Attachment 1

FRAMEWORK TECHNICAL - SCIENTIFIC REPORT OF THE IMPLEMENTING ENTITY

Funded by the European Union NextGenerationEU
Ministero dell'Università e della Ricerca
Italiadomani PIANO NAZIONALE DI RIPRESA E RESILIENZA

NATIONAL RECOVERY AND RESILIENCE PLAN (NRRP) – MISSION 4 COMPONENT 2 INVESTMENT 1.1 – "Fund for the National Research Program and for Projects of National Interest (NRP)"

INTRODUCTION

The Technical-Scientific Report is produced by the *Principal Investigator*, on the basis of a discussion with each local manager for the purposes of collecting data and documenting the progress of each operational unit. It is then submitted according to deadlines envisaged in the related notification.

The Report is composed of the following sections:

SECTION 1 – GENERAL TRENDS OF THE PROJECT, where information on the general trends of the projects are included by making reference to the achievement of intermediate and long-term goals, to the compliance with the project activities, to the *DNSH* and *Open Access* principles as per the approved project.

SECTION 2 – PROGRESS OF ACTIVITIES, which entails the description of carried out activities based on the details provided by the operational units involved in the implementation of the project during the collaboration period. It also includes the description of future activities, potential publications and challenges encountered as well as actions for improvement. This, in order to guarantee the achievement of goals that have been established when the financed project was presented.

SECTION 3 – COMMON INDICATORS, where EU common indicators connected to the specific investment should be enhanced.

SECTION 4 – PREDICTIVE ANALYSIS AND FINAL COMMENTS, regards the forecast scenario on the development of the project and final comments.

The hereby provided scheme will also be used when presenting the final results of the implemented activities within the project financed by the Ministry.

SECTION 1 – GENERAL TRENDS OF THE PROJECT

With regard to the activities completed during the project's duration, it is below provided:

a) a brief summary of the project;

Trajectories are paths followed by objects in motion through space, as functions of time. Our senses continuously detect and interpret trajectories for surviving in environments populated by human, animal, and artificial moving agents. In general, trajectories unfold in space and time, with possible degenerate cases when one of the two domains is collapsed to a single point in space or time. The project was aimed at providing consistent representations of trajectories at different scales of the egocentric space, through a variety of technological means that exploit the different senses at the scale they are most effective.

The consortium identified a paradigm, called TickTacking, for the production and perception of multisensory trajectories, as a testbed for addressing the research questions (RQ) of the project. TickTacking involves multisensory feedback and allows studying possible mappings of the primitives of trajectories in one modality to those of trajectories in another modality (RQ1). It sheds light on whether multisensory rendering helps solve perceptual ambiguities and disentangle crossing trajectories (RQ2). It is suitable for model-based automatic control, that could be instrumental for the realization of machine tutoring (RQ3). As a novel way to control the trajectory of a moving object, TickTacking proved to be ideal for experiments aimed at investigating how people learn to perform a motor task (de novo learning). It supports experiments to investigate whether the multisensory and multiscale rendering of trajectories can give measurable advantages in sports training, rehabilitation, and navigation help for sensory-impaired people (RQ4).

Main achievements over the project's duration:

- Adoption of rhythmic control of planar trajectories as a common research framework, to study both individual and cooperative human performance and learning, and to develop machine models that can be used to predict trajectories and assist human learning and performance.

- Development of machine learning techniques in a variety of contexts of application of human trajectories. Model predictive control and imitation of human-like trajectories in target tracking.

- Design and conduction of experiments to measure human abilities to perceive, learn, and perform trajectories through minimal rhythmic interfaces, in both individual and cooperative/competitive configurations.

- Design and development of systems for trajectory-based visualization and control of rhythms.

b) names of the operational units involved in the implementation of the project;

UNIMI: Università degli Studi di Milano (reallocated from University of Palermo)

UNIGE: Università degli Studi di Genova

IMT: Scuola IMT Alti Studi Lucca

UNIVR: Università degli Studi di Verona

c) description of the achievement of the objectives connected to the project and related outcomes;

Research objective RO1 (*Apply experimental phenomenology at proximal, peripersonal, and public scales of visual, auditory, and tactile trajectory production, to derive cross-sensory mappings that are perceptually consistent. Iterate the sensory translation process to derive supramodal trajectory invariants. Assess the mappings through controlled experimentation, for both single and multiple trajectories, simultaneously collecting physical and psycho-physiological data for trajectory modeling.*) has been pursued in the contexts of control by motion-correlation with auditory trajectories (1), multisensory rhythmic control of planar motion with minimal action points (2, 3, 4, 12), visualization and control of rhythmic trajectories (11). Investigation on how human individuals or partners acquire a novel motor task, and whether different types of feedback influence the learning process, has been pursued through extensive experimentation (16, 17).

Research objective RO2 (*Apply machine learning methods to predict trajectories from either hand-crafted features, or from features discovered automatically by deep learning architectures, via embeddings found in their training phase. Discover automatically the importance of features of different nature for a wide range of trajectory-learning tasks involving different scales, and explore their variability. Extract trajectory-related information associated with missing features starting from other available features, and find maps relating pairs of such features. Develop optimal control and game-theoretical models of trajectory evolution for rational artificial agents emulating the behavior of human beings, and compare their predictions with real data.*) has been pursued in the contexts of quantum-based sound modeling (5, 14), time-series analysis (6), counterfactual analysis (7), model predictive control of rhythmic trajectories (13).

Research objective RO3 (*Demonstrate the effectiveness of multisensory and multiscale trajectory projection by design and evaluation of applications in ecologically-valid and realistic contexts of use, namely sports training and participatory performing arts.*) has been pursued in the context of movement pattern propagation in dance (8, 9), and accessibility to board games (10).

1) A novel input technique that uses motion correlation to control smart devices. SoundOrbit operates independent of visual perception, enabling the development of cost-effective smart devices that do not require visual displays. Two user studies evaluated the effectiveness of binaural sound spatialization to create a distinct orbiting sound and determined the optimal system parameters. - Bellino, A., Rocchesso, D. “SoundOrbit: motion-correlation interaction with auditory orbital trajectories.” Personal and Ubiquitous Computing 28, 763–778, 2024. https://doi.org/10.1007/s00779-024-01818-4

2) Speed and direction of a moving object can be controlled by discrete short tapping sequences, and can be monitored through overlapping rhythmic streams. Non-visual rhythmic feedback can compensate for temporary deprivation of visual feedback in object motion control. - Rocchesso, D., Bellino, A., Ferrara, G., Perez, A. “Spacetime trajectories as overlapping rhythms,” International Journal of Human-Computer Studies, 192, 2024. https://doi.org/10.1016/j.ijhcs.2024.103358.

3) Navigation in two dimensions with velocity control, using a single-button interface, was investigated. Users adjust the controlled-object speed through rhythmic tapping and its direction by pressing and tilting, releasing the button to finalize the rotation. Feedback to control action and object motion is provided by integration of multiple sensory modalities. Two studies were designed around a target-following task, to show that target tracking can be effectively performed with multisensory rhythmic interaction, and that two kinds of non-visual feedback, auditory and tactile, are effective. - Bellino, A., Rocchesso, D., Mulè, R., D'Arrigo Reitano. L., “Multisensory Trajectory Control at One Interaction Point, with Rhythm.” In Proceedings of the 19th International Audio Mostly Conference: Explorations in Sonic Cultures. 399–404, 2024. https://doi.org/10.1145/3678299.3678340

4) Demonstrating two-dimensional navigation with velocity control on a single button. Users can vary the speed of the controlled object by rhythm tapping, and can control direction by pressing and tilting, releasing the button once the desired rotation is achieved. Feedback is multisensory. - Bellino, A.,

Rocchesso, D. “Controlling Trajectories with OneButton and Rhythm.” In Proceedings of the 2024 International Conference on Advanced Visual Interfaces. Article 101, 1–3, 2024. https://doi.org/10.1145/3656650.3656704

5) Different realizations of Quantum Feedback Delay Networks, with different degrees of physical realizability are tried out, starting from the quantum version of a recursive comb filter, up to higher order structures with several delay lines and qubits. - Rocchesso, D. "Exploration of Quantum Feedback Delay Networks." Proceedings of the 2nd International Symposium on Quantum Computing and Musical Creativity. Berlin, 2023, https://air.unimi.it/bitstream/2434/1123704/1/QFDN.pdf

6) The signature, a concept from path theory, provides a unique representation of time series data, encoding their geometric patterns and inherent properties. This research contributes to portfolio allocation and financial network representation by proposing the use of signature-based similarity matrices over traditional correlation or covariance matrices. This research is related to the project, as the signature method could be also applied to the analysis of human and artificial trajectories (with network nodes representing, for instance, joints in a human or artificial body). - Gregnanin, M., Zhang, Y., De Smedt, J., Gnecco, G., Parton, M. “Signature-based portfolio allocation: a network approach.” Applied Network Science 9, 54, 2024. https://doi.org/10.1007/s41109-024-00651-1 - Gregnanin, M., De Smedt, J., Gnecco, G., Parton, M. “Signature-Based Community Detection for Time Series.” In: Cherifi, H., Rocha, L.M., Cherifi, C., Donduran, M. (eds) Complex Networks & Their Applications XII. COMPLEX NETWORKS 2023. Studies in Computational Intelligence, vol 1142. Springer, Cham., 2024 https://doi.org/10.1007/978-3-031-53499-7_12

7) A recently-developed statistical machine learning method called matrix completion with fixed effects estimation is used and compared to traditional statistical/econometric techniques for the construction of counterfactual trajectories related to pollution data. This research is related to the project, as the same method could be also applied to the estimation of counterfactual trajectories in human or artificial movement (e.g., in the absence of a “treatment” of the subject). - Biancalani, F., Gnecco, G., Metulini, R., Riccaboni, M. “The impact of the European Union emissions trading system on carbon dioxide emissions: a matrix completion analysis.” Scientific Reports 14, 19676, 2024. https://doi.org/10.1038/s41598-024-70260-6

8) An art-inspired iterative design approach is applied to the definition of two experimental scenarios for movement data collection. Research focuses on the influence an expert dancer exerts on novice dancers by propagating her own movement patterns (individual motor signatures), for stimulating the emergence of a group movement pattern (group motor signature). - Camurri, A., Gasparotti, C., Ceccaldi, E., Cera, A., Bardy, B., Bieńkiewicz, M., Janaqi, S., Volpe, G., Gnecco, G., Ferrari, N. “Iterative Design of Two Art-Inspired Experimental Scenarios for Collecting Expressive Movement Data of Individuals and Groups.” In Proceedings of the 2024 International Conference on Advanced Visual Interface, Article 92, 1–3, 2024, https://doi.org/10.1145/3656650.3656750. - Gnecco, G., Camurri, A., Gasparotti, C., Ceccaldi, E., Volpe, G., Bardy, B., Bieńkiewicz, M., Janaqi, S. “Measuring Cues of Leadership, Cohesion, and Fluidity in Joint Full-Body Movement to Support Embodied Interaction Design: A Pilot Study.” Human Behavior and Emerging Technologies, 2024, https://doi.org/10.1155/2024/1636854

9) As a development of a recently proposed algorithm for the automated detection of the perceived origin of full-body human movement, an improved visualization of its output is proposed. - Gnecco, G., Fausto, M., Romano, G., Volpe, G., Camurri, A. “Improving Output Visualization of an Algorithm for the Automated Detection of the Perceived Origin of Movement.” In: Clayton, M., Passacantando, M., Sanguineti, M. (eds) Intelligent Technologies for Interactive Entertainment. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, vol 560. Springer, Cham, 2024 https://doi.org/10.1007/978-3-031-55722-4_8

10) By automatic recognition of the portion of the screen one’s finger or the cursor is pointing to, its classification via machine learning, and the use of either textual or audio feedback, visually impaired persons can have better accessibility to online board games. As a case study, a preliminary version of the interface is developed to address possibly improved accessibility of the online version of a carefully selected pure strategy abstract board game. - Gnecco, G., Battaglini, C., Biancalani, F., Bottari, D.,

Camurri, A., Leporini, B. “Increasing Accessibility of Online Board Games to Visually Impaired People via Machine Learning and Textual/Audio Feedback: The Case of “Quantik”. In: Clayton, M., Passacantando, M., Sanguineti, M. (eds) Intelligent Technologies for Interactive Entertainment. INTETAIN 2023. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, vol 560. Springer, Cham, 2024 https://doi.org/10.1007/978-3-031-55722-4_12

11) RhyGlyph is a radial glyph-based visualization system for the representation of rhythmic interactions. These interactions are depicted within three 120-degree wedges, as spacetime trajectories. - Erdem, Ç., Griwodz, C., Rocchesso, D.. “RhyGlyph: Radial Glyph Visualization of Rhythm Interactions”. In Proceedings of the 20th International Audio Mostly Conference, 2025. https://doi.org/10.1145/3771594.3771643 - Erdem, Ç., Rocchesso, D., “A Visualization and Control Interface for Rhythmic Relations”. Demo submitted to the International Conference on Advanced Visual Interfaces, 2026. - Erdem, Ç., Rocchesso, D., “RhyGlyph: Compact Visualization of Rhythmic Interactions as Spacetime Trajectories”. Paper submitted to the Sound and Music Computing Conference, 2026.

12) Two studies have the aim to investigate how well humans can (i) interpret overlapping rhythms as indications of direction and speed of a dragged moving object, and (ii) perform overlapping rhythms as corresponding to the speed and direction of a visual object. Accuracy and precision have been assessed using multisensory translation tasks. Bellino, A., Rocchesso, D., Mascetti, C., Presti, G. “Speed and Direction as two Overlapping Rhythms: Accuracy and Precision in Interpretation and Performance”. In Proceedings of the 20th International Audio Mostly Conference, 2025. https://doi.org/10.1145/3771594.3771639 - Bellino, A., Rocchesso, D., Mascetti, C. 2026. “Interpreting and Performing Concurrent Pulse Sequences as Motion Direction and Speed”. Paper submitted after major revision to IEEE Transactions on Human-Machine Systems.

13) The generation of human-like trajectories using a receding horizon approach is applied to the TickTacking interface in a target-tracking task. By analyzing user-generated trajectories, human behavioral features are extracted and incorporated in a controller that mimics these behaviors, whose effectiveness is evaluated. - Masti, D., Menchetti, S, Erdem, Ç., Gnecco, G., Rocchesso, D. “Human-Like Trajectories Generation via Receding Horizon Tracking Applied to the TickTacking Interface”. Proc. IEEE International Conference on Systems, Man, and Cybernetics, 2025 https://doi.org/10.48550/arXiv.2507.13528

14) A threefold partition of the sound world is at the basis of descriptions of sound objects and of phenomenology of sound, as well as of their embodiment through the concept of musical gesture. The interplay of sounding objects can also be conveniently represented in three-axial space, where trajectories objectify mutual relations. Rocchesso, D. “Sound Space is Threefold”. Keynote Speech. Proc. 3rd International Symposium on Quantum Computing and Musical Creativity, 2025 https://zenodo.org/records/18203904.

15) Effects of multisensory integration on learning and retention in rhythmic two-button control: two-dimensional navigation using rhythmic patterns on two buttons is examined to determine whether multisensory feedback influences trajectory generation and interactive skill performance with practice, relative to low-dimensional (single-modality) feedback, and whether multimodal cueing alters learning strategies and retention. Preliminary findings suggest that trajectory generation during two-dimensional navigation varies as a function of the availability and richness of sensory input modalities. Manuscript in preparation.

16) Multisensory feedback in dyadic rhythmic two-button navigation under competition and assistance: a follow-up study extends the two-dimensional navigation paradigm (4) to dyadic interaction and examines how social context shapes two-dimensional navigation performed via rhythmic patterns on two buttons. Two participants engage in the task under competitive or assistive conditions, with pairs differing in expertise. The study tests whether these interaction contexts influence the quality of trajectory generation

and the quality of coordination between partners, and whether they support learning and retention beyond individual multisensory feedback. Manuscript in preparation.

17) Reward and expectation shape whole-body movement trajectories in self-paced reaching: the study investigates how motivational value modulates the formation and expression of whole-body movement trajectories in a self-paced reaching task. By manipulating reward availability and reward expectation, it tests whether incentive signals alter both early trajectory preparation, indexed by anticipatory postural adjustments and neuromuscular activation, and later execution vigor during forward and backward actions. The findings indicate a multi-stage invigoration process in which reward-related information reshapes trajectory dynamics through distinct preparatory and execution-level mechanisms, supporting models that predict movement evolution from early postural cues and context-sensitive control.
Garofolini A., Costa G., Venturini C., Ahmed A., Bertucco M. "How do energetic cost, reward, and reward probability influence movement vigor?" Abstract presented at the Neural Control of Movement Society – Annual Meeting, 2025, Panama City, Panama.

18) A computational approach is proposed to solve the Generic Event Boundary Detection (GEBD) task. The approach is grounded in the Event Segmentation Theory (EST) by explicitly implementing its categories to detect boundaries, and employs features extracted from the trajectories of the movement of a collection of body landmarks. The approach was tested in a manufacturing-like scenario. The results open perspectives for intelligent machines to collaborate with human operators in several tasks.
Arsalan Serajoddin Mirghaed A., Benini N., Volpe G., Varni G. "An EST-based Generic Event Boundary Detector",.Poster presented at the Biannual Conf. of the Italian SIGCHI Chapter, 2025, Salerno, Italy.

d) description of the carried out activities which are in compliance with the *DNSH, Open Access* principles as well as with *gender*, *generationa*l principles and with those of *Equal opportunities*

All the experiments and studies documented in section c) have been carried out in compliance with DNSH principles. Of the publications listed in section c), items (2, 3, 4, 5, 6, 7, 9, 10, 11, 12) are published in Open Access. The other publications have been made available, or will be made available, in pre-print form.

Principles of equal opportunities and DNSH have been applied in recruiting post-doctoral researchers. A call for post-doctoral position was published by UNIGE. The selected person started working at the project on November 1st 2024. A call for post-doctoral position was published by IMT. The selected female researcher has been working on the project between March 1st 2024 and October 14th 2024. A second call resulted in recruiting a male researcher who started working at the project on November 16th 2024. A call for post-doctoral position was published by UNIVR. The selected person started working at the project in February 2024. A doctoral student of UNIVR has been involved in project activities since January 2025. A call for post-doctoral position was published by UNIMI in april 2024. The selected person declined the offer, so a second call was published. The selected non-EU citizen started working at the project in January 2025.

e) description of the actions aimed at informing and disseminating knowledge

- Organization, by Davide Rocchesso (UNIMI) of the special session “Polifonia del ricercare - Suono e musica nei progetti di ricerca”, at the XXIV Colloquium on Musical Informatics, Torino, 30.09.2024, with participation of Giorgio Gnecco (IMT).

- Gualtiero Volpe (UNIGE) co-organized the conference AVI 2024, where project-related works by UNIGE and UNIMI were presented.

- UNIMI organized the conference Audiomostly 2024, where a project-related work by UNIMI was presented.

- IMT proposed a seminar on the “Analysis of Human Trajectories and Generation of Artificial Trajectories with Similar Features: Methods and Possible Applications in the Recreational and Educational Context” at Lucca Comics 2025, and the activity The Donnie Darko Project: Analysis of Human and Artificial Target-Tracking Trajectories at BrainHack 2025.

SECTION 2 – PROGRESS OF ACTIVITIES

With regard to the activities completed during the project's duration, it is below provided:

a) detailed description of activities carried out by each operational unit with a focus on the timeframe for their implementation

Activities of UNIMI -- As referred to the project workplan, in year one the UNIMI unit has been working on the production and perception of multisensory trajectories in peripersonal and proximal space. Namely, a rhythm-based interaction paradigm based on two buttons (called TickTacking) has been defined, implemented, and used in experiments (2, 12). Trajectory control based on a single button has also been implemented and experimented with (3, 4), including audio and tactile feedback at the intimate scale. The control of device via synchronization of trajectories (orbits) has been experimented (1). Quantum-inspired modeling of sound spaces, trajectories and audio processing have been proposed along the project (5, 14). The visualization and control of rhythmic trajectories via radial glyphs have been proposed in year two (11) and are being subject to experimental validation and development for creative use.

Activities of UNIGE – In year one, inter-individual motor coordination at the scale of public space has been investigated by the UNIGE unit, in collaboration with IMT, in the transfer from expert to novices (8), and in the emergence of community signatures in the performing arts (6). The unit also focused on the segmentation of trajectories into meaningful units (18). The unit has embraced dyadic interaction under the TickTacking paradigm as the experimental framework for year two of the project and beyond (16), to study motor synchronization in cooperative drawing of trajectories.

Activities of UNIVR -- The UNIVR unit, in collaboration with UNIGE and UNIMI, has embraced the TickTacking paradigm to prepare an experimental workbench to investigate de-novo learning in motor-sensory tasks, and the interplay of different modalities. In year one, an interface and experimental design have been prepared and approved, which is based on a target-reaching task. Moreover, a study on reward-driven whole-body trajectories has been performed (17). In year two, extensive experimentation on rhythm-based target reaching has been conducted (15).

Activities of IMT – In year one, the IMT unit has been investigating the path-theoretical concept of signature (6) and the method of matrix completion (7). It has been collaborating with UNIGE on the extraction of the origin of full-body movement (9) and on accessible board games (10). In year two, the unit has been preparing a modeling framework, based on model predictive control, to find optimal machine-generated trajectories for the TickTacking interaction paradigm (13), with the goal of facilitating optimal auditory human learning, in collaboration with UNIMI.

b) description of potential changes to what has been originally approved mentioning the impacts on the aim of the intervention, on the achievement of long- term goals, on the proposed actions for improvement;

During the first year, due to limitation of resources and for the sake of concreteness, the project focused on a subset of the trajectory-based interactions that were initially conceived. In particular, the focus is on rhythmic interactions with a small number of interaction points, which proved to be an interesting paradigm to investigate cross-modal trajectory transposition and dimensionality reduction in interaction. This research is expected to have impact beyond the project duration.

c) description of potential challenges encountered and of the proposed actions for improvement;

The main difficulties encountered by the project are related to the change of institution of the Principal Investigator, and to the fulfilment of the planned one-year research positions. The coordinating unit could not hire a researcher in the first year, and the other units also experienced some delays in recruitment and turnover. Consequently, the experimental and modeling work had to be diluted and remained intense in the second year of the project, at the expense of the planned tasks of demonstration of trajectory-based interaction in sports and in the performing arts.

d) brief description of potential publications.

Beside the works listed in section 1.c, the consortium aims at further publications that report on

- the experimental investigation of de novo learning in multisensory interaction;
- the modeling of trajectories for optimal auditory human learning;
- the experimental investigation of dyadic interactions with the TickTacking paradigm;
- interfaces for visualization and control of rhythmic relations.

SECTION 3 – COMMON INDICATORS

Below the updates on the indicator RRFCI 8 – "*Number of researchers who work in research centres which are recipients of financial support (women; men; non-binary)*" – as per the description in the guidelines included in the n.34 MEF notification from the 17th of October 2022.

Common indicators	Planned value	Implemented value
Researchers who work in research centers which are recipients of financial support (women)	1.00	1.00
Researchers who work in research centers which are recipients of financial support (men)	3.48	3.61
Researchers who work in research centers which are recipients of financial support (non-binary)	0.00	0.00

SECTION 4 – PREDICTIVE ANALYSIS AND FINAL COMMENTS

Below it is provided a description of the forecast scenario on the development of the project, any potential change which is deemed necessary for the future as well as comments on the document.

1) Predictive analysis

Starting from ground-breaking experiments in trajectory perception, production, and modelling, the Project opened new research pathways in different areas:

- In motor sciences, a newly introduced interaction paradigm is facilitating basic research in motor learning and multisensory interaction, aimed at illuminating the learning processes and at optimizing training protocols;
- In automatic control and optimization, the model-based control of rhythmic trajectories is a promising playground for testing algorithms and developing new applications. Among the areas of future development, optimizing human learning of multisensory interactions – as in performing arts or sports – is under focus;
- In human-computer interaction and design of interactive systems, research is continuing on minimal interfaces, discrete and peripheral interaction, rhythm visualization and control. In particular, the trajectory-based representation of rhythms is affording generative manipulation of complex spatio-temporal structures;
- In social interaction, the newly introduced interaction mechanisms are fostering new experiments aimed at investigating how human and artificial agents cooperate, compete, and assist each other in trajectory-based tasks.

In all of these areas, the development of prototypes and their deployment in realistic scenarios is likely to have an impact on art, sport, and assistive technologies.

2) Final comments

The PI and the partner coordinators express their satisfaction for the Project progress and achievements, that they are willing to exploit, in their respective areas of interest, through practical realizations, teaching and mentoring. They are planning to continue the research pathways through new projects and collaborations.

Principal Investigator of the project

on behalf of the Legal Representative

(digital signature)

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ATTACHMENTS

The below documents are also attached to the technical – scientific report:

Att. 1 – Declaration of compliance with DNSH principle and compliance with other principles as per the Environment code;