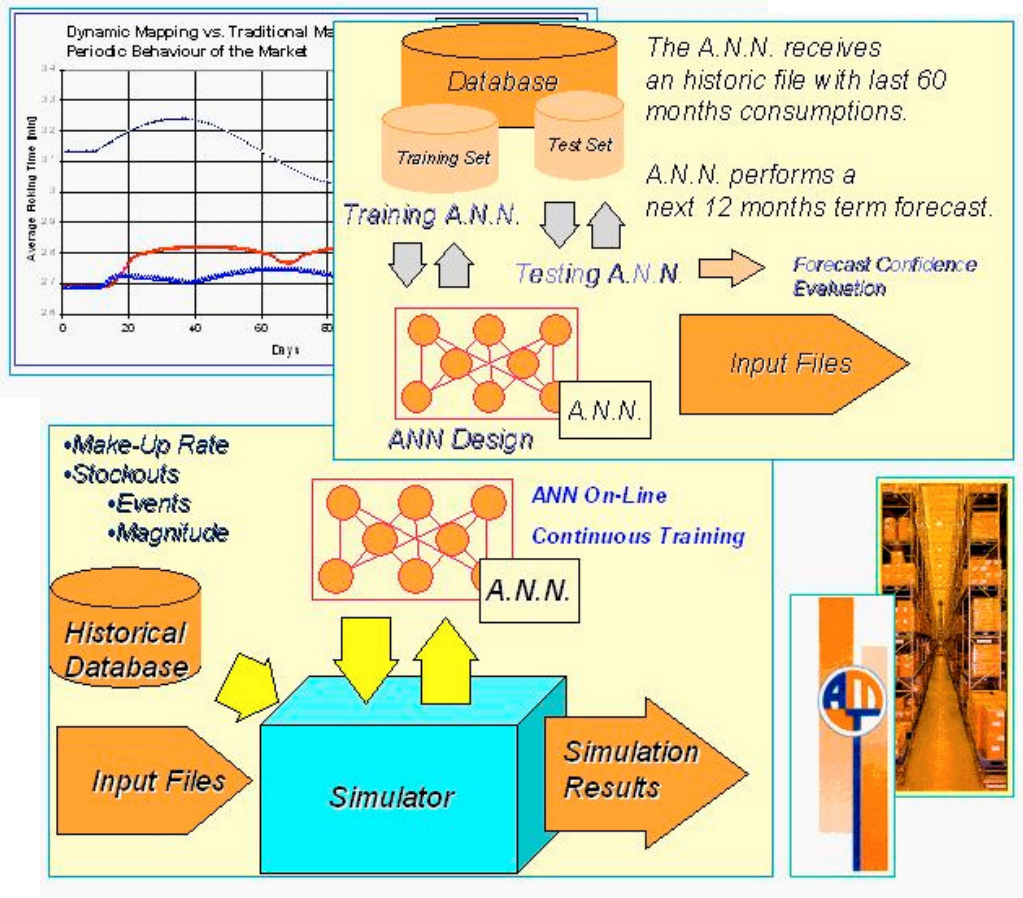


Simulation Team

WOLVES

Warehouse Organization & Logistics Virtual Environment Simulation

WOLVES focuses on Inventory Management & Warehouse Control in an advanced Framework integrating ERP, AI, Forecasting and dynamic planning. WOLVES was successful applied to a wide spectrum of industrial cases: from SME involved in production to large mass transportation companies; the results obtained was usually very successful reducing the inventory even to 50% with service improvements



Simulation Team

FUSE

Fuzzy Logic Schedule Analyzer

AnsaldoEnergia

FUSE is a package operating on PC and fully integrated in Office Suite for Supporting Planning and Management of Power Plant Service.
FUSE analyzes different scenarios providing quantitative measures of the critical issues including: contractual aspects, technical regulations, resource constraints, user needs, etc.
FUSE properly reproduce the different parameters in order to support operative planning

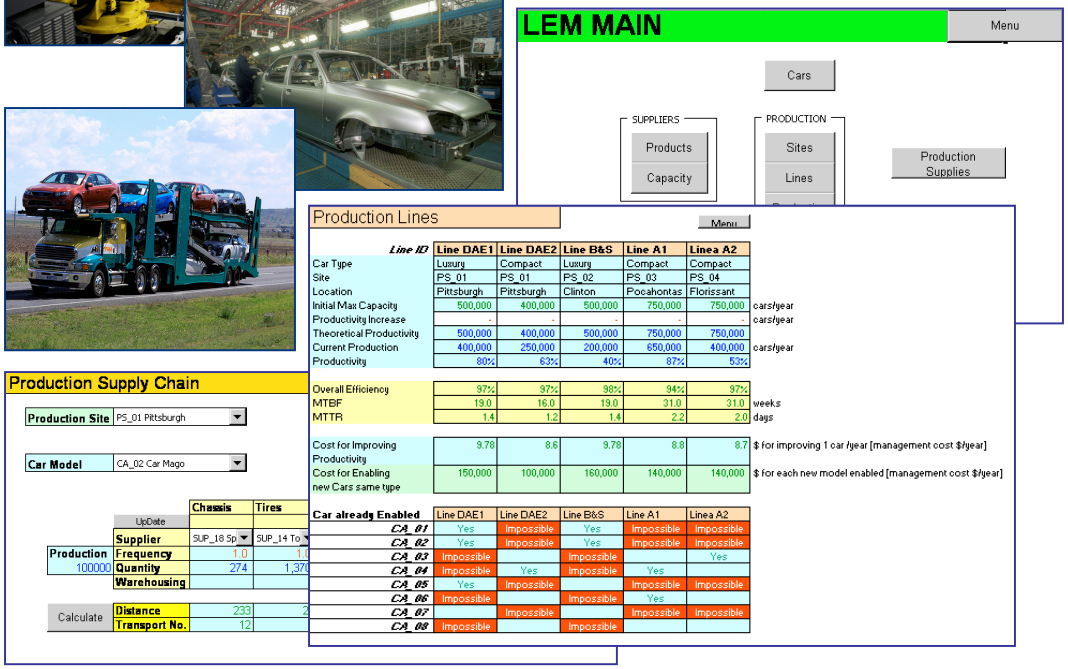
Simulation Team

LEM

Logistics Evaluation Model

LEM Project is a joint venture among Ford, Boston College, LSC & Genoa University for Developing a Web Based Support System for Supply Chain management.

Tests using LEM beta_modules have been carried out successfully on over 70 logistics centers.

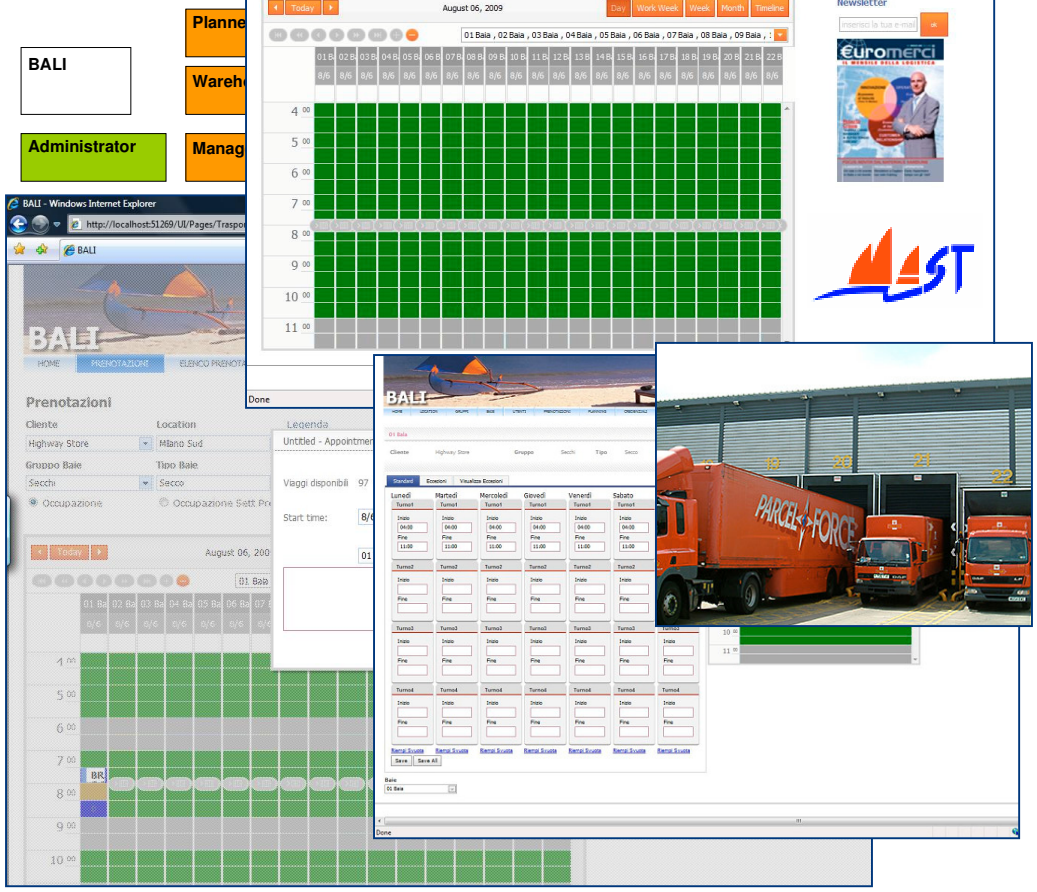


Blizzard Srl CRAI Simulation Team

BALI

Bay Advanced Logistics Integrator

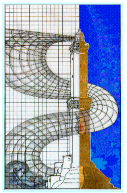
BALI is a web solution for planning the access of trucks to docking bays in order to consider planning, use coefficients, workloads, management of new time slots and different kind of goods. By this approach it is possible to obtain significant benefits in term of reduction the waiting time of trucks and optimize the workload



Simulation Team

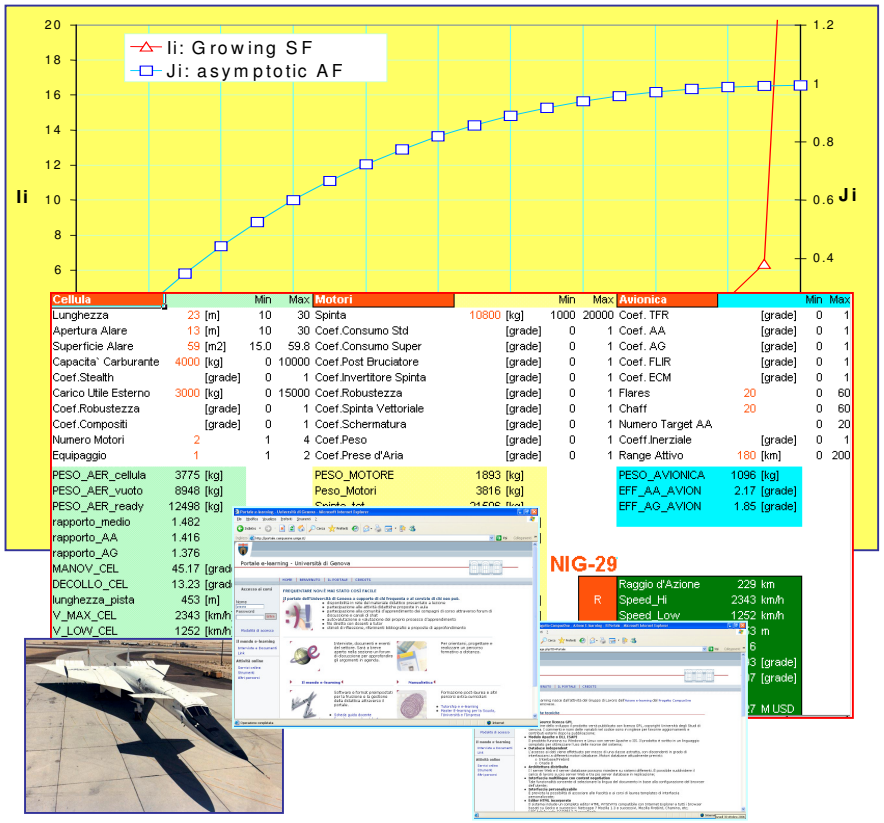
J20 Experience

E-Learning Concurrent/Cooperative Project Game



J20 allows to experience in a Web Based Environment a New Product Development by working in Cooperative Teams (Engine, Avionics Cell) representing different Joint Ventures competing for the Project a New Advanced Fighter.

The Exercise has been extensively tested in Distributed Environment for Professional and Academic Courses



Simulation Team

WORM & WASP

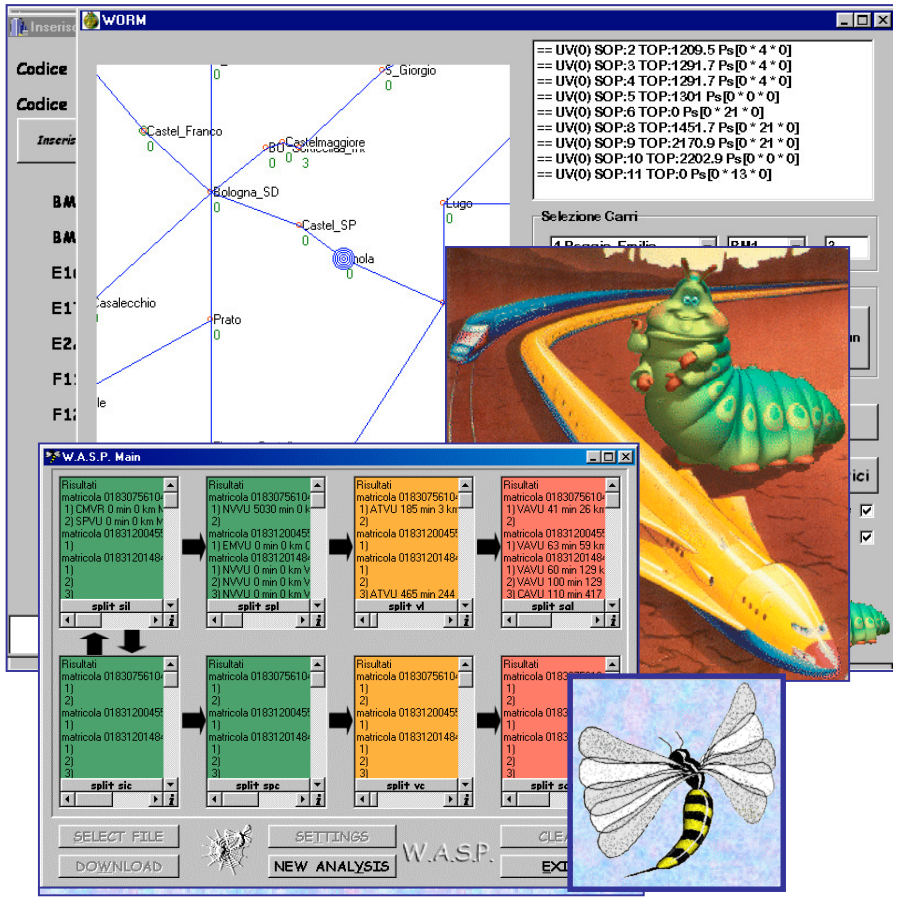
Work Organization for Railways cargo Management
Wide Analysis of rail System and Performances

FERROVIE DELLO STATO

WORM is a simulator of freight rail operations for estimating service quality and costs.

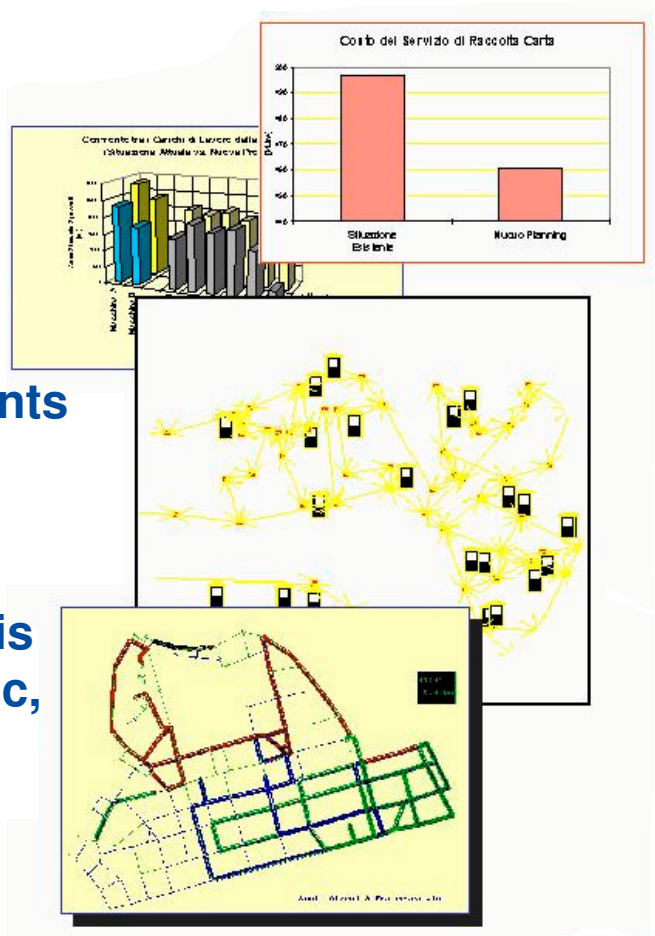
WASP is a data mining system and smart performance analyzer directly integrated in railways information system.

WASP & WORM are integrated to operate as DSS for ASA Logistics Div. in Italian Railways



SOFRA & ATARDPL

Cleaning & Garbage Collection



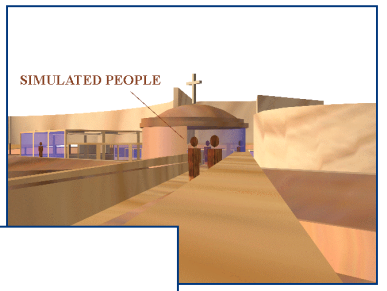
The projects SOFRA focuses on Street cleaning in an urban context and use a combination of Genetic Algorithms and Simulation in order to optimize mission planning considering all the constraints; this approach guarantees improvements of 30% in term of quality of the service without additional investments just based on mission reorganization

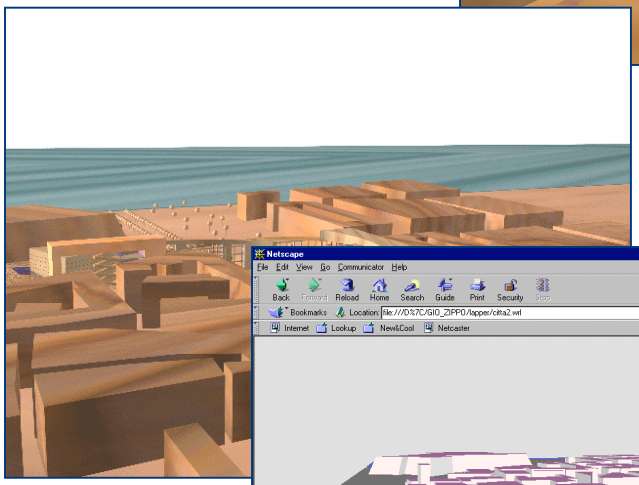
The ATARDPL is based on SOFRA concept and it is devoted to Garbage Collection Planning (i.e. plastic, glass, paper) in Environmental Town Management and it guaranteed on real cases improvements in term of cost savings (10-20% reduction).

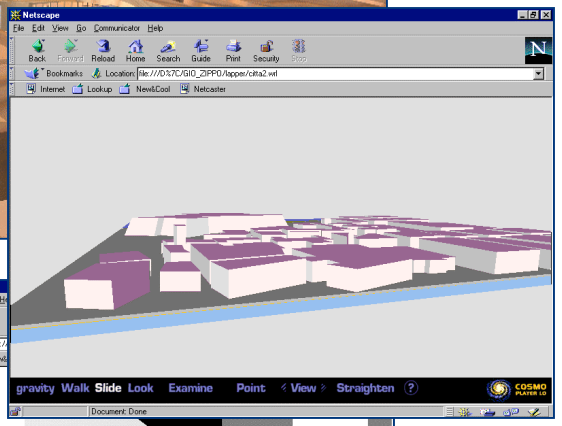
Simulation Team

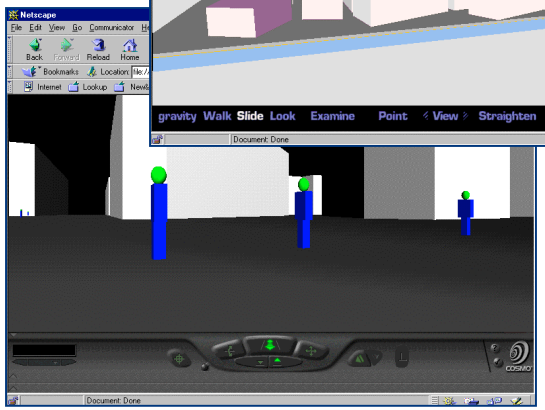
San Paolo 2000

San Paolo Hospital in Savona: Simulation for Architecture









San Paolo 2000 is the integration of simulation with architectural techniques for functional design and analysis of urban areas and buildings.

The system reproduce the Savona Downtown with the restoring project of this building using VRML 2.0 for exploitation of the results in the public community by WWW; it's possible to navigate in the scenario and to watch the interactions of simulated cars and people

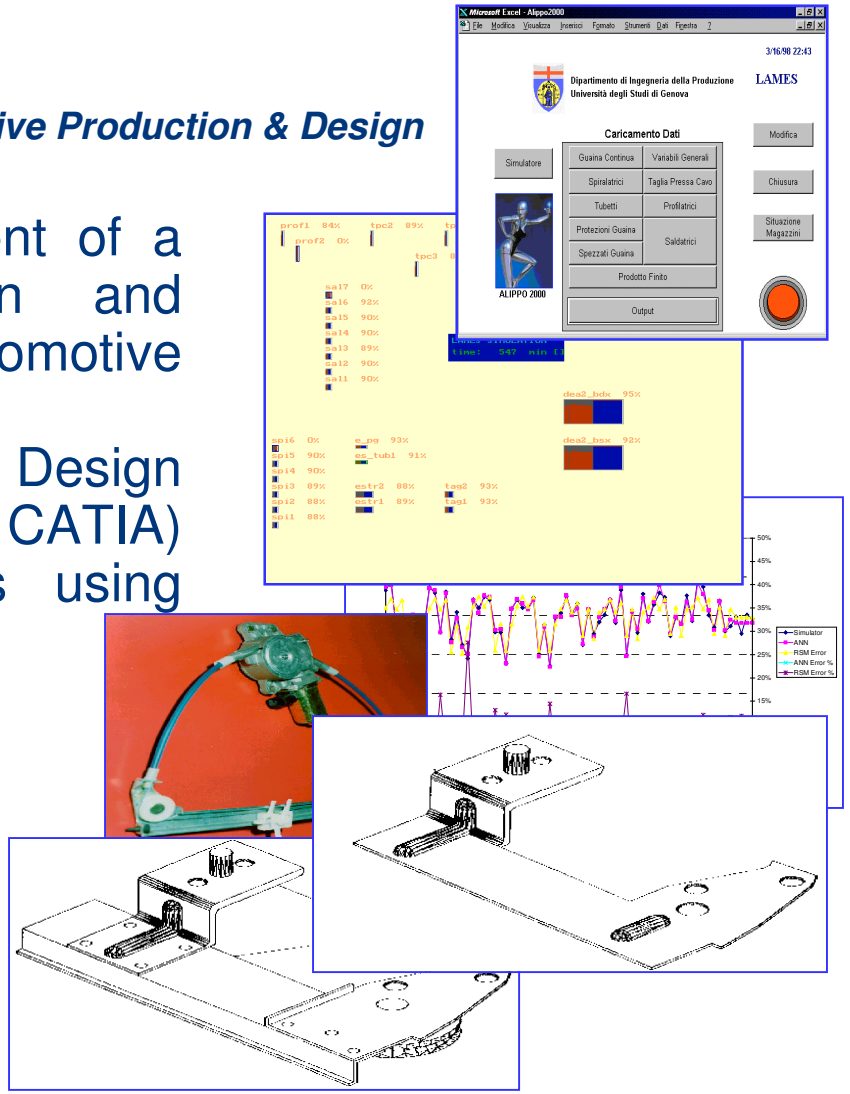
Simulation Team

Alippo

Virtual Prototyping for Automotive Production & Design

Alippo Project is the development of a Model for integrating Design and Production Environment in Automotive Component Industry.
The system connects the Product Design provided by CAD systems (i.e. CATIA) with the Production Processes using Simulation.

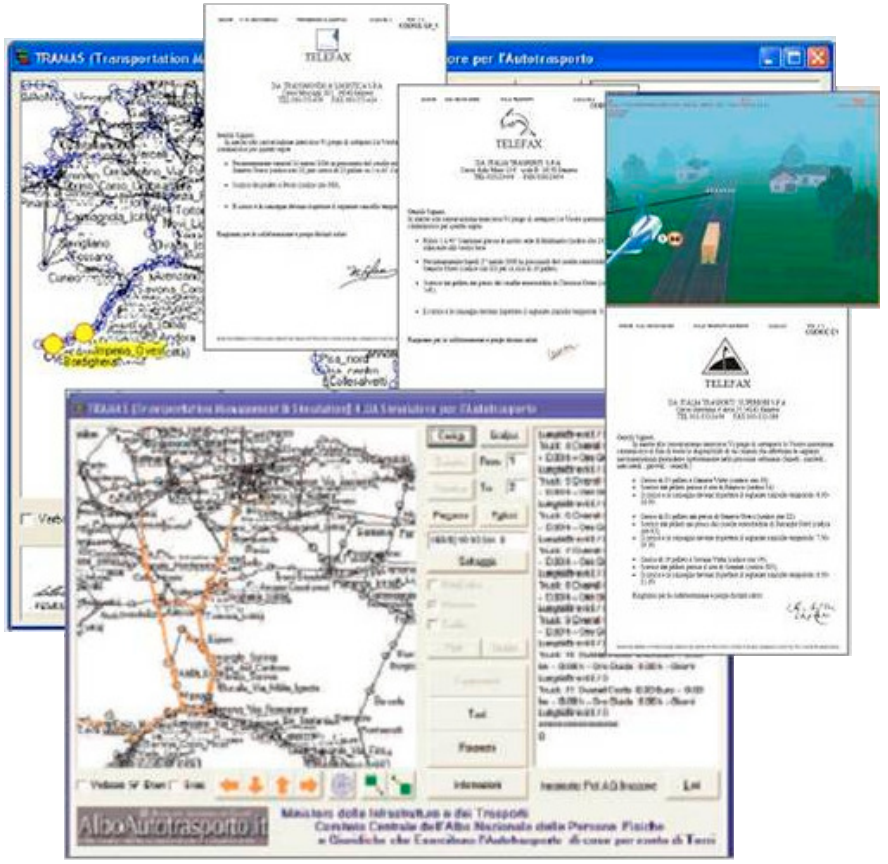
Alippo simulates the production system considering the changes and valorizes the design changes in terms of Work in Process, Warehouse Saturation, Effective Productivity etc.



TRAMAS 4.0A

Transportation Management & Simulation for Transportation Managers

TRAMAS 4.0A is a tailored release devoted to organize Business Games for Education of Managers from Small Medium Size Transportation Enterprises.
The Project was successfully applied in several courses sponsored by Italian Transportation Department.



Ministero delle Infrastrutture e dei Trasporti
AlboAutotrasporto.it
Comitato centrale per l'Albo Nazionale degli autotrasportatori di cose per conto di terzi

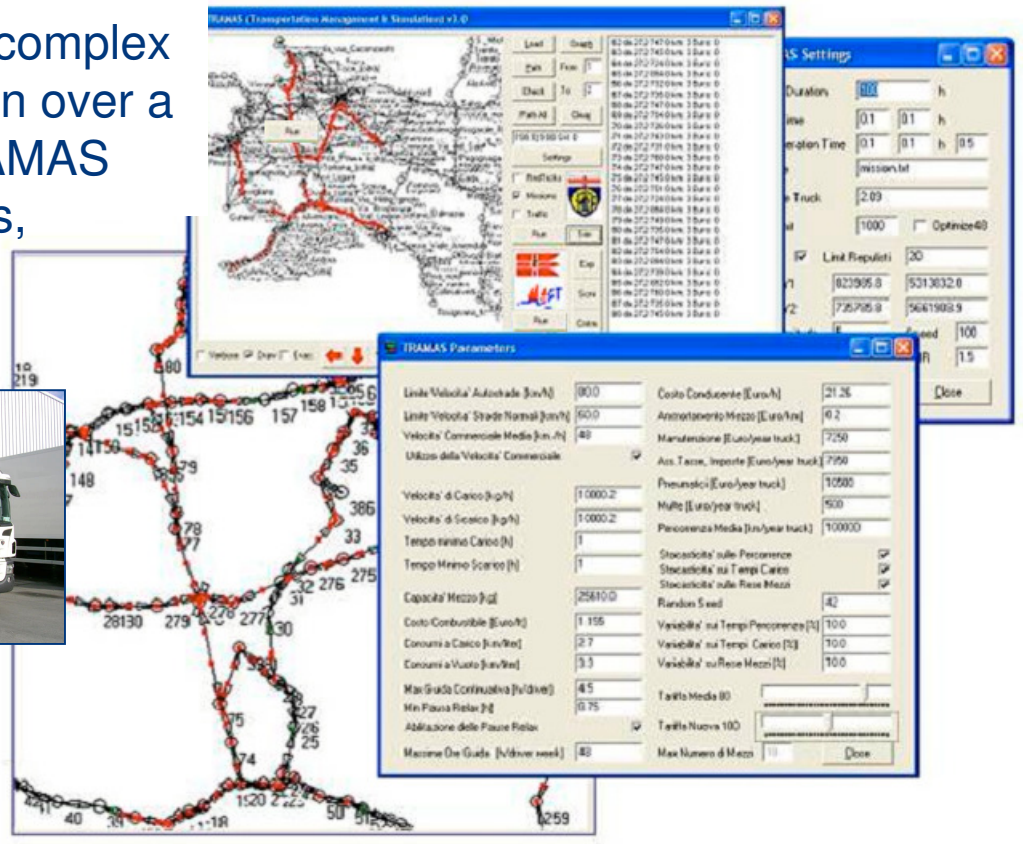
Simulation Team

TRAMAS

Transportation Management & Simulation

TRAMAS is devoted to analyze complex scenarios involving transportation over a wide geographic area. The TRAMAS Simulator analyzes Costs, Times, Constraints and includes all the major factors such as:

- Traffic
- Weather
- Road Saturation
- Time Constraints
- Infrastructures
- Logistics Processes
- Cooperative Operations
- Shuttle Services
- Multipick and Multidrop



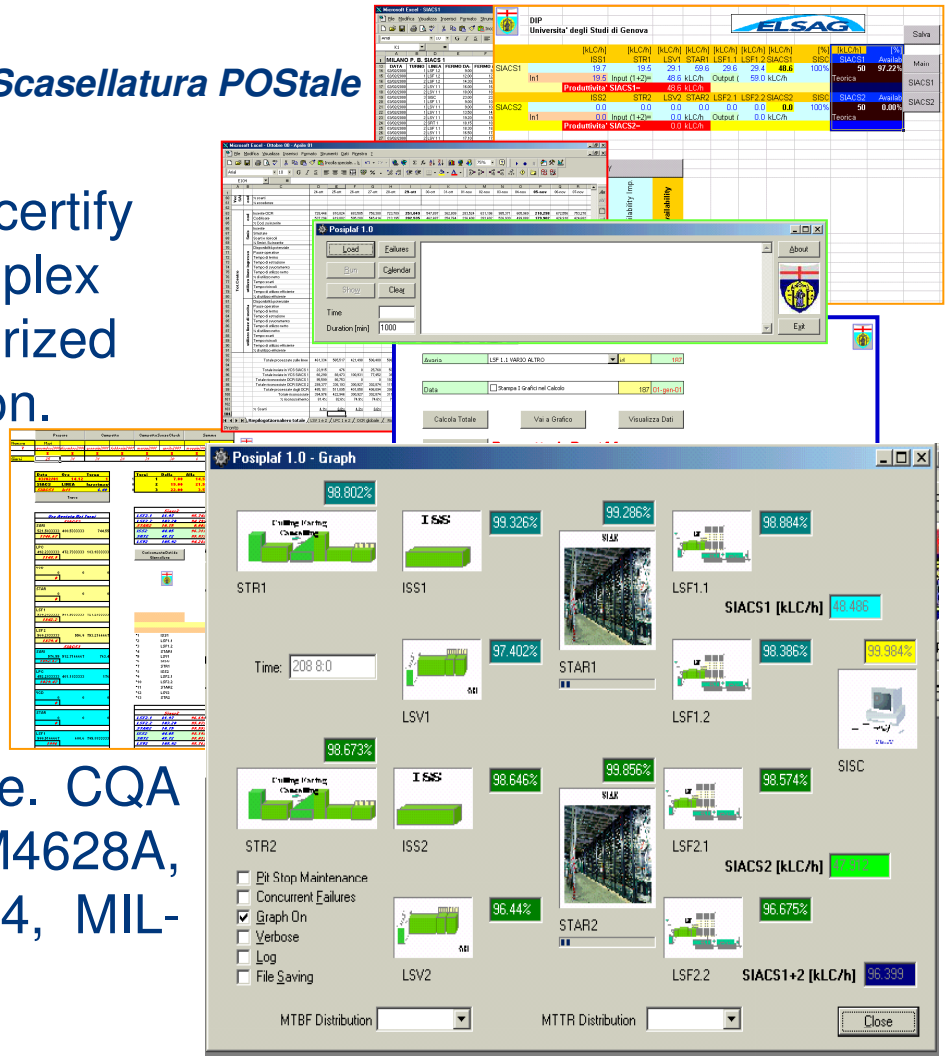
DIPTEM
Università di Genova

Simulation Team

ELSAG

DISPOS

Disponibilità di Impianti di Scasellatura POStale



DISPOS is a suite devoted to certify availability and reliability in complex postal Production Lines characterized by multiple operative configuration.

DISPOS integrates historical data with *a priori* analysis based on simulation.

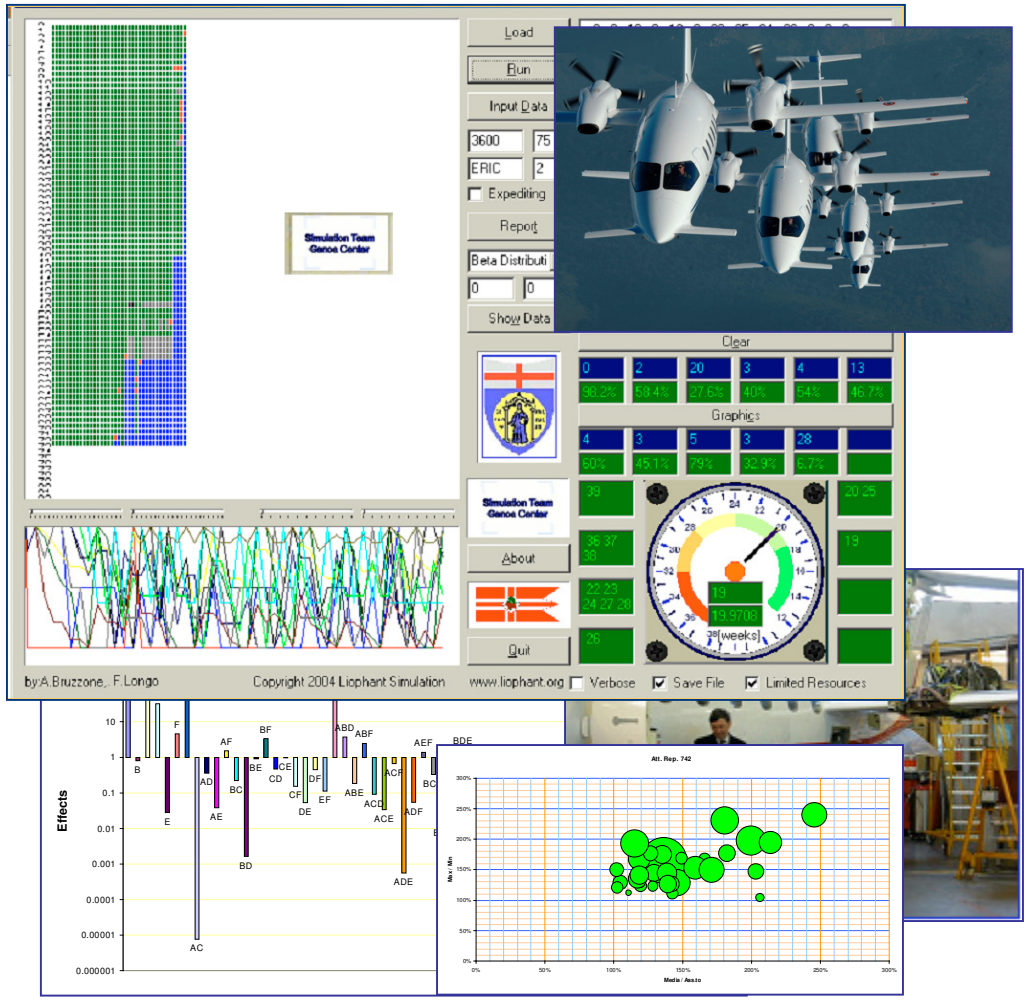
The systems include references to the international regulations (i.e. CQA UNI 9910, FEM 9.221, NASA TM4628A, DR01-3 DR01-27 NASA LeRC r4, MIL-STD-1388-2B, MIL-STD-49506)

Simulation Team

MACACO

Modelling Air Craft Analysis for Construction process and Organization

MACACO is a solution for improving production of executive planes in Aerospace Industry.
The project involved data collection and analysis, modeling and simulation, experimental analysis as well as development of Intelligent
systems based on AI for identify
source of risks for plane due deadline.

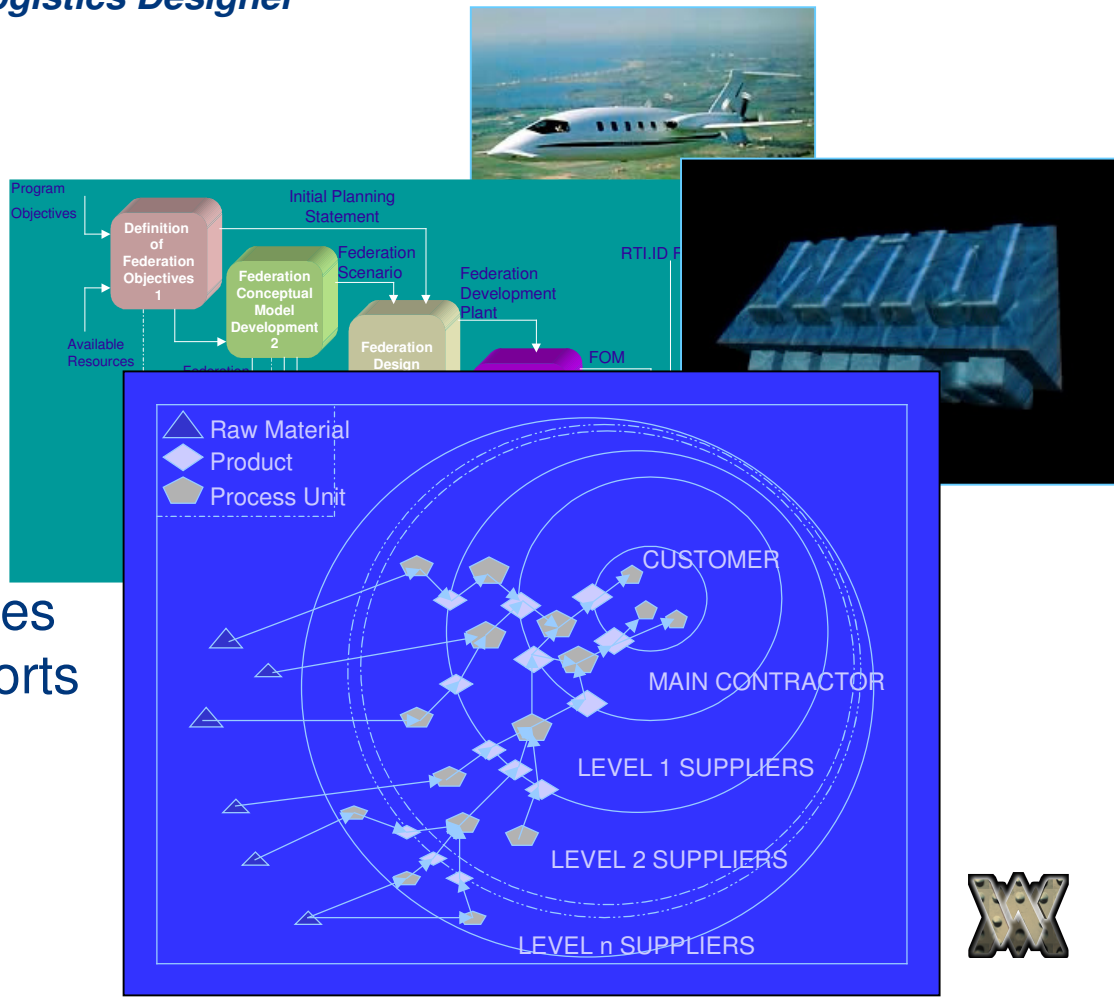


WILD

Web Integrated Logistics Designer

The WILD project involves the development of a Federation composed by Simulators, Scheduling Systems and ERP.

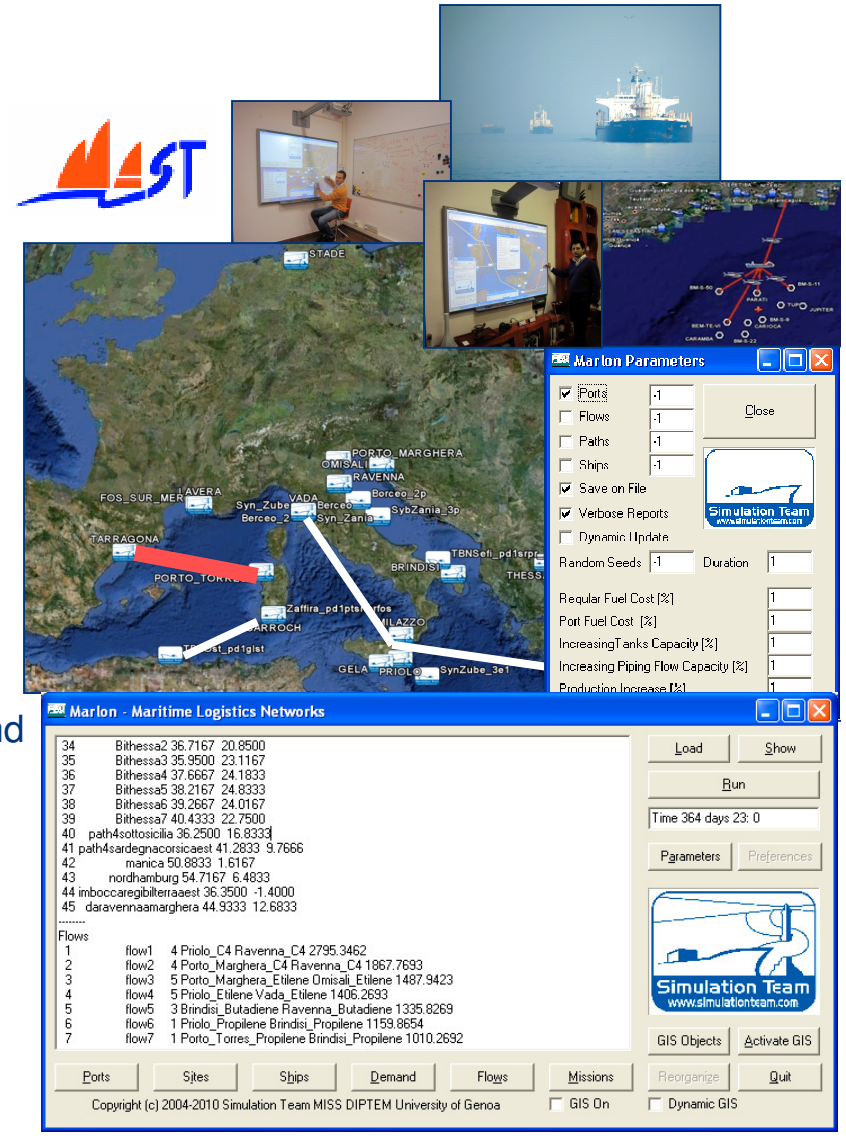
WILD Federation reproduces the supply chain and supports on-line distributed management and control among customers, main contractors, suppliers



Simulation Team

MARLON

MARitime LOgistic Network



MARLON is a model that allows the evaluation of costs related to different marine logistics scenarios MARLON has innovative features like interoperability, Interactivity and Integration with GIS so companies have demonstrated interest about these; MARLON is a critical support for organizing distributed Meetings concerning tactical and strategic decisions on logistics and production (investments and budget) as well as Videoconferences to evaluate critical operations and scheduling decisions MARLON is an integrated solution combining Simulation and Optimization, so MARLON is a DSS that improves planning and management of resources for liquid bulk transportation reducing the total cost for transportation and related risks MARLON also allows to put in contact logistics with production and make their integration in the company's context easier.

MARLON simulator has been tested and validated giving output compatibles with other models and with real industrial case

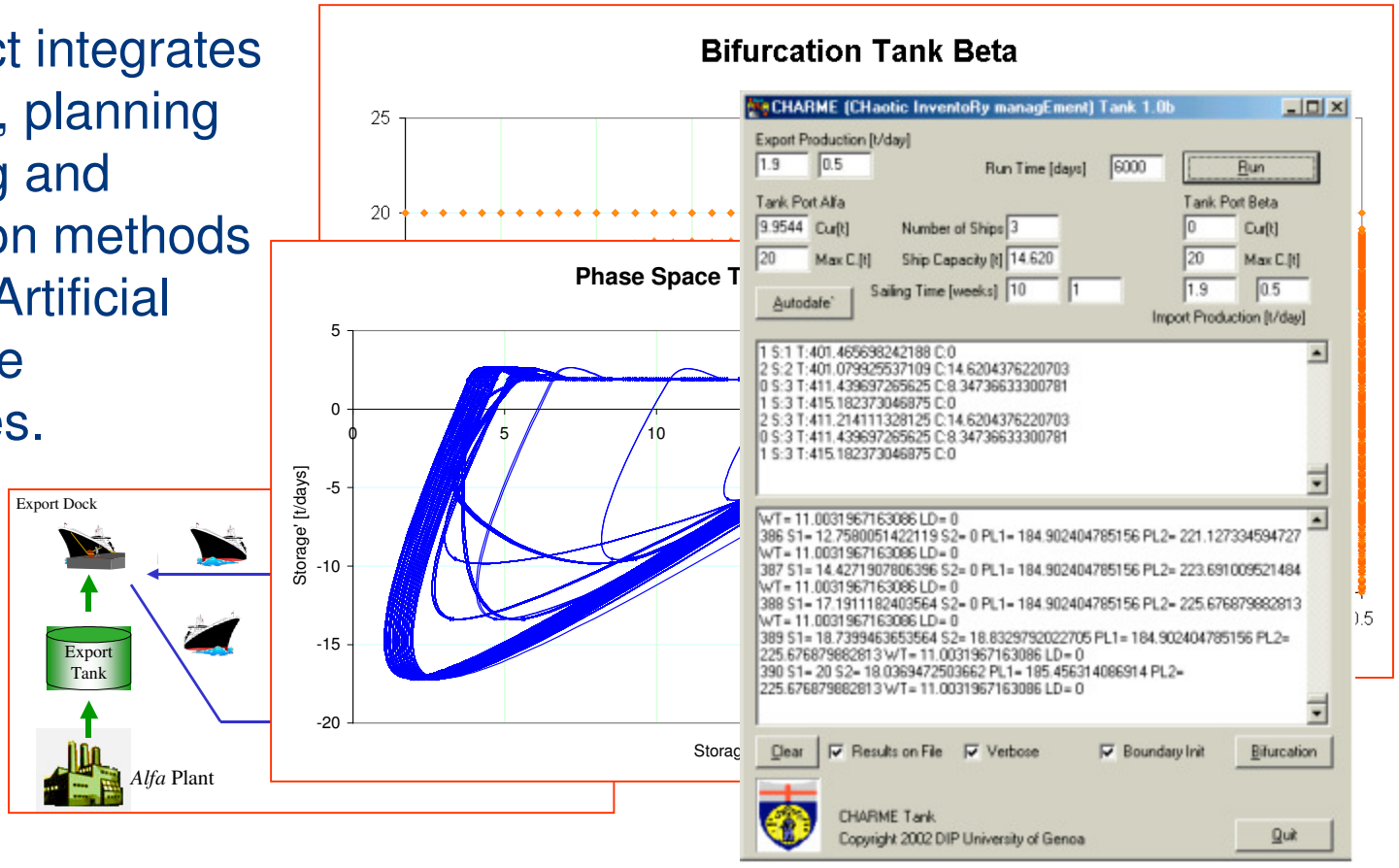
Simulation Team

LOGOS

Logistics Optimisation System

GFI Informatique · Eni Group · EniChem

The project integrates simulation, planning scheduling and optimization methods based on Artificial Intelligence Techniques.



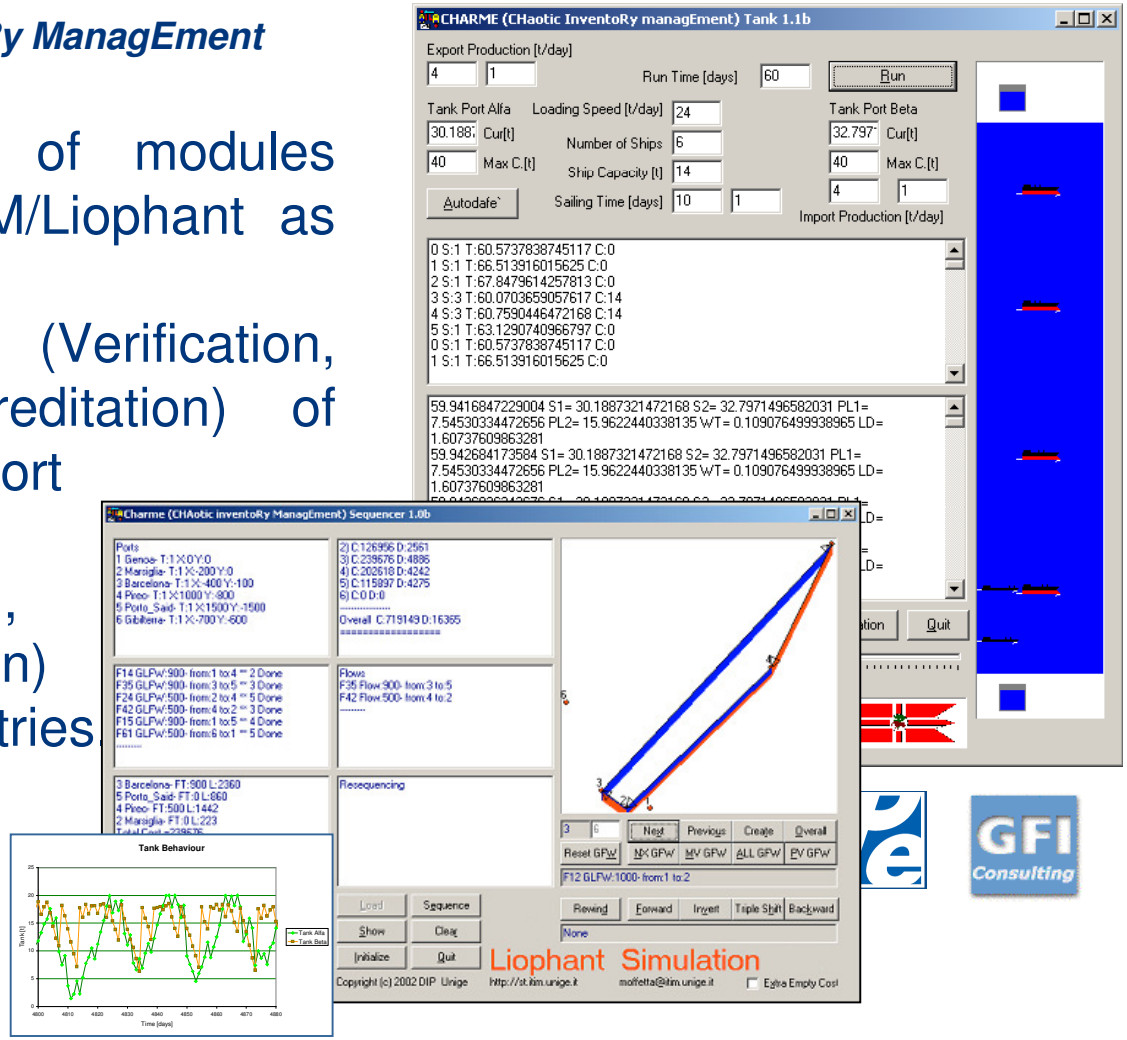
Simulation Team

CHARME

CHAotic inventoRy ManagEment

EniChem

CHARME is a set of modules developed by DIPTEM/Liophant as dynamic reference for VV&A (Verification, Validation and Accreditation) of LOGOS Decision Support System for Fleet Management (Planning, Scheduling & Simulation) in large chemical industries. CHARME uses chaos theory approach in application to real stochastic logistics networks.



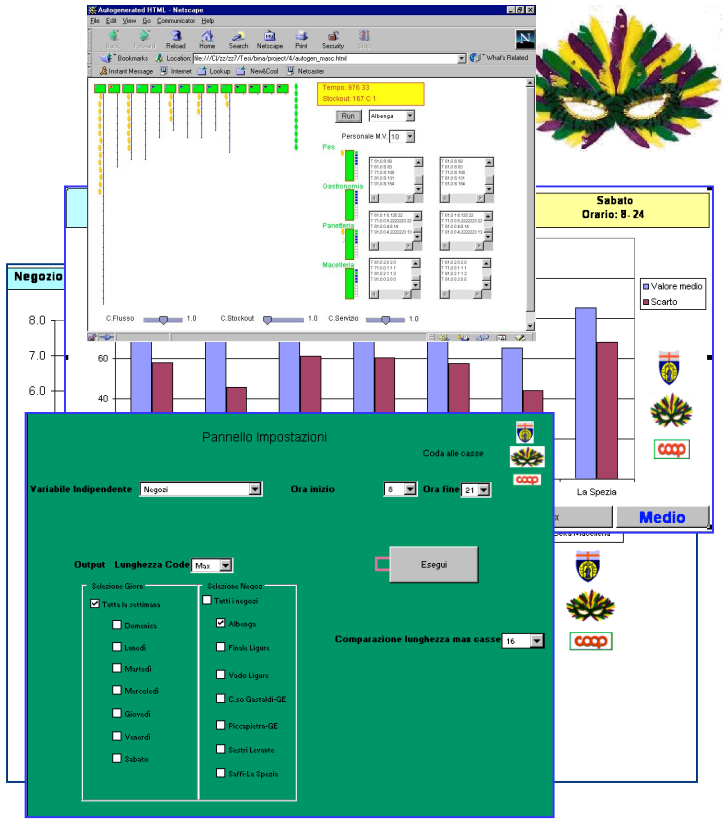
DIPTEM
Università di Genova

MASC & DICO-SAP

Modeling & Analysis for Satisfaction of Customers
DIPTEM-COOP SAP

MASC is a system for Statistical Analysis, Modeling & Simulation applied to big-distribution chains.
The Project is carried out in cooperation with the major Italian company in this area

The final target is to improve the customer satisfaction acting on policies, operating procedures, resources & equipment; the system is fully integrated with company ERP (SAP R/3) and benefits of similar experiences carried out other companies (i.e. Genoa Mass Transportation Company).



Simulation Team

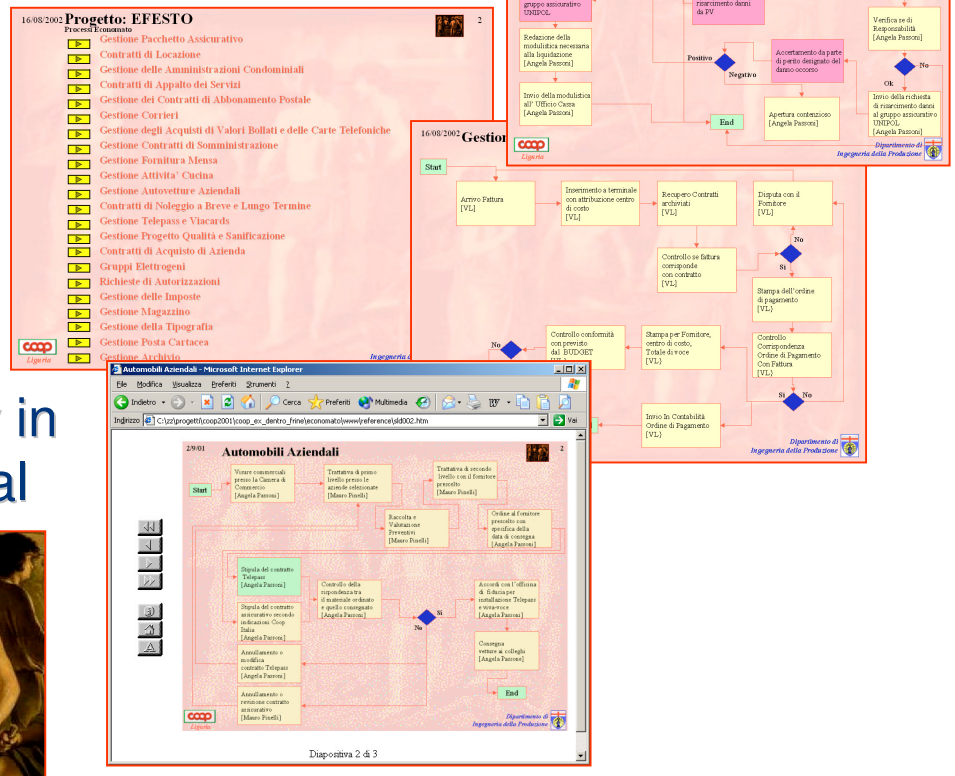
EFESTO

Elaborazione Flussi Economato Sistemi, Tecniche & Organizzazione

coop Liguria

The EFESTO project is focusing on the creation of models for Business Process Re-Engineering integrating simulation techniques.

The system allows to integrate Office Suite, with simulation and to distributed the results directly in Intranet managing hierarchical process structure.



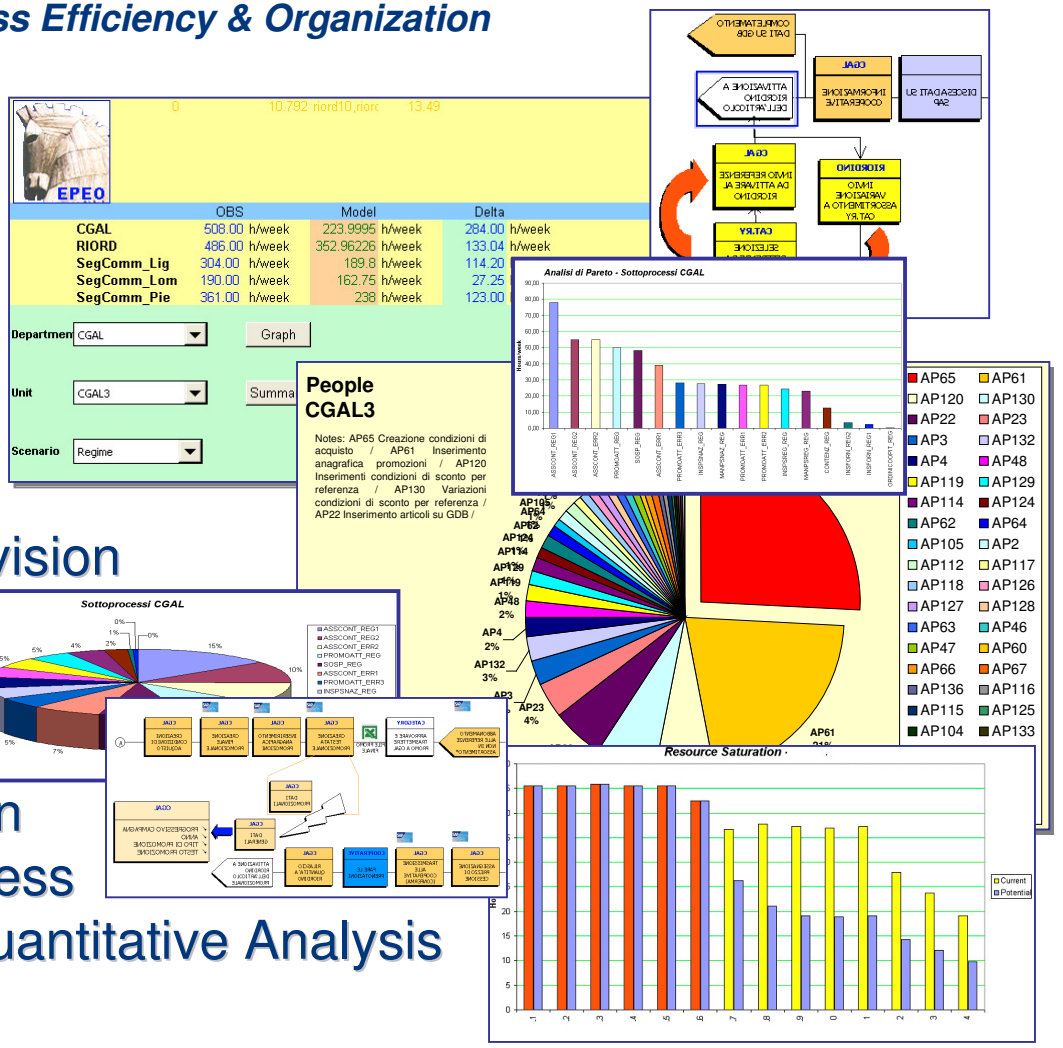
Simulation Team

Consorzio Nord-Ovest

EPEO

Enhancement Process Efficiency & Organization

The EPEO project is devoted to analyze existing structures and to support process re-engineering and reorganization in Business Division of Big Companies geographically distributed. EPEO applies the state of art in Modelling and Simulation and other techniques for Process Identification, Mapping and Quantitative Analysis



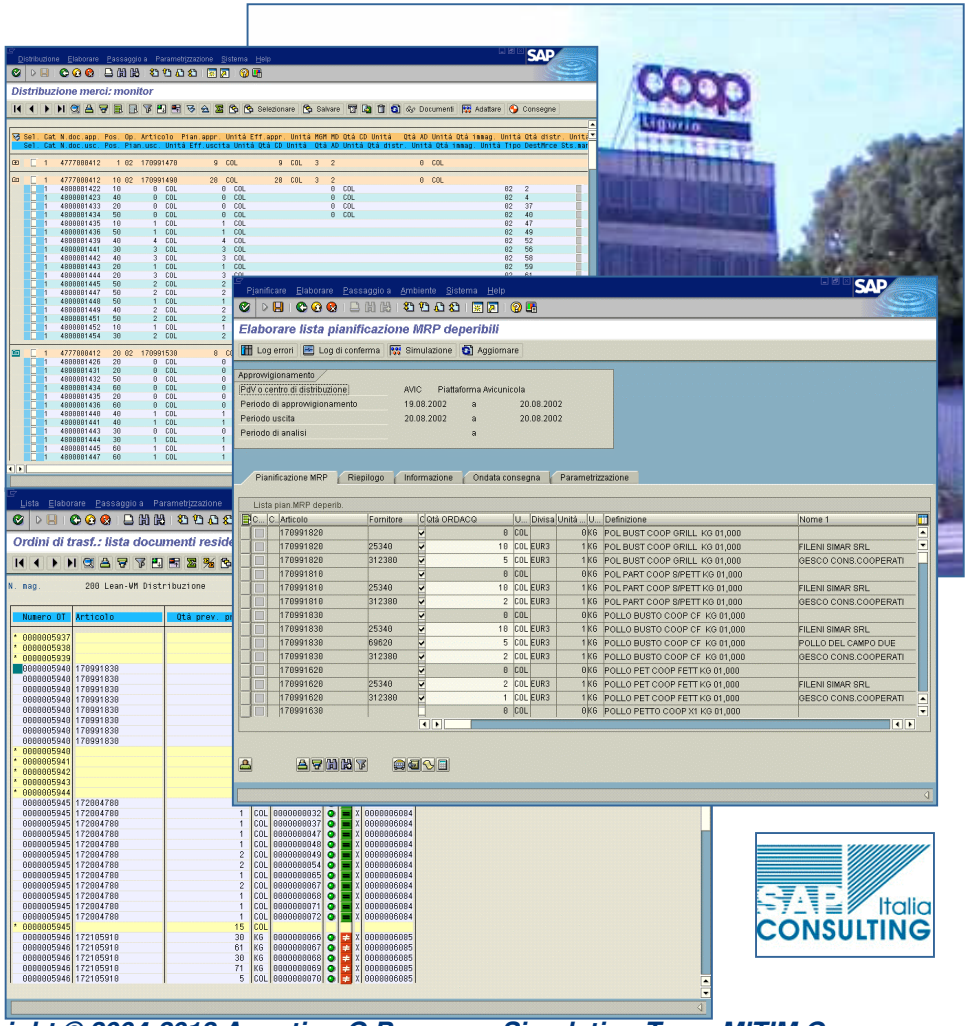
Simulation Team

AVICUNICOLO

Project for Logistic Platform devoted to White Meat Fresh Products

coop Liguria

The project is devoted to the architecture definition, system development and testing for a new logistics platform integrated in a large supermarket supply chain. The system was implemented in SAP R/3 Retail 4.6tm



SAP Italia CONSULTING

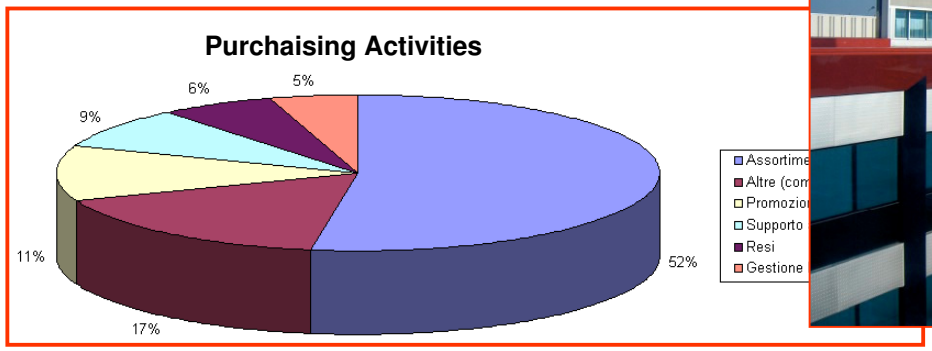
Simulation Team

NOL

New Opportunities for Logistics

Consorzio Nord-Ovest

The project is focusing in logistics solution consulting and analysis for CCNO, a Consortium providing Logistics, Administration and IT services to Retail Networks in North Italy.



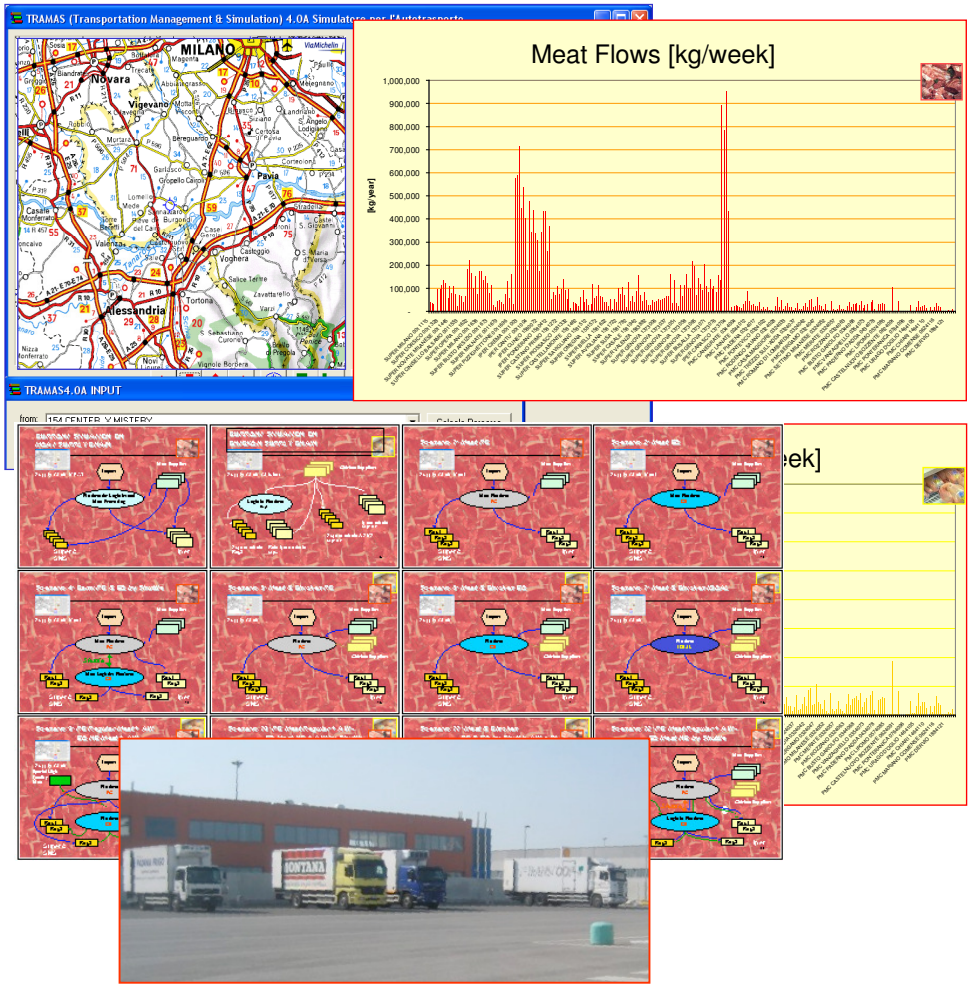
Simulation Team

coop Consorzio Nord-Ovest

CAPE

Carni & Pesci

The project is focusing in redesign logistics solutions for distribution of fresh food with special attention to Meat and Fish. The project focused on logistics with special attention to platform, infrastructures, processes and distribution policies and procedures.



Simulation Team

Consorzio Nord-Ovest

POA NG

Proposta d'Ordine Automatico New Generation

POA NG is a project for developing a new system for inventory management of shopping centers in large retail chains.
RIO NG optimize the different inventory management models by using stochastic simulation approach and it is currently operative directly implemented in SAP R/3 by major Italian Retailers.

RIO

Renovating Intelligent Operations

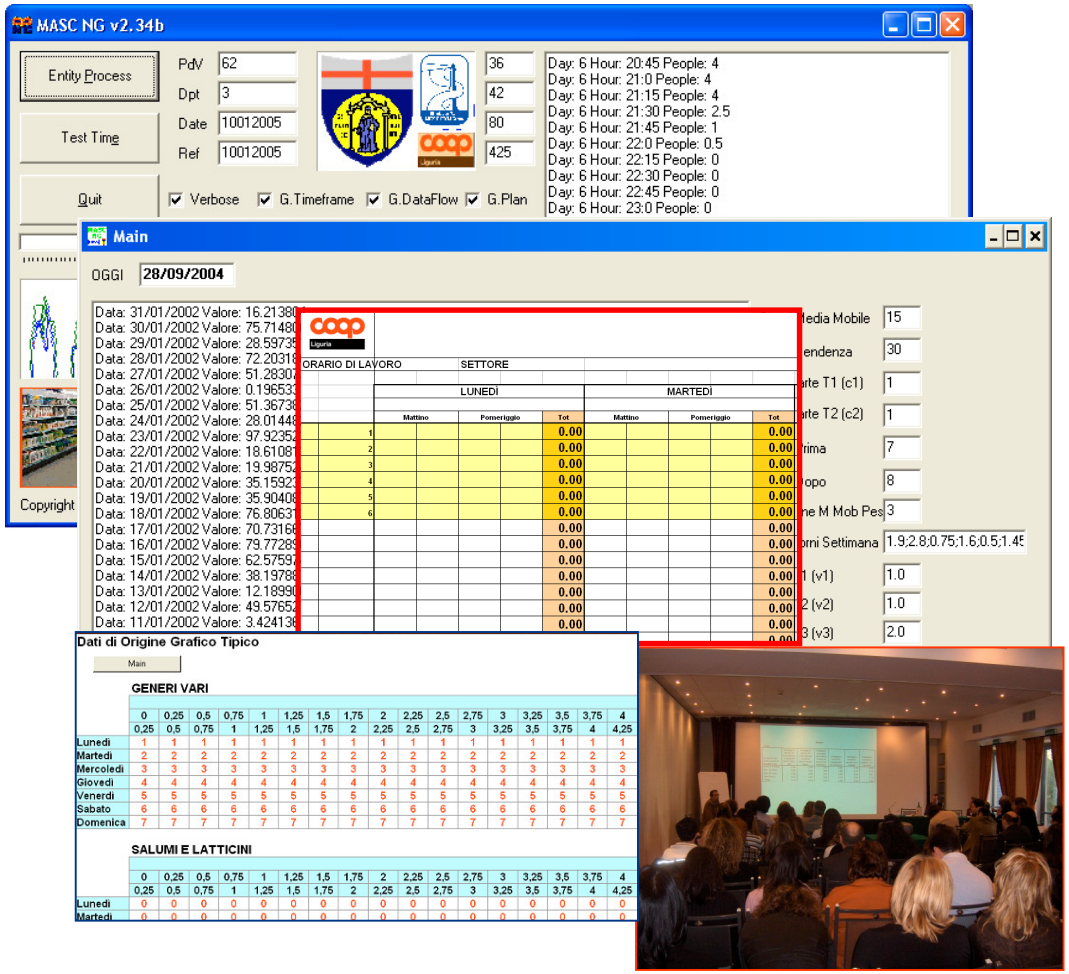
RIO is an innovative solution develop in Web Framework for Operation Control in Wide Supermarket Networks
RIO allows both to control store and department performances (sales, customers, goods, productivity, workload) as well as to predict their behavior for improving the performances

Simulation Team

6EFFE

Flessibilità a Favore dei Figli e delle Famiglia, Formazione e Fidelizzazione

6EFFE project is a strategic project sponsored by COOP Liguria and National Departments for designing and experimenting new flexible work solution in supermarkets.
DIPTEM was in charge of model development and general architecture design.



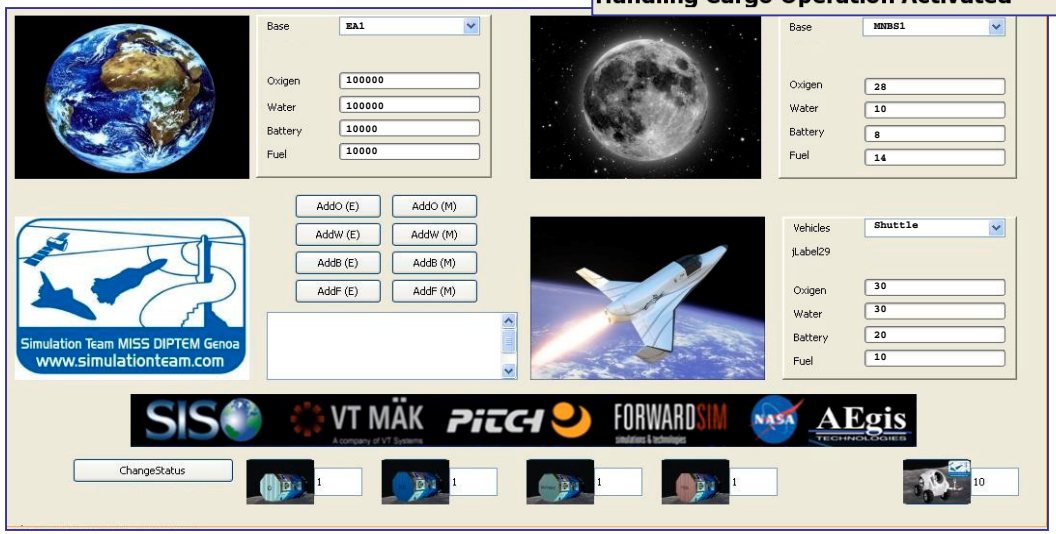
Simulation Team

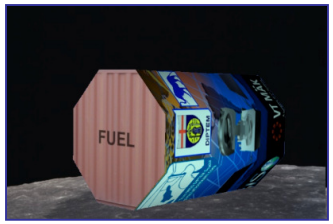
SPIRALS

Location: ***MOON***
- Latitude: 26 08’ 9.94” N
- Longitude: 3 34’ 40.34” E
- Elevation: -1828.8 m

Space Interoperable Refilling and Advanced Logistics Simulator

SPIRALS Project was developed by students of Genoa and Bordeaux Universities, in Internship in MAST and members of Liophant for Smackdown:
this initiative is led by NASA, sponsored by several companies and devoted to advance HLA culture by creating a distributed HLA Federation of a Moon Base. SPIRALS federate is in charge of the inventory management, the operations & logistics in the Moon Base.





Simulation Team

IPHITOS

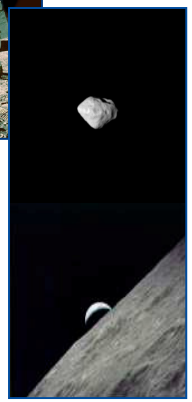
Location: ***MOON***
- Latitude: 26 08’ 9.94” N
- Longitude: 3 34’ 40.34” E
- Elevation: -1828.8 m

Interoperable Simulation of a Protection solution based on ligHt Interceptor Tackler operating in Outer Space

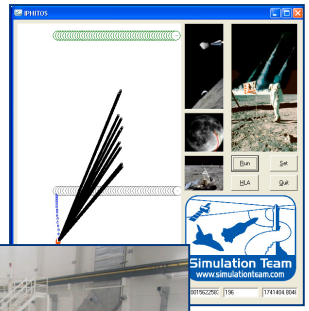
MBDA MISSILE SYSTEMS

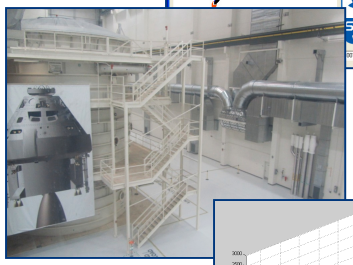
TELESPAZIO

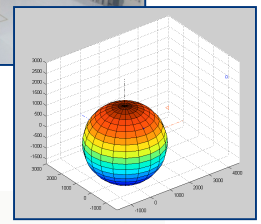
IPHITOS Project is developed by a team of students from different Universities (Genoa, La Sapienza Rome, Pisa), members of Liophant and students in internship in MBDA and support from Telespazio. This project is devoted to create a federate for Smackdown the initiative, led by NASA & sponsored by several companies,devoted to diffuse and advance the HLA culture by creating a distributed HLA Federation of a Moon Base.



IPHITOS federate is in charge of simulating small asteroids as threats for the Moon Base as well as a Safeguard Solution based on Interceptors,Sensors and Launchers







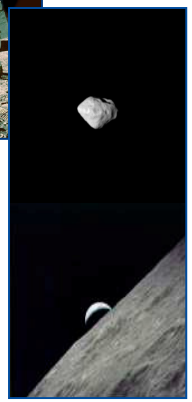
AEgis TECHNOLOGIES · SISO · FORWARDSIM simulations & technologies · NASA · VT MÄK A company of VT Systems · PITCH

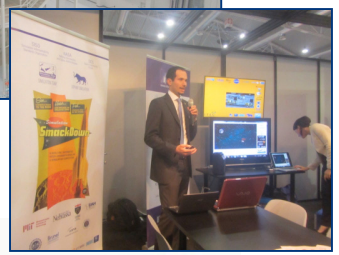
Simulation Team

IPHITOS Space Guard

Interoperable Simulation of a Protection solution based on ligHt Interceptor Tackler operating in Outer Space

IPHITOS Space Guard Project is developed by a team of young researchers from Genoa University in Internship in different organizations as new solution for Space Protection against asteroid of IPHITOS. This project is devoted to create a federate for Smackdown 2013 the initiative, led by NASA & sponsored by several companies, devoted to diffuse HLA Evolved culture by creating a distributed HLA Federation of a Moon Base. IPHITOS federate simulates debris & small asteroids as threats for the Moon Base as well as a Safeguard Solution based on Interceptors,Sensors and Launchers

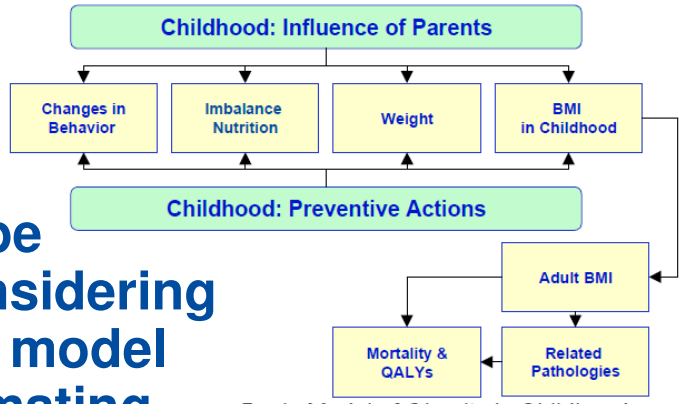




Simulation Team

BACCUS

Behavioral Advanced Characters & Complex Systems Unified Simulator

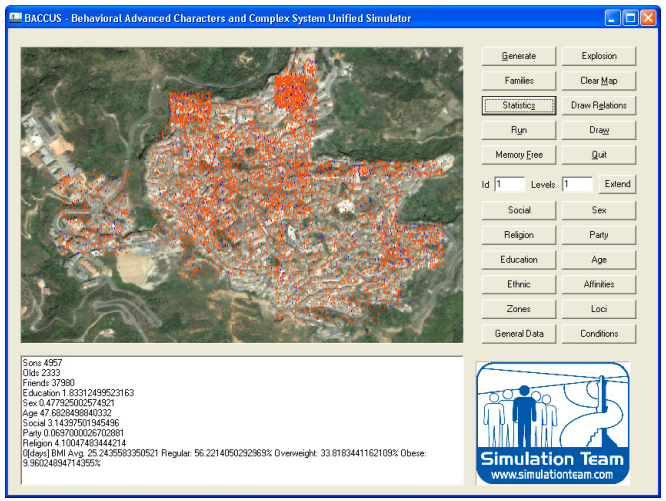


Basic Model of Obesity in Childhood

The BACCUS simulator is intended to be used to study the Obesity Epidemics considering both physiological and social aspects; the model reproduces the population dynamics, estimating correlation among different factors:

- ***BMI*** ***-Sport Profile*** ***-Stroke*** ***-Alcohol Profile***
- ***Infarct*** ***-Atrial Fibrillation*** ***-Diabetes*** ***-Hypertension***
- ***Cancer*** ***-Hyperlipidemia***

BACCUS simulates social networks such as Family and Friends to assess the population evolution and the mutual interaction with diffusion of pathologies



Beth Israel Deaconess Medical Center

A TEACHING HOSPITAL OF HARVARD MEDICAL SCHOOL

Simulation Team

HOSSIAN

Hospital Simulation Analyzer

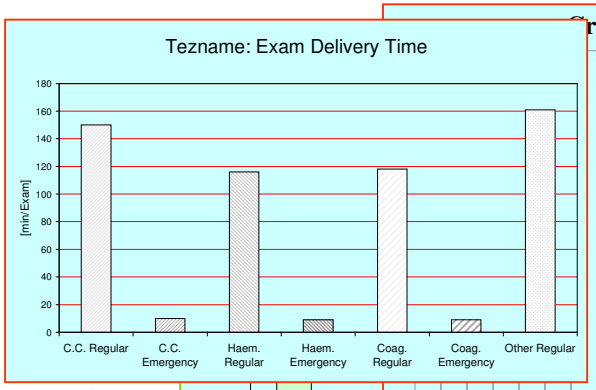
HOSSIAN is a tool developed to support resource planning in Hospital by integrating simulation and AI (Artificial Intelligence). The system has been successfully applied to the personnel and equipment scheduling in a Surgery Division composed by 6 operative rooms.

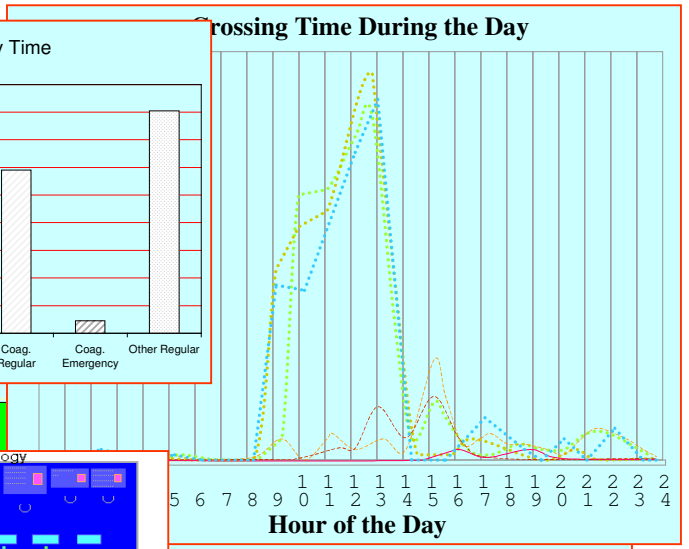
Simulation Team

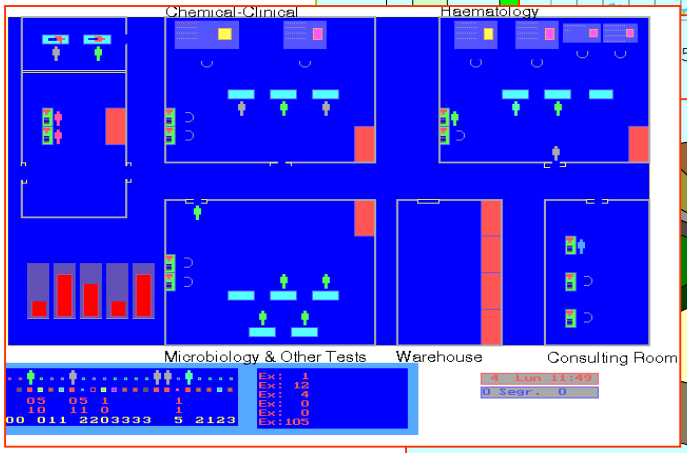
TEZNAME

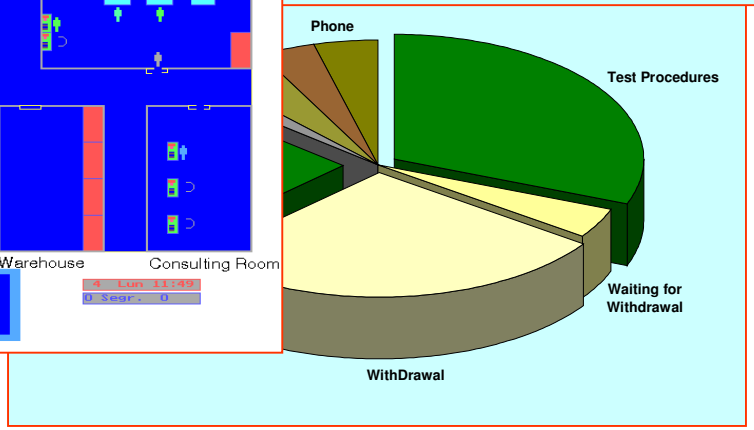
Tactics Evaluation & optimiZatioN for Analysis in Medical Environment

TEZNAME is a tool for analyzing Hospital Departments Management considering the detail of each resource, individual and/or procedure.
The system has been successfully applied to Laboratory Re-engineering to compare different investments and policy/organization alternatives.









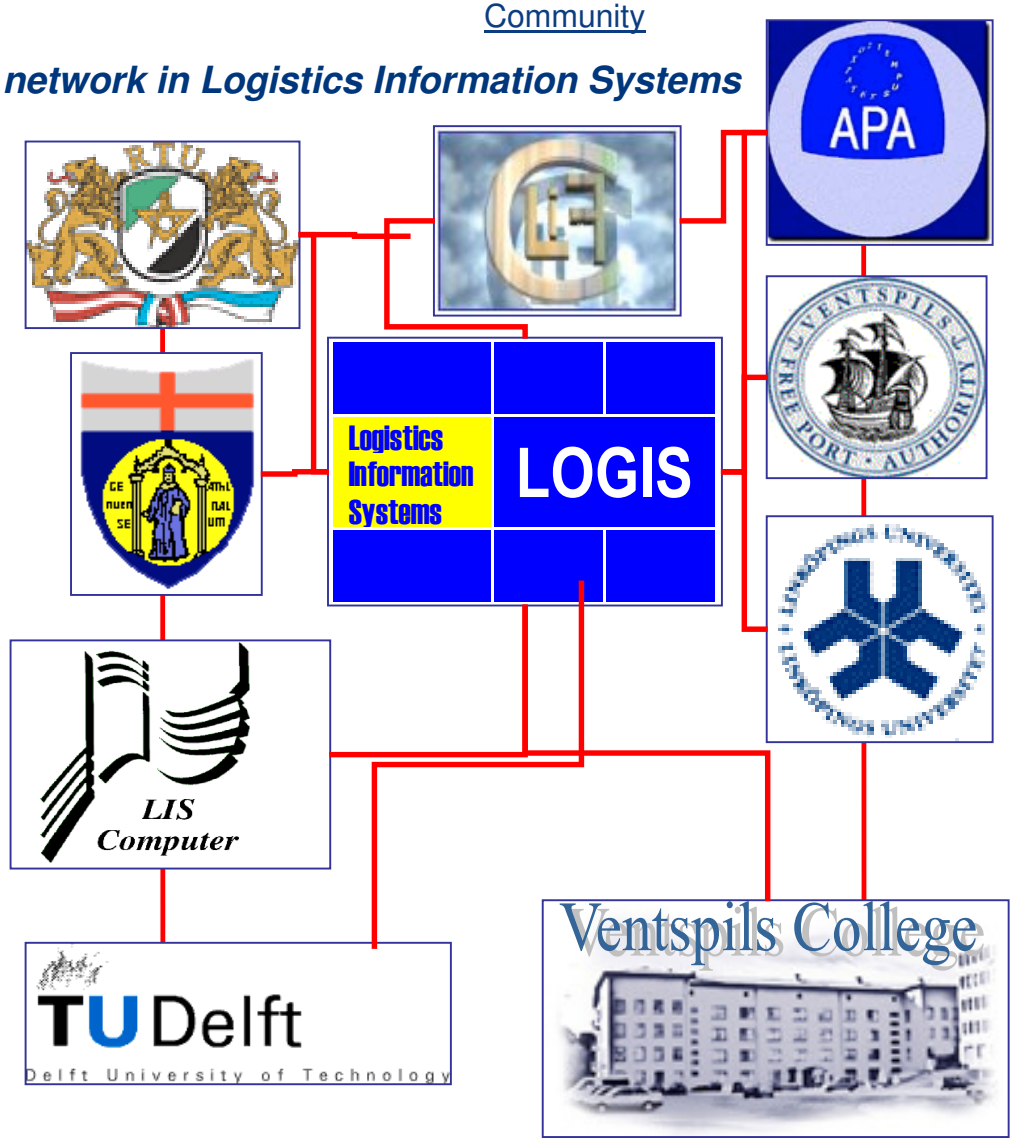
Simulation Team

Sponsored by European Community

LOGIS

Long-distance tutorial network in Logistics Information Systems

LOGIS is a *Leonardo* project sponsored by European Community in order to develop Long Distance Tutorial Network in "Logistics Information System", Based on WEB Technologies. Besides the training, an interesting exploitation of the results of the research is related to the transfer of these techniques to Small - Medium size Enterprises.



Simulation Team

IEPAL

Intensive Educational Program in Advanced Logistics

Sponsored by:

FIPSE, US Department of Education

European Community, DGEAC

IEPAL is a Co-funded project sponsored by European Community and US Department of Education, to live an academic & industrial training, to compare European and US way of living and working. A goal of this project will be the integration & exchange of different culture, the application of Web instrument and mobility to learn to cooperate. It is a Great Opportunity for engineering students and their curriculum to experiment in the new millennium Transatlantic Experiences in Enterprises and Universities working on Projects in **World-Wide Distributed Teams** focusing on the **Advances in Modeling & Simulation for Logistics and Supply Chain Management**

University of Central Florida

Boston College

LSIS - Marseille University

Magdeburg University

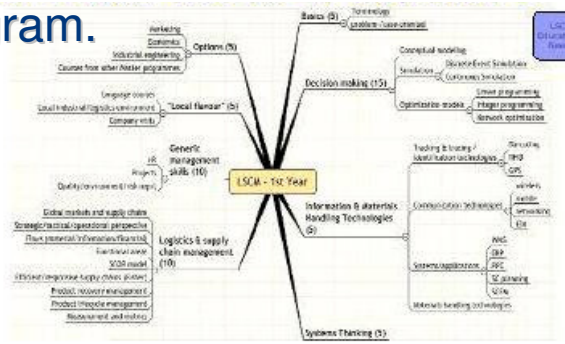
Consorzio di Formazione Logistica Intermodale

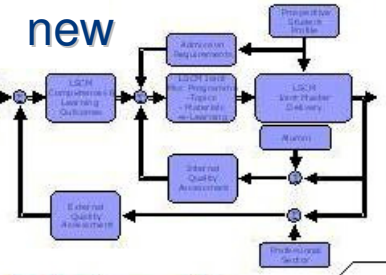
National Center for Simulation

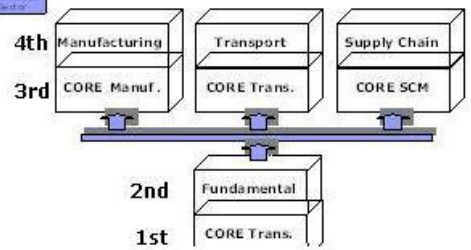
LSCM

Logistics and Supply Chain Management International Master

LSCM Project is devoted to develop a Master Program for New Managers operating in Logistics and Supply Chain Management using innovative solutions such as M&S.
LSCM involves an International Network with several Universities cooperating for creating this new Program.







LSCM
134522-LLP-1-2007-1-ES-ERASMUS-ECDSP

Simulation Team

MIPET Master Program

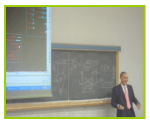
Master in Industrial Plant Engineering & Technologies
www.itim.unige.it/mipet

The Master in Industrial Plants is a Master degree program organized in Genoa University focusing on preparing new generations of top quality technical experts for process engineering and power equipment supplier as well as construction contractor. Its main aim it is to satisfy the expectation from Leading Industries in term of high technical skills and excellence capabilities in Industrial Plants and Engineering. The Master Program is directed by Faculty of Engineering in strong cooperation with leader industries and major companies operating in these industrial sectors, this aspect guarantees the relevance and effectiveness of the initiative. In fact this project it is part of a large initiative devoted to develop excellence in Industrial Plant Engineering through the synergy between the expertise of Genoa University Engineering Faculty and Top Level Companies with long traditions that are leading this Area Nationally and Internationally in term of turnovers, size, processes and products complexity as well as know how and technical skills.

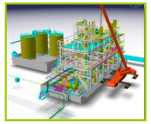






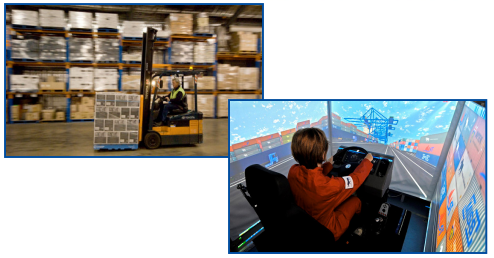





DIPTEM
Università di Genova

Simulation Team

PREMITEL Program



Preparation for Management within
Innovative Transportation services and Evolving Logistics

PREMITEL 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 PREMITEL 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 PREMITEL is founded by the Italian National Department of Transportation.









Simulation Team

DIMS PhD Program

phD program in Innovative Mathematical engineering, modeling & Simulation

DIMS is a PhD program in Mathematical Engineering and Simulation sponsored largely by Simulation Team and Specific R&D Projects such as PIOVRA and CAPRICORN.

DIMS PhD program was activated by DIPTEM (Production Engineering & Mathematical Modelling Dept.) and DIBE (BioEngineering Dept.) during fall 2005; today DIMS involves about 20 Courses in M&S for PhD Students and over 20 PhD Students are enrolled in this program.

St.Petersburg

San Diego

Simulation Team

Conclusions

The Simulation Team is acting at international level as a reference point between users and providers in simulation area.

The integration of experts, technicians is providing very good results on real case studies and complex projects.

An active area of development is related to distributed simulation and web-based modeling for extending the impact and exploitation of these proposed systems.

Every year Simulation Team - MITIM DIME and Liophant organize major Conferences and International Workshops focusing on application of Modelling & Simulation.

For instance the I3M2012 was in Wien, SummerSim2011 in Genoa, WAMS2012 in Rome; in 2013 I3M will be in Athens, WAMS in Buenos Aires and Summersim in Ottawa.

There is a constant interest in fostering joint cooperation and exchanges with international Excellence Centers working on simulation.

In 2011 Prof.Bruzzone served as General Chair of WAMS in St.Petersburg as well as of Summersim in the Hague and I3M in Rome: these last two conferences represent 2 of the 4 major scientific events worldwide in simulation; and the I3M2011 organized in Rome, joint to CAX Forum, probably was the largest technical event in M&S worldwide, involving over 500 speakers from 52 countries and over 30 live demonstrations (including Distributed simulation connecting NASA, MIT and Genoa University)

Athens

Potential Cooperations

Simulation Team

& NATO CAX Forum in Rome

HMS 2012

DHSS 2012

MAS 2012

Wien Austria

IMAACA

IWISH 2012 The International Workshop on Innovative Simulation for Health Care

EMSS 2012

SPECTS

SCSC 2012

Simulation Team provides R&D/Scientific Opportunities such as:

- Conferences and Track Organization in event where the Simulation is Strongly Involved (i.e. SummerSim, I3M, WAMS, AMS, ect)
- Exchanges for Senior and Young Scientists
- Opportunity for Scientific Cooperations devoted to promote new developments in M&S
- Developing new Standards and Procedures in M&S
- Promoting M&S in Service of the Society
- Development of Networks of Excellence in M&S

Simulation Team is looking for Opportunities including:

- Activation of Innovative Simulation Projects
- Combining Simulation Team Solutions with Partner's Models as Options to be proposed to Sponsors during the Proposal Phase
- Include in Simulation Team Solutions Add-In from Partners as Option for Sponsors during the Proposal Phase
- Supporting Partners in future Proposal acting directly or as subcontractor and viceversa
- Receiving Support by Partner in future Proposal acting directly or as subcontractor

Bond graph

Summersim

Simulation Team

References

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