Project title	A new COlloidal cybernetIc sysTem tOwaRds 2030		
Project acronym	COgITOR		
Project number	964388		
Call	FET Open – Novel ideas for radically new Technologies	Call ID	2020-FETOPEN-2018-2019-2020-01
Topic	FET-Open Challenging Current Thinking	Topic ID	FETOPEN-01-2018-2019-2020
Funding scheme	Research and Innovation Action		
Project start date	01/06/2021	Duration	48 months

D6.2 – DATA MANAGEMENT PLAN

Due date	30.11.2021	Delivery date	02.12.2021
Work package	WP6. Dissemination, exploitation and communication activities		
Responsible Author(s)	UWE		
Contributor(s)	All partners		
Version	1.4		

Dissemination level

Please select only one option according to the GA			
☒	PU: Public	☐	PP: Restricted to other program participants
☐	RE: Restricted to a group specified by the consortium	☐	CO: Confidential, only for members of the consortium

Version and amendments history

Version	Date (MM.DD.YYYY)	Created/Amended by	Changes
1.0	07.01.2021	Andrew Adamatzky (UWE)	Creation of the first draft of the document
1.2	07.02.2021	Chiara Zocchi (CTECH)	Revised document
1.3	10.11.2021	Chiara Zocchi (CTECH)	Revised document
1.4	12.02.2021	Alessandro Chiolerio (IIT), Valentina Pasquale (IIT)	Revised and updated document

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List of Abbreviations

ABBREVIATIONS	DEFINITIONS
CTECH-CIAOTECH	CIAOTECH SRL
EMPA	EIDGENOSSISCHE MATERIALPRUFUNGS- UND FORSCHUNGSANSTALT
EU	European Union
H2020	HORIZON 2020
IIT	FONDAZIONE ISTITUTO ITALIANO DI TECNOLOGIA
PLASMACHEM/PC	PLASMACHEM PRODUKTIONS- UND HANDEL GMBH
UWE BRISTOL	UNIVERSITY OF THE WEST OF ENGLAND, BRISTOL
DMP	Data Management Plan
DOI	Digital Object Identifier
EC	European Commission
FAIR	Findable, Accessible, Interoperable, Reusable
MIS	Microwave Impedance Spectroscopy
IR	Infra Red
GDPR	General Data Protection Regulation
NP(s)	Nanoparticle(s)
SNR	Signal to Noise Ratio: relative strength of the signal versus the noise in a physical measure, the higher the SNR the clearer the readings
FHN	Fitz Hugh Nagumo equations, a model used to describe nonlinear diffusion.
CAS	Chemical Abstracts Service, a number to identify a particular chemical species in its specific aggregation / allotropic form.

1 DATA SUMMARY

COgITOR aims to develop a structural computing substrate by using colloid systems, functionalise the substrate with NPs and polymers to make a colloid based soft electronics, implement sensorial fusion and decision making in the colloid electronics.

Objectives

1) creating an impedance liquid state pressure sensor with a SNR of at least 1 and a spatial resolution of at least 5 cm (M18, M24);

2) producing a holonomic reversible memory equivalent to 1 byte written/erased electrically and read by tomographic Microwave Impedance Spectroscopy (MIS); the electrical operation will be used to implement learning (both sequential and concurrent) and calculation, where the system operates as a many-input Boolean circuit; we will develop a custom IC and a µPCB (Dandelium) will be developed to characterize the functional liquid impedance properties, achieving a sufficient accuracy to enable sampling at a speed of at least 1 kS/s (M18, M24);

3) demonstrating the harvesting of energy from a thermal gradient artificially induced by IR heating upon the prototype and generating at least 1 nW/K (M18, M24);

4) integration and testing of the final CCS prototype (M30), assessing self-healing and fault tolerance capabilities, as well as interference, also under EE conditions varying T, p and B (M48);

5) stakeholder survey and analysis of collected data (M12).

Reaching any of these objectives will require generation and/or collection of specific data:

− Protocols of measuring properties of colloid systems (Objective 1);

− Data on experimental laboratory analysis of colloid materials (Objectives 1, 2);

− Chemical data on NPs and polymers used to functionalise the colloid materials (Objectives 2, 4);

− Experimental recording of colloid electrical activity (Objectives 3);

− Simulation output files (Objective 1, 2, 4);

− Analysis of simulation output files (Objective 4);

− Characterization of synthesized NPs and polymers (Objective 4);

− Source code data (Objectives 1-4);

− Blue prints of architectural designs (Objective 4).

− Numerical and statistical analysis (Objective 5).

Table 1   COgITOR Datasets categories

DATASET NAME	DESCRIPTION	PARTNER(S)	DATA TYPE	ACCESS LEVEL	WP	SIZE
Protocols of measuring properties of colloid systems DatasetName: Prot	Information about the experimental setup and the measurement procedures to extract physical properties from the colloid	UWE, IIT, EMPA	Protocol	Open	WP2, WP3, WP4, WP5	10 MB
Data on experimental laboratory analysis of colloid materials DatasetName: ExpColl	Raw data, sorted and adapted data, about all physical measurements performed on colloids	UWE, IIT, EMPA, PC	Vectorial data, matricial data, images	Open / Restricted	WP2, WP3, WP4, WP5	10 TB
Chemical data on NPs and polymers used to functionalise the colloid materials DatasetName: Chem	Molecules and molecular / supramolecular structures	UWE, IIT, EMPA, PC	Drawings and formulas	Open / Restricted	WP2, WP3, WP4	1 GB
Experimental recording of colloid electrical activity DatasetName: Elec	Voltage / current / impedance versus time	UWE, IIT	Vector and matricial data	Open / Restricted	WP3	1 TB
Simulation output files DatasetName: Sim	Finite Element, Finite Difference, Numerical simulations of setups, materials and interacting systems	UWE, EMPA, IIT	Images and matricial data	Open / Restricted	WP3, WP4, WP5	10 TB
Analysis of simulation output files DatasetName: SimOut	Reports about the outcomes of simulation activities	UWE, EMPA, IIT	Text	Open / Restricted	WP3, WP4, WP5	10 MB
Characterization of synthesized NPs and polymers DatasetName: Synth	Chemo-physical properties of materials used to build the liquid cybernetic system	UWE, EMPA, IIT, PC	Raw data (vector, matricial), images, text	Open / Restricted	WP2, WP3, WP4	1 TB
Source code data	Numerical code to perform simulations	UWE, IIT	Code script	Open / Restricted	WP3	100 MB

DatasetName: Source	and to run experiments					
Blue prints of architectural designs DatasetName: Arch	System architecture design	UWE, IIT	Drawings, sketches	Open / Restricted	WP3, WP5	10 GB
Numerical and statistical analysis DatasetName: Stat	Post-experiment statistical analyses	UWE, EMPA, IIT	Vectorial / matricial data and text	Open / Restricted	WP3, WP4, WP5	10 TB

In summary, data collection/generation follows different procedures for each of the proposed objectives and within COgITOR we will create several separate datasets. Since reusability of datasets between different research groups is essential for the success of the project, development of DMP is equally important.

This version of the DMP includes the information available at month 6 that is mainly focused on general data. Information about the other groups of data is briefly described and will be detailed in further versions of the document.

What types and formats of data will the project generate/collect?

● Data from computer models, represented as text, binary or graphics files and videos

● Data from sorption or uptake of NPs and polymers

● Data from measuring electrical activity of fungi

● Measurements in substrates colonized by fungi

● Data on mechanical parameters of fungal materials

● Specifications of architecture designs

● .doc, .ppt, .xls, other depending on the specific used tool for online survey (CSV, PDF, SPSS)

The Open Research Data Pilot applies to the experimental data, including associated metadata, needed to validate the results presented in scientific publications as soon as possible.

According to the "Guidelines on Data Management in Horizon 2020" (2015) the DMP describes the handling of numerical datasets processed or collected during COgITOR lifetime. The DMP includes clear descriptions and rationale for the access regimes that are foreseen for collected datasets.

Formats of the data:

● Data and metadata will be requested, stored and transferred (across partners and in COgITOR) in a comma separated values (CSV) format.

● To facilitate the data exchange, MS Excel compatible files including comma separated and .xls(x) format will be also accepted.

● For statistical purposes, other formats include .sas7bdat (SAS), .RData (R), .SAV (SPSS), .mat (Matlab), .opj and .opje (OriginLab).

● Data formats to describe the metadata information in the dedicated model, e.g. for the repository. This format could be in XML, JSON, YAML, OWL, OWL-S, RDF, Turtle. Common data exchange formats are used for which tool support is available.

● Where applicable data formats may be migrated when new technologies become available and are proved robust enough to ensure digital continuity and continued availability of data

We will follow the following guidelines:

● Guidelines on Data Management in Horizon 2020, Version 2.0, 30 October 2015: http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf

● Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020, Version 2.0, 30 October 2015: http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf

● Webpage of European Commission regarding Open Access: http://ec.europa.eu/research/science-society/open_access

Will we re-use any existing data and how?

Parts of software codes used to simulate FHN equations could be re-used.

What is the origin of the data?

− Written source code;

− Published scientific articles;

− Outputs of in silico experiments;

− Outputs of tools for mathematical analysis;

- − Experimental in vivo and in vitro test;

- − Characterization results of synthesized materials

- − replies to the online survey and questionnaires;

- − data from interviews;

What is the expected size of the data?

● Numerical data related to optimisation c. 250 GB per project's lifetime

● Full history of the interfacial recordings: c. 5 TB

● Videos of the computer models and animation of results: c. 10Tb

The above are estimates, to be evaluated during the course of the project. The expected size depends on the extent and the nature of the data that are made available.

To whom might it be useful ('data utility')?

Data will be mainly useful for the execution of project activities by COgITOR consortium. The "experimental" data might be useful also for:

● European Commission services and European Agencies;

● EU National Bodies;

● The general public including the broader scientific community;

● Private companies working in the field of Artificial Intelligence, Robotics, Automation.

2 FAIR DATA

2.1 MAKING DATA FINDABLE, INCLUDING PROVISIONS FOR METADATA

Are the data produced and/or used in the project discoverable with metadata, identifiable and locatable by means of a standard identification mechanism (e.g. persistent and unique identifiers such as Digital Object Identifiers)?

The general data will be stored, by each responsible partner, following their internal policy guidelines and providing metadata making them discoverable.

All COgITOR generated data, when possible, is stored at Zenodo repository (https://zenodo.org/). Zenodo closely follows FAIR principles:

−   Each uploaded dataset gets DOI;

−   Metadata for individual records are retrievable by their identifier using a standardized communications protocol;

−   Metadata are publicly accessible and licensed under public domain. No authorization is necessary to retrieve it;

−   Metadata use a formal, accessible, shared, and broadly applicable language for knowledge representation

Innovation Place (https://www.innovationplace.eu/) is the project management platform used in COgITOR and accessible only to project beneficiaries. The project private area provides functionality for beneficiaries' management, document repository and collaborative edition, mailing lists, and other tools to ease project management activities, offering as well dedicated views for each type of participant. Further information can be found in Annex 1.

All data, when possible, will be discoverable via metadata provision. All data will be identifiable and referable via standard identification mechanism (DOI). Unique online naming conventions are adopted. The data will be searchable by keywords. Clear versioning will be in place.

What naming conventions do you follow?

To be able to clearly distinguish and identify data sets, each data set is assigned with a unique name. To design the data set names, we use the following procedure:

FieldIdentifier.CountryCode.PartnerName.DatasetName.Date, where

a.   *FieldIdentifier*

b.   The *CountryCode* part represents the country associated with the dataset using ISO Alpha-3 country codes:

      i.   GBF for UK

      ii.   CH for Switzerland

      iii.   IT for Italy

      iv.   DE for Germany

c.   The *PartnerName* part represents the name of the organization associated with the dataset:

      i.   UWE for the University of the West of England Bristol

      ii.   IIT for the Istituto Italiano di Tecnologia

      iii.   EMPA for Swiss Federal Laboratories for Materials Science and Technology

      iv.   PC for PlasmaChem

      v.   CTECH for CiaoTech srl

d.   The *DatasetName* represents the name of the dataset as per previous table

e.   The *Date* represents the date of dataset generation (YYY.MM.DD)

Will search keywords be provided that optimize possibilities for re-use?

Yes. The dataset information will be reported into the metadata fields available in Zenodo (e.g. search dataset by chemical or chemical group, by temporal or spatial coverage of the data, by keywords, etc).

Do you provide clear version numbers?

Yes. The versioning management of the data, metadata template and in general the files stored in the Repository will be applied at two levels:

1.   Via the naming convention and the use of the date as suffix, indicating the last version of the file uploaded into the Repository;

2.   As capabilities of the Zenodo Repository sets up for the project, since the solution supports the simple version control system for the uploaded files

What metadata will be created?

We will adopt a metadata scheme used to describe monitoring of chemical data collections, e.g.:

chemical occurrence data collected as a result of legal obligations on ad hoc or regular basis for reporting /monitoring at European or national levels, where possible we will stick to the well known CAS number;

data generated as a result of targeted research on the presence of known or unknown chemical substances in specific media in a European country/region.

Metadata is compliant with two European metadata standards, namely:

1. INSPIRE metadata elements for spatial data sets and services (see these elements in the INSPIRE Metadata Regulation: http://data.europa.eu/eli/reg/2008/1205/oj#d1e600-14-1)

2. The "DCAT application profile for European data portals" (DCAT-AP), developed in the framework of the EU ISA Programme.

The European Data Portal is implementing the DCAT-AP as the common vocabulary for harmonising descriptions of datasets harvested from several data portals of 34 countries. The DCAT-AP specification is available at: https://joinup.ec.europa.eu/asset/dcat_application_profile/

2.2 MAKING DATA OPENLY ACCESSIBLE

Which data produced and/or used in the project will be made openly available as the default?

When no embargo period applies, datasets supporting publications will be made openly available by default. Only data gathered by partners outside of the project work plan and protected by IPR, or inside the work plan but containing confidential information (e.g. related to personal interviews) will be kept closed for privacy reasons. Personal data processed in the project are not made publicly accessible but kept closed and inaccessible to third parties.

● Material science data on nanoparticles

● Results of computer modelling

● Optimisation analysis and results

● Results of experimental laboratory trials

The dataset will be as open as possible and as closed as necessary, according to the EC regulations.

How will the data be made accessible (e.g. by deposition in a repository)?

All generated datasets within COgITOR will be uploaded to Zenodo repository (https://zenodo.org/).The data sharing should occur in a timely fashion. This means that the data resulted from the research conducted in the project should become available close to the project results themselves. Furthermore, it is reasonable to expect that the data will be released in waves as they become available or as main findings from waves of the data are published.

For the duration of the project, personal data will be stored on local secured server of:

• CTECH: for all data related to documents generated within the project and personal data of beneficiaries involved (people associated with mailing lists). Data is stored on Innovation Place (see annex 1 for more details); it is responsible for the website hosting, dissemination/communication actions and management of people registered through the COgITOR website (see annex for more details).

IIT: it is co-responsible with CTECH for the dissemination/communication actions.

What methods or software tools are needed to access the data?

Since Zenodo stores data as publicly accessible, the only requirement is internet access. With regards to open software, all the data needed to create and maintain the marketplace is being made openly accessible through the GitHub repository, along with the corresponding technical documentation.

Is documentation about the software needed to access the data included?

No documentation is required. Online help provided with existing browsers is sufficient.

Is it possible to include the relevant software (e.g. in open source code)?

Software will be shared via GitHub, which is directly linked with Zenodo.

Where will the data and associated metadata, documentation and code be deposited?

The consortium agreed to deposit the data generated by the project in Zenodo, publications in arXiv, and software in GitHub unless for a specific project there is a subject specific repository that is considered more relevant.

Have you explored appropriate arrangements with the identified repository?

Yes, the arrangement was tested by the UWE, IIT, and EMPA in their other projects.

If there are restrictions on use, how will access be provided?

There are no restrictions on us. To access data no registration at arXiv, Zenodo or GitHub is required. Access to Innovation Place is controlled by CTECH. Only the project coordinator can accept the requests to be linked to the management area of the project. Only the coordinator can manage the users appointed to the mailing lists.

Is there a need for a data access committee?

There is no need for a data access committee because sharing of data is agreed straightforwardly.

Are there well described conditions for access (i.e. a machine readable license)?

Potential users will find out about the data through publications and the website. Data free from IPR issues as per discussion at consortium level will be made available on publication of the associated paper and will be made accessible on request.

How will the identity of the person accessing the data be ascertained?

The identity of the person accessing the date will not be ascertained because their access is anonymous.

2.3 MAKING DATA INTEROPERABLE

Are the data produced in the project interoperable, that is allowing data exchange and re-use between researchers, institutions, organisations, countries, etc. (i.e. adhering to standards for formats, as much as possible compliant with available (open) software applications, and in particular facilitating re-combinations with different datasets from different origins)?

All data produced will have transparent formats: publications in PDF, compute code in Python/C++/Processing/Java, results of numerical simulation in CSV, animations and videos in AVI/MP4. Data from the survey in .doc, .ppt, .xls, other depending on the specific used tool for online survey (CSV, PDF, SPSS).

What data and INSPIRE/DCAT vocabularies, standards or methodologies will you follow to make your data interoperable?

Other types of data have been registered following internal codifications, clearly specified within the file.

In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?

Not applicable.

2.4   INCREASE DATA RE-USE (THROUGH CLARIFYING LICENCES)

How will the data be licensed to permit the widest re-use possible?

The deliverables associated with the dataset are licensed through an "All rights reserved" license as they are working papers not intended to be reused. Nevertheless, the dataset should be shared as a possible reusable dataset. For this reason, when deposited into the repository, a Creative Commons Attribution-Non Commercial license (CC BY-NC 4.0) will be attached. The data will be made available for re-use from the project website and will also be findable and reusable through the final depositing repository (the institutional one www.cogitor-project.eu or Zenodo) and from OpenAire, at the latest by the end of the project.

All Personal Identifiable Information will be restricted to internal usage and not going to be shared with third parties.

When will the data be made available for reuse?

Each dataset will be made available for reuse within 12 months after generating it.

GDPR will be followed for all data collected and managed in the project.

Are the data produced and/or used in the project usable by third parties, in particular after the end of the project?

Each archived dataset will have its own persistent DOI and will be easily accessible. We expect most of the data generated to be made available without restrictions and only datasets subject to IPR and confidentiality issues will be restricted. Where this is going to be the case, agreements will be made based on the individual data sets. Requests for the use of the data by externals will be approved by the project consortium.

How long is it intended that the data remains re-usable?

Data and metadata will be retained for the lifetime of the Zenodo repository. This is currently the lifetime of the host laboratory CERN, which currently has an experimental programme defined for the next 20 years at least.

Are data quality assurance processes described?

The data quality is ensured by different measures. These include validation of the sample, replication and comparison with the results of similar studies and control of systematic distortion.

3   ALLOCATION OF RESOURCES

What are the costs for making data FAIR in your project?

Exact costs estimated will be known and adjusted dynamically during the project's lifetime.

How will these be covered?

The costs for depositing the dataset with the project, and subsequent resources required to make the dataset publicly available have been included within specific WPs within the project.

CTECH will manage the project management platform "Innovation Place" (as well as its own IT licenses rooms). The maintenance of such repositories is included into the budget of CTECH and thus secured.

Possible additional fees for open access will be made available by the partners concerned and they have been included into the project budget as well.

Who will be responsible for data management in your project?

Each partner in the consortium is responsible for their data management in the project.

Are the resources for long term preservation discussed (costs and potential value, who decides and how what data will be kept and for how long)?

Due to the data being shared via public repositories, the preservation beyond the lifetime of the project does not involve any costs within small datasets (< 100 MB).

Each beneficiary leading Work Packages is responsible for preparing the datasets to make FAIR the data collected within its own activities, provided that IIT, as Project Coordinator is co-responsible for general coordination and supervision.

Furthermore, consortium partners have the responsibility to make sure their activities are in line with all applicable local, government and international laws, regulations and guidelines.

4   DATA SECURITY

What provisions are in place for data security (including data recovery as well as secure storage and transfer of sensitive data)?

Due to the data volume, most websites also hold a copy of their own processed data, effectively acting as a second distributed database and additional backup. One such example is ResearchGate, the professional network used by scientists that can store privately / publicly a copy of the papers.

Is the data safely stored in certified repositories for long term preservation and curation?

The digital signature of the whole dataset, or the storage of the dataset in a git repository could provide support for the correct duplication and preservation.

Document management System (Innovation Place): CTECH is responsible for the management of Innovation Place. The platform works under secure connection using SSL (Secure Sockets Layer) protocol; it stands on a dedicated machine not accessible from other applications or domains, and

production and management process of the platform are certified with ISO 27001 and ISO 9001:2015.

5 ETHICAL ASPECTS

Are there any ethical or legal issues that can have an impact on data sharing?

The ethical aspects related to the personal data collected in this dataset are addressed in the Ethics Requirements document of the original proposal. Regarding the protection of personal data of the research participants, the Consortium will meet the following conditions:

- To submit to the REA the copies of ethical approvals for the collection of personal data by each of the competent University Data Protection Officers or National Data Protection authorities.

- To justify (if necessary) the collection and/or processing of personal sensitive data.

- To follow and accomplish the national and EU legislation on the procedures that will be implemented for data collection, storage, protection, retention and destruction.

Is informed consent for data sharing and long term preservation included in questionnaires dealing with personal data?

Not applicable in this project.

6 OTHER ISSUES

Do you make use of other national/funder/sectorial/departmental procedures for data management? If yes, which ones?

We are not following other national/funder/sectorial/departmental procedures.

ANNEX 1. INNOVATION PLACE PRIVACY POLICY

Knowledge, expertise and trust are crucial pillars of the service of PNO Consultants and the other group companies affiliated to the PNO Group holding B.V. We are committed to giving you clarity on how we handle your personal data. PNO operates under the names PNO Consultants, CiaoTech, PNO Participation, PNO Innovation, PNO GrantTools, ffiqs, ttopstart, INNFLOW, Nehem, EGEN, InventiveNL and ARTTIC. In this Privacy

Statement we inform you about our approach to handling and processing of personal data.

Rijswijk, June 1st, 2019.

1. Contact details

PNO Group holding B.V. (PNO Consultants/PNO) is the controller and is located at Laan van Zuid Hoorn

15, 2289 DC in Rijswijk. You can contact us by at +31 (0) 88-838 13 81, by e-mail at gdpr@pnoconsultants.com.

2. Who is this Privacy Statement applicable to?

This Privacy Statement applies to all persons whose personal data PNO processes, with the exception of persons working at PNO. Personal data means any data that contains information about persons through which those persons are identifiable.

This Privacy Statement applies to:

• clients of PNO,

• potential clients with whom PNO has made or wants to make contact,

• visitors to the website of PNO,

• recipients of newsletters and commercial e-mails from PNO, and

• any other person who contacts PNO or whose personal data is processed by PNO.

This Privacy Statement does not apply to employees, temporary workers, temporary workers, student trainees and applicants.

3. WHICH PERSONAL DATA DO WE PROCESS?

By processing personal data we mean: collecting, recording, organising, storing, updating, modifying, retrieving, consulting, using, providing by means of forwarding, distribution or any other form of posting, bringing together, linking together, and to protect, erase or destroy your personal data.

We process personal data that you have provided to us, personal data generated during your visit to our website and reading newsletters and personal data that we have derived from other sources, such as business social media platforms and business cards.

Personal information provided by you:

● contact details and other personal data needed to handle your assignment by a consultant,

● contact details and other personal data entered on contact forms or other web forms, and

● contact information provided during introductory talks, events, seminars, etc., such as information on business cards.

Personal data obtained through- or generated by our website, electronic newsletters, commercial e-mails or related technologies:

● IP number,

● your surfing behavior on the website, such as data about the first visit, previous visit and current visit, the pages viewed and the way in which the website is navigated, and

● whether you open a newsletter or commercial e-mail and on which parts you click.

See our cookie policy.

Personal data obtained from other sources:

● personal data available on public business social media platforms such as LinkedIn,

● personal data obtained from the Trade Register of the Chamber of Commerce, and

● personal data available on public business websites.

Our website may contain hyperlinks to websites of other parties and 'social media buttons'. Nor is PNO responsible for the content of those websites or the services of referred platforms. Neither is PNO responsible for the privacy policy and the use of cookies on those websites and platforms.

4. WHAT DO WE USE YOUR PERSONAL DATA FOR?

We use your personal data for different purposes. These are listed and elaborated on below:

● The execution of a contract in which you have engaged us for the purpose of delivering innovation and financial consulting services by our consultants.

If you hand over an assignment to a consultant your contact details will be requested. Other personal data may also be necessary for the handling of the assignment, depending on the nature of the assignment. Furthermore, the data is used for invoicing for the services provided.

● Compliance with legal obligations.

● Maintaining contact with you.

Your contact data are kept in EU located relationship management system and may be used for the purpose of sending newsletters, updates, invitations to events and seminars and sending information you requested from us.

● Improving our product and service information and carrying out targeted marketing campaigns.

Part of our service is to keep you informed with information that is relevant to you and your business. To make this possible, we combine and analyse the personal data available with us. On that basis we determine which information and channels are relevant and which moments are most suitable for providing information or establishing contact. In marketing campaigns we do not process special personal data nor confidential data. If we would like to create a personal, individual customer profile, we will ask for your prior permission. Withdraw of consent is always possible.

We analyse the following information:

● Interaction data: Obtain personal data and contact between PNO and you. For example about your use of our website or supported applications. This also applies to offline interactions, such as how often and when there is contact between PNO and you.

● Behavioral data: Personal data that PNO processes about your behavior, such as your preferences, opinions, wishes and needs. We can derive this data from your surfing behavior on our website, reading our newsletters or by requesting information. But also through contact, incoming telephone calls and e-mail contact with our employees. Information obtained through tracking cookies, we collect and use only with your permission, which you can always withdraw. See our cookie policy.

● Performing and analysing research on client satisfaction.

● Sometimes we ask clients to cooperate in a client satisfaction survey. This is done through an online questionnaire. Participation is voluntary. Prior to each client satisfaction survey you will receive further information about the working method and the way we deal with the information gathered.

● Improving and securing our websites like www.pnoconsultants.com.

● Creating user statistics. The user statistics of the website enable us to track the number of visitors, the duration of the visit, which parts of the website are being viewed and the click-behavior. It concerns generic reporting, without information about individuals. We use the information obtained to improve the website.

● Access control and company security.

● If you visit our office, we will note your name on arrival. In addition, camera images may be made on the outside of the office, at the reception desk and at the entrance to the meeting rooms. We do this to know in case of emergencies who is in the building and to ensure that unauthorised people do not have access to the office. Camera images are in principle destroyed after 10 working days.

5. SECURITY LEVEL

We protect personal data through technical and administrative security measures to minimise the risk of loss, misuse, unauthorised access, disclosure and modification. You can think of security software such as a virus scanner and firewalls, a secure internet connection, encryption of data and physical and administrative access controls to data and servers. The PNO IT and HR department are ISO 27001 certified for the ffiqs processes where PNO processes large volumes of data.

6. STORAGE OF PERSONAL DATA

We do not store your personal data for longer than is strictly necessary for the execution of the purposes. If legal regulations apply to the storage, the personal data will not be kept longer than prescribed by law.

7. LEGAL BASIS OF THE PROCESSING

We process personal data on the basis of one of the following legal grounds:

● permission,

● on the basis of an agreement or in the run up to the conclusion of an agreement,

● legal obligation,

● in connection with a legitimate interest.

A controller may only process personal data if this can be based on one of the limitative enumerated legal grounds in the General Data Protection Regulation (AVG). The legal bases on which PNO Consultants relies are:

● Permission: If we have requested your permission to process your personal data and you have given this permission, then you also have the right to withdraw this consent.

● Agreement or in the run up to the conclusion of an agreement: If you give us an assignment to provide innovation or financing consultancy services, we process personal data if and insofar as this is necessary for the execution of the assignment.

● Legal obligation: We only provide personal data to supervisors of investigative authorities if this is legally required. We will take measures in such cases that are reasonably necessary to ensure that your personal data is protected as good as possible.

● Justified interest: We may also process personal data if we have a legitimate interest and do not therefore disproportionately infringe your privacy. For example, we use your contact information to invite you for seminars and events.

8. PROCESSORS

We may use service providers (processors) for the processing of your personal data that only process personal data in our order. We conclude a processor agreement with these processors that meets the requirements set by the General Data Protection Regulation (AVG).

For example, we work with service providers that offer SaaS solutions (software as a service) or provide hosting services. Furthermore, there are ICT service providers who offer us support in keeping our systems safe and stable. We also use third-party services for sending newsletters and commercial e-mails. These are examples of parties that can be designated as (sub) processors as referred to in the General Data Protection Regulation (AVG).

9. SHARE PERSONAL DATA WITH THIRD PARTIES

Sometimes it is necessary to share your personal data with third parties, which – depending on the circumstances of the case – are necessary in the handling of your dossier. We also share a basic set of contact details with our subsidiaries within Europe with the aim of generating consultancy opportunities. There are also legal obligations that lead to personal data being passed on to third parties.

In the following cases personal data will be provided to third parties:

● When processing a dossier, it may be necessary to share your personal data with third parties. For example in probing or asking for funding to a government, or the conclusion of an agreement with further parties.

● If a court decision obliges us to provide personal data to third parties, we will have to comply with this.

● Your personal data will not be shared with third parties for commercial purposes. There is one exception to this. Sometimes we organise a joint activity with another organization, such as an event or seminar. In that case, only the necessary contact details are exchanged.

● Personal data can also be provided to third parties, in the event of a reorganisation or merger of our company or sale of (a part of) our company.

We never sell your personal data to third parties and do not make automated decisions that could have significant consequences for you.

10. TRANSFER OUTSIDE THE (EUROPEAN ECONOMIC AREA) EEA

Under the General Data Protection Regulation (AVG), personal data may only be passed on to parties outside the EEA when an appropriate level is guaranteed for the protection of the personal data or when a specific deviation applies.

We may pass on personal data to a party outside the EEA when necessary for the execution of the contract on provision of innovation- or financing consultancy services.

11. IF YOU HAVE QUESTIONS ABOUT YOUR PERSONAL DATA

Every person can exercise certain rights with respect to his or her personal data on the basis of the law. This gives you the right to inspect, rectify and delete personal data. You can also object to the use of your data or request that the use is restricted. In certain cases you can request your data and take it to another party. For all these questions contact us on +31 (0) 88-838 13 81 or by email via gdpr@pno.group

12. COMPLAINTS

If you have complaints about how we handle your personal data, you can contact us by sending a mail to gdpr@pno.group or call +31 (0) 88-838 13 81. We are happy to help you find a solution within a period of four weeks after receiving your request. If that does not work, you can always contact the Dutch Data Protection Authority.

13. CHANGES

Developments go fast and as a result, there may also be changes in the personal data we request from you and the way in which we use your personal data. Regulations can also change. In that case, we will update this Privacy Statement. We therefore invite you to regularly check the Privacy Statement so that you are kept informed. In the event of major changes, we will also make you aware of this via our website.

Last check by DPO, March 1st, 2021

ANNEX 2.   COGITOR WEBSITE PRIVACY POLICY

The complete Privacy Policy on COgITOR website can be found at this link:
https://www.cogitor-project.eu/privacy-policy/

Newsletters

If you want to receive the newsletter offered on the website, we need your e-mail address and information that allows us to verify that you are the owner of the e-mail address and agree to receive the newsletter are, further data are not collected or only on a voluntary basis. We use this data exclusively for the delivery of the requested information and do not pass it on to third parties. The processing of the data entered into the newsletter registration form takes place exclusively on the basis of your consent (Art. 6 (1) lit. GDPR). The granted consent to the storage of the data, the e-mail address and their use for sending the newsletter can be revoked at any time, for example via the "unsubscribe" link in the newsletter. The legality of the already completed data processing operations remains unaffected by the revocation. The data deposited with us for the purpose of obtaining the newsletter will be saved by us from the newsletter until your cancellation and will be deleted after

cancellation of the newsletter. The legal basis for this is Art. 6 Para. 1 lit. a) GDPR.

You may revoke your prior consent to receive this newsletter under Art. 7 Para. 3 GDPR with future effect. All you have to do is inform us that you are revoking your consent or click on the unsubscribe link contained in each newsletter.

Contacting Us

On our website, we offer you the opportunity to contact us, either by email and/or by using a contact form. In such an event, the information provided by the user is stored for the purpose of facilitating communications with the user. No data is transferred to third parties. Nor is any of this information matched to any information that may be collected by other components of our website. The legal basis for this data processing is Art. 6 Para. 1 lit. b) GDPR.

Your data will be deleted once we have fully answered your inquiry and there is no further legal obligation to store your data, such as if an order or contract resulted therefrom.

Twitter

We maintain an online presence on Twitter to present our company and our services and to communicate with customers/prospects. Twitter is a service provided by Twitter Inc., 1355 Market Street, Suite 900, San Francisco, CA 94103, USA.

We would like to point out that this might cause user data to be processed outside the European Union, particularly in the United States. This may increase risks for users that, for example, may make subsequent access to the user data more difficult. We also do not have access to this user data. Access is only available to Twitter. Twitter Inc. is certified under the Privacy Shield and committed to adhering to European privacy standards:

https://www.privacyshield.gov/participant?id=a2zt0000000TORzAAO&status=Active
The privacy policy of Twitter can be found at https://twitter.com/privacy .

LinkedIn

We maintain an online presence on LinkedIn to present our company and our services and to communicate with customers/prospects. LinkedIn is a service of LinkedIn Ireland Unlimited Company, Wilton Plaza, Wilton Place, Dublin 2, Ireland, a subsidiary of LinkedIn Corporation, 1000 W. Maude Avenue, Sunnyvale, CA 94085, USA.

We would like to point out that this might cause user data to be processed outside the European Union, particularly in the United States. This may increase risks for users that, for example, may make subsequent access to the user data more difficult. We also do not have access to this user data. Access is only available to LinkedIn. LinkedIn Corporation is certified under the Privacy Shield and committed to comply with European privacy standards.

https://www.privacyshield.gov/participant?id=a2zt0000000L0UZAA0&status=Active

The LinkedIn privacy policy can be found here: https://www.linkedin.com/legal/privacy-policy .

Use of YouTube on our Website

We may use YouTube on our website. This is a video portal operated by YouTube LLC, 901 Cherry Ave, 94066 San Bruno, CA, USA, hereinafter referred to as "YouTube". YouTube is a subsidiary of Google LLC, 1600 Amphitheatre Parkway, Mountain View, CA 94043 USA, hereinafter referred to as "Google". Through certification according to the EU-US Privacy Shield4 Google and its subsidiary YouTube guarantee that they will follow the EU's data protection regulations when processing data in the United States.

We use YouTube in its advanced privacy mode to show you videos. The legal basis is Art. 6 Para. 1 lit. f) GDPR. Our legitimate interest lies in improving the quality of our website. According to YouTube, the advanced privacy mode means that the data specified below will only be transmitted to the YouTube server if you actually start a video.

Without this mode, a connection to the YouTube server in the USA will be established as soon as you access any of our webpages on which a YouTube video is embedded. This connection is required in order to be able to display the respective video on our website within your browser. YouTube will record and process at a minimum your IP address, the date and time the video was displayed, as well as the website you visited. In addition, a connection to the DoubleClick advertising network of Google is established.

If you are logged in to YouTube when you access our site, YouTube will assign the connection information to your YouTube account. To prevent this, you must either log out of YouTube before visiting our site or make the appropriate settings in your YouTube account.

For the purpose of functionality and analysis of usage behaviour, YouTube permanently stores cookies on your device via your browser. If you do not agree to this processing, you have the option of preventing the installation of cookies by making the appropriate settings in your browser. Further details can be found in the section about cookies above.

Further information about the collection and use of data as well as your rights and protection options in Google's privacy policy found at https://policies.google.com/privacy .

Social Media Links Via Graphics

We also integrate the following social media sites into our website. The integration takes place via a linked graphic of the respective site. The use of these graphics stored on our servers prevents the automatic connection to the servers of these networks for their display. Only by clicking on the corresponding graphic will you be forwarded to the service of the respective social network. Once you click, that network may record information about you and your visit to our site. It cannot be ruled out that such data will be processed in the United States.

Initially, this data includes such things as your IP address, the date and time of your visit, and the page visited. If you are logged into your user account on that network, however, the network operator might assign the information collected about your visit to our site to your account. If you interact by clicking Like, Share, etc., this information can be stored your user account and possibly posted on the respective network. To prevent this, you need to log out of your social media account before clicking on the graphic. The various social media networks also offer settings that you can configure accordingly.

The following social networks are integrated into our site by linked graphics:

Twitter
Twitter Inc., 795 Folsom St., Suite 600, San Francisco, CA 94107, USA
Privacy Policy: https://twitter.com/privacy
EU-US Privacy Shield: https://www.privacyshield.gov/%E2%80%A60000TORzAAO&status=Active

LinkedIn

LinkedIn Ireland Unlimited Company, Wilton Plaza, Wilton Place, Dublin 2, Ireland, a subsidiary of LinkedIn Corporation, 1000 W. Maude Avenue, Sunnyvale, CA 94085 USA.
Privacy Policy: https://www.linkedin.com/legal/privacy-policy
EU-US Privacy Shield:
https://www.privacyshield.gov/participant?id=a2zt0000000L0UZAA0&status=Active

Google ReCAPTCHA and analitycs

https://www.google.com/recaptcha/about/

reCAPTCHA uses an advanced risk analysis engine and adaptive challenges to keep malicious software from engaging in abusive activities on your website. Meanwhile, legitimate users will be able to login, make purchases, view pages, or create accounts and fake users will be blocked.

https://developers.google.com/analytics/resources/concepts/gaConceptsTrackingOverview

Google Analytics works by the inclusion of a block of JavaScript code on pages in your website. When users to your website view a page, this JavaScript code references a JavaScript file which then executes the tracking operation for Analytics. The tracking operation retrieves data about the page request through various means and sends this information to the Analytics server via a list of parameters attached to a single-pixel image request. Because your website configuration and reporting needs might differ from a standard setup, it's a good idea to understand the general tracking process to ensure that your reports deliver data as you expect. In this way, you can decide how to configure Analytics tracking to best suit your own website.

Copy of cookie policy on the COgITOR website

This policy covers the use of information collected by PNO during your website visit.

Rijswijk, June 1st, 2019

What is a "cookie"?

A "cookie" is a text file containing small amounts of information which downloads to your personal computer or mobile device when you visit a website. Cookies are useful because they allow a website to recognise a user's device. You can find more information about cookies at: www.allaboutcookies.org and www.youronlinechoices.com. Various types of cookies facilitate you navigate between different pages on a website efficiently, remembering preferences you gave while visiting a website, and improving overall user experience. Others are used to provide you with advertising tailored to your interests or to measure the number of site and page visits.

Session based versus Persistent cookies

Some cookies are installed only for the duration of your visit to a website; these are called session based cookies. They automatically expire when you close your browser. Another type of cookie would remain on your device for a period of time. These are known as persistent cookies. The cookies used on this site are based on the International Chamber of Commerce guide for cookie categories:

1.   Strictly necessary
2.   Performance
3.   Functionality
4.   Targeting

Types of cookies PNO uses

1. Strictly necessary cookies. These cookies enable services you have specifically asked for. For those types of cookies that are strictly necessary, no consent is required. These cookies are essential in order to enable you to move around the website and use its features, such as accessing secure areas of the website. For example these cookies will:

●   remember information you've entered on forms when you navigate to different pages in a single session, and

●   identify you as logged in to the website.

These cookies don't gather any information about you that could be used for marketing or remembering where you've been on the internet. These cookies are not used to gather information that could be used to advertise products or services to you or remember your preferences or username beyond your current

visit. Accepting these cookies is a condition of using the website, so if you disable these cookies we cannot guarantee or predict how our website will perform during your visit.

2. Performance cookies collect information about how you use our website e.g. which pages you visit, and if you experience any errors. We use them only to improve our site or measure response rates. All information collected by these cookies is anonymous and does not in any way impact your privacy. We need to use them to maintain our site's effectiveness and ease of use and to improve how our website works, understand what interests our users or measure how effective certain features of our website are.

For example we use these to provide statistics on how our website is used. We do not pass this information to anyone. We also use performance cookies to help us improve the website by measuring any errors that occur or test different designs of our website.

In some cases, some of these cookies are managed for us by third parties. Where cookies are managed by third parties, any data may be used by such third parties but all data is collected and used in aggregated anonymised form.

Using our site indicates that you accept the use of 'Performance' cookies. Accepting these cookies is a condition of using the website, so if you prevent them we cannot guarantee how our site will perform for you.

3. Functionality cookies are used to provide services or to remember settings and choices you make to improve your experience during your visit. For example, these cookies will:

● show you when you are logged into the website,

● remember your login details,

● remember the settings you've applied such as preferences,

● remember whether we've already asked you if you want to fill in a survey, and

● measure traffic received from various websites.

Functionality cookies collect non-identifiable data. No personal details are stored in this process and the information collected is only used in aggregate. We sometimes share some of the information with partners to provide a service on our website. In addition, some of these cookies are managed for us by third parties. In any case, the information shared or collected by third parties is only to be used to provide the service, product or function and not for any other purpose.

We will only collect functionality cookies based on your selection. If you accept the use of cookies we will store this information in a cookie named 'cookiesettings'.

4. Targeting cookies are used to deliver PNO content more relevant to you and your interests. They are also used to limit the number of times you see, as well as help measure the effectiveness of, PNO marketing campaigns.

Browser settings

Cookies can also be removed from your device using browser settings but there will still be some deterioration in the service you receive (for example you may not be able to access a page you earlier personalised).

Your browser lets you choose whether to accept, not to accept or to be warned before accepting cookies. Settings can be found in the advanced preferences.

If you delete all your cookies and when you use a different device, computer profile or browser you will have to tell us your preferences again.

This policy applies to the domain pnoconsultants.com and pno.group. However other PNO websites may contain policies which are different from this one. If you visit other PNO websites please check the cookies policy of the site you visit.

We cannot be responsible for the policies and practices of other websites even if you:

- accessed the third party website using links from our website, or
- linked to our website from a third party website.

We recommend that you check the policy of each linked site you visit and contact the owner or operator of that website if you have any concerns or questions.
For more information about our policy, please contact marketing@pnoconsultants.com .

Last check by DPO, March 1st, 2021