Workshop Summary – What we heard?

Key highlights of expectations of Owner/Operators from others within the Ecosystem [Suppliers/Contractors/Consultants]:

Lead the Way
- As the ultimate integrators of projects, Owner operators are expected to drive digital transformation by mandating standards, technologies, and working practices.
- Provide agility to embrace new business models and willingness to pilot new technologies.
- Coordinate early engagement of suppliers and contractors to help influence the overall design and provide new digitalization solutions

Standardization of Data & Process
- Provide data visibility to establish clear accountabilities of the process within the industry ecosystem, and enable open and transparent performance monitoring
- Standardize approach to data architecture, processes, procedures, and methodologies for managing and monitoring projects (data capture and reporting)

Collaboration
- Provide a digital technology platform to effectively access & manage shared information, manage accountabilities and sustain collaboration
- Provide a mechanism to share and bring innovative ideas from suppliers and contractor
**WHAT:**
To enable Digital Transformation in our industry,
• How do you (as the persona) engage with others?
• What is your expectation from other personas’?

**CONSTRUCTION CONTRACTOR**
Engagement:
- Provide Transparency & Real-time Reporting on selected KPIs
- Establish common pre-qualification of sub contractors
- Participate in visualization enabling conversations from common framework

**EP & EPCs**
Engagement:
- Develop smart 3D models
- Standardization of platforms
- Establish early digitalization conversations

**SUPPLIERS/TECHNOLOGY PROVIDERS/CONSULTANTS**
Engagement:
- Offer Comprehensive Solutions
- Offer customizable/configurable options
- Bring innovative ideas/technology

**OWNER/OPERATOR**
Engagement:
- Provide Data Integrity
- Develop KPIs for data quality and digitization

**EXPECTATION FROM OWNERS**
- Continuous Improvement: Communicate Feedback/Pain-points
- Develop Partnership/Strategic Alliance
- Participate in early discussion on digitalization solutions
- Standardization of data/process
- Standardization of platforms

**EXPECTATION FROM OWNERS**
- Provide readily available, accurate & timely information
- Standardization/Streamlined Process - Procurement, Qualification, Data Reporting/Sharing, Data Management
- Enable Digital Interface

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Workshop Summary – What we heard?
WORKSHOP RAW DATA
Table#1
Persona: Construction Contractor

IDEATE

- Data Standards for construction typical information
- Access to Construction ready info/specs
- Drive Digital (Owner + Engineers) -> Digital Plan Rooms
- RFQ (Per Project/Size)
- Trade Subs (common pre-qualification)
- Technical Service Subs
- Supplier (Procor type cloud based documents)
<table>
<thead>
<tr>
<th>Persona</th>
<th>Your Engagement with others within ecosystem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selected Idea: Industry wide standardized program for data sharing &amp; reporting</td>
<td></td>
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<tr>
<td>Benefits:</td>
<td></td>
</tr>
<tr>
<td>• No waste on conversion</td>
<td></td>
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<tr>
<td>• Streamlined processes</td>
<td></td>
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<tr>
<td>• Reduced indirect</td>
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<tr>
<td>• Removes gap in communication, increase efficiency and accuracy of reporting</td>
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<tr>
<td>Risks/Challenges / Constraints</td>
<td></td>
</tr>
<tr>
<td>• Having buy-in from everyone</td>
<td></td>
</tr>
<tr>
<td>• Keeping people/companies/owner engaged/acceptance during development</td>
<td></td>
</tr>
<tr>
<td>• Common acronyms, naming, formats, syntax, definitions</td>
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<tr>
<td>Suggested Timeline to Implement: 2 years</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Personas’</th>
<th>Your Expectations from other personas’ to Engage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selected Idea: Readily available/accurate information</td>
<td></td>
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<tr>
<td>Benefits</td>
<td></td>
</tr>
<tr>
<td>• Never waiting on document controls/training</td>
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<tr>
<td>• Never building with old/superceded drawing</td>
<td></td>
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<tr>
<td>• Decreased downtime/Increased tool time</td>
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<tr>
<td>Risks/Challenges / Constraints</td>
<td></td>
</tr>
<tr>
<td>• Being able to update drawings/data in required timeline</td>
<td></td>
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<tr>
<td>• Convincing Owner companies to not proceed until Engineering is complete and accurate</td>
<td></td>
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<tr>
<td>Suggested Timeline to Implement: 1 year</td>
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</tbody>
</table>
Table#3
Persona: Suppliers/Technology Providers/Consultants

IDEATE

- Understand the needs of the industry
  - Conferences
  - Business meetings
  - Partnership
  - Offer customizable options
  - Comprehensive website
  - Offer comprehensive solutions that are interconnected
  - Opportunities to demonstrate our products
  - Respect proprietary information and solution providers time
  - Honest and constructive feedback
  - Make quick decisions
  - Collaboration
### Persona View: SUPPLIERS, TECHNOLOGY PROVIDERS, CONSULTANTS

#### Your Engagement with others within ecosystem
**Selected Idea:** Comprehensive Solutions that are interconnected

<table>
<thead>
<tr>
<th>Benefits:</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>• Industry leaders in the technology space</td>
<td></td>
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<tr>
<td>• Integration brings exponential value to the Owners</td>
<td></td>
</tr>
</tbody>
</table>

**Risks/Challenges / Constraints**

- Pick the wrong horse to integrate with and become siloed

**Suggested Timeline to Implement:** 6 months

### Other Personas’

#### Your Expectations from other personas’ to Engage
**Selected Idea:** Collaboration

<table>
<thead>
<tr>
<th>Benefits:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Everybody wins / is heard</td>
<td></td>
</tr>
<tr>
<td>• Achieve solutions faster</td>
<td></td>
</tr>
</tbody>
</table>

**Risks/Challenges / Constraints**

- IP issues

**Suggested Timeline to Implement:** 6 months
IDEATE

- What do customers/owners want?
- Why do they want it?
- When to engage
  - Post bid / Pre-kick-off
  - Relationships – anytime

Expectation from ourselves (Contractors)
Real-time Reporting

Expectations from owners (expectation of Owners + EP: stay aligned)
- Specify Data Standard (everyone on the same page)
- One source of truth
### Persona View: CONSTRUCTION CONTRACTOR

#### Your Engagement with others within ecosystem

**Selected Idea:** Real-time reporting, selected key indicators = our contribution to one source of truth

**Benefits:**
- Timely Information + Timely Analytics
- Un-manipulated data
- Reduced transaction costs

**Risks/Challenges / Constraints**
- Data inundation

**Suggested Timeline to Implement:** 2 years

#### Other Personas’ Expectations

**Your Expectations from other personas’ to Engage**

**Selected Idea:** Owners drive standardization
- KPIs required
- Data Compatibility/Integration

**Benefits**
- Overhead costs reduced – Both Contractor & Owner

**Risks/Challenges / Constraints**

**Suggested Timeline to Implement:** Take advantage of an existential crisis
IDESATE

- Provide solutions
- Seller
- Personal relationships / Past experience
- Involvement / Willing to engage
- Realistic expectations (work in progress)
- Increased interest & Products/Services
- Risk aversion of financial commitment
- Partnership with complimentary service
- Owner driven
  - Personnel monitoring
  - Increased efficiency
  - Owner standardization
### Persona View: SUPPLIERS, TECHNOLOGY PROVIDERS, CONSULTANTS

#### Your Engagement with others within ecosystem

**Selected Idea:** Initial Conversation with Stakeholders to define purpose and offer solutions

**Benefits:**
- Clearly defines expectations
- Solves the problem – meets business objectives
- Reduce redundancies (Speed/Simplicity) – Culture Development

**Risks/Challenges / Constraints**
- Time, money change in technology
- Training/Retention of SME
- Developed, scripted processes at on-set

**Suggested Timeline to Implement:** 3 months

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#### Your Expectations from other personas’ to Engage

**Selected Idea:** Expect conversation on safety, cost, schedule, quantity and digitization.

**Benefits:**
- Sets expectations
- Creates common understanding

**Risks/Challenges / Constraints**
- IP – needs NDAs
- Differing perceptions of the solution

**Suggested Timeline to Implement:** 3 months
IDEATE

- Asset Management
- Mining Data, Integrity of Data (Current Data)
- Minimum Expectation (attributes) Standards early in the Project Lifecycle
  - From contractor side as well as owner side
  - Set goal of the scope of data
- Owner policy and minimum expectations
- KPI for Digitization (Real-time)

OTHERS

- Offer out of thinking
- Demonstrate people competency
- Skin in the game for commercial benefit
- I³ dashboard
### Persona View: OWNER / OPERATOR

#### Table#6

<table>
<thead>
<tr>
<th>Persona</th>
<th>Your Engagement with others within ecosystem</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Selected Idea: Data Integrity/Quality</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Unifies stakeholders</td>
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<td></td>
<td></td>
<td>• Increases predictability, reduces re-work</td>
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<tr>
<td></td>
<td></td>
<td>• Backbone of asset safety and operability</td>
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<tr>
<td></td>
<td></td>
<td>• Construct trust data to value decisions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Enhances organization moral</td>
</tr>
<tr>
<td></td>
<td><strong>Risks/Challenges / Constraints</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Take along smaller suppliers/fabricators/vendors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Develop KPIs for data quality</td>
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<tr>
<td></td>
<td><strong>Suggested Timeline to Implement</strong></td>
<td></td>
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<tr>
<td></td>
<td>Immediate -&gt; Buy-in, full Project</td>
<td></td>
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</tbody>
</table>

**Other Personas’**

<table>
<thead>
<tr>
<th>Your Expectations from other personas’ to Engage</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selected Idea: Contractor: Data Quality</td>
<td></td>
</tr>
<tr>
<td><strong>Risks/Challenges / Constraints</strong></td>
<td></td>
</tr>
<tr>
<td>• Demonstrate competencies</td>
<td></td>
</tr>
<tr>
<td><strong>Suggested Timeline to Implement</strong></td>
<td></td>
</tr>
</tbody>
</table>
Table#7
Persona: Construction Contractor

IDEATE

- Digital interface b/w project participants
- Visualization enabling conversations from common framework
- Standardization of Engineering to improve construction
- Upfront expectations RE data (owner data requirement)
- Shared development and capabilities
- Flexible generic systems
- 4D BIM (add features)

Owner – Engineering – Construction

- Digital Interface
  - Expectations
  - Standardization
# Task 3 – Crystallize

**Persona View: Construction Contractor**

## Your Engagement with others within ecosystem
Selected Idea: Digital interface b/w Project participants

<table>
<thead>
<tr>
<th><strong>Benefits</strong></th>
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</thead>
<tbody>
<tr>
<td>Standardization, consistency, transparency, accountability, trust, cost reduction</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Risks/Challenges / Constraints</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractual relationships</td>
</tr>
<tr>
<td>Participants buy-in</td>
</tr>
</tbody>
</table>

**Suggested Timeline to Implement:** 2 years

## Other Personas’ Expectations from other personas’ to Engage
Selected Idea: Expectations w/ data

<table>
<thead>
<tr>
<th><strong>Benefits</strong></th>
</tr>
</thead>
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<table>
<thead>
<tr>
<th><strong>Risks/Challenges / Constraints</strong></th>
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</table>

<table>
<thead>
<tr>
<th><strong>Suggested Timeline to Implement</strong></th>
</tr>
</thead>
</table>
IDEATE

How to engage?
- Identify people in other personas
- Determine the opportunity for improvement
  - Think Tank – Integrated Team
  - Owner
  - EP + EPCs
  - Suppliers/Vendors
  - Contractors/Consultants
- Understand needs of client
- Bring innovative technology to discussion to be considered
- How to align on data repositories that are different
- Ensure that all parties are willing to change and trial
- Available budgets/funds
- Expect conversations on digitization early (cost, schedule, QC, HSE)
### Task #3 – Crystallize

**Persona View: Suppliers, Technology Providers, Consultants**

**Table #8**

<table>
<thead>
<tr>
<th>Persona</th>
<th>Your Engagement with others within ecosystem</th>
<th>Benefits:</th>
</tr>
</thead>
</table>
|         | Selected Idea: Owner Standardization:        | - Financial focus, reduced costs  
|         | • Procurement                                | - More available resources to improve development and increase implementation efficiencies |
|         | • Qualification                              |           |
|         | • Reporting                                  |           |
|         | • Data Management                            |           |
|         |                                              | **Risks/Challenges / Constraints** |
|         |                                              | - Consolidates success within persona  
|         |                                              | - Diversion from standard |
|         |                                              |           |
|         | **Suggested Timeline to Implement:** 12 to 24 months |           |

<table>
<thead>
<tr>
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<th>Your Expectations from other personas’ to Engage</th>
<th>Benefits:</th>
</tr>
</thead>
</table>
|                 | Selected Idea: Owner Standardization          | - Reduced cost  
|                 |                                              | - Increase delivery/implementation speed  
|                 |                                              | - Leverage other owner experience |
|                 |                                              | **Risks/Challenges / Constraints** |
|                 |                                              |           |
|                 |                                              | **Suggested Timeline to Implement:** |
|                 |                                              |           |
IDEATE

- Standardization
  - Common Language to aid communication
  - Who leads standardization?

- Be Transparent
  - Collaborate with others
  - Trust

- Flexibility
  - Ability to adapt to different conditions
  - Willing to lead or adopt other ways of operating
## Task #3 – Crystallize

### Persona View: EP & EPCs

**Your Engagement with others within ecosystem**

**Selected Idea:** Standardization of data/process:
- Model smart 3D model
- Process

**Benefits**
- Standardization of platforms – Regardless of specific system allows for increased communication, coordination, construction vendors, owners

**Risks/Challenges / Constraints**
- Not enough buy-in from owners, etc.

**Suggested Timeline to Implement**
- 12 months decision on platform, then 5+ years implementation

### Other Personas’

**Your Expectations from other personas’ to Engage**

**Selected Idea:** Contractor

**Benefits**
- Understand expectation/alignment to Clients

**Risks/Challenges / Constraints**
- Money
- Expose underdeveloped practices

**Suggested Timeline to Implement**
IDEATE
- What/Why/Who/How?
- Define Ecosystem
- Where do you start?
  - Vertical
  - What organizational champions change?
- Elect champion
- Build a team
- Define goals/objectives (strategy)
- Get tactical
  - Consultation
  - Partnerships/Strategic alliance – what is the expectation or desired result
  - Big Hairy Audacious Goal (BHAG)
- Implementation /Alignment
  - Measurable results
- Continuous Improvement
  - Feedback/Painpoints

PRIORITIZE
- Maximize Optimal
  - Operational focus
  - Logistics
  - Maintenance
  - Planned work
- Proactive not reactive

Table#12
Persona: EP & EPCs
## Persona View: EP & EPCs

<table>
<thead>
<tr>
<th>Persona</th>
<th>Your Engagement with others within ecosystem</th>
<th>Benefits</th>
<th>Risks/Challenges / Constraints</th>
<th>Suggested Timeline to Implement – Strike while Iron is hot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selected Idea: Owner Operator</td>
<td></td>
<td>• Operational Data: Better equipment availability and uptime and maintenance budget</td>
<td>• Collecting data / building workflow / data evaluation/ workforce adoption/ good data</td>
<td>Strategy: 3 months</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Cultural Alignment (Ecosystem): 3-5 years</td>
</tr>
</tbody>
</table>

## Other Personas’

<table>
<thead>
<tr>
<th>Selected Idea: Contractor</th>
<th>Benefits</th>
<th>Risks/Challenges / Constraints</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Understand expectation/alignment to Clients</td>
<td>• Money</td>
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<tr>
<td></td>
<td></td>
<td>• Expose underdeveloped practices</td>
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</tbody>
</table>

## Suggested Timeline to Implement

- Cultural Alignment (Ecosystem): 3-5 years