GLOWS

Securing GLobal FlOWS of Goods & People

IST-2004-2.4.3-Towards a Global Dependability and Security Framework
FP6-2004-IST

Strategic Objectives Addressed

1. ***Development of novel modelling/simulation techniques and synthetic environments for critical infrastructure protection to understand ICT-related interdependencies, for prevention and limitation of threats and vulnerabilities propagation, and for recovery and continuity in critical scenarios*** (FP6-IST-2004-2.4.3, -Towards a Global Dependability and Security Framework, Strategic Objective No.2)

2. ***Development of integrated interdisciplinary frameworks and related technologies for the provision of resilience, dependability and security in complex interconnected and heterogeneous communication networks and information infrastructures that underpin our economy and society.*** (FP6-IST-2004-2.4.3, -Towards a Global Dependability and Security Framework, Strategic Objective No.1)

GLOWS Summary

GLOWS (Securing GLobal FLOWS of Goods and People) goal is the development of a modelling and simulation (M&S) framework for facing security issues in physical and ICT data infrastructures devoted to manage people & good flows. GLOWS interdisciplinary models will provide a strategic competitive advantage (high performance & security) to EU ports and airports in people transportation and logistics. GLOWS aims is to develop a simulation framework for assessing the impact of policies, data communication systems, innovative technologies, investments & reorganisations devoted to enhance security & efficiency in global flows of goods & people vs. international context; so GLOWS includes advanced researches on policy, bioinformatics, Cyber Attacks on Transportation, M&S in Port & Airport Logistics. GLOWS core is the creation of an innovative simulation federation based on the up-to-date technology (High Level Architecture) with benefits of top skills available in Europe (i.e. Genoa and Magdeburg University). GLOWS simulator first use will be review, test and certification of Ports & Airports Security Plans, Risk Assessments and Gaps Identification. GLOWS federation will support also design and re-engineering of logistics procedures/infrastructures as well as definition of Standing Operation Planning for preventive design of containment measures and partial/full recovery and continuity of operation in case of critical scenarios. GLOWS synthetic environment will support also training as requested by new security regulations (with dynamic links also to real equipment & exercises). GLOWS simulator will be demonstrated extensively in real Port and Airport case studies provided by partners (i.e. APV, IFF). GLOWS initiative benefits of the support of a similar initiative, I-GERT: a USA NSF project including four GLOWS partners, establishing a research network on security for policy analysis, port/airport operation M&S, data communication standards, sensor & IT technologies.

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Development of Interoperable Simulator of Logistics Nodes: Port and Airports

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GLOWS requires interdisciplinary analysis of Policies, Technologies, Data Fusion and Mining Alternatives and Investment Alternatives

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GLOWS demonstration on an Airport and a Port Case for supporting: Design, Planning, Operative Support and Training

GLOWS Partners

GLOWS

- Authority - Port of Venice
- Consorzio Formazione Logistica Integrata
- Consortium Development of Innovative Projects
- Dept. Of Modelling and Simulation, Riga Technical University
- Fraunhofer-Institut für Fabrikbetrieb und automatisierung
- Centro Italiano di Eccellenza Logistica Integrata
- SENER Engineering Group
- Centre de Visio` per Computador

Project Coordinator

MISS DIPTEM

Otto Von Guericke University

European Institute of Business Administration

Universitad Autonoma de Barcelona

GLOWS Observers

- Grenoble
- Brussels

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IGERT

Project Coordinator

MISS DIPTEM

Project Coordinator

International Coordinator

- Otto Von Guericke University
- European Institute of Business Administration
- Universitad Autonoma de Barcelona

Companies

- SAP
- UNISYS
- SARNOFF Corporation
- APM TERMINALS

Agencies

- HSARPA
- CBP.gov
- ANSER Institute for HOMELAND Security

Academics

- Woodrow Wilson International Center for Scholars
- MARITIME COLLEGE STATE UNIVERSITY OF NEW YORK

GLOWS WBS

RESEARCH & DEVELOPMENT
WP1 - Policy Research
WP2 - Computational biometrics
WP3 - Cyber Attacks on Transportation
WP4 - Summarising Research Result
WP5 - Interdisciplinary Framework Development

DEMONSTRATION
WP6 - GLOWS Modelling
WP7 - HLA GLOWS
WP8 - Execution and Reporting

GLOWS Activities

1 Policy Research
1.01 Current Situation Communication Networks for People and Goods Flows
1.02 Current Situation Logistics Infrastructures
1.03 Current Situation/Trend Port Policies
1.04 Current Situation/Trend Airport Policies
1.05 Current Situation/Trend Technologies for Security in Port and Airport
1.06 Stories of Security Issues in Airports
1.07 Stories of Security Issuesin Ports
1.08 Research on biometric passports
1.09 Research on RFID Security
1.1 Advanced electronic submission
1.11 Automate watch lists and the in
1.12 Gate infrastructure solution
1.13 Gaps in the data being entered
1.14 Risk on the interoperability of da
1.15 Potential theft of RFID transmitt
1.16 Security of digitized biometrics
2 Computational biomedicine,
2.01 Computer vision and computer
animation and medical image a
2.02 Cost and Reliability Analysis of
2.03 Beahvioural Models and Data F
Multisensor/Multicheck process
2.04 Cost and Reliability Analysis of
solution Implementation
3 Cyber Attacks on Transportation
3.01 Real time management and control of transportation operation.
3.02 Information exchange architecture of people and goods moving.
3.03 Identification of weak and critical infrastructure elements in the transportation modes to be protected.
4 Summarizing Research Result
4.01 Summarizing Research Survey
4.02 Develop Conceptual Models for Considering Impact on Port/ Airport of Security Processes
4.03 Develop Conceptual Models for Assess Risk of Threads on Logistics Nodes
4.04 Develop Guidelines to drive Technology/Policy Improvements in port/airport by use of quantitative models/simulators
4.05 Development of Model for Evaluation of Cargo Prescreening Procedures

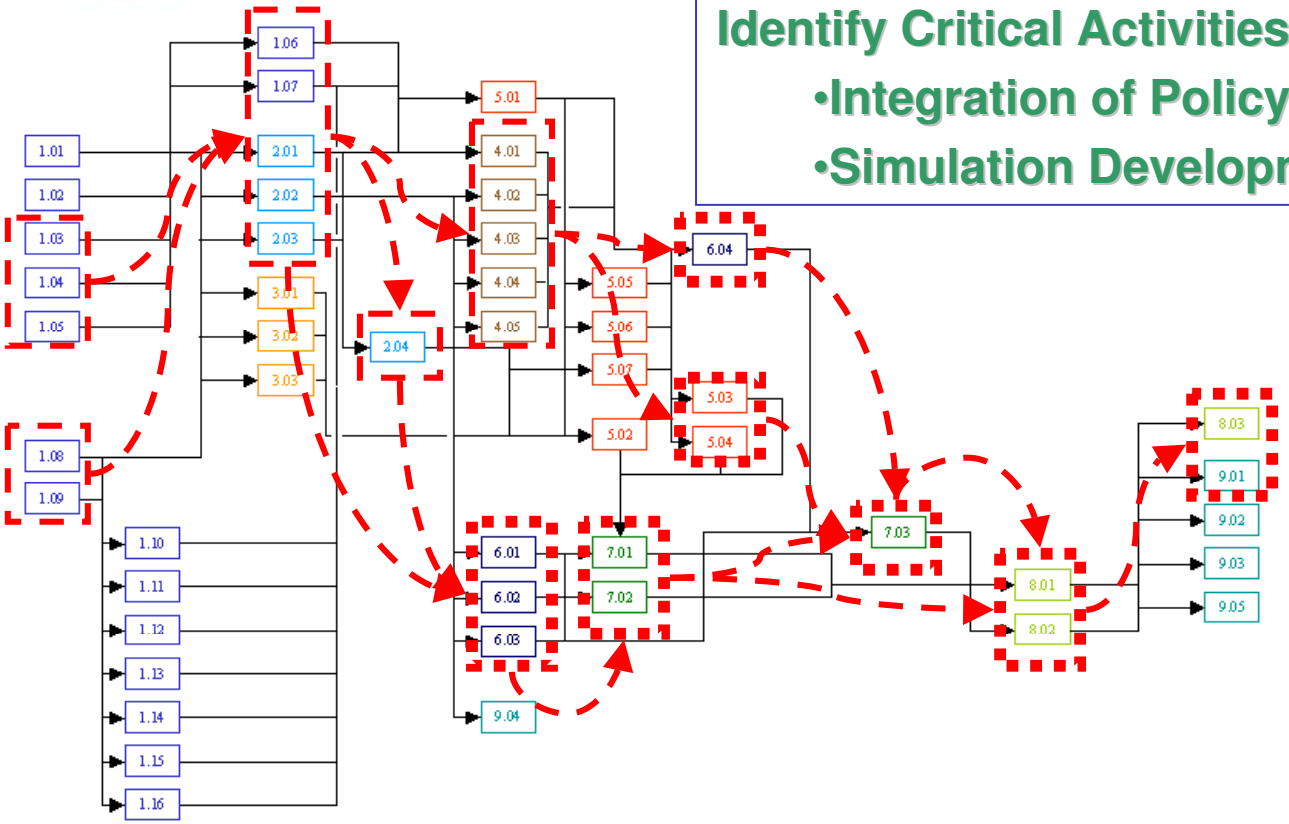
The GLOWS activities are detailed in order to provide guidelines for attributing responsibilities and assignments to existing and new partners

5 Interdisciplinary Framework Development
5.01 Definition of the GLOWS Federation:Preliminary Objectives
5.02 Definition of the GLOWS Federation: Final Objectives
5.03 Definition of GLOWS Federation Architecture
5.04 Definition of Verification, Validation and Accreditation Criteria and Procedures for GLOWS Federation
5.05 Definition of Port Case Study: Scenario 1 GLOWS Demonstration
5.06 Definition of Airport Case Study: Scenario 2 GLOWS Demonstration
5.07 Identification of Real System / External Model to be used for testing external interoperability
Different Component of
Models for Estimating
of Interconnected Logistics
trategic Impact of the Threads
society.
ng other Interoperable
ms) in the Federation 7
e Interoperable Distributed
s
ederation of Simulators
External Interoperable
8 Execution and Reporting
8.01 Experimental Analysis on Port Case Study: Scenario 1
8.02 Experimental Analysis on Airport Case Study: Scenario2
8.03 HLA Final Report and Result Synthesis
9 Exploitation and Design of Future Developments
9.01 GLOWS Federation of Simulator Presentation: Requirements, Potential, Effectiveness
9.02 Lesson Learned and Open Issues
9.03 HLA Glows Business Plan for Promoting adoption from Port Airports
9.04 Intellectual Property Regulation for HLA Glows for further Developments/Integration
9.05 General Development Plan for Further Developments

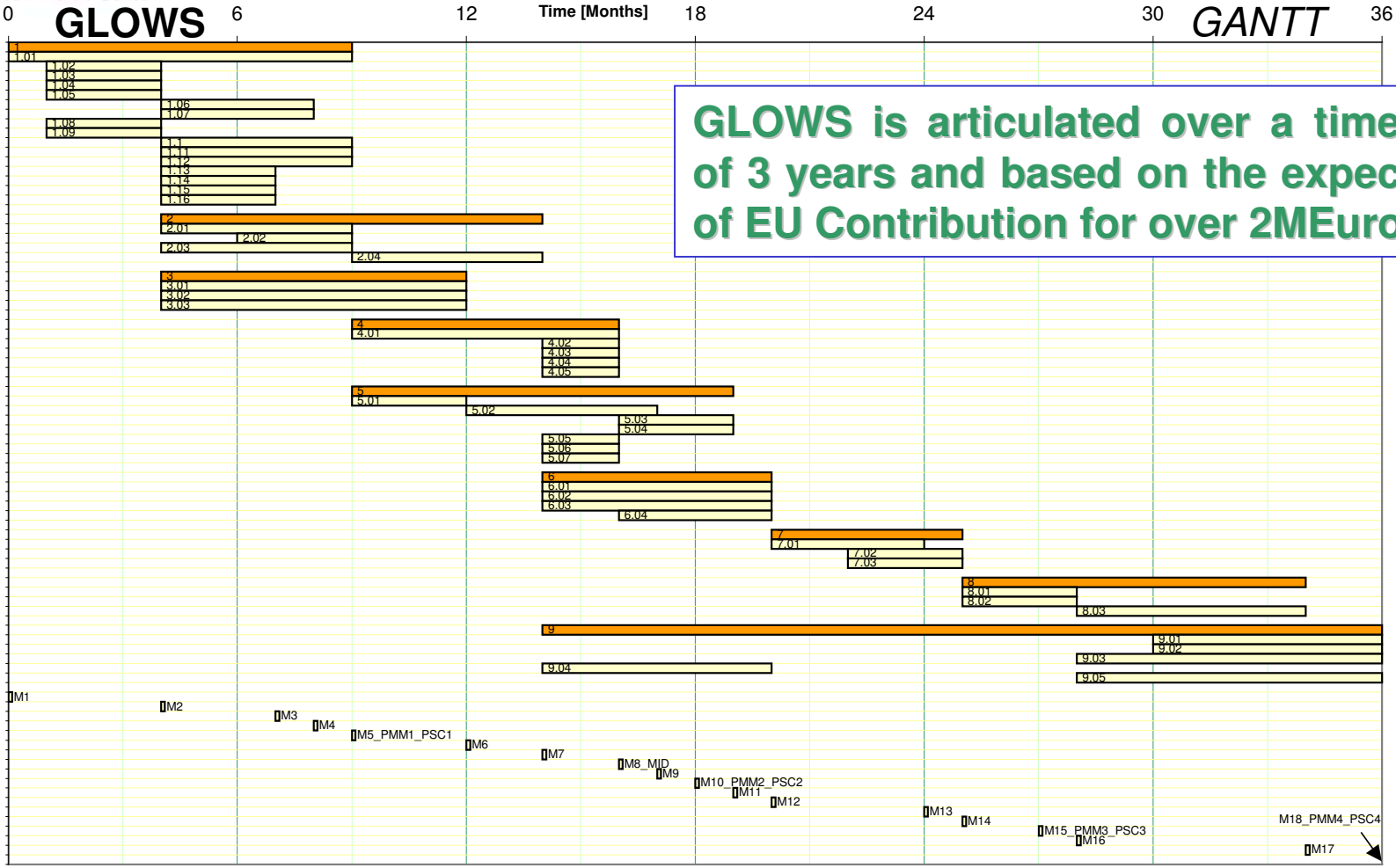
GLOWS PERT

Activity Constraints and Precedence for Identify Critical Activities in GLOWS:

- **Integration of Policy Analysis**
- **Simulation Development**



GLOWS Timing



GLOWS is articulated over a timeframe of 3 years and based on the expectation of EU Contribution for over 2MEuro

GLOWS Deliverables..

- Current Situation Communication Networks for People and Goods Flows
- Current Situation Logistics Infrastructures
- Current Situation/Trend in Port Policies
- Current Situation/Trend in Airport Policies
- Current Situation/Trend Technologies for Security in Port and Airport
- Stories of Security Issues in Airports
- Stories of Security Issues in Ports
- Research on biometrics
- Research on RFID Secu
- Advanced electronic sub
- Automate watch lists and
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- Potential theft of RFID tr
- Security of digitised biom
- Computer vision and computer graphics deformable algorithms in modelling, animation and medical image analysis
- Cost and Reliability Analysis of Biometrics solution Implementation
- Behavioural Models and Data Fusion Processes for Enhancing Reliability of Multisensor/Multicheck processes; Modeling and generation of behaviour descriptions; Generation and integration of virtual agents
- Cost and Reliability Analysis of Behavioural Models/Data Fusion/Data Mining solution Implementation
- Real time management and control of transportation operation.
- Information exchange architecture of people and goods moving.
- Identification of weak and critical infrastructure elements in the transportation modes to be protected.
- Summarising Research Survey
- Develop Conceptual Models for Considering Impact on Port/ Airport of Security Processes
- Develop Conceptual Models for Assess Risk of Threads on Logistics Nodes

The GLOWS deliverable list allows to define exactly the goals and "products" that will drive the Project

GLOWS …& Results

- Develop Guidelines to drive Technology/Policy Improvements in port/airport by use of quantitative models/simulators
- Development of Model for Evaluation of Cargo Prescreening Procedures
- Definition of the GLOWS Federation of Simulators Preliminary Objectives
- Definition of the GLOWS Federation of Simulators Final Objectives
- Definition of GLOWS Federation Architecture
- Definition of Verification, Validation and Accreditation Criteria and Procedures for GLOWS Federation
- Definition of Port Case Study: Scenario 1 for Demonstration by GLOWS Federation
- Definition of Airport Case Study: Scenario 2 for Demonstration by GLOWS Federation
- Identification of Real System / External Model to be used for testing external interoperability
- Object Model Federate Design for the Different Component of People/Goods Flow Security Control
- Development of Performance Metrics Models for Estimating Resilience, Dependability and Security of Interconnected Logistics Information Systems
- Object Model Design for Assessing Strategic Impact of the Threads on the communications, economy and society.
- Definition of Open Issues for Integrating other Interoperable Components (Models and/or real systems) in the Federation of Simulators
- Integration of HLA GLOWS Federates
- Integration Testing of HLA GLOWS Federation of Simulators
- Integration Testing on Real-Systems/External Interoperable Components integration in GLOWS
- HLA GLOWS Experimental Analysis on Port Case Study: Scenario 1
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- HLA Final Report and Result Synthesis
- GLOWS Federation of Simulator Presentation: Requirements, Potential, Effectiveness
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Thank You!

Questions ?