**Einstein Telescope R&D Agenda**

***Advice for***

***Strategy and Priorities for the Euregio Meuse-Rhine Consortium***

Author: Daniela Trani, PhD

**Background**

Between November 2023 and March 2024, I contributed to the efforts aimed at the development of a R&D agenda for the Einstein Telsecope (ET) Euregio Meuse-Rhine (EMR) Consortium. In this context, I have worked as part of the R&D Coordinators group. Although some progress has been made in the drafting of the agenda, in the course of the process it has also emerged that no consensus exists yet regarding scope and aims of the document. The factors underlying this discrepancy are, at least in part, addressed in this memo.

Following a request from the ET EMR Directorate, in this document I will:

* Provide my personal assessment of the **current status of the cooperation** in the (extended) ET EMR R&D group (across NL, BE and DE). In this context, I will also indicate some of **bottlenecks** which currently hinder the work towards a shared and coherent R&D agenda within the EMR consortium.
* Provide a **preliminary advice on the next steps** to be undertaken to achieve an effective R&D strategy - within and beyond the EMR consortium. My (preliminary) advice will address three levels:
	+ **Strategy** – what is that ET EMR Consortium is aiming to achieve in R&D?
	+ **Organisation** – what kind of structures and processes are needed to succeed?
	+ **Resources** – which roles (i.e. human resources) need to be put in place and how can this be funded? Which other financial resources are needed?

*Note: The advice contained in this document is not exhaustive and intended for the ET EMR Directorate as a starting point for discussion. Moreover, it is based on the knowledge I currently have of dynamics, structures and processes – both at EMR as well as national/regional level. Hence, the analysis and resulting advice might need further fine-tuning upon receiving additional information and input from the ET EMR Directors.*

**ET EMR R&D cooperation: current status and bottlenecks**

Currently, efforts in the ET EMR R&D group are aimed at the development of a R&D agenda. The group includes four R&D Coordinators from the Netherlands, Belgium (Flanders and Wallonie) and Germany/North-Rhine Westfalia. Although there is some heterogeneity in the composition of the R&D coordination team, most of the members are academics from the field of gravitatioonal wave research (NL, NRW and Wallonie) and the fourth member has extensive project management experience.

All members are supposed to interface with their respective scientific community and to bring in the R&D group input that takes into account the vision/activities of the relevant stakeholders. However, their **mandate and tasks are not explicitely defined** and the effort they are able to invest in the work – including the consultation with colleagues at national/regional level – varies greatly. These factors impact their individual contributions to the joint work on at least three levels, namely: **timing, strategic soundness and completeness**.

Additionally, **scope, mandate and tasks are also not sufficiently defined for the group as a whole**. This is a major shortcoming as the relevant expertiese, tasks and processes should be serve a clearly formulated strategy, and to pursue the achievements of defined objectives and deliverables. *The lack of a top-down strategic steering, defined responsabilities and outputs contributeto limit overall effectiveness and efficiency of the group.*

**Preliminary advice on next steps**

Below, I am providing a first high-level advice on which actions should be set at strategic, organisational and human resources level to enhance coherence and effectiveness of the R&D work in the ET EMR consortium. While at this stage I am not yet providing details on the “how and what/whom”, I am keen to deepening the analysis and adding more specific recommendations upon receiving first feedback and possibly discussing face-to face with the ET Directorate what would be the level of detail the final advice should carry.

**Advice 1 – Strategy:** **Define top-down what the ET EMR R&D agenda/analysis should contribute towards**:

1. The development of a consortium that makes the optimal use of scientific, technological and financial resources – across its partner institutions, countries and regions.
2. The drafting of a possible ET EMR bid.
3. The positioning of the ET EMR within a possible joint bid with the alternative site, i.e. Sardinia/Italy.
4. Strenghtening of the scientific ET community and alignment with this.

Strategic priorities and goals for ET EMR should also take into close account the work of and directions provided by ETO. To this aim, building a stronger relationship and an effective cooperation with the ETO Directorate and units is paramount.

Similarly, a more open communication and cooperation with the ET Collaboration should be pursued – also via the ET EMR R&D Coordinators involved in this body.

**Advice 2 – Organisation: Against the backdrop of strategic goals and priorities defined as outcome of the step above, evaluate whether the current organisation of the R&D work is fit-for-purpose. In particular, reflect on:**

1. (Additional) expertiese necessary in the R&D group to achieve the strategic aims defined (e.g. funding experts, policy experts).
2. Structure of the group, e.g. self-steering vs. formally coordinated body with one member responsible for the delivery.
3. (Formal) links with other areas and bodies, e.g. a connection with ET EMR Valorisation Committee should contribute to consistent flow of information and coherent prioritisation and planning of contigous actions.
4. (Mimimum) necessary processes to achieve sufficient alignment, coherency and consistency with the ET EMR and national/local ET activities/funding and strategies.

**Advice 3 – Resources (incl. Human): Building on the reflection and decisions above, describe roles and capacity needed in the next phase of ET EMR. Do distinguish between:**

1. Expertiese already present but not yet available to adequate extent (e.g. experts are able to invest limited effort in the R&D work. Can you free them up form other tasks?)
2. Roles that require new/different profile and expertiese from the one already included in the group.
3. Have an open discusion with the current ET EMR R&D Coordinators on their own role and effort, and on the need to achieve progress for the entire EMR. Explore possible need for and ways to implement support for them as experts.
4. Be bold, pursue change and evaluate it at pre-defined times, against pre-defined outputs.