THEATRE

Thematic Network on Air Transport and ATM Validation Activities

Funding: European (5th RTD Framework Programme)
Duration: Mar 2001 - Mar 2004
Status: Complete with results

Background & policy context:

It is recognised that the future European Air Traffic Management (ATM) system cannot be designed and implemented in a fragmented manner. Therefore, the THEATRE Network intended to promote the co-ordination and consolidation of all of the current work being done in the field of ATM validation. Based on the feedback received from European experts in the fields of ATM validation, it compiled and disseminated the recommendations for both a standardised process and a validation regulated framework.

Collaboration between European partners to produce an agreed set of validation information was felt to be essential for the industrial analysis and design activities that will follow. This Project was intended to greatly reduce the time required to gain acceptance for the new ATM system on a European rather than an individual civil aviation authority basis.

The enforced competition especially with United States companies, and the success of several European research projects (e.g. ARTAS, ODS, PATIO, PHARE, CINCAT or FARADEX) led the consortium to consider that the time was right to launch such a European Project. The THEATRE project made available the validation guidelines needed to make a smooth transition from research to industrial applications. To this end, the THEATRE Project disseminated the knowledge essential to validate new systems.

Objectives:

The most significant objectives of the THEATRE project were the following:

- To create an environment of collaboration and transparency between ATM stakeholders and ATM validation projects.
- To create a pool of validation experts across Europe, including NAS States, and elsewhere.
- To reach a consensus of ATM validation experts on the required elements of the validation work required in the 5th FP.
- To provide support to the European Commission in ATM validation activities.

Methodology:

THEATRE addressed the intended validation activities with an innovative approach. Instead of relying on the expertise available in one or several organisations in a fragmented and loosely co-ordinated way, the THEATRE Thematic Network created a pool of European validation experts that provided their expertise and knowledge to orient FP5 validation objectives. The experts were organised in Working Groups, each addressing a specific validation issue. THEATRE provided secretarial and administrative support, as well as technical knowledge, to ensure that the experts focused on significant validation issues.

THEATRE created three Working Groups. The Validation and Safety Working Group studied aspects of safety as they affected ATM validation. The Validation and Business Working Group studied the main aspects to be taken into account in the ATM system decision-making process from the economic and business points of view. Finally, the Support to MAEVA Working Group provided support to the Master ATM European Validation Plan (MAEVA) project as well as, at the request of the European Commission, providing support to its validation activities as needed.
The administrative support provided by THEATRE included the preparation and organisation of two scheduled workshops and several other unscheduled meetings. It also provided support to complementary dissemination activities requested by the European Commission, such as the organisation of the Commission stand at the ATC Maastricht ATC International Exhibition and other international forums as requested.

**Related Projects:**
- MAEVA (Fifth Framework Programme)
- CAATS (Sixth Framework Programme)

**Parent Programmes:**
- FP5-GROWTH KA2 - Sustainable Mobility and Intermodality

**Institute type:** Public institution
**Institute name:** European Commission, Directorate-General for Energy and Transport (DG TREN)
**Funding type:** Public (EU)

**Partners:**

**Core Team members:**
- ISDEFE (Spanish Consultancy) - Co-ordinator
- AENA (Spanish Service Provider)
- DNA/CENA (French Research Centre)
- NLR (Netherlands Research Centre)

**Other members of the Consortium:**
- CDV (Czech Research Centre)
- DFS (German Service Provider)
- HSAT (Hungarian Transport Research Association)
- INDRA (Spanish Manufacturer)
- QinetiQ (English Research Centre)

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**Key Results:**

THEATRE made the following recommendations regarding validation and safety:
- EUROCONTROL Safety Regulatory Requirements (ESARRs) need to be extended for purposes of harmonisation: guidance is insufficient to address design problems.
- More research is needed on safety criteria.
- Safety needs to be considered earlier in the design process, in an iterative manner.
- Better tools are needed to support the design process.
- Safety considerations need to be included throughout the validation process, as well as human factors.
- Guidance should be provided in the ESARRs about what should and what should not be the subject of safety validation in order to keep safety validation affordable.
- ATM needs to be considered in a less isolated manner, being embedded in the full value chain.

THEATRE Workshops made the following recommendations regarding validation and business:
- A reference list of validation costs should be created.
- Airlines and other stakeholders should be included in the partnership needed for validation.
- New financing sources should be found for validation.
- Environmental and safety factors should be included as validation costs.
- The Commission should coordinate the process of converting abstract parameters (e.g., increase in capacity or safety) into monetary terms.
- A business case should be included in all validations.
- A uniform discount rate should be used.
- Validation should be seen as providing benefits instead of generating costs.
- European knowledge base should be created containing validation results.
- A common methodology and criteria framework should be defined and promoted.
- The commitment of end users in strategic decisions is necessary.
- Multiple validations need to be avoided in order to save costs.
- The local perspective on validation should be changed to a regional perspective.

These results are particularly significant because up to the present time almost no work had been done in the field of validation and business issues.

THEATRE Workshops made the following recommendations regarding validation methodologies and practices:

- An interest/user group of the EUROCONTROL Validation Data Repository (VDR) should be

**Technical Implications**

The experts attending the Second THEATRE Workshop made the following overall recommendations to the European Commission for the validation work to be done in Sixth Framework Programme projects:

Find out and take into account what ATM decision-makers and airspace users want from validation.

Make validation results user-friendly: standard format, easily available, easily manageable.

Make the validation process transparent and focused to achieve user participation and interest.

Improve the VGH and VDR on an on-going basis, establishing suitable feedback loops.

“Sell” use of the VGH and VDR by presenting demonstrated benefits &/or making them mandatory.

The THEATRE project was a thematic network designed to create an environment in which experts could discuss and disseminate information about validation in air transport and air traffic management. This objective was met through three principal means:

The website, which made information about ATM validation available to a large group of experts in documents and the newsletter.

The workshops, at which a total of almost 100 experts discussed validation issues and reached conclusions and recommendations for future ATM validation work.

The additional channels for dissemination carried out at the request of the European Commission, most notably through the preparation and

**Policy implications**

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• ‘Sell’ use of the VGH and VDR by presenting demonstrated benefits &/or making them mandatory.

STRIA Roadmaps: Network and traffic management systems
Transport mode: Air transport
Transport sectors: Passenger transport, Freight transport
Geo-spatial type: Other