



Institutionally funded safety research activities

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Short abstract: Future Sky Safety is a Joint Research Programme (JRP) on Safety, initiated by EREA, the association of European Research Establishments in Aeronautics. The Programme contains two streams of activities: 1) coordination of the safety research programmes of the EREA institutes and 2) collaborative research projects on European safety priorities. This deliverable is produced by the WP1 “Coordination of institutionally funded safety research”. The main objective is to create a comparable overview over currently ongoing institutionally funded and safety-related research activities at research establishments. This survey will be updated regularly.

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EXECUTIVE SUMMARY

Problem Area

National research organizations have several institutionally funded and safety-related projects and activities on their agenda. Identification of topics mostly happens in accordance to national priorities or to European strategy. It is important to enhance the coordination of safety research carried out by participating EREA establishments on institutional funding, in order to reach a critical mass and contribute with the highest efficiency to the relevant safety agendas in Europe, thus leveraging the invested EU funding. However, there is a lack of knowledge inside the Research Establishments (REs) about the ongoing work in other REs. For this purpose, the ambition of Future Sky Safety Project P1 “Coordination of institutionally funded safety research” is to elaborate an Aviation Safety Research Plan (ASRP) endorsed by EREA establishments that maps and coordinates their safety research on institutional funding. A key input for this, is a comprehensive survey of the safety research activities in the REs, enabling to reach the following ambitions:

- To create a shared insight among the REs of the ongoing and planned safety research in the REs by developing and maintaining a detailed overview of safety research conducted in the REs.
- To create an overview over promising work areas currently not covered by research activities or covered in parallel by several European institutions.
- To achieve coordination in the planning and conduct of new safety research projects by the development and annual renewal of the ASRP. This plan will be public and will be offered for comment and discussion to the relevant stakeholders, thus also facilitating better alignment with the European Safety Priorities.
- To stimulate cooperative research projects in which multiple REs work together on a single safety research challenge. This includes creating the common administrative provisions and incentives needed to allow safety scientists to work at other REs.

Description of Work

In order to create awareness and foster cross-linking of research work in the field of safety, a questionnaire is created and a survey compiled showing involvement of research organizations into safety related, institutionally funded, projects and activities. This survey is planned to be updated regularly, thus being a “living document”.

The safety research is categorized in accordance with the Skybrary categories for aviation safety knowledge [1], being Operational Issues, Human Performance, Enhancing Safety, Safety Regulations and Miscellaneous. Example subcategories of Operational Issues are Controlled Flight Into Terrain, Fire, Level Bust, Loss of Control, Loss of Separation, Runway Excursion, Runway Incursion, Wake Vortex

Turbulence. Example subcategories of Human Performance are Human Behaviour, Design Philosophy, Human Performance Modelling, Organisation and Human Performance, Human Factors Training, Aeromedical. Example subcategories of Enhancing Safety are Airworthiness, Flight Technical, Safety Management, Safety Nets. Examples for Safety Regulations are Certification, ESARRs, Licensing, Regulation. Miscellaneous includes Accident and Serious Incident Reports.

The safety definition used for this study is taken from the CSA OPTICS (Observation Platform for Technological and Institutional Consolidation of research in Safety). OPTICS distinguishes two classes of safety projects: Either *explicit* safety research projects or *implicit* safety research projects. For this survey, only explicit safety projects which are at least partially institutionally funded are considered.

Results & Conclusions

Gathered results show what range of different safety-related topics is covered by the participating research establishments across Europe. Topics with low coverage as well as overlapping activities are identified. The majority of projects is subject to at least partial confidentiality restraints. Nevertheless, coordination and/or cooperation with other EREA partners would have been possible in the framework of the large majority of the projects. The following conclusions are made:

- The safety research at EREA partners focuses on the following three Skybrary categories in decreasing order: 1. Operational Issues; 2. Enhancing Safety; 3. Human Performance. Research on “Safety regulations” seems to be practically non-existent.
- The three main subcategories of safety research at EREA partners are in decreasing order: 1. Enhancing safety: Flight technical; 2. Operational Issues: Weather; 3. Operational Issues: Airworthiness, where the top two have a significantly higher count than number 3. The most prominent Weather safety research subcategory by far is “Icing”. Besides, it becomes apparent that certain topics/subcategories are not covered at all by the research of EREA members.
- Despite giving the definition of “safety project” at the beginning of this document with the survey, the definition still seems to leave some room for ambiguity. Some partners stated that they had difficulties classifying certain safety projects within the Skybrary categories.

The establishment of research topic clusters may be a first step towards establishment of coordination and cooperation. This survey gives certain ideas on what possible cooperation topics might be. However, there seems to be no clear “one” specific topic which is interesting for most of the REs.

Applicability

This report is designated for participating research organizations in order to identify perspective areas of coordination and cooperation and to improve their connections. Furthermore, research agendas can be shaped to better cover gaps in the safety research field.