



HORIZON 2020 - ICT-14-2016-1

AEGIS

Advanced Big Data Value Chains for Public Safety and Personal Security

WP9 – Ethics Requirements



D9.3 – GEN- Requirement N° 4 “Ethics Advisory Board’s Report”

Due date: 30.06.2018

Delivery Date: 23.07.2018

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Period covered: January 2017 – June 2018

Dissemination level: Public **Nature of the Deliverable:** Ethics

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EXPLANATIONS FOR FRONTPAGE

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AEGIS KEY FACTS

Topic:	ICT-14-2016 - Big Data PPP: cross-sectorial and cross-lingual data integration and experimentation
Type of Action:	Innovation Action
Project start:	1 January 2017
Duration:	30 months from 01.01.2017 to 30.06.2019 (Article 3 GA)
Project Coordinator:	Fraunhofer
Consortium:	10 organizations from 8 EU member states

AEGIS PARTNERS

Fraunhofer	Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
GFT	GFT Italia SRL
KTH	Kungliga Tekniska högskolan
UBITECH	UBITECH Limited
VIF	Kompetenzzentrum - Das virtuelle Fahrzeug , Forschungsgesellschaft-GmbH
NTUA	National Technical University of Athens – NTUA
EPFL	École polytechnique fédérale de Lausanne
SUITE5	SUITE5 Limited
HYPERTECH	HYPERTECH (CHAIPERTEK) ANONYMOS VIOMICHANIKI EMPORIKI ETAIREIA PLIROFORIKIS KAI NEON TECHNOLOGION
HDIA	HDI Assicurazioni S.P.A

Disclaimer: AEGIS is a project co-funded by the European Commission under the Horizon 2020 Programme (H2020-ICT-2016) under Grant Agreement No. 732189 and is contributing to the BDV-PPP of the European Commission.

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EXECUTIVE SUMMARY

This document reports the Ethics Advisory Board’s activities, assessment and recommendations. It outlines EAB’s findings in terms of compliance of project activities and outcomes with applicable national and EU regulations, as well as with ethics standards.

After an insight on the positioning of the document within AEGIS internal environment, notably in relation to some tasks and deliverables (e.g. WP9 “Ethics Requirements”, T1.4 “Regulatory Framework for Data Protection, IPR and Ethical Issues” and WP5 “AEGIS Data Value Chain Early Community Demonstrators”), the document contains the findings of the ethics evaluation based on the assessment methodology depicted in D9.1, both at project level and in each of the demonstrators. The document continues with the description of the ethics-related work conducted by the members of the EAB and by the AEGIS partners and, finally, draws conclusions.

The EAB experts agree that the AEGIS Consortium is dealing in a proper manner with the privacy and data protection issues, as well as with the ethical and societal dimensions of the action.

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1. INTRODUCTION

1.1. Objectives of the deliverable

This document is aimed at reporting to the European Commission in an iterative fashion (respectively at M18 and at the end of the project), on the Ethics Advisory Board’s activities, assessment and recommendations. Notably, the oversight activities and resulting assessment refers to the compliance of project activities and outcomes with applicable national and EU regulations and ethics standards and take into consideration especially the ethical concerns and issues raised by AEGIS project, as identified by the Ethics Summary Report.

1.2 Insights from other tasks and deliverables

This document is strictly interrelated with the other WP9 activities and tasks, as well as with WP1” AEGIS Data Value Chain Definition and Project Methodology”, especially T1.4 “Regulatory Framework for Data Protection, IPR and Ethical Issues”. Therefore, special attention was given to the following deliverables:

- D1.2 “the AEGIS Methodology and High Level Usage Scenarios” and its updated version contained in D1.3 “Final Aegis Methodology”, where the AEGIS ethics, privacy, data protection and IPR strategy is respectively outlined and then refined. These deliverables refer to the regulatory framework and, above all, to the methodology/strategy elaboration for ethics, data protection and privacy issues, including ethics and data protection requirements. This ethics strategy completes and integrates the methodology under T1.5: in fact, D1.2 and D1.3 refer to both of the tasks (T1.4 and T1.5). The ethics methodology elaborated in these deliverables serve as the basis for the main guidelines that partners will have to respect towards ethics and privacy protection and overall ethics and regulatory compliance.
- D9.1 “OEI - Requirement No. 1”, which includes a comprehensive Data Protection Impact Assessment methodology. It approaches the data protection and ethical issues in a more comprehensive manner and especially considers the three demonstrators. D9.1 is directed to reinforce the ethical safeguards and to better explore the societal consequences (positive or negative) of the introduction of an AEGIS system. D9.1 refers to the assessment methodology functional to evaluate the compliance with ethics and data protection strategy and requirements, as described in D1.2 and refined in D1.3. D9.1 has served to the EAB to concretely proceed with its ethics evaluation, reported in this document, and to provide its opinion about the compliance of both the AEGIS system and the AEGIS demonstrator with the Ethics Strategy, including above all the fulfillment of all the ethics requirements.
- D9.2 “POPD - Requirement No. 3”, containing the copy of the relevant opinion in relation to data collection and/or processing in the project.

Furthermore, this report takes into consideration also other WPs and their deliverables, especially WP3 “Work package title System Requirements, User stories, Architecture and MicroServices”, WP4 “AEGIS Infrastructure Implementation and Rollout” and WP5 “AEGIS Data Value Chain Early Community Demonstrators”. For instance, the findings and statements of the following deliverables were considered:

- D5.1. “Demonstrators and Project Evaluation Framework”, where the demonstrators are outlined in detail and the overall evaluation strategy is depicted;

- D3.2 “AEGIS Components, Microservices and APIs Design v1.00”, containing the description of the high-level architecture of the AEGIS solution.

On the other hand, in the next release of the ethics report, at the end of the project, special reference will be done to WP4 deliverables, especially D4.4 “AEGIS Platform - Release 4.00”, whilst during the further course of the project in the next months the EAB will conduct assessment and provide recommendations and guidance to AEGIS Consortium by analyzing the documents describing the advancement of the design and development of the system (e.g. D4.3 “AEGIS Platform - Release 3.00”). Likewise, EAB’s oversight activities and feedback will continue to consider WP5 activities, results and documents (e.g. D5.3 “Demonstrators Evaluation and Feedback–v1”).

1.3 Structure of the deliverable

This ethics report is structured into the following sections:

- An introduction, where the aims of the document and its interrelations with the overall project is explored;
- The findings of the ethics assessment, in terms of status, strategy, mitigating measures and safeguards taken in relation to the main aspects relevant for addressing the ethics, legal and societal dimensions raised. This analysis was conducted both, on the one hand, at project level, with general ethics-related remarks on the platform/system under development and some of its components, and, on the other hand, in each of the demonstrators;
- An overview of the ethics work performed by the members of the EAB and by the partners;
- The conclusions, including recommendations.

2. OVERSIGHT OF THE STATUS, STRATEGY AND SAFEGUARDS TAKEN IN RELATION TO ETHICAL, LEGAL, PRIVACY AND DATA PROTECTION DIMENSIONS IN AEGIS PROJECT

2.1 Overall Assessment

AEGIS project aims at creating a curated, semantically enhanced, interlinked & multilingual repository for public & personal safety-related big data, by bringing together the data, the network & the technologies to deliver a data-driven innovation. Such data-driven innovations and the AEGIS system enabling it will expand over multiple business sectors & take into consideration structured, unstructured & multilingual datasets, rejuvenate existing models and facilitate organisations in the Public Safety & Personal Security linked sectors to provide better & personalised services to their users.

Therefore, in demonstrating and using the AEGIS system personal data will (partially) be collected and processed, as well as participants involved in the demonstration activities will be tracked and observed during evaluation. All partners are aware of their responsibilities and obligations to respect the data subject’s privacy, confidentiality but also autonomy, self-determination and dignity, in compliance with European standards and best practices. In particular:

- An AEGIS Ethical & Societal Board (ESB) was established and is fully operating. It consists of three members external to the consortium partners, with knowledge on the handling of ethical, legal and societal issues. It worked in collaboration with the partnership for guaranteeing that project solutions are compliant with legal and ethical requirements as well society impacts, whilst overseeing the application of the ethical management strategy of the consortium. The board has a detailed overview on AEGIS activities as well as access to relevant AEGIS deliverables. More details on the activities performed by this body are contained in the next section of this document.
- A specific Ethical, Privacy and Data Protection Strategy was already elaborated at the beginning of the project (closely involving the demonstrators) and inserted in D1.2, consisting of requirements, but also recommendations, key principles and guidelines to be taken into consideration by each of the partners and by the overall consortium. This Strategy was refined in D1.3. The strategy and its requirements guided the designing the AEGIS system architecture and preliminary conception of its components.
- AEGIS partners referred to and intend to continue to refer to the Privacy by Design Approach, in conjunction with the Privacy Protection Goal paradigm to set AEGIS requirements in relation to the overall system, but also to its components, as well as project activities (technical implementations) and demonstration phase. This also implied the adherence to the “Need to know basis” principle and the proportionality principle.
- AEGIS partners paid attention and are willing to continue to pay attention to legal compliance, for instance about the provisions of GDPR. The partners took and are committed to take several measures and safeguards in order to comply with both the applicable European and national rules (in particular Italian, Greek, German, and Austrian national legislations).
- The partners are willing to organize the AEGIS Recruitment Procedure and pay attention to put in place the proper Informed Consent Procedures, including safeguard measures for protecting the privacy and other individual rights

2.2 Demonstrator Case 1: Smart Automotive and Road Safety

The demonstrator case is not linked with self-driving car technology (usually termed autonomous driving). Thus, ethical problems of decision making by artificial intelligence does not arise. However, it is concerned with collecting data from vehicles operated in the field by volunteering drivers (who sign an informed consent). All (vehicle operation) data processed is anonymized.

One ethical issue could come up, if the information which would be delivered by the demonstrator case would be invalid and not reliable. If this will be the case 1) an empirical question which cannot be addressed yet and 2) an ethical question: which degree of validity and reliability will be “sufficient” and will not raise ethical questions? This question must be and can be discussed in course of time.

Data protection problems of the demonstrator case are of minor importance. Data to be collected during the experiments is sensor data (e.g. speed, acceleration, ...) and/or simulation data. Sensor data is generated through connecting a device developed at VIF ‘termed vehicle data logger’ to the onboard diagnostic (OBD2) interface of a car. Simulation data is generated by study participants using a driving simulator developed at VIF and may include many additional values. Both sensor data and simulation data have to be stored on a research server at VIF to allow the development of algorithms for inferring events including broken roads, patterns of safe and unsafe driving, or driving risks. Sensor and simulation data will be kept on this server till the end of the project. Of course, all data is anonymized before being stored on the server.

The automotive and road safety demonstrator is located in Austria. The responsible national data protection authority in Austria is Austrian Data Protection Authority (in German: ‘Datenschutzbehörde’), a governmental authority charged with data protection. The data protection authority is the Austrian supervisory authority for data protection, the equivalent of a national data protection commissioner in other countries.

The automotive and road safety demonstrator in the AEGIS project will not involve processing any personal data. However, according to the corresponding business scenarios and business models developed in the project and aiming to scale these applications to the market, a future collection of personal data might be considered. At the moment there are no issues of data protection and ethics which have to be checked.

As a conclusion, after studying the details of the demonstrator, it is identified that suitable mechanisms are in place from the demonstrator partners, to deal with all ethical risks, including data protection, that can potentially arise during the course of the project.

2.3 Demonstrator Case 2: Smart Home and Assisted Living

The main purpose of the Smart Home and Assisted Living (SHAL) demonstrator is to illustrate and implement a services-bundle towards advanced holistic monitoring and assisted living management, aiming to improve everyday living and enhance the wellbeing of people belonging to vulnerable groups.

The SHAL demonstrator will implement two main services, with respective scenarios, that can be offered by a care service provider to at-risk individuals and/or their (in)formal carers. In particular, the services are the following:

- a) Services for monitoring and analysis of an individual’s well-being conditions, physical activity, positioning and wearable information and external environment data (e.g. weather, crime, news, social media), towards the provision of a service for

personalised notification and recommendation system for at-risk individuals, including notifications for carers.

b) Additional services pertaining monitoring and analysis of weather, indoor environmental conditions, energy and operational device data towards the provision of a smart home application, which can be offered by care providers to at-risk people for increased indoor comfort and welfare.

The data that are going to be collected during the demonstration, will be used solely for the specific case (research activity) and will be completely destructed and removed from the AEGIS system after the case’s finalisation. This fact is positive and neutral regarding ethical issues.

In case of end users, the fact that only people that have explicitly declared their agreement (informed consent) in supplying their data and in turn receive personalized notifications and warnings is a positive fact. The consent should take under consideration the following issues:

- Be in a language and in terms that are fully understand,
- Describe the aims, methods and perhaps the implications of the Demonstration, the nature of the participation and any benefits, risks or discomfort that might ensue,
- Explicitly state that the use of the Smart Home and Assisted Living (SHAL) demonstrator is voluntary and that anyone has the right to refuse to participate and to withdraw their participation, samples or data at any time — without any consequences,
- State how data will be collected, protected during the lifetime of the project and either destroyed or reused subsequently,
- State what procedures will be implemented in the event of unexpected or incidental findings (in particular, whether the participants have the right to know, or not to know, about any such findings).

The data process lifecycle of the SHAL could raise ethical issues if:

- Personal data is not stored locally and / or uploaded to the AEGIS platform during the Data Collection process.
- The collected data are not subjected to the appropriate offline pre-processing workflow and/or the anonymization process of deleting any sensitive element during the data preparation step.
- The datasets can be retrieved after their deletion during the storage step.

Some additional clarifications pertaining specific types of data arriving from these devices are discussed and need to be clarified; geo-locational data will be processed after acquisition to keep only the minimum necessary information (city, area) and not the exact latitude and longitude, biometrical information (height, weight) which represent sensitive data pursuant to article 9 GDPR are entered voluntarily and with explicit consent by the user, vital signs (blood pressure, heart rate) are recorded only for pre-specified purposes.

As a conclusion, after studying the details of the demonstrator, it is identified that suitable mechanisms are in place from the demonstrator partners, to deal with all ethical risks that can potentially arise during the course of the project.

2.4 Demonstrator Case 3: Smart Insurance

The AEGIS Insurance Demonstrator is aimed at exploiting the AEGIS platform big data technologies in order to access and analyse information coming from diverse and heterogeneous

data sources, including the in-house data (e.g. customer location, insured/uninsured asset types) and weather, news and crime open data.

Using AEGIS solutions HDI data scientists are expected to be able to manage in an efficient way the occurring events (to be happen or just happened), whilst the company is facilitated in setting a strategy to minimise the impact of the event on the company itself, and in offering support to the customers.

The demonstrator operations include the involvement of volunteers through the installation of the Mobile App.

The partners involved in this demonstrator fine-tuned on project-level ethical, privacy and data protection overall strategy, with specific reference to both the Italian regulatory system and insurance sectors best practices and policies. They are aware and committed in complying with the ethics, privacy and data protection requirements. They include, for instance:

- i) Informed Consent Procedure according to the Italian Privacy Code but also to GDPR. The volunteers will be asked to provide consent to data processing, including, if necessary, secondary use of previously collected data. This will apply also to the case of location data and tracking of them, for instance when the customer’s position gained from the HDI Mobile App will be provided by HDI to the AEGIS platform. More in general, AEGIS partners involved in this demonstrator are preparing all the tools and executing all the preparatory work for the protection of the voluntary participants’ rights. The volunteers will be also able to monitor and access his/her personal as well as non-personal data for the purpose of correctness and data quality, as well as to withdraw to the trial with no negative consequences.
- ii) the maximum attention to security, with adherence to the relevant security measures, as “Technical specifications on minimum data security measures”, indicated by Annex B of the Privacy Code, both as regards the minimum and adequate measures. Also in this case, the partners confirm to take into consideration the new environment due to the GDPR’s application, though in any case it is expected that the mentioned measures will continue to be a reference point at least at operational level. The partners are assessing further initiatives to strengthen security and data protection policies, like the introduction of a cybersecurity competence center (SOC III level) or the adoption of Identity Management solutions to centrally manage and monitor the life cycle of users and their respective authorizations.
- iii) the execution of data protection impact assessment and appointment of Data Protection Officers, with collection of his/her statements when relevant. In case of collection and processing of higher-risk categories of data, HDI is willing to proceed with the necessary notification to the national data protection authority (Garante per la protezione dei dati personali).

HDI and GFT, which has collaborated with HDI since the definition of the scenarios and test cases, have followed the relevant ethics, legal and data protection requirements. The data are anonymised before their upload on the platform: only authorized users can access them. In particular, HDI in-house datasets will be anonymised through AEGIS Anonymisation tool: therefore, no personal data will be managed and stored on the platform.

The relevant data are those of the policies held by the customers and geo-location data provided by the HDI Mobile App, as well as the in-house datasets after anonymization.

The Data minimization principle was pivotal, and attention was given to avoid collecting, processing or further processing personal data if not necessary. The amount of personal data which will be gathered and used will be kept at a minimum amount. Only the customers that have provided consent to the use of their data for analysis purpose, in particular in order to receive personalized offers, warnings and support for claims, will be taken into account. Furthermore, as already pointed out, they will be anonymized and the risk of de-anonymization is very low. The in-house datasets are stored in the HDI servers. Only the data necessary for the analysis, after anonymization, will be filtered and uploaded on the platform by authorized users. These data are visible only to the HDI Data Scientists.

Also, purpose limitation principle, data storage limitation principle, data quality & accuracy principle, as well as confidentiality were addressed in the proper manner, whilst the use of automated processing was avoided. HDI operators will take decisions, though they will be supported by data analysis.

The insurance sector demonstration also underlines the potential benefit for the final user of AEGIS solutions: the customers will be provided with personalized services through the use of the AEGIS analytic tools, allowing to offer additional support and information about natural or social events of interest. The customer’s satisfaction and positive feedback is expected to be improved. At the same time, all the customer’s rights will be guaranteed.

As for the ethics and privacy risks, different considerations apply to the different insurance-related scenarios, though what is important to remark is the very unlikely risk of loss of confidentiality and re-identification, due to the technical and organizational safeguards adopted, as described in D5.1 and D5.2, and the use of a private cloud.

Administrative requirements are fulfilled too, for instance as regards the notification/authorizations by the National Data Protection Authority in Italy (Garante della Privacy). They were already existing, and the partners concerned are willing, taking into considerations future Data Protection Officers’ statements and privacy impact assessment’s results, to further extended/modified them in relation to HDI’s activities within the AEGIS project. Strict confidentiality policies and access restriction safeguards are taken by HDI in its daily data processing activity and will be used in AEGIS demonstrator too, specifically customized for project purposes. HDI complies with all the relevant provisions regulating the entities involved in data handling (e.g. data controller, data processors, etc.) and has just appointed the DPO.

As a conclusion, the current progress of Insurance Sector Demonstrator has considered and tackled in the proper manner the ethics, privacy and data protection strategy and related requirements. It includes the design as well as the first implementation/preparation of all relevant ethics safeguards to ensure data protection and privacy and the respect of other ethics values. The amount of personal data to be collected to be able to provide the respective, personalized service is restricted to minimum necessary and the correct handling of data is planned.

3. DESCRIPTION OF THE ETHICS-RELATED WORK PERFORMED DURING THE FIRST REPORTING PERIOD

During the first reporting period several activities were undertaken by the Ethics Advisory Board, if opportune in conjunction with AEGIS Consortium, and significant results were achieved in relation to ethical, legal and societal aspects raised by the project. They are reported in the Progress Report, to which reference has to be made. In particular:

- WP1 “AEGIS Data Value Chain Definition and Project Methodology”, especially T1.4 “Regulatory Framework for Data Protection, IPR and Ethical Issues”, the findings of which are reported in D1.2 “the AEGIS Methodology and High Level Usage Scenarios” and D1.3 “Final Aegis Methodology”;
- WP9 “Ethics requirements”, in particular D9.2 “POPD - Requirement No. 3”, containing the copy of the relevant opinion in relation to data collection and/or processing in the project and D9.1 “OEI - Requirement No. 1”, which includes a comprehensive assessment methodology. Such methodology regards, on the one hand, the system and its components (i.e. if they have been designed and developed according to a set of ethics requirements, for instance relying on Privacy by Design and by Default) and, on the other hand, the demonstrators (if their specific technological solutions have been designed and developed according to an array of ethics requirements, as well as if the demonstrator-related operations have been executed according to a set of ethics requirements, for instance as regards informed consent procedures). In addition, D9.1 explores the societal consequences (positive or negative) of the introduction of AEGIS system.

Furthermore, ethics-related considerations were considered in WP3, WP4 and WP5, in the overall design of the system and preparation of validation activities, in view of ensuring strict adherence to Privacy-by-Design and Privacy-by-Default paradigms.

In the next release of the ethics report, at the end of the project, special reference will be done to WP4 deliverables, especially D4.4 “AEGIS Platform - Release 4.00”. Furthermore, during the further course of the project the EAB will conduct assessment and provide recommendations and guidance to AEGIS Consortium by analyzing the documents describing the advancement of the design and development of the system (e.g. D4.3 “AEGIS Platform - Release 3.00”). Likewise, EAB’s oversight activities and feedback will continue to consider WP5 activities, results and documents (e.g. D5.3 “Demonstrators Evaluation and Feedback–v1”).

Besides co-creating and/or reviewing selected parts of the ethics and privacy related deliverables, the EAB participated to the following meetings:

- KoM of the EAB (Virtual Meeting, 24.2.17);
- EAB’s workshop during the Athens Meeting (Face-to-Face Meeting, Athens, 30.01.2018)
- EAB’s meeting to discuss and finalize the ethics report (email communication and Virtual Meeting, 03.07.2018).

In addition, the EAB or one or more of its members participated to other AEGIS meetings or telcos (F2F or Virtual) conducted during the project, where they were invited, as well as discussed with the partners in bilateral meetings ethics, legal and societal concerns, for the best alignment with and implementation of the AEGIS ethics strategy. Hence, the EAB was closely involved in AEGIS progress and activities and was able to actively contribute to the project.

The EAB also monitored the legal issues to continuously assess and ensure that the framework being proposed adheres to a minimum set of ethical and legal requirements.

4. CONCLUSIONS

The Consortium dealt in a proper manner with all arising privacy and data protection issues, as well as with the ethical and societal dimension in general of their research project, demonstrating a high level of awareness, attention and knowledge in relation to ethical, privacy, data protection and societal implications.

The system design took privacy and ethics issues into appropriate account, by operating balancing operation between ethical, privacy and data protection requirements and the requirements of different nature (e.g. usability requirements, economic requirements).

The “need to know basis” principle and Privacy by Design and by Default approaches were followed in designing the technical solutions, in conjunction with the proportionality principle. In WP5 and its demonstrator-related activities, AEGIS partners paid attention and are willing to continue to pay attention to legal compliance towards the whole set of currently applicable legal instruments, including GDPR (reform of data protection rules in the EU, notably Regulation (EU) 2016/676 of the European Parliament and of the Council of 27 April 2016). They took and are committed to take several measures and safeguards in order to comply with both the applicable European and national rules and with the relevant principles and values of ethical, cultural, social and political nature. This set of variables was taken into account in a systematic and holistic way, also because they may have a societal impact on users’ resilience and influence individual’s perceptions and expectations of AEGIS solutions in terms of privacy and data protection.

To summarize, the EAB considers the conducted AEGIS project work as treating ethical and privacy aspects in an adequate way.