



EC6 Project: IVVQ

## EC6\_N11 Conformity to standards

Strategy and tool to evaluate conformity to SAE AS6983/EUROCAE ED-xx (aeronautical Safety for AI), IEEE 7000 (Ethical) standards.

V2

EC6 L6.1.3.2

EC6 L6.1.4.2

EC6 L6.3.2.2



## Specific information to be provided in ANR reports only

	Progress report		Final report
From	01/04/2022	To:	31/03/2023
Brief description of the project (reminder)	<p>(Final batch2 delivery)</p> <p>This project intends to take few relevant standards into account, in order to analyze the extent to which the activities, carried out in Confiance.ai program, are adequate with the recommendations and requirements in these standards.</p> <p>The activity is meant to explore and validate the propensity of the Confiance.ai program to match with the expectancies that currently (or will soon) apply to industry through the standards.</p> <p>The analysis focuses on the adequacy of processes addressed in two standards:</p> <ul style="list-style-type: none"> <li>- <b>SAE AS6983/EUROCAE ED-xx</b> {Process Standard for Development and certification/Approval of Aeronautical Safety-related products implementing AI - SAE, Aerospace standard - Draft4b, 24/01/2023}</li> <li>- <b>IEEE 7000-2021</b> {IEEE Standard Model Process for Addressing Ethical Concerns during System Design - IEEE Standards Association - 16/06/2021}</li> </ul>		

The deliverable covers partially the following ANR deliverables

Action sheet deliverable	ANR Reference	ANR title
Strategy and tool to evaluate conformity to SAE AS6983/EUROCAE ED-xx (aeronautical Safety for AI), IEEE 7000 (Ethical) standards	L6.1.3.2	Mise en Place Briques d'IVVQ (Rapport et Outils)
	L6.1.4.2	Démonstrateurs et évaluation (Démon et Rapport)
	L6.3.2.2	Prototypes outils de qualification basée Assurance Cases (Rapport et Outils) [aka Analyse de conformité]

Document reference: EC6 L6.1.3.2, EC6 L6.1.4.2, EC6 L6.3.2.2

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## DOCUMENT CONTROL

Revision	Date	Commentary	Author
V1	21/12/2022	Stage 1, Partial Batch2 delivery	GJA
V2_Draft0	13/03/2023	Stage 2, Completion of Batch2	GJA
V2_Draft1	24/03/2023	Review of document	ZVK
V2_Draft2	25/03/2023	Integration of ZVK comments	GJA
V2_Draft3	28/03/2023	Review of document	CHA
V2_Draft4	29/03/2023	Integration of CHA comments	GJA
V2	29/03/2023	Finalization, Final Batch2 delivery	GJA

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## BIBLIOGRAPHY

Ref.	Document
[RD1] SAE AS6983	<p><a href="#">SAE AS6983 / EUROCAE ED-xx</a>  <a href="#">Process Standard for Development and certification/Approval of Aeronautical Safety-related products implementing AI</a>            SAE, Aerospace standard – Draft4b, 24/01/2023</p> <p><a href="#">2023-01-24_AS6983 Draft 4b.pdf - URL Sharepoint (<a href="#">URL</a>)</a></p>
[RD2] ARP 4754-A	<p><a href="#">SAE ARP4754A/EUROCAE ED-79A</a>  <a href="#">Guidelines for Development of Civil Aircraft and Systems</a>            SAE Aerospace - 12/2021</p>
[RD3] ARP 4761	<p><a href="#">SAE ARP4761/EUROCAE ED-135</a>  <a href="#">Guidelines and Methods for conducting Safety assessment process on civil airborne systems and equipment</a>            SAE Aerospace – 12/1996</p>
[RD4] EASA – Level 1	<p><a href="#">EASA Concept paper:</a>  <a href="#">First usable guidance for Level 1 Machine Learning applications</a>            December 2021 – issue 01</p>
[RD5] EASA – Level 1&2	<p><a href="#">EASA Concept paper:</a>  <a href="#">First usable guidance for Level 1 &amp; 2 Machine Learning applications</a>            February 2023 – Proposed issue 02</p>
[RD6] EU-1139	<p><a href="#">(EU) 2018/1139</a>  <a href="#">Regulation of the European Parliament and of the Council, on common rules in the field of <u>civil aviation</u> and establishing a European Union Aviation Safety Agency</a>            European Commission - 04/07/2018</p>

Ref.	Document
[RD7] EU-373	<a href="#">Regulation (EU) 2017/373</a> <a href="#">laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight</a> European Commission - 03/2017
[RD8] AI ACT	<a href="#">AI Act</a> <a href="#">Regulation of the European Parliament and of the council laying down harmonized rules on Artificial Intelligence (Artificial Intelligence act)</a> European Commission - 21/04/2021
[RD9] IEEE 7000	<a href="#">IEEE 7000-2021</a> <a href="#">IEEE Standard Model Process for Addressing Ethical Concerns during System Design</a> IEEE Standards Association - IEEE Computer Society - June 2021  <a href="#">IEEE-7000-2021.pdf - URL Sharepoint (URL)</a> (Note: This file will be removed on the completion of this “conformity to standards” activity)
[RD10] IEEE 7000 presentation	<a href="#">Introducing IEEE 7000-2021</a> IEEE Presentation done on 22/09/2022 URL Sharepoint ( <a href="#">URL</a> )
[RD11] IEEE 7000 mapping	<a href="#">IEEE 7000-2021 processes activity mapping</a> A mapping between IEEE 7000 process objectives (outcomes) and activities. URL Sharepoint ( <a href="#">URL</a> ), - Nov. 2022.
[RD12] IEEE 12207	<a href="#">ISO/IEC/IEEE 12207:2017</a> <a href="#">Systems and software engineering—Software life cycle processes</a>
[RD13] IEEE 15288	<a href="#">ISO/IEC/IEEE 15288:2015</a> <a href="#">Systems and software engineering—System life cycle processes</a>
[RD14] EC6.11_B2_V1	<a href="#">Conformity to standards</a> <a href="#">Confiance.ai batch2 Intermediate delivery document</a> <a href="#">ISX-EC6-LIV-L6.1.3.2-L6.1.4.2-L6.3.2.2-Conformity-To-Standards-B2-V1.pdf</a> (Sharepoint <a href="#">URL</a> ) – Dec. 2022 – V1
[RD15] Conformity to AS6983	<a href="#">SAE AS6983 / EUROCAE ED-xx Conformity</a> Conformity Report to SAE AS6983/EUROCAE ED-xx Standard (Sharepoint <a href="#">URL</a> ) <a href="#">Conformity To SAE-AS6983-4b V1</a>
[RD16] AS6983 Follow-up	<a href="#">SAE AS6983 / EUROCAE ED-xx Follow-up</a> Document recording the states of EC2-EC7 evaluations to SAE AS6983/EUROCAE ED-xx Standard (Sharepoint <a href="#">URL</a> ) <a href="#">Follow-Up_SAE-AS6983-4b_V1.xlsx</a>

Ref.	Document
[RD17] Conformity to IEEE 7000	<a href="#">IEEE 7000-2021 Conformity</a> Conformity Report to IEEE 7000-2021 Standard (Sharepoint <a href="#">URL</a> ) <a href="#">Conformity_To_IEEE-7000-2021_V0</a>
[RD18] IEEE 7000 Follow-up	<a href="#">IEEE 7000-2021 Follow-up</a> Document recording the states of EC2-EC7 evaluations to IEEE 7000-2021 Standard (Sharepoint <a href="#">URL</a> ) <a href="#">Follow-Up_IEEE-7000-2021_V0.xlsx</a>
[RD19] SAE AIR6988	<a href="#">SAE AIR6988</a> <a href="#">Artificial Intelligence in Aeronautical Systems: Statements of concerns</a> Aerospace Information Report (AIR) - April 2021

## GLOSSARY OF TERMS AND ABBREVIATIONS

Term	Definition
Adaptive system	System that changes its behavior, based on an active feedback process in the presence of changes in the system or its environment.  The environment can include hardware or software components of the computing platform, or the external surroundings in which the system operates (e.g., for airborne systems, changes to the physical structure of the aircraft, or in the weather). An adaptive system goal-seeks by iteratively updating parameters in response to environmental changes, but without resorting to predetermined values in look-up tables, or through defined calculations. ➤ <a href="#">[RD19], SAE AIR6988</a>
AI	Artificial Intelligence
AIR	Aerospace Information Report
ANS	Air Navigation Services
ARP	Aerospace Recommended Practice
ATM	Air Traffic Management
CAI	Confiance.ai
CNS	Communication, Navigation, Surveillance
EASA	European Union Aviation Safety Agency
EC	Environnement de confiance
EC1	Integration and uses cases
EC2	Process and methods
EC3	Characterization for AI trust
EC4	Design for AI trust

Term	Definition
EC5	Data, information and knowledge engineering for AI trust
EC6	VVQ strategy and systems certification
EC7	Trustworthy embedded AI
EUROCAE	EUROpean Organization for Civil Aviation Equipment
EVR	Ethical Value Requirement ➤ [RD9], IEEE 7000
IEEE	Institute of Electrical and Electronics Engineers
SAE	Society of Automotive Engineers
SOI	System of interest ➤ [RD9], IEEE 7000

## A. Context

### A.1 Confiance.ai program

The goal of **Confiance.ai (CAI)** program is to address the multiples challenges that arise from the integration and the use of Artificial Intelligence processes in critical systems. The program will deliver a Trustworthy environment: a set of interoperable technological components, each one covering one or several of the specific challenges previously outlined.

This environment will be articulated as instantiable tool chains, whose use will be defined in a set of methodological guidelines. It will allow the design, the development and the validation of Artificial Intelligence modules prior to their integration into critical systems.

The program is composed of 7 EC projects:

- EC1, Integration and uses cases
- EC2, Process and methods
- EC3, Characterization for AI trust
- EC4, Design for AI trust
- EC5, Data, information and knowledge engineering for AI trust
- EC6, VVQ strategy and systems certification
- EC7, Trustworthy embedded AI

### A.2 EC6 Project

The objective of the EC6 project of the Confiance.ai program is to revisit the existing IVVQ (Integration, Verification, Validation and Qualification) processes with regard to the specific aspects of AI. The systems will be analyzed according to their levels of criticality, the safety and security requirements of the fields of use and the intended uses.

To achieve its objective, EC6 project:

- builds a global strategy across all projects, centered on the AI system, for verification, validation and qualification ranging from the expression of operational design domain to the operational monitoring of systems in order to ensure the level of qualification required for each of their uses in the various areas targeted.
- integrates the constraints induced by regulations, norms and standards in terms of qualification / certification of critical systems. It will supplement it to consider the operational safety and system security requirements specific to AI-based systems, according to their qualification / certification needs.

The EC6\_N11 activity is part of EC6 activities in the scope of the second year of the program

- EC6\_N6 System monitoring & dynamic risk assessment
- EC6\_N7 IVVQ Strategy
- EC6\_N8 Methods and tools for ODD

- EC6\_N11 Conformity to standards
- EC2\_N5 Framework for definition of Trustable AI Engineering (& EC2)
- EC2\_N6 AI Trustworthiness characteristics and assessment methodology (& EC2)
- EC1\_N13 Trustworthy physical architecture (& EC1)
- EC1\_N14 Trustworthy environment specification (& EC1)
- EC1\_N18 Use-Cases maturation (& EC1)

## A.3 EC6\_N11 action sheet activity

Several operational domains are based on domain-specific regulations, such as aeronautics (Airborne, ATM/ANS), vehicles, railways, health, defense, etc.

Standards provide guidance for industrial stakeholders in order to address technical aspects in the development of their products. The standards offer, for example, methods for the development of processes or specifications for the design of products. In some cases, standards can be aligned with regulation (they are called harmonized standards in such a context), and being compliant with the requirements of the standard thus offers presumption of conformity to the related regulation.

The EC6\_11 intends to take a few relevant standards into account, in order to analyze the extent to which the activities, carried out in Confiance.ai program, are adequate with the recommendations in these standards. The activity is meant to explore and validate the propensity of the Confiance.ai program to match with the expectancies that currently (or will soon) apply to industry through the standards. The analysis focuses on the adequacy of processes addressed in the standards. (such as design process in SAE/EUROCAE standard)

Note: The adequacy of attributes addressed indirectly by the standards was considered, as Confiance.ai is based on attributes trustworthiness, but this adequacy is abandoned as standards do not deal directly with attributes, but rather consider Objectives and/or activities expectations.

### Roles

- **Coordinators committee**, in charge of defining strategy, materials and activity management. {Airbus protect, Airbus, Airbus protect, Thales, IEEE, and LNE}
- **Support committee**, in charge of evaluating Confiance.ai processes adequacy to standards. {Leaders and coleaders of EC projects, and confiance.ai EC6.11 members: {Airbus, IEEE, Thales, IRT SystemX, CEA, Renault, LNE, Valéo}}. This support committee can refer to other non EC6.11 members to evaluate the adequacy
- **Audit committee**, in charge of auditing the support committee evaluations. The individuals in this committee are proficient in the standard for which they perform the audit {Airbus, IEEE}

## A.4 Selected standards

CONFIANCE.AI's steering committee initiated in 2022 the need to establish Confiance.ai conformity with standards concerned by safety and ethical domains. The selection of standards was based on the following criteria:

- The availability of industrial referent experts to ensure deep collaboration.
- The standards should focus on safety and ethical concerns applied to AI technology.

According to those criteria, two standards have been selected to be considered by this EC6\_N11 activity:

- SAE AS6983 / EUROCAE ED-xx
- IEEE 7000-2021

## A.4.1 SAE AS6983 / EUROCAE ED-xx

### Title and reference

Process Standard for Development and certification/Approval of Aeronautical Safety-related products implementing AI [{\[RD1\], SAE AS6983}](#)

### Description

“This standard supports the development and the certification/approval of aeronautical safety-related products that incorporate AI-technology. Aeronautical products include airborne and ATM/ANS domains for manned and unmanned aircraft.

The first issue of the standard is largely domain-agnostic and gathers generic process assurance guidance for the development of any aeronautical systems (software and/or hardware) using non-adaptive<sup>1</sup> ML techniques. However, it may introduce some domain-specific guidance where appropriate. This first issue focuses only on the supervised mode of machine learning. Other modes (e.g., unsupervised learning, reinforcement learning, etc.) and other AI techniques (e.g., reasoning systems, adaptive systems, etc.) will be addressed in future issues.

The contents are recommended practices and should not be construed to be regulatory requirements.” [{\[RD1\], SAE AS6983}](#)

### Relationship with other standards

The figures [\[Figure 1\]](#) and [\[Figure 2\]](#) illustrate the relationship of this standard to other standards applicable to aeronautical systems development for the airborne and ATM/ANS domains, respectively.

The conformity to SAE AS6983/ ED-xx standard is a mean to comply with the following 2 recommended Practices for system safety assessment:

- SAE ARP 4761 / EUROCAE ED-135 [RD3]
- SAE ARP 4754A / EUROCAE ED-76A [RD2]

The figure [\[Figure 3\]](#) illustrate the relationship of this AS6983 standard, with:

- **EASA concept paper Level 1** [{\[RD4\], EASA – Level 1}](#), which presents a first set of objectives for Level 1 Artificial intelligence (‘Assistance to human’) and aims at guiding applicants when introducing AI/ML technologies into systems intended for use in safety-related or environment-related applications in all domains covered by the EASA Basic Regulation “Regulation (EU) 2018/1139”. (Note: A new issue 2 is proposed for now [{\[RD5\], EASA – Level 1&2}](#).)

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<sup>1</sup> non-adaptive = offline ML (See AIR6988 at 1.3).

- **EASA Basic Regulation “Regulation (EU) 2018/1139”** [\[RD6\], EU-1139](#), of the European Parliament and of the council on common rules in the field of civil aviation and establishing European Union Aviation Safety agency.
- **Artificial Intelligence Act**, [\[RD8\], AI ACT - §Article 2.2](#) which recognize [\[RD6\], EU-1139](#) as an applicable EASA Basic regulation act.

Note about SAE G-34 and EUROCAE WG-114 groups:

SAE AS6984/EUROCAE ED-xx is developed jointly by “SAE G-34” and “EUROCAE WG-114” groups:

- **The SAE G-34 “Artificial Intelligence in Aviation”** ([URL](#)), Committee is responsible for creating and maintaining SAE Technical Reports (i.e. Aerospace Information Reports, Aerospace Recommended Practices, and Aerospace Standards) on the implementation and certification aspects relate to AI technologies inclusive of any on or off-board system for the safe operation of aerospace systems and aerospace vehicles.
- **The EUROCAE WG-114 “Artificial Intelligence”** ([URL](#)): The primary scope of this group is to prepare technical standards, guides and any other material required to support the development of systems and the certification of aeronautical systems implementing AI-technologies. (Chairperson: Christophe GABREAU, Airbus Group; Beatrice PESQUET, Thales LAS France SAS)

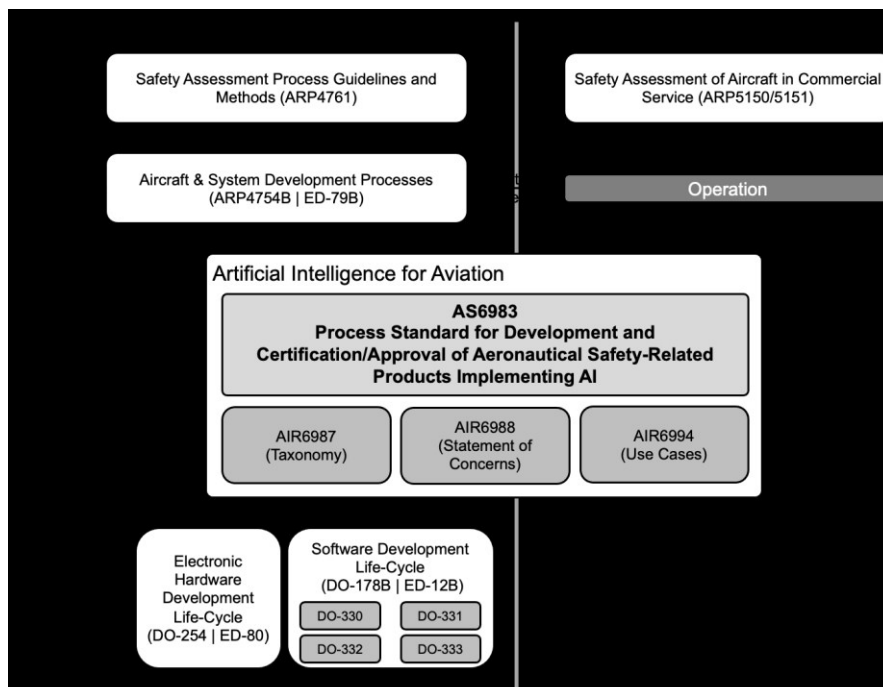


Figure 1: Relationship to other standards (Airborne domain)

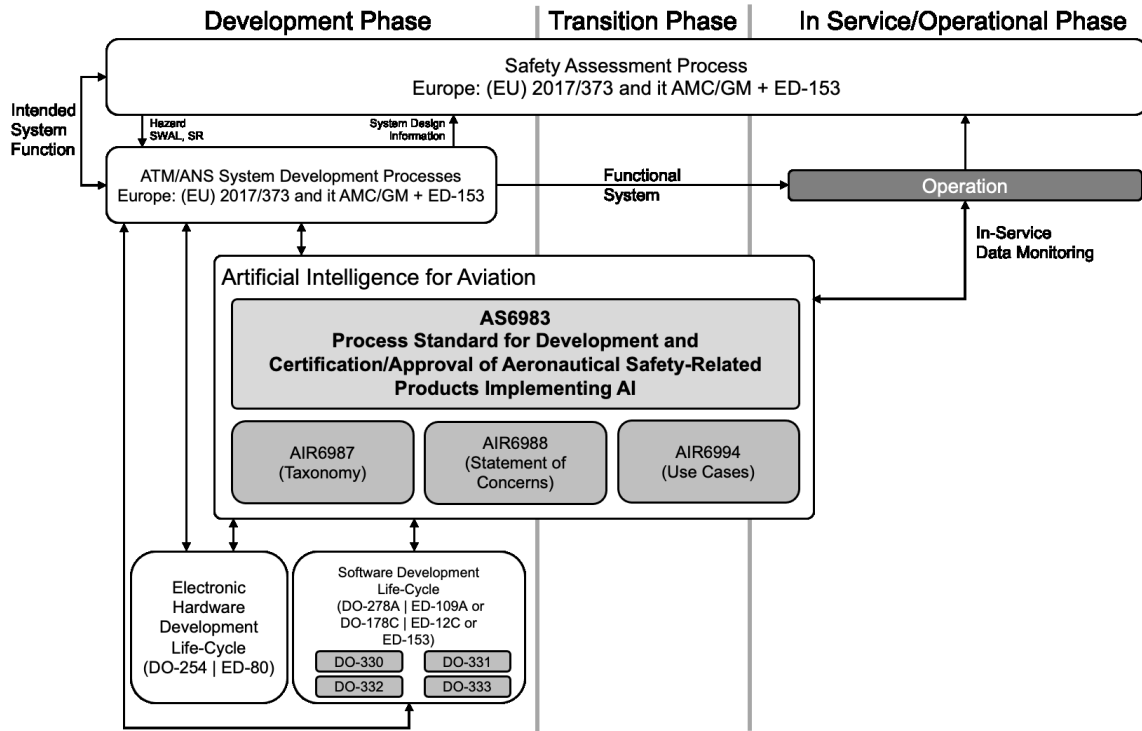


Figure 2: Relationship to other standards (ATM/ANS domain)

**Legend**

Standard	Title
AIR 6987	AI in Aeronautical Systems: Taxonomy
AIR 6988	AI in Aeronautical Systems: Statement of Concerns
AIR 6994	AI in Aeronautical Systems: Use Cases
DO-178C/ED-12C	Software Considerations in Airborne Systems and Equipment Certification.
DO-278A/ED-109A	Guidelines for communication, navigation, surveillance, and air traffic management (CNS/ATM) systems software integrity assurance
DO-330/ED-215	Software Tool Qualification Considerations
DO-331/ED-218	Model-Based Development and Verification Supplement to DO-178C and DO-278A.
DO-332/ED-217	Object-Oriented Technology and Related Techniques Supplement to DO-178C and DO-278A.
DO-333/ED-216	Formal Methods Supplement to DO-178C and DO-278A.

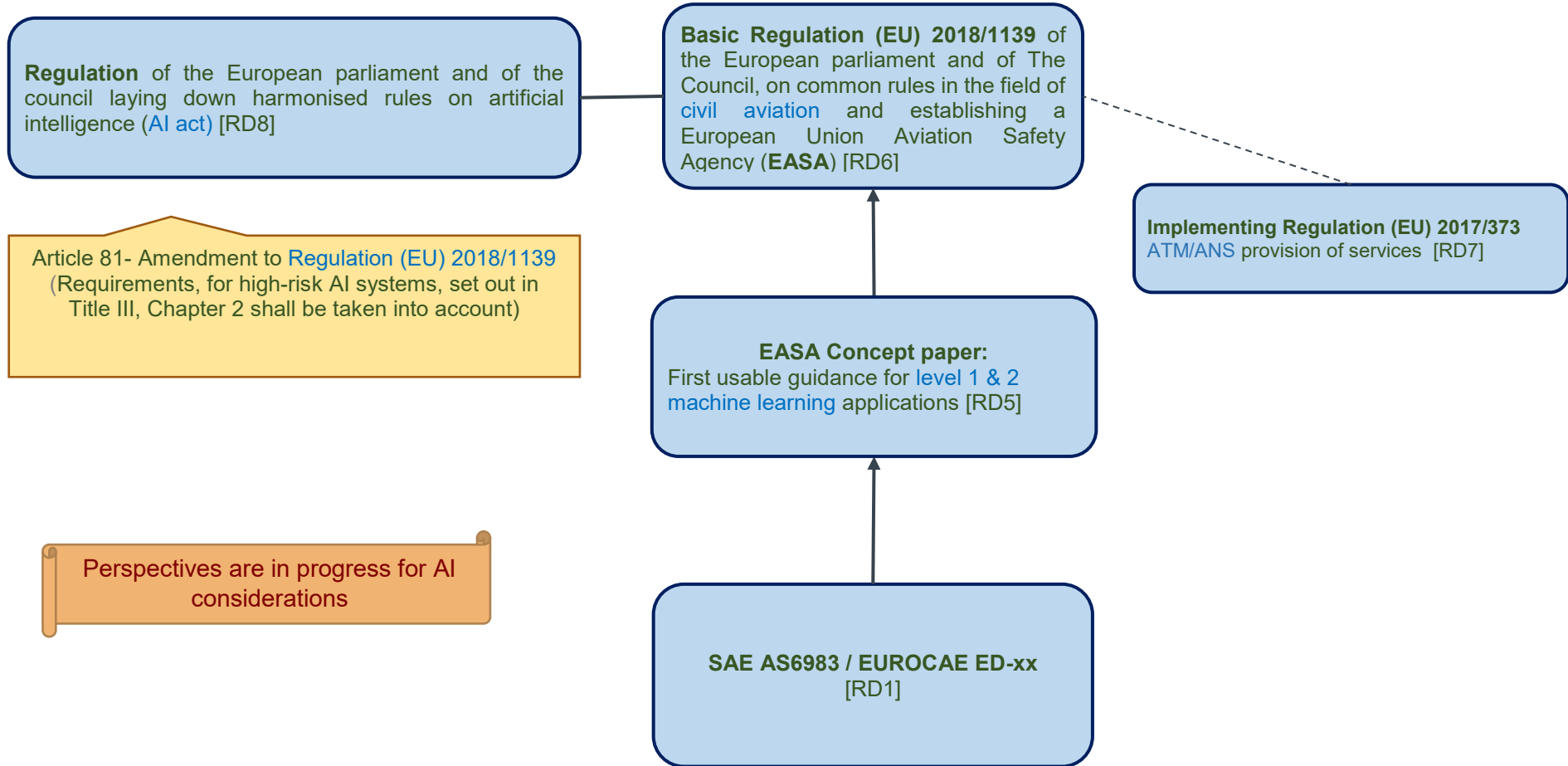


Figure 3: {AS6983, EU 1139, AI Act} relationships

## A.4.2 IEEE 7000-2021

### Title and reference

IEEE Standard Model Process for Addressing Ethical Concerns during System Design [RD9]

### Description

This standard aims to support organizations in creating ethical value through system design. Creating ethical value is a vision for organizations that recognizes their central role in society as shapers of well-being and carriers of societal progress that benefits humanity. Implementing IEEE Std 7000 can help them to strengthen their value proposition and avoid value harms. It is applicable to all kinds of products and services, including artificial intelligence (AI) systems.

The Standard covers 5 Processes of the Software Development Life Cycle, and these are Concept of Operations and Context Exploration, Ethical Values Elicitation and Prioritization, Ethical requirements Definition, Ethical Risk Based Design, and Transparency Management. It can be used in its entirety for full conformance, or partially by applying only some its processes and activities to achieve partial conformance. [RD9]

### Relationship with other standards

#### ● **ISO/IEC/IEEE 12207 & ISO/IEC/IEEE 15288**

Although the processes in this standard are related to typical systems and software engineering processes as described in ISO/IEC/IEEE 12207 [RD12] and ISO/IEC/IEEE 15288 [RD13], this standard has distinct processes, activities, and tasks that are unlikely to occur unless the engineering organization explicitly commits to incorporation of ethical values

#### ● **AI Act**

With very strong considerations of, and recognition/prioritization of human values in Systems, Services and Products, the AI Act requires that applications be classified by risks, and calls for enforcement of regulation on high risk applications. By providing a set of processes, activities and tasks which support a value based and risk-based approach to the design of Autonomous Intelligent Systems, the IEEE 7000-2021 Standard strongly supports the implementation and is an enabler of the AI Act.

## B. Activity description

The aim to this EC6.11 action sheet is to define a method and tools in order to assess the conformity of Confiance.ai program to two standards: AS6983 and IEEE 7000-2021. The assessment method should be generic and allow to be applied on other potential standards. The method should consider the number of confiance.ai projects and partners working together, to limit the time necessary to this conformity assessment.

The activity has consisted in following steps:

- Definition of the strategy to be adopted
- Definition of the materials. The materials allow to evaluate the adequacy between Confiance.ai process activities with those recommended by the standards. Materials define a minimum guidance and the references necessary to access to assessed activities.
- Assessment of the feasibility by support committee
- Presentation of standards
- Update the materials with standards releases
- Definition of processes concerned by EC projects
- Evaluation of the adequacy of confiance.ai processes with those of standards
- Compilation of all projects activities evaluations
- Review by standard referents of the evaluations
- Establish a synthesis status of evaluations
- Establish an analysis of the synthesis.

**Stage 1:** occurred from March 2022 to December 2022, and led to realization of steps 1-3. [\[RD14\]EC6.11\\_B2\\_V1](#). This stage did not consider the adequacy of standards attributes, where those standards do not deal directly with theme

**Stage 2:** occurred from January to March 2023, to realize the remaining of steps.

## C. Processes evaluation adequacy

### C.1 SAE AS6983/EUROCAE ED-xx

[\[RD15\], Conformity to AS6983}](#)

Standard Theme	Process Ref	Standard Process	Short description	CAI adequacy	CAI adequacy justifications	CAI Maturity
MLDL – ML Development Lifecycle	6.2	ML Constituent ODD Process	Uses the outputs of the system/subsystem processes to develop a description of the ML Constituent Operational Design Domain (MLCodd) to enable the development of a ML Data Impact Analysis.	Partially		Not mature, Planned
MLDL – ML Development Lifecycle	6.3	ML Constituent Requirements Process	Uses the outputs of the ML-based system/subsystem processes and of the MLCOOD process to develop ML requirements. These ML requirements include functional, data, performance, interface, and safety-related requirements.	Partially		Not mature, Planned
MLDL – ML Development Lifecycle	6.4	ML Environment Set Up process	Set of methods, tools, and hardware resources used to specify, build, train, optimize, verify, describe, reproduce, and monitor the ML Model.	Partially		Not mature, Planned

Standard Theme	Process Ref	Standard Process	Short description	CAI adequacy	CAI adequacy justifications	CAI Maturity
MLDL – ML Development Lifecycle (ML Data Management processes)	6.5.3	ML Data Requirement Process	ML Data Requirements development for each ML-based constituent and Derived ML Data requirements definition.	Partially		Not mature, Planned
MLDL – ML Development Lifecycle (ML Data Management processes)	6.5.4	ML Data Source Identification Process	Data sources identification and selection, and lack of undesirable bias insurance.	Partially		Not mature, Planned
MLDL – ML Development Lifecycle (ML Data Management processes)	6.5.5	ML Data Collection Process	Data collection required for building “Model training dataset” used during the ML building and training phases, “Model validation dataset” used during the ML model validation phase, and “Model Test dataset” used during the ML model design and implementation, and verifications phases.	Partially		Not mature, Planned
MLDL – ML Development Lifecycle (ML Data Management processes)	6.5.6	ML Data Preparation Process	Preparation of data in order to be used by the ML algorithm without any additional checking, Update of data pre-processing description, and avoidance of data leakage.	Yes		Mature

Standard Theme	Process Ref	Standard Process	Short description	CAI adequacy	CAI adequacy justifications	CAI Maturity
MLDL – ML Development Lifecycle (ML Data Management processes)	6.5.7	ML Data Allocation Process	Separation into three (generally) independent datasets training, validation, and test datasets.	Partially		Not Mature
MLDL – ML Development Lifecycle	6.6	ML Model Design Process	Develops, through one or more iterations, on the identified learning environment, the ML Model architecture and the ML Model requirements that can be used to build, train, and optimize the ML Model.	Partially		Not Mature
MLDL – ML Development Lifecycle	6.7	ML Validation Process	Provide assurance that all levels of ML Constituent requirements are correct and complete.	No	<ul style="list-style-type: none"> <li>- EC6.13 has evaluated AS6983 objectives without evaluations of AS683 activities. Assurance Cases are mentioned without assuring of the matching between EC6.13 activities with AS6983 verification process ones.</li> <li>- EC6.13 validation activities cover properties. This is an alternative way to cover the AS6983 verification objectives, however there is no evidence that the coverage is correct and complete.</li> </ul>	Not mature, Planned

Standard Theme	Process Ref	Standard Process	Short description	CAI adequacy	CAI adequacy justifications	CAI Maturity
MLDL - ML Development Lifecycle	6.8	ML Verification Process	Ascertain that each level of the implementation meets its specified requirements. The ML verification process ensures that the ML Data and the ML Model satisfy the validated ML Constituent requirements.	No	<ul style="list-style-type: none"> <li>- EC6.13 has evaluated AS6983 objectives without evaluations of AS683 activities. Assurance Cases are mentioned without assuring of the matching between EC6.13 activities with AS6983 verification process ones.</li> <li>- EC6.13 verification activities cover properties. This is an alternative way to cover the AS6983 verification objectives, however there is no evidence that the coverage is correct and complete.</li> </ul>	Not mature, Planned
ML Constituent Implementation	7.2	ML Physical Architecture Design Process	The MLMD (Machine Learning Model Description) is refined through one or more iterations in the ML Physical design process to develop the ML Physical implementation architecture and the MLMID that can be used to implement each item.	Partially	<ul style="list-style-type: none"> <li>EC7: Adequacy is ok</li> <li>EC2: Currently, ML physical architecture strategies recommended by EC7 have not yet been integrated into EC2 end-to-end approach</li> </ul>	Not mature, Planned
ML Constituent Implementation	7.3	ML-based Item Implementation and Verification Process	The implementation of the requirements (MLMID and ML physical architecture derived requirements), flowing from the ML Physical Architecture Design Process, should follow depending on the implementation technology the existing aeronautical design assurance standards without any adaptation.	Partially	<ul style="list-style-type: none"> <li>EC7: Adequacy is ok</li> <li>EC2: Currently, ML physical architecture strategies recommended by EC7 have not yet been integrated into EC2 end-to-end approach</li> </ul>	Not mature, Planned



Standard Theme	Process Ref	Standard Process	Short description	CAI adequacy	CAI adequacy justifications	CAI Maturity
ML Constituent Implementation	7.4	ML Constituent Integration and Verification Process	ensures that the HW/SW item(s) implementing the ML Constituent (the ML Inference Model) complies with its requirements and preserves the behavior of the validated ML Model on the test dataset, without adding any unintended behavior as a result of implementation on the target platform.	Yes		Mature

Figure 4: Detailed SAE AS6983 conformity assessment

➤ The remaining AS6983 non mature processes (15) are not selected for evaluations

Standard Theme	Process Ref	Standard Process	Short description	CAI adequacy
Development Assurance planning	4	Development Assurance Planning	Guidance for the development cycle of that parts of the aeronautical product which contains one or more ML-Items for which the development cycle is not covered by the existing standards. A set of complementary plans used in AI context are defined.	Not selected to be evaluated
Development Assurance planning	4.1	Certification/Approval Authority Considerations	The certification/approval plan describes the certification/approval project, identifies the certification/approval basis, outlines the means by which the applicant expects to demonstrate compliance, and provides a schedule for the project.	Not selected to be evaluated
Development Assurance planning	4.2	Adjustments to the Development Assurance Planning Process	The minimum set of necessary documents are: Plan for AI Aspects of Certification, Artificial Intelligence Development Plan, Artificial Intelligence Validation Plan, Artificial Intelligence Verification Plan, Artificial Intelligence Configuration Management Plan, Artificial Intelligence Process Assurance Plan, Artificial Intelligence Tool Qualification Plan(s), Requirements Standards, Design Standards, Model Standards	Not selected to be evaluated
Machine learning in System context	5.1.3	System Operating Domain (SOD) / Operational Services and Environment Definition (OSED)	To be defined later.	Not selected to be evaluated
Safety Assessment	5.4.1.1	Hazard identification	Safety objectives and associated processes and activities that need to be put in place to support the demonstration of the safety of aviation systems embedding ML Constituent.	Not selected to be evaluated

Standard Theme	Process Ref	Standard Process	Short description	CAI adequacy
Safety Assessment	5.4.1.2	Risk Mitigation strategy	Safety objectives and associated processes and activities that need to be put in place to support the demonstration of the safety of aviation systems embedding ML Constituent.	Not selected to be evaluated
System Development	5.3.1.1.1	Function Development considerations	Establish the Aviation System functions, their associated requirements and interfaces.	Not selected to be evaluated
System Development	5.3.1.1.2	Allocation of functions to systems / subsystems considerations	Establish the appropriate functional groupings and the allocation of the related requirements to systems that will implement them.	Not selected to be evaluated
System Development	5.3.1.1.3	Development of system architecture considerations	<ul style="list-style-type: none"> <li>- Establish an understanding of the system's organization, i.e., its structure, its terms and the boundaries between the constituent elements and to the environment;</li> <li>- Reconcile and realize competing (functional and non-functional) requirements into a feasible basis to guide system design, development, and evolution.</li> </ul>	Not selected to be evaluated
System Development	5.3.1.2	ML Constituent development entry & exit criteria	To be defined later	Not selected to be evaluated
System Development	5.3.1.3	ML Subsystem / ML system / Aviation system integration considerations	To be defined later	Not selected to be evaluated



Standard Theme	Process Ref	Standard Process	Short description	CAI adequacy
Integral Processes	5.2.2	Assurance Level Assignment	To be defined later	Not selected to be evaluated
MLDL - ML Development Lifecycle	6.1.4	Development Explainability Integral process	To be defined later	Not selected to be evaluated
Supporting Processes	9.1	ML Configuration Management Process	Provides a defined and controlled configuration of the ML datasets and ML Model throughout the MLDL.	Not selected to be evaluated
Supporting Processes	9.2	Process assurance	set of systematic activities providing the evidence of the ability of the software/hardware process to produce a software/hardware product that is fit for use.” This document is not intended to supersede the guidance given for process assurance in other relevant documents, but is intended to provide additional guidance for the processes added in AS6983	Not selected to be evaluated

## C.2 IEEE 7000

[\[RD17\]Conformity to IEEE 7000](#)

Standard Process	Short description	CAI Process assessment file	CAI adequacy	CAI adequacy justification	CAI Maturity
<b>Concept of Operations (ConOps) and Context Exploration</b> Process	<p>Define how a system is expected to operate from the users' perspective and its context of use, its stakeholders, and its potential for ethical benefit or harm.</p> <ul style="list-style-type: none"> <li>- A ConOps is a broad outline of an organization's intent regarding an operation that are intended to occur within the same SOI.</li> <li>- The Context Exploration Process develops an understanding of the ethical environment in which the SOI and its operations impact stakeholders.</li> </ul>	Process_Assessment_IEEE-7000-2021_07_ConOps	Partially	<p>EC5 has not evaluated this process</p> <p>EC2 Some activities (§7.3.h) are very specific to ethics and should be discussed by Confiance.ai</p>	Not mature, Planned
<b>Ethical Values Elicitation and Prioritization</b> Process	<p>Obtain and rank values and value demonstrators for approval by management and other stakeholders as a basis for the requirements and the design of the SOI.</p>	Process_Assessment_IEEE-7000-2021_08_Elicit_Prio	No	<p>EC5 has not evaluated this process</p> <p>EC2: "To be discussed in Confiance.ai program: shall the end-to-end approach detail ethics-specific activities? Or shall it simply refer to IEEE7000?"</p>	Not Mature

Standard Process	Short description	CAI Process assessment file	CAI adequacy	CAI adequacy justification	CAI Maturity
Ethical <b>Requirements</b> Definition Process	formulate Ethical Value Requirements and value-based system requirements that define how the prioritized core values and their value demonstrators are reflected in the SOI.	Process_Assessment_IEEE-7000-2021_09_Req	No	EC4, EC5, EC7 have not evaluated this process  EC2: “To be discussed in Confiance.ai program: shall the end-to-end approach detail ethics-specific activities? Or shall it simply refer to IEEE7000?”	Not Mature
Ethical Risk-Based <b>Design</b> Process	Realize ethical values and required functionality in the system or software design. Ethical Risk-Based Design includes functionality that helps mitigate or control identified risks to EVR and value-based system requirements.	Process_Assessment_IEEE-7000-2021_10_Design	No	EC4, EC5, EC7 have not evaluated this process  EC2: “To be discussed in Confiance.ai program: shall the end-to-end approach detail ethics-specific activities? Or shall it simply refer to IEEE7000?”	Not Mature



Standard Process	Short description	CAI Process assessment file	CAI adequacy	CAI adequacy justification	CAI Maturity
<p><b>Transparency</b> Management Process</p>	<p>Share with internal and external, short-term, and long-term stakeholders sufficient and appropriate information about how the developer has addressed ethical concerns during SOI design. This process shares information about the stakeholder values that the project has elicited and about how the project has implemented those values in the SOI. It maintains the information for retrieval both during system development and afterward.</p>	<p>Process_Assessment_IEEE-7000-2021_11_Transperency</p>	<p>No</p>	<p>EC4, EC5, EC7 have not evaluated this process</p> <p>EC6 is not adequate</p> <p>EC2: “To be discussed in Confiance.ai program: shall the end-to-end approach detail ethics-specific activities? Or shall it simply refer to IEEE7000?”</p>	<p>Not Mature</p>

Figure 5: Detailed IEEE 7000 conformity assessment

## D. Analysis of evaluations

The heterogeneous nature of the evaluations carried out by the different EC projects of the activities of the different processes makes it impossible to establish a synthesis by process and to highlight the activities covered by the program. Therefore, an analysis of the evaluations according to several criteria is presented here:

- Synthesis of adequacy to standards
- Feedback of standards perception
- Required effort
- Global program evaluation
- Projects evaluations
- Projects feedback evaluations

### D.1 Synthesis of adequacy to standards

Detailed conformity is described into [{SC, Processes evaluation adequacy}](#)

#### D.1.1 SAE AS6983 / EUROCAE ED-xx

The adequacy of confiance.ai to SAE AS6983 processes, in this Draft4b release [{RD16, AS6983 Follow-up}](#), is showed in the following figure. The conformity to is done for standard mature processes only (14). The conformity to the remaining processes (15) could be considered later.

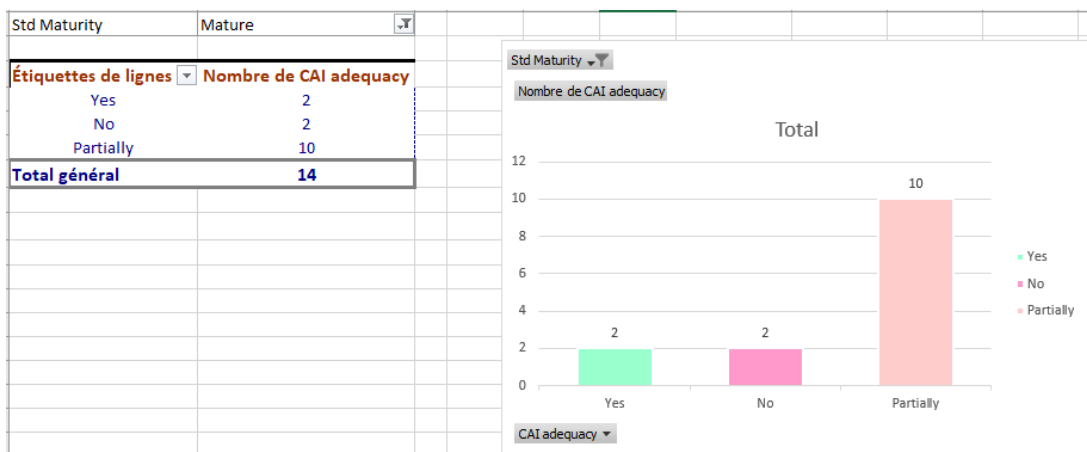


Figure 6: Graphical SAE AS6983 conformity assessment presentation

#### D.1.2 IEEE 7000-2021

The adequacy of confiance.ai to IEEE 7000-2021 processes, [{RD18, IEEE 7000 Follow-up}](#), is showed in the following figure.

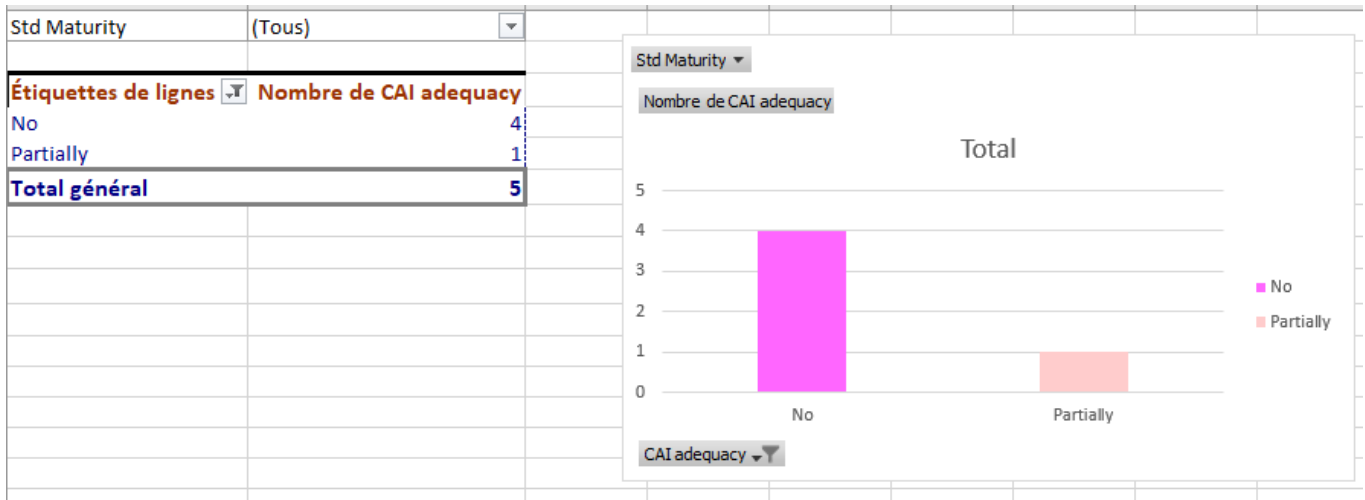


Figure 7: Graphical IEEE 7000 conformity assessment presentation

Conformity to standards analysis shows

- **AS6983:** Low compliance with the standard [{Figure 6, Graphical SAE AS6983 conformity assessment presentation}](#)
  - In adequation: 2 process {ML Data preparation, ML constituent integration and verification}
  - Partially in adequation: 10 process {ML Constituent Operational Design Domain, ML constituent requirements, ML Data allocation, collection and requirement, ML Model design, ML Physical Architecture design, ML-based Item implementation and verification}
  - Not in adequation: 2 process {ML Verification and ML validation}. Confiance.ai is working on those aspects but may not fulfil the AS6983 objectives today. Confiance.ai activities cover properties. This is an alternative way to cover AS6983 verification objectives, however there is no evidence that the coverage is correct and complete.
- **IEEE 7000-2021:** Almost total lack of compliance [{Figure 7: Graphical IEEE 7000 conformity assessment presentation}](#). This lack of compliance is normal, as ethical concerns a new regulation domain.
  - Partially adequate: 1 process {Transparency}
  - Totally inadequate: 4 processes {Concept of Operations and Context Exploration, Ethical values elicitation and prioritization, Ethical requirements definition, Ethical Risk-based design}

## D.2 Feedback of standards perception

A questionnaire is sent to EC2 – EC7 in order to get their perception about the standard

4 responses are received on 22/03/2023. The questionnaires authors are:

- Boris ROBERT, IRT Saint Exupéry, Coleader EC2
- Rodolphe GELIN, Renault, Leader EC3
- Flora DELLINGER, VALEO, Leader EC5
- Morayo ADEDJOUA, CEA, Leader EC6

The following summarize the questionnaires responses based on responses by EC projects leaders & Co-leader. The Number in the following tables is a summary reflecting the number of received answers (some authors have answered two choices).

The originals of questionnaires are referenced into [\[§F.1, Confiance.ai delivery\]](#)

### D.2.1 Did the content of the standard appeal to you?

Standard	Not interesting	Moderately interesting	Interesting	Very interesting	No opinion
SAE AS6983 / Eurocae ED-xx		2 (EC3, EC6)		2 (EC2, EC5)	
IEEE 7000-2021	1 (EC6)		2 (EC2, EC3)		EC5 (No time to review it)

### D.2.2 Do you consider that the processes of the standards would be a source of information for the development of the programme processes?

Standard	Not appropriate	to be inspired by it	To comply with it	No opinion
SAE AS6983 / Eurocae ED-xx		4 (EC2, EC3, EC5, EC6)	1 (EC2)	
IEEE 7000-2021		1 (EC3)	1 (EC2)	2 (EC5, EC6)

(\*) Some actors have answered two options

## EC2 (Boris ROBERT) comments

These two standards are at two completely different levels of interaction with EC2 end-to-end methodological approach.

- AS6983 is a structuring standard regarding engineering activities for ML-based systems, currently detailing mainly the ML-based component level. It addresses some of the core of Confiance.ai interests. After performing the conformity analysis with EC2 end-to-end approach, we think that our goal in EC2\_N14 will be:
  - to have the same structure of activities as AS6983 (we are already quite close and we will take AS6983 as an inspiration to structure further our Confiance.ai EC2 method) ;
  - but that we will go into more details than AS6983 about how we perform such or such activity, because Confiance.ai Action Sheets explore more precise technical processes, for example to obtain for a robust ML model, to optimize a model, etc.
  - So, the added value of Confiance.ai, compared to AS6983, will be to detail technically the way to perform “generic” activities described in AS6983. We also have to ambition to address the system level activities, that are currently not completely explored in AS6983.
- IEEE 7000 is already very detailed about what needs to be done regarding ethical values at each phase of systems engineering. IEEE 7000 is more than a structuring standard, it is already a detailed method with precise activities and tasks. For Confiance.ai I do not see any real interest and any possibility (due to lack of resources and skills) to try to explore further than what is already described in IEEE 7000. So, I suggest that EC2 end-to-end approach simply redirects readers to IEEE 7000 for ethics/values aspects, without detailing any specific activities by ourselves. We just need to make sure that we have the process phases to which IEEE 7000 can be connected, which is pretty easy, since IEEE 7000 uses the classical systems engineering phases that we also consider.

### To summarize:

- **AS6983** is a structuring standard to which we will try to comply by having the same structure of processes and activities, and our added value will be to go into more detailed technical details for each process/activity.
- **IEEE** is a standard that will complete our approach by providing a detailed method for ethics-related or values-related aspects of system design that we will not address by ourselves.

### D.2.3 What were your assessments/criticisms of the standards themselves?

Standard	Your appreciations	your criticisms	No opinion
<b>SAE AS6983 / Eurocae ED-xx</b>	<ul style="list-style-type: none"> <li>● EC2: Very interesting structuration of activities at ML-based component level.</li> <li>● EC2: Several people of Confiance.ai are strongly involved in AS6983 so there is already a connection with Confiance.ai works.</li> <li>● EC3: Good example of an applicable standard</li> <li>● EC5 I find interesting the introduction of new concepts (MLCodd) and processes related to ODD, as well as the difference between system and subsystem.</li> </ul>	<ul style="list-style-type: none"> <li>● EC2: The system level aspects are not really explored. The standard really focuses on the component level.</li> <li>● EC3: Not an automotive standard</li> <li>● EC5: I would prefer an iterative cycle, with several tasks like Data Management, ML Model Design and Model Implementation achieved numerous times in an objective of continuous improvement. This seems more efficient than a V cycle, since all these steps are connected. More info on the processes (for example to conduct the Data Impact Analysis or the MLCodd Characterization) should be provided.</li> </ul>	
<b>IEEE 7000</b>	<ul style="list-style-type: none"> <li>● EC2: Interesting aspects (ethics, values) not really explored in Confiance.ai.</li> <li>● EC3: Important for social acceptability of AI</li> </ul>	<ul style="list-style-type: none"> <li>● EC2: It is a bit “on the side” compared to the core of what is done in Confiance.ai. So, I see IEEE 7000 as a complementary standard to which the EC2 end-to-end approach will redirect to for ethics/values aspects, without dealing ourselves with these subjects.</li> <li>● EC3: Second order issue</li> </ul>	<p style="text-align: center;">2 <b>(EC5, EC6)</b></p>

### D.2.4 Which processes did you find particularly interesting?

Process	Not interesting	Moderately interesting	Interesting	Very interesting	No opinion
<b>SAE AS6983 / EUROCAE ED-xx</b>					
ML Constituent ODD			2 (EC3, EC6)	2 (EC2, EC5) EC5: Interesting concepts to expand.	
ML Constituent Requirements			1 (EC3)	2 (EC2, EC5)	1 (EC6)
ML Environment Set Up		2 (EC2, EC3)		1 (EC5) EC5: Useful part, to ensure traceability and provide automation	1 (EC6)
ML Data Requirement			2 (EC3, EC6)	2 (EC2, EC5) EC5: Good, but process is missing	
ML Data Source Identification			1 (EC3)	2 (EC2, EC5) EC5: Good, but process is missing	1 (EC6)
ML Data Collection			1 (EC3)	2 (EC2, EC5) EC5: Good, but process is missing	1 (EC6)
ML Data Preparation			1 (EC3)	2 (EC2, EC5)	1 (EC6)

Process	Not interesting	Moderately interesting	Interesting	Very interesting	No opinion
ML Data Allocation			1 (EC3)	2 (EC2, EC5)  EC5: Good, but more details on how to conduct Allocation could be useful	1 (EC6)
ML Model Design			1 (EC3)	1 (EC2)	2 (EC5, EC6)
ML Validation			1 (EC3)	1 (EC2)	2 (EC5, EC6)
ML Verification			1 (EC3)	1 (EC2)	2 (EC5, EC6)
ML Physical Architecture Design		1 (EC3)		1 (EC2)	2 (EC5, EC6)
ML-based Item Implementation and Verification			1 (EC3)	1 (EC2)	2 (EC5, EC6)
ML Constituent Integration and Verification			1 (EC3)	1 (EC2)	2 (EC5, EC6)
<b>IEEE 7000-2021</b>					
Concept of Operations (ConOps) and Context Exploration			3 (EC2, EC3, EC6)		1 (EC5)
Ethical Values Elicitation and Prioritization			2 (EC2, EC3)		2 (EC5, EC6)
Ethical Requirements Definition			2 (EC2, EC3)		2 (EC5, EC6)
Ethical Risk-Based Design			3 (EC2, EC3, EC6)		1 (EC5)
Transparency Management			2 (EC2, EC3)		2 (EC5, EC6)

### D.3 Required effort

- AS6983:** This standard has been designed to be generic enough to apply to different regulations in aeronautics (Avionics and land) and allows to consider classical standards for the parts of the system not concerned by ML. It allows an opening to standards from other operational domains. Adequacy is possible, if the whole proposal of the standard is considered: Processes, Objectives, activities. It is still possible to consider other activities if they respect the AS6983 proposal. As the AS6983 is technical proposal concerning a complex problem (High constraints related to safety for ML), the effort to an AS6983 adequacy is **High**
- IEEE 7000-2021:** The standard is applicable within any lifecycle model for systems and software engineering. Confiance.ai may thus try to assure the connection with its processes. The effort to an IEEE 7000-2021 is **Easy**

	Rate of global evaluation
AS6983	High
IEEE 7000-2021	Low

### D.4 Global program evaluation

Program evaluation measures the Rate Number of assessments expected / Number of assessments carried out [{\[RD16\], AS6983 Follow-up}](#), [{\[RD18\], IEEE 7000 Follow-up}](#). This indicator reflects the interest of EC projects about the standard. (EC4, EC5 and EC7 have not evaluated the IEEE-7000 standard)

	Rate of global evaluation
AS6983	97%
IEEE 7000-2021	45%

### D.5 Projects evaluations

EC Projects evaluations measures the rate evaluation based on concerned qualification processes, [{\[RD16\], AS6983 Follow-up; \[RD18\], IEEE 7000 Follow-up}](#)

	EC2	EC3	EC4	EC5	EC6	EC7
AS6983	100%	100%	100%	90%	100%	100%
IEEE 7000-2021	100%	100%	0%	0%	100%	0%

### D.6 Projects feedback participation

EC projects having returned a feedback on standards

	EC2	EC3	EC4	EC5	EC6	EC7
AS6983	Yes	Yes	No	Yes	Yes	No
IEEE 7000	Yes	Yes	No	No	Yes	No



— Conformity to standards

## E. Conclusion

This document describes the conformity of confiance.ai with two standards:

- SAE AS6983 / EUROCAE ED-xx: for Aeronautical safety related to ML concerns
- IEEE 7000-2021: for ethical concerns.

The conformity is assessed through documents, which list the key elements that contribute to the adequacy assessment of the standards processes. The adequacy assessment is meant to estimate to what extent the processes, developed in Confiance.ai program, are in line with the standards recommendations.

The analysis of the assessments, shows that:

- AS6983 standard, is a structuring standard regarding engineering activities for ML-based systems, currently detailing mainly the ML-based component level. It addresses some of the core of Confiance.ai interests. EC2 propose to have the same structure of activities as AS6983, but it will detail some AS6983 “generic” activities.
- IEEE 7000-2021, is already a detailed method with precise activities. EC2 propose to make sure to have Confiance.ai phases to which IEEE 7000-2021 can be connected, since IEEE 7000-2021 uses the classical systems engineering phases, that Confiance.ai also considers.

In summary, the AS6983 is close to Confiance.ai activities, as safety is one of key elements for trustworthiness, in aeronautical products (airborne and ATM/ANS domains for manned and unmanned aircraft). The IEEE 7000-2021 could be applied as it is, in supplement of Confiance.ai processes.

These results should drive the Confiance.ai Steering committee towards adopting the relevant aspects for the program’s next batches:

- Which operational domain to be covered? (aeronautical, vehicles, railways, health, ...)
- Which type of regulations to be covered? Safety, Ethical...
- Consideration of additional analysis for ethics (CertifAIEd) certification approach, as its method could help Confiance.ai attributes approach.

## F. Annexes

### F.1 Confiance.ai delivery

A specific folder is dedicated into Sharepoint “**3-Evaluation\_Of\_Conformity**” ([Sharepoint URL](#))

Delivery files for each standard consists of

- A set of processes assessments. One document for each process. These documents are used by committee support to evaluate each of the standards, and then reviewed by standard auditor.
- A Conformity to standard file, a synthetic file describing the final evaluation for each process
- A follow-up file, a management file.

	SAE AS6983 / EUROCAE ED-xx	IEEE 7000-2021
Standard folder	3-Evaluation_Of_Conformity > 1- Safety > <a href="#">SAE_AS6983_Draft4b (URL)</a>	3-Evaluation_Of_Conformity > 2- Ethical > <a href="#">IEEE-7000-2021 (URL)</a>
Processes assessments folder	<a href="#">Processes Assessments</a>	<a href="#">Processes Assessments</a>
Confiance.ai Conformity to standard file	<a href="#">Conformity_To_SAE-AS6983-4b_V1.xlsx</a>	<a href="#">Conformity_To_IEEE-7000-2021_V0.xlsx</a>
Follow-Up activities file	<a href="#">Follow-Up_SAE-AS6983-4b_V1.xlsx</a>	<a href="#">Follow-Up_IEEE-7000-2021_V0.xlsx</a>
Project feedback questionnaires	3-Evaluation_Of_Conformity > <a href="#">3-Questionnaires (URL)</a>	

## F.2 Standards Follow-up

The following tables detail the evaluations participation of confiance.ai projects (EC2 to EC7)

### F.2.1 AS6983

[\[RD18\], IEEE 7000 Follow-up](#)

Process	EC2 progress status	EC3 progress status	EC4 progress status	EC5 progress status	EC6 progress status	EC7 progress status	Number of assessments expected	Number of assessments carried out (*)
ML Constituent ODD Process	Evaluated	Not concerned	Not concerned	Evaluated	Evaluated	Not concerned	3	3
ML Constituent Requirements Process	Evaluated	Not concerned	Evaluated	Evaluated	Not concerned	Not concerned	3	3
ML Environment Set Up process	Not concerned	Evaluated	Evaluated	Evaluated	Not concerned	Not concerned	3	3
ML Data Requirement Process	Evaluated	Not concerned	Not concerned	Evaluated	Not concerned	Not concerned	2	2
ML Data Source Identification Process	Evaluated	Not concerned	Not concerned	Evaluated	Not concerned	Not concerned	2	2
ML Data Collection Process	Evaluated	Not concerned	Not concerned	Evaluated	Not concerned	Not concerned	2	2
ML Data Preparation Process	Evaluated	Evaluated	Evaluated	Evaluated	Not concerned	Not concerned	4	4
ML Data Allocation Process	Evaluated	Not concerned	Not concerned	Evaluated	Not concerned	Not concerned	2	2
ML Model Design Process	Evaluated	Evaluated	Evaluated	Evaluated	Not concerned	Not concerned	4	4



Process	EC2 progress status	EC3 progress status	EC4 progress status	EC5 progress status	EC6 progress status	EC7 progress status	Number of assessments expected	Number of assessments carried out (*)
ML Validation Process	Evaluated	Not concerned	Not concerned	Not concerned	Evaluated	Not concerned	2	2
ML Verification Process	Evaluated	Evaluated	Evaluated	To evaluate	Evaluated	Not concerned	5	4
ML Physical Architecture Design Process	Evaluated	Not concerned	Not concerned	Not concerned	Not concerned	Evaluated	2	2
ML-based Item Implementation and Verification Process	Evaluated	Not concerned	Not concerned	Not concerned	Not concerned	Evaluated	2	2
ML Constituent Integration and Verification Process	Evaluated	Not concerned	Not concerned	Not concerned	Evaluated	Evaluated	2	2
<b>Rate of evaluation by project</b>	100%	100%	100%	90%	100%	100%	<b>Rate of evaluation by confiance.ai</b>	97%

(\*) Green if Number of assessments carried out = Number of assessments expected, orange else

## F.2.2 IEEE 7000

[\[RD18\], IEEE 7000 Follow-up](#)

Process	EC2 progress status	EC3 progress status	EC4 progress status	EC5 progress status	EC6 progress status	EC7 progress status	Number of assessments expected	Number of assessments carried out (*)
Concept of Operations (ConOps) and Context Exploration Process	Evaluated	Not concerned	Not concerned	To evaluate	Not concerned	Not concerned	2	1
Ethical Values Elicitation and Prioritization Process	Evaluated	Not concerned	Not concerned	To evaluate	Not concerned	Not concerned	2	1
Ethical Requirements Definition Process	Evaluated	Not concerned	To evaluate	To evaluate	Evaluated	To evaluate	5	2
Ethical Risk-Based Design Process	Evaluated	Not concerned	To evaluate	To evaluate	Evaluated	To evaluate	5	2
Transparency Management Process	Evaluated	Evaluated	To evaluate	To evaluate	Evaluated	To evaluate	6	3
<b>Rate of evaluation by project</b>	100%	100%	0%	0%	100%	0%	<b>Rate of evaluation by confiance.ai</b>	45%

(\*) Green if Number of assessments carried out = Number of assessments expected, orange else



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