EUROVENT SUMMIT ANTALYA
25-28 OCT 2022
#BuildingBridges

ISKAV

DIGITAL TRANSFORMATION - BIM IN BUILDING ENGINEERING
&
ISKAV BIM PROGRAM/ACTIVITIES

Gökhan ÜNLÜ

ISKAV - Heating, Cooling, Air Conditioning Research and Education Foundation

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- **ISKAV** Foundation has been **established** by Turkish HVAC-R NGO's in **1997.**
- Functioning as a role of **HVAC Sector coordinator,**
- Studying **directly** with **NGOs** and sector **institutions** as members
- ISKAV **TAB** (Test and Balancing) **Certificate Program** has been carried out for **HVAC engineers.**
- Nowadays **ISKAV TAB Technical Specification** is being **translated** to **four European languages.**
- Supplying **Consultancy** Services in **BIM transformation** through **ISKAV BIM Centre**

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Building Information Model (BIM)

Uses 3D models to capture, explore and maintain consistent and coordinated planning, design, construction and operational data

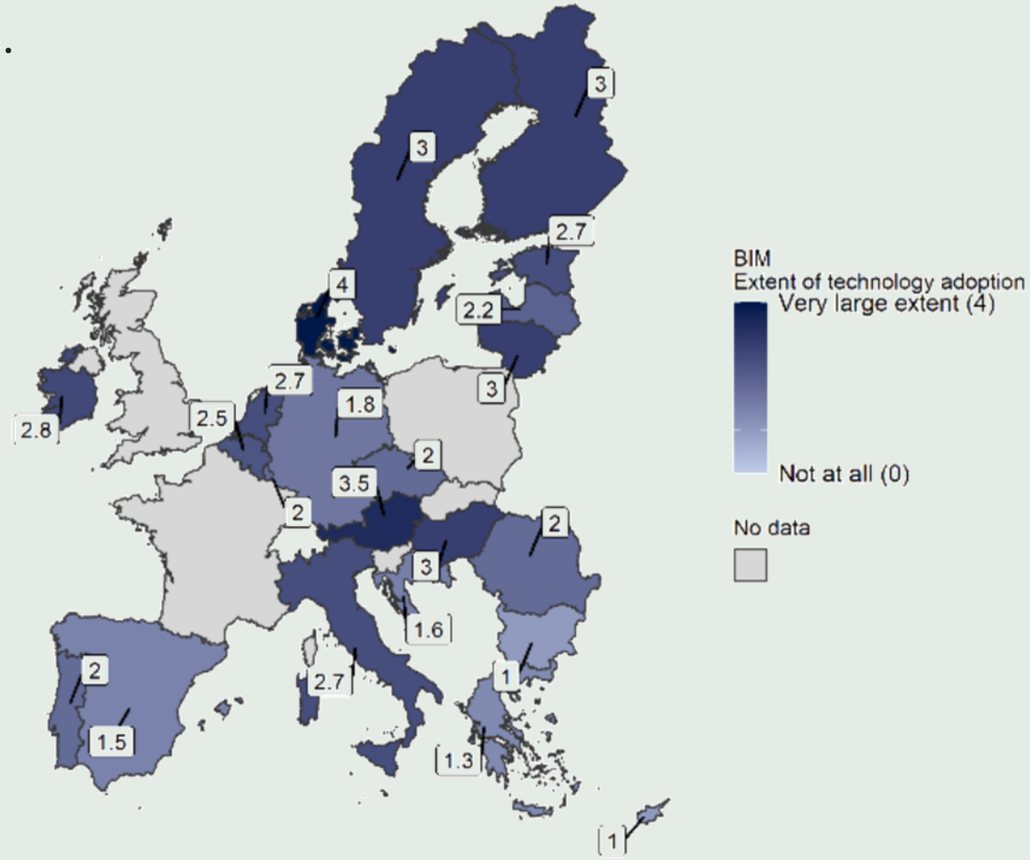
Provides greater project insight for cost, schedule and constructability

Uses and shares the same consistent data whether you are at your desk or in the field

Enables prompt response to change with processes that are smarter and faster

BIM in Europe / Adoption

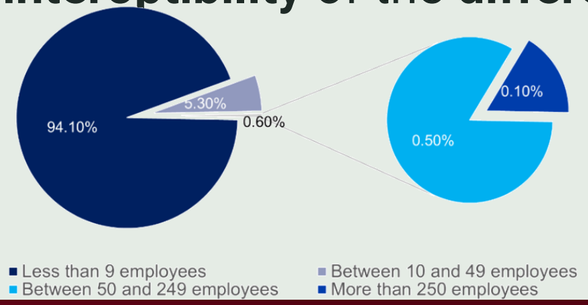
- **Denmark** and **Austria** are the countries with the **highest adoptions**.
- In **France**, in **2017**, **38% of companies** in the construction sector stated that they are using BIM, with **engineers** showing a higher-than-average adoption rate **(44%).**
- **Poland** reports a more modest level of BIM adoption, **with only 12%** of construction companies using it.
- The **European BIM market** was valued at **EUR 1.8 billion in 2016** and predicted to grow by 13% to **reach EUR 2.1 billion in 2023**. At the global level, the **BIM market** is **expected** to grow **by 18% annually** from 2019 to **2027**.

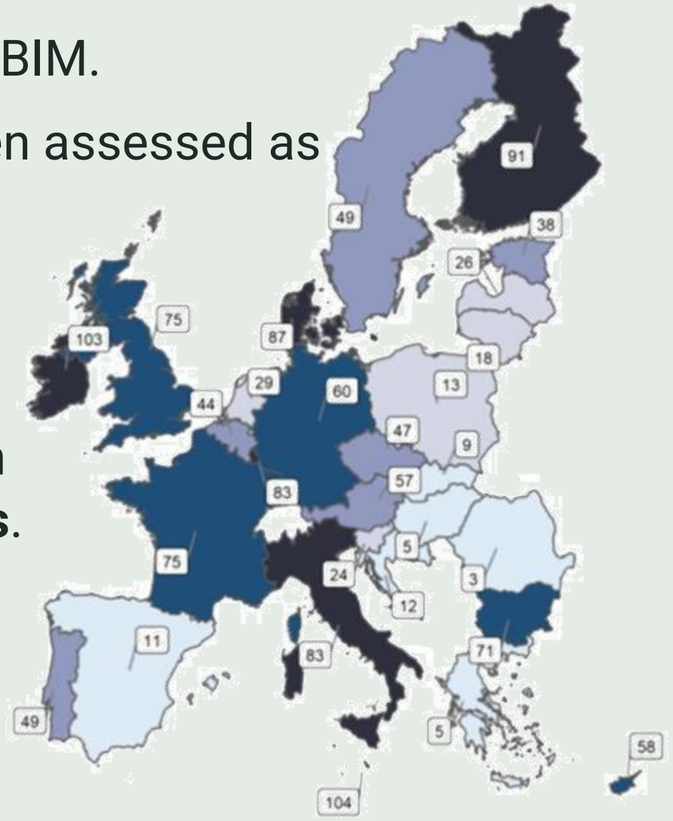


Source: ECSO survey, 2020

BIM in Europe / Adoption

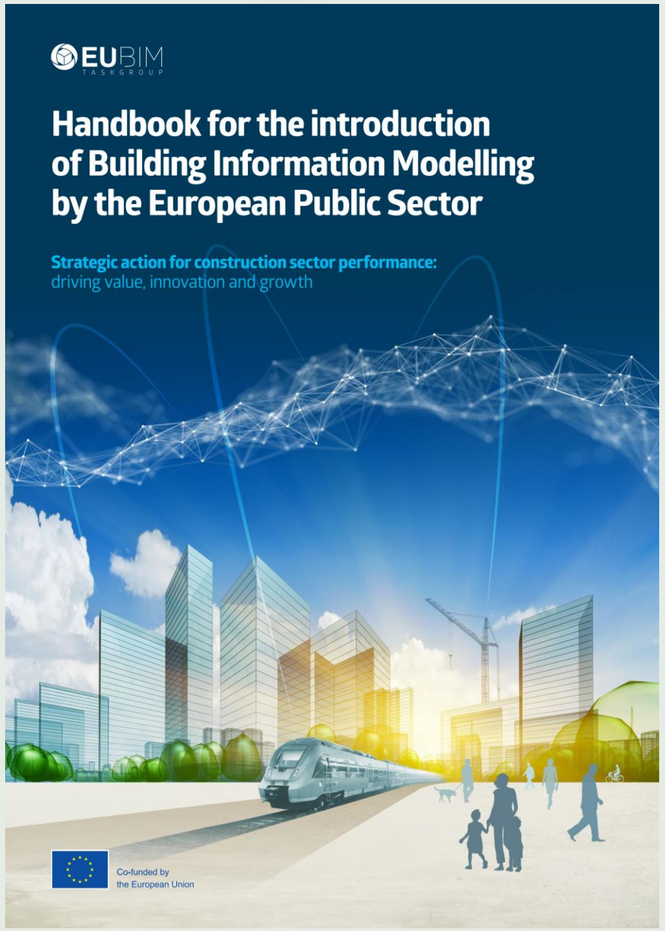
- BIM **fragmented adoption** is due to the **market structure** and the **sizes** of companies.
- BIM **implementation** is mainly **led by large companies**, with SMEs showing limited BIM adoption.
- Explained by three factors.
  - 1- **Larger companies** have **more financial** and **human resources** to implement BIM.
  - 2- The **very high initial costs** and **skilled workforce**, that are required, have been assessed as the main cause for its slow adoption.
  - **3- Larger companies** tend to take on **more complex projects**, where strong coordination is required.
- Many **NGOs** are **supporting** the process. Especially **Building Smart** is **creating** an **open BIM standard** and supporting the **interoptibility** of the **different** BIM **softwares**.





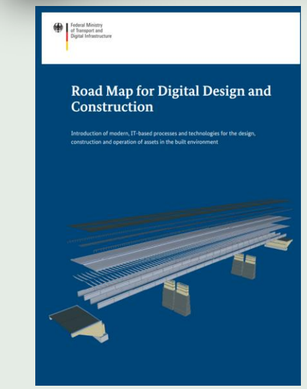
BIM in Europe / European Commission Support

- The **EC supports** the **adoption** of digital technologies and **particularly BIM** in the **construction** sector, through the **EU Directive** on **Public Procurement** (Directive 2014/24/EU), not yet mandatory.
- **EU BIM Task Group**: A **pan-European approach** to **best practice** in BIM. **Bringing** together **national efforts** into a **common** and **aligned European approach** to **develop** a world-class **digital** construction **sector**.



EUBIM TASKGROUP

BIM in Europe / Obligation



- While this is a **non-mandatory** requirement, **7 EU Member States** have since **implemented** BIM **requirements** in their **national legislation**.
- **Horizontal** (nation wide) and **Vertical** (construction sector) Digitalisation Strategies
  - H: Croatia & Bulgaria
  - V: Lithuania, Ireland
- **Sector Based Obligations**

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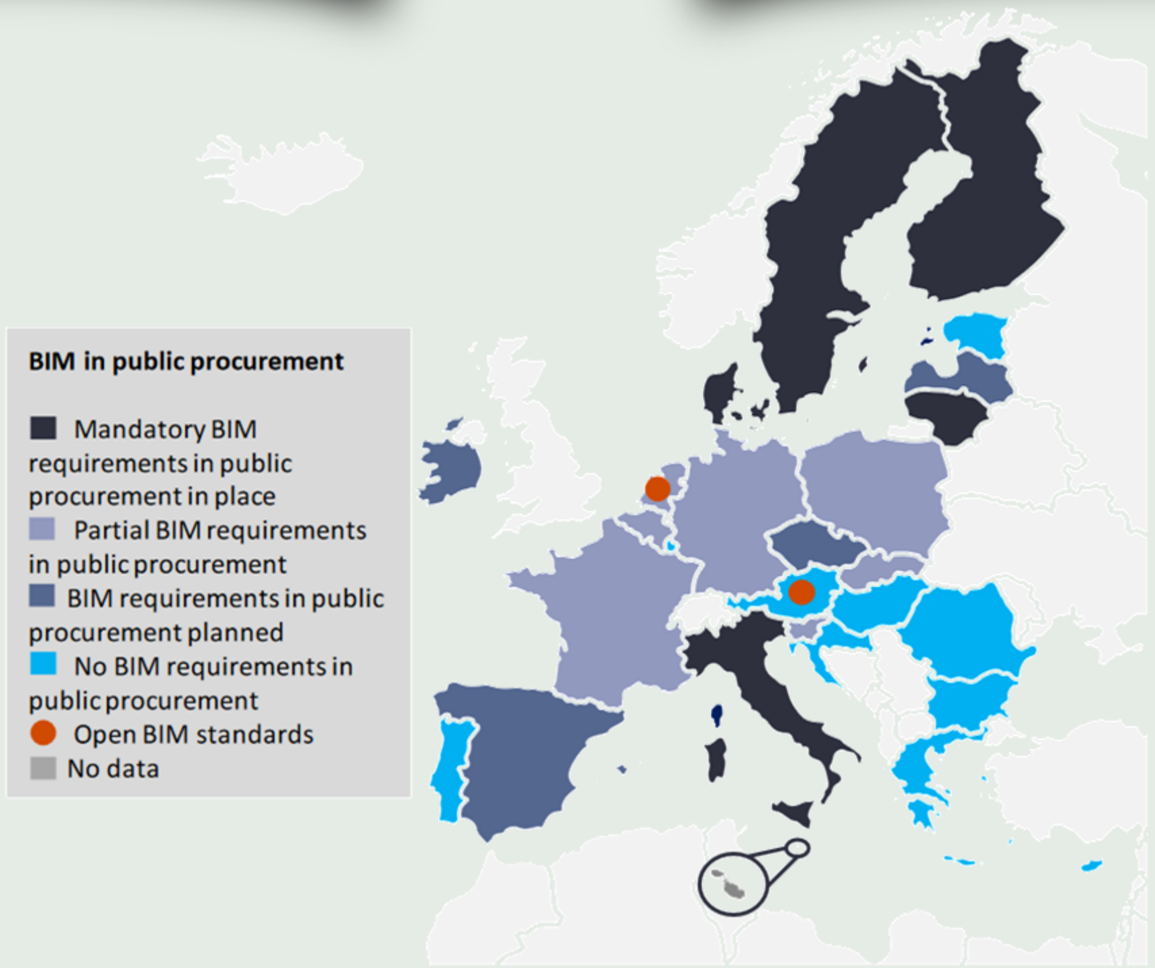
BIM in Europe / Obligation – Public Procurement

- First **Denmark**, **Sweden**, **Finland**, **Italy**, **Lithuania** and **Germany** have put in place **mandatory BIM requirements**
- They have been followed by **Spain**, **Czech Republic**, **Latvia** (2025).
- In addition, **Poland**, **Ireland**, **Slovakia**, **Slovenia**, **France**, **Netherlands**, **Belgium** have put in place **partial BIM requirements**, often through **specific public authorities**

(e.g. **rail** and **road** state **agencies**).



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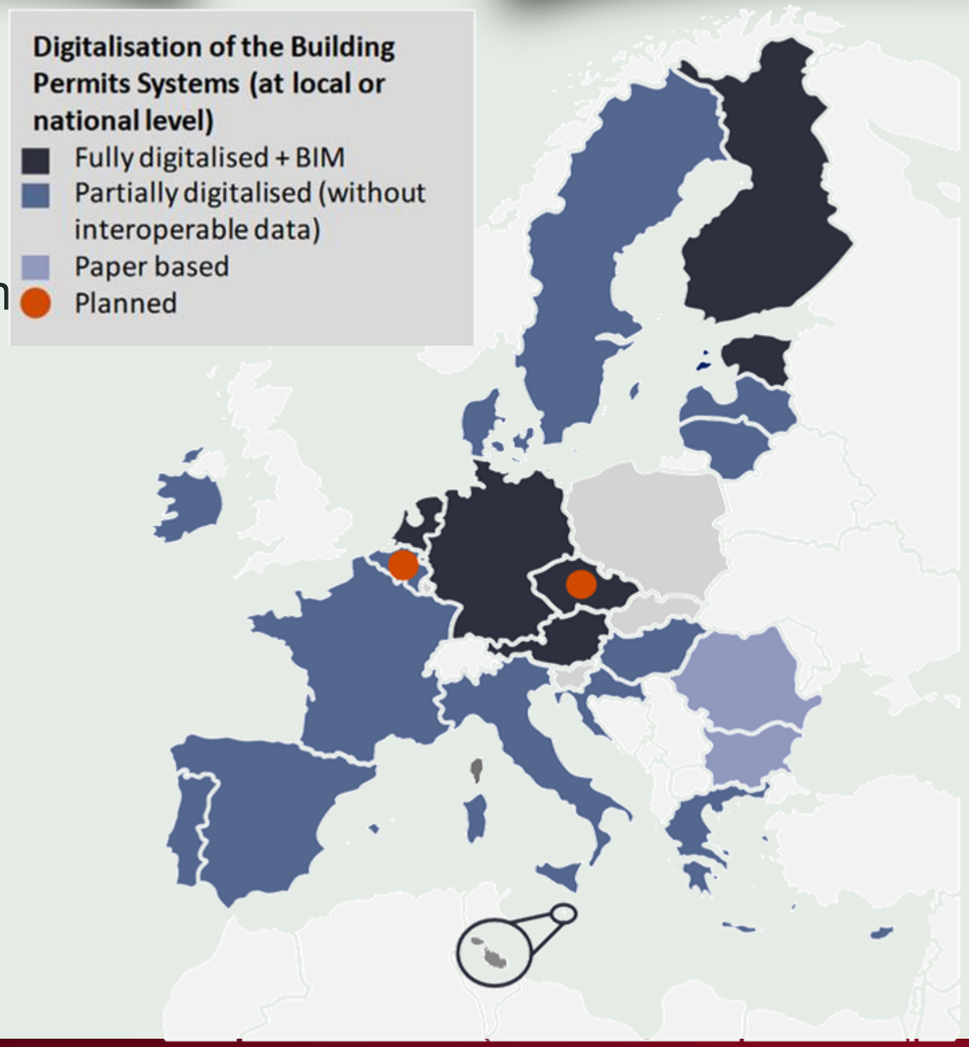
BIM in Europe / Obligation – Building Permits

- Almost **all EU** countries – (excl. of Bulgaria and Romania) **permits system digitalised**.
- In **practice 14 EU** countries have a **partially digitalised** permit system at least **partially** – or even **fully** – **without interoperable data**.
- **Germany**, **Estonia**, **Netherlands**, **Austria** and **Finland** have started coupling **BIM** with their **permit systems**, allowing to have a fully **automated** process with **3D models**, and **Czech Republic** plans to do the same.
- **Estonia** is currently supported by the **EC** to **conduct preliminary analysis** of **AI adoption** for **automation** of **checking** the BIM **models**.



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BIM in Türkiye / Adoption

- **İstanbul** Municipality **Railway** Structures **BIM Specification**
- **Infrastructure Ministry** prepared **BIM** Technical **Specification** document.
- **Urbanisation Ministy** Smart Cities Action Plan **promotes BIM** modelling
- **Turkish Standard** Institute **ISO 19650-1** Turkish Adoption process has been started
- **Contruction through BIM** process has been applied at **Regional Hospital** Projects of Turkey.

İstanbul Technical University, **Mimar Sinan University** continuing **BIM Courses** more than **10 years** now.

buildingSMART Türkiye

- **Building Smart Türkiye** group is **supporting** the **transformation** of the **construction sector**
- **TTMD** will **introduce BSI BIM Expert Certification** Courses this year.

BIM in Türkiye / Obligation

- **Nation wide** horizontal **digitalisation strategy** as per **DigitalEurope** vision led by **Türkiye Digitalisation Obervatory Group**.
- **Yearly** observation **reports**.

DIGITALEUROPE

Dijital Türkiye

- **Instution Based Obligations**:
  - In **Railway Structure** designs **BIM** is **mandatory** (all **subway station** and **tunnel projects** have been prepared **in BIM since 2017**)
- **BIM in College**: **BIM Course Obligation** is in **Structural Engineering** and **Architecture** at top 10 universities yet.

Çizelge 4.2: Türkiye'deki ilk 10 üniversitenin lisans programlarında BIM dersleri

	Üniversite	Fakülte	Program	Şehir	Zorunlu/seçmeli
1	Orta Doğru Teknik Üniversitesi	Mimarlık	Lisans	Ankara	zorunlu
		İnşaat Mühendisliği			zorunlu
2	İstanbul Teknik Üniversitesi	Mimarlık	Lisans	İstanbul	-
		İnşaat Mühendisliği			-
3	İstanbul Üniversitesi	Mimarlık	Lisans	İstanbul	zorunlu
		İnşaat Mühendisliği			-
4	Gazi Üniversitesi	Mimarlık	Lisans	Ankara	zorunlu
		İnşaat Mühendisliği			-
5	Gebze Teknik Üniversitesi	Mimarlık	Lisans	İstanbul	zorunlu
		İnşaat Mühendisliği			-
6	İhsan Doğramacı Bilkent Üniversitesi	Mimarlık	Lisans	Ankara	-
		İnşaat Mühendisliği	-	-	-
7	Ege Üniversitesi	Mimarlık	Lisans	İzmir	-
		İnşaat Mühendisliği			-
8	Yıldız Technical Üniversitesi	Mimarlık	Lisans	İstanbul	zorunlu
		İnşaat Mühendisliği			seçmeli
9	Dokuz Eylül Üniversitesi	Mimarlık	Lisans	İzmir	-
		İnşaat Mühendisliği			-
10	Erciyes Üniversitesi	Mimarlık	Lisans	Kayseri	seçmeli
		İnşaat Mühendisliği			-

BIM in Türkiye / Featured Projects in Turkey

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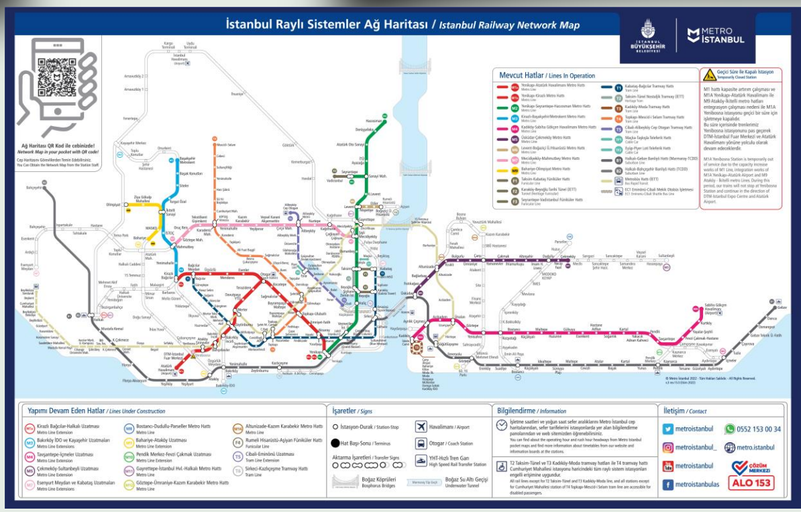
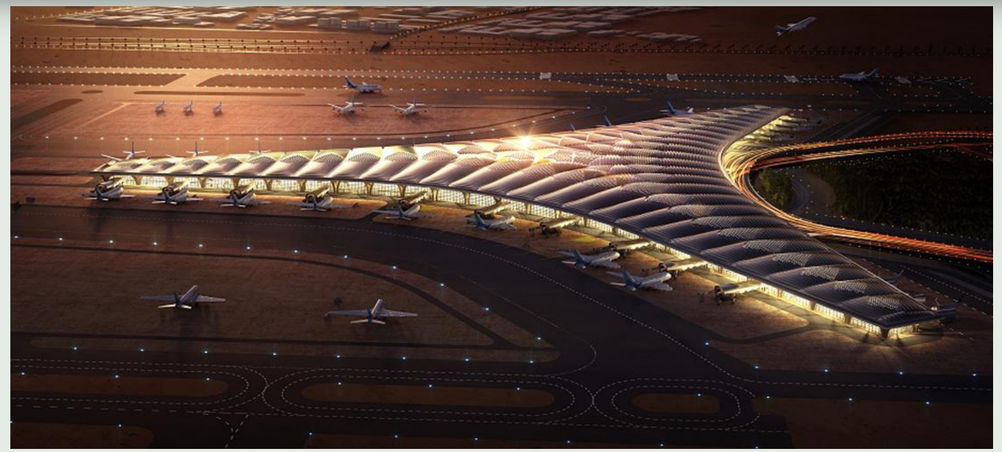


BIM in Türkiye / Featured Projects by Turkish Consctruction



ISKAV BIM Centre

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- A **solution hub** for **MEP BIM** applications
- **Consultancy Services** for **Designers** and **Manufacturers**
  - **BIM Library** (Digital Families) **Production**
  - **BIM Courses**
    - Revit / Navisworks / Dynamo
    - ISO 19650 / BIM CDE
    - BIM Execution Plan / LOD Matix / Quality Control

- **Numbers** of last **one year's efforts:**
  - **10 Individual Manufacturer Company Cooperation**
    - **More than 320 digital family production**
  - **4 Individual Design Office Cooperation**
    - Consultancy fo 10 different subjects

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THANK YOU