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.

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

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

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

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

Expand innovation in the development of new digital solutions and practices throughout the AECO industry.
Approach to BIM and best practices is highly fragmented. Many opportunities to gain efficiency.

Buildings

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

Coalition

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

Infrastructure
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

1. Owner Leadership
2. Project Team Implementation
3. Standards and Guidance
4. Stakeholder Engagement
5. Education and Training
6. 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 2
- Documented Value added Business Case
- Initial Educational Offerings
- Contract Implementation Resources

YEAR 4
- Expanded educational offerings
- BIM as Contract Document Resources
- Model-based Permitting Year 5 Approaches

TO 2030
- Continued NBIMS-US Development
- Expand Educational Offerings
- Continue Communities
- Expand Adoption Initiatives
- Maintain Communication Channels

YEAR 1
- Finalize Program 5-year plan with Steering Committee
- Form Owner Community and expand Partner Relationships
- NBIMS-US Ver 4 Release
- Develop Educational Strategy

YEAR 3
- NBIMS-US Ver 5 Release
- Broad Communication Strategy
- Documented Case Study Implementation Across Sectors

YEAR 5
- NBIMS-US Ver 6 Release
- BIM Credentialing
- Global BIM Implementation Report
YEAR 1

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

YEAR 1

- Define Annual Project Cycle
- Case Study Spotlights for Industry Innovators
- Develop Owner Community
- Case Studies of Operational Implementation
- Document Value Potential with Clear Metrics
- Plan BIM Uses & Methods Study
- Complete/Publish NBIMS-US Ver 4
- U.S. BIM Standards Roadmapping Summit
- Update U.S. TAG to ISO TC 59/SC 13 in Collaboration with ASHRAE
- Identify Staff for Program
- Market Research Study - Adoption/Standards
- Develop MOUs with Partner Organizations
- Plan for Communication Strategy
- Participation in Partner Events
- BIM Educational Needs Survey
- Plan Curriculum Guide Strategy
- BIM Legal and Insurance Summit
- Resources for NBIMS-US in Contracts

LEGEND

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

YEARS 4 AND 5

- Implement Annual Planning
- Model-based Approaches to Permitting
- Roles and Responsibilities Definition
- Global BIM Enabled Delivery Practices Report
- Award Program for BIM Projects
- Develop/Publish NBIMS-US Ver 6
- Develop/Publish NBIMS-US Guidelines
- Summative Market Survey for Program Impact

- Expand Communication Channel
- Participation in Partner Events
- Build Additional Educational Offerings
- Pursue Credentialing (dependent on research)
- Raise Awareness of Educational Offerings
- Implement BIM as Contract Document
- BIM Risk Impact Study

LEGEND

- Program Management
- Owner Leadership
- Project Team Implementation
- Standards and Guidance
- Stakeholder Engagement
- Education and Training
- Legal and Insurance
- Major Milestones
BEYOND YEAR 5

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

BEYOND YEAR 5

- Implement Annual Planning
- Continued Owner Community
- Award Program for BIM Successes
- Confirmative Market Survey for Program Impact
- Maintain Communication Channel
- Create Conference Events for NBP
- Participation in Partner Events
- Continued development of NBIMS-US
- Build Additional Education Offerings as needed
- Raise Awareness of Education
- Survey Impact of BIM Standards for Contracts

LEGEND

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

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

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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

- **BIM & Digital Twins**
- **National BIM Standard**
- **National BIM Guide for Owners**
- **ASHRAE 224**
- **Cybersecurity**
- **IFC**
- **ISO 19650**
- **International Standards**
- **NIBS Project Work**
- **Related NIBS Initiatives**
- **Public Sector**
- **Private Sector**
- **Industry Organizations**
- **Other NIBS Councils**
- **National CAD Standard**
- **BIM Council**
- **Other National Standards**
- **Legal**
- **AI & ML**
Thank you