SINNOGENES

Storage INNOvations for Green ENErgy Systems

Call: **HORIZON-CL5-2022-D3-01**

Type of Action: **IA**

Project Acronym: **SINNOGENES**

Project ID: **101096992**

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DELIVERABLE D1.4

Legal and Ethical issues and Guidelines

Co-funded by the European Union

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The SINNOGENES Consortium consists of:

Number	Short name	Legal name
1	UNISY	UNISYSTEMS LUXEMBOURG SARL
1.1	UNIS GR	UNI SYSTEMS SYSTIMATA PLIROFORIKIS MONOPROSOPI ANONYMI EMPORIKI ETAIRIA
2	UBE	UBITECH ENERGY
3	ART	ARTELYS
4	RINA-C	RINA CONSULTING SPA
5	CIRCE	FUNDACION CIRCE CENTRO DE INVESTIGACION DE RECURSOS Y CONSUMOS ENERGETICOS
6	FBK	FONDAZIONE BRUNO KESSLER
7	MINDS	METAMIND INNOVATIONS IKE
8	CINT	CINTECH SOLUTIONS LTD
9	UGE	UNIVERSITA DEGLI STUDI DI GENOVA
10	CW	CAPWATT, S.A.
11	INESCTEC	INESC TEC - INSTITUTO DE ENGENHARIA DE SISTEMAS E COMPUTADORES, TECNOLOGIA E CIENCIA
12	FEUP	UNIVERSIDADE DO PORTO
13	CARTIF	FUNDACION CARTIF
14	CIEMAT	CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS-CIEMAT
15	INYCOM	INSTRUMENTACION Y COMPONENTES SA
16	FHA	FUNDACION PARA EL DESARROLLO DE LAS NUEVAS TECNOLOGIAS DEL HIDROGENO EN ARAGON
17	SCHN	SCHNEIDER ELECTRIC ESPANA SA
18	DLR	DEUTSCHES ZENTRUM FUR LUFT - UND RAUMFAHRT EV
19	SAND	SANDDORN GMBH HERZBERG
20	HEDNO	DIACHEIRISTIS ELLINIKOU DIKTYOU DIANOMIS ELEKTRIKIS ENERGEIAS AE
21	IPTO	INDEPENDENT POWER TRANSMISSION OPERATOR SA
22	UoA	ETHNIKO KAI KAPODISTRIAKO PANEPISTIMIO ATHINON
23	CERTH	ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS
24	EWF	Energy Web Stiftung (Energy Web Foundation)
25	TPG	TRANSPORTS PUBLICS GENEVOIS
26	UNIGE	UNIVERSITE DE GENEVE
27	Hitachi	Hitachi Energy Switzerland Ltd.

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Executive Summary

The SINNOGENES project is a pioneering venture in energy innovation, intricately woven with a steadfast commitment to the highest ethical and legal standards. Operating within the Horizon Europe Ethics Guidelines and the European Code of Conduct for Research Integrity, SINNOGENES places paramount importance on transparency, informed consent, and meticulous adherence to General Data Protection Regulation (GDPR) principles. With a dedicated Data Protection Officer overseeing all facets of data protection, the project extends its legal compliance across diverse national legislations, including Germany, Greece, Portugal, Spain, and Switzerland. While the project demonstrations do not involve human participants or personal data, SINNOGENES maintains an unwavering commitment to privacy, evidenced by rigorous measures such as Data Protection Impact Assessments and strict compliance with the ePrivacy Directive. This executive summary encapsulates SINNOGENES' proactive and responsible approach to ethical research, legal adherence, and data protection, reflecting a dedication to privacy even in the absence of direct personal data use.

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Table of Contents

Table of Figures

No table of figures entries found.

Table of Tables

This project has received funding
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under the Grant Agreement No. **101096992**

Table of Acronyms

Acronym	Definition
ALLEA	All European Academies
BDSG	Bundesdatenschutzgesetz (Federal Data Protection Act in Germany)
CNPD	Comissão Nacional de Proteção de Dados (National Data Protection Commission in Portugal)
DPIA	Data Protection Impact Assessment
DPO	Data Protection Officer
EC	European Commission
EDPB	European Data Protection Board
EU	European Union
EUREC	European Network of Research Ethics Committees
GDPR	General Data Protection Regulation
GEP	Gender Equality Plan
HEDNO	Hellenic Electricity Distribution Network Operator (Greece)
IPTO	Independent Power Transmission Operator (Greece)
ISMS	Information Security Management System (Greece)
LOPDGDD	Ley Orgánica de Protección de Datos y Garantía de Derechos Digitales (Organic Law on Data Protection and Guarantee of Digital Rights in Spain)
LPDP	Lei de Proteção de Dados Pessoais (Personal Data Protection Law in Portugal)
WP	Work Package

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1 Introduction

1.1 Scope and objectives

SINNOGENES emerges within the landscape of the Horizon Europe program, committed to pioneering research in the realm of future energy systems targeting sustainability and grid storage integration. At its core, SINNOGENES seeks to push the boundaries of knowledge and innovation while embracing a resolute commitment to ethical research practices. This report delves into the ethical and legal dimensions of SINNOGENES, examining its adherence to research ethics, data protection, and gender equality within the intricate framework of European legislation.
Through this first version of the deliverable, SINNOGENES partners intend to establish a pertinent framework that will:

- Explore how the project aligns with and extends beyond the ethical guidelines outlined in the Horizon Europe program, emphasizing principles such as transparency, participant rights, and accountability.
- Investigate the project's rigorous approach to data protection and privacy, focusing on the implementation of security measures, Data Protection Impact Assessments (DPIAs), and ethical management of personal data.
- Examine the ethical considerations in various research activities conducted by the project, including interviews, focus groups, and workshops, with a spotlight on privacy, security, and responsible use of relevant project activities materials.
- Uncover the integral role of gender equality, highlighting the Gender Equality Plan (GEP), the representation of women in key positions, and the commitment to inclusivity among researchers and end-users.

1.2 Dependencies with other tasks and deliverables

This deliverable highly reflects the work being carried out under Tasks 1.4 “Data management”, and T2.3 “Data interoperability, privacy, and security of the SINNOGENES IT architecture”, and it is also considered a complementary document to “D1.2a Data Management Plan” that was submitted on M6.

1.3 Structure of the Report

This document is divided into the following chapters:
Chapter 2: Provides an overview of Horizon Europe's ethical guidelines and highlights the ethical principles to be followed in the project's research activities.
Chapter 3: Navigates through the legal landscape, providing insights into the applicable legislation at both European and national levels. It outlines the specific legal requirements in countries integral to the SINNOGENES project, including Germany, Greece, Portugal, Spain, and Switzerland, emphasizing compliance with the GDPR and respective national laws.
Chapter 4: Sheds light on the critical role of the Data Protection Officer (DPO) within SINNOGENES, delineating the responsibilities, ethical oversight, and risk

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management strategies implemented by the project to ensure the secure and ethical handling of data.
Chapter 5: Delves into the project's formalized procedures for ethics risk assessment, risks identification, assessment, monitoring, and management. It also outlines the mitigation plans in place to address specific ethical risks associated with the project.
Chapter 6: Discusses how ethical concerns are addressed in various SINNOGENES project activities. Address privacy, security, and responsible use of interview material.
Chapter 7: Discusses the Gender Equality Plan and efforts to enhance gender equality.

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under the Grant Agreement No. **101096992**

2 SINNOGENES Compliance

Research ethics is of particular importance to EU research activities, and compliance with ethical standards is a top priority. Although there is no specific European standard that globally governs research ethics, there are guidelines and principles that researchers must follow. SINNOGENES identified a series of standards that provide guidance on research ethics in the European context:

Horizon Europe Ethics Guidelines[i]

The Horizon Europe program includes ethical guidelines which provide information on the relevant considerations and requirements for projects funded under this program. According to these guidelines, projects should:

- Address ethics at every stage of the project, from planning to execution.
- Adhere to relevant laws and regulations, especially those related to data protection and privacy.
- Respect the rights and well-being of all participants, ensuring informed consent is obtained.
- Give special attention to vulnerable groups to ensure their protection.
- Whether or not personal data is involved, apply principles of data protection and consider privacy implications.
- Prioritize honesty, integrity, and accountability in research.
- Be aware that ethical review may be necessary, particularly in cases involving people or sensitive topics.
- Maintain transparent communication among the project team and stakeholders.
- Monitor and improve ethical aspects based on feedback and changing circumstances.
- Document all ethical considerations, decisions, and actions throughout the project.

European Code of Conduct for Research Integrity[ii]

This code comprises a comprehensive set of guidelines developed by the European Science Foundation and All European Academies (ALLEA). It provides principles and best practices for ensuring integrity and encouraging researchers to conduct research to the highest standards throughout the research process. According to this code, a project should encourage researchers to:

- Perform related activities with honesty and transparency.
- Exhibit responsible behavior among researchers.
- Adhere to ethical standards.
- Apply truthful communication of research findings.
- Respect research participants.
- Handle data according to ethical standards.
- Adopt a culture of research integrity within the scientific community.
- Apply the highest standards of conduct throughout the research process.

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under the Grant Agreement No. **101096992**

European Network of Research Ethics Committees (EUREC)[iii]

EUREC is a network of research ethics committees across Europe. It provides a platform for collaboration and exchange of information among ethics committees. For research projects like SINNOGENES, this network can be used to find resources and contacts to achieve some of the following goals:

- Collaborate with ethics committees and professionals across Europe.
- Haring experiences and best practices.
- Support standardization and alignment of ethical review processes.
- Contribute to the improvement of ethical standards in research.
- Exchange information on relevant regulations and guidelines.

European Data Protection Board (EDPB)

This independent European Union body provides guidance and interpretation of the General Data Protection Regulation (GDPR) to ensure consistent application of data protection principles across the European Union. EDPB emphasizes key aspects such as data minimization, lawful processing, data subject rights, and the necessity of implementing security measures. It underscores the importance of conducting Data Protection Impact Assessments (DPIAs) for high-risk processing activities, notifying authorities and data subjects in the event of data breaches, and ensuring transparency in profiling and automated decision-making. Additionally, EDPB offers insights into obtaining valid consent, managing joint controllerships, and facilitating international data transfers in compliance with GDPR.
In order to comply with the EDPB guidelines,[iv] SINNOGENES prioritizes clearly documenting the legal basis for data processing, implementing security measures to protect personal data and conducting a DPIA. In cases where personal data is involved (*e.g.* distribution of newsletters), SINNOGENES will ensure that the rights of individuals are respected and establish effective mechanisms to respond to data subjects' requests. Even if SINNOGENES does not foresee the inclusion of human participants or the use of personal data in the demonstration activities, it will obtain express and informed consent when required and will carefully manage international data transfers by choosing appropriate legal mechanisms. At the same time, SINNOGENES will regularly monitor and update its data protection practices, aligning with evolving EDPB guidelines and maintaining compliance with GDPR requirements.

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under the Grant Agreement No. **101096992**

3 Ethics in SINNOGENES

The SINNOGENES consortium demonstrates a comprehensive awareness of the ethical implications inherent in the proposed research. It upholds a steadfast commitment to adhering to the ethical regulations and standards outlined in the HORIZON EU Programme, as well as those articulated in "Article 19 - Ethical principles" of the Charter of Fundamental Rights of the European Union. The project places paramount importance on ethical, social, and data protection considerations. The ethical dimensions within SINNOGENES are systematically addressed in full compliance with both European Union and national legislation. The SINNOGENES Ethics Monitoring is structured around key principles, namely:

a. Ensuring transparency in all data collection and management practices conducted by the project and providing notifications to all stakeholders acting as data producers.
b. Affirming the explicit and written Informed Consent of business actors who own the data and are involved in the project's pilot evaluation phase.
c. Safeguarding data protection, security, and privacy concerns through the implementation of an integrated security and ethics management policy that spans technologies and encompasses data management practices within the project's research domain.

3.1 Applicable legislation

The project's framework mandates a thorough examination of all pertinent legislations, coupled with strict adherence to overarching ethical principles. All partners engaged in research activities will align their operations with both national and European legislation, ensuring compliance with respective national data protection provisions and European data protection rules.
Partners are bound by collectively established regulations governing participant recruitment, activity implementation, and the recording, analysis, and storage of project-collected data. These guidelines, universally embraced by all partners, undergo periodic scrutiny by the project's Data Protection Officer.
Each partner bears the responsibility for ensuring compliance within their respective countries, substantiating their adherence through justifications and evidence presented to the ethical committee, and steadfastly upholding the observance of both national and EU legislation.

European Legislation

The General Data Protection Regulation (GDPR)[v] is acknowledged as pivotal, with due consideration given to ethical, legal, and privacy concerns. Within the SINNOGENES management structure, a designated Data Protection Officer (possessing substantial expertise in GDPR) will be appointed. The DPO will assume responsibility for supervising the formulation and execution of data protection strategy to ensure alignment with GDPR stipulations.
Researchers will formulate arrangements to meticulously safeguard the confidentiality of participants and their data. Any collected personal information will be regarded as privileged and handled in a manner that upholds the personal

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dignity of the participant and refrains from infringing upon their right to privacy. Prior to obtaining consent, prospective participants will be duly informed by the researchers regarding potential risks that could impede the guarantee of confidentiality or anonymity of personal information. Furthermore, the researchers will elucidate the intended purpose for which the provided personal information will be utilized.

The ePrivacy Directive (2002/58/EC) and the upcoming ePrivacy Regulation are rules aimed at safeguarding privacy and confidentiality in electronic communications. The ePrivacy Directive, established in 2002 and updated in 2006[vi] and 2009, addresses the processing of personal data in the context of electronic communications, including issues related to cookies, spam, and confidentiality of communications. The under-discussion ePrivacy Regulation aims to update and replace the directive, providing more comprehensive and consistent rules for electronic communications within the European Union.
To implement the ePrivacy rules in SINNOGENES, the following areas are taken into consideration:

- Cookie Consent: Through the website, SINNOGENES obtains informed consent from users before placing cookies on their devices, and communicates the purpose of these technologies, providing users with the option to accept or decline.
- Confidentiality of Communications: SINNOGENES respects the confidentiality of electronic communications, ensuring that any interception, monitoring, or processing of communications is lawful and aligned with user expectations. This includes any form of electronic messaging or communication channels.
- Spam and Direct Marketing: SINNOGENES complies with rules related to unsolicited communications, commonly known as spam, by ensuring valid consent before sending marketing content like newsletters.
- Stay Informed About ePrivacy Regulation Updates: SINNOGENES will keep abreast of developments related to the ePrivacy Regulation, as it is expected to bring changes and updates to the existing rules by adjusting its practices accordingly to align with the latest requirements.

3.2 National level legislation

The SINNOGENES project is set to gather data from 6 demonstrators located in Germany, Greece, Portugal, Spain, and Switzerland. The demo partners within the consortium will adhere to the national requirements and obligations specific to each country, as outlined in the subsequent sections.

3.2.1 Germany

In Germany, data protection is governed by the Bundesdatenschutzgesetz[vii] (BDSG) and the General Data Protection Regulation (GDPR). The BDSG serves as the national companion to the GDPR, providing detailed guidelines for the lawful and transparent processing of personal data by both public and private entities within the country. Additionally, the GDPR, applicable across the European Union, sets a unified standard for data protection, ensuring consistency and safeguarding the privacy and rights of individuals throughout the EU, including Germany. The Germany demo must comply with the GDPR legislation and national law BDSG legislation.

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from the European Union's Horizon programme
under the Grant Agreement No. **101096992**

3.2.2 Greece

The legislation for Data Protection in Greece is the form of Law 4624/2019[viii] ("Data Protection Law"), entered into force on 29 August 2019, which includes provisions in certain areas which are left by the GDPR to the discretion of member-states and dissolves the legal uncertainty caused by the delayed supplementation of the Regulation and the parallel validity of Law 2472/1997.

Data associated with the grid is typically safeguarded by national law. In the context of data sharing, IPTO, the Independent Power Transmission Operator, adheres to both European and National legislation, along with the Hellenic Energy Transmission System Code and manuals outlining specifics regarding various data categories and their corresponding confidentiality levels. Guided by these provisions, IPTO, serving as the data owner, determines the eligibility of requested access to the data and establishes the conditions under which such access may be granted. Consequently, there are instances where IPTO is obligated to release data, while in other scenarios, it is required to withhold pertinent information, such as data pertaining to potentially sensitive consumers like critical infrastructure.

HEDNO, the Hellenic Electricity Distribution Network Operator, on the other hand, also complies with the legal and regulatory framework for the protection and security of personal data. In addition to the above, HEDNO has developed and maintains a Protection and Security Framework for data and information, which includes the basic principles that derive from the legal and regulatory framework as well as all international best practices and standards. HEDNO implements an Information Security Management System (ISMS), and since 2019, the IT and Telecommunications Department has been ISO 27001 certified and verified for the implementation of all appropriate security and data protection measures in the planning, development, operation, and maintenance of IT systems and company applications. In any case, even if the Greek demo does not include human participants or the use of personal data, it will still comply with the GDPR legislation in the form of Law 4624/2019 ("Data Protection Law") and the law EU 2016/679 ("General Data Protection Regulation").

3.2.3 Portugal

In Portugal, data protection is primarily regulated by the LEI DA PROTEÇÃO DE DADOS PESSOAIS (LPDP)[ix], which translates to the General Personal Data Protection Law. Similar to other European Union countries, Portugal also adheres to the General Data Protection Regulation (GDPR).

The LPDP provides specific details regarding the processing of personal data within Portugal, emphasizing principles akin to the GDPR, such as legality, fairness, and transparency of data processing. Oversight of compliance with data protection laws and handling issues related to the processing of personal data falls under the responsibility of the Portuguese Data Protection Authority, Comissão Nacional de Proteção de Dados (CNPD).

The Portuguese demo (Demo#1) must adhere to both GDPR legislation and the national legislation of LPDP. The LPDP, governed by the CNPD, outlines regulations for processing personal data within Portugal in line with GDPR principles.

3.2.4 Spain

Spain's Data Protection legislation is outlined in the Organic Law 3/2018[x], known as the Protection of Personal Data and Guarantee of Digital Rights. The complete

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under the Grant Agreement No. **101096992**

nomenclature for the current regulation is the Organic Law on the Data Protection and Guarantee of Digital Rights (Ley Orgánica de Protección de Datos y Garantía de Derechos Digitales -LOPDGDD).
The LOPDGDD, enacted on December 5th, 2018, supersedes the former Organic Law 15/1999 on the Protection of Personal Data in Spain. Its primary objective is to align Spanish legislation with European standards, particularly with the General Data Protection Regulation (GDPR) that has been in effect since May 25, 2018. Therefore, when addressing data protection in Spain, the LOPDGDD serves as the reference standard.
This law delineates the requisites and responsibilities concerning data protection for companies, specifying how personal information should be handled, and outlining the rights of users and consumers. In the context of the Spanish demonstration, compliance is mandated with the GDPR legislation as embodied in the Organic Law 3/2018, enacted on December 5.

3.2.5 Switzerland

The Swiss data protection law is applicable to the demonstration case in Switzerland. The most recent version has been in effect since September 2023 and safeguards data linked to natural persons. The law's amendment will become effective on September 1st, 2023, and it applies to both private individuals and federal entities. The LPD[xi] ensures data protection for private individuals and mandates that both private individuals and federal bodies implement measures to protect this data.
While grid operators are permitted to share such data with third parties for processing, this is contingent upon the execution of received data, incorporating measures such as physical access control.
The Swiss Demo (Demo #6) also adheres to Art.21A of the Geneva Constitution, which grants the right to digital integrity. This constitutional provision, effective since July 7th,2023, affords individuals the right to choose whether to maintain digital integrity. It serves to safeguard individuals against improper handling of data in the digital realm, ensuring the right to security in the digital space, the right to shape one's digital identity, and the right to privacy.

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under the Grant Agreement No. **101096992**

4 Ethics Roles

In order for SINNOGENES to protect the data used and the information security aspects as indicated by the respective EU and national legislation, it has established the position of Data Protection Officer (DPO). Taking on this role, Nena Apostolidou (UBE) will also be supported by the UBI Legal Office providing advice on all activities related to legal and political issues that may arise in the project. The Data Protection Officer will directly report to the SINNOGENES General Assembly, and his responsibilities will be to:

- Inform partners on applicable data EU and national protection laws and regulations, especially the General Data Protection Regulation (GDPR) in the European Union.
- Provide consultation and guidance to the partners on data protection matters, ensuring that data protection considerations are taken into consideration into all aspects of the project, and act as a point of contact for data subjects to address their inquiries.
- Provide recommendations to project participants on data protection principles and best practices regarding the use of project communication tools.
- Monitor the project's compliance with applicable legislation and conduct regular checks to ensure that relevant data protection policies and procedures are followed.
- Elaborate on integrating privacy measures into the project's design and default settings.
- Advocate for integrating privacy measures into the project's design and default settings.
- Assist in conducting the Data Protection Impact Assessment (DPIA) as part of T2.3.
- Communicate data protection issues within the project team through the General Assembly (GA).
- Develop and implement procedures for handling data breaches, including notifying the relevant authorities and data subjects in such events.
- Maintain detailed documentation concerning data processing activities, ensuring that records are kept in compliance with data protection laws.

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under the Grant Agreement No. **101096992**

5 Ethics Monitoring

5.1 Ethics Risks Monitoring, Assessment and Management

A formalized procedure for ethics risk assessment, under the auspices of the SINNOGENES DPO, will guarantee compliance with European standards for research ethics. Consequently, as the project progresses, all ethical matters will be addressed in alignment with the established SINNOGENES plan, incorporating the guidelines outlined by the European Data Protection Board (EDPB):

Risks identification

SINNOGENES has already identified key stakeholders, including project team members, participants, and collaborators whose data could be used within the project and assessed the perspectives, concerns and potential ethical issues related to data protection. From the beginning of the project, a periodic and thorough review of all activities is being carried out, with a particular focus on data processing, while documenting the types of data collected, processing methods and potential risks to data subjects. A specific template for ethics risk identification will be used, as can be seen below:

Table 1 Ethics risks identification template

PART 1		
Data processing activity	(*e.g.*: Storage of contact information (names, emails) of people for the purpose of communication activities after their explicit consent to receive such information. This data is collected/stored under the consent of the persons or from already published data. They are used only for purposes related to project communication and not transferred to any third party outside of the consortium for any reason).	
Does it involve processing of personal data?	Y/N	<Brief explanation>
Is there any exception (law) that supports the processing without DPIA?	Y/N/NA	<Brief explanation>
PART 2- ethics risk assessment (only necessary for personal data processing		

This project has received funding
from the European Union's Horizon programme
under the Grant Agreement No. **101096992**

without any exception for DPIA)		
Criterion	**Y/N**	**<Brief explanation>**
1. Evaluation, scoring, profiling, prediction?		
2. Automated decision making?		
3. Systematic Monitoring?		
4. Sensitive data or highly personal data?		
5. Large-scale processing?		
6. Matching or combining datasets?		
7. Vulnerable subjects?		
8. Innovative technology?		
9. Prevents subject from exercising rights?		
PART 3- ethics risk analysis (only necessary if the answer to any of the questions in Part 2 is "YES")		
Analysis	Briefly describe analysis of risks	
DPIA likely to be required?	Y/N	

Part of this effort will also be SINNOGENES Data Protection Impact Assessment (DPIA), which will be realized within T2.3, in compliance with the existing legal framework in the EU, specifically the General Data Protection Regulation (GDPR) and the relevant guidelines specified for the project. Additionally, adherence to the common requirements outlined in the EDPB's Guidelines on Data Protection Impact Assessment (DPIA) is also taken into consideration.
To this end, SINNOGENES has already compiled a document based on "Smart Grid Task Force 2012-14 Expert Group 2[xii]: Regulatory Recommendations for Privacy, Data Protection and Cyber-Security in the Smart Grid Environment" DPIA template targeting the consortium partners. This will be used to identify risks arising out of the processing of sensitive data and minimize these risks as far and as early as possible. This way is expected to ensure a proper preliminary assessment of the

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from the European Union's Horizon programme
under the Grant Agreement No. **101096992**

nature, purpose, and proportionality of the data to be processed in the frame of the project's Use Cases' development and Demonstrators' activities.

Risks Assessment

SINNOGENES has identified risks based on data protection impact and likelihood and assessed the potential impact of each identified risk on data subjects, project objectives and compliance with EDPB guidelines. Specifically, a detailed risk matrix was created for internal use that visually represents the level of data protection risk associated with each identified ethical concern, resulting in a map of risks based on their impact and likelihood.

Monitoring

To monitor data protection compliance, SINNOGENES has defined key indicators and metrics, including data security measures, adherence to data protection principles, and effectiveness of risk mitigation strategies. At the same time, the project DPO is the main point for project members to immediately communicate potential data protection issues, while also being the person responsible for implementing regular audit and reporting mechanisms to ensure ongoing monitoring. SINNOGENES has also established a bi-monthly review of project activities and ethical issues, focusing on data protection in line with EDPB guidelines. These assessments will be integrated into the project's existing ethics deliverables.

Risk Management

SINNOGENES has developed mitigation plans for each identified data protection risk or non-compliance, ensuring alignment with EDPB guidelines. These plans include assigned actions, responsibilities, and specific timelines aimed at reducing or eliminating risks. Assitionaly, comprehensive communication strategies have been established to address data protection concerns with identified stakeholders. Last, in each plenary meeting, the DPO is responsible for implementing a special session for project team members, emphasizing data protection principles, EDPB guidelines, and best practices.

Documentation

SINNOGENES, through the DPO has created an offline repository to document all data protection issues, risk assessments and mitigation strategies. In the same way, the DPO based on regular feedback received from partners, is also responsible for keeping detailed records for accountability and transparency, again in line with the EDPB guidelines. Any knowledge gained from monitoring and managing data protection risks will be used to improve the effectiveness of risk management strategies.

This project has received funding
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under the Grant Agreement No. **101096992**

5.2 Ethical Risks

Table 2 Identification of Ethical Risks

Identified Risk	Impact/Likeliness to occur	Mitigation Plan
Collection and handling of sensitive personal information	High/Low	All original records or data collected from the project activities will be securely and permanently destroyed once they are no longer needed. This destruction will be carried out in strict adherence to the data retention laws and regulations of the country where the information was originally collected, stored, and analyzed. If local laws prohibit the retention of such data beyond a certain period, SINNOGENESwill ensure its timely and compliant disposal.
Unauthorized access leading to data breaches	High/Medium	To mitigate the risk of data security breaches, project partners have implemented robust cybersecurity measures, including the deployment of firewalls and intrusion detection systems. A mandatory practice is in place for partners to conduct regular security audits and vulnerability assessments. Each partner is also required to develop and test a comprehensive incident response plan, ensuring a swift and effective response in the event of a security incident. In addition, the project repository has instituted stringent authorization processes to control access to sensitive data. Regular backups of the repository are performed to safeguard against data loss or corruption. Collectively, these measures contribute to a layered and proactive approach to data security, reinforcing our commitment to maintaining the integrity and confidentiality of project data.
Manipulation or corruption of energy-related data	Medium/Unlikely	To avoid this risk SINNOGENES demo partners will implement strict measures. Checksums and hashing mechanisms will be employed to verify the integrity of the data, ensuring that any unauthorized alterations can be promptly identified. Additionally, a version control system will be established for data repositories, enabling the tracking of changes, and facilitating the restoration of previous versions if needed. Working in collaboration with the Data Protection Officer (DPO), regular validation and audits of data sources will be conducted to ensure accuracy, consistency, and compliance with data integrity standards. This proactive approach aims to maintain the reliability and trustworthiness of the energy-related data throughout the project.

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from the European Union's Horizon programme
under the Grant Agreement No. **101096992**

Ambiguity regarding data ownership and control	High/Unlikely	The project partners have proactively established clear definitions of data ownership and usage rights within the Consortium Agreement and DMP. In the event of a dispute, the project management team, under the auspices of the General Assembly, will implement robust data governance frameworks to regulate access and control. This ensures a structured approach to resolving any ownership-related issues. Furthermore, to provide continuous oversight and address potential data ownership concerns, the Data Protection Officer (DPO) will be assigned a data stewardship role. This role involves actively overseeing and managing data ownership matters, contributing to a comprehensive governance structure. This multifaceted approach aims to prevent and resolve data ownership ambiguities, promoting a transparent and accountable data environment throughout the project.
Insufficient transparency in data processes and decision-making	Medium/Medium	To mitigate the risk of insufficient transparency in data processes and decision-making, all demo partners commit to thorough documentation and transparent communication of data processing methods. This includes providing clear and understandable explanations for decisions driven by data. To further ensure transparency, the scientific coordinator, in collaboration with the Data Protection Officer (DPO), will establish and implement mechanisms for regular audits of data practices. These audits will assess the adherence to transparency standards, identify areas for improvement, and contribute to maintaining a high level of accountability throughout the project. This comprehensive approach aims to foster trust among stakeholders and promote a culture of openness in data-related activities.
Use of IT equipment in demo sites	Low/Medium	The demo partners will leverage their extensive experience and expertise to coordinate and successfully execute the necessary technological installations. This includes ensuring that all equipment is installed with the utmost care and minimal disruption to relevant stakeholders. Importantly, the installation processes will strictly adhere to the legal provisions of each respective country, demonstrating a commitment to compliance and respecting local regulations. Regular communication channels will be established to keep stakeholders informed and address any concerns promptly. This comprehensive approach

This project has received funding
from the European Union's Horizon programme
under the Grant Agreement No. **101096992**

		aims to guarantee the smooth deployment and operation of IT equipment while prioritizing compliance with local laws and minimizing potential disruptions.
Official authorization acquisition	High/Medium	To mitigate the risk of encountering difficulty in obtaining official authorizations, a comprehensive study of local and national legislative constraints has been conducted early in the project, particularly within the scope of Work Packages 1 (WP1) and 2 (WP2). Building upon these insights, the consortium, with a focus on the demonstration partners, will proactively engage with relevant stakeholders. This proactive engagement includes the early notification of stakeholders and the initiation of necessary processes to secure official authorizations. The approach aligns with the provisions outlined in the Data Management and Legal and Ethical Management Plan, ensuring a systematic and compliant strategy for navigating authorization requirements. By integrating these measures into the early stages of the project, the consortium aims to streamline the authorization process and minimize potential delays associated with obtaining official approvals.

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6 Use of Personal Data in SINNOGENES

Interviews

In the context of WP2, WP3, WP4, WP5, and WP6, SINNOGENES partners are involved in conducting interviews with experts, focus groups, workshops, and validation sessions with expert participants. As outlined in the Data Management Plan[xiii] (D1.2), data resulting from these activities, including recordings, protocols, and transcriptions, will not be published as primary data. This decision is driven by paramount concerns for privacy and security.
Given the nature of the data and the potential identifiability of respondents, anonymization is not deemed a suitable alternative due to the risk of re-identification. The sample size allows for potential conclusions about the identity of the respondents. Consequently, the data will not be made publicly available.
An exception is made for using such material for communication purposes, but only under explicit consent from the content owner. In instances where this material is utilized, clear rules and conditions will be articulated, ensuring transparency and respect for individual privacy. In any case, the explicit consent from the data owner will be obtained, clearly detailing the purpose, rules, and conditions of use. Moreover, a mechanism will be in place to promptly remove the material upon the data owner's request, reinforcing SINNOGENES commitment to respecting individual rights and privacy.
Last but not least, through the DPO, SINNOGENES will maintain ongoing ethical oversight, regularly reviewing and updating these practices to ensure alignment with evolving ethical standards, data protection regulations, and best practices. This approach underscores the project's commitment to responsible data management and ethical research practices, prioritizing privacy and security while allowing for controlled and consensual use of interview materials for communication purposes.

SINNOGENES website

SINNOGENES, like all Horizon Europe projects, uses personal data in the context of its website and newsletter subscription. As a result, specific provisions are foreseen regarding all the procedures followed to ensure the rights of data owners, including the Privacy Policy and Cookies, which are covered in the following sections:

- **Description of the type of personal information collected** while visiting the project website and/or when subscribing to the SINNOGENES newsletter is provided.
- **Providing a description of how the collected personal information will be used.** This data will be used only within the framework of the project dissemination and not for any other purpose other than those described in the Privacy Policy without informing and/or obtaining subscribers' consent first, when necessary.
- **SINNOGENES' website will not sell or lease its contact list to third parties.** The project will keep a copy of its contact list on the MailChimp server (http://mailchimp.com) or on a similar service provider, which will be used to distribute newsletters. The data contained in this contact list will be used and protected in accordance with MailChimp's Privacy Policy, Section 12

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(https://mailchimp.com/legal/privacy). Stakeholder lists will only be accessed by the projects' Communications Leader and the DPO.

- **Any personal data provided through the SINNOGENES website in the "contact us" section will only be used for communication purposes and will be stored securely on the** SINNOGENES **website email server**, by UBE Belgium, and only for as long as is necessary to comply with project contractual obligations of the EC and no more than 5 years from the completion of SINNOGENES. In addition, Sinnogenes newsletter subscribers will be able to be removed from the contact list and/or request deletion of their personal information at any time by opting out of the newsletters they receive from the project or through direct communication at info@Sinnogenes.eu.
- **The SINNOGENES website fully complies with the GDPR regulations regarding the rights of data subjects**, including the rights to be informed, to access their information, to modify or delete it, to request limited processing, freedom of transfer, objection and not to be subject to decisions that rely on automated processing. SINNOGENES website visitors and newsletter recipients can exercise these rights by sending a notification to info@Sinnogenes.eu.
- **In the SINNOGENES Privacy and Cookie Policy, detailed information is provided on how a visitor can manage cookies related to their interactions with the SINNOGENES website**. This includes instructions for adjusting his/her browser settings to control or delete cookies. Visitors who have any questions or concerns are asked to refer to the SINNOGENES Privacy and Cookie Policy or contact the site administrator at info@Sinnogenes.eu. Through these options, SINNOGENES intends to ensure that website visitors have the necessary information to make informed decisions about the use of cookies on its website.
- **The project's Privacy and Cookie Policy contains detailed information about the cookies set by Google Analytics or similar tools**. Suppose users prefer not to have their information sent to Google Analytics. In that case, they can exercise their right to opt-out by allowing users to install the Google Analytics Opt-out Browser Add-on. This tool allows users to control their data collection by Google Analytics across all websites. By offering this add-on, Sinnogene's website empowers users to control their data and make decisions aligned with their preferences.

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7 Gender Equality

The SINNOGENES project's discoveries are not anticipated to have varying effects on women and men; all results are projected to be impartial in terms of gender. The partners in the SINNOGENES collaboration highlight the significance of adopting an inclusive and participative strategy to tackle gender disparities. The SINNOGENES consortium is wholeheartedly dedicated to implementing a Gender Equality Plan, aiming to enhance gender balance within the consortium and advocate for gender equality, not just among researchers but also for women engaged as end-users.

Up to this point, women hold pivotal roles in the SINNOGENES Management Structure, including Project Management, Technical Coordination and WP Leaders. Additionally, key project contacts and researchers are female, and there will be a continuous effort to enhance female participation.

Moreover, gender equality will be a focal point in the demonstrations, ensuring an unbiased selection of participants and occupants. This commitment extends to achieving a balanced involvement of keynote speakers and the audience in dissemination events. The Dissemination Management team together with the SINNOGENES DPO will meticulously ensure that system user interfaces and published documents (such as scientific papers) remain free from assumptions or biases related to sex and/or gender.

Within the domain of project activities and management, the partners of the SINNOGENES consortium are dedicated equal opportunity employers, diligently working towards achieving a more equitably balanced representation of both male and female staff members. This commitment extends to fostering workforce flexibility and providing benefits that cater to the needs of all working parents. As monitoring and evaluation are important parts of the process of change, the SINNOGENES DPO will be also responsible for collecting feedback and overseeing evaluation mechanisms of the Gender Equality Plan.

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8 Conclusions

In conclusion, this comprehensive exploration of the ethical and legal dimensions within the SINNOGENES project underscores our unwavering commitment to conducting research of the highest ethical standards and legal integrity. The principles outlined in this report serve as the guiding framework for our project's activities, ensuring transparency, accountability, and respect for the rights and privacy of all stakeholders involved.

As the SINNOGENES project progresses, we recognize the dynamic nature of both ethical considerations and legal landscapes. Therefore, this report is designed to evolve in tandem with the project's advancements. Updates to this documentation will be informed by ongoing ethical assessments, legal developments, and, most notably, the outcomes of the upcoming Data Protection Impact Assessment (DPIA) slated to occur under Task 2.3. The DPIA, a critical milestone in our research journey, will provide invaluable insights into potential privacy risks and mitigation strategies. As we embark on this assessment, we anticipate refining and augmenting our ethical and legal framework based on the DPIA's outcomes and recommendations.

Moreover, the iterative nature of ethical research necessitates continuous vigilance and adaptation. We commit to periodic reviews and updates to this report, incorporating feedback from stakeholders, the DPIA, and any emerging legal or ethical considerations that may arise.

This report, therefore, serves not only as a snapshot of our current ethical and legal standing but as a living document that will grow and adapt to meet the evolving landscape of research ethics and data protection. Through this iterative process, the project aims to uphold the highest standards of ethical conduct and legal compliance, ensuring the success of SINNOGENES while prioritizing the well-being and privacy of all individuals involved.

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