Alias

Liability and automation: issues and challenges for socio-technical systems

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EUROCONTROL
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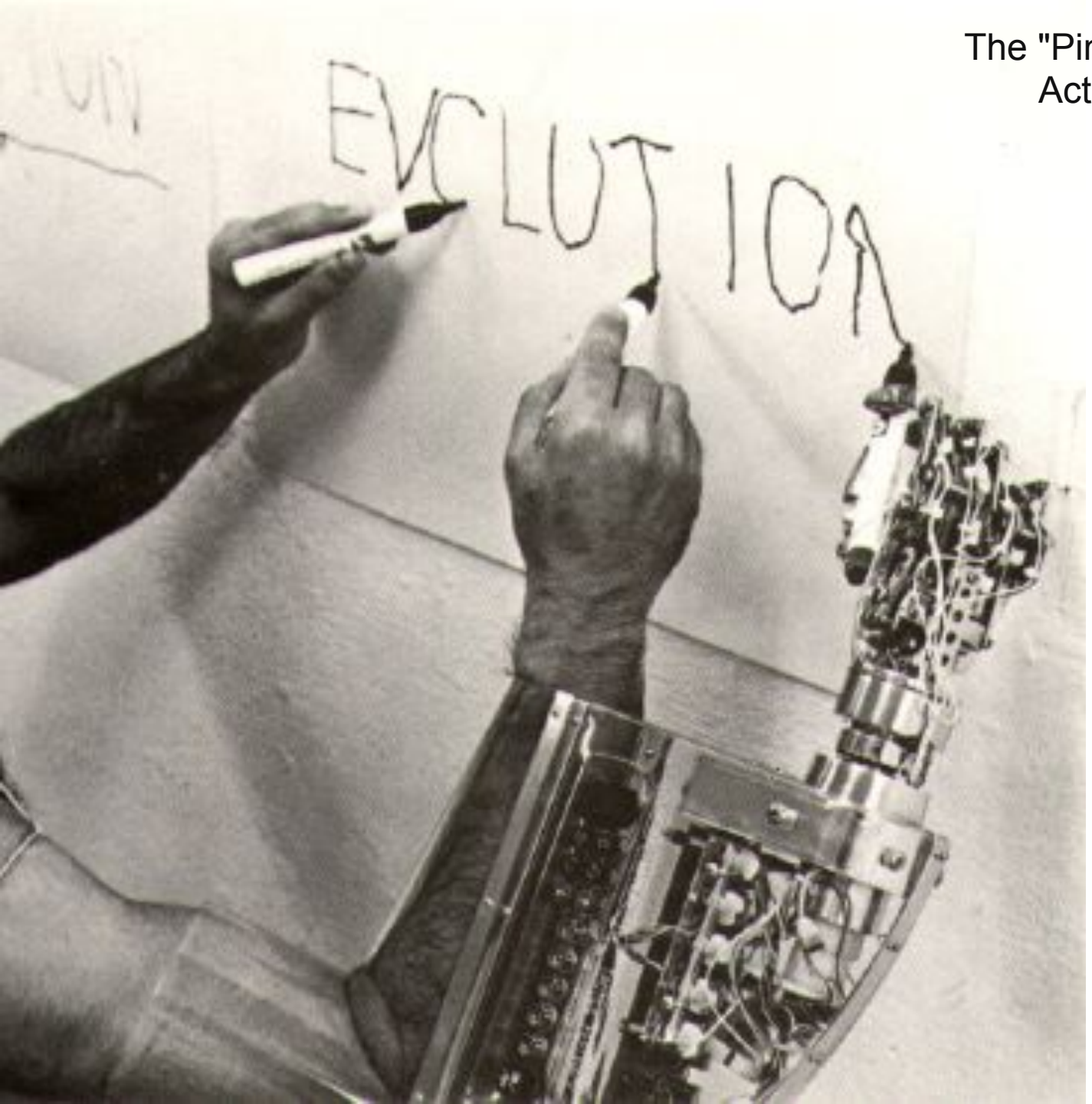
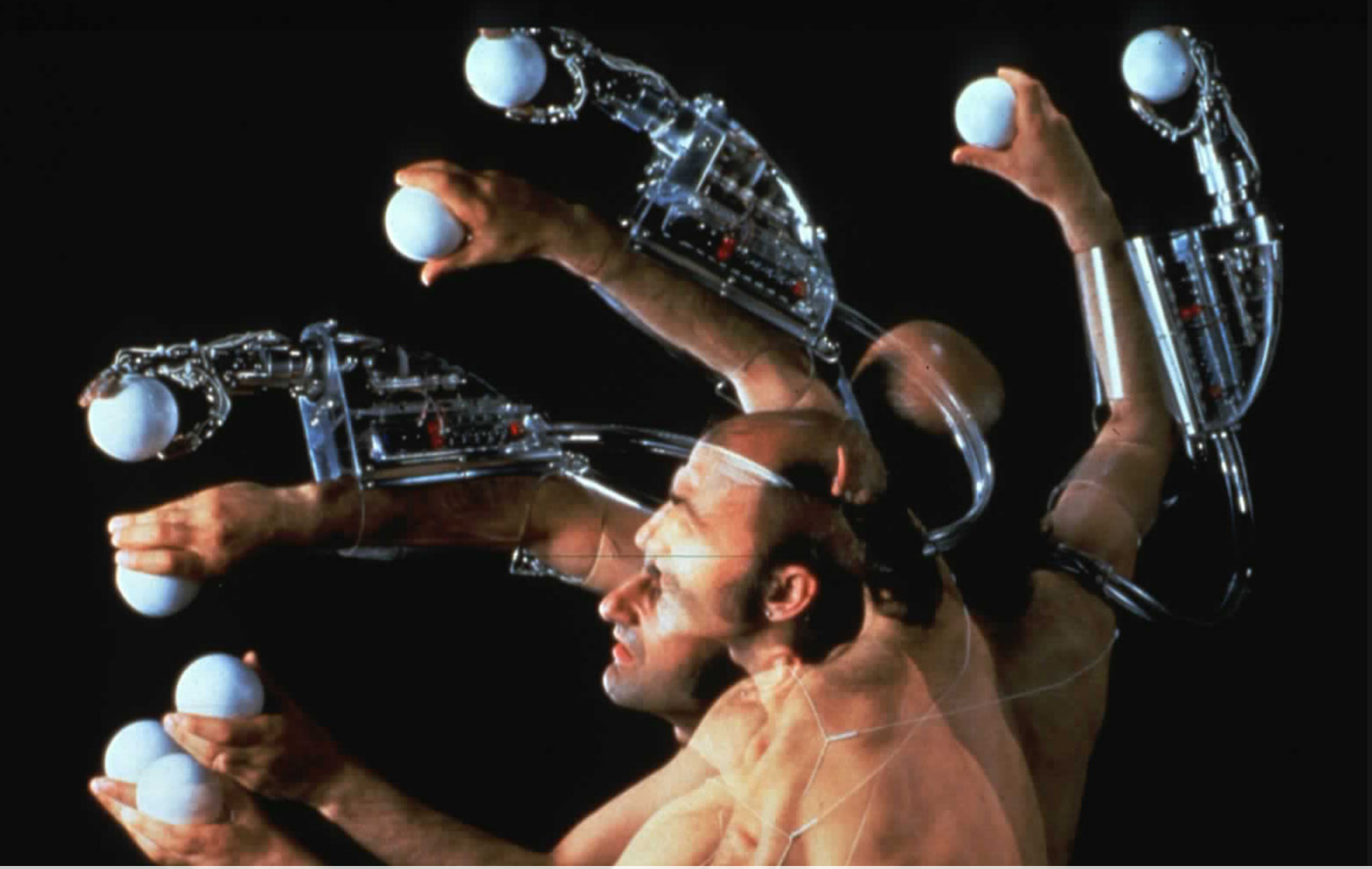
- Who is responsible for accidents or troublesome events in highly automated systems?
- How do we apportion liability among the various participants in complex socio-technical organisations?
- How can different liability regulations at different levels (supranational, national, local) be harmonized?



The "Ping Body: An Internet Actuated Performance“
By Stelarc



A series of muscle stimulating electrodes placed on various parts of Stelarc's body that responded to remote users loggin on to the performance's web interface. Ping values were gathered from the users' collective activity and caused areas of stelarc’s body to be stimulated. Users also watched the resulting effects upon stelarc over a live webcast.

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ALIAS (Addressing Liability in Automated Systems) co-financed by EUROCONTROL on behalf of the SESAR Joint Undertaking - Work Package E.

The project focuses on the legal implications of automation exploring the wide spectrum of relations between automation and liability.

Main focus on Air Traffic Management, but also on various domains that face similar issues, such as HealthCare, ICT, Train Transport, Navy, the automotive industry.

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- In the time horizon of SESAR, that is over the next 30 years, a new generation of air traffic management systems will be developed.
- Such systems will be highly automated. They will make choices and engage in actions with some level of human supervision, or even without any such supervision.

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- How different degrees of autonomy of agents and machines shape the responsibilities of the different actors.

- How forthcoming operational concepts and procedures provide challenges in the involvement of the different actors and their consequent responsibilities.

- How existing laws regulate the allocation of liabilities in ATM, and the assessment of whether such laws and regulations provide an adequate normative framework.

- How to optimally allocate responsibilities in present and future highly-automated socio-technical systems. Allocation of responsibilities, not only as a way to distribute risks and sanctions, but also as a means to prevent accidents and to increase levels of safety and performance in ATM.

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The development of the “**Legal Case**”, a methodological tool including recommendations and guidelines to ensure that relevant legal aspects are taken into consideration at the right stage of the design, development and deployment process.

The creation of a **Network of legal research** in socio-technical systems with the purpose of creating a multidisciplinary community that will support knowledge construction and distribution, sharing of cases and best practices, discussion on the topics of interest, archiving of documents and references useful to develop this research area.

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The first activity of the Network will be the publication of a position paper that is intended to “seed” the discussion forum, leading hopefully to a collaborative effort from the network community in developing a rich community corpus of stories arguments, and interpretations.

The process of people recruiting for the ALIAS Network will start during the SESAR Innovation Days 2011. We invite you to register to the network and propose topics of discussion.

On line registration:
www.aliasnetwork.org/register.html

The Project

ALIAS is an innovative project focusing on the legal implications of automation in complex socio-technical systems.
It examines liability attribution as an emerging fundamental issue in human-technology interaction that needs to be taken into account in highly automated environments.

The project explores the wide spectrum of relations between automation and liability in highly automated systems, focusing on Air Traffic Management (ATM), but also considering other domains such as HealthCare, ICT, Train Transport, naval systems, and automotive industry.

ALIAS will develop the Legal Case - a methodological tool, involving recommendations and guidelines, in order to ensure that relevant legal aspects are taken into consideration in all stages of the design, development and deployment process. ALIAS will also develop an online network and digital archive of Legal Research in Socio-Technical Systems.

Contact

info@aliasnetwork.eu

www.aliasnetwork.eu

The ALIAS Network

The ALIAS Network will enable an ongoing structured debate and discussion forum, leading to the development of a body of knowledge, competence and capability on the relationship between liability and automation.

As a meeting place for professionals, the network draws on the collective experience of its members to foster discussion and collaboration across disciplinary lines. The network is envisaged as a Web 2.0 community, providing social network services and a variety of additional services such as: a document archive, a forum to launch and discuss relevant topics, a shared calendar for relevant events, and visualisation tools to monitor

The Event

A one-day conference will be organised in Florence, June 14-15 2012 to officially launch the Network.

The Network welcomes participants from academia, research centres, industry/SMEs etc. that wish to share their knowledge and interest in legal issues concerning socio-technical systems, in particular ATM.

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We invite you to register for the Network by filling in the attached form. Please also suggest topics that you believe should be discussed in the Network.

Please return the form in the ALIAS Dropbox.
You may also register online filling in the form at **www.aliasnetwork.org/register.html**

REGISTRATION FORM

First name _____

Last name _____

Middle name _____

Gender _____

Affiliation _____

Email _____

Topics that you believe should be discussed in the Network

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Socio-technical systems: examples

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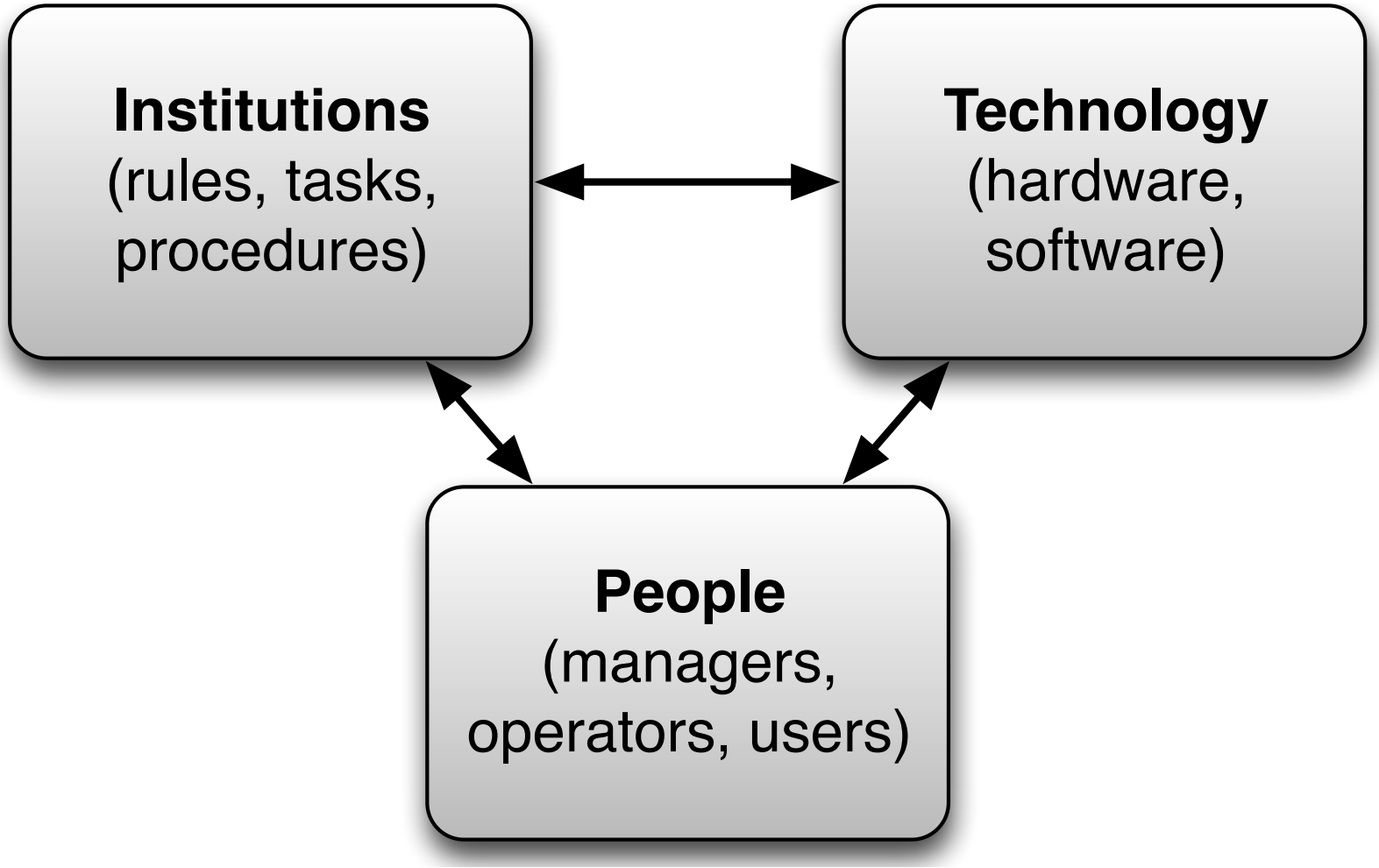
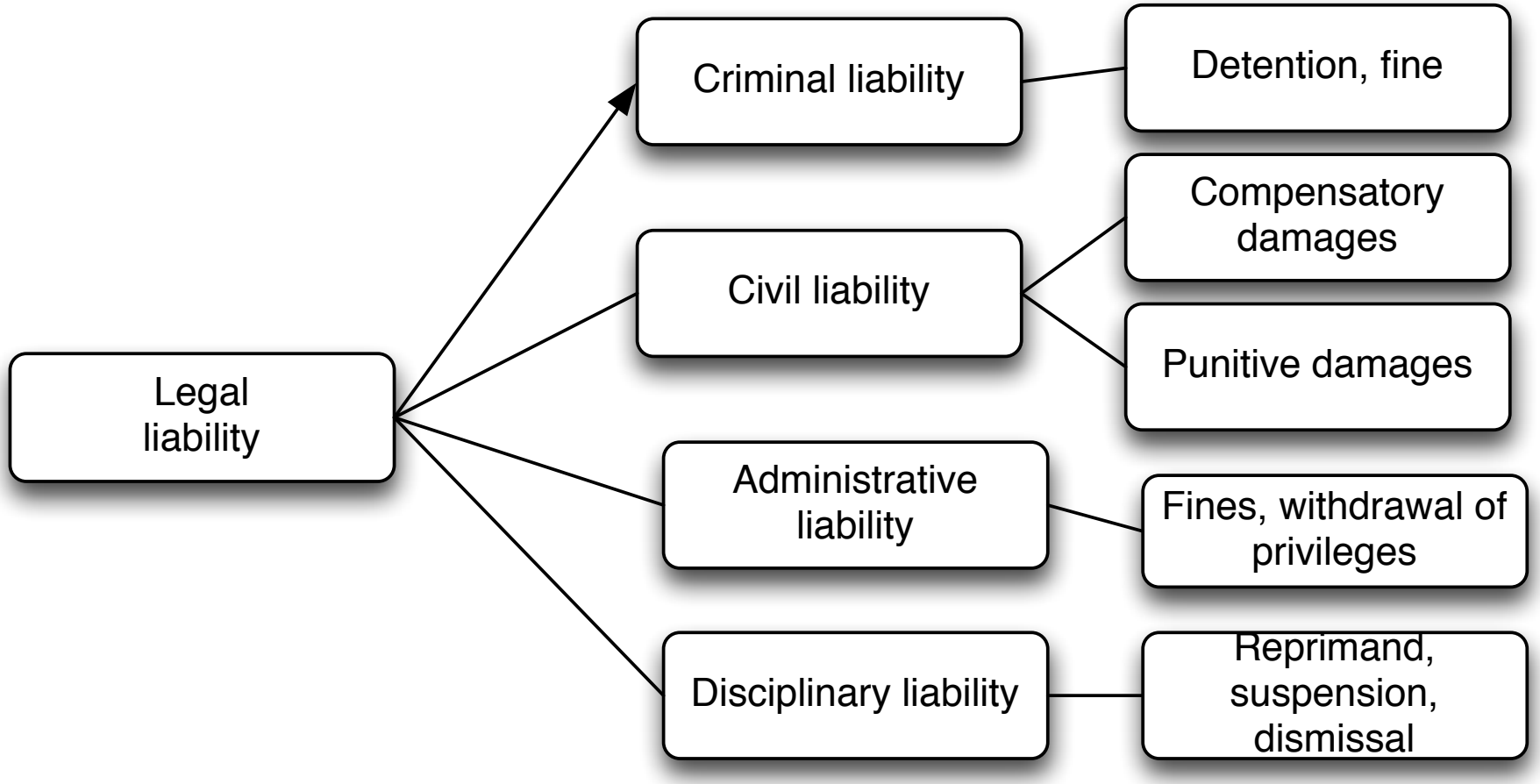
Socio-technical systems: basic structure



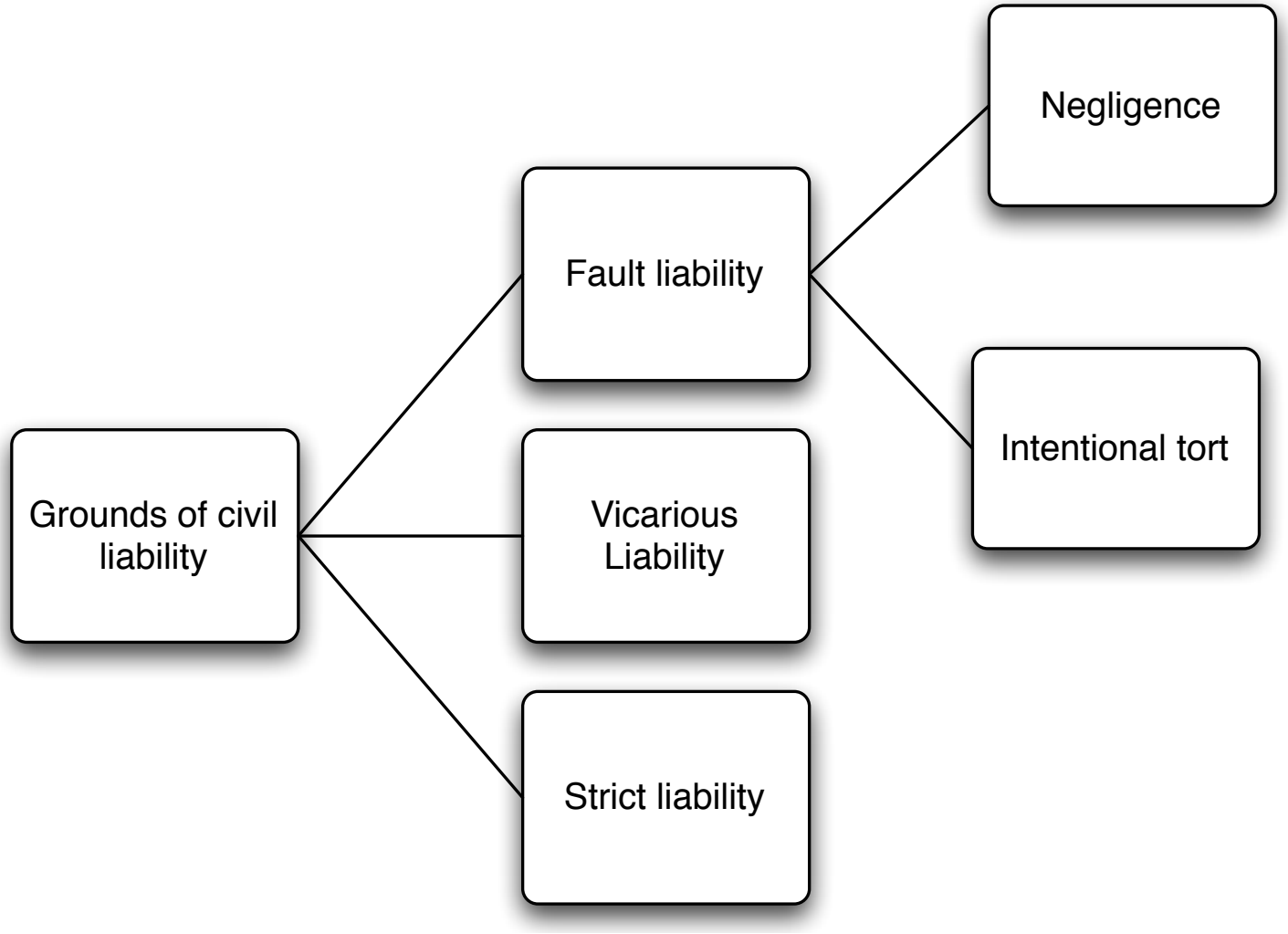
The problem of liability

- **Who is responsible in case something goes wrong**
  - Organisations (companies/agencies)?
  - Operators and managers?
  - Providers?
  - Users?
- **Who is liable to compensate the damage to persons and goods**
  - Organisations (companies/agencies)?
  - Operators and managers?
  - Providers?
- **Should anybody be sanctioned**

Kinds of legal liability



What grounds for liability



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Implications of automation

- Delegation of task from operators to technology
- Hybrid agency (designing man-machine symbiosis/ coagency)
- Humans as controllers and supervisors
- Machine intelligence and autonomy
- The challenge of complexity
- How to maintain control, prevent and mitigate failures

Automation and liability

- **Who should be responsible liable in ATMS as STS**
  - Operators vs managers
  - Individuals vs organisations (should we reject that myth of individual ultimate responsibilty)
  - Actors vs providers (of goods and services)
  - Public authorities (States)
- **Ways for allocation liabilities**
  - Organisation (tasks)
  - Contract
  - Laws (regulations)

Automation and liability (2)

- **Objectives of the allocation of liabilities**
  - Prevent accidents
  - Provide compensation
  - Promote safety culture
- **What to do about liability**
  - New public regulation is required, or
  - Self-regulation, coupled with contractual mechanisms
  - Reorganisation of tasks and internal responsibilities

Liability and software

- **What kind of software liability?**
  - Service liability vs product liability
  - Strict vs fault liability
  - Limited vs unlimited liability

- **Who is liable?**
  - Software producers vs software users
  - Could damage be mitigated?
  - Was the software acting autonomously?

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Some questions (1)

- How automation transforms operators' roles and tasks? What impact on liability?
- Who is responsible for the behaviour of systems that humans cannot fully monitor and control?
- Who is responsible for information supplied by automated sydtems that the human cannot verify?
- Who is responsible for harms resulting from defective design of human-machine interaction?
- Does strict liability constrains innovation?

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Some questions (2)

- Who is responsible when operators fail to cope with emergencies involving degraded automation?
- Who is responsible when operators defectively make up for a non-performing automated systems? Will these be treated as organizational, automation or human failures?
- Does compliance with current technical standards and regulation exonerate from liability?
- How can insurance systems complement the liability system? Can insurance fully protect from liabilities?

ALIAS Objectives

- Investigate liability and automation in ATM and in other domains

- Build a“Network of Legal Research in ATM”, a multidisciplinary community of practice to stimulate international debate around liability and automation.

- provide the “Legal Case”, a methodological tool to support the introduction of any technology in ATM, ensuring that relevant legal issues are taken into consideration.

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Chinook crash (Scotland 1994)

Unjust accusation to pilots, software failure

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B-2 Spirit Stealth Bomber Crash, Guam (2008)

Unreported sensor failure, Hardware failure

Ariane 5 software failure (1996)

Faulty design, software failure

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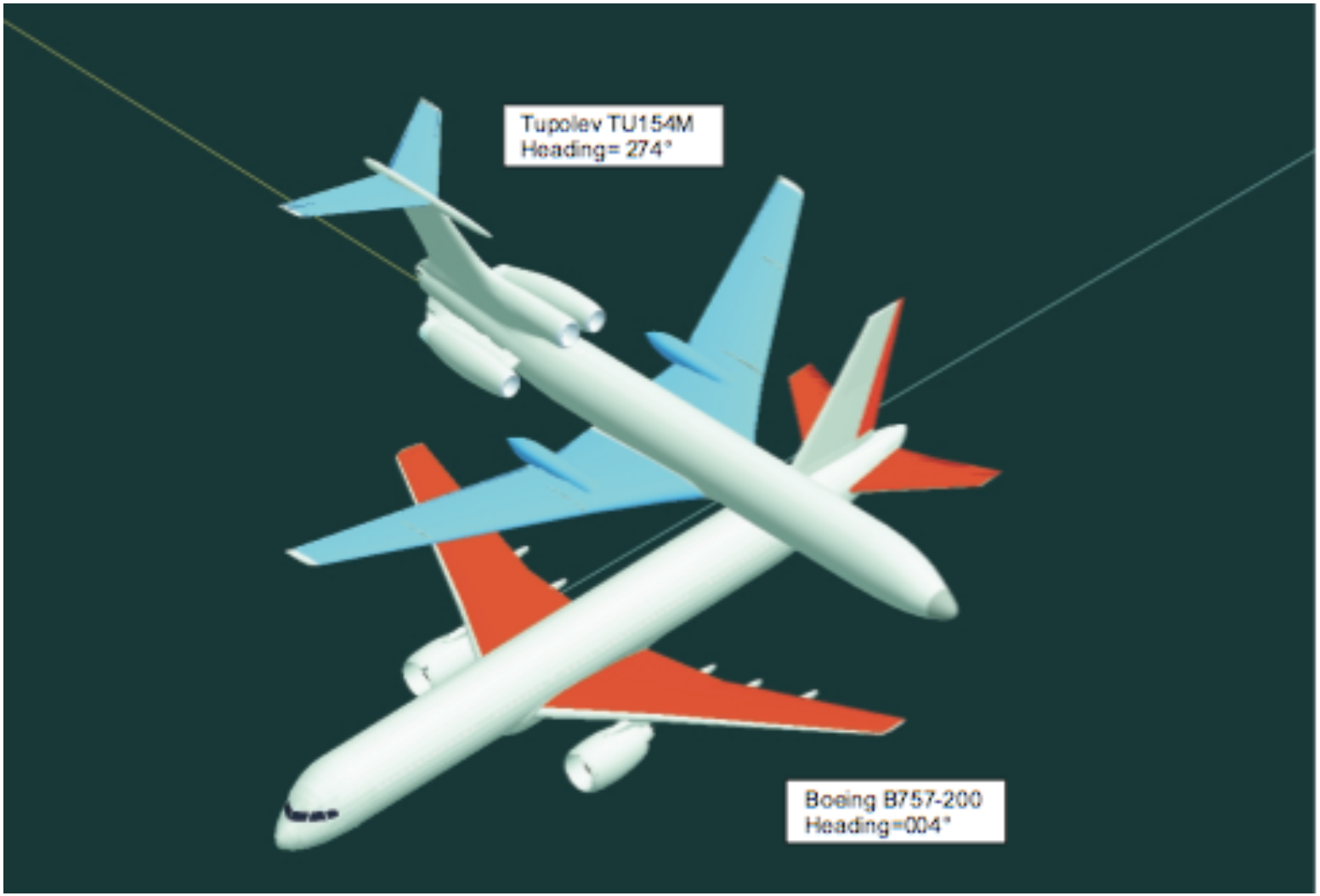
Ueberlingen mid-air collision(1996)



Human error, organizational failure, hardware failure

The team

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- Liam Bannon, DBL
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- Paola Lanzi, DBL
- Patrizia Marti, DBL
- Hans Micklitz, EUI
- Francesco Quarta, EUI
- Marta Simoncini, EUI
- Emanuele Tarducci, DBL

Thanks for your attention

Please register to the ALIAS network!