



# Digital Transformation of Infrastructure & Construction

Centre for Digital Built Britain

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Head of International

24 November 2021



# Agenda

- 1 UK's digital transformation lessons learned
- 2 Colombia's progress and future
- 3 Global digital transformation





**Our vision is a global digital built environment that delivers benefits for people and places**

The Global BIM Network connects the international public sector and multi-lateral organisations to advance the digitalisation of the global built environment.





# Transformation Targets

Net Zero  
& Clean  
Growth



**Lower costs**

33%

reduction in the initial cost of construction and the whole life cost of built assets

**Faster delivery**

50%

reduction in the overall time, from inception to completion, for newbuild and refurbished assets

**Lower emissions**

50%

reduction in greenhouse gas emissions in the built environment

**Improvement in exports**

50%

reduction in the trade gap between total exports and total imports for construction products and materials

# Marco estratégico



## Marco estratégico para los planes de implantación

### Aumento de la capacidad de la industria

Beneficios tempranos, proyectos piloto, formación  
Uso creciente de la palanca estratégica para desarrollar la capacidad  
Medir y supervisar, casos de estudio, integración del cambio

### Comunicar la visión y promover las comunidades

Implicar a las partes interesadas de la industria  
Crear redes regionales y temáticas  
Eventos, medios de comunicación, web, medios sociales

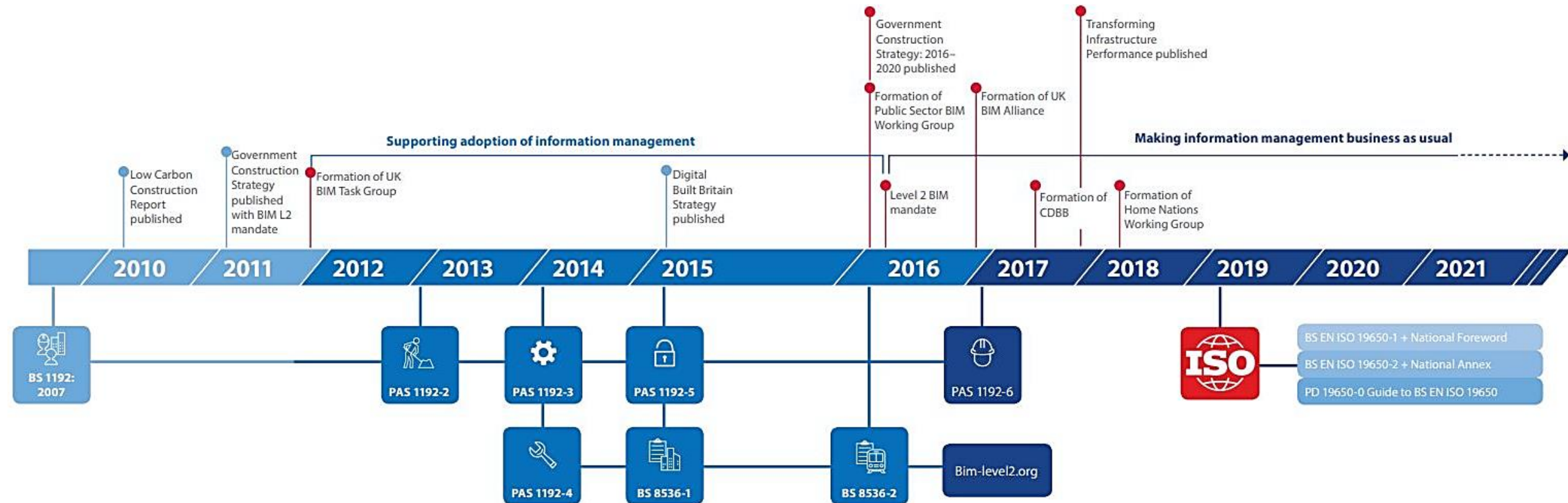
### Desarrollar un marco común de colaboración

Marco jurídico y reglamentario  
Normas sobre datos y procesos  
Competencias, herramientas, recomendaciones

### Base del liderazgo público

Motivaciones, visiones y objetivos convincentes  
Propuesta de valor y estrategia armonizadas  
Patrocinio, plan financiado, equipo gestionado

# UK Centre for Digital Built Britain





# Project level Benefits

## Project

Tideway Tunnel East

## Location

London

## Client

Thames Tideway Tunnel

## Expertise

Engineering design and information management

## Project phase

- Construction efficiency

6 month design reduction  
2 year total reduction  
20% cost reduction

Source: Mott MacDonald

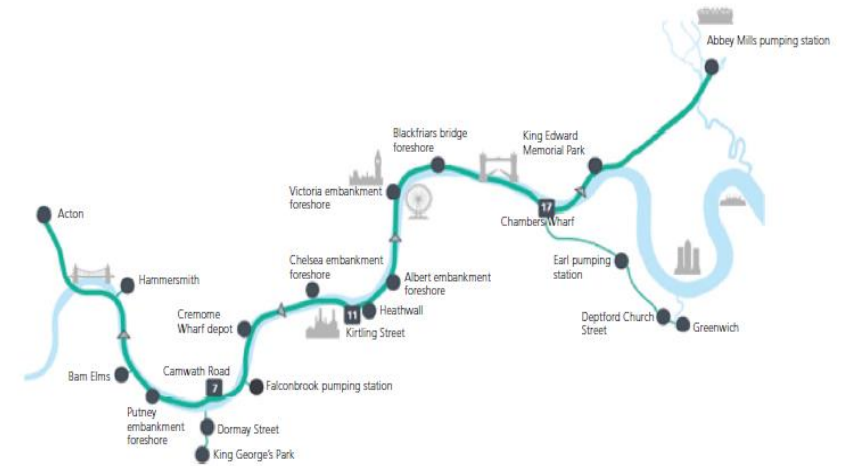
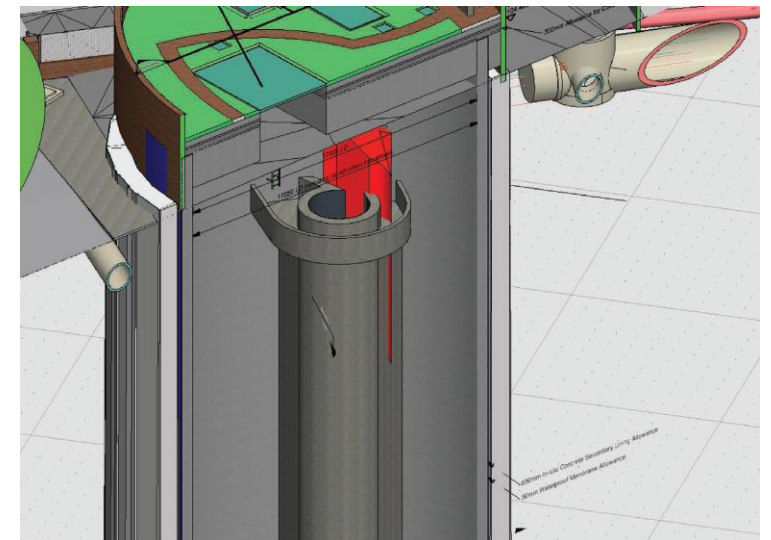


Figure 1. Thames Tideway Tunnel main work sites





# Public & Private Sector Outcomes

Outcomes:

More for same

Better Client Outcomes

Productivity & Competitiveness

Better use of information



**HM Government** **Construction strategy**

The construction industry is vital to this government's long term economic plan.  
The government has been working with the construction industry to get better value from public spending.

**2011**  
Government Construction Strategy was published

**2014**  
It has saved **£1.4bn**

Government saved **£840m** last year on construction projects – exceeding the target by 13%

Department of Health saved **£60m** on construction projects last year – equal to the price of **67** MRI scanners

We now build **7** schools for the old price of 5

**5+2=7**

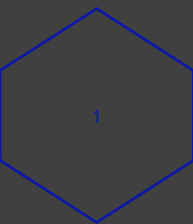
**#BuildingBritain #GCSummitUK**



AERONÁUTICA CIVIL  
UNIDAD ADMINISTRATIVA ESPECIAL

## UK Lessons learned: Involve Public institutions

- Public sector procurement and supervision:
- Training for public procurers and supervisors
- Share knowledge within public sector infrastructure clients
- Develop training guides terms of reference for BIM in public procurement



# Lessons learned: Institutions & Associations

## Industry Institutions and Associations:

- Develop training courses
- Create working groups
- Contribute to guidance materials
- Inform public sector clients on best practices

The screenshot shows the ICE Training website. The top navigation bar includes the ICE logo, a search bar, and links for Home, About Us, Accreditations and partnerships, and BIM Task Group Learning Outcomes Framework map. The main content area features a sidebar with 'COURSE CATEGORIES' and a main section for the 'BIM Task Group Learning Outcomes Framework Map for ICE BIM Training'.

**COURSE CATEGORIES**

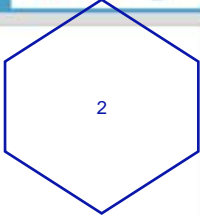
- ALL TRAINING COURSES
- ELEARNING
- ACCREDITED PROJECT MANAGEMENT COURSES
- BRIDGE ENGINEERING
- BUILDING INFORMATION MODELLING (BIM)
- BUSINESS AND TECHNICAL SKILLS
- CDM2015
- ENVIRONMENT AND SUSTAINABILITY
- EUROCODES
- GRADUATE DEVELOPMENT
- GROUND ENGINEERING
- HEALTH, SAFETY AND WELFARE/CDM
- ICE MEMBERSHIP
- LAW AND CONTRACTS
- MASTERCLASSES
- NEC

**BIM Task Group Learning Outcomes Framework Map for ICE BIM Training**

**BIM Task Group Learning Outcomes Framework for BIM Level 2**

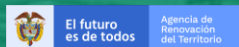
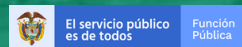
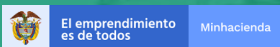
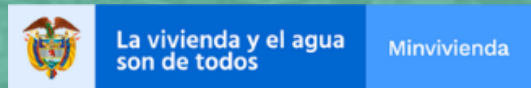
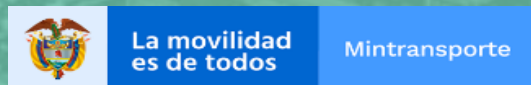
- ✓✓✓ Key subject. Covered in detail
- ✓✓ Some coverage but not a major topic area
- ✓ Briefly mentioned

		BIM FOR INFRASTRUCTURE	BIM IMPLEMENTATION
1	Understand what BIM is, the contextual requirement for BIM Level 2 and its connection to the Government Construction Strategy and Industrial Strategy 2025.		
	<b>Knowledge requirements:</b>		
1.01	Background and the need for collaborative working (removing waste, errors and poor quality/incomplete information)	✓✓✓	✓
1.02	The value of whole life and whole estate approach rather than capital-led and single asset	✓✓✓	✓
1.03	The concept of Soft Landings / Government soft Landings (GSL)	✓	
1.04	Roles and responsibilities of the supply chain members and clients as part of BIM Level 2 delivery (cultural / behavioural)	✓✓	✓✓✓
1.05	External context for BIM, global, national, standards and support communities	✓✓	✓





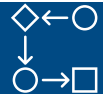

# Estrategia de Transformación Digital del Sector de la Construcción

## Grupo de Trabajo BIM



# Hoja de Ruta

Cada una de las acciones se desarrolla en torno a 4 pilares principales




Pilares/Plazo	Corto 2021-2022	Mediano 2023-2024	Largo 2025-2026
 Comunicación y difusión	<ul style="list-style-type: none"><li>• <b>Plataforma web</b></li><li>• <b>Comunidades BIM</b></li><li>• <b>Socialización Estrategia</b></li></ul>	<ul style="list-style-type: none"><li>• Centro de conocimiento técnico</li><li>• Publicar casos prácticos de BIM</li></ul>	<ul style="list-style-type: none"><li>• Continuar la difusión de los avances y beneficios de la metodología BIM</li></ul>
 Liderazgo Público	<ul style="list-style-type: none"><li>• <b>Transformación Organizacional</b></li><li>• <b>Fortalecer el Grupo de Trabajo BIM</b></li></ul>	<ul style="list-style-type: none"><li>• Análisis de impacto normativo (mandato)</li><li>• Ampliar redes BIM (Ministerios/Territorio)</li></ul>	<ul style="list-style-type: none"><li>• Planes BIM en territorios</li><li>• Implementación mandato BIM.</li></ul>
 Desarrollo de Capacidades	<ul style="list-style-type: none"><li>• Comunidad académica</li><li>• <b>Apoyo a pilotos</b></li><li>• <b>Talleres/Cursos BIM</b></li></ul>	<ul style="list-style-type: none"><li>• Criterios de certificación BIM</li><li>• Fortalecer alianzas entre sectores</li></ul>	<ul style="list-style-type: none"><li>• Apoyar el proceso de certificación institucional e individual</li></ul>
 Marco Colaborativo	<ul style="list-style-type: none"><li>• <b>Adopción de las normas ISO 19650</b></li><li>• <b>Guías y plantillas de apoyo a pilotos</b></li></ul>	<ul style="list-style-type: none"><li>• Retroalimentar y actualizar el marco</li><li>• Instrumentos reglamentarios BIM</li></ul>	<ul style="list-style-type: none"><li>• Evolución del Marco Colaborativo</li></ul>



# Liderazgo público

Consolidación de grupos de trabajo con más entidades públicas involucradas

## FORTALECIMIENTO DEL GRUPO DE TRABAJO BIM




	El futuro es de todos	DNP Departamento Nacional de Planeación
	La movilidad es de todos	Mintransporte
	La vivienda y el agua son de todos	Minvivienda

**BAF**  
BIM ACADEMIC FORUM



## CONSULTORÍAS

Gestión y Estructuración de Consultoría para el Desarrollo de Plan de Implementación de BIM en Organizaciones del Sector

	El futuro es de todos	DNP Departamento Nacional de Planeación
	La movilidad es de todos	Mintransporte
	La vivienda y el agua son de todos	Minvivienda



# Comunicación y difusión

Crear y participar en diferentes plataformas de difusión ha sido una prioridad a lo largo del 2021



https://bim.presidencia.gov.co

GOV.CO

## Estrategia Nacional BIM 2020 - 2026

Estrategia para la modernización del sector de la construcción e infraestructura a través de procesos colaborativos usando información estandarizada en un entorno digital.

VER MÁS

Inicio Biblioteca Formación Casos de Éxito

Hand holding a tablet displaying a 3D BIM model of a building structure.

### CCI 2021



Transformación Digital: El camino a la modernización del sector de infraestructura

CAMARA COLOMBIANA DE LA INFRAESTRUCTURA

Affiliarse Contacto Portal exclusivo de afiliados

### BIMCO 2021 (CAMACOL)



BIM FORUM COLOMBIA

HERRAMIENTAS DE ADOCIÓN BIM PARA EL SECTOR

FORMACIÓN

BIMI EXCELENCIA EN COLOMBIA

CAMACOL CAMARA COLOMBIANA DE LA CONSTRUCCION

Boletines Regionales Productos y Servicios Información Sectorial Sala de Prensa Productividad Sostenibilidad

Inicio Destacados Comités de Valoración Miembros BIC



El futuro es de todos

Gobierno de Colombia



**Valentina Sarmiento**  
President , REDBIMGOBLATAM  
Adviser, Ministry of Housing of Colombia



# Latam Gov BIM Network

Objective:

**Increase the productivity** of the construction industry through digital transformation, **accelerating** BIM implementation **national programs** through collaborative work that promotes **common guidelines** and favors **trade** and knowledge Exchange in the region.



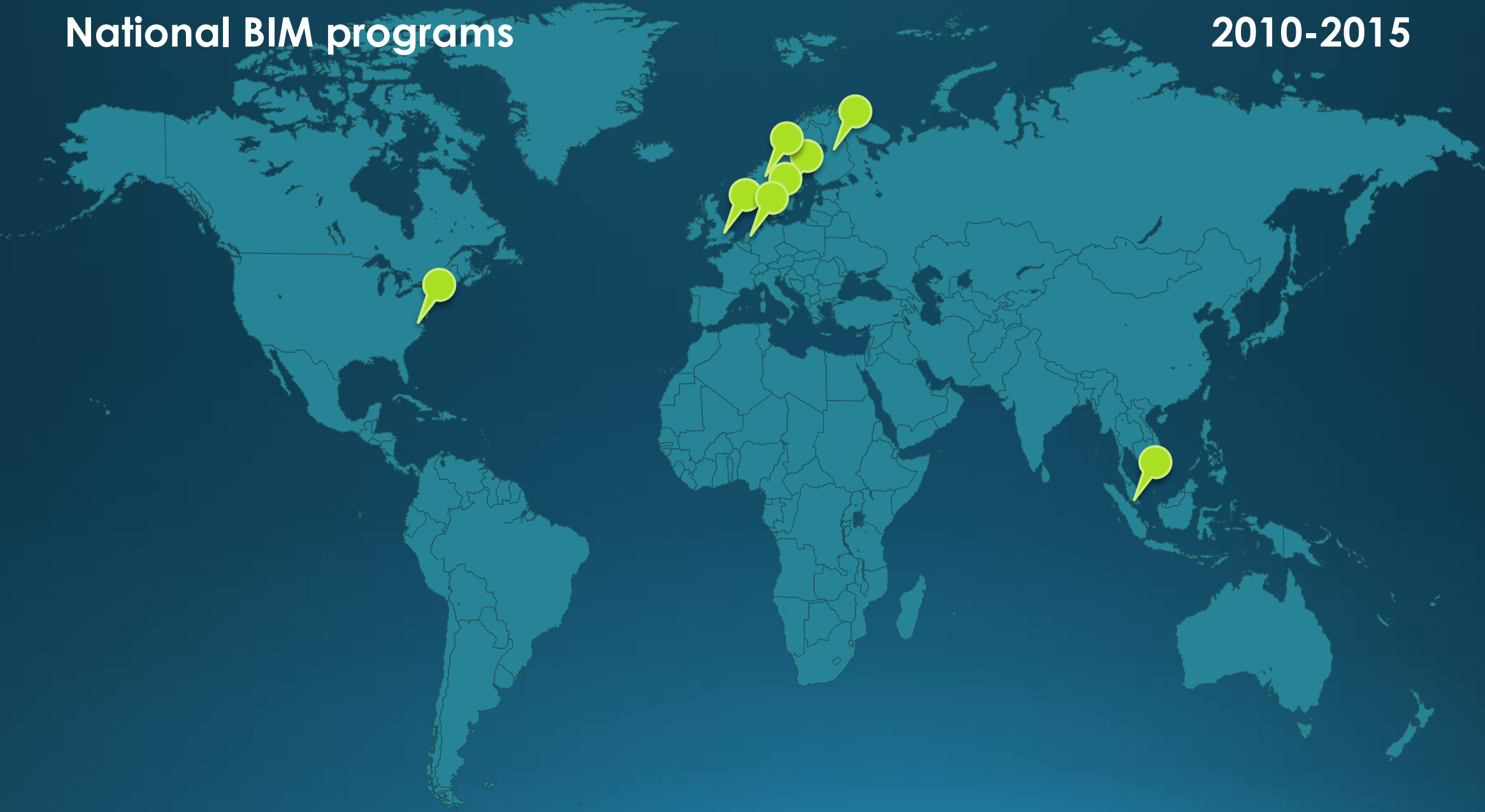
**Presidency 2022:**  
**Colombia**

**8**

Governments  
Argentina, Brazil,  
Chile, Colombia,  
Costa Rica,  
Mexico, Peru and  
Uruguay

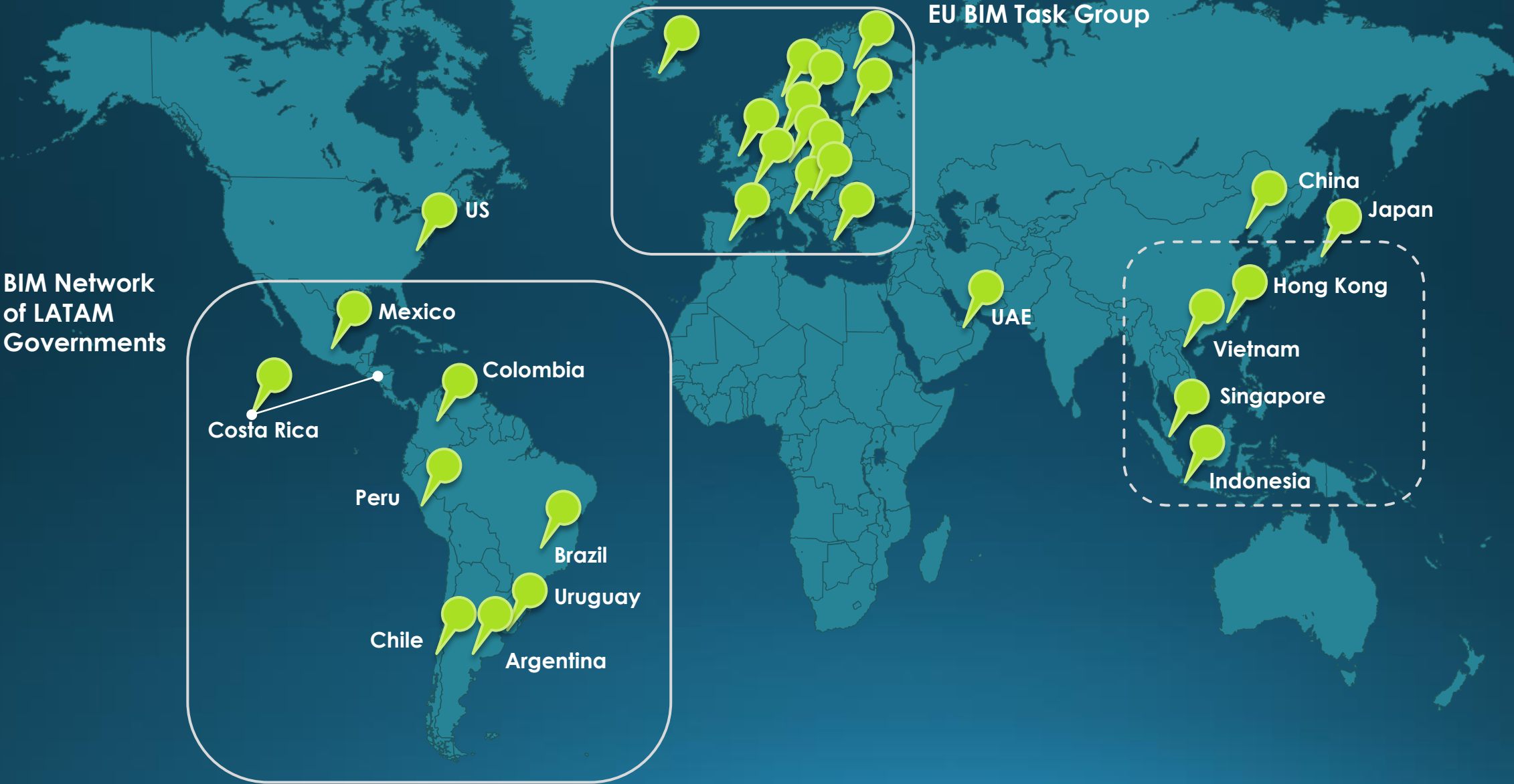
# National BIM programs

2010-2015



# National & Regional BIM programs

2021



# Global BIM Network

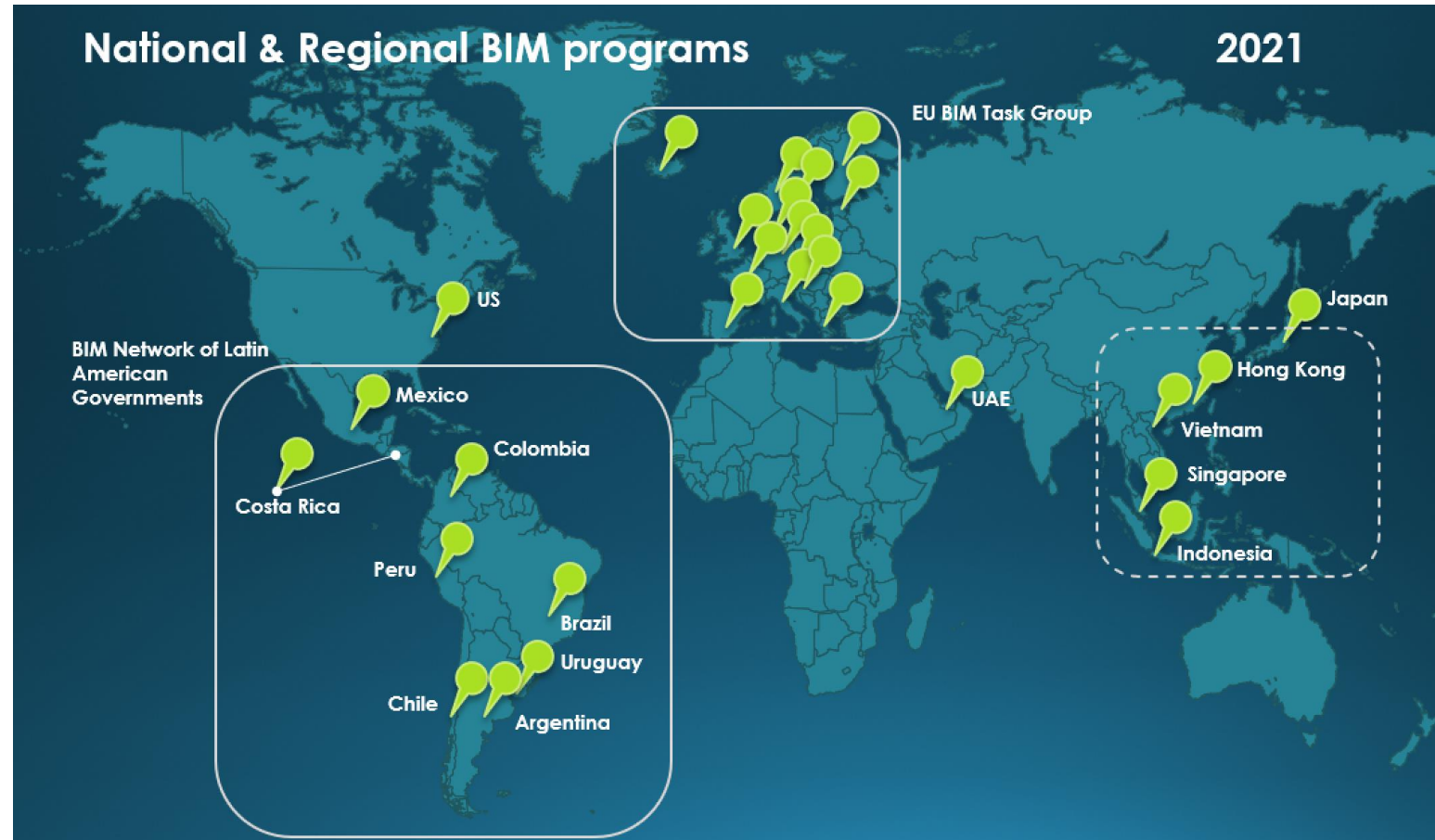
In 2021, launch of the Global BIM Network as a public sector community to accelerate and grow the global digital construction market.

The Advisory Board includes:

- Inter-american development bank
- Asian Development Bank
- UN OPS

Steering Committee: 12 country and regional representatives

Better Outcomes for People & Places



[Global BIM.org](http://GlobalBIM.org)



# Global Call for Knowledge

## Aim:

*to expand the understanding and skill sets of people working in the built environment and drive better outcomes from national and regional initiatives.*

The Network is currently seeking submissions of knowledge resources from across the **global public sector** to further develop our open access Information Collection and share knowledge of local, national and regional digital transformation journeys towards a digital built environment that brings benefits for people, places and societies.

<https://www.globalbim.org/news/call-for-knowledge>

**Call for Knowledge is now  
LIVE!**

Help us grow the global evidence base for digital transformation in the built environment. Contribute to the Call for Knowledge.

# Global BIM Network: Open attendance

**BIM** | Global  
Network

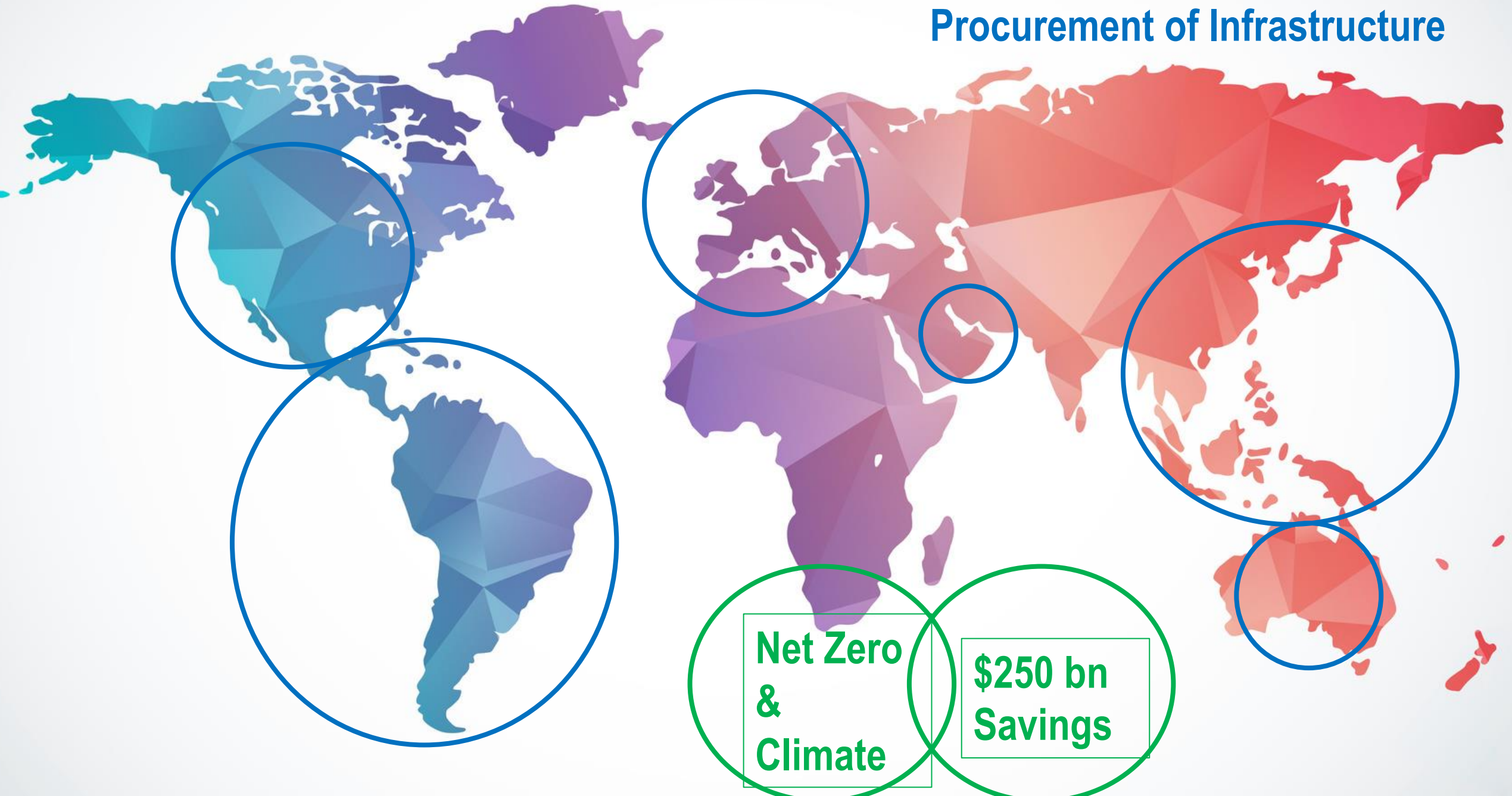
**General Assembly  
Registration  
Open Now!**

**2 December 2021**

<https://www.globalbim.org/news/general-assembly-2-December-2021>

**BIM** | Global  
Network

# Transforming the Public Procurement of Infrastructure





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[constructioninnovationhub.org.uk](http://constructioninnovationhub.org.uk)

 @CIH\_HUB

 Construction Innovation Hub

 Construction Innovation Hub

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#TransformingConstruction  
#ConstructionInnovationHub





# UK's national BIM journey

**Goal**  
 Develop a Digital Construction Sector:  
 increase productivity and  
 improve outcomes for the  
 public and private sector

Developed, tested  
 and refined in  
 over 20 countries  
 since 2015, over  
 50 tools, training  
 and guides for  
 national and  
 organisational  
 transformation

