

CHILEAN MANAGEMENT SYSTEM FOR SINGULAR INFRASTRUCTURES PROJECTS:

BIDDING PROCESS (SIP-TMS)



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Road Department – Ministry of Public Works



The Roads Department of the Ministry of Public Works has, among others, the mission of the planning, design, construction, replacement and repair of bridges, footbridges within the road network:

Under its custody:

Basic and Community network.



Contracts MOP



Traditional System

- Design Contract
- Construction Contract
- Contractor build
- Payment: Stages during the contract

Legal Codes:

- RCOP Decree MOP N° 75 year 2004
- RCTC Decree MOP
- Bidding Process
- Tender of Contractor
- Decree of Awarded

Exception:

**Supreme Decree (President Resolution),
where Special Basis or Contract**

Contracts MOP



Traditional System

MOP qualified Recorded List

Major

Minor

Special
List

Emergency System

Direct Deal

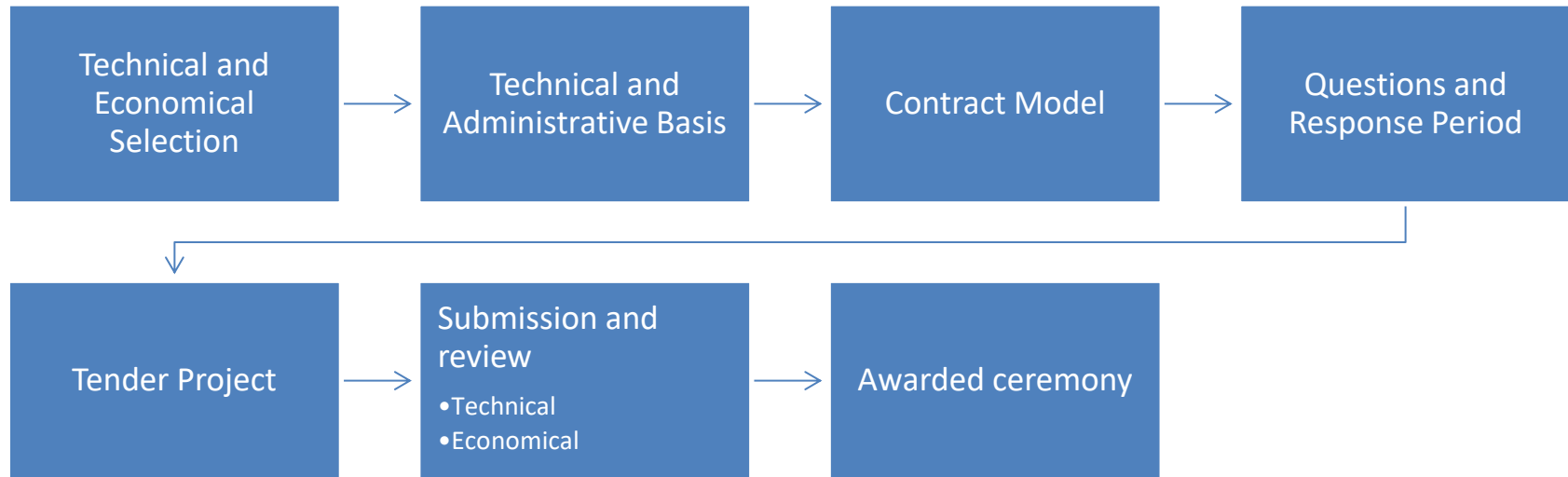
- An emergency

Private Quote

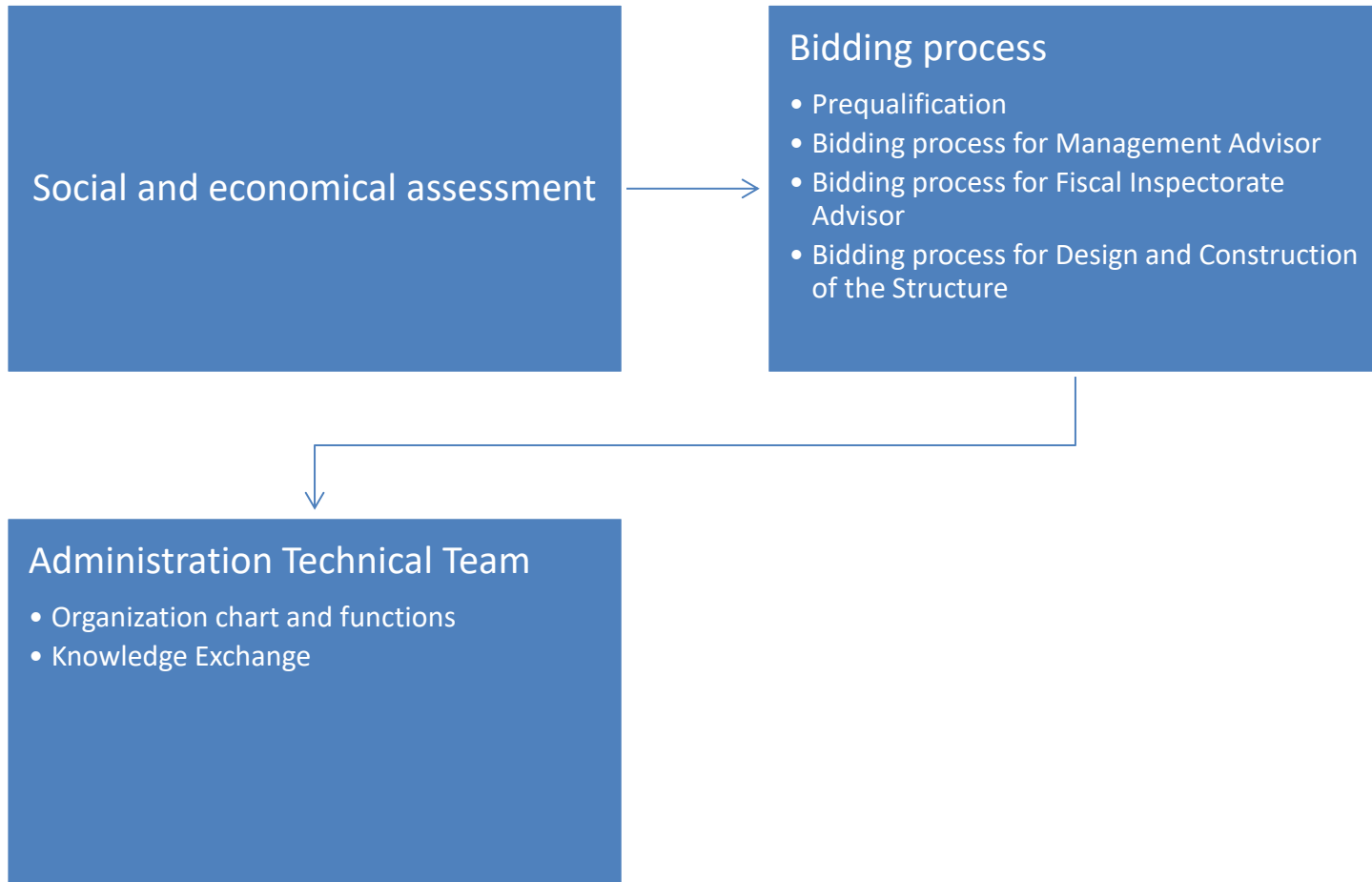
- Specialists in the requested field



Traditional Bidding Process



Bidding Process (SIP-TMS)



Suspension Bridges

3

Puente General Carrera

Región de Aysén



4

Puente Ibáñez

Región de Aysén

Span 210 meters



Latest Important Projects

Bidding process of D&B

1. Chacao Bridge



CCOP (PPP Contract)

2. Américo Vespucio Oriente Highway
3. Costanera Central Highway



General background of the project



- | | |
|---------------------------|--|
| Project | : International bidding: Chacao Bridge Design and Construction |
| Type of contract | : Traditional system of public works contracts |
| Bridge Typology | : Suspension bridge about 2.75 km in length
Large spans (more vain about 1,055 and 1,155 m) |
| Location | : Los Lagos region, 1,100 km south of Santiago |
| Maximum investment | : USD 740 million
Total project) |



Characteristics of the area of location

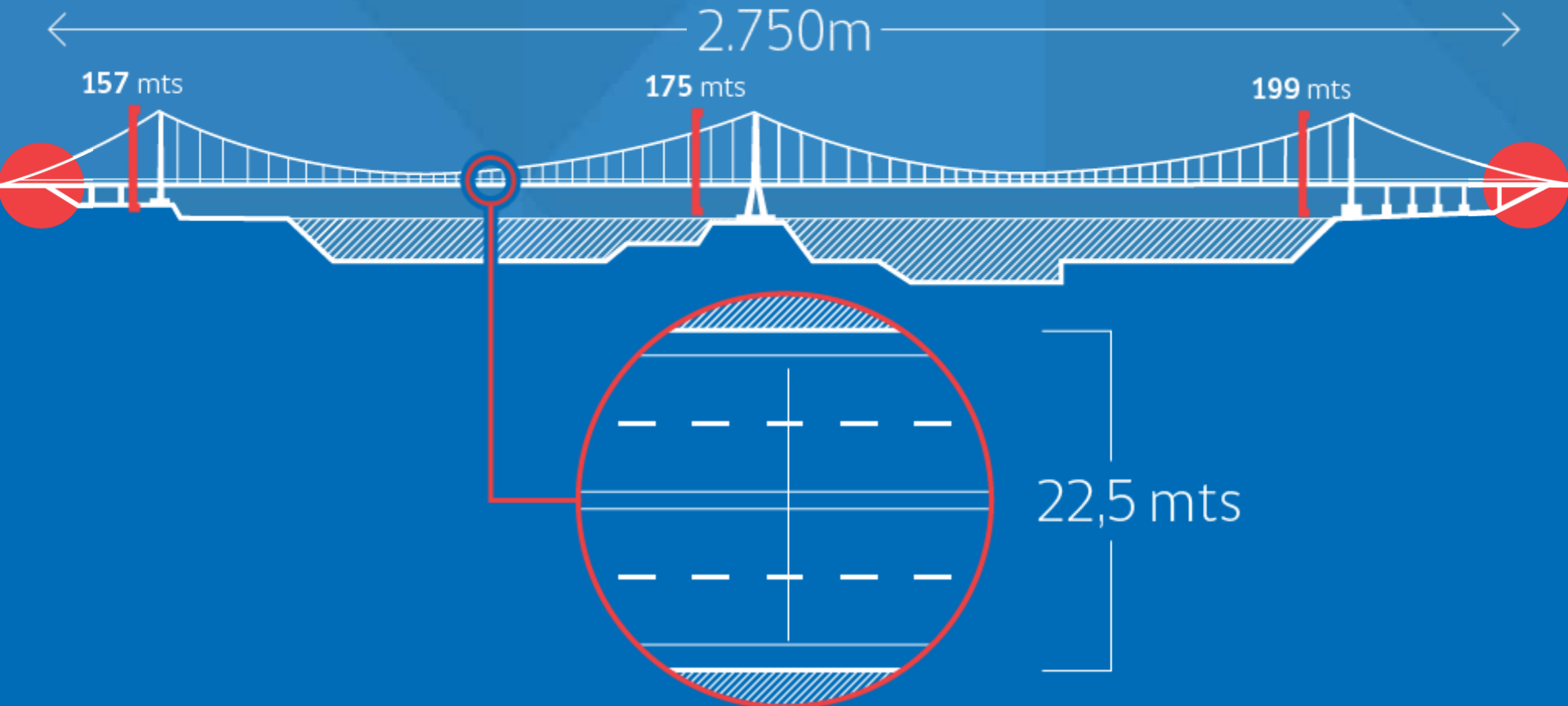


- Chiloé Island and bridge construction sector, are in a highly seismic zone
- The channel is characterized by strong winds, tides and currents
- The depth of the channel reaches a maximum of 120 m
- In the central part of the channel there is a place called Roca Remolinos, which can support the central pylon



Structural Scheme: Chacao Bridge

PPWS Method





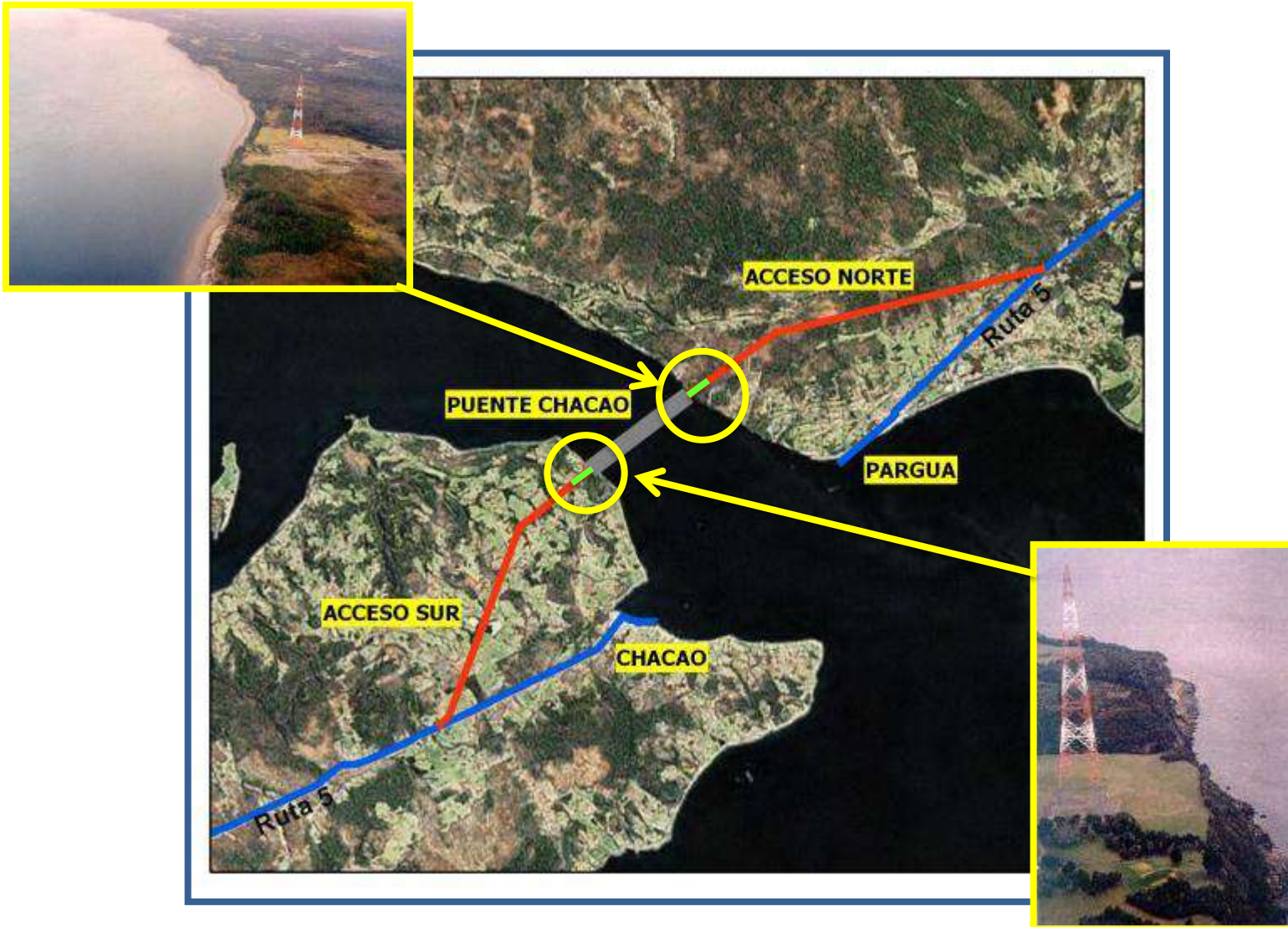
Suspension Bridges

Largest spans in service

1	Akashi Kaikyo	Isla Awaji – Kobe, Japón	1.991	1998
2	Xihoumen	Archipiélago Zhoushan, China	1.650	2009
3	Great Belt	Halsskov – Sprogø, Dinamarca	1.624	1998
4	Yi Sun Sin	Yeosu – Gwangyang, Corea del Sur	1.545	2012
5	Runyang	Río Yangtzé, China	1.490	2005
6	Humber	Barton – Hull, Inglaterra	1.410	1981
7	Jiangyin	Río Yangtzé, China	1.385	1999
8	Tsing Ma	Tsing Yi – Ma Wan, Hong Kong	1.377	1997
9	Verrazano Narrows	New York, Estados Unidos	1.298	1964
17	Chacao	Canal de Chacao, Chile	1.155	2020

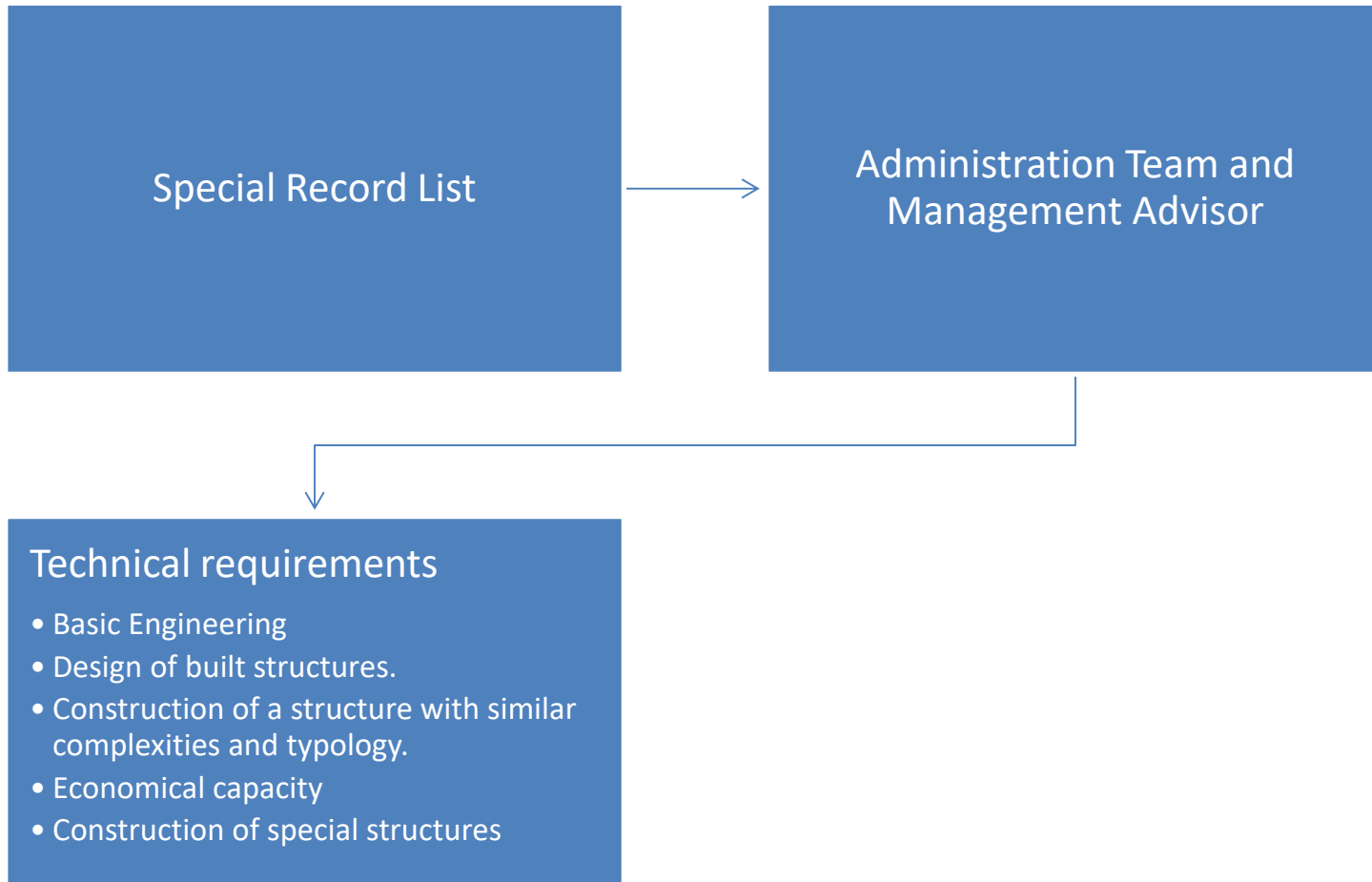


Location and Access Bridge



Bidding Process (SIP-TMS)

Prequalification





REQUISITOS

para la precalificación

INGENIERÍA Y DISEÑO

de al menos un puente colgante de vano mayor, igual o superior a 600m, puesto en servicio desde el año 1985 en adelante.

ESTUDIOS DE ING. BÁSICA

geológicos, geotécnicos, de vientos e hidráulica marina.

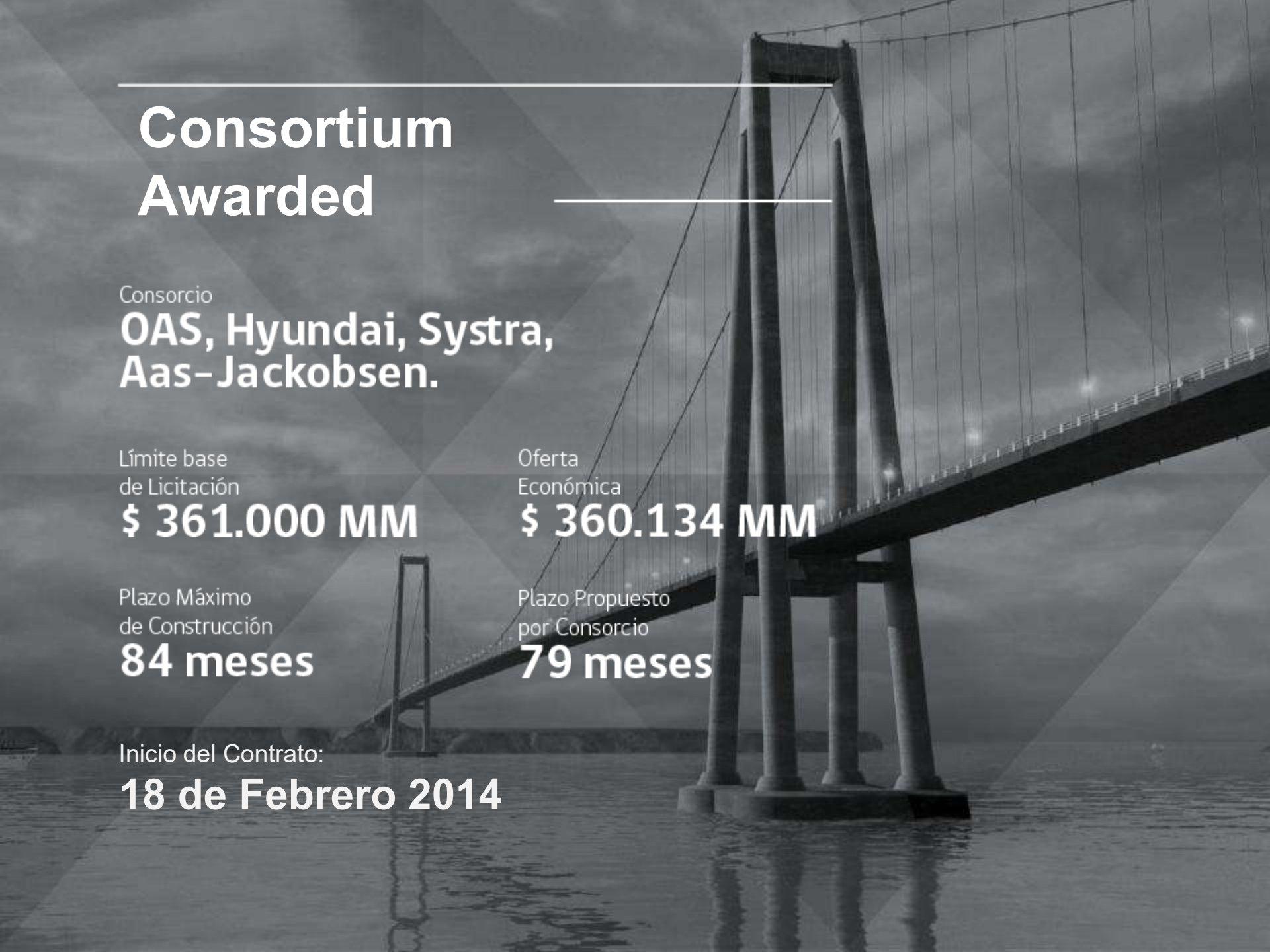
CONSTRUCCIÓN

FUNDACIONES BAJO EL AGUA

off shore, marinas o fluviales, en profundidades superiores a los 20m realizadas desde el año 1985 y hasta el 31 de Julio de 2012.

CAPITAL DE TRABAJO

acreditado superior a USD 200 millones



Consortium Awarded

Consortio

**OAS, Hyundai, Systra,
Aas-Jackobsen.**

Límite base
de Licitación

\$ 361.000 MM

Oferta
Económica

\$ 360.134 MM

Plazo Máximo
de Construcción

84 meses

Plazo Propuesto
por Consorcio

79 meses

Inicio del Contrato:

18 de Febrero 2014

Bidding Process (SIP-TMS) Management Advisor

Background analysis

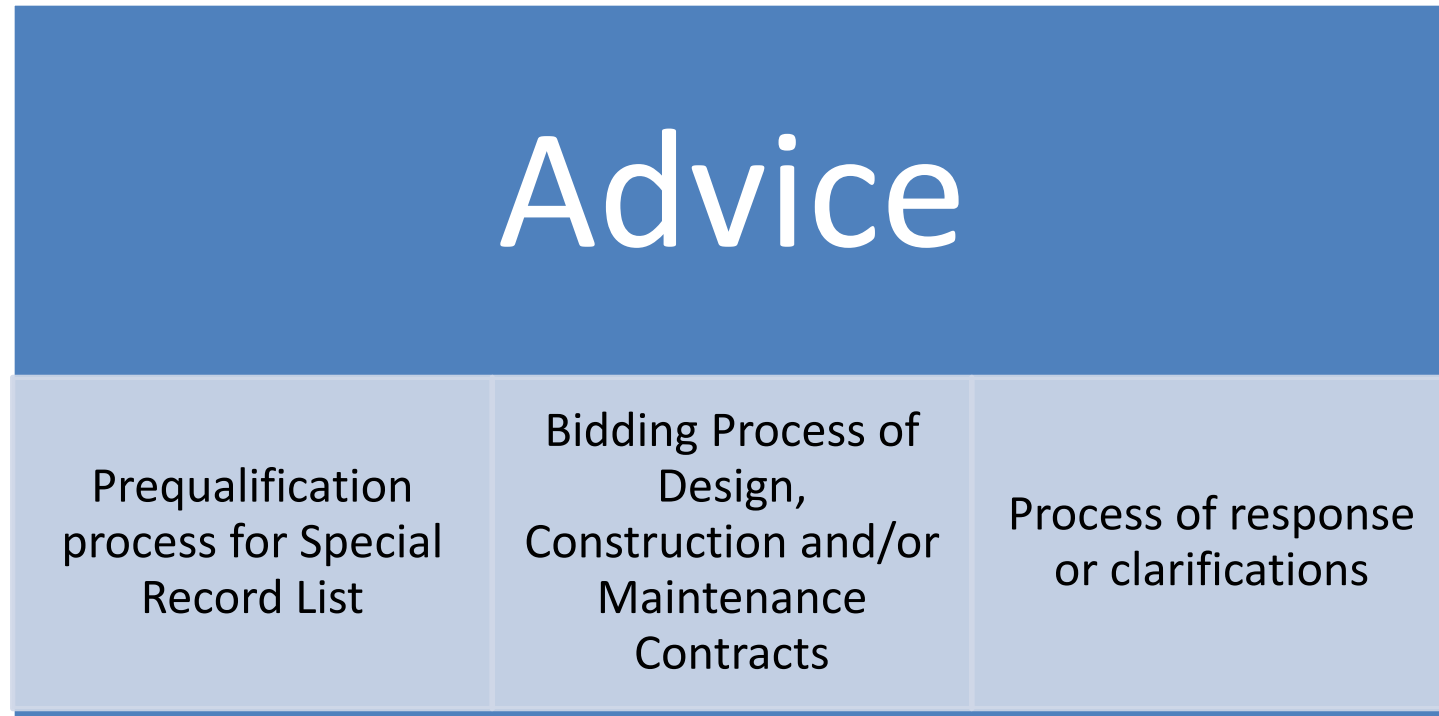


Digital and Physical File



BIM





Study and analyze the background
Develop a critical analysis of the Technical Basis



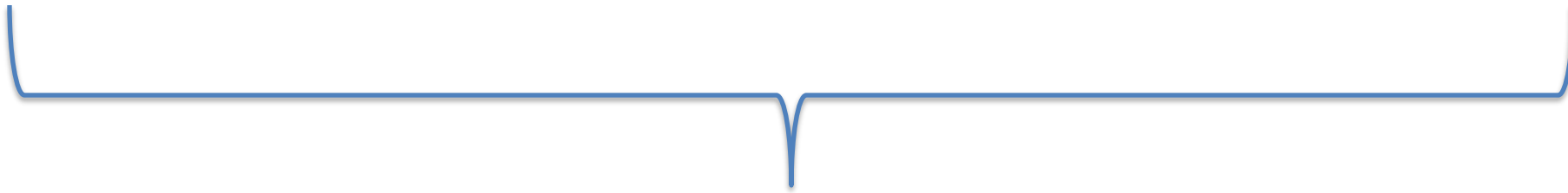
Bidding Process (SIP-TMS) Management Advisor



Elaboration of Final Basis
and Check List for Tenders

Assessment of the
Proposal Projects

Advisory during award
process



Coordination Meetings
Technical Meetings



Bidding Process (SIP-TMS) Management Advisor



Advisory Team



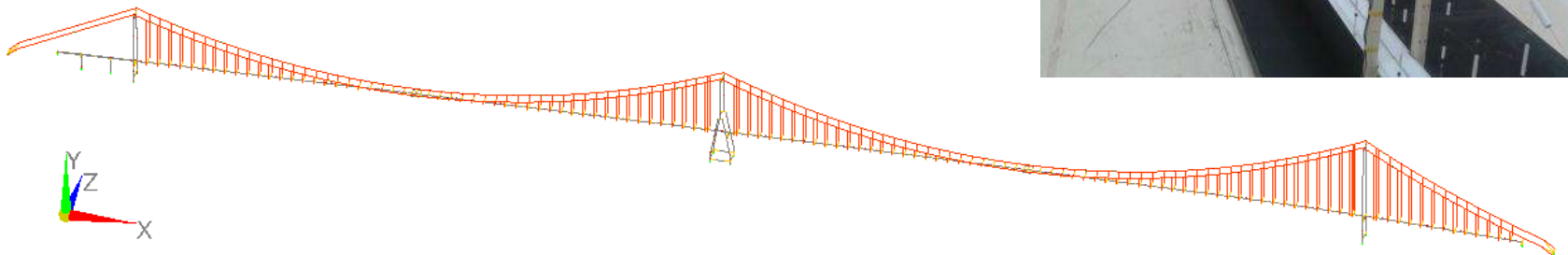
Permanent staff



Support staff



Administration Team



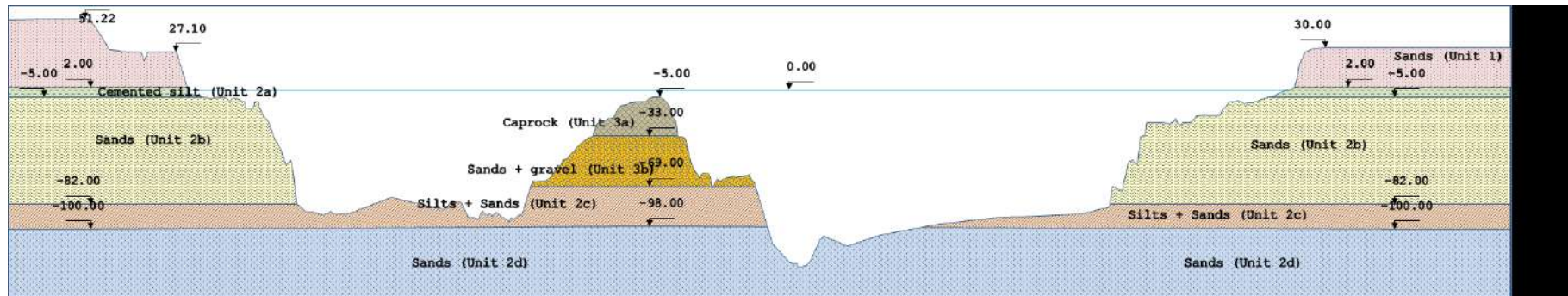
Basic Engineering: Current and reference

Topography and Geodesy



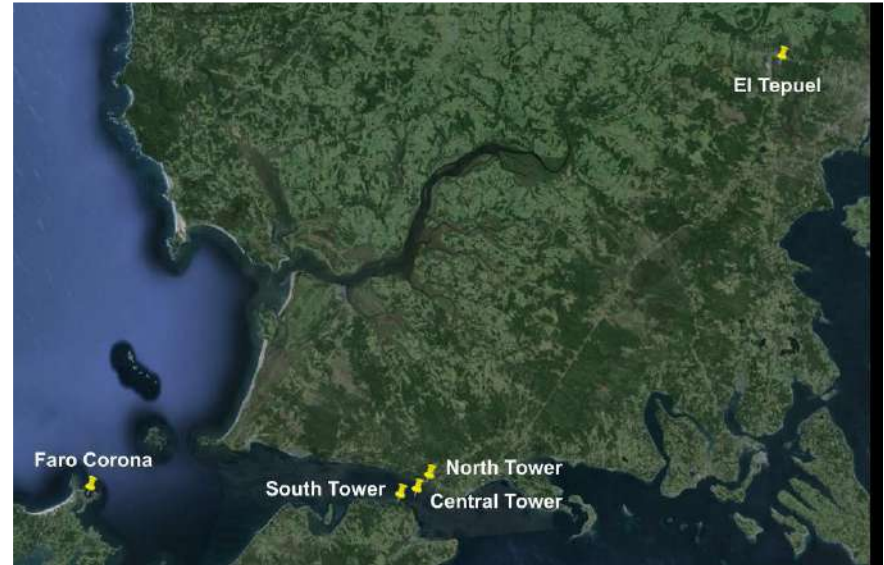
Basic Engineering: Current and reference

Geology and Geotechnic



Basic Engineering: Current and reference

Wind measurements



Basic Engineering: Current and reference

Seismic
studies



Basic Engineering: Current and reference

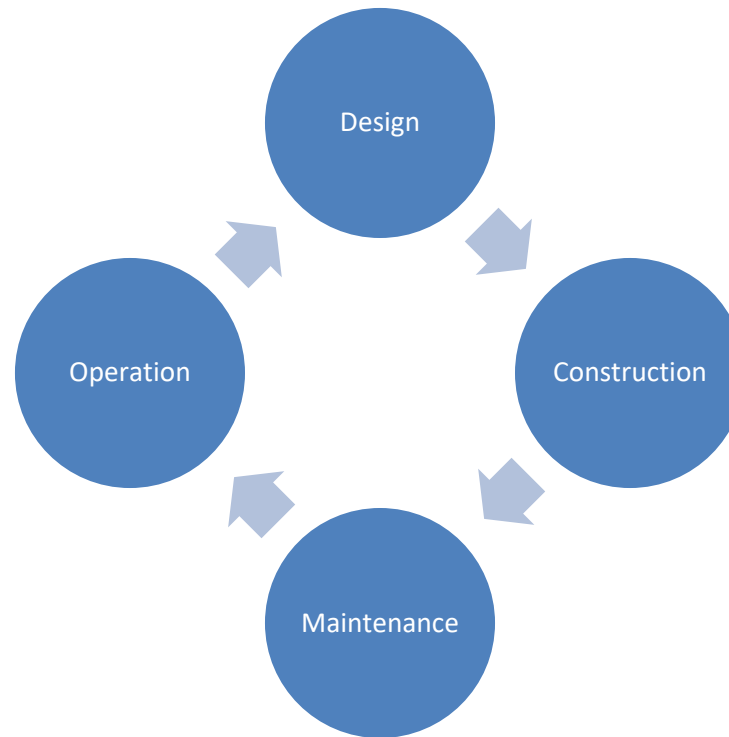


Maritime
studies



Bidding Process (SIP-TMS)

Technical Visit



Technical Visits



Maintenance Cables (New Carquinez)



Hanger (New Carquinez)



Technical Visits



(Tacoma Narrows 2007 - 1950)



(Golden Gate)



(Mackinac)



Technical Visits



Hedges, lifts
(Mackinac)



Technical Visits



**Piers
(SAS)**



**Cranes
(SAS)**



**Trucks
(SAS)**



**Cranes
(SAS)**



Technical Visits

- Mackinac - Museum



Technical Visits

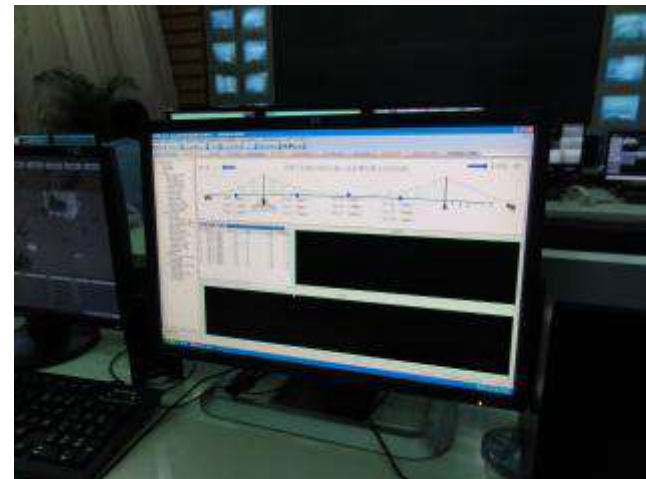
- Golden Gate



Technical Visits

Xihoumen Bridge

BMS Buildings



Bidding Process (SIP-TMS)

Final Report



General review of the Tender Project

Complementary opinion of the Project from professionals and experts

Integrity review of the structure (bridge, tunnel, port, among others)

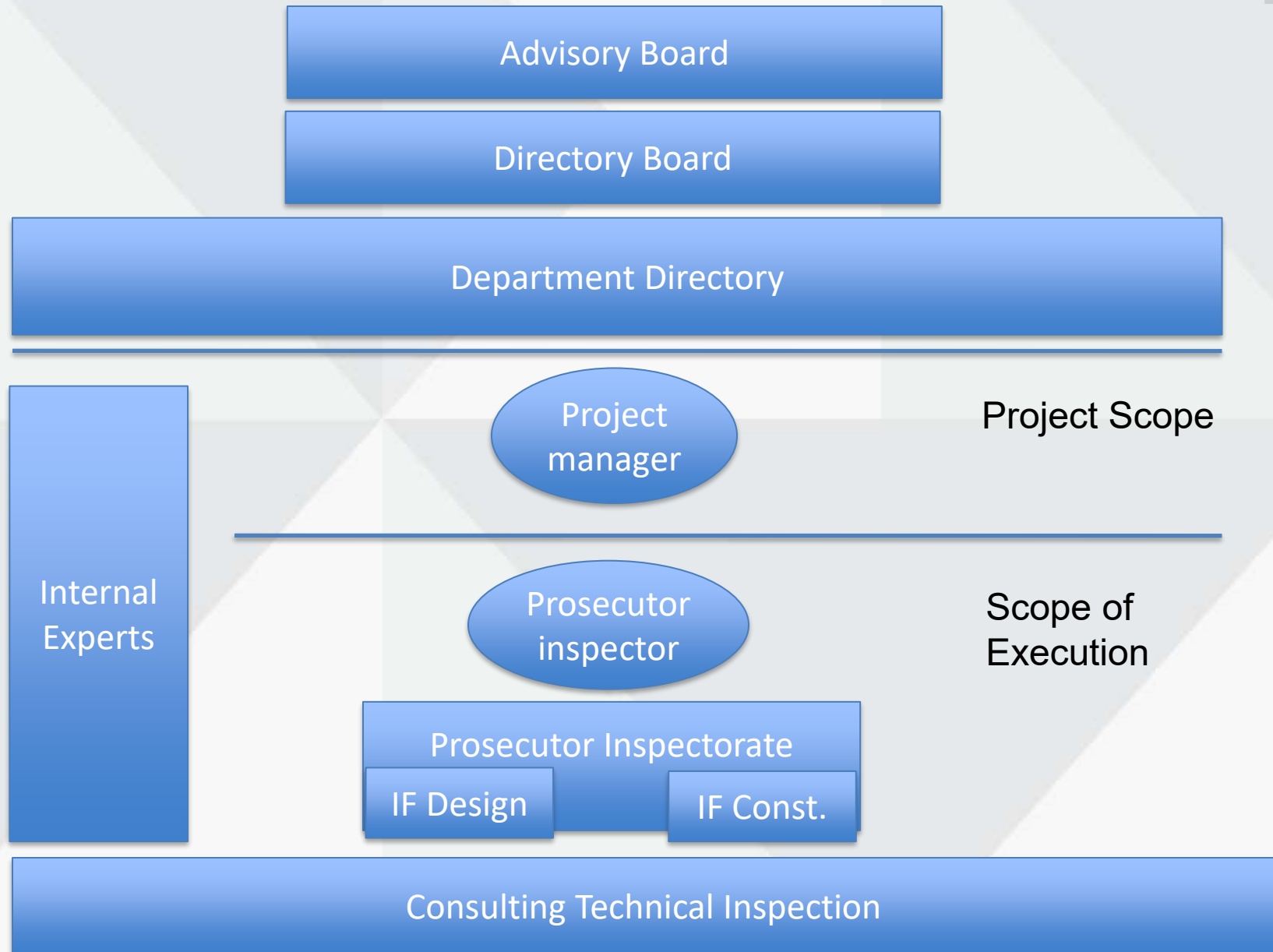
Report of suitability of the Project.



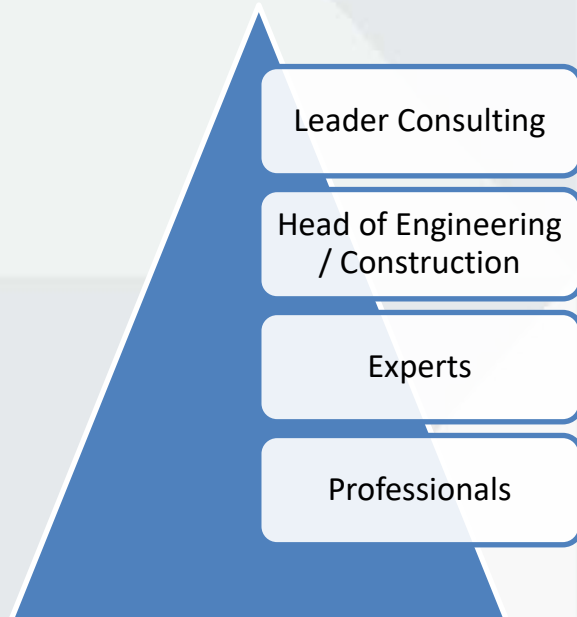
The background of the slide is a photograph of a large suspension bridge at night. The bridge's tall towers and cables are silhouetted against a dark, cloudy sky. The bridge deck extends from the right side of the frame towards the left. A large, semi-transparent red rectangle is positioned on the left side of the image, containing the text 'INSPECTION TEAM'. This rectangle is further divided into several overlapping triangles of varying shades of red, creating a geometric pattern.

INSPECTION TEAM

Structure of Owner



LEVELS OF INTERRELATION BETWEEN CLIENT AND CONTRACTOR



Consulting Technical Inspection



Prosecutor Inspectorate



Contractor

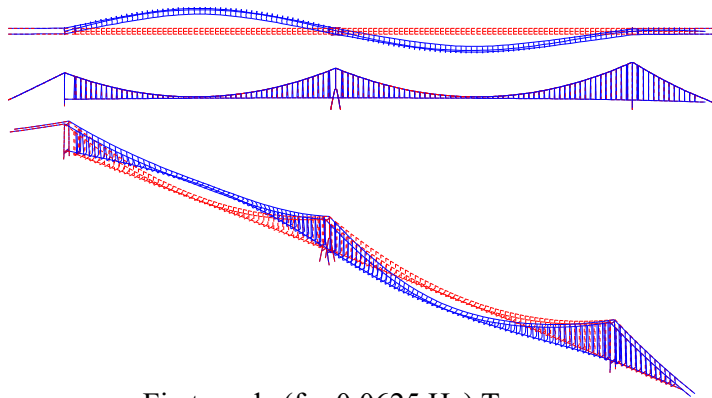
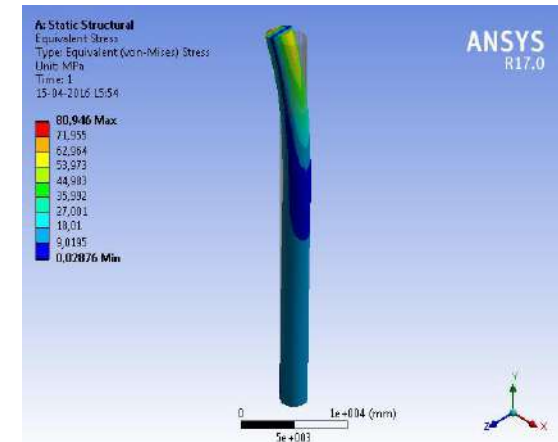
Bidding Process (SIP-TMS)

Dissemination and Exchange Of Knowledge

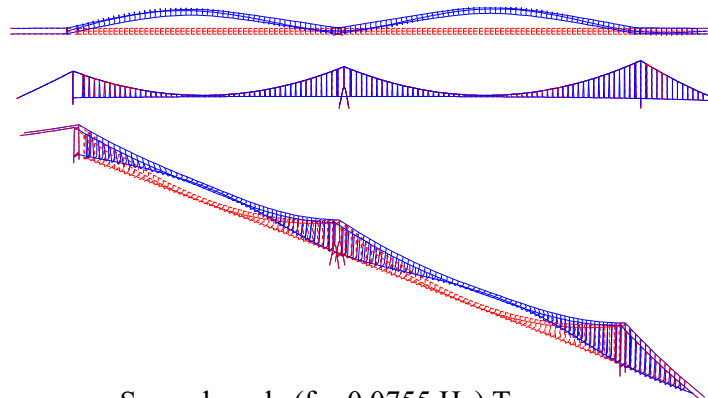
- Agreements MOP – Universities

Dynamic Behavior

Piles study

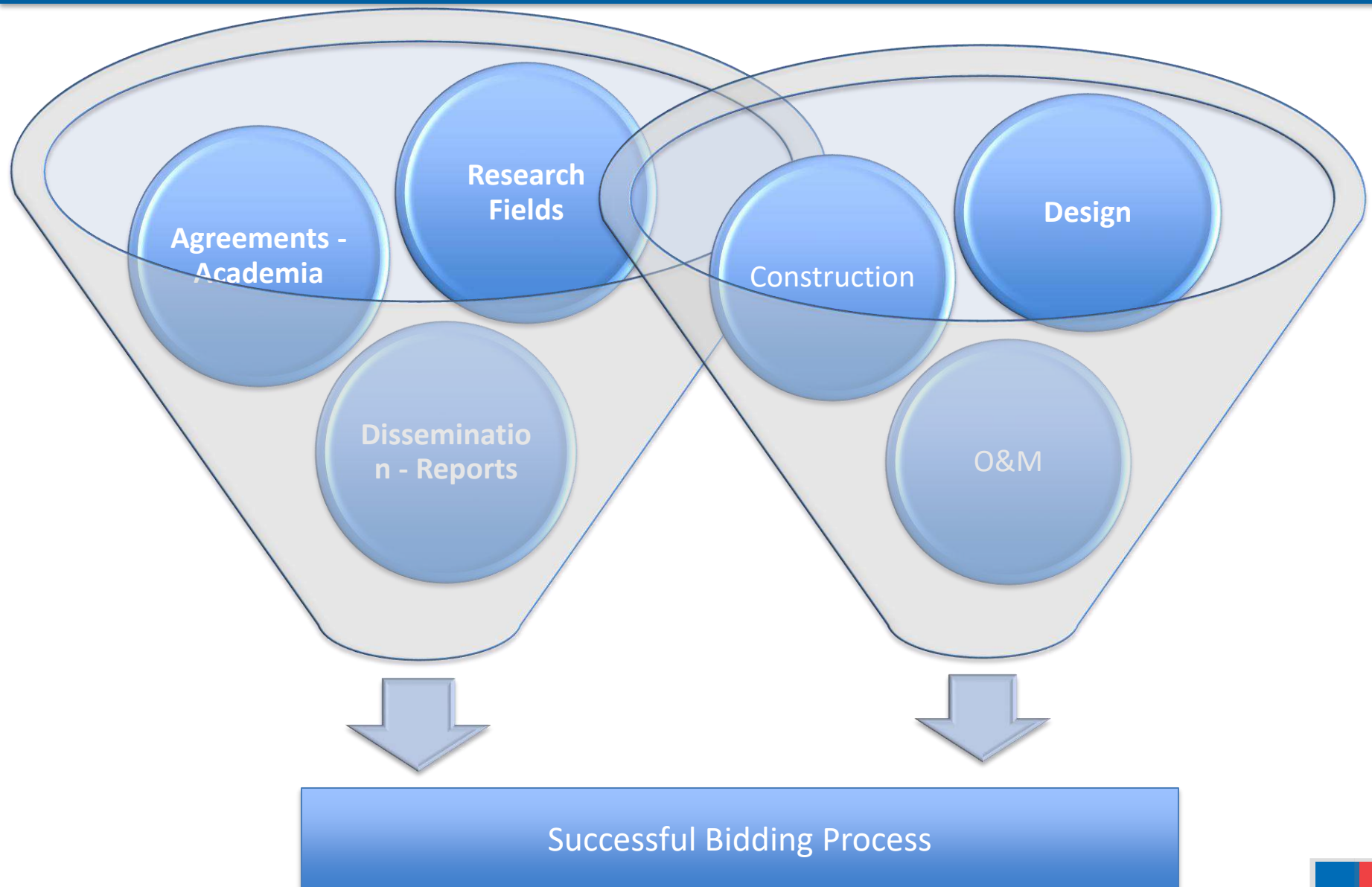


First mode ($f = 0.0625$ Hz) Transverse



Second mode ($f = 0.0755$ Hz) Transverse

Final Comments



Final Comments

The Chilean Administration has implemented a new methodology of management for nontraditional structures, following SIP-TMS method presented in this paper. The first application of this method was the Chacao Bridge Project.

To use the traditional codes as a framework of the nontraditional structures.

A new code or normative has to be developed for this kind of projects.

Support of the technical teams and the authorities.

The Administration has to prepare a background of the project with special focus on:

- Administrative issues,
- Conceptual design and basic engineering

An advisor team has to be hired with national and international experience.

Exchange knowledge and dissemination are the two main concepts that have to be promoted in this project.



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