Redefining Project Turnover & Closeout

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Aditya Thakur

Senior Group Product Manager, ACS

Drive the vision and roadmap for Lifecycle Data Management Group within Autodesk Construction Solutions. Joined Autodesk in 2018 via the PlanGrid acquisition. Currently oversee products such as Asset Management, Data Federation, Project Templates and Project Handover/Closure. Outside of work enjoy playing tennis and the guitar.
To help construction teams meet the world’s rapidly expanding building and infrastructure needs, while making construction more predictable, safe and sustainable.
<table>
<thead>
<tr>
<th>Capabilities</th>
<th>DESIGN</th>
<th>PLAN</th>
<th>BUILD</th>
<th>OPERATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Design Authoring</td>
<td>Model Coordination</td>
<td>Project Management</td>
<td>Facilities Maintenance</td>
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<tr>
<td></td>
<td>Design Collaboration</td>
<td>Model Conditioning</td>
<td>Cost Management</td>
<td>Asset Lifecycle</td>
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<tr>
<td></td>
<td></td>
<td>Quantification</td>
<td>Quality</td>
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<td></td>
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<td>Bid Management</td>
<td>Safety</td>
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<td>Qualification</td>
<td>Project Closeout</td>
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<tr>
<td>Shared Data</td>
<td></td>
<td>Data</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Models · Drawings · Issues · Specifications · RFIs · Cost · Assets · As-Builts</td>
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<td>Insight</td>
<td>Predictive Analytics &amp; Risk Management</td>
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<td>Executive Dashboards · Reports · Construction IQ · Data Connector</td>
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<tr>
<td>Network</td>
<td>Builders Network</td>
<td></td>
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</table>
What we told you

Continued Investment
continue building and enhancing the champion features across all our core products

Meaningful Integrations
create integrations between these products so that they may more effectively be used together

Unification
build a unified platform where all champion features come together under a single log-in for seamless adoption of features across the full digital building lifecycle
## Capabilities

<table>
<thead>
<tr>
<th>Design Collaboration</th>
<th>Coordination</th>
<th>Quantification</th>
<th>Project Management</th>
<th>Cost Management</th>
<th>Quality</th>
<th>Safety</th>
<th>Project Closeout</th>
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<tbody>
<tr>
<td><strong>Workflows</strong></td>
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<tr>
<td>• Constructability</td>
<td>• Model Coordination</td>
<td>• Scope Analysis</td>
<td>• RFIs</td>
<td>• Contract Creation / Administration</td>
<td>• Quality Planning</td>
<td>• Safety Planning</td>
<td>• Commissioning</td>
</tr>
<tr>
<td>Review</td>
<td>• Constructability Review</td>
<td>• 2D/3D Take Off</td>
<td>• Submittals</td>
<td>• Change Orders</td>
<td>• Quality Checking</td>
<td>• Safety Training</td>
<td>• Turnover Documentation</td>
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<tr>
<td>• Change Review</td>
<td>• Meeting Minutes</td>
<td>• RFI Read</td>
<td>• Meeting Minutes</td>
<td>• Payment Orders</td>
<td>• Punchlists</td>
<td>• Safety Training</td>
<td>• Warranty Mgmt.</td>
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<td>Visualization</td>
<td>• Daily Reports</td>
<td>• RFIs Read</td>
<td>• Meeting Minutes</td>
<td>• Payment Orders</td>
<td>• Issue/Task Management</td>
<td>• Safety Training</td>
<td>• Final Completion</td>
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<tr>
<td>• Revit Collaboration</td>
<td>• Issue Management</td>
<td>• RFIs Read</td>
<td>• Meeting Minutes</td>
<td>• Payment Orders</td>
<td>• Safety Observations</td>
<td>• Safety Training</td>
<td>• As-Built Survey</td>
</tr>
</tbody>
</table>

### Document Management

- Document Control · Document Versioning · Document Approvals

### Unified Data

- Models · Drawings · Documents · Cost Items · Assets · As-Builts · Photos · Videos

### Insights

- Dashboards · Reports · Construction IQ · Data Connector

### Admin

- Admin Console · Permissions · Project Setup · Templates · Notifications
Unified Architecture

Unified Framework
Built to contain the best capabilities from BIM 360 and PlanGrid, the common foundation allowed us to leverage existing strengths. The platform is extensible, supporting continued unification and platform expansion.

Built for Execution
This approach allows us to ship product faster now and in the future. It also meant that when we made significant investments in the current platform, they could be quickly ported to the unified products.

Truly Mobile Native
PlanGrid is mobile native. We leverage these strengths in PlanGrid Build and extend the approach to workflows that have previously been desktop bound.

Built for Scale
Leveraging the global Forge platform and deep security investment, the Unified platform scales to support projects of any size.

Pervasive Simplicity
Common Foundation standardizes the user experience across products, allowing teams to get to work faster.
Redefining Project Turnover & Closeout
Closeout begins the day Project Starts!
Redefine Handover by managing critical construction data through the lifecycle of construction projects from Design through Operations
Handover spans the lifecycle of a project
Handover is tied to final payment for GCs and subs

"[Retainage] is a game at the end of the job."

(Large GC)
Handover quality can determine cost & time savings for facility operations

A high-quality handover package can save ~5% in cost in preventative maintenance and time savings over the lifetime of a facility.

(SWISS - Source)
But it’s a continuous process along the way

- **Design**
  - Owner
  - Owner/Rep

- **Construction**
  - Facilities Management
  - GC
  - PM/PE

- **Operations**
  - Sub
  - PM
Current handover workflow

- Owner
  - Defines requirements & Project Plans
  - Releases payment & transfers data to FM team

- GC
  - Creates handover structure & schedule of deliverables
  - Inspections & Commissioning Workflows
  - Approval of closeout documentation
  - Facilitates approval process
  - Organizes and compiles final package

- Sub
  - Submittal packages, Purchases material
  - Installation of equipment, submission of closeout documents
  - Approval of closeout documentation
  - Facilitates approval process
  - Organizes and compiles final package
Major pain points
Owners are often involved only at the very beginning or end of the project to list handover requirements.
General contractors must manually go through spec book to create a handover structure and plan schedule of deliverables.

"The people that are flipping through one page at a time, a 500-page spec book"
Locating, aggregating and sending documentation is a pain for Sub-contractors especially using different tools.
Lot of back and forth between Subs and GCs, so much so that Subs sometimes leave money on the table

“there was like five grand on the line and a [Sub] called and said ‘hey, you guys can keep my five grand. You do the close out’”
GCs must manually track down documentation from multitude of subs using different software tools

“Everybody starts a spreadsheet... you’ve got all your subs down the side and a check[box] for what all you need to collect... And then people send out emails that say ‘we need to collect this, this, this and this from you.’...a month later when you have 60% of it but there’s still 40% of it with stragglers”

“When you get towards the end of the project...you end up with one, poor individual that is stuck, trying to beat up all the subs, trying to get all that last stuff...before they can close it out.”
Facilities/Ops teams typically get involved towards the end of projects and approval processes between stakeholders is a manual and tedious process.
Compiling the final package for GCs is a manual and tedious process

As you can see this is a 4000 page document. And I hate putting it together. We start from scratch, maybe a month before the end of the project and assemble everything one by one. It’s a huge time sink. (paraphrased)
Accessibility of handover documentation is a pain for building ops teams post construction

“[You have] a building manager who is going to be different in a year... and it's not your owner's rep... So you've got these random people... You're just literally handing them stuff.”
FM teams trying to access handover data
Redefining Handover with Lifecycle Data Management
Future Connected handover workflow

- Defines requirements & Project Plans
- Creates structure & schedule of deliverables
- Purchases material
- Installation of equipment, submission of closeout documents
- Inspections Workflows
- Approval of closeout documentation
- Facilitates approval process
- Organizes and compiles final package
- Releases payment & transfers data to FM team

Owner
GC
Sub
Core pillars of Connected Handover Workflow

1. Distributed Data Ownership & On-Demand collaboration
2. Standardized Workflows
3. Asset tracking through Lifecycle of project
On-Demand Collaboration &
Distributed data ownership
Stakeholder pain points

• Account/Hub owning company owns/manages
  o Construction documentation
  o Data Structures, Standards and Workflows
  o Users, access & permissions

• As a result due to privacy concerns stakeholders keep sensitive documents in separate project or software, compounding the problem
What is Data Federation?

A means by which customers can send construction information such as sheets & documents between two or more Autodesk Construction Cloud projects while keeping the information synchronized and updated.
Why is this important?

• Data portability
• Data ownership and privacy
• Standardizing workflows and data capture
<table>
<thead>
<tr>
<th>Number</th>
<th>File Name</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Electrical Plan</td>
<td>Revision 1</td>
</tr>
<tr>
<td></td>
<td>HVAC PLAN</td>
<td>Revision 1</td>
</tr>
<tr>
<td></td>
<td>HVAC PLAN</td>
<td>Revision 1</td>
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<tr>
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<td>Revision 1</td>
</tr>
</tbody>
</table>

- **Generate shareable link**: Create a file package that allows you to export sheets to another project, either directly or by sending it to someone else.

- **Add to another project**: File packages allow you to formally share sheets between projects and keep a record of all data that has been sent and received.

  Add sheets to another project by creating and sending a file package.
### File Package Details

<table>
<thead>
<tr>
<th>File Package Name</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>09/11/19 'Project Base'</td>
<td>Write a message...</td>
</tr>
</tbody>
</table>

**Send to**
- Another project admin

**Email to**
- Who do you want to send this to?

**Project**
- Select a project...
## File Transfers

<table>
<thead>
<tr>
<th>File Package Name</th>
<th>Sent To</th>
<th>Sent By</th>
<th>Sent On</th>
<th>Status Updated</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Electrical Sheets to Sub</td>
<td>Project Base</td>
<td><a href="mailto:rohan@email.com">rohan@email.com</a></td>
<td>Oct 5, 2019</td>
<td>-</td>
<td>29%</td>
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<tr>
<td>Electrical Sheets to Sub</td>
<td>Project Base</td>
<td><a href="mailto:haley@email.com">haley@email.com</a></td>
<td>Jun 5, 2019</td>
<td>Jul 30, 2019</td>
<td>Accepted</td>
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<tr>
<td>Electrical Sheets to Sub</td>
<td>Project Base</td>
<td>-</td>
<td>-</td>
<td>Jul 30, 2019</td>
<td>Draft</td>
</tr>
<tr>
<td>Haley Export (01-10 sheets)</td>
<td><a href="mailto:matt@email.com">matt@email.com</a></td>
<td><a href="mailto:haley@email.com">haley@email.com</a></td>
<td>Jun 5, 2019</td>
<td>Jul 30, 2019</td>
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<td><a href="mailto:rohan@email.com">rohan@email.com</a></td>
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<td>Jun 6, 2019</td>
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<td>Jul 20, 2018</td>
<td>Jul 2, 2019</td>
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<td>09/11/2019 'Project Base'</td>
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<td>-</td>
<td>-</td>
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<td><a href="mailto:haley@email.com">haley@email.com</a></td>
<td>Jun 5, 2018</td>
<td>Jun 15, 2019</td>
<td>Sent</td>
</tr>
</tbody>
</table>
Incoming File Package

Hello,

Here are the Mechanical sheets you needed for tomorrow.

Transmittal Name: Mechanical Sheets
Sent By: James Taylor (jamestaylor@jgc.com)

This one time email was sent to you by jamestaylor@jgc.com and was not initiated by Autodesk.

Federation link expires in 90 days.

Sent by Autodesk Build
## Incoming File Package

### Sheets

<table>
<thead>
<tr>
<th>Number</th>
<th>HVAC PLAN</th>
<th>Version Set</th>
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<tbody>
<tr>
<td>PA2.04</td>
<td>HVAC PLAN</td>
<td>Revision 1</td>
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</tr>
<tr>
<td>PA2.06</td>
<td>HVAC PLAN</td>
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</tr>
<tr>
<td>PA2.07</td>
<td>HVAC PLAN</td>
<td>Revision 1</td>
</tr>
</tbody>
</table>

### File package details

- **File package Name**: Mechanical Sheets to Sub
- **Message**: The sheets you needed for tomorrow.
- **Sent by**: james.taylor@gc.com
- **Sent on**: April 18, 2020
- **Sent to**: markjerry@mechanicalsurb.com

- [Add to Project](#)
- [Decline](#)
- [Download Files](#)
Incoming File Package

Sheets

<table>
<thead>
<tr>
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<th>Version Set</th>
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<tr>
<td>PA2.04</td>
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<td>PA2.06</td>
<td>HVAC PLAN</td>
</tr>
<tr>
<td>PA2.07</td>
<td>HVAC PLAN</td>
</tr>
</tbody>
</table>

Revision 1

Add file package to project

Select a project: 400 Beale Project

Add to project | Cancel

File package details

File package Name: Mechanical Sheets to Sub

Message: The sheets you needed for tomorrow.

Sent by: james.taylor@gc.com

Sent on: April 18, 2020

Sent to: markjerry@mechanicalsub.com

Add to Project | Decline

Download File
### Mechanical Sheets to Sub

<table>
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<th>Number</th>
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<th>Version Set</th>
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<td>PA2.07</td>
<td>HVAC PLAN</td>
<td>Revision 1</td>
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</tbody>
</table>

**File Package details**

**File Package Name**: Mechanical Sheets to Sub

**Message**: The sheets you needed for tomorrow.

**Sent By**: james.taylor@gc.com

**Sent On**: April 18, 2020

**Sent To**: Project Base
Outcomes

• Send construction documentation to multiple stakeholders in one easy step enabling on-demand collaboration
• Documentation is always updated and in sync
• Each stakeholder owns the data within their ACC accounts
• Enable construction companies to deploy individual standards and workflows
• Data integrity to get holistic and comprehensive insights
Core pillars of Connected Handover Workflow

1. Distributed Data Ownership & On-Demand collaboration
2. Standardized Workflows
3. Asset tracking through Lifecycle of project
Standardizing Workflows

Components & Project Templates
What are Project Templates?

Project Templates are fundamentally a means by which users can create and duplicate standards, workflows and content for a construction project.
Project Templates

Detroit General Hospital

Hospital Template

San Jose Hospital

Copy on create
Why is this important?

• Standardize data capture across all projects
• Derive project insights
• Increase efficiency
# Configure Template

<table>
<thead>
<tr>
<th>Details</th>
<th>Permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edit</td>
<td>Archive Template</td>
</tr>
</tbody>
</table>

Name
Hospital
## Configure Template

### Template Members

<table>
<thead>
<tr>
<th>Template Member</th>
<th>Access Level</th>
<th>Email</th>
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</thead>
<tbody>
<tr>
<td>Nicholas Flamel</td>
<td>Project Admin</td>
<td><a href="mailto:NFLamel@GCon.com">NFLamel@GCon.com</a></td>
</tr>
<tr>
<td>Susan de Lille</td>
<td>Project Admin</td>
<td><a href="mailto:SdldeLille@AndersonArch.com">SdldeLille@AndersonArch.com</a></td>
</tr>
<tr>
<td>Roger Bacon</td>
<td>Project Member</td>
<td><a href="mailto:RB@CC.com">RB@CC.com</a></td>
</tr>
<tr>
<td>Anna Reed</td>
<td>Project Member</td>
<td>Anna.Reed@SlateConstruction</td>
</tr>
<tr>
<td>Edward Guzman</td>
<td>Project Member</td>
<td><a href="mailto:EGuzman@Everlast.com">EGuzman@Everlast.com</a></td>
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<tr>
<td>Name</td>
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<td>Documents.6</td>
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<td>--</td>
</tr>
<tr>
<td>Documents.8</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Emma test</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>New folder</td>
<td>--</td>
<td>--</td>
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<td>Private folder</td>
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<td>Test folder</td>
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<tr>
<td>Test folder 2</td>
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<tr>
<td>Issue categories and types</td>
<td>Status</td>
<td>Custom fields</td>
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<td>------------</td>
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</tr>
<tr>
<td>Commissioning</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Coordination</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Observation</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Punch List</td>
<td>Active</td>
<td></td>
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<tr>
<td>Quality</td>
<td>Active</td>
<td></td>
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<tr>
<td>Safety</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Warranty</td>
<td>Inactive</td>
<td></td>
</tr>
<tr>
<td>Work List</td>
<td>Inactive</td>
<td></td>
</tr>
</tbody>
</table>
Forms

Templates

- Daily Safety Report
- QA Report
- Incident Report
What are Components?

Components are a means by which users can centrally create, publish and update a small piece of content across multiple projects for example checklists, safety documents, RFI workflows, etc.

Components allow centralized updates to multiple in progress projects.
Component Library

- Folder structure components
- Checklist components
- Report components
- Exported Reports
- Cost Management
- Workflow components
- Insights components

Concept: Component Library

Company Admin
Creating projects

Component Library

Documents

Exported Reports

Checklists

Insights

Project A

Project B

Project C
Scenario
Managing updates

Scenario: A new practice is now enforced by a government agency. This involves a process update that needs to be rolled out across existing projects. A Daily report process needs to be updated.
Update the Component Library

Company Admin

COVID-19 Daily Report

Component Library

NEW

Checklists

Documents

Exported Reports

Insights
### Components

#### Plans

- **Form Templates**
  - Template Name
  - Created On: Nov 18, 2019
  - Type: Organization
  - Last Modified: Nov 18, 2019
  - Unsorted

  - Daily Report A
  - Created On: Nov 18, 2019
  - Type: Organization
  - Last Modified: Nov 18, 2019
  - Unsorted

  - Residence
  - Created On: Oct 18, 2019
  - Type: Organization
  - Last Modified: Nov 18, 2019
  - Unsorted

  - Appartments in NYC
  - Created On: Nov 18, 2018
  - Type: Organization
  - Last Modified: Nov 18, 2019
  - Unsorted

  - Office Space
  - Created On: Nov 18, 2018
  - Type: Personal
  - Last Modified: Nov 18, 2019
  - Unsorted

#### Field Reports

- **Report Name**
  - Created On: Nov 18, 2019
  - Type: Organization
  - Last Modified: Nov 18, 2019
  - Unsorted

  - Sophie's Report
  - Created On: Nov 18, 2019
  - Type: Organization
  - Last Modified: Nov 18, 2019
  - Unsorted

  - Sophie's Report
  - Created On: Nov 18, 2019
  - Type: Organization
  - Last Modified: Nov 18, 2019
  - Unsorted

  - 01 Report
  - Created On: Oct 18, 2019
  - Type: Organization
  - Last Modified: Nov 18, 2019
  - Unsorted

  - 02 Report
  - Created On: Nov 18, 2018
  - Type: Organization
  - Last Modified: Nov 18, 2019
  - Unsorted

  - 03 Report
  - Created On: Nov 18, 2018
  - Type: Personal
  - Last Modified: Nov 18, 2019
  - Unsorted
When someone submits a report, their name and the submission date will be added automatically. Submitters can modify the report date and add comments under each question.

1. Work Log
   Enter the name of each crew in your project

2. Materials
   Assigned users will be able to track materials by clicking on 'Add materials'

3. Equipment
   Assigned users will be able to track equipment by clicking on 'Add equipment'

4. Signature
   Foreman Signature
### Form Templates

<table>
<thead>
<tr>
<th>Template Name</th>
<th>Created On</th>
<th>Type</th>
<th>Last Modified</th>
<th>Component</th>
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</thead>
<tbody>
<tr>
<td>Daily Report A</td>
<td>Nov 18, 2019</td>
<td>Organization</td>
<td>Nov 18, 2019</td>
<td>Object</td>
</tr>
<tr>
<td>Daily Report B</td>
<td>Nov 8, 2019</td>
<td>Personal</td>
<td>Nov 18, 2019</td>
<td>Object</td>
</tr>
<tr>
<td>Residence</td>
<td>Oct 18, 2019</td>
<td>Organization</td>
<td>Nov 18, 2019</td>
<td>Object</td>
</tr>
<tr>
<td>Apartments in NYC</td>
<td>Nov 18, 2018</td>
<td>Organization</td>
<td>Nov 18, 2019</td>
<td>Object</td>
</tr>
<tr>
<td>Office Space</td>
<td>Nov 18, 2018</td>
<td>Personal</td>
<td>Nov 18, 2019</td>
<td>Object</td>
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</table>

### Field Reports

<table>
<thead>
<tr>
<th>Report Name</th>
<th>Created On</th>
<th>Type</th>
<th>Last Modified</th>
<th>Component</th>
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<tbody>
<tr>
<td>Sophie's Report</td>
<td>Nov 18, 2019</td>
<td>Organization</td>
<td>Nov 18, 2019</td>
<td>Object</td>
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<tr>
<td>Sophie's Report</td>
<td>Nov 18, 2019</td>
<td>Organization</td>
<td>Nov 18, 2019</td>
<td>Object</td>
</tr>
<tr>
<td>01 Report</td>
<td>Oct 18, 2019</td>
<td>Organization</td>
<td>Nov 18, 2019</td>
<td>Object</td>
</tr>
<tr>
<td>02 Report</td>
<td>Nov 18, 2018</td>
<td>Organization</td>
<td>Nov 18, 2019</td>
<td>Object</td>
</tr>
<tr>
<td>03 Report</td>
<td>Nov 18, 2018</td>
<td>Personal</td>
<td>Nov 18, 2019</td>
<td>Object</td>
</tr>
</tbody>
</table>
Update Component?

'Daily Report B' will be updated in your Forms Components.

Update selected projects
- Project name
- Park Mead Conference Center
- SF MOMA Center

Update selected templates
- Template name
- Art Museum

Back  Update
## Components

### Form Templates

<table>
<thead>
<tr>
<th>Template Name</th>
<th>Created On</th>
<th>Type</th>
<th>Last Modified</th>
<th>Status</th>
<th>Status Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Report B</td>
<td>Nov 18, 2019</td>
<td>Organization</td>
<td>Nov 18, 2019</td>
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<td>25%</td>
</tr>
<tr>
<td>Daily Report A</td>
<td>Nov 18, 2019</td>
<td>Organization</td>
<td>Nov 18, 2019</td>
<td>Published</td>
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</tr>
<tr>
<td>Residence</td>
<td>Oct 18, 2019</td>
<td>Organization</td>
<td>Nov 18, 2019</td>
<td>Published</td>
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<tr>
<td>Apartments in NYC</td>
<td>Nov 18, 2018</td>
<td>Organization</td>
<td>Nov 18, 2019</td>
<td>Published</td>
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<tr>
<td>Office Space</td>
<td>Nov 18, 2018</td>
<td>Personal</td>
<td>Nov 18, 2019</td>
<td>Published</td>
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<tr>
<td>Sophie's Report</td>
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<td>Organization</td>
<td>Nov 18, 2019</td>
<td>Published</td>
</tr>
<tr>
<td>Sophie's Report</td>
<td>Nov 18, 2019</td>
<td>Organization</td>
<td>Nov 18, 2019</td>
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<tr>
<td>03 Report</td>
<td>Nov 18, 2018</td>
<td>Personal</td>
<td>Nov 18, 2019</td>
<td>Published</td>
</tr>
</tbody>
</table>
Outcomes

- Construction companies standardize data capture across projects
- Ability to create a single workflow component such as Checklists, Daily logs, Issues
- Ability to create a project template from components
- Ability to update a single workflow component across multiple existing and new projects
- Updating existing project templates with new components
Core pillars of Connected Handover Workflow

1. Distributed Data Ownership & On-Demand collaboration
2. Standardized Workflows
3. Asset tracking through Lifecycle of project
Asset Management
What is Asset Management?

Tracking of critical construction Assets such as equipment and material from design through handover phase of a construction project
Asset Lifecycle

Design

Pre-Construction

Construction

Handover

- Define Critical Assets for the project
- Define Asset attribute information
- Design Reviews
- Define Commissioning workflows & Purchase Assets
- Installation, Inspection & Testing of Assets
- Produce commissioning reports & Closeout Projects
- Attach key documentation
- Verify Asset Data for FM Use

Owner / Commissioning Agent

Architect / Design Team

Contractor
<table>
<thead>
<tr>
<th>Asset categories/subcategories</th>
<th>Status</th>
<th>Status set</th>
<th>Custom fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Categories</td>
<td>-</td>
<td>Default</td>
<td>-</td>
</tr>
<tr>
<td>Electrical</td>
<td>Active</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mechanical</td>
<td>Active</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mechanical Room</td>
<td>Active</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>HVAC</td>
<td>Active</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Air Handling Unit</td>
<td>Active</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Create subcategory

Create new subcategory

Create new category
Create New Custom Field

Custom field type *
Select...

Description
Add the field’s purpose

Add custom field to asset category or subcategory
Mechanical
Add asset category

Create more custom fields
Create
Cancel
Outcomes

• Track critical assets starting in the design phase
• Setup commissioning workflows specific to Asset categories such as Mechanical, Electrical and Plumbing
• Attach relevant information such as checklists, warranties, O&M manuals directly to an Asset through the project lifecycle
Redefining Handover
Handover is a continuous process and not a point-in-time activity. Leveraging tools such as Data Federation, Templates, Components & Assets will provide a more holistic and proactive approach to Handover.
Scenario
Connected Handover Workflow

ACC Account C
Mechanical Sub

ACC Account A
Owner

ACC Account B
General Contractor
Tracking Commission workflow as part of Handover

Scenario: A new hotel project is coming up and the Owner wants to track the commissioning & inspection details related to the HVAC Air Handling Units in a specific format to be later used by Facilities team.
Step 1: Owner creates Checklist component in their ACC account
Step 1: Owner creates Checklist template in their ACC account
Step 2: Owner shares the checklist template with GC via Data Federation
Step 3: GC creates the Assets and links the checklist template shared by Owner
Step 4: GC shares Asset (w checklist) with Mechanical Sub via Data Federation
Step 5: Sub installs the Air Handling unit using the owner created checklist

[Image of a checklist form with sections for Installation, Electrical, and Coils]
Step 6: Sub completes checklist and adds it to closeout documentation for GC
Step 7: GC verifies checklist and adds data as part of Handover package

<table>
<thead>
<tr>
<th>Title</th>
<th>ID</th>
<th>Status</th>
<th>Assigned to</th>
<th>Location</th>
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<tbody>
<tr>
<td>Commissioning Checklists</td>
<td>210</td>
<td>Open</td>
<td>Sub-Contractor</td>
<td>Floor 1</td>
</tr>
<tr>
<td>Av-Built Drawings</td>
<td>211</td>
<td>In-review</td>
<td>Mechanical Contractor</td>
<td>Floor 1</td>
</tr>
<tr>
<td>Warranty Information</td>
<td>212</td>
<td>Open</td>
<td>Commissioning Agent</td>
<td>Floor 2</td>
</tr>
</tbody>
</table>
Step 8: Owner has access to a live Handover package
Outcomes

• Handover items are identified and tracked through the lifecycle of the project
• Owners can share handover specific templates with GCs
• GCs & Subs able to maintain privacy and own the data specific to the project
• Easy for Subs to closeout projects
• Seamless experience for GC to compile final package
• Owner have access to project data along with relevant audit records for future reference
Scalability

• Drawings with markups
• Documents
• Submittals
• RFIs
• As-builts
• Warranty and Insurance documents
• O&Ms
Team Collaboration

Connected Workflows

Predictable Outcomes