



Voies navigables de France

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Procurement of large infrastructure projects and key contract issues

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Co-financed by the European Union
Trans-European Transport Network (TEN-T)

Procurement and key contract issues

- ✓ VNF organization, missions and large projects
- ✓ Seine-Scheldt goals
- ✓ Seine-Nord Europe characteristics and planning
- ✓ PPP VNF experience and dedicated teams
- ✓ Key disfunction issues in project organization
- ✓ European benchmark and SNE organization recommendations
- ✓ Metarules and SNE project organization
- ✓ Project structure and value creation

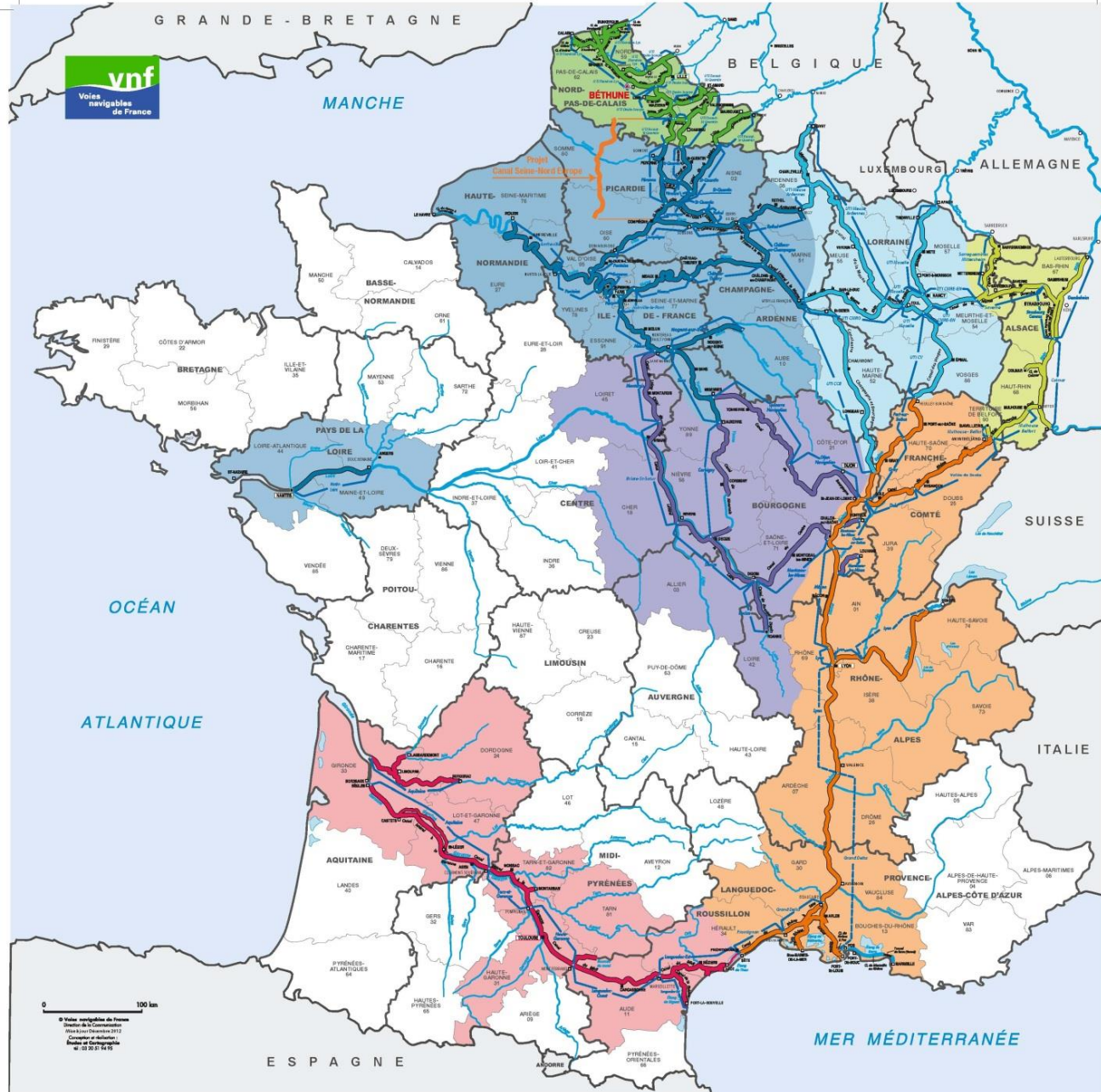
Voies navigables de France – Key figures



- ✓ **French public executive agency** in charge of managing and developing the inland waterway network in France
- ✓ **8500 km of river and canal network** (6700 km by VNF) connected to 4 major seaports (Dunkerque, Le Havre, Rouen ,Marseille)
- ✓ **40 000 ha of river public domain**



7 territorial directions



Large IWT Projects

✓ Seine-Scheldt
inc MIE 2014-2020

- ✓ Bray-Nogent
- ✓ Rhône à Sète
- ✓ Saône.Moselle
Saône-Rhin

included in
Work Plan 2014-2030



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Seine-Scheldt: multimodal gateway in Europe



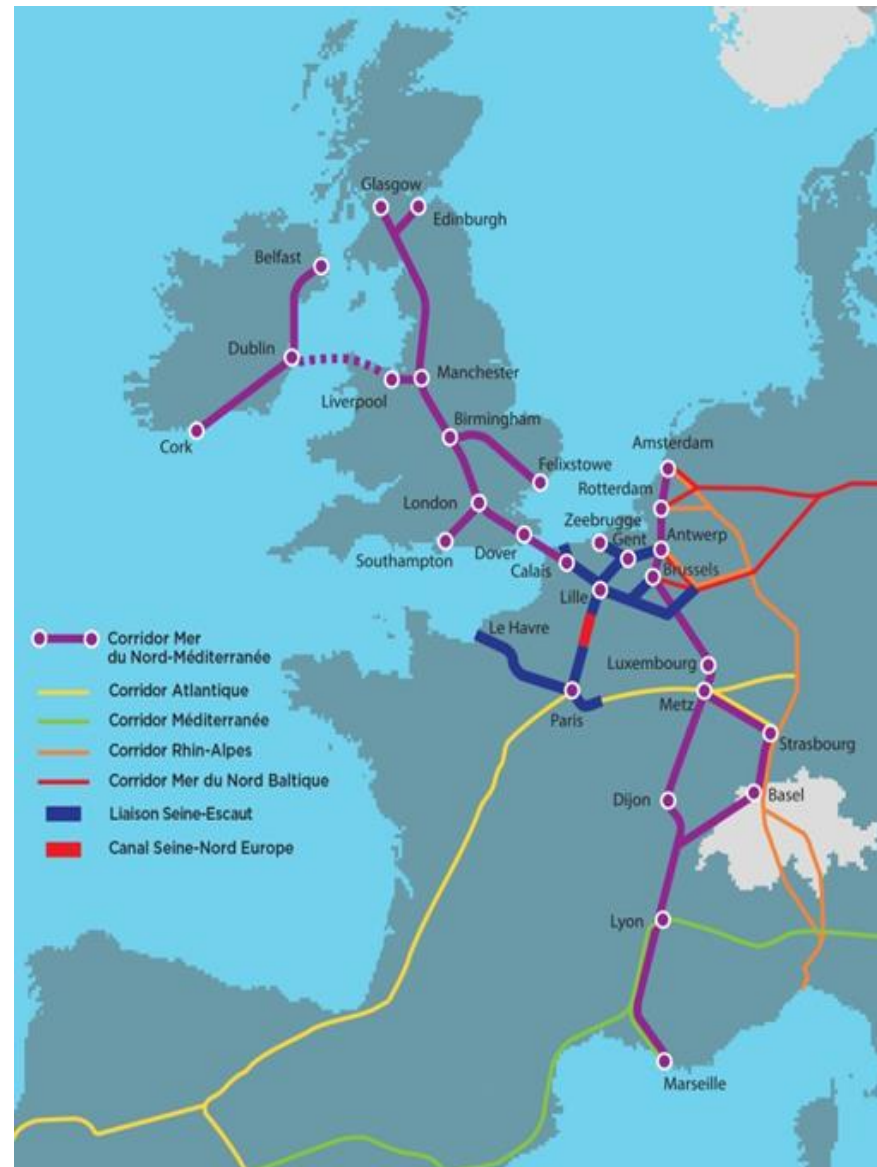
A priority project to create a large-gauge inland waterway link on the North Sea-Mediterranean corridor to serve **the internal economy of Europe and its trade with the rest of the world through its major seaports**

A project promoting the **modal shift and removing bottlenecks on saturated road links and urban junctions** (A1, A2, A16, A25, A26, A29, etc.)

Located at the centre of the **network of European multimodal corridors:**

- Atlantic ocean
- North Sea-Baltic
- Rhine-Alps
- Mediterranean

High European added value



Seine-Scheldt: multimodal gateway in Europe

The main features of the North Sea-Mediterranean corridor



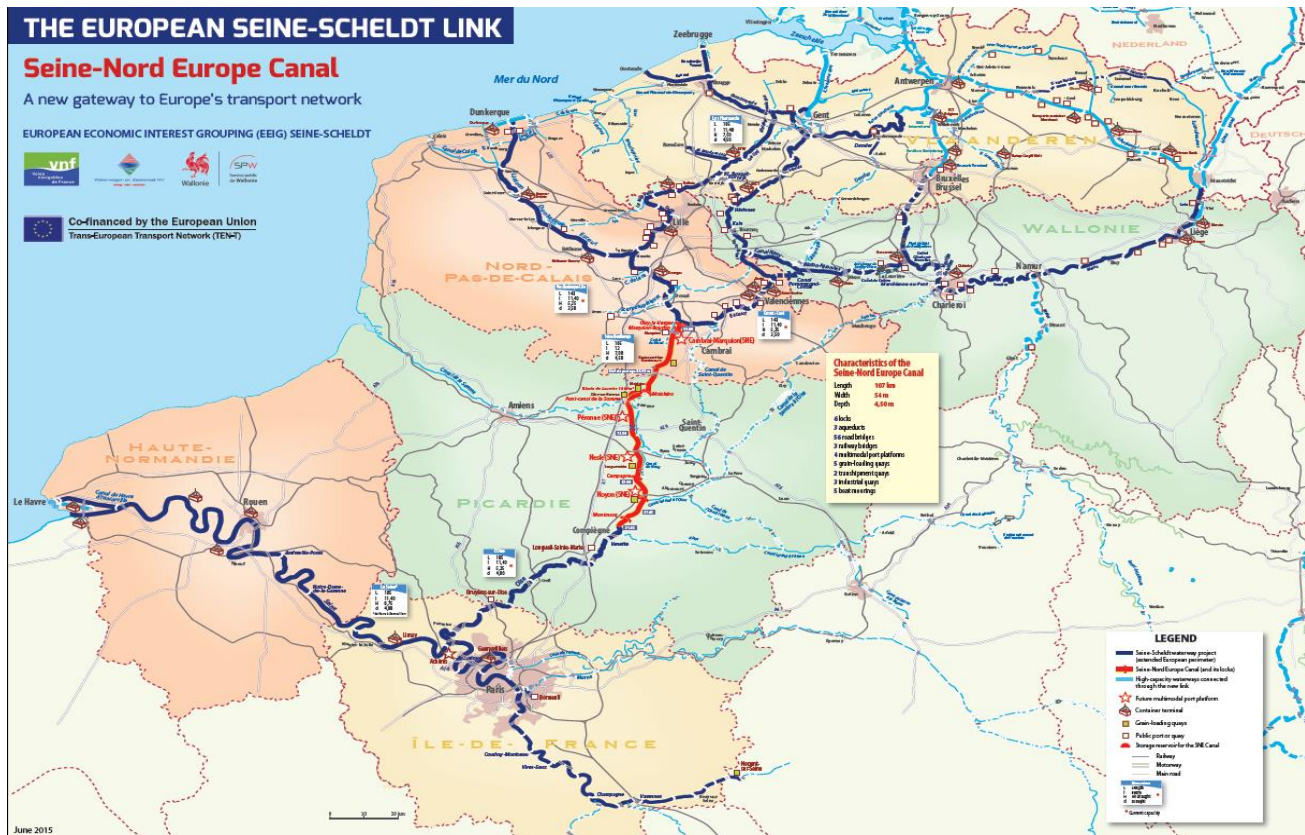
- 44% of the EU27's ports traffic
- 40% of the EU27's waterway traffic
- 16% of the EU27's rail traffic
- **European multimodal challenges**
Lille, Paris, Lyon, Strasbourg
- Only major European inland waterway project Seine-Scheldt
- **2014-2020 CEF funding**
 - €1.6bn/€13bn for NSMED
 - **€980m Seine-Scheldt (2014-2019)**
 - 35 projects funded /276 (EU27) for NSMED including 19 on waterways and rail



Seine-Nord Europe: Missing link of Seine-Scheldt IW

Seine-Nord A cross-border project with high european added value

- Development period : 2013-2016 (Voies navigables de France)
- Design/Construction period : 2016-2024 (Société du canal SNE)
- Start of Operating period : 2023/2025) (Voies navigables de France)



Connecting 3 logistic and industrial axes: Haropa / Ports of Seine-Nord / North Gateway

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Progress on SNE procedures after 2007 public enquiry

- **2008 : Decree of public utility (Conseil d'Etat)**
- **2008-2012 : preparatory measures**
 - Land acquisition (2200 ha)
 - Archeological investigation and specific surveys
 - Studies for displacement of utility networks (motorways, roads, rail, electricity, gaz, water,..)
 - Lowering by 9 m the A29 motorway in Somme
 - consultation of economic key stakeholders at regional, national and european level
- **2011/2012 : PPP and competitive dialogue**
- **2012/2013 : Project reengineering / MOP procedure leading to a 600 M€ saving on capital cost**
- **2015 : Local modificative public enquiry (lowering by 17m the upper reach in 62 and 80 departments and positive assent of enquiry commission on january 11th 2016)**

Seine-Nord Europe new Canal – Key data



Physical data

- 107 km Class Vb (4,500T) Canal
- 6 locks (height: 13 to 25 m)
- 61 bridges
- 80 millions m³ excavation
- 3 canal bridges (up to 1,300m)
- Ship: 185mx11,40x (4.5+7)

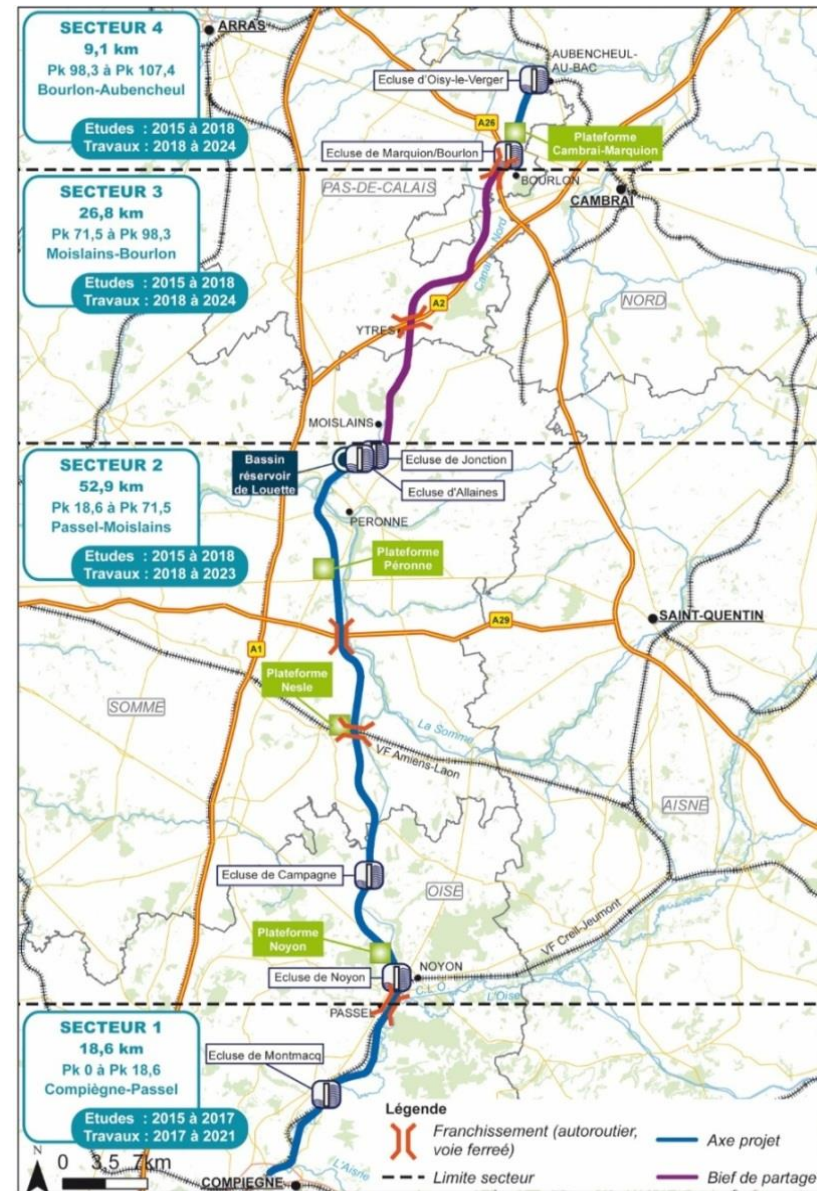
Freight capacity : 17/35 MT/year
(vs 3,8MT in 2015 on Canal du Nord)

- 2+2 new multimodal platforms
- 3 industrial quays
- Tourism: Amenities for IW cruise ship

Job creation:

Works : 9,500/year

Operation : 5,000 op (25,000 in 2040) including platforms and tourism



Seine-Nord preparatory works

Archeological evaluation and lowering the A29 motorway profile (9m)

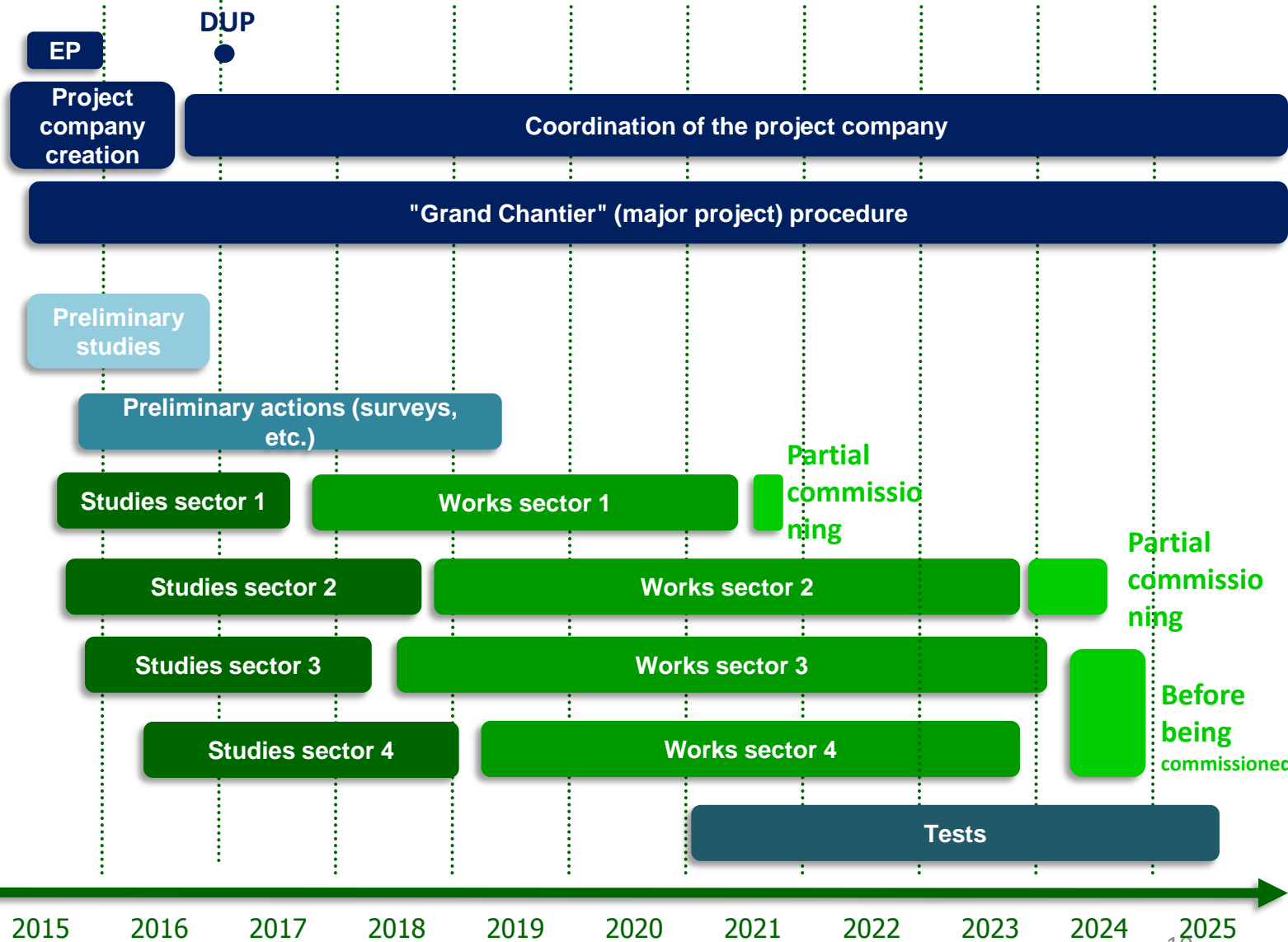


Survey of Cambrai-Marquion multimodal platform



Project needs : 2016 Design/ 2017 Construction

2017 :Logistic and Industrial investment along the Canal



Procurement and key contract issues

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PPP VNF experience and dedicated teams

Selection principles

- ✓ Complexity
- ✓ New Project or network improvement above 200M€

Projects selected during 2004- 2015 period)

- ✓ SNE (2006) – PPP abandoned in 2012 (economical crisis)
- ✓ Reconstruction of the manual weirs of the Aisne and the Meuse: contract with BAMEO society. Under construction (October 2013 – march 2020)

Implementation principles

- ✓ Dedicated teams
- ✓ Support from existing VNF structures

BAMEO PPP main reasons for PPP approach

Selection principles

- ✓ Complexity with 31 weirs over the Aisne/Meuse basin
- ✓ Standardization and optimization of total Basin

Main benefits

- ✓ Reduced project duration
- ✓ Global cost cheaper over a 30 years period (after risks)
- ✓ Quicker replacement of old “manual weirs”

Implementation principles

- ✓ Dedicated team
- ✓ Support from existing structures

Replacement of Aisne-Meuse manual weirs

→ A single contract to respond to the challenges of standardisation and optimisation of the management of the drainage basin

- **31 weirs: 29 manual weirs + 2 weirs, which have already been rebuilt by VNF**
- **4 low head power plant (3 news)**
- **2 basins: the Aisne and the Meuse**
- **24 October 2013 : signature date (after 3 years of procedure for recruiting the private partner)**
- **30 ans of contract**
- **5 years of works for the reconstruction of weirs**
- **312 millions € of investment**

LE PÉRIMÈTRE DU PROJET



The functional scope of the contract

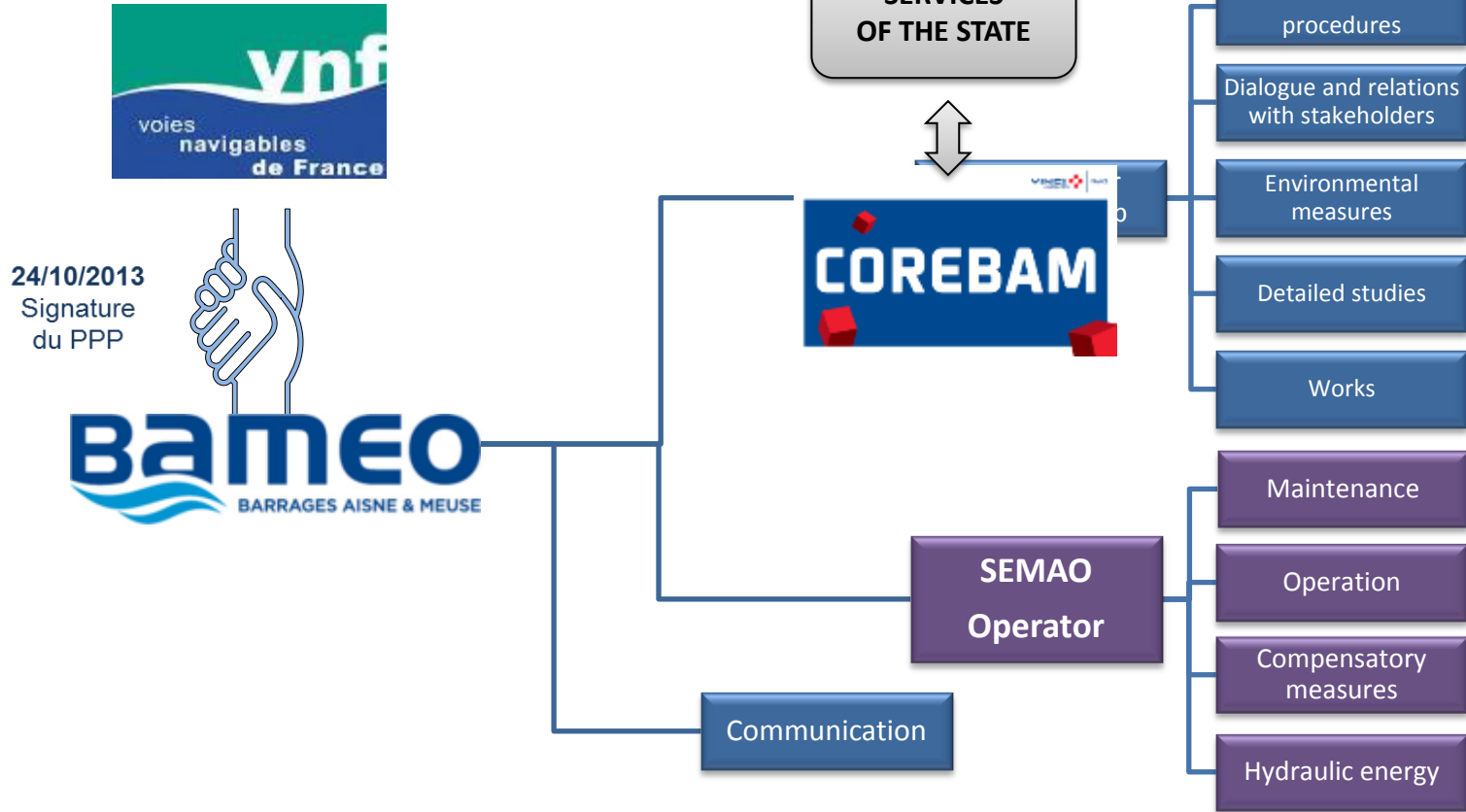
→ As part of its responsibilities for managing the network and the domain entrusted to it, VNF

- Must ensure that the waterline is properly managed, thereby ensuring the level of service needed for the waterway shipping and the other uses (withdrawal/discharges in particular)
- Assesses the private partner's work in accordance with the contractual framework and ensures that the required performance levels are fulfilled in particular
- Retains the role of manager for all the works outside the scope of the contract (locks, reaches, etc.)

→ The private partner, works owner of the future works, undertakes the following tasks:



- The design and construction of new works (as well as obtaining the necessary authorisations)
- The operational use, routine maintenance as well as the major repairs and replacement work (GER) for the new works (as well as the 2 works already rebuilt)
- The funding of the project



→ A standard contractual structure

→ A designer-constructor agreement on a fixed price (open to review) for the works in order to guarantee the stability of the costing

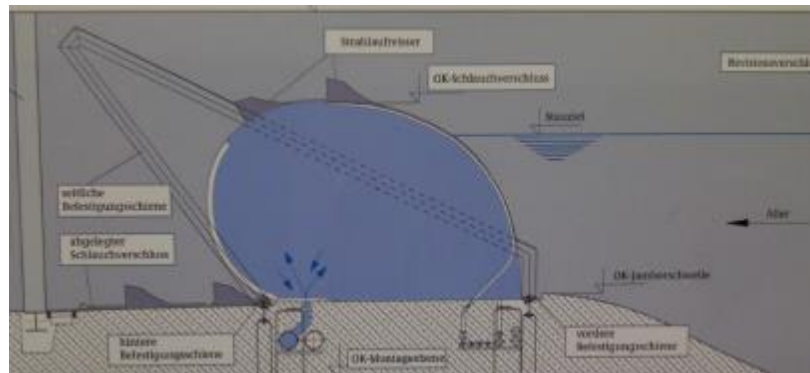
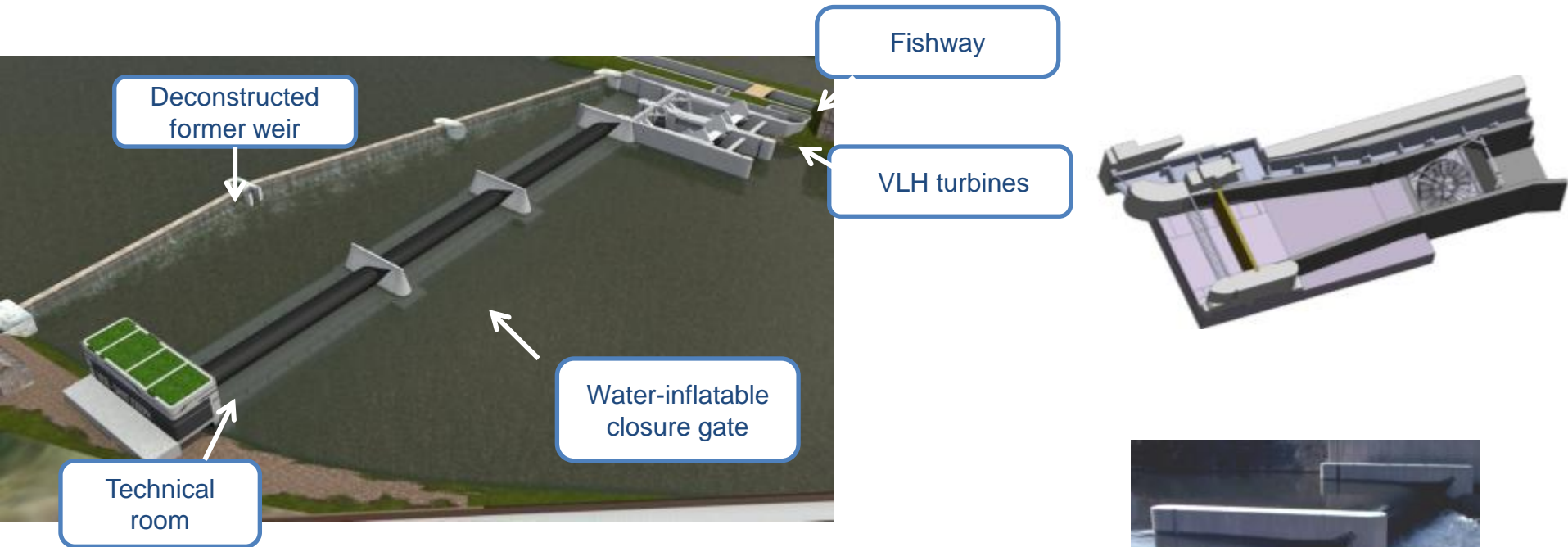
The project retained

→ Closure gates in water-inflatable rubber dams (BGEau) for the weirs to be rebuilt

By BAMEO



A challenge of standardisation: a typical construction



All images by BAMEO

The works

- BAMEO gets the authorizations of the administration 18 months after the signature of the contract
- The commissioning dates for the groups 0 & 1 were respected
- In 2016: 12 weirs in works



BAMEO PPP contract and procedures

- ✓ **Reduced capital project cost at contract signature due to** the technical solution proposed by the partner;
- ✓ **VNF has a co-contracting role** : Land acces, design follow-up , quisation and availise à disposition des terrains, suivi conception, assent on non minor changes,..
- ✓ **Supervisory board** :Key function for contract management : specific dedicated team for contract follow-up, coordination with VNF operational and functional divisions, financial follow-up of contract,
- ✓ **Planning risk for BAMEO**, including authorization procedures, VNF support during instruction by state services

18 months between application and authorization

SNE Main principles for initial PPP approach

Performance contract

- ✓ Integration of development process in a system approach
- ✓ Mobilize detailed engineering and contractor expertise upfront
- ✓ Operating process /Long term sustainability as key design criteria

Complexity and project control

- ✓ Lack of previous expertise for large projects within VNF
- ✓ Integration in contract of activities related to multifunctions of IWT
- ✓ Upfront risk allocation and associated management
- ✓ Time schedule optimization

Financing principles

- ✓ Minimum 60% of public financing to guarantee PPP financial choice
- ✓ Public financing by EU and difference 50/50 State/Local authorities
- ✓ Toll revenue to finance operation/maintenance/regeneration costs
- ✓ Maximum yearly payment to the contractor during he first 15 years

Decision on choice of PPP after Ministry evaluation in October 2006

Issues for SNE PPP approach

Competitive dialogue

- ✓ Detailed budget design and technical construction reviews
- ✓ Optimized performance criteria, but no system approach by bidders
- ✓ Limited innovative solution during competitive dialogue
- ✓ Suspension at the end of technical evaluation

PPP Process control

- ✓ Long duration between decisions (PPP 2006), EU financing decision (RTE-T 2007-2013) and implementation (2011)
- ✓ Incomplete financing decision (EU/Local authorities)
- ✓ Transfer of multimodal platforms to local authorities
- ✓ Incomplete Seine-Scheldt approach

Financing issues

- ✓ Multiannual EU financing plan not available before 2015
- ✓ Financing plan not consistent with initial PPP assumptions
- ✓ Bidder technical budget consistent with initial budget, but increased budget due to inflation

Decisions after PPP suspension

Project reengineering (2012- 2014)

- ✓ Integration in project of optimized performance criteria
- ✓ Review of all technical solutions abandoned since 2004
- ✓ Reallocation of Platform development budget to private operators
- ✓ Enlargement to EU/America of technical expertise
- ✓ Development of system approach with ports and shippers

Dedicated Public team approach (2014-2015)

- ✓ Lack of previous expertise for large projects within VNF
- ✓ Eurogroup report and staff identification
- ✓ Upfront risk allocation and associated management
- ✓ Time schedule optimization

Financing principles (2015-2016)

- ✓ Increased financing of local authorities for economic development
- ✓ Increased EU financing to comply with multimodal corridor objectives
- ✓ Development of additional revenues of the global system

Impact of contract on Permitting procedures

PPP (BAMEO)

Delay risk, including permitting, within private partner
VNF support with State services

18 months from application to authorization

MOP (SNE)

Direct negotiation between VNF and State services, with
upfront pre-information and sharing of time constraints
between VNF and Ministry

Target to reduce instruction time to 12 months

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Key disfunction issues

Development, mandate, goals

- ✓ Lack of mandate, stabilized goals and financing
- ✓ Sequential decisions with stop&go
- ✓ Specifications and decisions not coordinated
- ✓ Administration approach will reduce innovation potential

Decision making and responsibilities

- ✓ High number of persons involved in decision process
- ✓ Complex internal relations within the different structures involved
- ✓ Services or discipline department impose inadapted rules for project
- ✓ Lack of interface management
- ✓ Behaviour and information not focused on the project

Organization and staff

- ✓ Project staff imposed
- ✓ Project manager not professional of project management /domain
- ✓ Lack of mobilization of experts within the structure
- ✓ Lack of information and communication

Key disfunction issues

Process and project control with time and cost effect

- ✓ Technical solutions rather than performance criteria
- ✓ Incomplete or inadequate preliminary design (not enough)
- ✓ Overdesign and long administrative procedures (too much)
- ✓ Lack of upfront integration of operation process/ expertise end user
- ✓ Lack of adaptation to environment changes


Contract preparation, structure and management

- ✓ Lack of upfront integration of designer/contractor expertise
- ✓ Allotment with unmanageable interfaces
- ✓ Contract administration rather than global project management

Lack of global optimization

- ✓ Lack of prioritization of goals
- ✓ Services driven by their own goals and not by project goals
- ✓ Organization by discipline and not by project
- ✓ Sum of separate optimization less than global optimization

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Goals and results of Eurogroup (2014) benchmark study for SNE project organization (MOP procedure)

Goals

- ✓ Implement IGF/CGEDD 2013 report first recommendation
- ✓ References for a new type/size of infrastructure project in France
- ✓ Identify good practices on project with similar characteristics
- ✓ Provide recommendations in 3 fields :**Program/Team/Collaboration**

Main findings

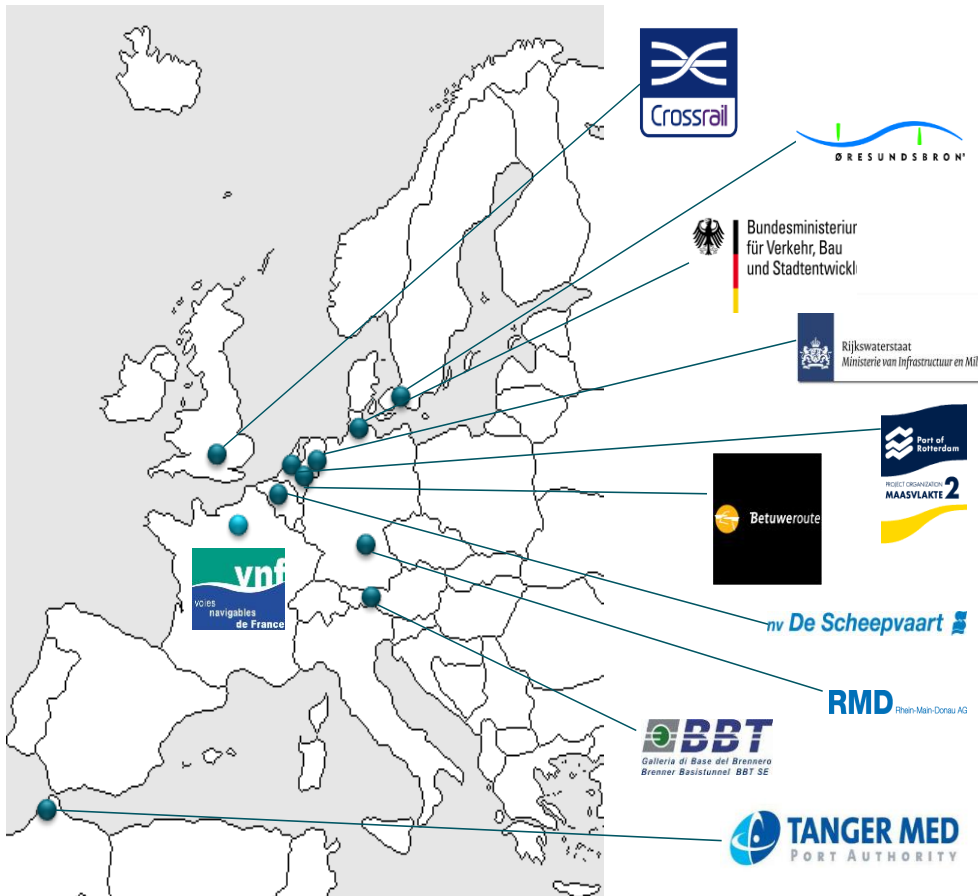
- ✓ Dedicated structure, clear mandate and associated governance
- ✓ Recruit experienced team with operation/maintenance knowledge
- ✓ Independent expert support
- ✓ Mobilize IWT expertise in Europe
- ✓ Dedicated allotment strategy and collaborative contract methods

Implementation and results

- ✓ Main recommendations included in law and ordinance
- ✓ Staffing started in 2015
- ✓ Development process
- ✓ Proactive Management
- ✓ Process identification and auto-control
- ✓ Behaviour

Selection criteria for European benchmark

Selection of the 10 European projects shortlisted for benchmarking



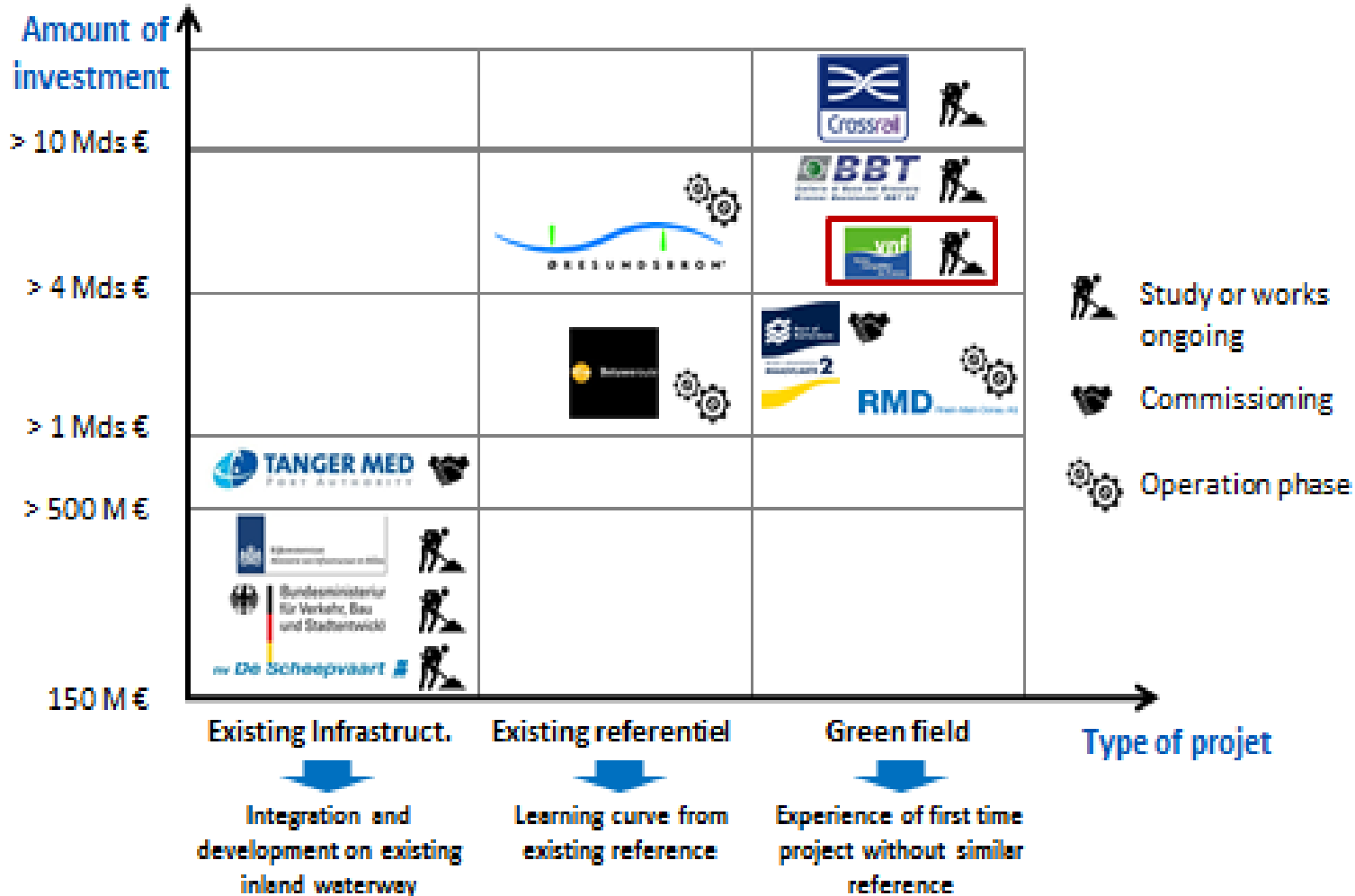
Required specifications

- National or multinational scope
- Multiple operators
- Complex relations with local authorities
- Multi-functionality
- Variety of business models

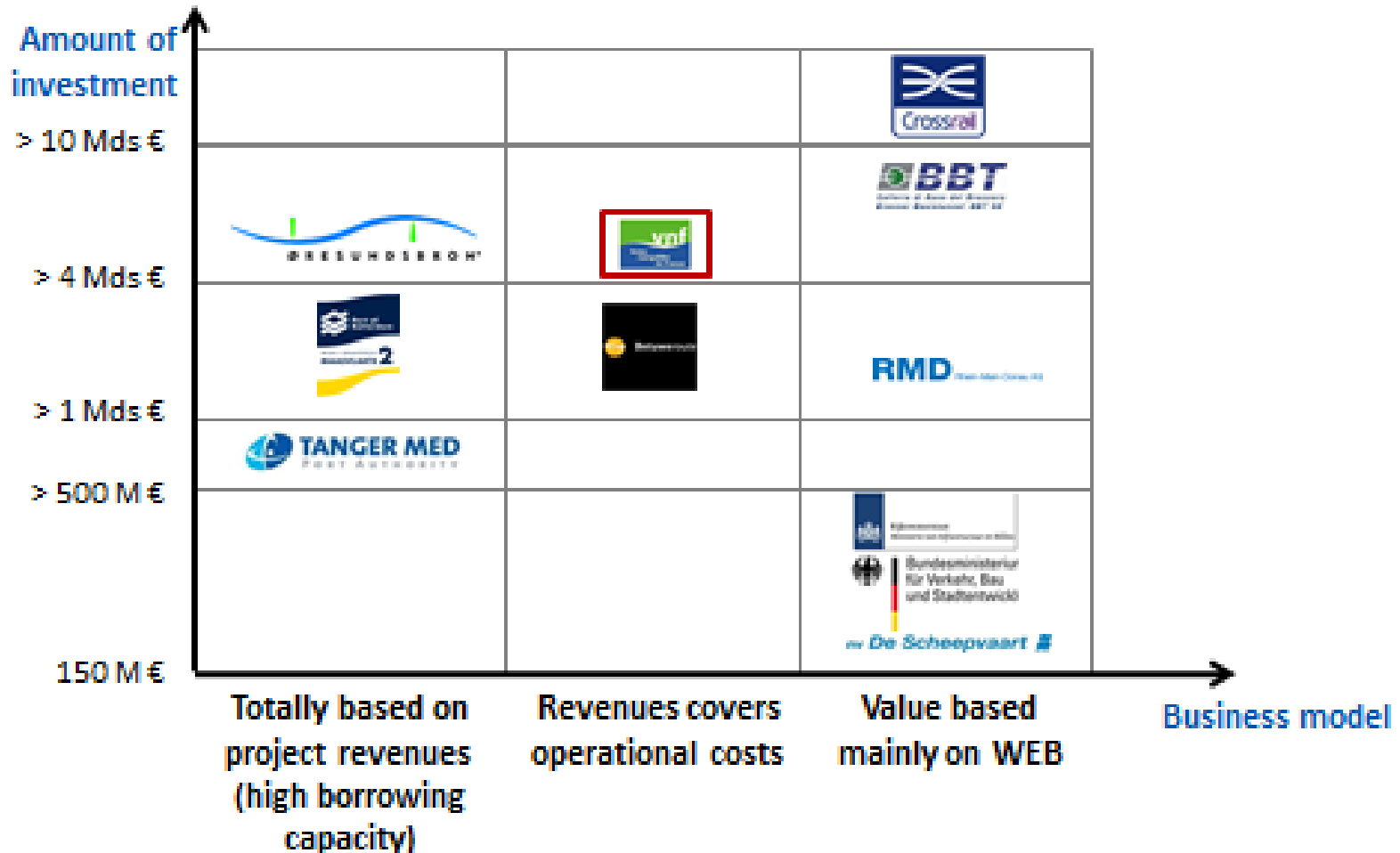
Selection criteria of the panel

- Any type of infrastructure (sea port, rail link, road, tunnel, bridge, canal)
- New projects using greenfield sites or based on an established technical frame of reference or the development of an existing infrastructure
- Currently being studied, built or operated

Benchmark vs amount, progress, type of project



Benchmark vs business model



Benchmark recommendations



Financing and technical Plan

- 1- **Dedicated project structure** (autonomy, management with differentiated objectives, ...)
- 2- **Explicite mandate between financing parties and other stakeholders** (milestone)
- 3- **Project body to guarantee control by VNF and easing the financing**
- 4- **Governance organization according to sponsor mandate**
- 5- **Technical assistance by independant bodies** (advise, expertise, review,..)
- 6- **Revenue plan consolidated upfront of finalization of financing plan**



Project team organization

- 7- **Structure and proficiency** of project team
- 8- **Dedicated quality management system**, including shared technical and contract references with contractors with controled evolution
- 9- Structuration of **key owner functions** in a project approach
- 10- Mobilization of **EU and international expertise** for Inland Waterways
- 11- **Allotment strategy** for progressive market mobilization
- 12- **Size of team to guarantee local management of the project** (technical, stakeholder)
- 13- **Supplier relation managed** with contract cooperation and risk management
- 14- Upfront involment of **future operation and maintenance teams**



Association of key stakeholders

- 15- Increase of **cooperation with other EU IW Managers**
- 16- Exchange and concertation with local territories (**Grand chantier process**)
- 17- Upfront **cooperation with future users** (bargers, shippers,..)
- 18- **Global development of SNE** (not as infrastructure) but as **system (multimodal transport and land development)**

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Metarules for Project Management

Target

- ✓ Avoid disfunction on identified root causes
- ✓ Provide integration between Project and permanent structure
- ✓ Tools to assist for Project organization

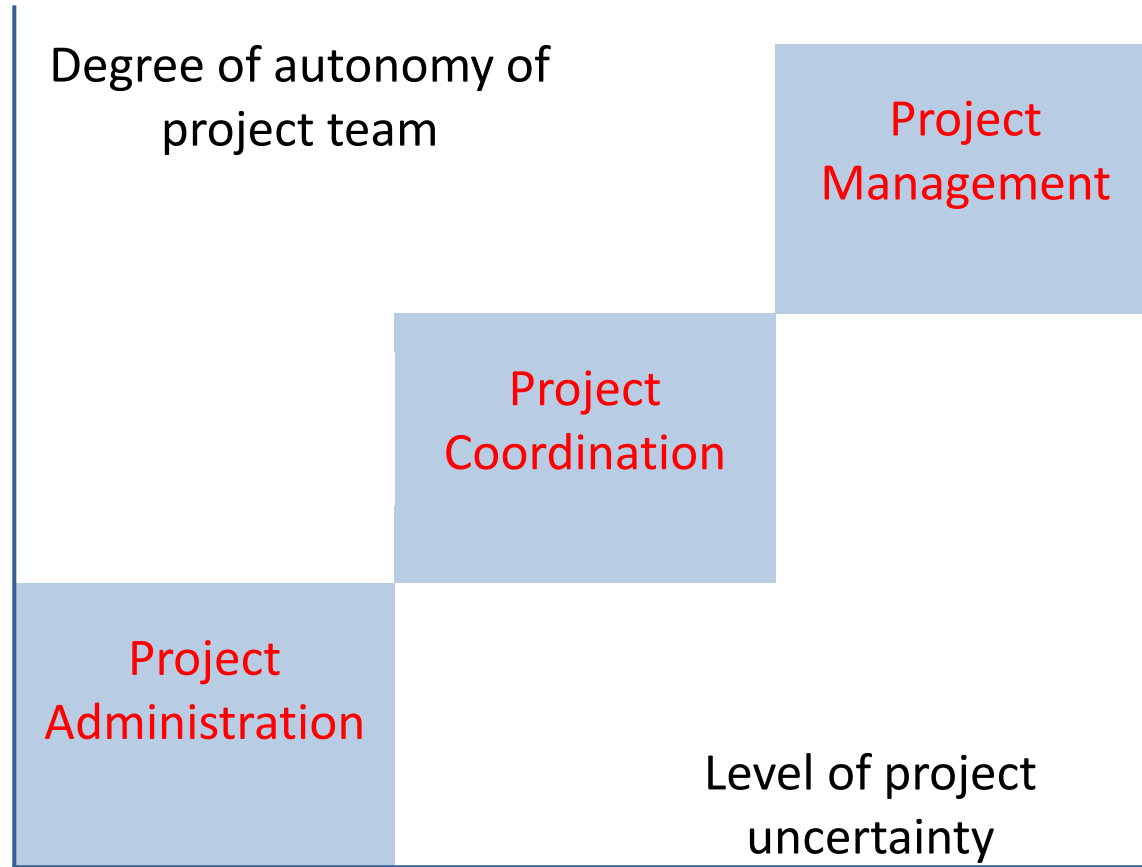
Type of Meta Rules and implementation

- ✓ Five generic metarules for all type pf projects
- ✓ Dedicated metarules (Large/small project/New product/New process,...)
- ✓ Adhoc metarules reference system taking into account identified disfunction and project risk profile

Five generic Metarules

- ✓ Responsibility allocation
- ✓ Development process
- ✓ Proactive Management
- ✓ Process identification and auto-control
- ✓ Behaviour

Choice of Project Management system



Principles of Project Organization



Principles of Project Organization	Classic approach Technical approach	SNE approach System approach	Added value of system approach
Goals	Quality/Cost/Time	Value creation	Innovation and value for cost
Work organization	Task in services/departm.	Multifunctional team	Integrated interface management
Works breakdown	Technical/Discipline	System/Structure	Integrated design with interfaces(ex BIM)
Responsibility	Technical /Discipline	Project/Sub-project	Motivation and interface reduction with a manageable size
Rules	Standard rules	Dedicated rules	Contract optimization
Supplier relation	Supply contract	Performance contract	Collaboration approach : Process/Design/Procurement
Project Management	Budget Reporting method	End Forecast approach	Plan future and end cost vs record the past
Development Process	Standard V Development	Focus and global approach	Adhoc and reactive development process
Soft process	Small importance	High importance	Leadership/Attitudes/Communication/Mobilization
Manager profile	Administrator	Contractor	Optimize and react to the environment

Metarules (ex. For uncertain environment)

Exemple of Metarules for uncertain environment	Principles	Dedicated rules and method
Organization	Project Manager (PM) in charge of organization from dedicated metarules	PM define organization and associated processes
Decision	Supervisory Board integrated for strategic decisions	Joint sponsor team to prepare strategic decisions
Development process	Global approach with focus	Global risk management with mitigation measures
Goals	Goals defined for key processes after a preliminary programme phases	Possibility of stopping the project if key assumptions not fulfilled
Responsibility	Project Manager is responsible in front of the Board	Project Manager receive delegation of power
Dedicated PM function	PM is 100% dedicated to the project	For large and medium size projects
Dedicated organization	Organization is dedicated and evolutive according to project phases	Resources available, integrated and not dependant of other organizations
Resource allocation	PM define functions and select resources according to his organization	He decides on selection and has ability to challenge candidates
Support functions	PM defines internal support functions	Dedicated team with internal staff allocation
Allotment principles	PM select suppliers and partners	PM decides on allotment principles
Structure or responsibilities	Responsibilities are divided in sub-projects	System or structure (for large projects)
Project control	Quality, Cost and time schedule are managed globally (integration)	Only one deciding entity
PM role	PM leads project	Risk alleviation
Key decisions	Critical points are validated upfront	Expert provides advice, but not decision

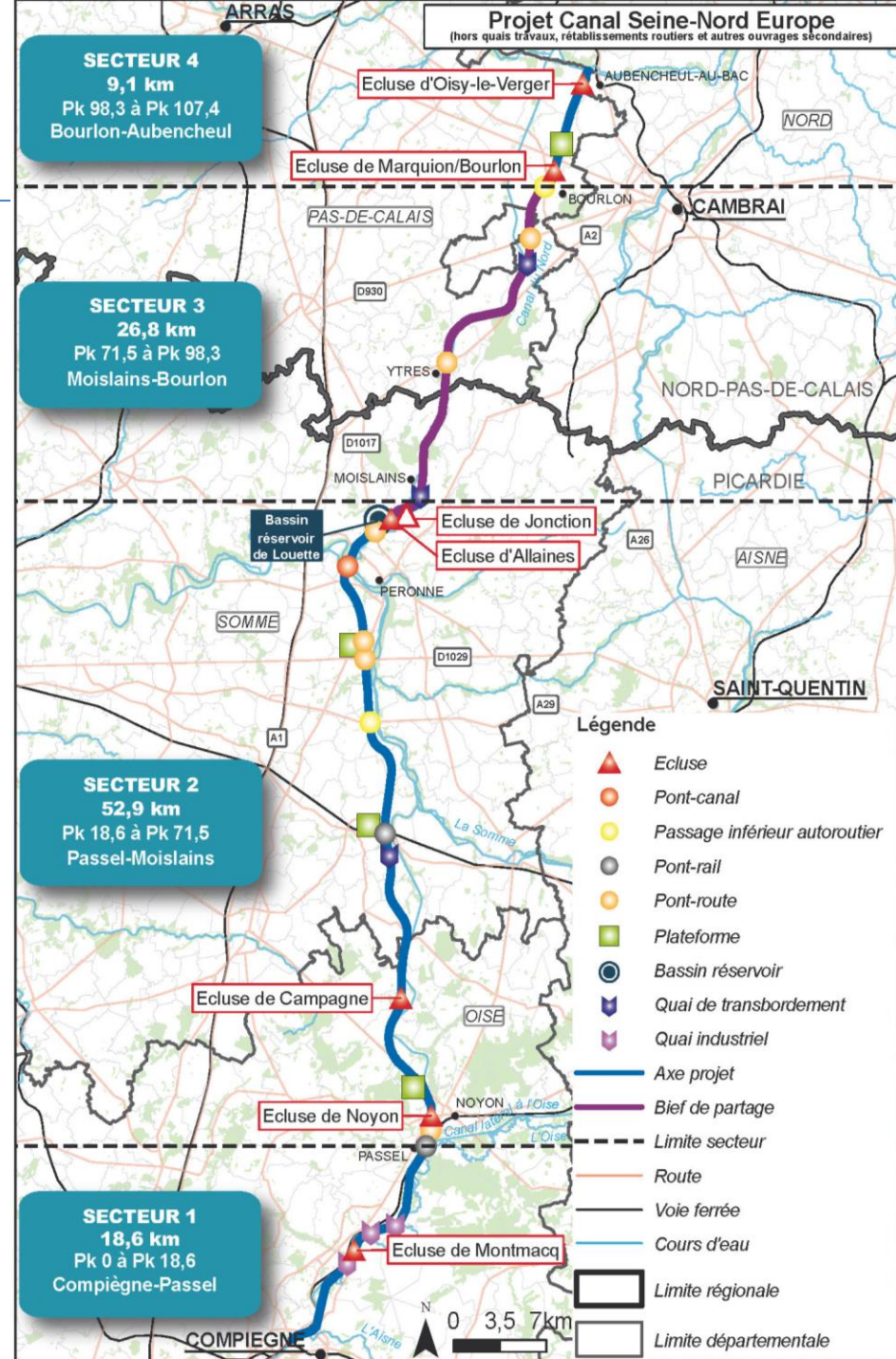
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Example of CSNE sub-project organization in 4 geographical sectors

- ✓ Functional breakdown
- ✓ Interface management
- ✓ Global risk management



A principle of project organization

- The functional breakdown allows to have **consistent sectors in terms of design and work to be performed**
- Each sector is under the **responsibility of a dedicated, geographically located team**, who can control all the data and steer all the stakeholders involved
- **Costs, risks and lead times are better monitored** by managing a consistent sector, of a controlled size, with reduced internal and external interfaces
- **Geographical boundaries are established** both for functional and organizational reasons
- Each geographical sector has **all 3 main skills to ensure a fully operational “canal” system on the sector**,
 - “Infra” (issues of stability and robustness of the infrastructure),
 - “Water tightness” (issues of sustainable operations, and economics of operations and maintenance),
 - “Locks” (monitoring of the availability and fulfilment of the operational performance objectives).

Organization of the works

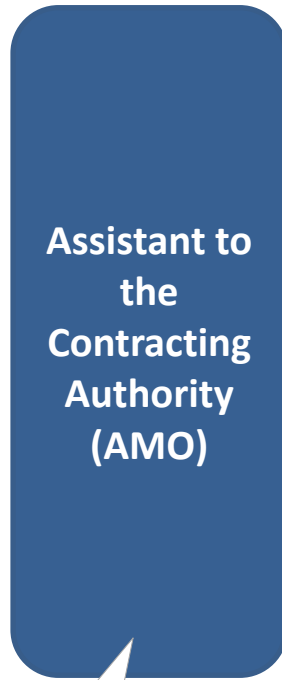
VNF then project company as from 2016



Contracting authority (MOA)

Steers the project

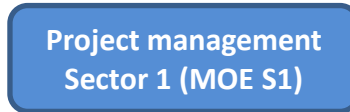
Setec – RH-DHV Consortium Chosen in June 2015



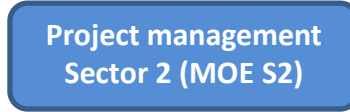
Assistant to the Contracting Authority (AMO)

Assists the CA in steering the project

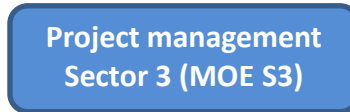
Choice in 2016



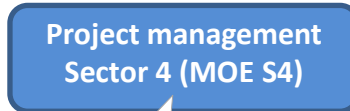
Project management Sector 1 (MOE S1)



Project management Sector 2 (MOE S2)



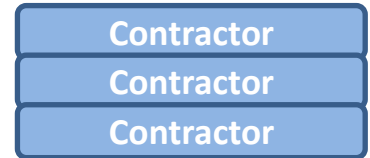
Project management Sector 3 (MOE S3)



Project management Sector 4 (MOE S4)

Conducts studies and supervises works

Choice as from 2017



Contractor
Contractor
Contractor



Contractor
Contractor
Contractor



Contractor
Contractor
Contractor



Contractor
Contractor
Contractor

Performs the works

Risk alleviation with the "Grand Chantier" procedures and "Canal Entreprise" web site for contractors and future SNE users

Industrialise the construction logistics using existing quays on Canal du Nord to prefigure future SNE transport offer with return flows (15 MT)

✓ Reduce the logistic risks during the construction period


- Supply the construction site in a reliable and regular way
- Reduce the impact of road transport in the villages along the route
- Pool transport and storage solutions in order to reduce costs and the impact of the traffic on the region
- Maintain transit traffic by managing the impact of the construction site

✓ Reduce the revenue risk before the SNE commissioning

- Develop an integrated logistical and multimodal offer
- Increase traffic and enhance the Canal du Nord so that they can be switched over to the Seine-Nord Europe from 2023
- Pre-plan for the SNE's platforms
- Organise a modern and competitive fleet and inland waterway industry

Transport and storage of construction materials and equipments from 2017 to 2024



 Loading and unloading quays for construction materials (River and Rail)

Fundamentals of metarules for projects

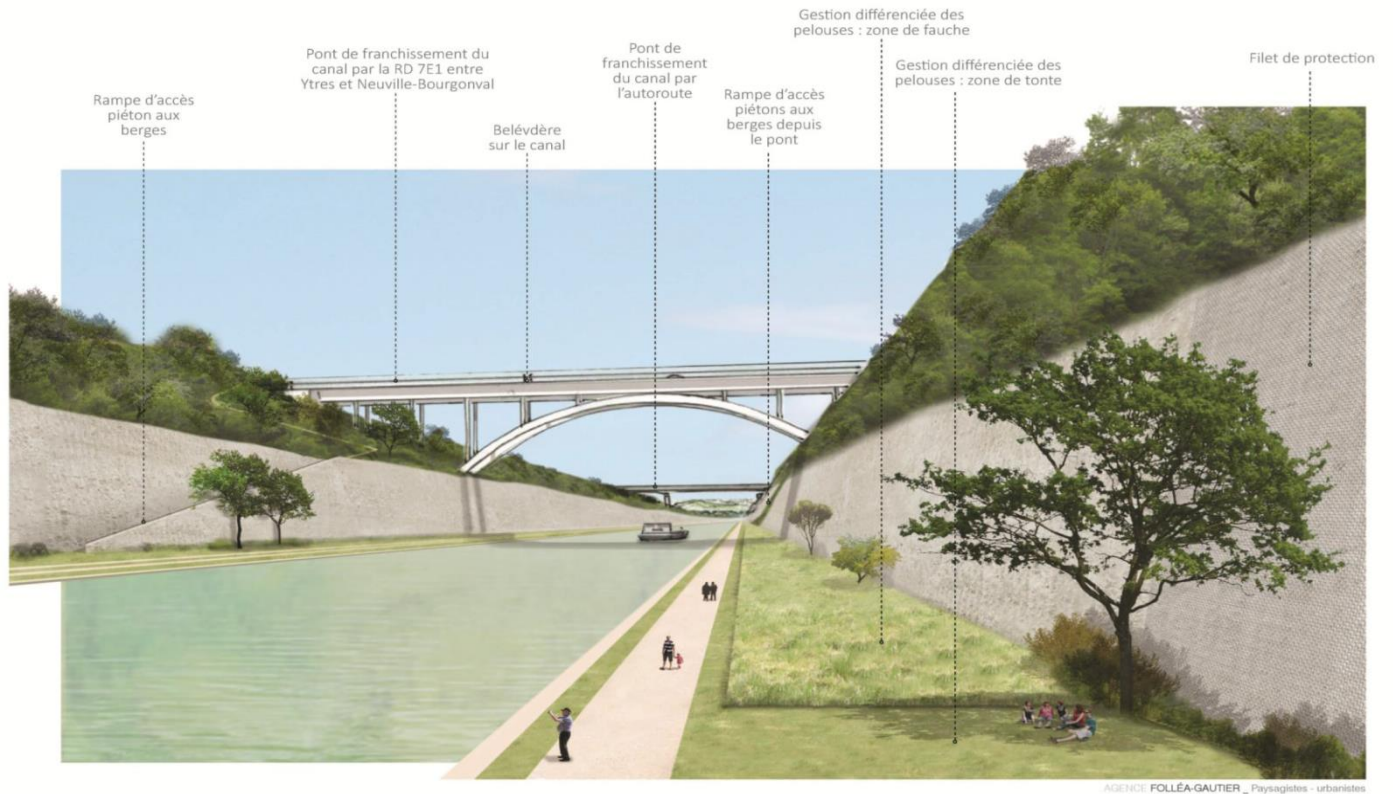
From conception to completion (Stallworthy/Kharbanda 1985)

- ✓ *The total exceeds the sum of the parts*
- ✓ *A project is an organic whole*
- ✓ *The environment is dynamic*
- ✓ *The whole is more beautiful than its parts*
- ✓ *The project manager is vital*

Planning is the crux

- ✓ Plan, develop and decide
- ✓ Plan, organize and prepare
- ✓ Plan, identify risks, and alleviate
- ✓ Plan, mobilize stakeholders and responsabilize
- ✓ Plan, procure and built
- ✓ Plan, control and audit
- ✓ Plan, deliver and operate.....

.....but changes occurs....and PM team plan and reacts.....



Thank you for your attention and questions..

Nicolas Bour
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