

STARLIGHT

Sustainable Autonomy and Resilience for
LEAs using AI against High Priority Threats

Newsletter Issue # 1 • November, 2022



Kick-off meeting in Paris • October, 2021



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Welcome to the first edition of the STARLIGHT newsletter! This edition will discuss the STARLIGHT project's aims, key milestones, and technical aspirations. In addition, we'll provide updates on events and publications, and introduce our consortium partners.

STARLIGHT is one of the largest security-focused projects funded under the H2020 framework. It is a flagship project that brings together 52 partners from 18 European countries with 15 law enforcement agencies (LEAs) to enhance the use of Artificial Intelligence (AI) in the security domain.

As we enter the second year of the four-year project, we are busy preparing for the first project review and reflecting on the achievements and progress made during the first year. The project's first year has centred on activities that have allowed us to gauge LEAs' understanding of the opportunities and challenges of utilising AI. From the results of several workshops, STARLIGHT now has a baseline of the extent to which AI is embedded into day-to-day operations and potential requirements for future AI-based tools.

STARLIGHT also recognises the importance of sharing and engaging with the security community to communicate activities and results, and receive feedback and new ideas. STARLIGHT partners were involved in several European workshops and conferences during the first year. CERIS provided the opportunity to describe the projects' goals and strategies and strengthen our relationship with the ALIGNER and popAI projects. Several other conferences also provided a platform to discuss the use of AI in security applications, emphasising the legal, ethical and accountable use of AI.

Data is the foundation of AI-driven solutions. Therefore, technical partners and LEAs have been collaborating closely on the STARLIGHT data strategy providing a basis for addressing the crucial issue of the interdependence between the quality and quantity of training and test data and the efficacy of AI models.

As the second year begins and we enter the second phase of the communication and dissemination strategy, we will continue to maximise the visibility and disseminate the results of STARLIGHT. STARLIGHT is in a privileged position to take advantage of the opportunities to deliver impact across Europe by leveraging the many partners and stakeholders involved.

The goal of this newsletter is to extend the reach of STARLIGHT, developing further cooperation between researchers and security practitioners. This interaction will continue to provide a driving force for the project and facilitate the ambition for fast and effective uptake and adoption of solutions. Furthermore, we provide a special focus on aligning legal and ethical provisions, legislative frameworks and the protection of fundamental rights for the uptake and adoption of AI technologies in the security domain. To find out more, please get in touch by email, follow us on social media or visit the project's website.



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Highlights of Year One

- ♦ October 6-7, 2021: Kick-off meeting in Paris, France
- ♦ November 3-4, 2021: Leading Innovation in the LEA of the 21st Century Event, Lisbon, Portugal
- ♦ December 6-7, 2021: NTNU European Conference on Shaping Our Digital Future: From Vision to Implementation
- ♦ April 7th, 2022: Workshop on Protection of Public Spaces, Brussels, Belgium
- ♦ May 11-12, 2022: TECNOSEC exhibition in Madrid, Spain
- ♦ May 12-13, 2022: Responsible AI conference, The Hague, Netherlands
- ♦ May 30th-June 3rd, 2022: 9th European Academy of Forensic Science Conference, Stockholm, Sweden
- ♦ June 30th-July 1st, 2022: 3rd Edition of the Project to Policy Seminar, Brussels, Belgium
- ♦ September 13-14, 2022: EU Innovation Hub for Internal Security, Brussels, Belgium



Main Achievements in Year One

Work Package (WP) 2 got off to a flying start by establishing the "Framework Specification for Trustworthy, Accountable, Responsible, and Transparent AI in Support of EU LEAs". In the first 12 months, we have established a baseline understanding of the needs of the EU LEAs and gained in-depth knowledge of the challenges faced in fighting serious crime in several strategic areas. We have further assessed how AI can improve and accelerate the investigation of major criminal activities and trends. Together with the LEAs and technical partners a framework has been developed for using AI in crime resolution and for developing tools and solutions addressing key LEA needs. Already, we see results in knowledge sharing and enhanced cooperation between LEAs, technical partners, research institutions, and universities in addressing LEA needs.



STARLIGHT has maintained a critical focus on ensuring AI solutions adhere to all legal, ethical, and privacy legislation and best practices relevant to the EU. As a result, LEA and its technical partners are working together to build the first set of AI solutions.

WP3 focuses on community building, and during the first year, our main achievement was preparing and organising the first innovative workshop. The focus was on a user story submitted by the MININT's Central Office for the fight against organised crime (OCLCO): "Photo and video comparison tools for target identification". It built upon a methodology designed and tested in the H2020-funded ASGAR project to prompt and structure the discussion. The Integrating Center will use the results to align the different technical solutions.

The scouting activities will combine all information on the desired functionalities in the photo and visual comparison tools. Also, we kept working on building communities by researching how to make communities last and talking to community managers from other projects to get advice, especially about communication and spreading the word.

In **WP3**, the notion of "building by doing" is at the heart of our activities, thanks to many actions such as meetings with the Gendarmerie Nationale's Datalab, the organisation of the first Innovating workshop in June 2022, or MININT's involvement in a co-development cycle on cybersecurity.



Main Achievements in Year One



For the Customization Lab and Training, the main achievement during this period was the preparation of a questionnaire to identify best practices, potential solutions, and customization problems.

WP4 focused on identifying the main legal and ethical frameworks applicable to STARLIGHT and societal concerns that may arise from the project's operationalisation. By performing a comparative analysis of diverse national legal frameworks, we identified those that may influence LEAs' capacity and propensity to share data with STARLIGHT partners for Research & Development (R&D) objectives. Currently, WP4 is preparing for the Ethical and Legal Observatory (ELO) engagement conference in January 2023, as well as the impending deliverables including algorithmic bias and the Technology Readiness Level (TRL) calculator tool. WP4 is also monitoring the ongoing discussions for the Artificial Intelligence Act, the AI Convention of the Council of Europe, and any other developments that may be ethically and legally important to STARLIGHT.

To start with, **WP5** focused on datasets, we hosted a workshop as part of the European Academy of Forensic Science. At the same time, a paper on a "Federated tool for anonymization and annotation in image data" was presented at the SPIE conference in September 2022. In November, WP5 will submit its first deliverable, an overview of tools for collecting, annotating, anonymising, and generating datasets. It also contains the identified relevant datasets from the first year of STARLIGHT.

In **WP6**, focused on AI-solution development, we have compiled a list of all tools to be delivered within the WP, along with their functionalities, inputs, outputs, related datasets, and, more importantly, their correspondence to the defined use cases. Containing 48 tools at different TRLs, this list serves as a starting point for the upcoming co-development cycles. In addition, we have submitted the first deliverable on AI-based online source and content discovery and multimodal data sensing and understanding, reporting all available information about those tools. Furthermore, work continues on the remaining tasks, developing the tools needed to reach their target TRL.

WP7 aims to build AI-based solutions to improve LEA intelligence and investigation capabilities. It will deliver AI-based tools to transform sparse information into actionable knowledge, detect and monitor suspicious

behaviours and links in criminal networks, predict dangerous activities and trends, automate online LEA activities, and provide decision support to facilitate the understanding and exploitation of generated knowledge.

WP8 focuses on AI cybersecurity and protection. During the first months of the WP8 activities, a risk assessment framework was proposed and described in the first deliverable, providing LEAs with a methodology to examine the potential weaknesses, limitations, and vulnerabilities of AI models developed within the STARLIGHT project. We have also proposed an ad hoc extension to analyse AI-related threats and related mitigation measures. Ethical aspects of introducing AI tools into LEAs' activities have also been considered.

WP9 develops the framework for STARLIGHT and has begun by preparing mockups of the STARLIGHT repository. We have submitted these as the first deliverable and have now begun development. The STARLIGHT repository will constitute the central repository in which tools, datasets, and other project solutions will be made available to end users for download. More generally, the integration plan has been set up. This includes the first set of rules that technical partners who are making software solutions need to follow.



WP10 will deliver the pilot demonstrations and user evaluations. In the first year, working closely with **WP2** and **WP4**, we initiated discussions within the consortium to arrange the operational environment for the pilots' execution. Currently, our focus is on defining the operational pilot scenarios, planning and preparing for the pilots, and beginning the process of evaluating STARLIGHT's tools' technological readiness level and maturity evaluation. We have submitted our first deliverable on the pilot scenarios.

WP11 has started with the initial set up of project visibility and communication materials such as the logo, website, and activating the social media channels. The STARLIGHT consortium has been actively presenting and attending several events to raise awareness of the project. We have established collaboration activities with the other projects in the AI cluster (popAI and ALIGNER) and invited external members to the Advisory Board. The initial communication and dissemination plan has been prepared, and we are currently implementing the proposed actions and activities.



Opinion on the Proposed AI Act



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This text provides a brief general overview of normative instruments that are relevant for STARLIGHT, including ethics guidelines and the proposed AI Act.

In Europe, the Ethics Guidelines for Trustworthy Artificial Intelligence (AI)¹ prepared by the High Level Expert Group on AI (AI HLEG) are one of the most significant ethics guidelines concerning AI-based technologies. Accordingly, AI should be lawful, ethical, robust, and follow four main ethical principles: respect for human autonomy, prevention of harm, fairness, and explicability.

These principles are supported by seven key requirements: human agency and oversight; technical robustness and safety; privacy and data governance; transparency; diversity; non-discrimination and fairness; environmental and societal well-being; and accountability.

The ethical principles and requirements laid down by the AI HLEG influenced many subsequent normative instruments. Similarly, taking inspiration from AI HLEG's guidelines, the European Commission prepared a White Paper on Artificial Intelligence².

The White Paper adopts a risk-based approach, categorising AI applications as high-risk and low-risk and suggests extra requirements for high risk AI.

Among the plethora of normative frameworks in Europe aiming to address potential challenges of AI-based technology applications³, the Accountability Principles for Artificial Intelligence (AP4AI) in the Internal Security Domain⁴ is one of the more relevant efforts for STARLIGHT.

A living document, the AP4AI framework aims to guide internal security practitioners in their self-assessment and compliance, and the Accountability Principles, which have been recently developed under the AP4AI Framework, concretize legal and ethical requirements under 12 principles.

On the legal side, the European Commission's proposal for AI regulation, the Artificial Intelligence Act (AIA), is relevant to STARLIGHT.

Following the European Commission's White Paper,

the draft regulation takes a more nuanced, risk-based approach, differentiating between AI systems that create:

1) **an unacceptable risk** and are therefore prohibited, such as subliminal distortion of a person's behaviour in a manner that causes or is likely to cause physical or psychological harm; exploiting vulnerabilities of specific groups of people like the young, the elderly, or persons with disabilities; social scoring by public authorities that may lead to unjustified or disproportionately detrimental treatment; and real-time remote biometric identification in publicly accessible spaces by law enforcement (with some exceptions, e.g. search for missing persons or prevention of a terrorist attack).

2) **a high risk** to the health, safety, or fundamental rights of individuals that are subject to mandatory requirements and ex-ante conformity and post-market monitoring assessments.

3) **a low or minimal risk**, which are subject to a voluntary code of conduct. The Council of the European Union and the European Parliament proposed amendments to the regulation, and an agreement seems possible by mid-2023, depending on whether the co-legislators settle crucial issues such as the definition of AI, the risk classification, and related regulatory remedies.

Additionally, the Council of Europe's (CoE) Committee on Artificial Intelligence is drafting an AI Convention based on the CoE's standards of human rights, democracy, and the rule of law. The CoE's AI Convention is expected towards the end of 2023.

WP4 is keeping an eye on the ongoing negotiations for the AIA and the CoE's AI Convention, as well as any other developments that may be relevant to STARLIGHT both from an ethical and legal perspective.

¹ High-Level Expert Group on Artificial Intelligence (2019). Ethics Guidelines for Trustworthy AI. European Commission. Available at https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=60419.

² European Commission (2020), White Paper on Artificial Intelligence – A European approach to excellence and trust (COM(2020) 65 final). Available at: https://ec.europa.eu/info/sites/default/files/commission-white-paper-artificial-intelligence-feb2020_en.pdf.

³ Floridi, L., et al. (2018). AI4People -An ethical Framework for a Good AI Society: Opportunities, Risks, Principles, and Recommendations. *Minds & Machines* 28, 689–707 (2018). Available at: <https://doi.org/10.1007/s11023-018-9482-5>; Leslie, D. (2019). Understanding artificial intelligence ethics and safety: A guide for the responsible design and implementation of AI systems in the public sector. The Alan Turing Institute. Available at: <https://doi.org/10.5281/zenodo.3240529>.

⁴ <https://www.ap4ai.eu/>; Akhgar, B., et al (2022), Accountability principles for Artificial Intelligence (AP4AI) in the internal security domain, AP4AI Framework Blueprint. Available at: https://www.europol.europa.eu/cms/sites/default/files/documents/Accountability_Principles_for_Artificial_Intelligence_AP4AI_in_the_Internal_Security_Domain.pdf.





Project Details

- ♦ **Project title:** Sustainable Autonomy and Resilience for LEAs using AI against High priority Threats.
- ♦ **Starting date:** 01/10/2021.
- ♦ **Duration in months:** 48.
- ♦ **Topic:** SU-AI02-2020, Secure and resilient Artificial Intelligence technologies, tools and solutions in support of Law Enforcement and citizen protection, cybersecurity operations and prevention and protection against adversarial Artificial Intelligence.

Strategic Goals

- ♦ Improve the widespread **UNDERSTANDING** of AI across LEAs.
- ♦ Provide opportunities to LEAs to **EXPLOIT** AI tools and solutions.
- ♦ Ensure that LEAs can **PROTECT** their own AI systems.
- ♦ Raise LEAs' expertise and capacity to **COMBAT** the misuse of AI-supported crime and terrorism.
- ♦ **BOOST** AI for LEAs in Europe.

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Consortium



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