



BUILDING INNOVATION

Conference

Accelerating Digital Transformation with the U.S. National BIM Program

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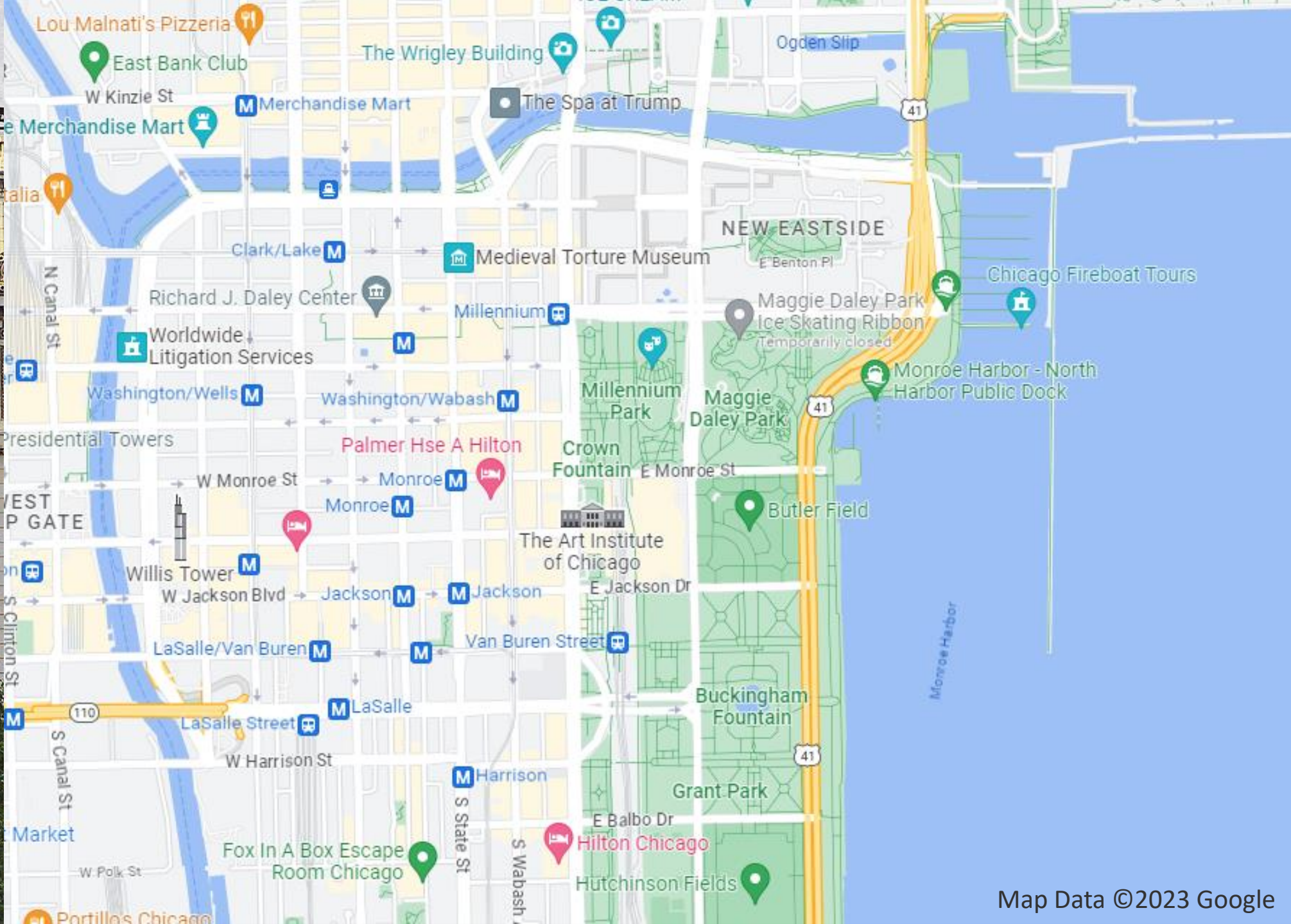
Session Description

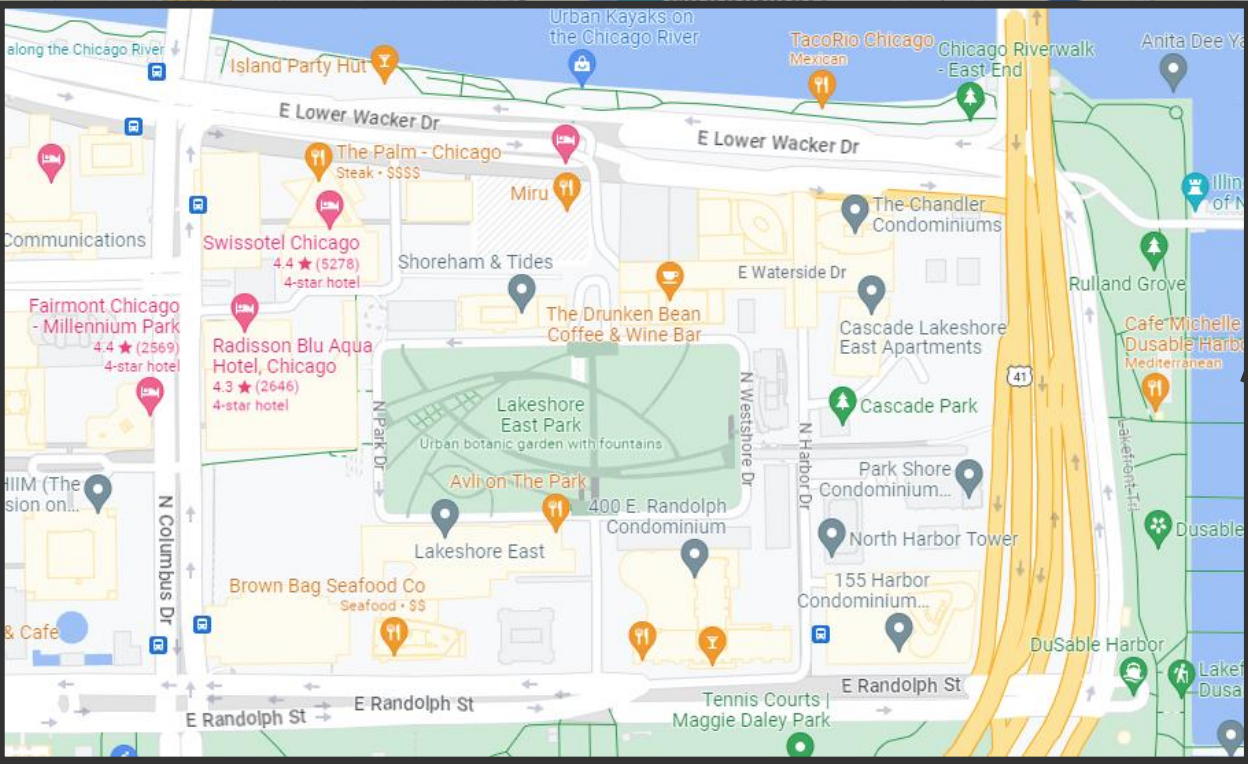
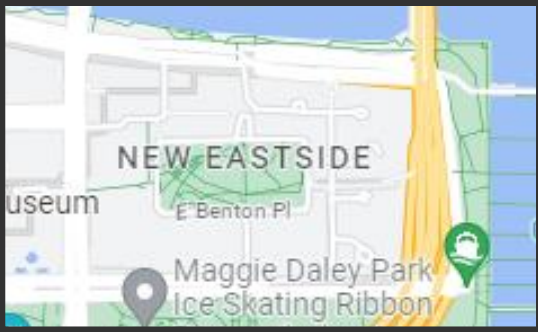
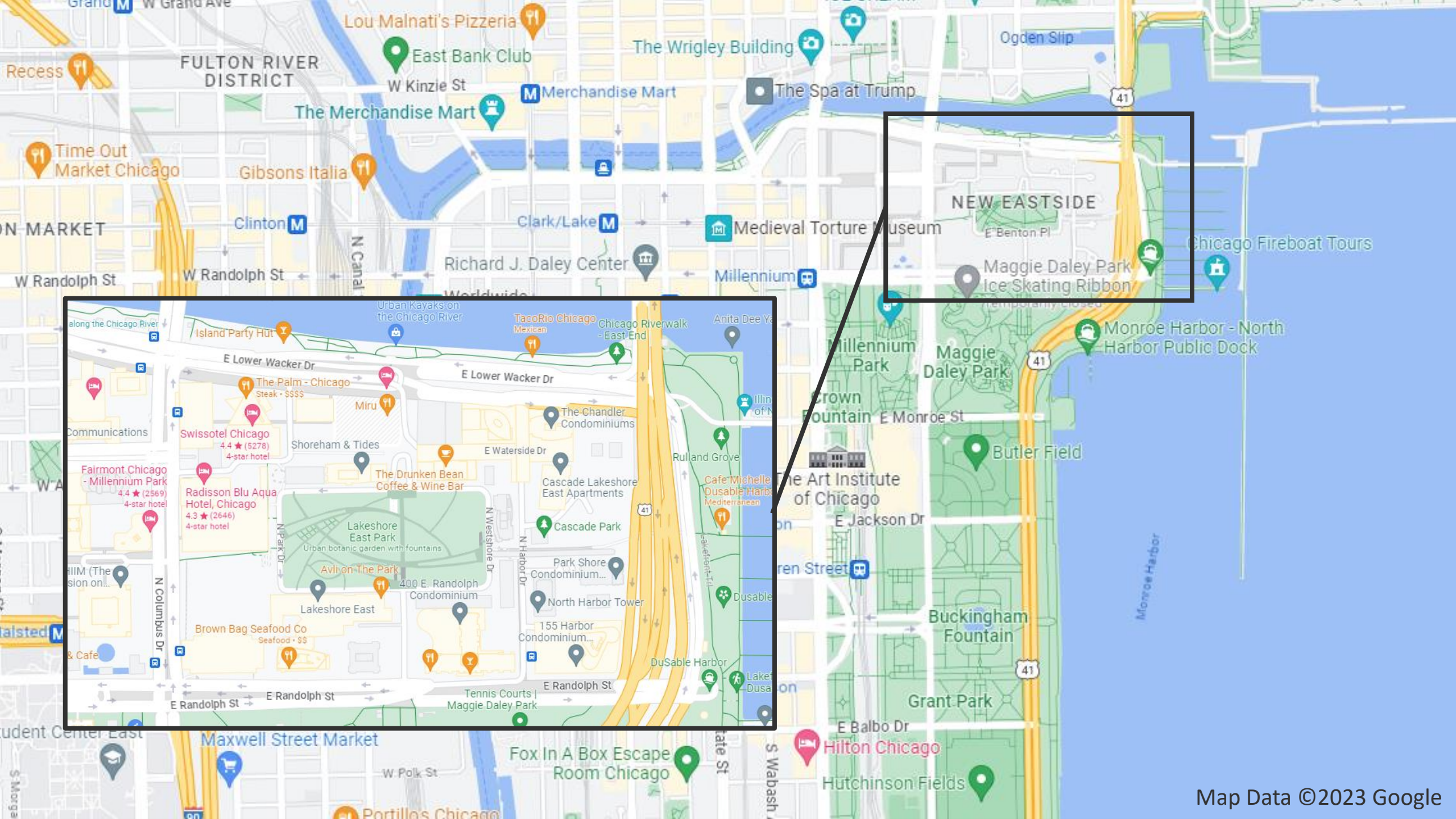
- The U.S. built environment yet to realize the benefits of digital transformation.
- NIBS is leading the development and dissemination of next-gen practice standards and processes for the built environment.
- The U.S. National BIM Program will provide a step-change in capacity, creating a platform and community to support the next phase of digital innovation.

Session Agenda

- Outline the purpose, values, and goals of the National BIM Program
- Describe industry workstreams and their connection to stakeholder groups.
- Describe the five-year implementation plan.
- Identify how the program integrates









National BIM Program

Drivers, Values, Goals, Outcomes

Program Core Values

13-21%

Increased Efficiency

Estimated savings via increased efficiencies in design and construction assembly in the next 10 years (Boston Consulting Group)

15%

Construction Cost

Potential public construction cost savings (UK Government Construction Strategy)

41%

Diminishing Workforce

Portion of the U.S. labor force will retire by 2031, diversify through industrialized construction processes driven by digital automation (McKinsey)

60%

Construction Productivity

long-term increased construction productivity through design-to-manufacturing processes supported by digital information (McKinsey)

100%

AECO Profitability

Proposed potential increase in profits for AECO players (McKinsey)

50-52%

Greenhouse Gas

Reduce Greenhouse Gas emissions from 2005 by 2030. (Executive Order 14057)

Program Core Values



Inclusive: Involve a broad range of key stakeholders



Open: Require open digital standards



Collaborative: Share experience and expertise



Aligned: Limit rework through coordination with key stakeholders



Practice Oriented: Focus on ability to implement, now or in the future



Reliable: Standards provide the foundation for commitments and contracts

Program Critical Outcomes



Allow owners to build and renovate more buildings, bridges and roads with less money by enhancing the efficiency of design, construction and asset operation.



Strengthen U.S. industry access to global markets with U.S. standards compatible with worldwide programs.



Accelerate delivery, manage costs, and increase sustainability through information standards and protocols shared across the supply chain.



Integrate buildings, lifelines and infrastructure for seamless management of the built environment to improve safety, security, resilience and sustainability.



Build on U.S. leadership in AECO technology development to enable the next generation of building technology.



Expand innovation in the development of new digital solutions and practices throughout the AECO industry.



Creating Value for Asset Owners

Buildings

Approach to BIM and best practices is highly fragmented. Many opportunities to gain efficiency

Coalition

NIBS and the NBP serves as a convener to bring together representatives across industries to solve the information deficit

Infrastructure

Time-sensitive opportunities exist to ensure Infrastructure harnesses lessons learned and technology implementations without creating fragmentation

Program Goals

Next Generation Standards

Develop next generation process and information BIM standards to a level of implementation that can be validated for contractual compliance along with deployment guidance and resources

Support Owner Adoption

Support the development, collection, management, use and sharing of information models for all asset owners

Improve Project Delivery

Enable all key stakeholders to significantly improve the project delivery process and facility performance by adopting BIM

Build Communities

Build a community that represents all key stakeholders to develop, promote and adopt leading practices for BIM implementation in collaboration with partner organizations

Create Legal Framework

Create the legal and insurance framework(s) to support adoption including a focus toward using the model content for project commitments and contracts

Educate and Train

Create education, training, and certification programs in collaboration with partner organizations to support the evolving workforce demands

Program Workstreams



Owner
Leadership



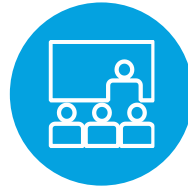
Project Team
Implementation



Standards and
Guidance



Stakeholder
Engagement



Education and
Training



Legal and
Insurance

OWNER LEADERSHIP WORKSTREAM

NEED:

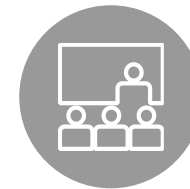
Engage project stakeholders to **implement BIM and share data with asset/facility owners** thoroughly and consistently across the project lifecycle.

SOLUTION:

People, Process, Technology, and Data working together to meet Owner information needs

DELIVERABLES:

Bring together Owner Community
Develop and Maintain **Knowledge Platform**
Owner Implementation Case Studies
Model Based Permitting and Contracting



PROJECT TEAM IMPLEMENTATION WORKSTREAM

NEED:

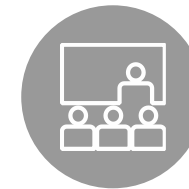
Consistent application and delivery of BIM by AEC Practitioners and Technology, Fabrication and Manufacturing Vendors across the Supply Chain

SOLUTION:

Document value, identify specific BIM Uses, standardize processes, deliver information consistently, leverage global BIM efforts, recognize successes

DELIVERABLES:

Value potential with metrics
BIM Uses to meet objectives
Case studies
Leverage global practices
Coordinate processes across the supply chain to leverage standards and technology
Recognition program



STANDARDS AND GUIDANCE WORKSTREAM

NEED:

Common detailed **BIM industry standards** for Building and Civil Asset/Facility Owners

SOLUTION:

National BIM Roadmap for Standards and Guidelines

Adapt, coordinate and develop needed standards

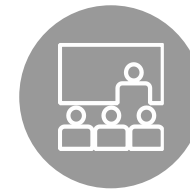
DELIVERABLES:

Continue to develop and expand the **National BIM Standard** (NBIMS-US) – publish updates as needed/available

Elevate ISO Standards Utilization

Active participation in ISO TC 59/SC 13
Implement ISO 19650

Coordinate efforts of other US and International Standards bodies (AASHTO, ASHRAE, BIMForum, bSI, OGC, etc.)



STAKEHOLDER ENGAGEMENT WORKSTREAM

NEED:

Coordination of industry communities that are dispersed across various siloed organizations

SOLUTION:

Bring various industry organizations together to coordinate and build on overlapping efforts

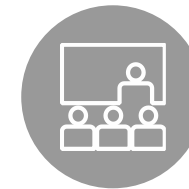
DELIVERABLES:

Bi-Annual Market Research Study

MOU's with Partner Agencies to align efforts

Organize and leverage disparate efforts to benefit owners and practitioners alike

Implement NBP Communication Channel



EDUCATION AND TRAINING WORKSTREAM

NEED:

Cohesive **lifecycle BIM education and training** program

SOLUTION:

Development of a cohesive and **comprehensive curriculum and BIM credentialing** plan coordinated with various providers

DELIVERABLES:

Educational needs survey

Coordinated curriculum course development across providers

Identify credentialing program needs and requirements

Promote educational offerings



LEGAL AND INSURANCE WORKSTREAM

NEED:

Clear, consistent approach to **incorporate BIM deliverables into contracts** for delivery of products and services

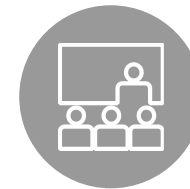
SOLUTION:

Integrate BIM throughout the contracting, including level or **reliance on modeled content** and contractual digital design deliverables.

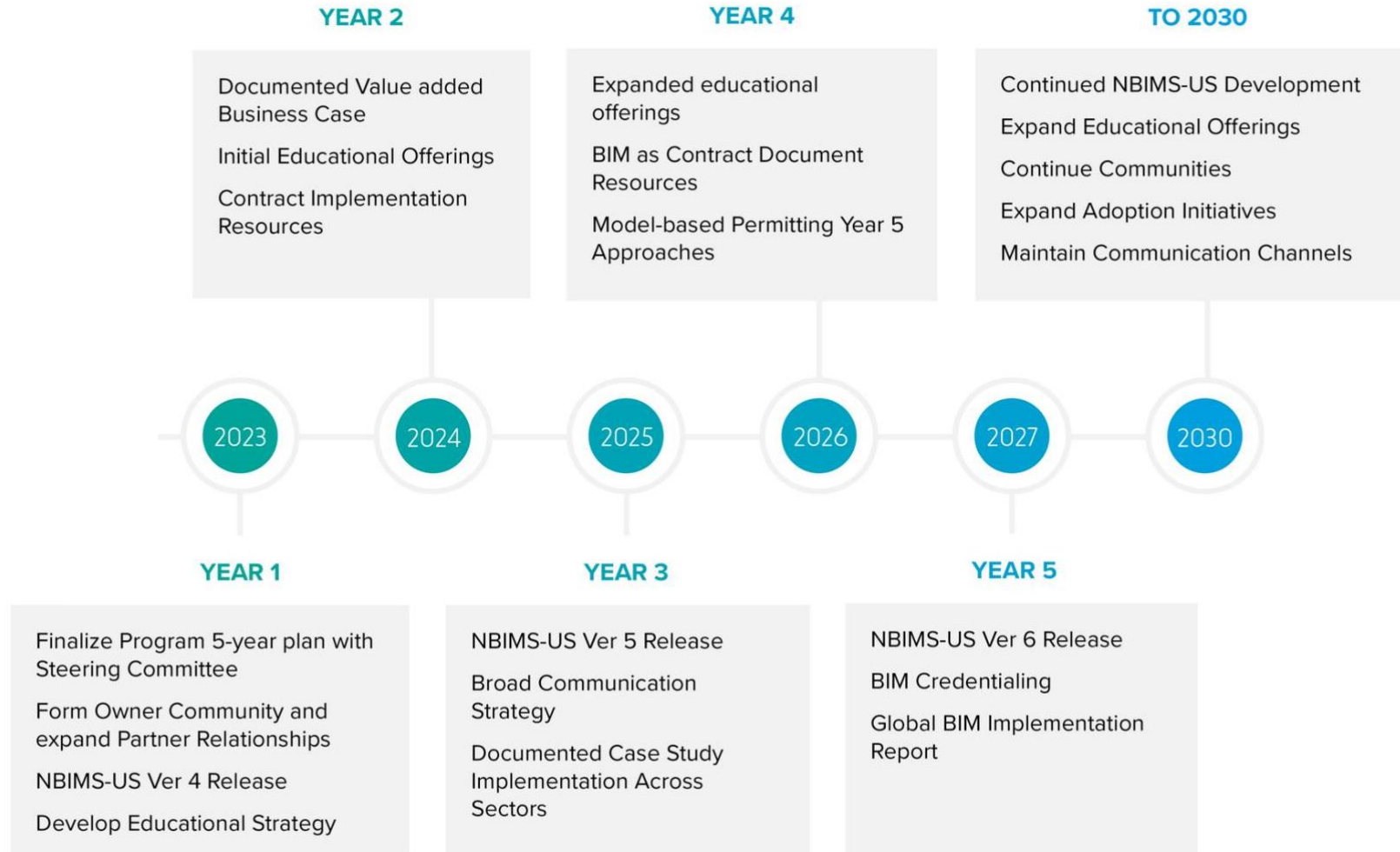
DELIVERABLES:

Legal and Insurance Summit

Support NBIMS ISO 19650 / IFC in Contracts
BIM as Contract Document / Model as a Legal Document Approach
BIM Risk Impact Study



U.S. National BIM Program Roadmap



YEAR 1

- Building the structure for the Program
- Added Program Director
- Secure resources for the Program
- Exploratory Initiatives



YEAR 2 AND 3

- Early Wins
- Focused on initial development projects
- Further defining future needs
- Identifying related activities

YEARS 2 AND 3

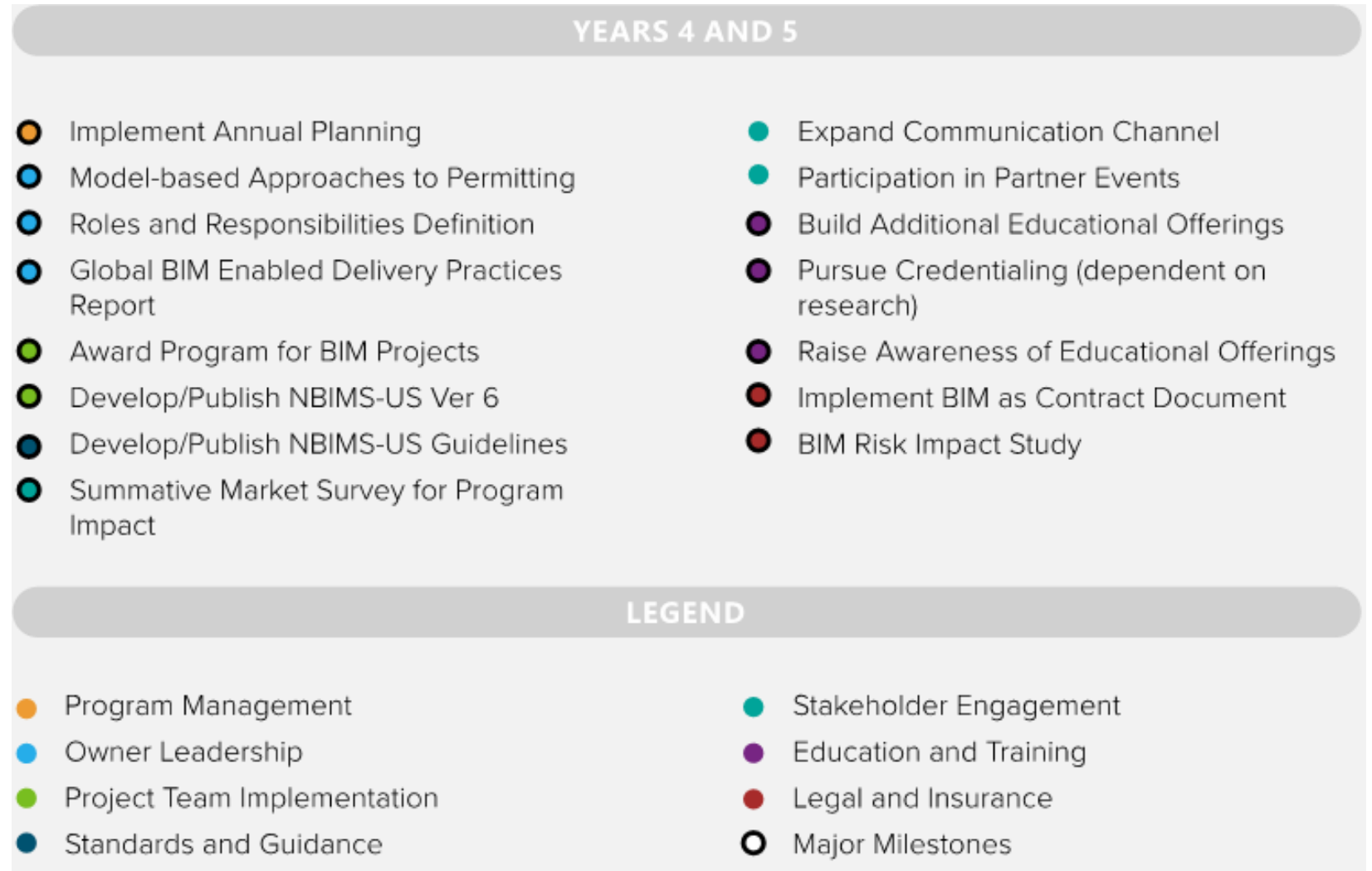
- Implement Annual Planning
- Compelling Business Case
- Develop Mentoring Program
- Guidance Document for Owner Adoption
- Correlate Objectives with BIM Uses & Methods
- Demonstration of BIM Process in Case Studies
- Develop/Publish NBIMS-US Ver 5
- Draft/Publish US ISO 19650 Part 1&2 in Collaboration with ASHRAE
- Support OmniClass® Enhancements in Collaboration with CSI
- Develop Communication Strategy
- Design and Implement Communication Channel
- Formative Market Survey for Program Impact
- Participation in Partner Events
- Build Additional Educational Offerings
- Pursue Credentialing (dependent on research)
- Raise Awareness of Educational Offerings
- Resources for NBIMS-US in Contracts
- Research for BIM as Contract Document

LEGEND

- Program Management
- Owner Leadership
- Project Team Implementation
- Standards and Guidance
- Stakeholder Engagement
- Education and Training
- Legal and Insurance
- Major Milestones

YEAR 4 AND 5

- Advanced Transformation
- Focus on gaining additional adoption of Program products
- Create **additional high-value products**
- Identify **additional high-value activities**



BEYOND YEAR 5

- **Embedded Change**
- Refinement of core activities beyond year five
- Additional strategic planning initiatives



SUMMARY BUDGET

- **Funding** NIBS personnel and external parties to **perform defined initiatives**
- General Program support
- Annual budget to be developed each year

U.S. NATIONAL BIM PROGRAM SUMMARY BUDGET							
	Year 1	Year 2	Year 3	Year 4	Year 5		
Description	2022	2023	2024	2025	2026	Program Totals	Percent of Total
Program Management	\$256	\$226	\$ 206	\$199	\$ 205	\$1,095	12%
1 – Owner Leadership	\$50	\$103	\$106	\$109	\$113	\$481	5%
2 – Project Team Implementation	\$59	\$103	\$106	\$109	\$113	\$481	5%
3 – Standards and Guidance	\$400	\$917	\$813	\$744	\$767	\$3,641	40%
4 - Stakeholder Engagement	\$237	\$182	\$188	\$193	\$199	\$989	11%
5 – Education and Training	\$116	\$119	\$352	\$542	\$558	\$1, 687	19%
6 – Legal and Insurance	\$50	\$206	\$212	\$109	\$113	\$9,064	8%
	\$1,152	\$1,856	\$1,983	\$2,005	\$2,068	\$9,064	

Note: All Values are \$1,000



FOCUS AREAS

Awareness

- Podcasts
- Conferences
- Publications

Research

- Extant Data
- Industry Surveys
- Case Studies

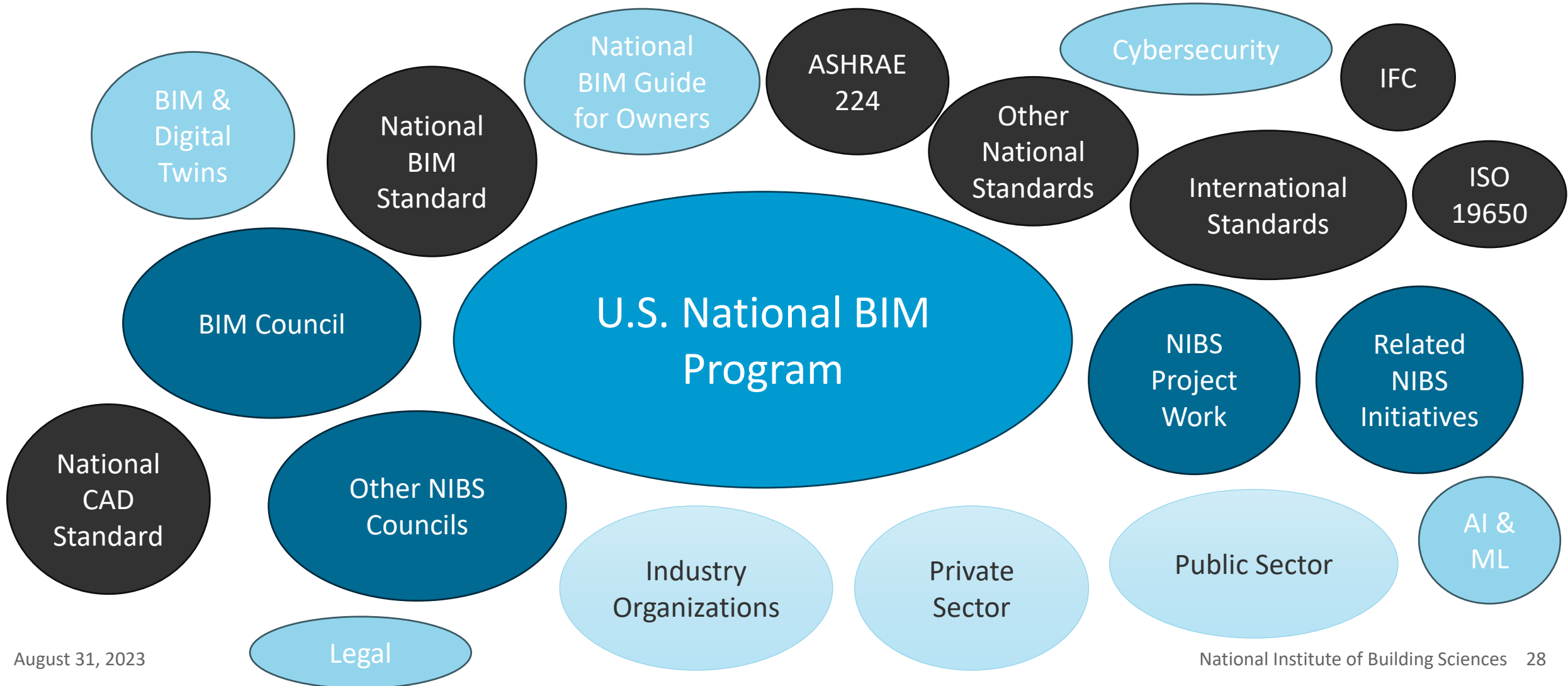
Development

- Workshops
- Summits
- Standards Development

Engagement

- Community Engagement Portal
- Stakeholder Value Matrix
- Coordination with Key Organizations

Program Concept – Bring it all Together

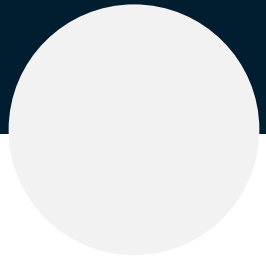






Thank you









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