



GOBIERNO
DE ESPAÑA

MINISTERIO
DE TRANSPORTES
Y MOVILIDAD SOSTENIBLE

COMISIÓN INTERMINISTERIAL

B I M

Spanish BIM Plan in Public Procurement



01 What is BIM?

02 Background

03 BIM Plan in Public Procurement

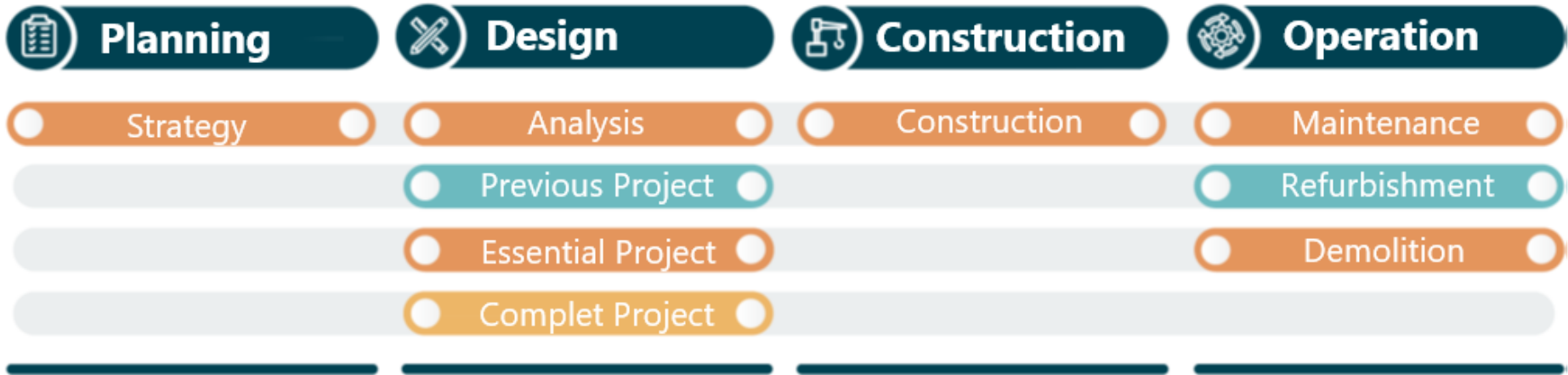
04 BIM+



01. What is BIM?

01 What is BIM?

- ≡ BIM (BUILDING INFORMATION MODELLING) – methodology or, more generally, as a **way of working in the construction sector**, which is based on the **collaboration among different agents** (contracting authority, architecture studio, consulting or engineering company, construction company, etc.) around **digital models** that are 3D representations of the assets to which different types of information are associated, such as costs or maintenance actions or programming of actions, among others.
- ≡ BIM – the digital and collaborative management of **information**, throughout the **life cycle of assets**, with the participation of all its agents.





01 What is BIM?

≡ **“BIM is 10% technology and 90% sociology”** *Scott Simpson,*
director of the American Institute of Architecture (AIA)

BIM's success lies not only in mastering the technology but also in nurturing a collaborative and adaptive social environment. Architects who recognize this balance can harness BIM's full potential to transform the built environment.



01 What is BIM?

The screenshot displays the BIMvision 2.28.0 software interface. The main window shows a 3D model of a bridge structure with various components like piers, deck, and railings. The interface includes a top menu bar with options like ARCHIVO, VISTA, OBJETOS, SECCIONES, MEDIDAS, CAMBIOS, and PLUGINS. Below the menu is a toolbar with various tools for navigation and manipulation. On the right side, there is a 'Estructura IFC' panel with a table listing elements and their properties.

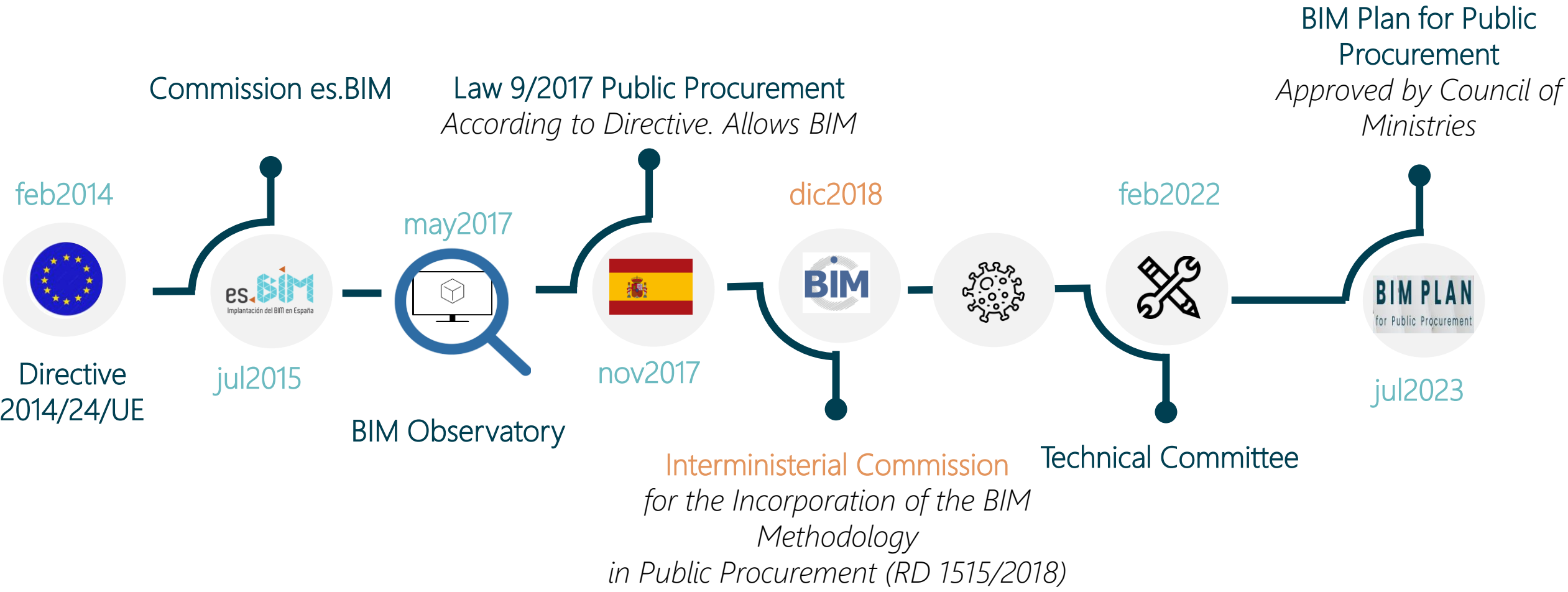
Activo	Tipo	Tipo / Elemento	Desc
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Propiedades		Localización	Clasificación	Relaciones
Tipo / Elemento	Valor			Unidad
Element Specific				
Guid	2uJoRJWS_PB00000000Evj			
IfcEntity	IfcBuildingElementProxy			
200_MEDICIONES				
202_Capitulo	5			
203_Subcapitulo_1	5.5			
204_Subcapitulo_2	5.2.3			
205_Subcapitulo_3	-			
206_Subcapitulo_4	-			
210_Unidad_Obra_Directa	5.2.3.6			
220_Unidad_Medida_Directa	m3			
230_Longitud				
231_Superficie				
232_Volumen	132,19			
240_Formula_Medición_Directa				
Auxiliar				
Area	0			
Espesor	1			
Handle	EE6D			
LongitudManual	0			
Volume	132,192			



02. Background

≡ Chronology of the implementation of BIM in Spain





≡ Use of BIM is foreseen in:

≡ **Directive 2014/24/UE**: The EU urges Member States to modernise and improve bidding processes through the use of technology, with reference to the BIM methodology. Article 22.4 states:

≡ For **public works contracts and design contests**, Member States may require the **use of specific electronic tools, such as of building information electronic modelling tools or similar**. In such cases the contracting authorities shall offer **alternative means of access**, as provided for in paragraph 5, until such time as those tools become generally available within the meaning of the second sentence of the first subparagraph of paragraph 1.

≡ **Transposition: Law 9/2017** on Public Procurement: AD 15-6 about **“Rules on communications in regulated procedures”**

≡ “6. Para contratos públicos de obras, de concesión de obras, de servicios y concursos de proyectos, y en contratos mixtos que combinen elementos de los mismos, los órganos de contratación podrán exigir el uso de **herramientas electrónicas específicas, tales como herramientas de modelado digital de la información de la construcción (BIM) o herramientas similares**. En esos casos, ofrecerán **medios de acceso alternativos** según lo dispuesto en el apartado 7 de la presente Disposición adicional hasta el momento en que dichas herramientas estén generalmente disponibles para los operadores económicos”.

- ≡ **CIBIM Observatory.** Created in May 2017 to follow the progress on BIM use in public procurement in Spain.
- ≡ Assesses periodically the tenders published on the **State Platform for Public Procurement (Spanish TED)** and regional and local platforms, to identify BIM use and make a qualitative and quantitative evaluation of the BIM tenders.
- ≡ The main products are the **Visualizer** of different kinds of information and the **Quarterly Reports**.





02 Background

≡ CIBIM Observatory.

≡ General quantitative data

≡ Disaggregated data on Ministries and Public entities

≡ BIM requirements in technical documents

≡ BIM evaluation in tenders



27/03/2024

Fecha de actualización

- Seleccionar todo
- 2017
- 2018
- 2019
- 2020
- 2021
- 2022
- 2023

Nivel de Administración

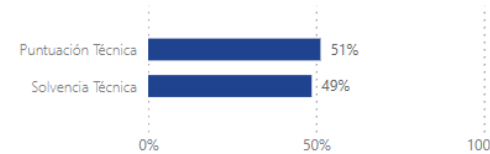
- Seleccionar todo
- Licitación Estado
- Licitación EELL
- Licitación DDPP
- Licitación CCAA

Sector

- Seleccionar todo
- Edificación
- Infraestructuras

Valoración BIM en pliegos

Introducción en pliego de cláusulas administrativas

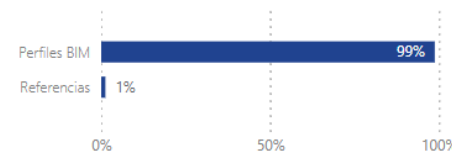


En los pliegos administrativos, la metodología BIM puede ser incorporada de las siguientes formas:

- como uno de los requisitos de idoneidad establecidos en la solvencia técnica que debe poseer el contratista para poder optar al contrato
- como un criterio cualitativo valorable dentro de la puntuación técnica de la oferta
- como mejora o prestación adicional que el licitador puede ofertar o no

ile
dicatario
cliente.
ás

Requisitos BIM en la solvencia técnica

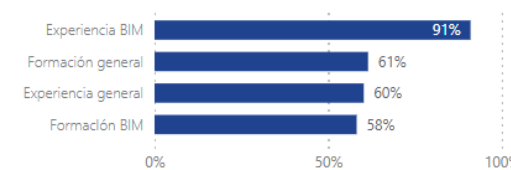


Como parte de la solvencia técnica, BIM se suele materializar de los siguientes modos:

- como la exigencia de contar con perfiles profesionales con experiencia o formación BIM demostrable
- como la exigencia de contar con referencias (haber realizado trabajos previos) en los que se haya aplicado la metodología BIM

11%
6

Detalle de la solvencia técnica: experiencia y formación en perfiles BIM



Entre los requisitos que deben tener los perfiles relacionados con tareas BIM, se suelen contemplar las siguientes casuísticas:

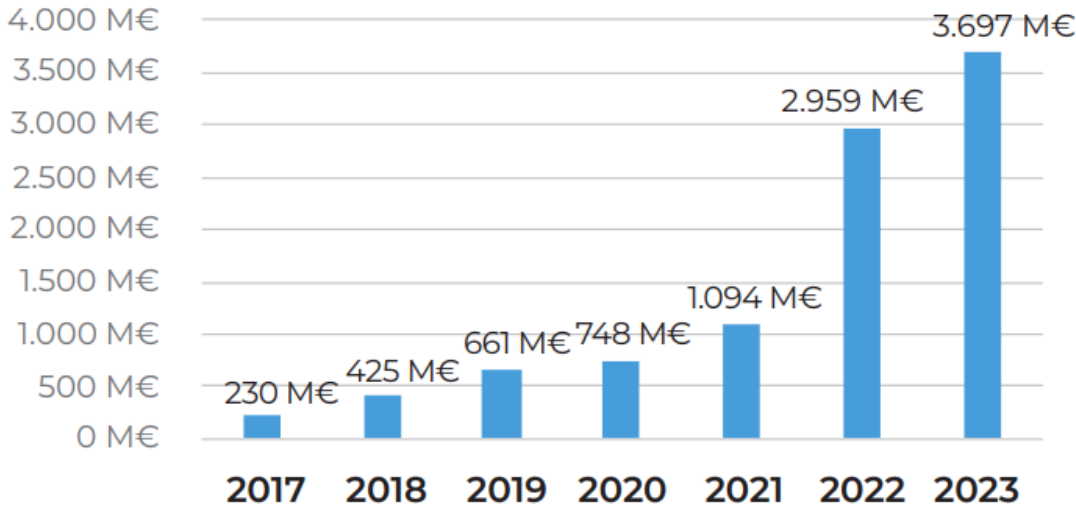
- que dichos perfiles cuenten con experiencia BIM demostrable
- que cuenten con cierto nivel de formación BIM
- o que cuenten con cierto nivel de experiencia o formación sin que estas estén directamente relacionadas con BIM

100%

NUMBER OF PUBLIC CONTRACTS, PUBLISHED WITH BIM REQUIREMENTS, REACHED MORE THAN ONE THOUSAND IN 2023

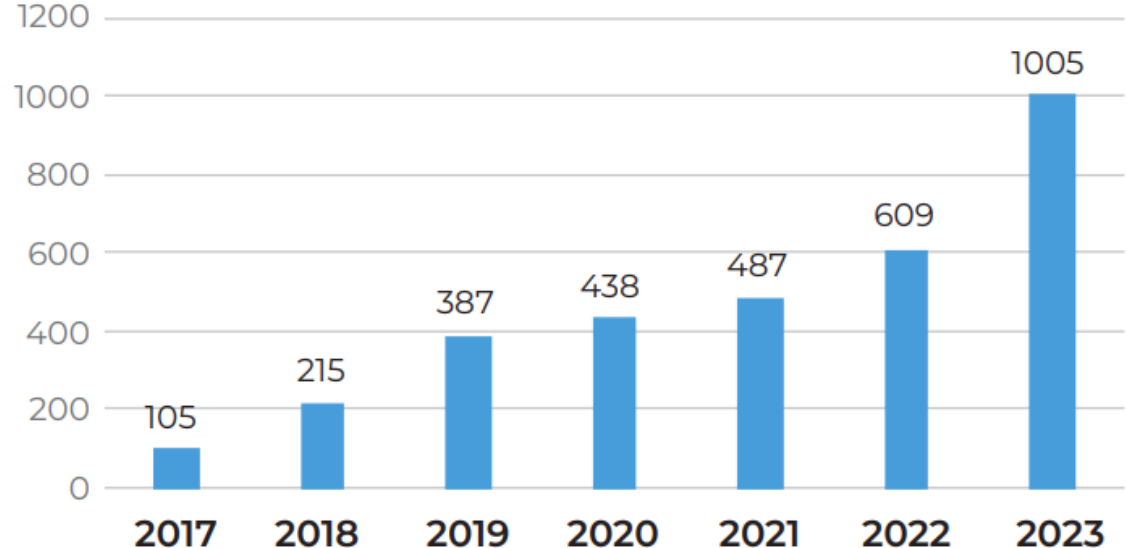
Accumulated investment (estimated contract value)

x16

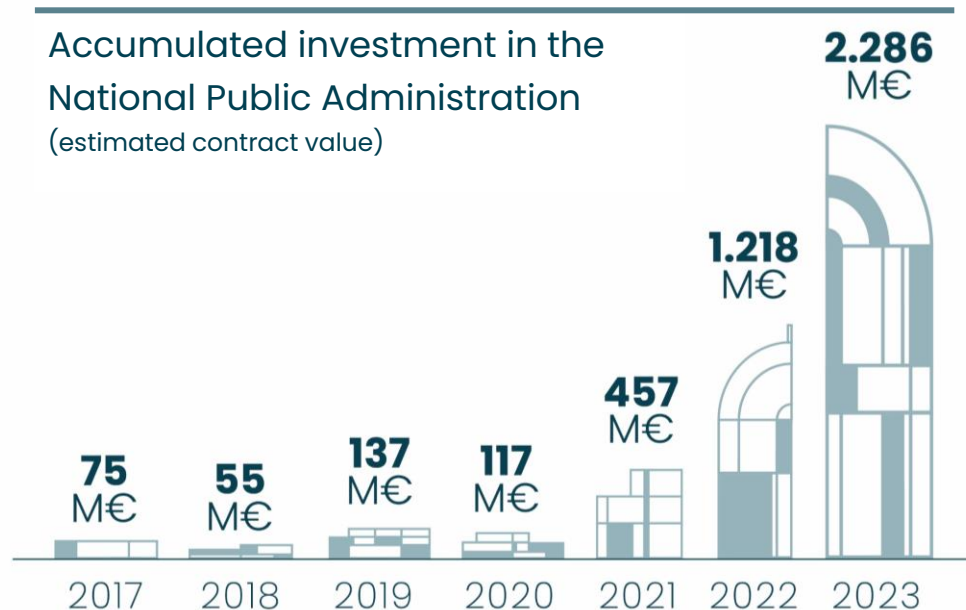


No. Tenders evolution

x10

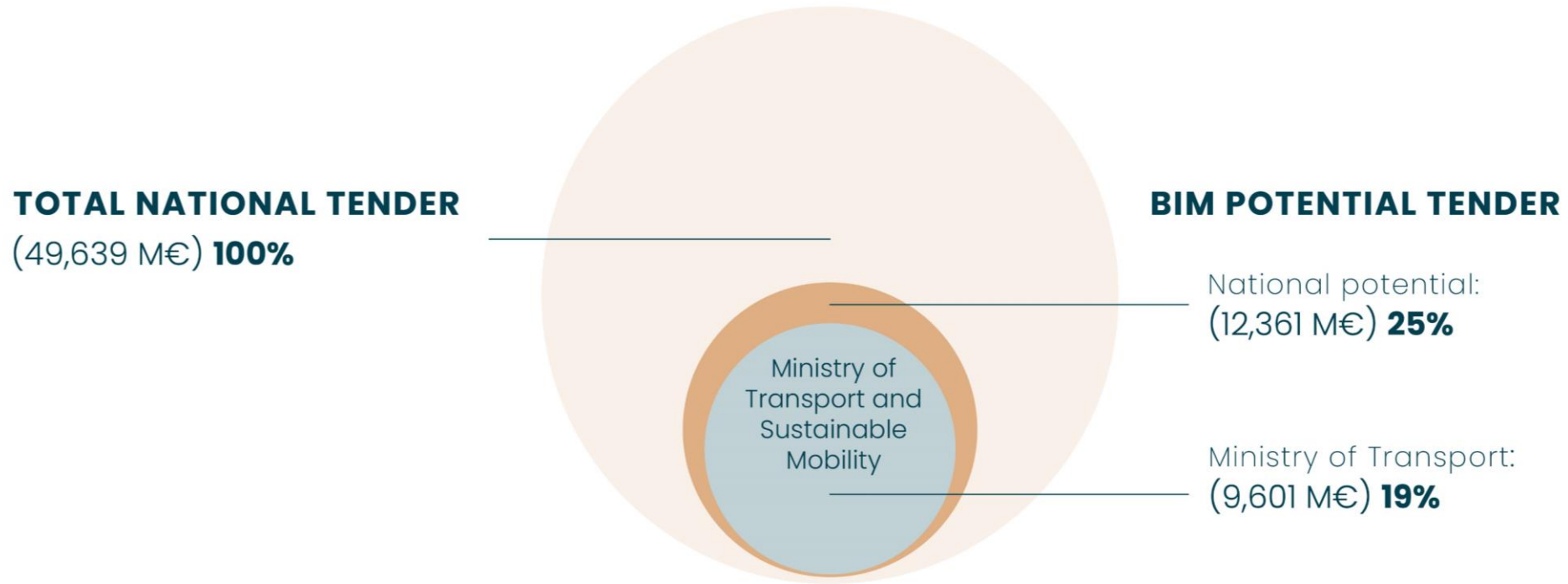


- ≡ In 2023 in the National Public Administration:
 - ≡ **422 public contracts** tendered with use of BIM
 - ≡ Representing **€ 2,286 million** of estimated contract value



- ≡ **2023 Vs 2020:**
 - ≡ **7-times increasing** in the number of contracts
 - ≡ **20-times increasing** in the estimated contract value

Potential use of BIM in National Public Procurement 2023



BIM could be used in 25% of the total tenders (12.361 M€)

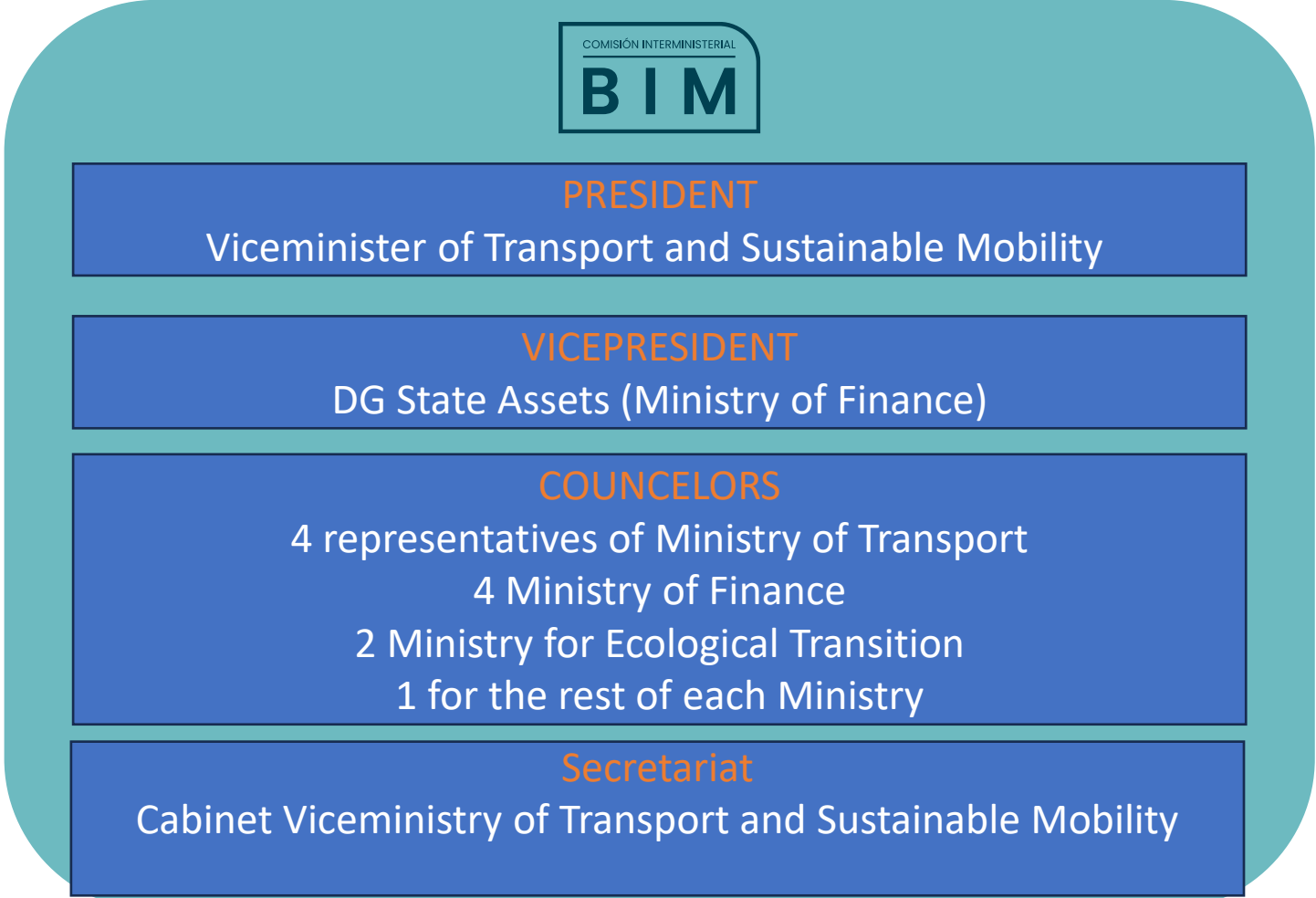
Could this analysis of the **EU Official Journal of Tenders –TED** be possible?

The screenshot shows the TED website interface. At the top, it identifies itself as an official website of the European Union. The main header includes the European Union logo and the text 'EU tenders' and 'Ted • tenders electronic daily'. A search bar is prominently displayed with the text 'Search TED for public tenders' and a 'Search' button. Below the search bar are links for 'Advanced search', 'Expert search', and 'Browse by subject'. A large banner for 'PUBLIC PROCUREMENT DATA SUPERPOWERS' is featured, with the subtitle 'Harnessing artificial intelligence' and the event dates '29-30 April 2024 - Residence Palace, Brussels'. The banner also includes the hashtag '#TEDConf2024'. The main content area is divided into three columns. The left column, titled 'SIMAP', contains links for 'General information', 'European public procurement', 'Legislation and useful links', 'Statistics on TED notices', and 'Contracts awarded by EU Institutions'. The middle column, 'Official Journal Supplement', provides the 'Latest issue: S75/2024 on 16/04/2024' and the 'Next issue: 17/04/2024', along with a 'Release calendar' link. The right column, 'Access other sites in the TED family', includes links for 'eNotices2', 'TED Developer Docs', and 'TED Developer Portal'. At the bottom right, there is a graphic for 'Workshops for reusers of TED data' showing a person with a megaphone and a computer monitor.



- ≡ Royal Decree 1515/2018 creates **Interministerial Commission for the Incorporation of the BIM Methodology in Public Procurement (CIBIM)**
- ≡ Boost and **coordinate** the implementation of BIM in National Public Administration.
- ≡ **MANDATE**: To elaborate **BIM Plan for Public Procurement** for its approval in Council of Ministers.
- ≡ The implementation of BIM will be **gradual and progressive**, and it only applies to public contracts above a certain estimated contract value to prevent the adoption of BIM from restricting the participation of **SME** in public procurement

≡ **CIBIM** is chaired by the **Ministry of Transport and Sustainable Mobility**.





03. BIM Plan for Public Procurement

≡ Communication COM (2017) 572 **Making Public Procurement work in and for Europe** :

- ≡ *“A substantial part of public investment in our economy is spent through **public procurement**, representing **14 % of the EU GDP**, making it a fundamental element of the investment ecosystem.”*
- ≡ *“Public authorities can use this lever in a more strategic manner, to obtain better **value for each euro of public money spent** and to contribute to a more **innovative, sustainable, inclusive and competitive economy**..” (...) “Strategic procurement possibilities are not sufficiently used. (...)”.*
- ≡ *“A targeted approach (of the Public Procurement) is needed for priority sectors, such as **construction**(...) There are already initiatives and instruments such as (...) **building information modelling** and life-cycle thinking approaches to support procurement of sustainable public buildings (...)”.*

≡ **EU BIM TASK GROUP: Handbook** for the **introduction of Building Information Modelling** by the European Public Sector

- ≡ *Governments, as the single largest procurers of construction with **public sector spending approximately 30% of construction total** output, can influence and encourage innovation.*

≡ In **Spain, public procurement** reached **11.52% of GDP** and **24.11%** of total **public spending** in 2022. *Annual Supervision Report on Public Procurement in Spain (IAS 2023) of the Independent Office for the Regulation and Supervision of Procurement (OIReScon by its acronym in Spanish).*

≡ Alignment BIM Plan – National Strategy for Public Procurement

NSPP	BIM Plan
Increasing the PROFESSIONALIZATION OF PUBLIC AGENTS who participate in procurement processes	Diagnoses different weaknesses in public procurement training and proposes training actions.
Promoting ECONOMIC EFFICIENCY IN THE PROCESSES OF OBTAINING GOODS, SERVICES AND SUPPLIES FOR THE PUBLIC SECTOR , stimulating the aggregation of demand and the appropriate use of award criteria	BIM Plan aims at facilitating economic efficiency, with savings of money and time, waste and emissions.
Taking advantage of public procurement to SUPPORT ENVIRONMENTAL, SOCIAL AND INNOVATION POLICIES	Public tenders that request the use of BIM contribute to the innovation and transformation of the construction sector , with a driving effect on its companies.
Promoting the participation of SME in Public Procurement.	For its preparation, a survey to the SME has been carried out.
Promoting a clear and stable regulatory framework in order to provide legal certainty to public procurement.	The actions of the BIM Plan include actions for the preparation of technical guide documents.

- ≡ The use of BIM in public procurement aims to:
 - ≡ Improve the efficiency of public spending



- ≡ Facilitate the digital transformation of the Spanish construction sector (*SMEs)



03 Why BIM in Public Procurement?

- ≡ Aligned with the EC contracting policy and for the construction sector:
 - ≡ EC Public Procurement Strategy



- ≡ Transition Pathway for Construction



- ≡ The Spanish government is committed to BIM.
- ≡ **2018:** Royal Decree was approved, which established an **Interministerial Commission** for the implementation of BIM in Public Procurement through **BIM plan**.
- ≡ **BIM Plan Sources:**
 - Previous internal works (synergies study) within the Ministry of Transport
 - Survey:
 - Government departments.
 - SMEs (more than 1,000 replies)
 - Learning from best practices from other neighboring countries.
 - Technical Committee (group of experts) of the CIBIM.
- ≡ The **BIM Plan** was approved in **July 2023** and the publication of the supporting documentation is expected shortly.
- ≡ The BIM Plan has been **downloaded more than 7k times**.

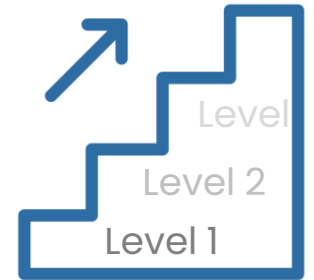


03 BIM Plan : Objectives

- ≡ The Plan aims **to incorporate BIM in the management of information in public sector contracts related to construction**, in accordance with a **progressive use of BIM (levels)** application **based** on the **estimated contract value**.

- ≡ **BIM levels** are defined with a dual purpose:
 1. Common roadmap for phasing in
 2. Reference for the actions of the corresponding units.

- ≡ It **cannot represent a restriction of access** for economic operators:
 - i. **Start with the largest contracts**, so as not to affect SME
 - ii. **Open standards** to guarantee technological neutrality.



≡ Objective scope of application

≡ Public sector contracts related to works.

≡ BIM will be requested in such contracts when they are governed by any of these laws:

a) Public Sector Contract Law.

b) Royal Decree-Law on contracting by entities operating in the water, energy, transport and postal services sectors .

c) Law on public sector contracts in the fields of defense and security .

≡ Subjective scope of application

≡ **Mandatory:** For the **National Public Administration and its dependent bodies.**

≡ **Recommended:** contracting authorities in the rest of the State public sector entities.



03 BIM Plan: Time frame & Thresholds

≡ Time frame and application thresholds

≡ BIM will be gradually requested in contracting files in accordance with the **BIM levels** , according to the estimated contract value and the schedule established in the following table:

Thresholds estimated value	Mandatory application date			
	1st April 2024	1st October 2025	1st October 2027	1st April 2030
Equal or higher than € 5,583,000	Initial level	Medium level	Advanced level	Integrated level
Less than € 5,583,000 and equal or higher than € 2,000,000	Recommended: Initial level	Initial level	Medium level	Advanced level

03 BIM Plan: Levels

DEFINITION OF BIM LEVELS MINIMUM REQUIREMENTS

BIM Levels

≡ Gradual, in increasing level of BIM application, grouped into four categories:

- ≡ **Strategy .**
- ≡ **Processes .**
- ≡ **Technology.**
- ≡ **People.**



STRATEGY	PROCESSES		TECHNOLOGY		PEOPLE	
Strategy	Work procedures required under the contract	Party coordination	Contract information	Common data environment (CDE)	File formats	Contracting authority training Tenderer training
No strategy for using BIM in contracts.	No procedures required for contract information management.	Face to face meetings, virtual meetings and emails.	Visual Information, such as CAD drawings, not linked automatically to data contained in other files. No use of BIM models.	No common repositories for contract information management.	No standards.	No staff with knowledge of BIM required. No staff with experience in contracts with BIM is required.
BIM pilot projects or isolated tenders.	Based on quality management systems (UNE-EN ISO 9000 or equivalent).	No need to be carried out through CDE.	CAD drawings and BIM models for obtaining drawing documentation and for 3D coordination uses.	Access controlled common repository. + Rules for standardised file and folder naming.	Formats based on open standards. IFC according to UNE-EN ISO 16739 or equivalent for BIM models. Proprietary formats may also be required.	At least one person is trained on BIM and acts as BIM contract manager. Human resources with experience in BIM requirements for contracts are required.
Plan for using BIM within design and construction phases.	Based on quality management systems (UNE-EN ISO 9000 or equivalent). + Specific BIM guides or manuals from CIBIM and recognised organisations.	This is carried out through CDE.	BIM models for use in obtaining plans, 3D coordination and measurements. CAD information or drawings not obtained from the model can be allowed.	Access controlled common repository. + Rules for standardised file and folder naming. + Information Workflows and Information States defined, aligned with UNE-EN-ISO 19650.	Formats based on open standards. IFC according to UNE-EN ISO 16739 or equivalent for BIM models. Proprietary formats may also be required.	All staff involved in the contract are trained in BIM. A BIM contract manager is defined. Human resources with experience in BIM requirements for contracts are required.
Plan for using BIM within the entire life cycle and across departments.	Based on information organisation and digitalisation systems (UNE-EN ISO 19650 or equivalent). + Specific BIM guides or manuals from CIBIM and recognised organisations.	This is carried out through CDE, with simulations and validations.	BIM models for use in obtaining plans, 3D coordination, measurements, maintenance or operation and asset management. BIM object libraries are managed and used. Residual CAD information or drawings not obtained from the model can be used.	Technological solution specifically designed as a CDE according to UNE-EN ISO 19650 with various features. + Rules for standardised file and folder naming.	Formats based on open standards. IFC according to UNE-EN ISO 16739 or equivalent for BIM models. For IFC model related communications, use BCF format or equivalent. Proprietary formats may also be required.	All staff involved in the contract are trained in BIM in compliance with UNE-EN ISO 19650. + Previous experience in BIM managed contracts. A BIM contract manager is defined. Human resources with experience in BIM modelling and project or site management are required.
Systematic procedure for integrating innovative contract management processes.	Procedures certified under UNE-EN ISO 19650 or equivalent. + Specific BIM guides or manuals from CIBIM and recognised organisations. + Information delivery manual based on UNE-EN ISO 29481 or equivalent.	This must be carried out through CDE only, with simulations and validations.	BIM models for any use. BIM object libraries are managed and used. CAD information or drawings not obtained from the model can be used residually.	Technological solution specifically designed as a CDE according to UNE-EN ISO 19650 with various features. + Rules for standardised file and folder naming. + Data access through web services.	Open standards-based formats are always used. IFC according to UNE-EN ISO 16739 or equivalent for BIM models. For IFC model related communications, use BCF format or equivalent.	+ All staff involved in the contract are trained in BIM in compliance with UNE-EN ISO 19650. + Previous experience in BIM managed contracts. BIM contract manager with 3 years of experience managing contracts with BIM is identified. Human resources with experience in BIM modelling and project or works management of at least 3 years are required and implementing UNE-EN ISO 19650 and its use in contracts will be valued.



≡ Exceptions

- ≡ A list of causes is given and the need to justify it with a motivation report.
- ≡ Contract of more than €12,000,000 euros (*section 1.a) of art. 324. of the LCSP*), send CIBIM report.

≡ Way to incorporate BIM in contracts

- ≡ BIM will be requested by incorporating **BIM information requirements** in the **technical specifications of the procurement document**.
- ≡ Additionally, the contracting authority may request BIM considerations as a technical and professional ability, as an award criterion, or as a contract performance condition, among others, if deemed appropriate..

≡ Applicable standards

- ≡ In line with the National Interoperability Scheme, **open standards will be used**
- ≡ Specifically, use of the **IFC** (*Industry Foundation Classes*), defined by an international ISO standard or equivalent scheme.

≡ Data security

- ≡ Comply with the National Security Scheme (ENS) and ISO standard requirements.

≡ National Digital Geoinformation Bases

- ≡ Inclusion of the data in the National Digital Geoinformation Bases of the National Cartographic System, once the contracts have been concluded.



- ≡ Annual monitoring by CIBIM
 - ≡ It will include various indicators on tenders, SME participation and difficulties encountered, etc.
- ≡ Information to the Council of Ministers
 - ≡ **Every two years** , CIBIM will submit a report to the Council of Ministers in which it will collect the status of compliance with the objective of the BIM Plan.
- ≡ Plan Review
 - ≡ BIM Plan **will be reviewed in 2025**, to ensure the adequacy of its objectives and actions to the current time and context.



- ≡ **Documentary framework** that accompanies the BIM Plan:
 - ≡ **BIM FUNDAMENTALS** for Public Procurement: BIM Basics: Origins. Concept. Examples. Approved on December 2022. As of March 31, it has 5,414 downloads.
 - ≡ **BIM STANDARD** for Public Procurement: (forthcoming) Exchange of information in all phases of the asset lifecycle: standardize the use of BIM in public procurement.
 - ≡ **GUIDE to Public Procurement with BIM Requirements:** (forthcoming) Overview and Common Framework for the Use of BIM in Public Procurement.
- ≡ **BIM Pilots Support office**



03 Actions: Training & Grants

- ≡ **Training:** 6 dedicated **BIM workshops** for general administration plus another **2 with regional and local administrations** under the "STRATEGY FOR BIM IMPLEMENTATION IN PUBLIC PROCUREMENT IN SPAIN".
- ≡ **Grants:**
 - ≡ **Training activities done by Professional Associations:** from 2018 to date, training activities in BIM have been funded through Professional Associations for an amount of **more than €1 million**.
 - ≡ **Digital Kit support:** Focused on SME digitalization. Includes BIM. Coordinated with public enterprise. SW + Training (up to 12k€)
 - ≡ **Digital Training check:** Promote digital training. Includes BIM for transport infrastructures. (1.000 €/student-beneficiary)
- ≡ **Dissemination:**
 - ≡ Series of videos, made in collaboration with buildingSMART Spain, on **HOW TO USE BIM IN A PUBLIC CONTRACT** and on **HOW TO IMPLEMENT BIM IN AN ORGANISATION**.
- ≡ **BIM Conferences:**
 - ≡ celebration of the **Conferences on BIM implementation strategies for SMEs**. They were organized with the main associations in the sector



03 Actions: International cooperation

≡ Its relevant to share, collaborate and exchange best practices in BIM:

≡ **EU BIM Public Officials Group**



≡ **EU BIM Task Group**





04. BIM+

- ≡ **AI can be used to optimize designs of infrastructures and buildings and the construction processes.**
- ≡ **Visualization of virtual reality (VR) + augmented reality (AR)**
- ≡ **Clash detection and risk mitigation.**
- ≡ **Predictive analysis and decision support systems.**
- ≡ **Facility management and maintenance (AI + IoT)**



Thank you for your attention

<https://cibim.transportes.gob.es/>

