

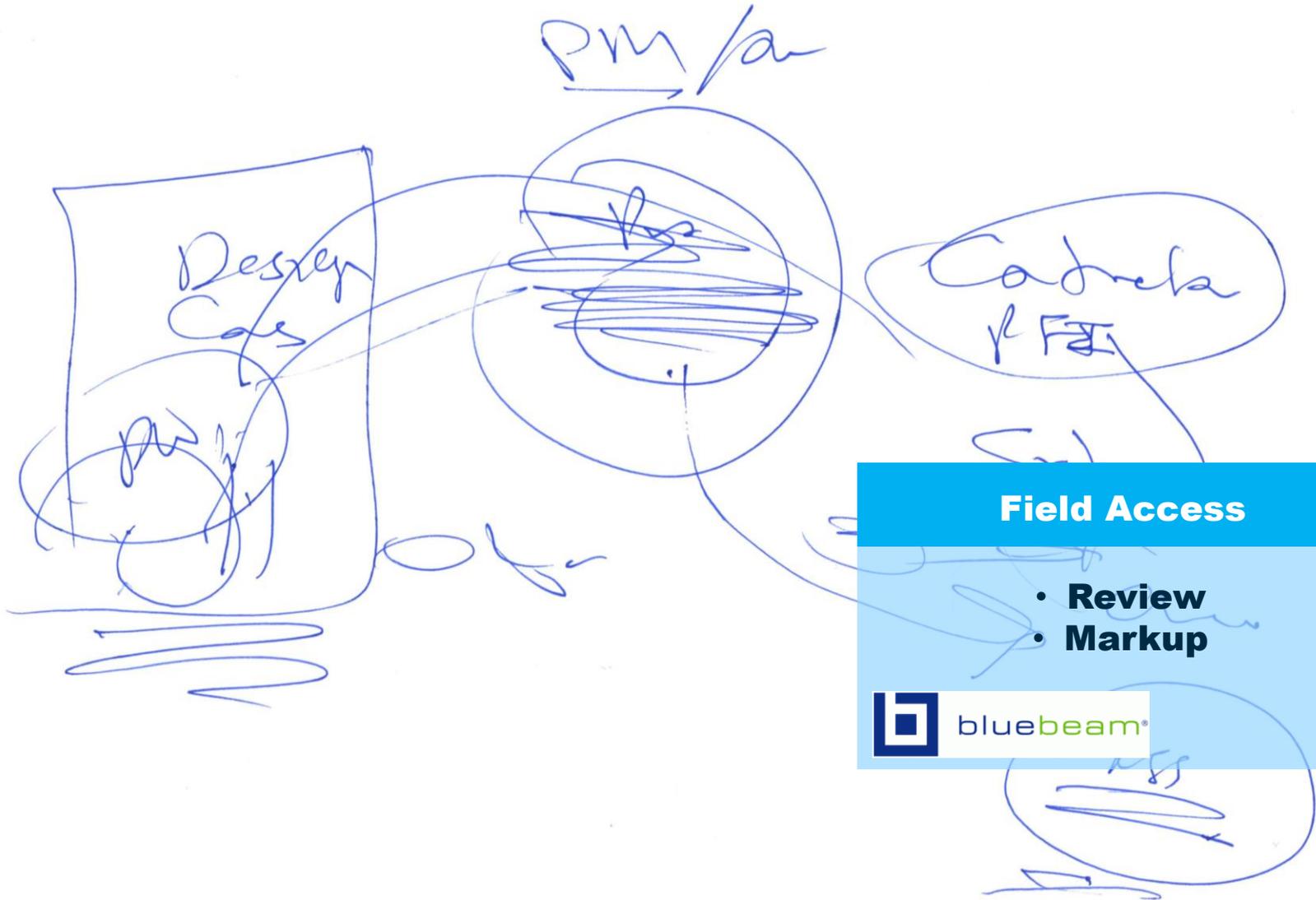


# Agenda

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- Why we are building ProjectWise CONNECTION Services?
  - Market challenges to address
- ProjectWise CONNECTION Services overview:
  - Project Sharing
  - Deliverables Management
  - Project Performance Dashboards

# ProjectWise CONNECTION Services



# ProjectWise CONNECTION Services

**Design / Engineering  
Work in Progress**

**ProjectWise**

*Workhorse for Work Sharing*



**Contractual Connection  
Outside Firewall**

**ProjectWise  
CONNECTION Service**

- **i-models**
- **eB Information Manager**
- **Deliverables Management**
- **Bentley CONNECT**



**Field Access**

**Apps**

- **i-model  
Composition  
Server**
- **Review**
- **Markup**



# What is the problem we are trying to solve?

Move ProjectWise beyond the engineering department and into a tool used more broadly with the whole enterprise & supply chain, by providing project information sharing among all participants with dashboards, detailed status and integration

- Users limit ProjectWise usage to “design integration/WIP” supplementing PW with manual or commercial SaaS solutions when collaborating with the greater supply chain.
  - Creates disconnect that cause inefficiencies in project execution & delivery.
- EPCs and O/O need a solution for deliverables management and design coordination
- Project teams need to mitigate risks
  - Not meeting contractual obligations and unable to prove delivery of information
- Deliverables preparation/delivery & review/comment cycles are long and human resource intensive
- Execs and PMs lack visibility of project status
  - Unable to easily determine status of deliverables and review processes

# Proposed solution

- ProjectWise CONNECTION Services is a collection of cloud services for:
  - Informal project information sharing amongst participants
  - Seamless contract communication and collaboration in deliverables management,
  - Project dashboards with key performance indicators (KPIs) and analytical views for project stakeholders.



# ProjectWise Project Sharing

# ProjectWise Project Sharing

*deliver information mobility across organizations with security and integrity*

- Simple, fast-startup cloud-based environment for project ecosystems to share content with others across organizational and geographical boundaries
- Project-centric, team based sharing
  - Consistent with industry work processes
  - Provides administrative infrastructure and control
- Connect federated participants using ProjectWise, ProjectWise ECM, and other systems like SharePoint or File Servers



# Sharing information across organizations

## Project Sharing



# Some definitions of “Sharing”

- Sharing is a read-only process
- Associations are created at the folder level, sub-folders are supported
- Files are still owned by the creating organization
- Files that are shared can be referenced, but not edited
- Removing a file from a folder that is being shared will remove it from other locations it has been shared with on next refresh

ProjectWise Explorer V8i (SELECTseries 4)

Datasource Folder Document Export View Tools Window Help

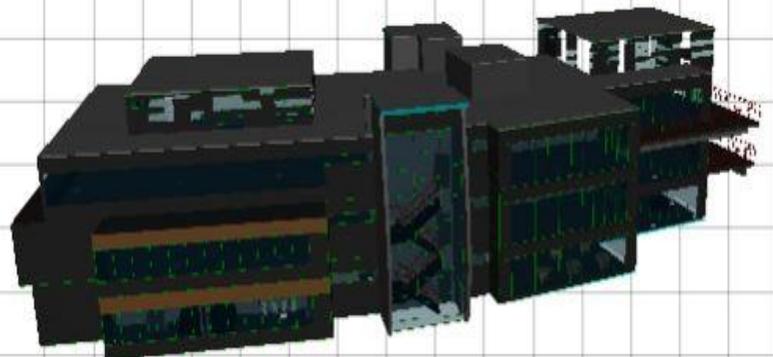
Interface Default

Address pw:\PC-SP2010.bentley.com:Cementation\Documents\Hospital Projects\Hospital Expansion - Two Tree Hill R

Name	Version	Description
BSB300-B-3DM-F-0001	A	Structural Foundations
BSB300-B-O-5-0001	A	Markups
BSB300-B-O-G-0001	A	Hospital Entrance
Central Core Tower Structural.i.dgn	A	i-model of Central Core Tower Structural
Main Hospital Structural.dgn.i.dgn	A	Structural Model of Main Hospital
NB-LRT-Section 10-2.xlsx	A	NB-LRT-Section 10-2
Structural Damper Model	A	Structural Damper Model
Structural Load Calculations.xlsx	A	Structural Load Calculations

Document Properties Project Properties Folder Properties Photo Preview Navigator Dependency Service Access Control

Project Explorer



Model Index Sheet

Items

Select View

Warnings - Click Here

Datasource Folder Document Export View Tools Window Help

Interface Designer

Address pw:\PC-SP2010.bentley.com:C3D\Documents\Hospital Expansion - Two Tree Hill Road\05-Incoming\Bentley ! Go

- BSI200 - Peterborough Geospatial Investigation
- BSI300 - Medical Complex-Córdoba
- BSI400 - W01 - Intersection of I-9 and SR 32
- Gas Authority, Inc
- Hospital Expansion - Two Tree Hill Road
  - 01-WIP
  - 02-Shared
  - 03-Published
  - 04-Archived
  - 05-Incoming
    - Bentley Structural Consultants**
    - Gholap Lighting Consultants
    - Hattersley Construction Management
    - Lynn Strunk Mechanical Consultants
  - 06-Resource
  - Saved Searches
- Wedraw Drafters, Inc - New Employee Training

Name	Description	File Name

Project Properties		Folder Properties	
Property name	Property value	Property name	Property value
Folder Name	Bentley Structural Consult...	Folder Description	
Environment Name		Environment Description	
Workspace Profile Name		Workspace Profile Descrip...	
Storage	Storage	Owner	admin
Created By	admin	Creation Time	4/17/2013 10:32:37 AM
Updated By	admin	Update Time	10/3/2014 3:19:31 PM
Workflow		State	
Document Count	0	Disk Usage	0 bytes (0 bytes)
Parent Folder	Hospital Expansion - Two ...		

ProjectWise Explorer V8i (SELECTseries 4)

Datasource Folder Document Export View Tools Window Help

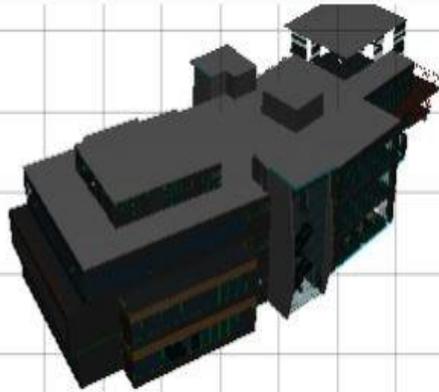
Interface Designer

Address pw:\PC-SP2010.bentley.com:C3D\Documents\Hospital Expansion - Two Tree Hill Road\05-Incoming\Bentley ! Go

Name	Description	File Name
BSI300-B-3DM-F-0001	Structural Foundations	StructuralFound
BSI300-B-O-5-0001	Markups	BSI300-B-O-5-00
BSI300-B-O-G-0001	Hospital Entrance	BSI300-B-O-G-00
Central Core Tower Structural.i.dgn	i-model of Central Core Tower Structural	Central Core Tov
Main Hospital Structural.dgn.i.dgn	Structural Model of Main Hospital	Main Hospital St
NB-LRT-Section 10-2.xlsx	NB-LRT-Section 10-2	NB-LRT-Section
Structural Damper Model	Structural Damper Model	Structural Damp
Structural Load Calculations.xlsx	Structural Load Calculations	Structural Load C

Document Properties Project Properties Folder Properties Photo Preview Navigator Dependency Viewer Access Cont

Project Explorer



Model Index Sheet

Items

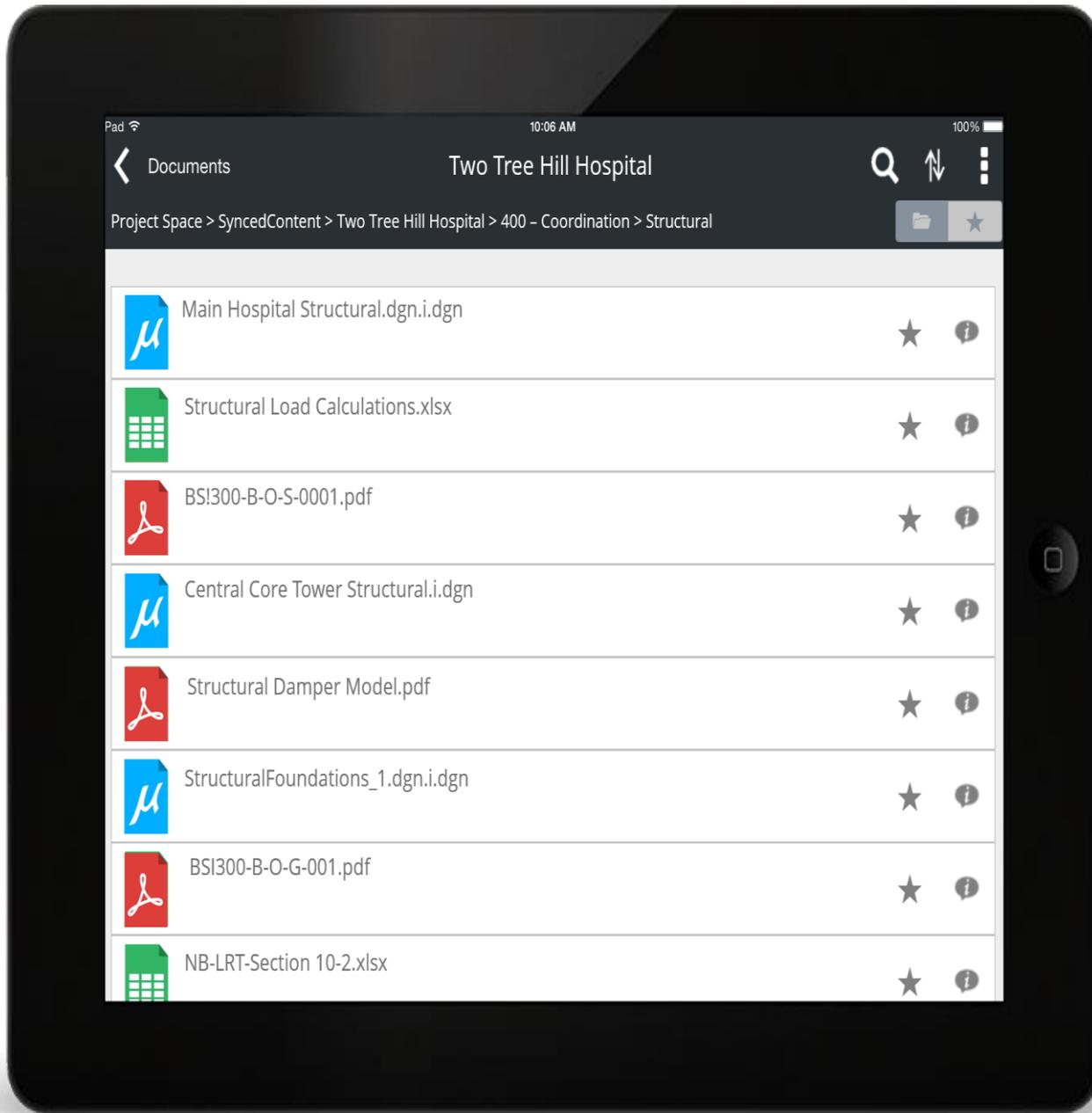
Select View



1 - 8 of 8 < >

- Documents
  - Published
  - SyncedContent
    - Two Tree Hill Hospital
      - 000 - Application Data
      - 100 - 3D Models
      - 200 - Drawings
      - 300 - Drafts
      - 400 - Coordination
        - Building
        - Conveying Elements
        - Correspondence
        - Installation
        - P&ID
        - Piping
        - Plant Layout
        - Sheets
        - Steel Construction
      - Structural**

Type	Name	Size	Version	Last modified by	Last modified time
<input checked="" type="checkbox"/>	Main Hospital Structural.dgn.i.dgn	3.41MB		John Schown	10/24/2014 11:43 AM
<input type="checkbox"/>	Structural Load Calculations.xlsx	9.22KB		John Schown	10/24/2014 11:43 AM
<input type="checkbox"/>	BSI300-B-O-5-0001.pdf	526.93KB		John Schown	10/24/2014 11:43 AM
<input type="checkbox"/>	Central Core Tower Structural.i.dgn	1.21MB		John Schown	10/24/2014 11:43 AM
<input type="checkbox"/>	Structural Damper Model.pdf	145.63KB		John Schown	10/24/2014 11:42 AM
<input type="checkbox"/>	StructuralFoundations_1.dgn.i.dgn	140.5KB		John Schown	10/24/2014 11:42 AM
<input type="checkbox"/>	BSI300-B-O-G-0001.pdf	392.22KB		John Schown	10/24/2014 11:42 AM
<input type="checkbox"/>	NB-LRT-Section 10-2.xlsx	15.53KB		John Schown	10/24/2014 11:42 AM



# ProjectWise Project Sharing

*deliver information mobility across organizations with security and integrity*

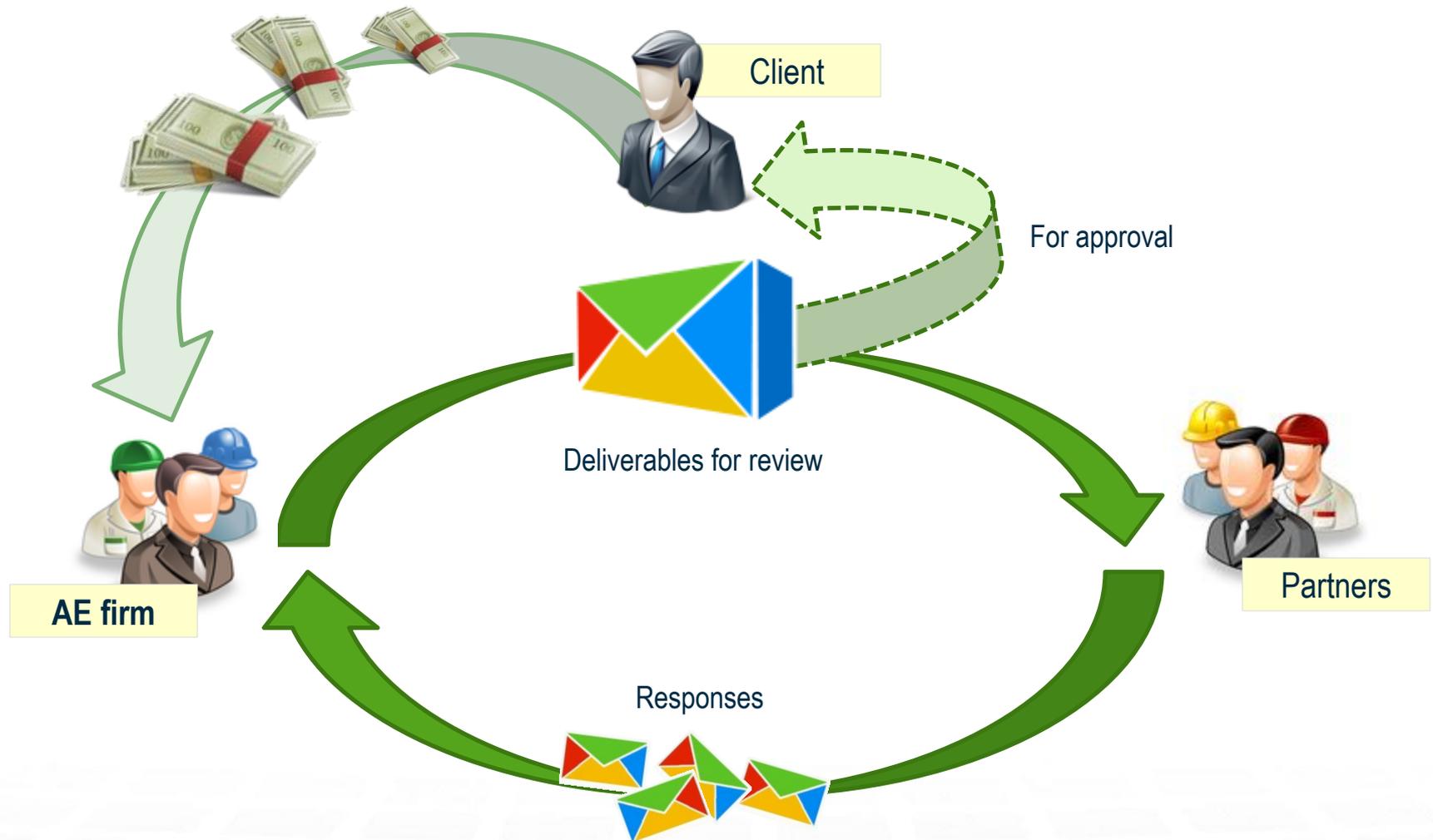
- Simple, fast-startup cloud-based environment for project ecosystems to share content with others across organizational and geographical boundaries
- Project-centric, team based sharing
  - Consistent with industry work processes
  - Provides administrative infrastructure and control
- Connect federated participants using ProjectWise, ProjectWise ECM, and other systems like SharePoint or File Servers





# ProjectWise Deliverables Management

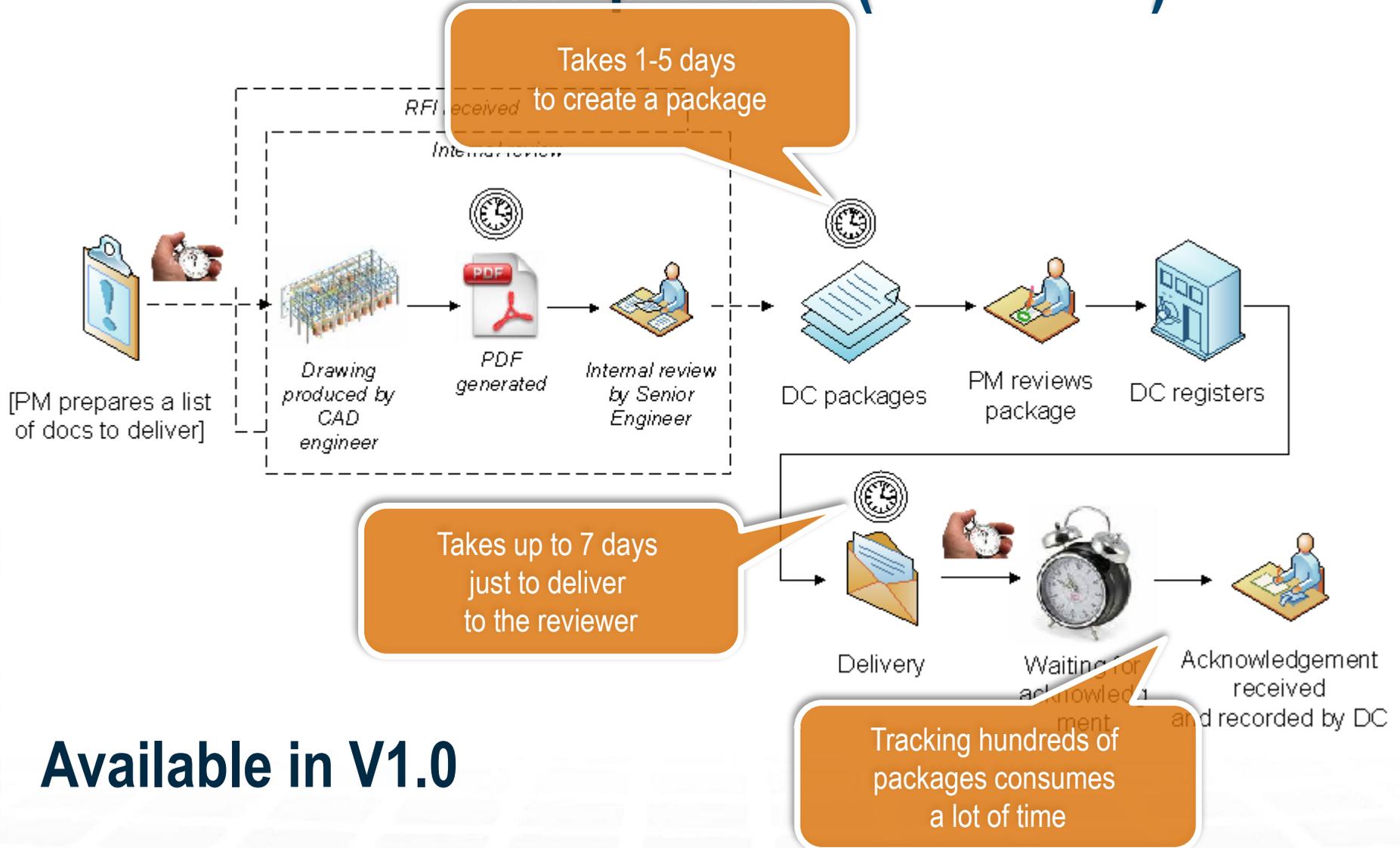
# What is a Transmittal?



# Agenda

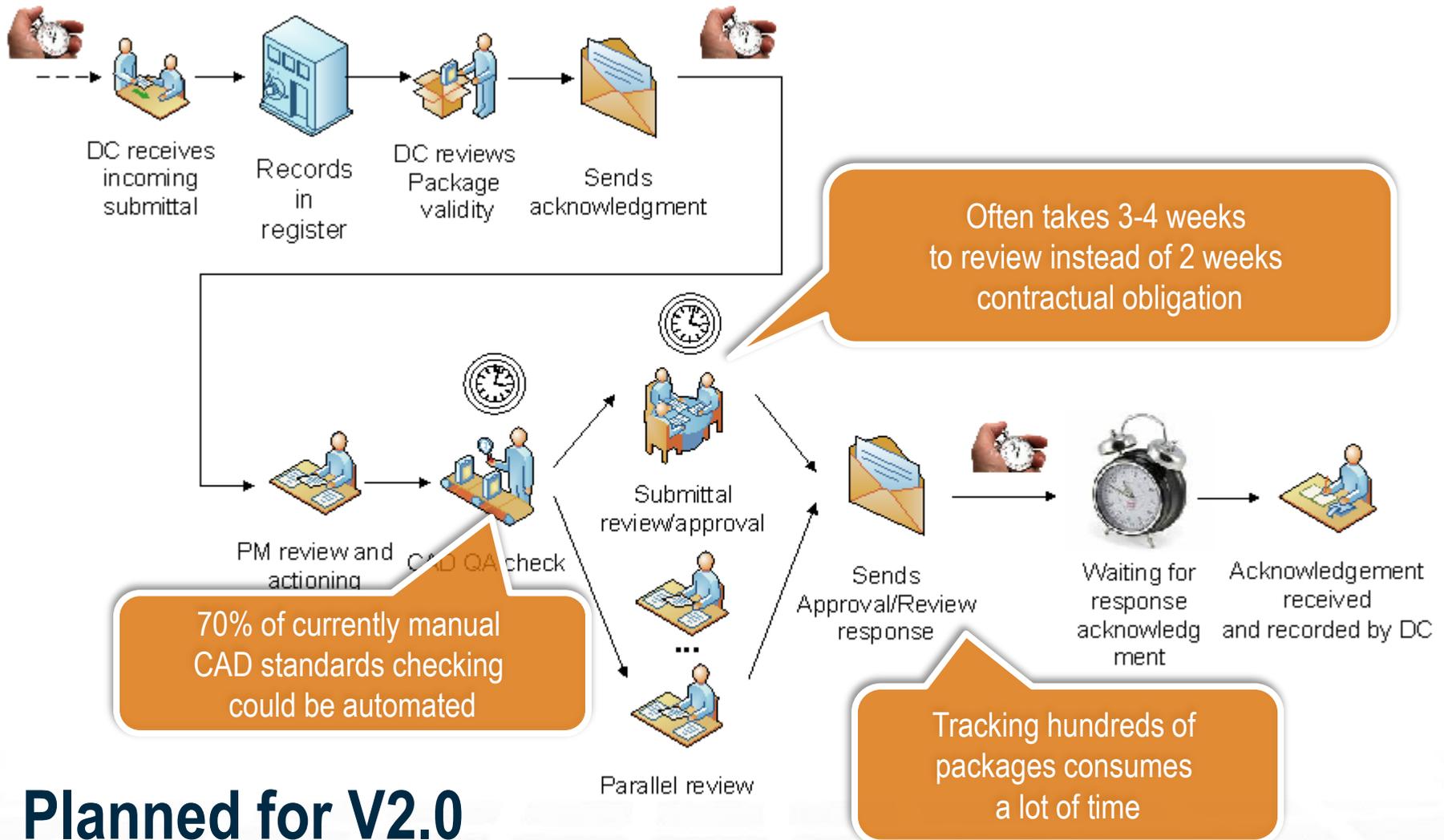
- ProjectWise Deliverables Management includes
  - Transmittals management
  - Submittals management
  - RFI management
- Bonus!
  - ProjectWise Project Performance Dashboards

# Current transmittal process (outbound)



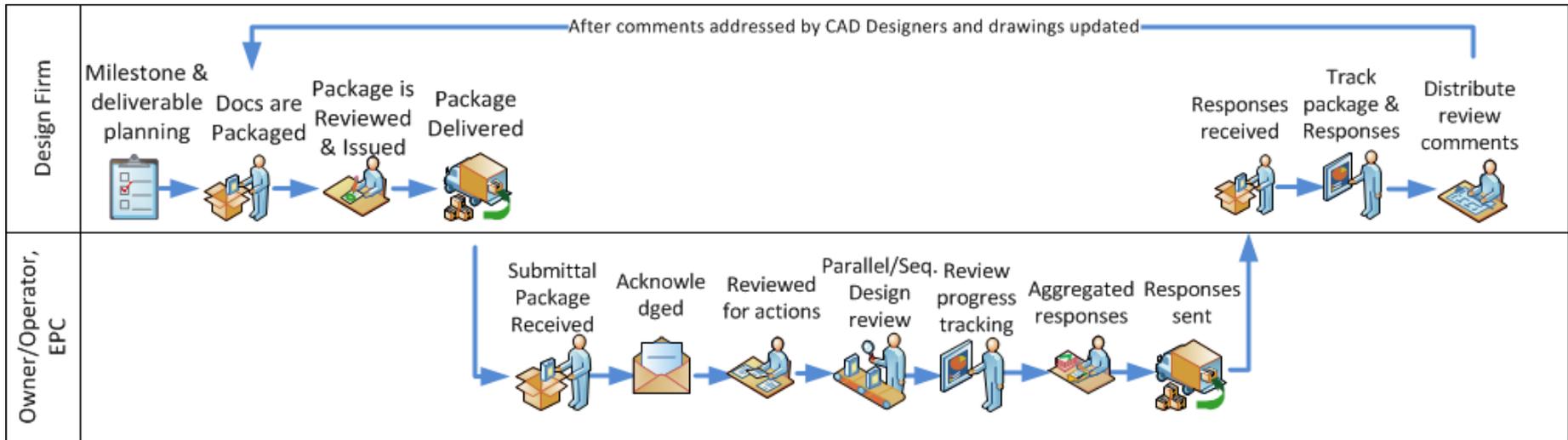
Available in V1.0

# Current submittal process (inbound)



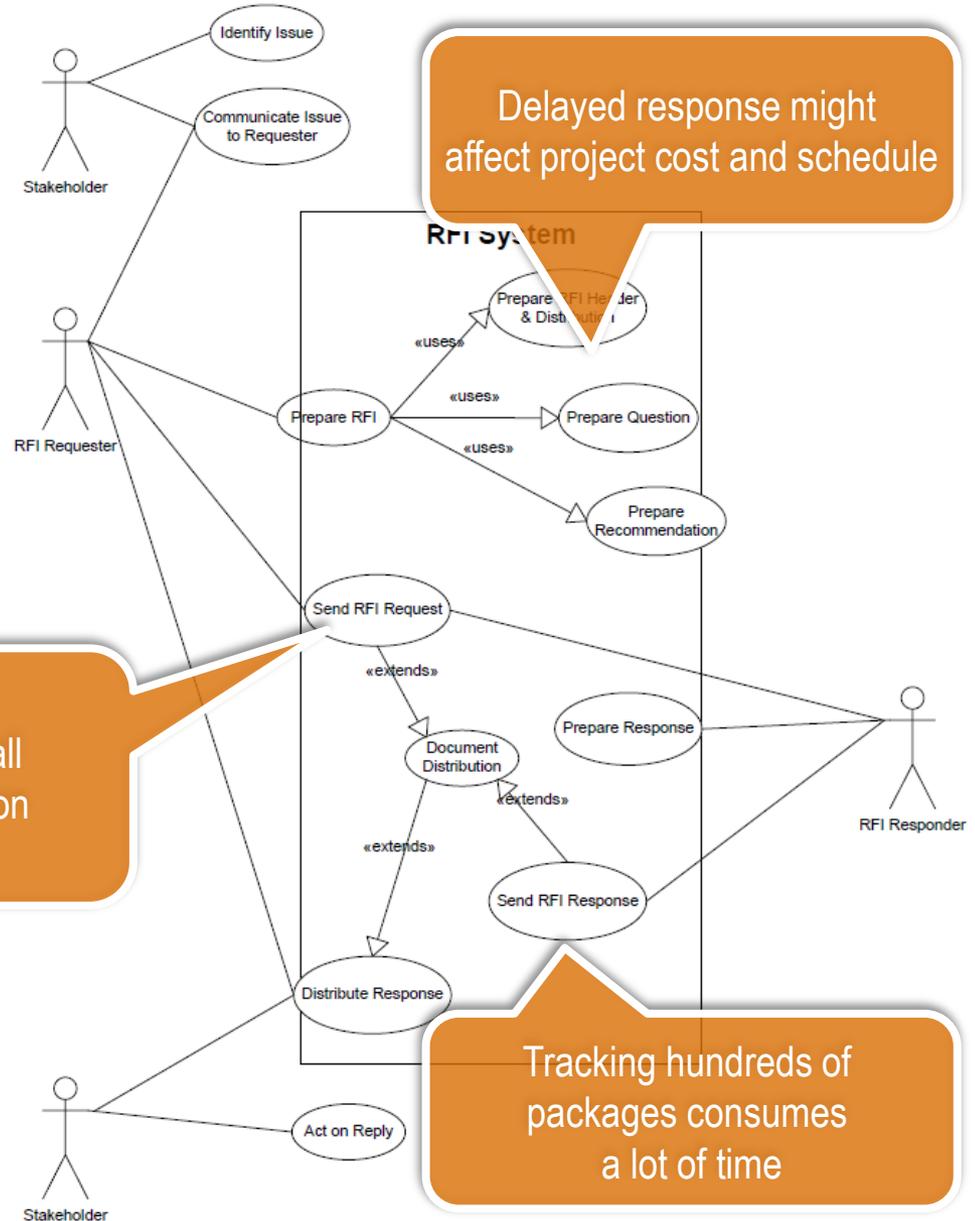
## Planned for V2.0

# Closed loop transmittal/submittal management process



# RFI process (inbound and outbound)

AGC of America  
THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA  
Quality People. Quality Projects.



Delayed response might affect project cost and schedule

Keeping track of all RFI communication

Tracking hundreds of packages consumes a lot of time

Planned for V2.0

# Transmittals as a cloud service part of CONNECT

The screenshot displays the Bentley CONNECT web interface. The browser address bar shows 'z7usdg.axshare.com'. The page title is 'Bentley CONNECT Alignment fixing & design of Tunnel'. The navigation bar includes 'John's space', 'Alignment fixing & design of Tunnel', 'BG line from Jorhat to Sibsagar', 'Cadbury bridge Engineering...', and 'More spaces...'. The dashboard features several tiles: 'Analytics' with a 'Project health' chart showing progress from 0% to 100% over time; 'Learning' with a video player and 'Next: Sharing Data'; 'Site-Ops' with a grid icon; 'Documents' with a cloud icon; 'Form Designer' with a grid icon; 'Content Management' with a camera icon and '101,232'; 'Notifications' with a message icon and '7'; 'Members' with a group photo and '117 | 3+'; 'Transmittals' with an envelope icon and a gear icon, highlighted by a blue rounded rectangle; 'Simulation Services' with a line graph and '132 | 1+'; 'S-Beam' with a logo and '107 | 3+'; and 'Service Catalog' with 'Optimized iModels' and '107 | 3+'. The bottom of the dashboard has a row of five circular indicators, with the second one (under Transmittals) being filled green.

# Incoming submittals list

The screenshot displays the Bentley CONNECT web interface. The browser address bar shows 'z7usdg.axshare.com'. The page title is 'Alignment fixing & design of Tunnel' with ID 452879. A 'New transmittal' button is visible in the top right. Below the title, there are tabs for 'Incoming', 'Outgoing', and 'Drafts'. A dropdown menu shows 'Acknowledge selected' and a 'Show assigned to me' filter. The main content is a table of submittals.

Subject	Label	Received	Purpose	Status	Progress	Actions
<a href="#">Water pipeline drawings</a> ID PR004-TM0027	{label goes here}	{date}	For review	You have acknowledged Due date: {date} 2 days to respond Due date: {date}	<b>Acknowledgements</b> 7 / 12 <b>Responses</b> 3 / 12	Respond
<a href="#">Windmill XQRQS drawings I</a> ID PR004-TM0026	{label goes here}	{date}	For information	1 day to acknowledge Due date: {date} 14 days to respond Due date: {date}	<b>Acknowledgements</b> 11 / 23 <b>Responses</b> 2 commented	Acknowledge
<a href="#">Electric installation drawings II</a> ID PR004-TM0025	{label goes here}	{date}	For approval	You have acknowledged Due date: {date} 20 days to respond Due date: {date}	<b>Acknowledgements</b> 5 / 5 <b>Responses</b> 3 / 5	
<a href="#">Electric installation drawings, revised</a> ID PR004-TM0024	{label goes here}	{date}	For review	You have acknowledged Due date: {date} You have responded Due date: {date}	<b>Acknowledgement</b> 10 / 10 <b>Responses</b> 8 / 10	
<a href="#">Electric installation drawings</a> ID PR004-TM0023	{label goes here}	{date}	For review	Withdrawn on {date}	<b>Acknowledgements</b> 0 / 10 <b>Responses</b> all recipients (10)	

# Submittal acknowledgement

The screenshot displays the Bentley CONNECT web interface for a submittal. The browser address bar shows 'z7usdg.axshare.com'. The page title is 'Electric installation drawings' with ID 'PR004-TM0024'. There are two main buttons: 'Acknowledge' and 'Download content'. The 'General' tab is active, showing project details: 'Project: Alignment fixing & design of Tunnel - ID PR004', 'Subject: Electric installation drawings', 'Issued by: Lisa Cuddy <lisa.cuddy@bentley.com>', 'Issue date: 2011-08-06, 15:45', and 'Purpose: For review'. A 'Comments' section contains placeholder text. A 'Cover letter' is attached as 'Cover-letter-file-name.pdf'. A 'Status' panel on the right indicates 'Acknowledgement' is '2 days acknowledgement overdue' and 'Response' is '10 days to respond' with '100 documents to respond'.

TM - General x  
z7usdg.axshare.com

Bentley CONNECT Alignment fixing & design of Tunnel | Transmittals

Electric installation drawings  
ID PR004-TM0024

Acknowledge Download content

General Documents My response

**Project** Alignment fixing & design of Tunnel - ID PR004

**Subject** Electric installation drawings

**Issued by** Lisa Cuddy <lisa.cuddy@bentley.com>

**Issue date** 2011-08-06, 15:45

**Purpose** For review

Please review new electric installation drawings and send your response. Some custom text here: Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec vehicula, lacus vitae cursus rhoncus, arcu est luctus libero, in ullamcorper quam magna vel nibh. In nec blandit est. Mauris porta, tellus a porttitor posuere, neque arcu gravida ligula, ut condimentum augue velit id lectus.

**Comments**

**Cover letter** Cover-letter-file-name.pdf

Status

**Acknowledgement**  
⌚ 2 days acknowledgement overdue.  
Due date: (acknowledgement due date)

**Response**  
⌚ 10 days to respond  
100 documents to respond  
Due date: (response due date)

# Submittal review

TM - My response  
z7usdg.axshare.com

Bentley CONNECT Alignment fixing & design of Tunnel | Transmittals

Electric installation drawings  
ID PR004-TM0024

Download content

General Documents **My response**

PR004-TM0024 (0/30)  
 Descriptions (0/12)  
 Notes (0/10)  
 Pipelines (0/8)  
 References

Mark selected as... Show all

<input type="checkbox"/>	Name	Document number	Revision	Status	Description	My response	
<input type="checkbox"/>	A1ZIR-pump.pdf	ZIR83940	A1	S4	Pump for high pre...	Response pending	+
<input type="checkbox"/>	BDX00-turbine.pdf	X0083940	A1	S4	Aenean ipsum ma...	Response pending	+
<input type="checkbox"/>	BWOT-insulation.pdf	WTZ83940	A1	S4	Etiam ut varius ma...	Response pending	+
<input type="checkbox"/>	C-Pipelines-05468.pdf	C-PP0568	A1	S4	Aenean ipsum ma...	Response pending	+
<input type="checkbox"/>	C-ZIQ-pump.pdf	ZIQ83940	A1	S4	Pump for high pre...	Response pending	+
<input type="checkbox"/>	DX21-turbine.pdf	D2105879	A1	S4	Turbine for high ...	Response pending	+
<input type="checkbox"/>	Pipelines-05468WRT.pdf	PPL05468	A1	S4	Pipelines drawings...	Response pending	+
<input checked="" type="checkbox"/>	<b>WOT23-insulation.pdf</b>						-

My response Additional reviewers Attributes

**Response** Approved with comments

**Comment** Looks good. Please also see comments from my colleagues below.  
Martha Brown:

**Attachments** Attachment1.overlay.dgn - 2MB X  
Attachment2.pdf - 1MB X

Browse...

Save Send responses

# Responses status

SM - Responses | xshare.com/#p=&c=1

Alignment fixing & design of Tunnel | Deliverables management

Preliminary designs for generator and cooling...  
Issued, ID PR004-SM0003

Download responses

General | Recipients | Documents | Scheduling | **Responses**

Summary

Recipient: All recipients

Overall response progress: 50%

24 days to respond  
All recipients have sent responses for 50 documents out of 100.

Response rate: (X) documents/day  
Due date: (response due date)

Responded documents by response type

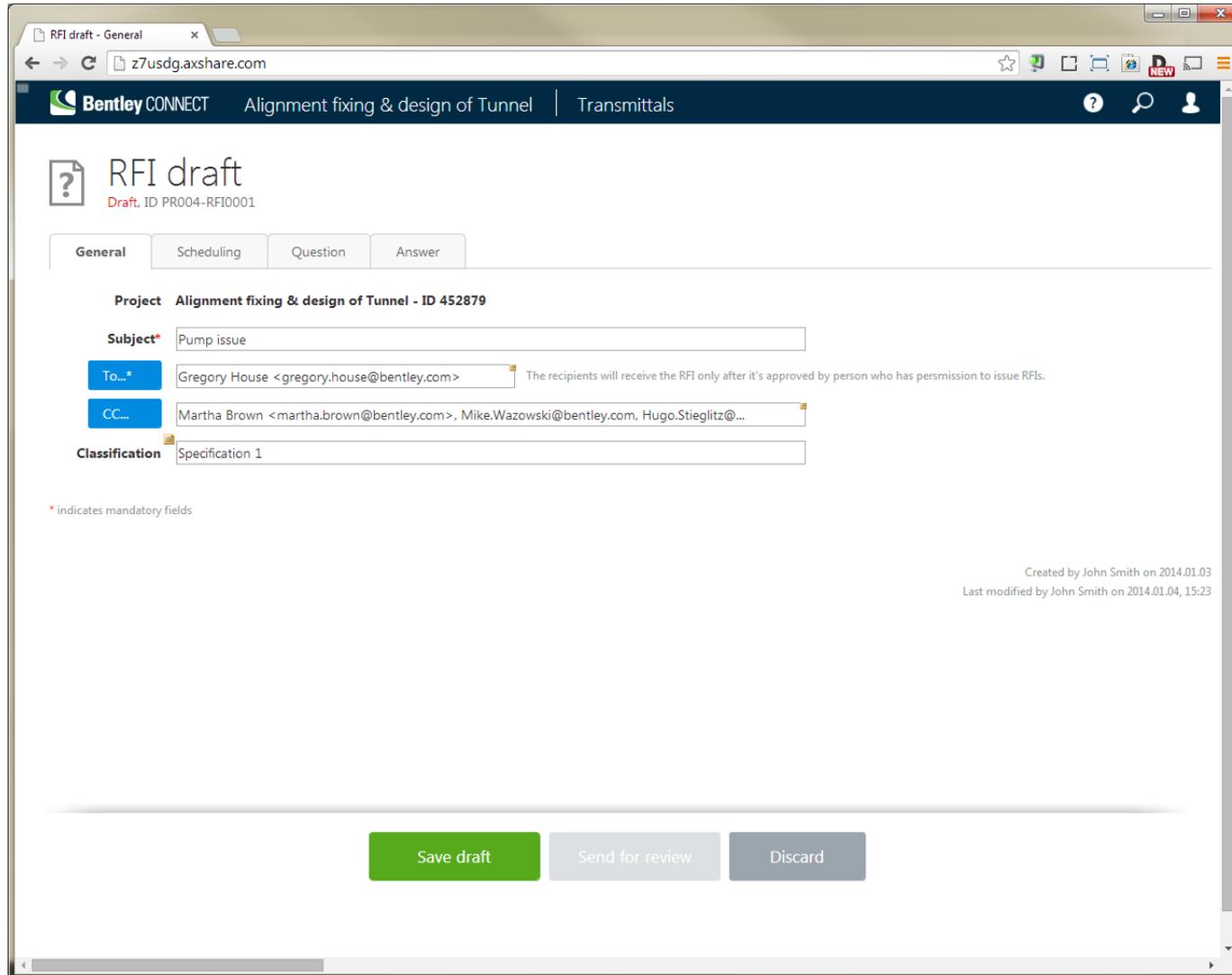
Name	Document number	Revision	Status	Description	Responses
A1ZIR-pump.pdf	ZIR83940	A1	S4	Pump for high p...	3
BDX00-turbing.pdf	X0083940	A1	S4	Pump for high p...	3
BWOT-insulation.pdf	WTZ83940	A1	S4	Pump for high p...	2, 1
C-Pipelines-05468WRT.pdf	C-PP0568	A1	S4	Pump for high p...	1, 2
C-ZIQ-pump.pdf	ZIQ83940	A1	S4	Pump for high p...	3

PR004-SM0003 (50/100)

- Descriptions (27/70)
- Notes (20/24)
- Pipelines (6/6)**
- References

Show all

# RFI creation – general info



The screenshot shows a web browser window with the URL `z7usdg.axshare.com`. The page title is "RFI draft - General". The Bentley CONNECT logo is in the top left, and the page content is "Alignment fixing & design of Tunnel | Transmittals".

The main heading is "RFI draft" with a sub-heading "Draft, ID PR004-RFI0001". Below this are four tabs: "General" (selected), "Scheduling", "Question", and "Answer".

The "General" tab contains the following fields:

- Project:** Alignment fixing & design of Tunnel - ID 452879
- Subject\*:** Pump issue
- To...\*:** Gregory House <gregory.house@bentley.com> (Note: The recipients will receive the RFI only after it's approved by person who has permission to issue RFIs.)
- CC...:** Martha Brown <martha.brown@bentley.com>, Mike.Wazowski@bentley.com, Hugo.Stieglitz@...
- Classification:** Specification 1

A note at the bottom left states: "\* indicates mandatory fields".

Metadata at the bottom right: "Created by John Smith on 2014.01.03" and "Last modified by John Smith on 2014.01.04, 15:23".

At the bottom of the form are three buttons: "Save draft" (green), "Send for review" (grey), and "Discard" (grey).

# RFI creation – question info

The screenshot shows a web browser window with the URL `z7usdg.axshare.com`. The page title is "RFI draft - Question". The Bentley CONNECT logo is visible in the top left, and the page content includes "Alignment fixing & design of Tunnel" and "Transmittals".

The main content area is titled "RFI draft" with a sub-label "Draft, ID PR004-RFI0001". Below this are four tabs: "General", "Scheduling", "Question" (which is active), and "Answer".

The "Question" tab contains a text area with the following text:  
**Question\*** We've discovered A1ZIR pump issue (doesn't fit the foreseen place) and cannot continue our work. According to the calculations it will not affect out schedule if you approve the proposed solution by the 1st of February, 2014. Find attachment enclosed.  
\_\_\_\_\_  
Regards,

Below the text area is an "Attachments" section showing a file named "A1ZIR-pump.pdf" with a "Browse" button. There is also an "Issue found by" field containing "John Smith", a "Date found" field with a calendar icon, and a "Priority" dropdown menu set to "Medium".

At the bottom of the form are three buttons: "Save draft" (green), "Send for review" (green), and "Discard" (grey).

# RFI – accepted answer and history of previous rejected answers

The screenshot shows the Bentley CONNECT interface for an RFI titled "Pump issue" (RFI ID PR004-RFI001). The interface includes a navigation bar with "Bentley CONNECT", "Alignment fixing & design of Tunnel", and "Transmittals". Below the title, there are tabs for "General", "Question", and "Answer". The main content area displays a list of responses:

- Accepted by John Smith on Jan 30** (January 29, 3rd response cycle):
  - From:** Gregory House, [gregory.house@bentley.com](mailto:gregory.house@bentley.com)
  - Answer:** Hi John, We've reviewed the drawing and approve it. Feel free to proceed with the proposed solution. Regards, Gregory
  - Accepted:** 01/30/2014 by John Smith
  - Notes:** RFI PR004-RFI001 has been closed. Permanent link: [www.example.com/PR004/outgoing/RFI001](http://www.example.com/PR004/outgoing/RFI001). Notifications sent to: {RFI author}, {RFI issuer}, {RFI issue founder}, Harry.Graft@abc.com
- Answer rejected by John Smith on Jan 19** (January 18, 2nd response cycle):
  - From:** Gregory House, [gregory.house@bentley.com](mailto:gregory.house@bentley.com)
  - Answer:** Hi John, What about the attached version? - Regards, Gregory
  - Attachments:** [A1ZIR-pump\\_fixes.pdf](#)
  - Rejected:** 01/19/2014 by John Smith
  - Rejection reason:** Hi Gregory, I'm afraid this change is not possible. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus et diam vel mi consequat lobortis. Praesent semper tincidunt orci, eu rutrum ante aliquam ut. Phasellus malesuada convallis nunc, sit amet egestas ligula ultricies at.
- Answer rejected by John Smith on Jan 10** (January 8, 1st response cycle)
- Preliminary answer accepted by John Smith on Jan 5** (January 5, Preliminary response)



# ProjectWise Project Performance Dashboards

# Project Performance Dashboards goals

- To help answer 3 questions:
  1. What is project status and progress - where we are right now and how we got here?
  2. What could be improved? What are the potential bottlenecks?
  3. When is the predicted project finish (based on current progress, trends)?
    - (V1.0 will have only some info for this. More will come in later versions)

# Single dashboard – multiple data sources

- Cloud Service - delivered as one of Bentley CONNECT Services
- Data coming from:
  - ProjectWise Integration Server
  - Bentley Deliverables Management
  - other Bentley products later:
    - ProjectWise Engineering Content Management Services
    - Dynamic Validation Services
    - Asset Performance Management
    - ProjectWise Construction Work Packaging Services
    - other
  - 3<sup>rd</sup> parties too:
    - Trimble Proliance
    - Oracle Primavera Unifier
    - Deltek – Cloud ERP (?)

# Landing page 1/2

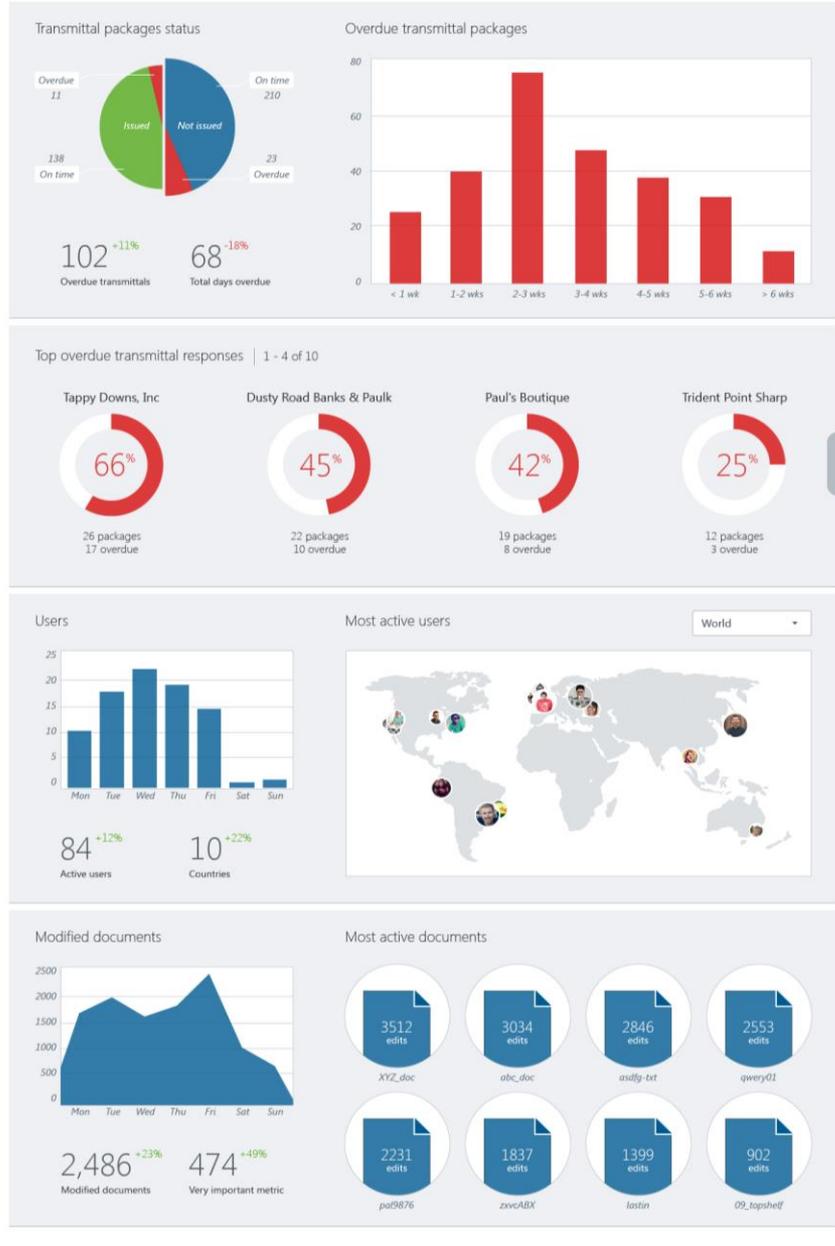
- Overall Project Health indicator – how much work was done? (potential comparison with budget and hours spent)
- What is the total project docs number? How many of them are done?
- How many deliverable (transmittals) packages issued, but not yet fully responded?
- How many transmitted docs were rejected (= rework required)?



# Landing page 2/2

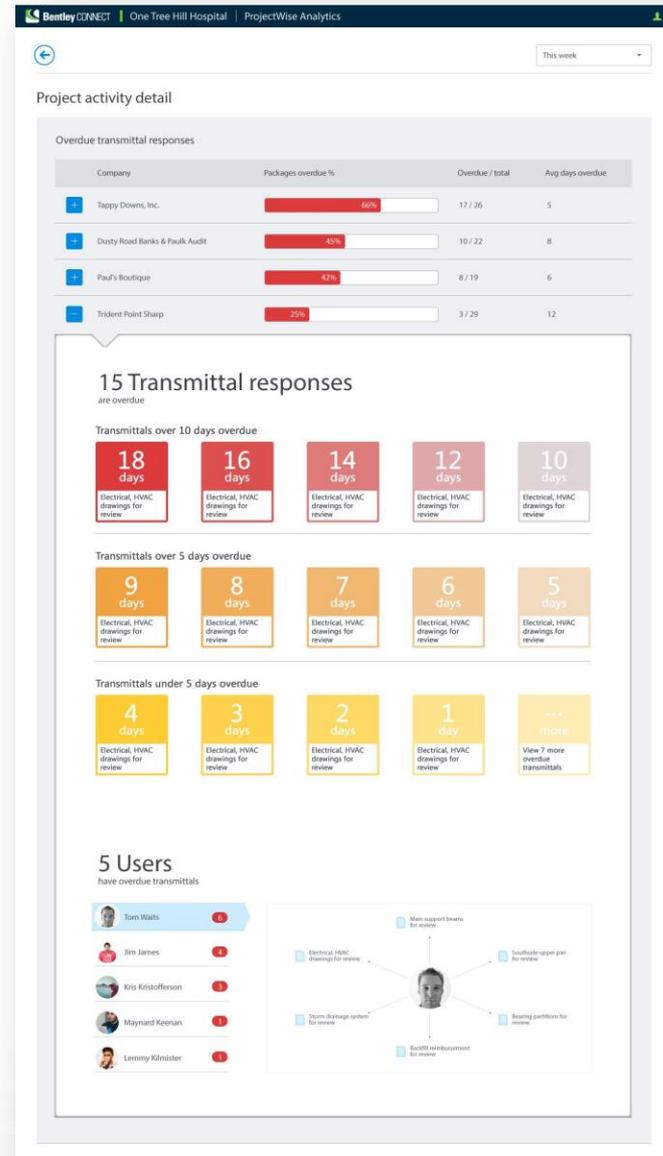
- How many transmittals were issued late? Was it late 1-2 days or more?
- What companies and/or recipients are habitually late to respond our transmittals?
- How many users are actively modifying project documents?
- Who are the most active contributors on a project?
- How many project documents were modified during selected period of time?
- What documents have been most actively modified during selected period of time?

## Project activity



# Transmittal responses sub-page

- How many transmittal packages specific company was late to respond?
- What companies are habitually late to respond our transmittals?
- What exact recipients (per user) have the highest number of late transmittals?
- List of overdue transmittal packages, sorted by number of days late



# Key points/benefits

- Project Performance Dashboards – one of Bentley cloud services:
  - Provide data from ProjectWise and Bentley Deliverables Management now.
  - Other Bentley and 3<sup>rd</sup> party products later too.
  - Very easy to setup and start using for any of the projects.
- Key benefits:
  - Unprecedented insight into what is the current project status as well as trends
  - Help identifying potential bottlenecks – both internally and externally
  - Help predicting expected project finish date based on the current trend
  - Tool to help calculate cost/quality ratio when hiring external consultants.
    - What companies are doing a great job vs. what companies have some issues with how they're organizing their processes)

# Summary

- ProjectWise CONNECTION Services is a collection of cloud services for:
  - **Project performance tracking** with improved visibility into the progress and status of deliverables, helping users monitor project status, identify issues and address potential problems before they negatively impact the project.
  - Streamline workflows and management with **transmittals**, **submittals** and **RFI** services for multi-organizational project teams utilizing an easy-to-use, secure cloud-based deliverables management solution that will help users meet their contractual obligations.
  - Secure **information sharing across federated project teams and information repositories**, blending project teams and information with greater precision, helping users improve project performance by streamlining design coordination across project teams regardless of location.

# Q&A