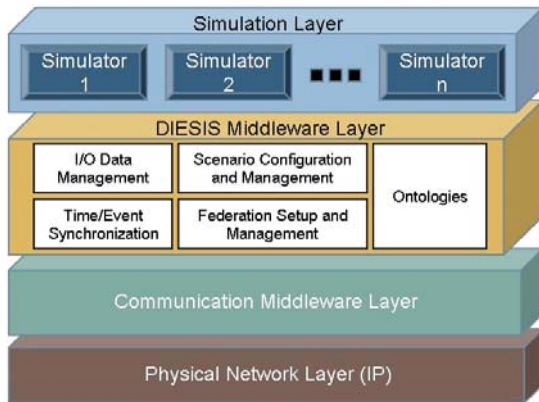


DIESIS

Summary: DIESIS proposes to establish the basis for a European modelling and simulation e-Infrastructure based upon open standards to foster and support research on all aspects of critical infrastructures with a specific focus on their protection. DIESIS will perform a thorough conceptual design study in order to prepare the establishment of such a research e-Infrastructure. More information on the DIESIS project can be found at <http://www.diesis-project.eu/>

Objectives: In particular, DIESIS will: a) make a detailed analysis of the requirements by researchers, industrial stakeholders, decision makers and governmental organisations for the research e-Infrastructure; b) develop an extensible ontology and communication protocols in order to define a standard for interoperable simulations in the field of Critical Infrastructure Protection (CIP); c) provide concepts enabling interoperability among heterogeneous and distributed modelling and simulation technologies; d) design an Information and Communication Technology (ICT) architecture for a distributed European e-Infrastructure on top of existing GRID approaches in order to support federated, interoperable simulations and research on CIP; e) implement a prototype of such an e-infrastructure as a proof of concept;



DIESIS middleware and its relationship to existing computing resources and simulators

f) assess the feasibility (scientific, technical, and financial) and the potential impact (scientific and technical) of such an e-Infrastructure.

While the main focus of the project is on research in the critical infrastructure domain, the developed concepts, protocols and technologies will be applicable much more broadly. In principle, these should be applicable to all kinds of research where federated simulation is useful.

By providing the design and the evaluation of the feasibility DIESIS is the first step towards a European e-Infrastructure for research in the important and emerging field of CIP that will lead

to more dependable, resilient and secure infrastructures to the benefit of all European citizens, European society and economy at large. DIESIS proposes to establish the basis for a European modelling and simulation e-Infrastructure based upon open standards to foster and support research on all aspects of critical infrastructures with a specific focus on their protection. DIESIS will perform a conceptual design study in order to prepare the establishment of such a research e-Infrastructure.

Action plan: The work plan goal is to perform a design study for an e-Infrastructure enabling federated simulations of critical infrastructure systems and supporting research on CIP. DIESIS will be realised in 24 months and consists of five work packages. These are arranged according to the three main phases:

1. Requirements and technology analysis

This phase has three main goals:

- ▶ Identification, analysis, evaluation and consolidation of requirements for the necessary e-infrastructure.
- ▶ Identification, analysis and evaluation of the available resources and technologies.
- ▶ Identification, analysis and evaluation of available infrastructure simulators with respect to federated simulations.



Project acronym:
DIESIS

Contract n°: RI-212830

Project type: I3

Start date: 01/02/2008

Duration: 24 months

Total budget:
1 537 350 €

Funding from the EC:
1 172 913 €

Total funded effort in person-month:
142

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Keywords:
Critical infrastructures, federated simulation, research infrastructure, middleware

Collaboration with other EC funded projects:
IRRIIS



Framework Programme 7 (2007-2013) Research infrastructures projects

The first task will be performed by addressing a representative set of relevant stakeholders. The second one will require a detailed investigation of resources and facilities available at the partners' sites (and those that are generally available in the EU) as well as a thorough analysis of available standards suitable for federated simulations.

2. Concepts, protocols, architecture and proof of concept

This phase comprise all design and development activities. Starting from results obtained in phase 1, concepts for federated simulations of critical infrastructure systems will be developed. An ontology for exchanging semantic information between simulations of different critical infrastructures will be created and a communication protocol will be defined. The overall ICT-architecture of the critical infrastructure M&S e-Infrastructure will be developed and a proof of concept will be implemented.

3. Dissemination and recommendations

Dissemination wraps around previous phases and provides the feedback channel aiming to enforce the collaboration within communities, and informing about initiatives organised in the context of the project. Adapted/extended standards will be promoted at relevant events and provided to the appropriate standardisation bodies. The feasibility and the potential impact of a European CIP e-Infrastructure will be assessed and final recommendations will be provided to the EC.

Networking activities: For the technical part of DIESIS' feasibility study, cooperation with existing research projects in the area of CIP, like IRRIS and others, is planned. For the financial and legal part of the feasibility study, DIESIS will cooperate with European institutions like ESFRI. Also, DIESIS will take part in networking activities of the e-Infrastructures programme.

Service activities: DIESIS does not address service activities.

Joint Research activities: The proposed federated simulator research infrastructure also aims at stimulating joint research activities in the area of CIP.

User communities: Potential end users for the federated simulator research infrastructure comprise research groups in the area of critical infrastructure protection, public security offices, corporate research departments of companies operating critical infrastructures and other industrial stakeholders.

International aspects: DIESIS will design an ICT-architecture for a distributed European e-Infrastructure supporting federated, interoperable simulations and research on CIP. The establishment of such a distributed infrastructure in more than one country requires careful preparation. Thus, DIESIS will perform a thorough conceptual design study in order to prepare the establishment of such a research e-Infrastructure. In particular, DIESIS will:

- ▶ Analyse in detail the requirements for the research e-Infrastructure coming from researchers, industrial stakeholders, decision makers and governmental organisations.
- ▶ Assess the feasibility (scientific, technical, financial and legal) and the potential impact (scientific and technical) of such an e-Infrastructure.
- ▶ Develop a strategy and roadmap for the deployment of the e-Infrastructure, including a business model, an organisational model of the operating entity of the EISAC (European Infrastructures Simulation and Analysis Centre), a list of possible sponsors of the e-Infrastructure, a list of possible services to be offered, and a list of potential users and customers.