2018
Project Delivery Symposium: Delivering the future
OWNERS PANEL
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Questions related to specific products and services may be addressed at the conclusion of this presentation.
Moderator:

Craig Unger DBIA
Principal and CEO of Unger Security Solutions

Panelists:

Anna Franz
Administrative Office of the 3 US Courts

Christian Stohler
Dean of the Columbia School of Dentistry

Stephen Ayers
Architect of the Capital

Laura Stagner
Assistant Commissioner of the GSA
Office of Project Delivery
2018
Project Delivery Symposium: Delivering the future
OWNERS PANEL – Stephen Ayers
Architect of the Capitol

Serve, Preserve & Inspire

Project Delivery
an AIA Knowledge Community
### Construction Contract

<table>
<thead>
<tr>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHRISTMAN COMPANY</td>
</tr>
<tr>
<td>HITT CONTRACTING</td>
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<tr>
<td>TURNER CONSTRUCTION</td>
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<tr>
<td>CONSIGLI CONSTRUCTION</td>
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<tr>
<td>KIEWIT BUILDING GROUP</td>
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</tbody>
</table>

### Construction Management/Project Management Contract

<table>
<thead>
<tr>
<th>Company Name</th>
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</thead>
<tbody>
<tr>
<td>PROCON CONSULTING LLC</td>
</tr>
<tr>
<td>JACOBS PROJECT MANAGEMENT CO.</td>
</tr>
<tr>
<td>PARSONS INFRASTRUCTURE &amp; TECHNOLOGY GROUP, INC.</td>
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### A-E Contractors

<table>
<thead>
<tr>
<th>Company Name</th>
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<tbody>
<tr>
<td>SHALOM BARANES ASSOCIATES</td>
</tr>
<tr>
<td>AECOM</td>
</tr>
<tr>
<td>HGA MID-ATLANTIC INC.</td>
</tr>
<tr>
<td>JAMES POSEY ASSOCIATES, INC.</td>
</tr>
<tr>
<td>QUINN EVANS ARCHITECTS</td>
</tr>
<tr>
<td>URS GROUP, INC.</td>
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### E-A Contractors

<table>
<thead>
<tr>
<th>Company Name</th>
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</thead>
<tbody>
<tr>
<td>RMF ENGINEERING, INC.</td>
</tr>
<tr>
<td>AFFILIATED ENGINEERS INC.</td>
</tr>
<tr>
<td>WILEY WILSON</td>
</tr>
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For More Information:

www.aoc.gov

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2018

Project Delivery Symposium: Delivering the future

OWNERS PANEL – Christian Stohler
The Vision

*Big data generate actionable intelligence in support of teaching and learning of individual students, and the personalized care of patients*

*Space as an Enabler for a First of Its Kind*

**The Owner’s Perspective**

Columbia University Medical Center
Columbia University

*AIA | Data-Assisted, Technology-Enabled Intelligent Education / CSS*
Virtual Reality (VR)
A computer-generated reality that simulates a physical presence in the real or an imagined world, allowing the user to function in that world.

Mixed Reality (MR)
The merging of real and virtual worlds to produce new environments where physical and digital objects co-exist and interact in real time.

Augmented Reality (AR)
A live view of a real-world environment whose elements are augmented by computer-generated sensory input, such as sound, video, graphics, location data, etc.

*February 29, 2018

AIA | Data-Assisted, Technology-Enabled Intelligent Education
<table>
<thead>
<tr>
<th>YEAR</th>
<th>INNOVATION</th>
</tr>
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<tbody>
<tr>
<td>2016-17</td>
<td><strong>4K</strong> 2D Video <strong>3840*1920 pixels</strong></td>
</tr>
<tr>
<td>2018-19</td>
<td><strong>8K</strong> 2D Video <strong>7680*3840 pixels</strong></td>
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<tr>
<td>2020-22</td>
<td><strong>12K</strong> 2D Video <strong>11520*5760 pixels</strong></td>
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<tr>
<td>2023-27</td>
<td><strong>24K</strong> 3D Video <strong>23040*11520 pixels</strong></td>
</tr>
<tr>
<td>2019-20</td>
<td>First micro-displays</td>
</tr>
<tr>
<td>2020+</td>
<td>GPU-Accelerated (vs CPU) Computing Goes Mainstream</td>
</tr>
</tbody>
</table>

Augmented Reality

[Image of AR glasses]

[Image of micro-display]

[Image of contact lenses]
Alvar Aalto | In His Helsinki Villa

Convergence of the Minds | At Alvar Aalto’s Villa

Dentists
IT and Informatics Professionals
Mechanical and Computer Engineers
Professors, Scientists and Content Experts
Finance and University Representatives
Architects and Designers

AIA | Data-Assisted, Technology-Enabled Intelligent Education
Choice of Site | In the Heart of Columbia University’s Medical School
But ... there is no space there.

15,000 sqft | 48 Operatories
Teaching-Learning Environment
High Fidelity Simulation Analytics

Big Data Cloud Computing
RFID Tagged Instrument and Supplies Dispensing Cabinets

Check-out sign-in panel
Passive Big Data Acquisition
Connectivity of 24 Dental Teaching Stations
2018
Project Delivery Symposium: Delivering the future
OWNERS PANEL – Laura Stagner
Improving Project Delivery
Improving outcomes in project delivery

1. Data & Information
2. Collaboration & Relationships
3. Choosing a delivery method to mitigate risk
This analysis includes all substantially completed projects and active projects with a defined estimated substantial completion date. Limited scope projects (Fire and Life Safety, Consolidation, etc.) are not a part of this analysis.
Schedule & Cost Growth

Project Set: 103 capital projects worth $6.9B

- CMc: 4% Schedule Growth, 6% Cost Growth
- DB: 6% Schedule Growth, 9% Cost Growth
- DBB: 23% Schedule Growth, 17% Cost Growth
- DB-B: 5% Schedule Growth, 3% Cost Growth

GSA's project performance (last 5 years) shows CMc, DB, and DB-B delivery methods outperforming DB-B.

Litigation

Project Set: $29.1B obligations, $183.7M lost to litigation 2004-2014

- DB: $12,114 Dollars Lost per Million Obligated
- DB-B: $2,105

GSA's litigation experience (last 10 years) shows benefits to using DB and DB-B.
INTEGRATION AT ITS FINEST:

Success in High-Performance Building Design

and Project Delivery in the Federal Sector

Research Report
April 14, 2015

Renée Cheng, AIA, Professor, School of Architecture, University of Minnesota
Sponsored by Office of Federal High-Performance Green Buildings, U.S. General Services Administration
Clear Implications: Trust/Respect & Aligned Goals

<table>
<thead>
<tr>
<th>Context</th>
<th>Key Ingredients</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Size</td>
<td>Trust, Respect, Aligned Goals</td>
<td>Team Outcomes</td>
</tr>
<tr>
<td>Complexity and Risk</td>
<td>Leadership</td>
<td>Building Outcomes</td>
</tr>
<tr>
<td>Logical Completeness</td>
<td>Aligned Goals</td>
<td></td>
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<tr>
<td>Level of scope development</td>
<td>Clear Communication</td>
<td></td>
</tr>
<tr>
<td>of GSA budget items</td>
<td>Effective Leadership</td>
<td></td>
</tr>
<tr>
<td>Early in planning</td>
<td>Regional leadership recruitment</td>
<td></td>
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<tr>
<td>Early in decision making</td>
<td>Accountability</td>
<td></td>
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<tr>
<td>Early in design</td>
<td>Accountability</td>
<td></td>
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<tr>
<td>Early in construction</td>
<td>Accountability</td>
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Accountability

Mutual Trust & Respect

Aligned Goals
Mixed Implications: Open Book, BIM, Co-lo

<table>
<thead>
<tr>
<th>Context</th>
<th>Key Ingredients</th>
<th>Commercial</th>
<th>Leadership</th>
<th>Logistical &amp; Process Tactics</th>
<th>Outcomes</th>
<th>Building Outcomes</th>
</tr>
</thead>
<tbody>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Project Size</td>
<td>Complexity</td>
<td>Risk</td>
<td>Location Complexity</td>
<td>Level of Development at 1860s</td>
<td>Construction</td>
<td>2022</td>
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- **Shared Savings**
- **Co-location**
- **BIM Impact**

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The American Institute of Architects
an AIA Knowledge Community
**Design**
- GSA retains control over design
- Most used & best understood method by GSA
- Procurement laws well understood

**Disadvantages/Issues**
- Linear sequence - longest duration
- Design liability - GSA warrants design
- Contractor has no input into project
- Final cost changes - GSA is responsible
- Most litigious

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**Design Build**
- Single point of contract & accountability
- Design Builder warrants design
- Construction input during design
- Enable fast track construction
- Early knowledge of firm project costs
- Best value selection of entire team

**Disadvantages/Issues**
- Need well defined scope - POR
- GSA responsible for changes, overlaps & gaps in scope
- No check & balance between designer & builder
- Quality can be difficult to control & predict
- Timely decisions critical

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**Construction Manager as Contractor**
- GSA obtains construction input during design
- Cost “guarantee” prior to design completion
- Construction can start before design is complete, saving time & money
- Can improve quality of subcontractors

**Disadvantages/Issues**
- GSA Responsible for changes after GMP
- Design Liability - GSA warrants design
- GSA may not have full control on contract changes as desired

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**Bridging**
- More precise set of requirements than in pure DB, more control over quality
- Design Builder warrants design, but less effective than DB
- Enables fast track construction
- Early knowledge of firm project costs
- Best value selection of DB team

**Disadvantages/Issues**
- Roles of bridging designer & execution design firm must be established
- No check & balance between executing designer & builder, no privity of contract with designer
The RISK MANAGEMENT DIAGRAMS measure the ability of the delivery method to manage the risk of the project. A score of 5 represents a high level of management influence. A score of 1 represents a low level of risk mitigation.

The Project Team identifies the goals and risks for each of the seven risk categories and assigns a score - 5 high level of risk and 1 is low level of risk. A sample PROJECT RISK DIAGRAM is illustrated in the center of the diagram.

The Project Team then compares the PROJECT RISK DIAGRAMS to the idealized diagrams for each of the 4 PDM types. The team considers the selection of the PDM that best resembles the RISK MANAGEMENT DIAGRAM and reach a consensus on which method will best mitigate the risks to the project.
2018
Project Delivery Symposium: Delivering the future
OWNERS PANEL – Anna Franz
Project Delivery  Executive, Legislative and Judicial Branch Perspectives

<table>
<thead>
<tr>
<th>GOALS</th>
<th>VISION</th>
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Common Challenges

- Comprehensive Vision
- Design Risk
- Contract Flexibility
- Project Direction

Risk Management

- Shared Leadership
- Integrated Approach
- Innovation Contingency
- Performance Measurement
Executive Branch

Modernization Project

- Artistic Design Conference
- Construction Manager as Constructor (CMc) Project Delivery
- Department of Justice / General Services Administration Partnership

Robert F. Kennedy Department of Justice Building
Executive Branch

Renewal Project

- International Design Competition
- Multi-Year Contract

Donald W. Reynolds Center for American Art and Portraiture – Robert and Arlene Kogod Courtyard
Executive Branch

CRC
- Developer Manager Contract
- Integrated Master Schedule
- Performance Metrics

Bayview
- Public Private Partnership
Legislative Branch

Renewal Project

- Design Peer Review
- Integrated Team Completion Bonus
- Quantitative Risk Assessment

Cannon House Office Building
Judicial Branch

New United States Courthouse - Los Angeles

A/E IDIQ (*re-compete this year):
- AECOM
- Beyer Blinder Belle
- CRA Architecture
- Gensler
- Jacobs
- Page Southerland Page

A/V Design/Install:
- Alvine
- EII
- Newcomb & Boyd
- Polysonic
- PSE
- Spectrum

Long-Range Planning:
- Fentress
- Baker
- Jacobs

Performance Metrics:
- Booz Allen Hamilton

* adding Project Direction Services
Questions?