ANR DIBIM Project

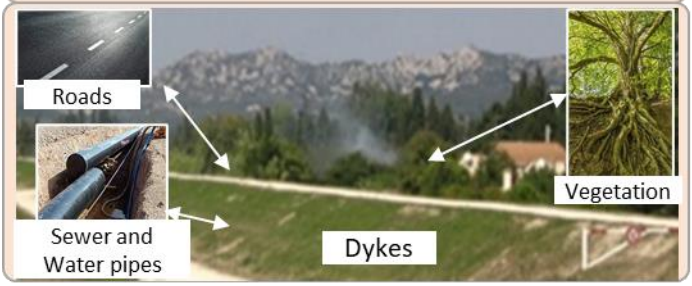
Collaborative (BIM) approach for the asset management of Dykes interconnected with urban infrastructures and vegetation: focus on technical and economic issues

Urban infrastructure, including defence works, forms complex and interconnected networks essential for the maintenance of a society's vital functions. In a context of reduced budgets for local authorities, and evolving governance (MAPTAM laws and NOTRe, GEMAPI competence). Faced with this situation, infrastructure asset management (IAM) aims to effectively maintain, operate and renew infrastructures in the short and long term. Each infrastructure is currently managed independently with little consideration for physical or functional interactions; data are stored and managed in isolated and often incompatible ways.

At the same time, the evolutions associated with the digital transition in the field of construction promote data structuring and exchange as well as a modification of organizations to make information flows more efficient using an approach collaborative.

Based on these two considerations, the DIBIM project aims to propose a collaborative approach for the management of urban systems - here composed of dykes interconnected with urban infrastructure and vegetation - with regard to technical and economic issues.

System of study objects and formalization of expert knowledge



Actors

Dykes and infrastructures managers

Methods and tools

Formalisation of expert knowledge

SIG
2D Modeling

+

BIM
3D Modeling

Collaborative platform
Storage and Share

Scientific inquiries

In relation to the system of objects of study and formalization of expert knowledge:

- ✓ How to describe the system (operation and dysfunction)?
- ✓ What are the impacts of interactions?
- ✓ How to determine the relevant fields of study (time and scale)?
- ✓ How to define technical and economic management strategies for the relevant infrastructures?

In relation to dike and infrastructure managers:

- ✓ What are the relevant scales to obtain information?
- ✓ Where and what to store and share?
- ✓ Obtain common data adopted by several managers?
- ✓ How to make the tools interoperable?

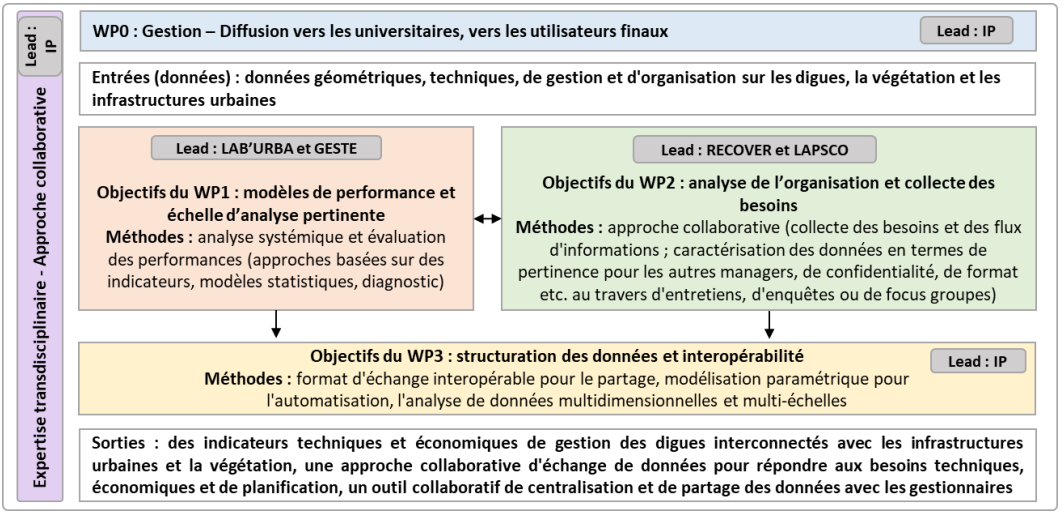
In relation to methods and tools:

- ✓ What are the technical management practices of current infrastructures?
- ✓ What are the expectations and willingness to exchange data?
- ✓ How to validate the developed tools?

Expected results

- ✓ **New knowledge** on the functioning and dysfunctions of dams in interaction with urban infrastructure and vegetation
- ✓ **Formalization of current exchange processes** between managers; impacts of management decisions
- ✓ **Barriers and expectations** regarding the collaborative approach
- ✓ Guidelines for **determining the appropriate scale** of management decisions considering numerical sobriety (section length of dykes, global analysis with GIS or local analysis with BIM)
- ✓ Guidelines for best practices (including the collaborative approach and physical and economic time evolution of the system
- ✓ Provision of a **collaborative platform**, in the form of a prototype, to format, capitalize, and share data and information.

Project organisation



Supports

Scientific partners

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Corinne CURT - Gisèle BAMBARA - Bruno BEULLAC - Pascal DI MAIOLO - Christophe WITTNER

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Marie GUITTONNY

Coordinator: Aurélie TALON (aurelie.talon@uca.fr)

Duration: 01/01/2025 to 12/31/2028

Budget: 838 k€ - ANR Budget: 350 k€

Non-permanent staff recruited:

1 Doctoral student - 8 Masters 2 (48 months)

3 Study engineer (24 months)