

**The IEEE Ethics Certification for Autonomous and
Intelligent Systems (ECAIS)
Industry Connections Activity Initiation Document (ICAID)
Version: 0.0, 10 September 2018**

IC18-004-01 Approved by the IEEE-SASB 27 September 2018

Instructions

- Instructions on how to fill out this form are shown in red. It is recommended to leave the instructions in the final document and simply add the requested information where indicated.
- **Shaded Text** indicates a placeholder that should be replaced with information specific to this ICAID, and the shading removed.
- Completed forms, in Word format, or any questions should be sent to the IEEE Standards Association (IEEE-SA) Industry Connections Committee (ICCom) Administrator at the following address: industryconnections@ieee.org.
- The version number above, along with the date, may be used by the submitter to distinguish successive updates of this document. A separate, unique Industry Connections (IC) Activity Number will be assigned when the document is submitted to the ICCom Administrator.

1. Contact

Provide the name and contact information of the primary contact person for this IC activity. Affiliation is any entity that provides the person financial or other substantive support, for which the person may feel an obligation. If necessary, a second/alternate contact person's information may also be provided.

Name: Meeri Haataja

Email Address: meeri@saidot.ai

Employer: Saidot Ltd

Affiliation:

2. Participation and Voting Model

Specify whether this activity will be entity-based (participants are entities, which may have multiple representatives, one-entity-one-vote), or individual-based (participants represent themselves, one-person-one-vote).

Specify: Entity Based

3. Purpose

3.1. Motivation and Goal

Briefly explain the context and motivation for starting this IC activity, and the overall purpose or goal to be accomplished.

The global market for autonomous and intelligent systems (A/IS) globally is exploding. Market research companies estimate that A/IS solutions revenues will grow from \$19 billion in 2018 to more than \$52 billion in 2021¹. Already today AI/S' potential value in industries amounts to between \$3.5 trillion and \$5.8 trillion annually². A/IS is heavily taken into use in life critical areas such as healthcare, defense or mobility, and great parts of business-critical applications across all industries will rely on A/IS solutions. Access to A/IS defines the prospects of these businesses now and in the future.

While A/IS is gaining traction in all areas of life, a growing number of both A/IS experts and society at large is concerned about A/IS ethics and accountability. Trust will be a critical enabler for A/IS business value realization and market uptake, especially in life critical applications. Responsibility of A/IS operations is being evaluated by customers, partners, authorities and media alike, and becoming an essential part of corporate responsibility.

Intelligent applications will increasingly operate and make decisions and transactions without human intervention. People are accountable on their decisions – every A/IS application should be as well. The technology ecosystem calls for solutions that will secure fair and transparent development of A/IS. In order to meet these demands, future A/IS needs certifiable processes vetted by a trusted organization to establish easily identifiable marks providing their reliability and safety to the general public.

In the current atmosphere of A/IS development, there are a number of companies, organizations and academic institutions providing impact assessments or other similar tools to help identify when a product, service or system is accountable, trustworthy or beneficial.

At the moment, however, there is no trusted SDO (standards development organization) offering any form of certification Initiative that an organization utilizing an A/IS impact assessment on their products, services or systems could approach to receive a badge or mark to demonstrate to their customers, stakeholders and society at large that they were *formally and publicly validated* to be accountable, trustworthy or beneficial by a trusted expert body of peers.

The goal of The IEEE Ethically Aligned Certification Initiative for Autonomous and Intelligent Systems (ECAIS) is to provide the world's first (based on our research) specification and body of its kind to enable a badge or mark for A/IS products, services and systems. Specifically, ECAIS will enable these badges or marks based on the *processes* organizations seeking certification have undertaken to earn them.

The value of this certification process in the marketplace and society at large cannot be underestimated. The proliferation of systems in the form of smart homes, companion robots, autonomous vehicles or any myriad of products and services that *already exist today* desperately need to easily and visually communicate to consumers and citizens whether they are deemed “safe” or “trusted” by a globally recognized body of experts providing a publicly available and transparent series of marks.

A secondary goal of this Initiative is to highlight the work found in IEEE’s landmark paper, *Ethically Aligned Design* and the developing efforts of the IEEE P7000 Standards Series. While it is recognized work from any standardization working group cannot be used until a project is approved, ECAIS will develop by working with IEEE P7000 volunteers to develop certifications that align with P7000 working group’s key themes and ideals. As much of the work of ECAIS will be publicly available as case studies or transparent certifications, this work will be immediately shared with IEEE P7000 working groups to improve their efforts with direct feedback from real-world scenarios of A/IS products, services and systems being utilized in practice. Moreover, ECAIS will have an important role as a sounding board for industry while building best practices for A/IS transparency, accountability and check for bias and taking into use A/IS certifications.

3.2. Related Work

Provide a brief comparison of this activity to existing, related efforts or standards of which you are aware (industry associations, consortia, standardization activities, etc.).

This work is directly related to the output of the Industry Connections Group called [The IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems](#). (“The IEEE Global Initiative”). The IEEE Global Initiative has created a landmark paper called [Ethically Aligned Design](#) which provided the inspiration for the creation of the IEEE P7000 standards series which now has fourteen approved standardization groups in development. This work is also reflected in [The Open Community for Ethics in Autonomous and Intelligent Systems](#) (OCEANIS) recently launched by IEEE-SA.

In terms of organizations offering impact assessment type tools or services that would be directly relevant to the certifications ECAIS would create, organizations such as Accenture and Saidot.ai have initiated offerings along these lines, while academic institutions like AI NOW also are working in this space.

3.3. Previously Published Material

Provide a list of any known previously published material intended for inclusion in the proposed deliverables of this activity.

Ethically Aligned Design, v2.

3.4. Potential Markets Served

Indicate the main beneficiaries of this work, and what the potential impact might be.

	Phase 0 Oct-Dec 2018	Phase 1.0 Jan-Jun 2019	Phase 1.1 Jul-Dec 2019	Phase 2 Jan-Dec 2020
Focus geographies	<ul style="list-style-type: none"> Finland (Test bed: Engage with Saidot MVP) 	<ul style="list-style-type: none"> EU (Tier 1: Ca. 10-15 anchor customers/entities representing the target industries) US (Tier 2) 	<ul style="list-style-type: none"> EU (Tier 1: Scale in EU) US (Tier 2) 	<ul style="list-style-type: none"> EU (Tier 1: Full scale) US (Tier 2: Scale is US) Other based on program's plans
Focus industries	<ul style="list-style-type: none"> Governmental offices 	<ul style="list-style-type: none"> Governmental offices Cities Public safety Health Mobility Education Telecommunications Financial services Retail Potential AI certification service provides 	<ul style="list-style-type: none"> Governmental offices Cities Public safety Health Mobility Education Telecommunications Financial services Retail Potential AI certification service provides 	<ul style="list-style-type: none"> Governmental offices Cities Public safety Health Mobility Education Telecommunications Financial services Retail Potential AI certification service provides

4. Estimated Timeframe

Indicate approximately how long you expect this activity to operate to achieve its proposed results (e.g., time to completion of all deliverables).

Expected Completion Date: 10/2020

IC activities are chartered for two years at a time. Activities are eligible for extension upon request and review by ICCOM and the IEEE-SA Standards Board. Should an extension be required, please notify the ICCOM Administrator prior to the two-year mark.

5. Proposed Deliverables

Outline the anticipated deliverables and output from this IC activity, such as documents (e.g., white papers, reports), proposals for standards, conferences and workshops, databases, computer code, etc., and indicate the expected timeframe for each.

ECAIS will operate in an industry driven and iterative process for developing certifications / marks for A/IS. ECAIS's goal is to enable work in cycles of development and industry validation, and deliver the following outcomes:

- Criteria and process for a Certification / mark focused on Transparency in A/IS
- Criteria and process for a Certification / mark focused on Accountability in A/IS
- Criteria and process for a Certification / market focused on Algorithmic Bias in A/IS

To support rapid testing and feedback loop with the industries as well as involvement of potential certifying bodies, ECAIS will develop:

- Recommendations on an implementation process to qualify and guide assessors and other bodies engaged in a certification process
- Exploration of the feasibility of launching an alliance/consortium to support certification programs on these topics (e.g. via IEEE-ISTO)
- In initial meetings, members will suggest funding for the function of the IC itself to develop a sustainable program

6. Funding Requirements

Outline any contracted services or other expenses that are currently anticipated, beyond the basic support services provided to all IC activities. Indicate how those funds are expected to be obtained (e.g., through participant fees, sponsorships, government or other grants, etc.). Activities needing substantial funding may require additional reviews and approvals beyond ICom.

Initially, no additional funding aside from typical SA support staff will be required, for development of the base of activity participants and initial creation of deliverables. As a longer-term goal of an industry consortium is anticipated, upon agreement of participants, funding may be requested from participating organizations and other stakeholders for the purpose of launching and initiating consortium operations.

7. Management and Procedures

7.1. IEEE Sponsoring Committee

Indicate whether an IEEE sponsoring committee of some form (e.g., an IEEE Standards Sponsor) has agreed to oversee this activity and its procedures.

Has an IEEE sponsoring committee agreed to oversee this activity?:

No.

If yes, indicate the sponsoring committee's name and its chair's contact information.

Sponsoring Committee Name:

Chair's Name:

Chair's Email Address: who@where

Chair's Phone: Number, including country code

Additional sponsoring committee information, if any.

7.2. Activity Management

If no IEEE sponsoring committee has been identified in 7.1 above, indicate how this activity will manage itself on a day-to-day basis (e.g., executive committee, officers, etc).

ECAIS will create an Executive Committee Chaired by Meeri Haataja of Saidot.ai.

7.3. Procedures

Indicate what documented procedures will be used to guide the operations of this activity; either (a) modified baseline *Industry Connections Activity Policies and Procedures*, (b) Sponsor policies and procedures accepted by the IEEE-SA Standards Board, or (c) Working Group policies and procedures accepted by the Working Group's Sponsor. If option (a) is chosen, then ICom review and approval of the P&P is required. If option (b) or (c) is chosen, then ICom approval of the use of the P&P is required.

A modified baseline Industry Connections Activity Policies and Procedures will be used to guide the operations of this activity.

8. Participants

8.1. Stakeholder Communities

Indicate the stakeholder communities (the types of companies or other entities, or the different groups of individuals) that are expected to be interested in this IC activity, and will be invited to participate.

Stakeholders will include entities developing A/IS based products and services, academic institution experts in A/IS, and government organizations involved with AI/S policy and/or regulations.

8.2. Expected Number of Participants

Indicate the approximate number of entities (if entity-based) or individuals (if individual-based) expected to be actively involved in this activity.

20-30 entities are anticipated to participate within the first year of operation.

8.3. Initial Participants

Provide a list of the entities or individuals that will be participating from the outset. It is recommended there be at least three initial participants for an entity-based activity, or five initial participants (each with a different affiliation) for an individual-based activity.

Use the following table for an entity-based activity:

Entity	Primary Contact	Additional Representatives
Saidot.ai	Meeri Haataja	Teemu Birkstedt
Vega Systems, London-UK	Prof. Ali Hessami https://VegaGlobalSystems.com	