

Human Factors track

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Human Factors session Overview

- 3 U.S, 1 European
- Content and explore links to NextGen & SESAR
- Remember Baltimore?
 - Links to operations and Safety Management System
 - Call for Iterative Design approaches
- ...and the clues...
 - Integration of HF in the lifecycle of ATM
 - Safety Culture Assessment
 - Include maintenance / engineering in the scope of HF

Communication (paper 1)

- Voice & Voice
- Communication recorded and analysed → readback errors
- 10 471 messages during arr/dep (52h) → 93,8 % correct
- Complexity guide → Complexity Value
- 1996 vs 2006 a comparison
 - Trend towards longer messages
 - 22% increase in correct readbacks
- Results:
 - Keep complexity "lagom" (in the middle),
 - 1:1
 - Approach phase more prone to error



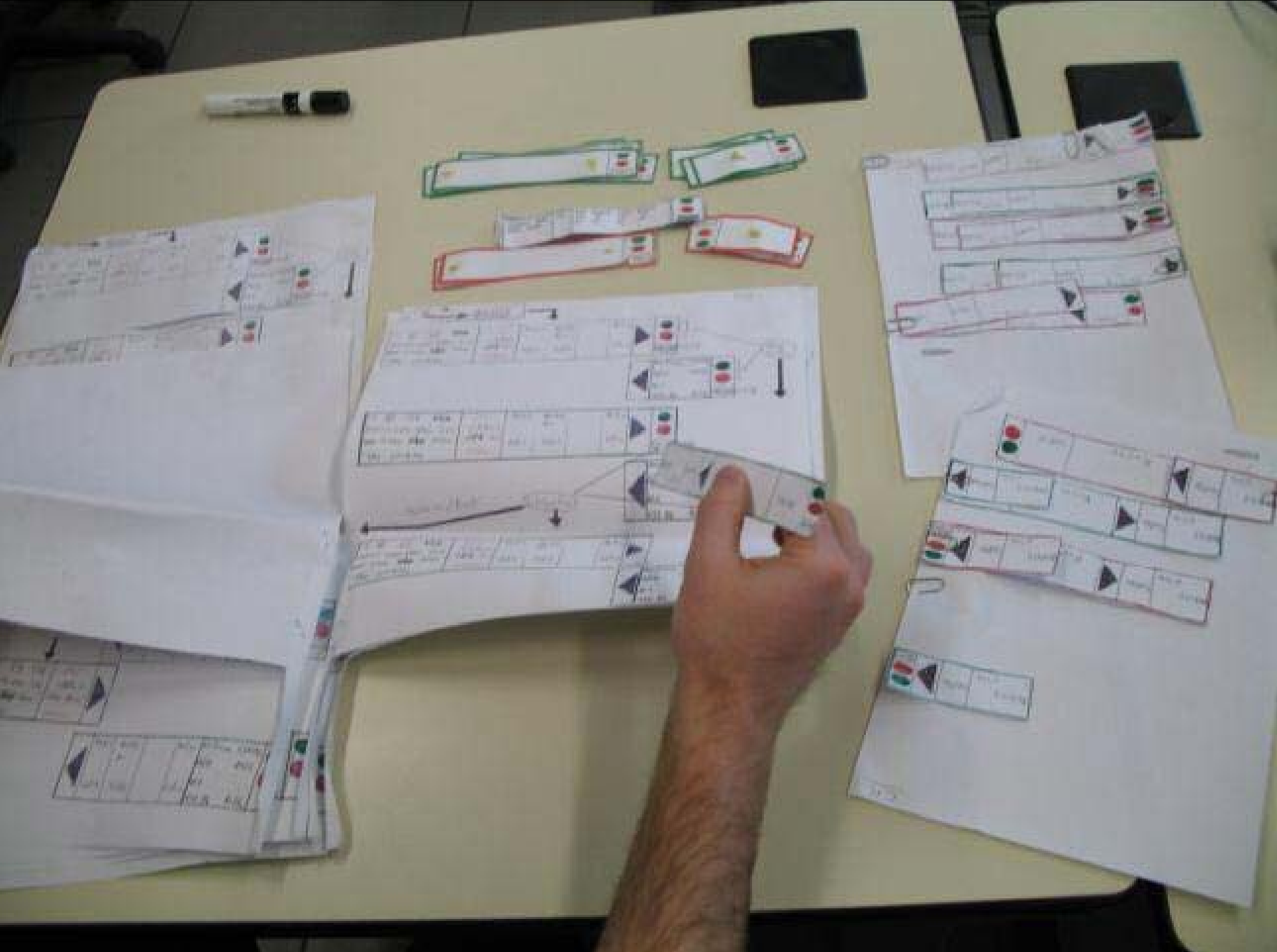
Communication (paper 174)

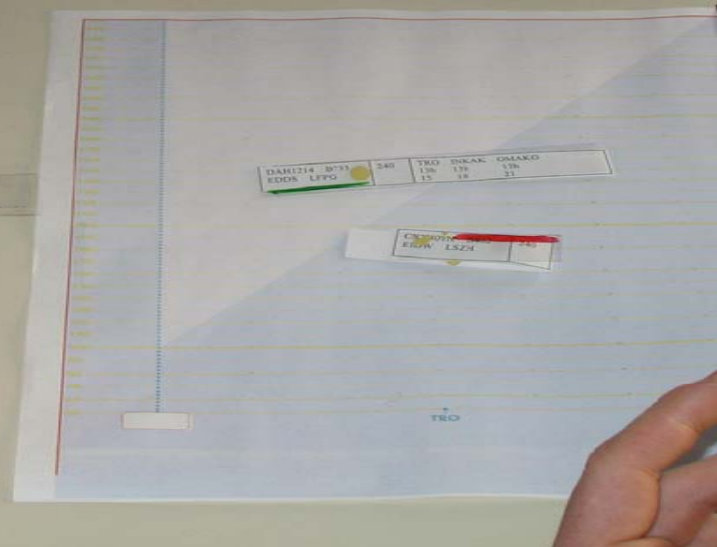
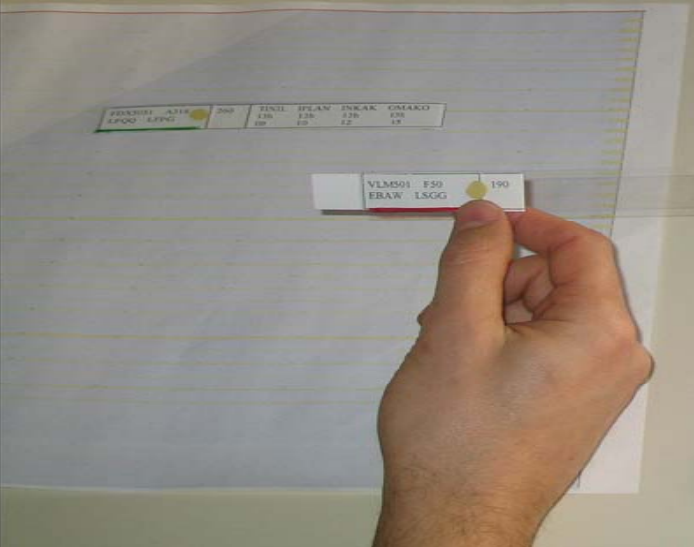
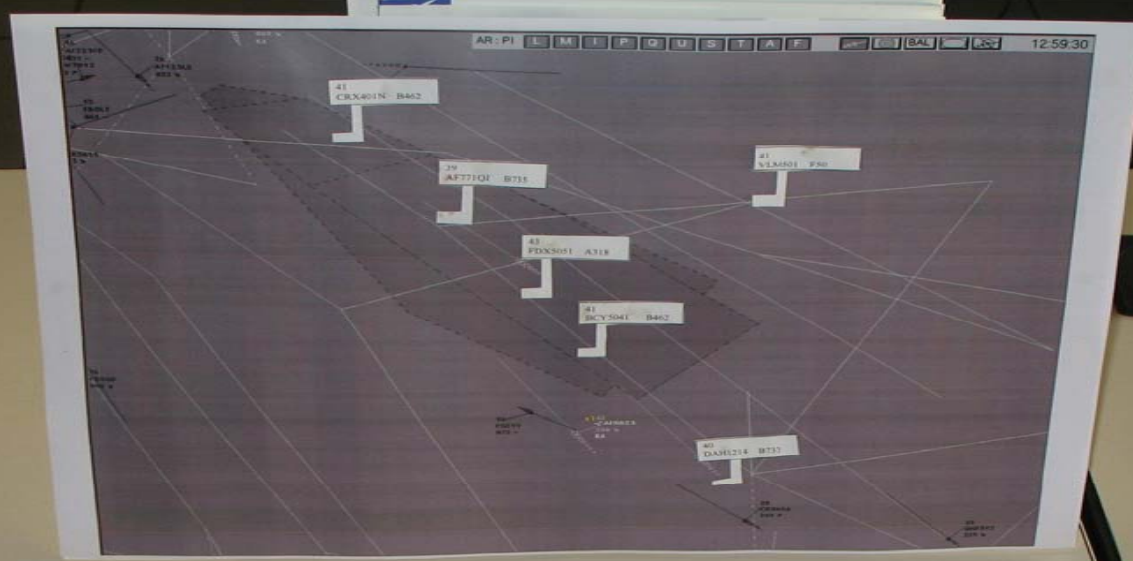
- 42 * 30 min voice-voice recordings analysed
- Open transactions (length & numbers) → impact on ATCO performance
- Open transactions → Miscommunications → the delayed response
- Number of open transactions & phase of flight "arriving into sector"
- Results:
 - Open transactions → increase risk for miscommunications
 - To be considered in future design of datalink communication
 - Further study the effect of open transactions on Human Performance

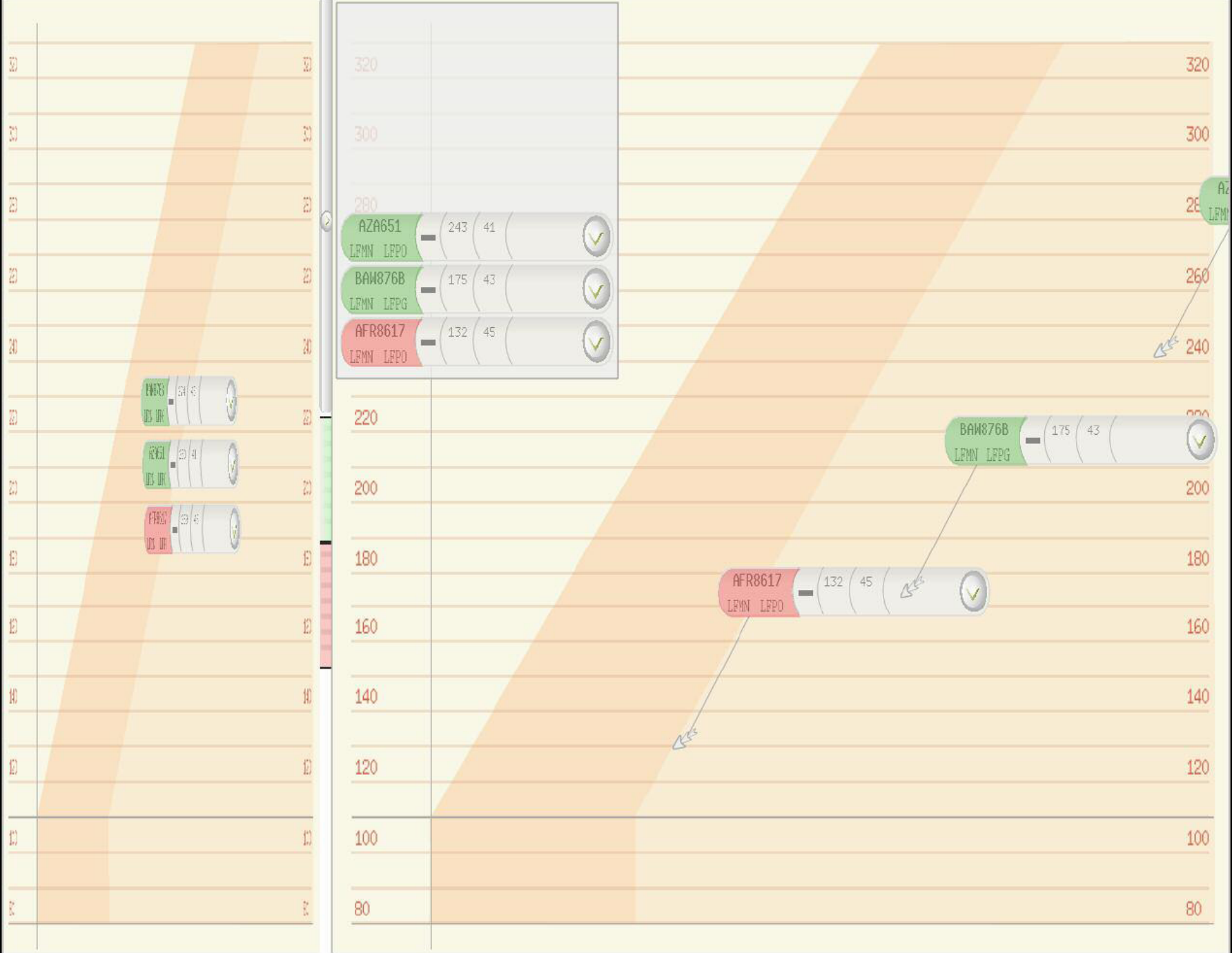


Design "Best Practices" (paper 110)

- Need to improve workability for electronic strips for terminal sectors
- Field observations
- Participatory Design
 - iterative steps → low fi mockups → paper prototyping →
5 mockups evaluated → 2 possible ways → one selected
- Flexible solution preferred → allow ATCO to deal with anomalies



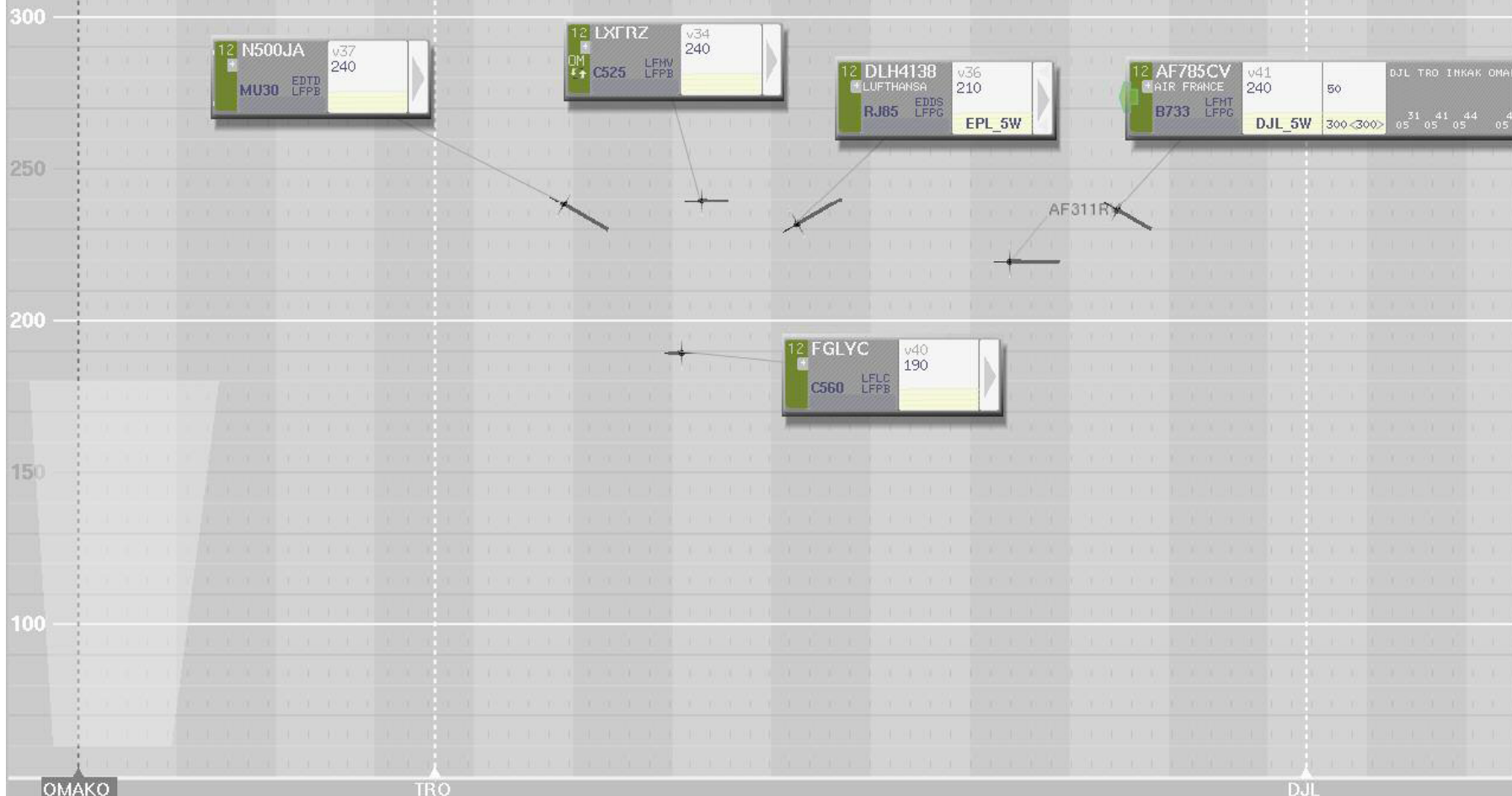


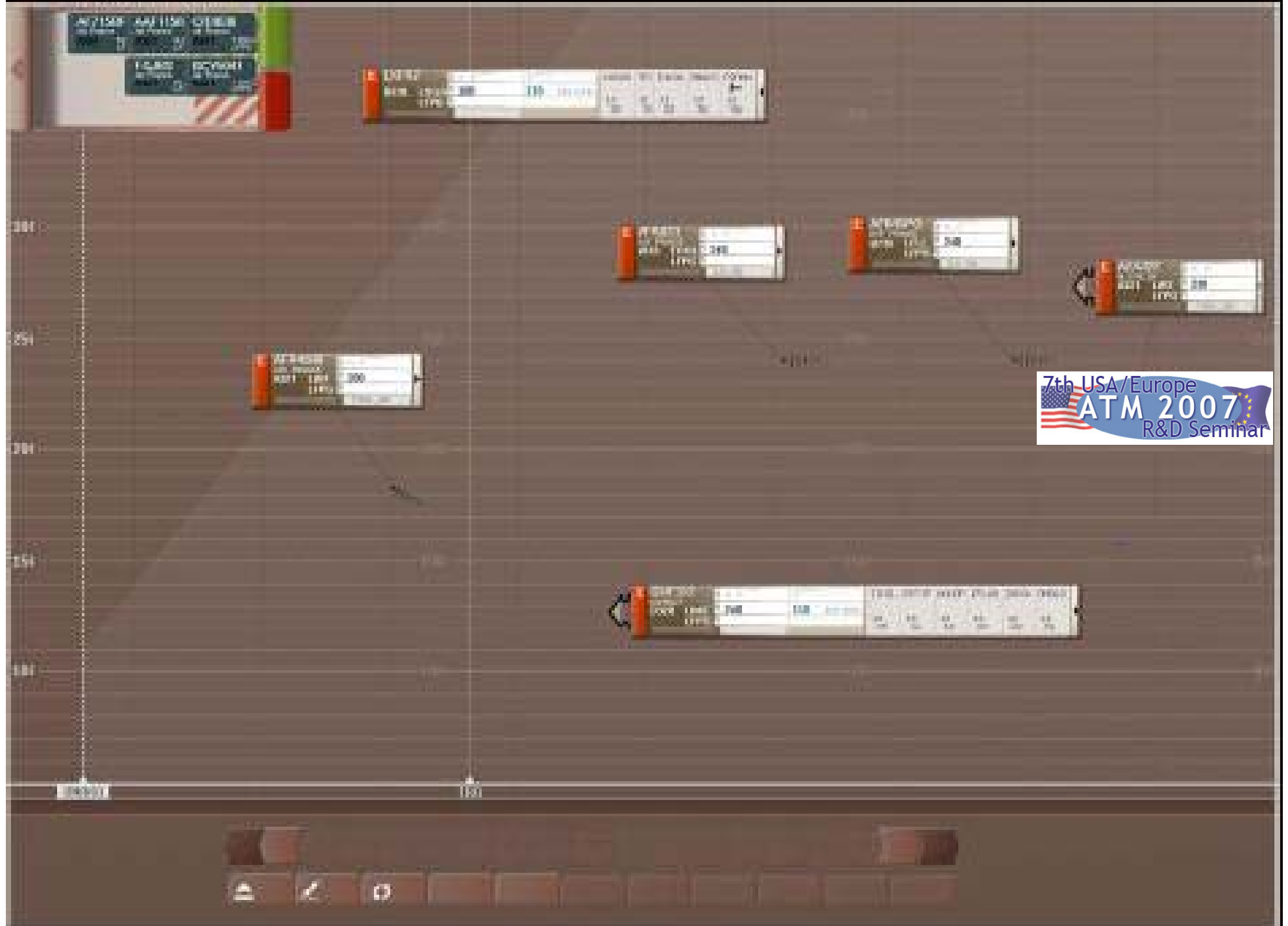


AF3 MAU58
 LUVA IINIL 05:37
 LFPG AFR3621
 RLP 05:41
 LFPG

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 AIR FRANCE
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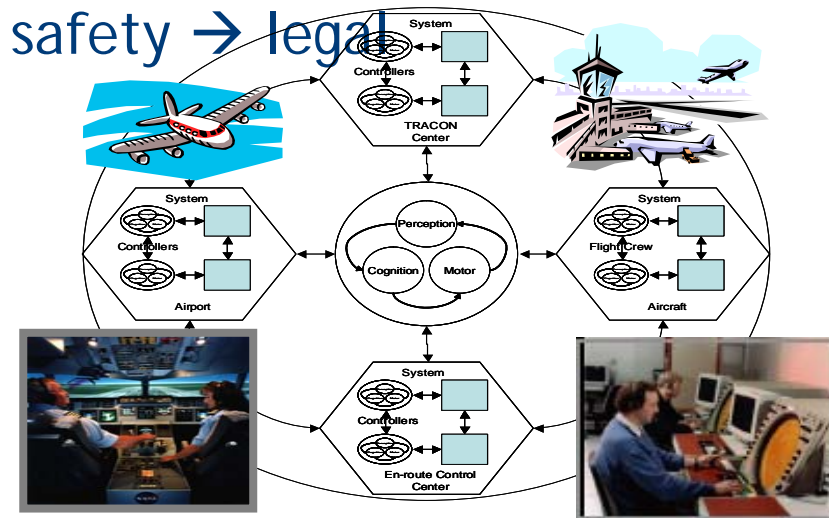




Modeling of ATM Concepts (paper 175)

- Innovative ATM Concepts needs to be evaluated
- Have we sufficiently determined what everyone is expected to do?
 - impact on Human / Machine interactions
 - impact on roles & responsibilities
- ABMS* potential to
 - support "Functional/ Cognitive Task Analysis
 - guide allocation of tasks in future air transportation system
 - consider human strengths and weaknesses
 - advise on roles & responsibilities → safety → legal

*Agent Based Modeling and Simulation





SMS

Design

HF
integration

Safety
Culture

Human Error

User involvement

Learn from
current ops

Roles &
Responsibilities

Change
management

Roles &
Responsibilities

Human
Performance

Training

User
involvement

Automation &
Human

Human Error

Change
Management

....