Case Study: Connecting Design and Construction with BIM 360 Docs and eSUB

Benny Baltrotsky

Chief Strategy Officer, eSUB Construction Software

AUTODESK. UNIVERSITY

About the speaker

Benny Baltrotsky

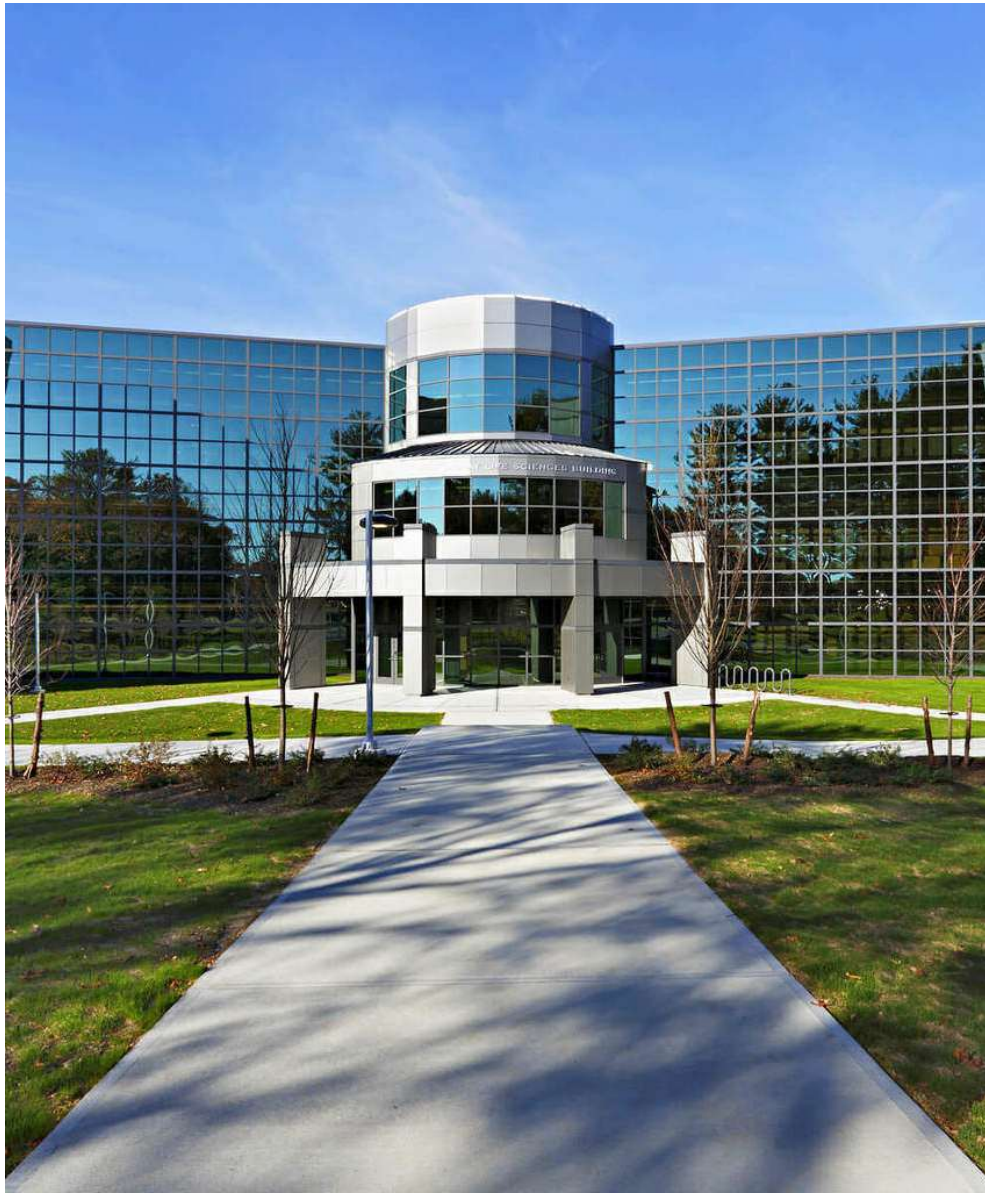
Benny is the Chief Strategy Officer of eSUB Construction Software, a cloud based project management solution for subcontractors. Benny's knowledge of mobile technology gives him a unique perspective on the future of construction technology.

Above All Store Fronts

Custom fabrication facility and utilize BIM to coordinate the detailing and integration of complex wall cladding conditions across various exterior wall systems.

- 200+ employees
- Serve the entire Tri-State area
- 23rd Top Glazier in the United States

ABOVE ALL
STORE FRONTS INC.



The Team

Anthony Vetere – Project Manager

Rich Kennard – Technology, Implementation and Development Manager

Brendan Jones – Senior Project Manager

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Communication Methods for Project Information

- No standard communication methods – “Random”
- No single source for information
- Developed an overly complicated Excel spreadsheet – Not a sustainable solution

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Field Productivity

- No established protocols
- No way to send from jobsite to GC
- Can’t get information back to the office
- Wasted time getting office employees to the jobsite

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Office and Field Silos

- Most current drawings aren’t in the field
- Installing on old information
- Office knows the latest revision, but field doesn’t – No single source of truth

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Challenges

PAPER-BASED PROCESSES

Projects managed in Excel and various documents. Unmanageable process and constantly needing to increase storage space.

NO STANDARDIZATION

Every project manager was doing something different. No standardized process in running projects.

GROWING SO FAST

Grown eight-fold over the past five years. We definitely need help to get a better handle on projects.

SHARING JOBSITE ACTIVITY

Texts and Phone Calls. A lot of back and forth activity and waiting around for information.


THESE PROBLEMS ARE NOT
UNIQUE TO
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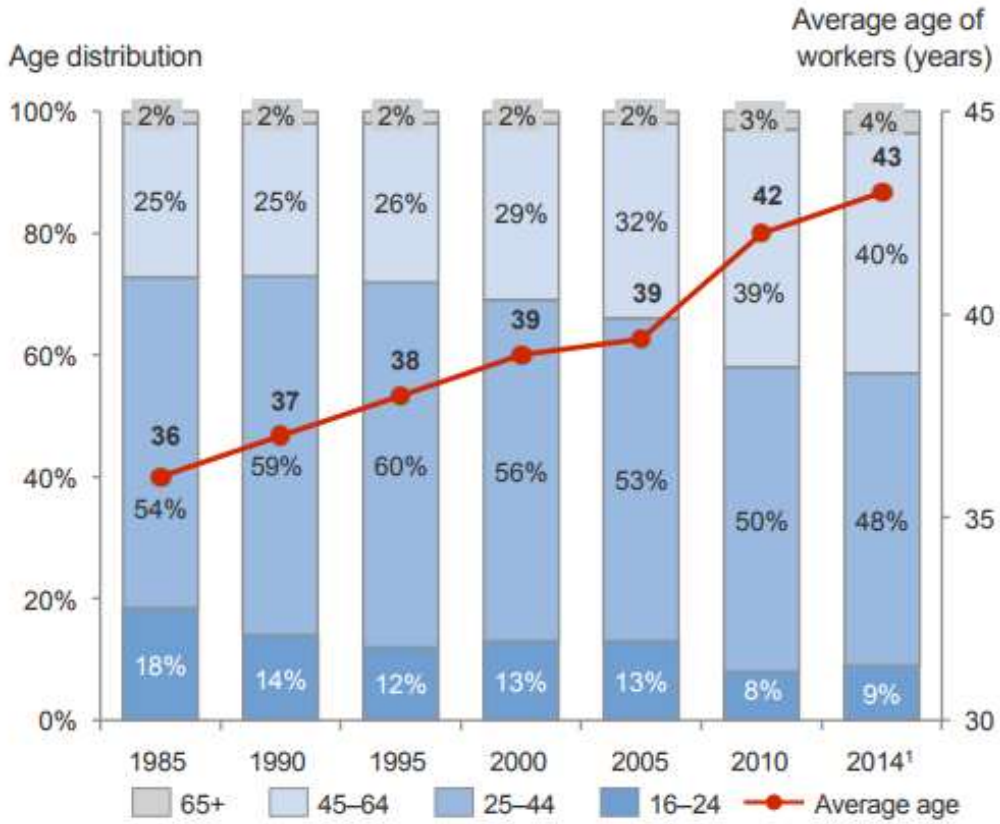
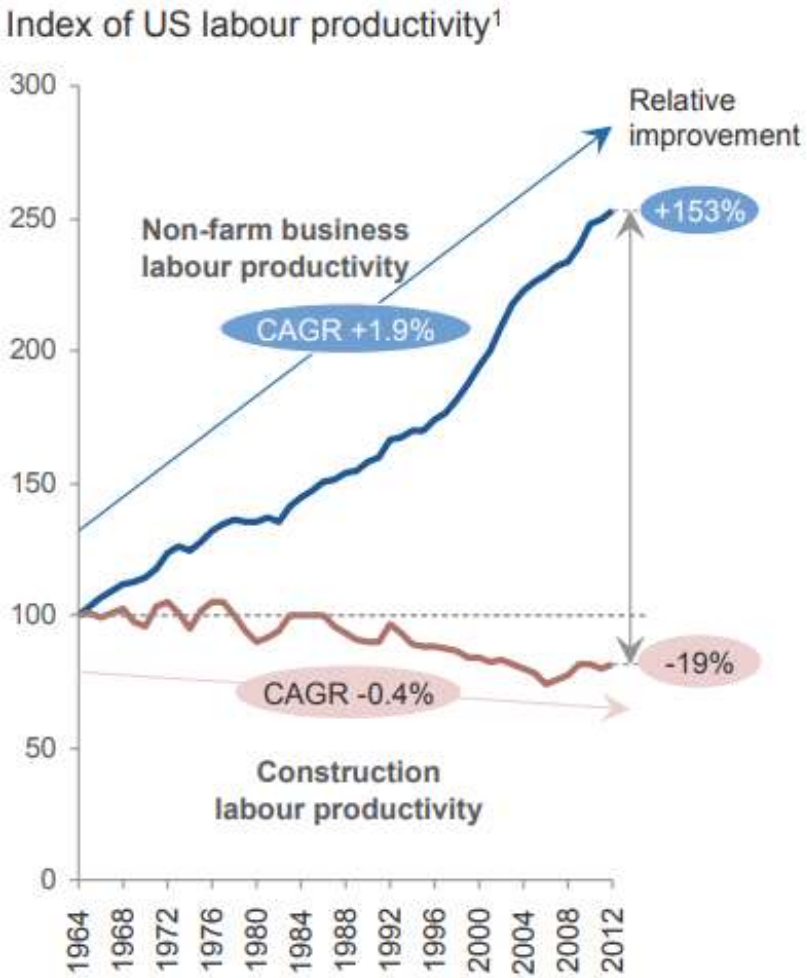
PRODUCTIVITY

Figure 15: Worker Age in the US Construction Sector, 1985-2014[82]



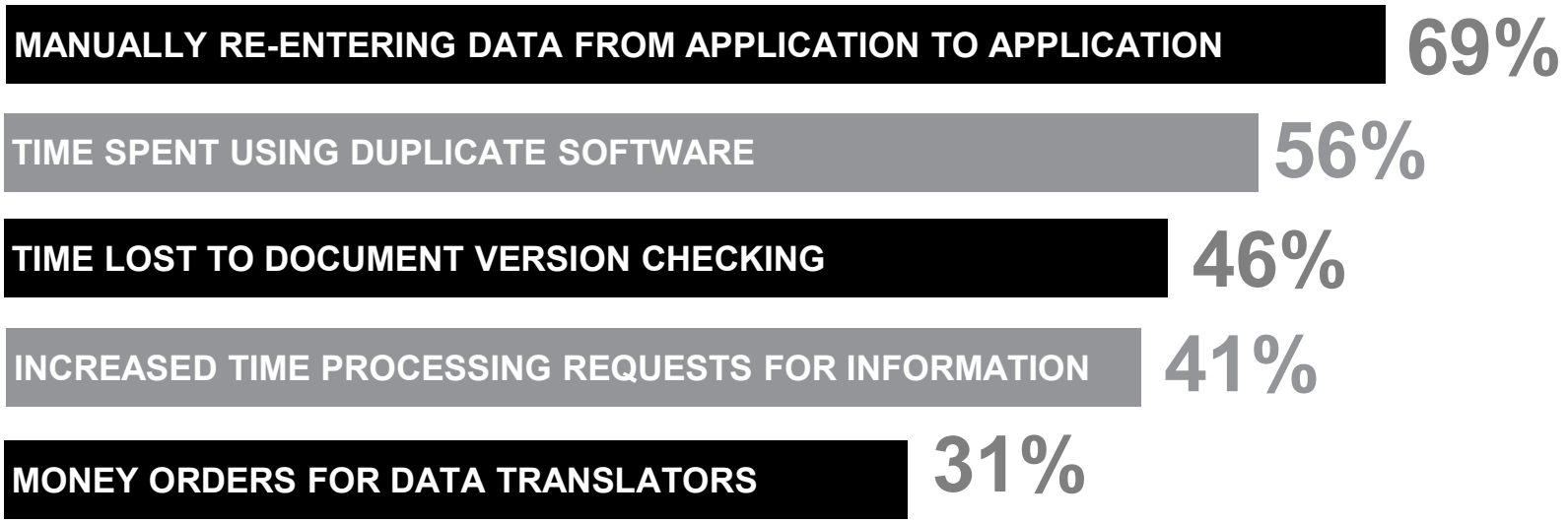
¹ Latest figures available
Source: US Bureau of Labor Statistics; World Economic Forum; The Boston Consulting Group

Figure 3: US Industry Productivity and Performance, 1964-2012[28]



NEED FOR INTEGRATION

DRIVERS OF NON-INTEROPERABILITY COSTS



SOURCE: MCGRAW HILL CONSTRUCTION REASEARCH AND ANALYTICS


WORKING
IN SILOS

Subcontractor
OFFICE CHALLENGES

Struggle to get information from the field

No clue what to bill for and when

Reactively tracking costs vs.

Proactively tracking labor

Subcontractor
FIELD CHALLENGES

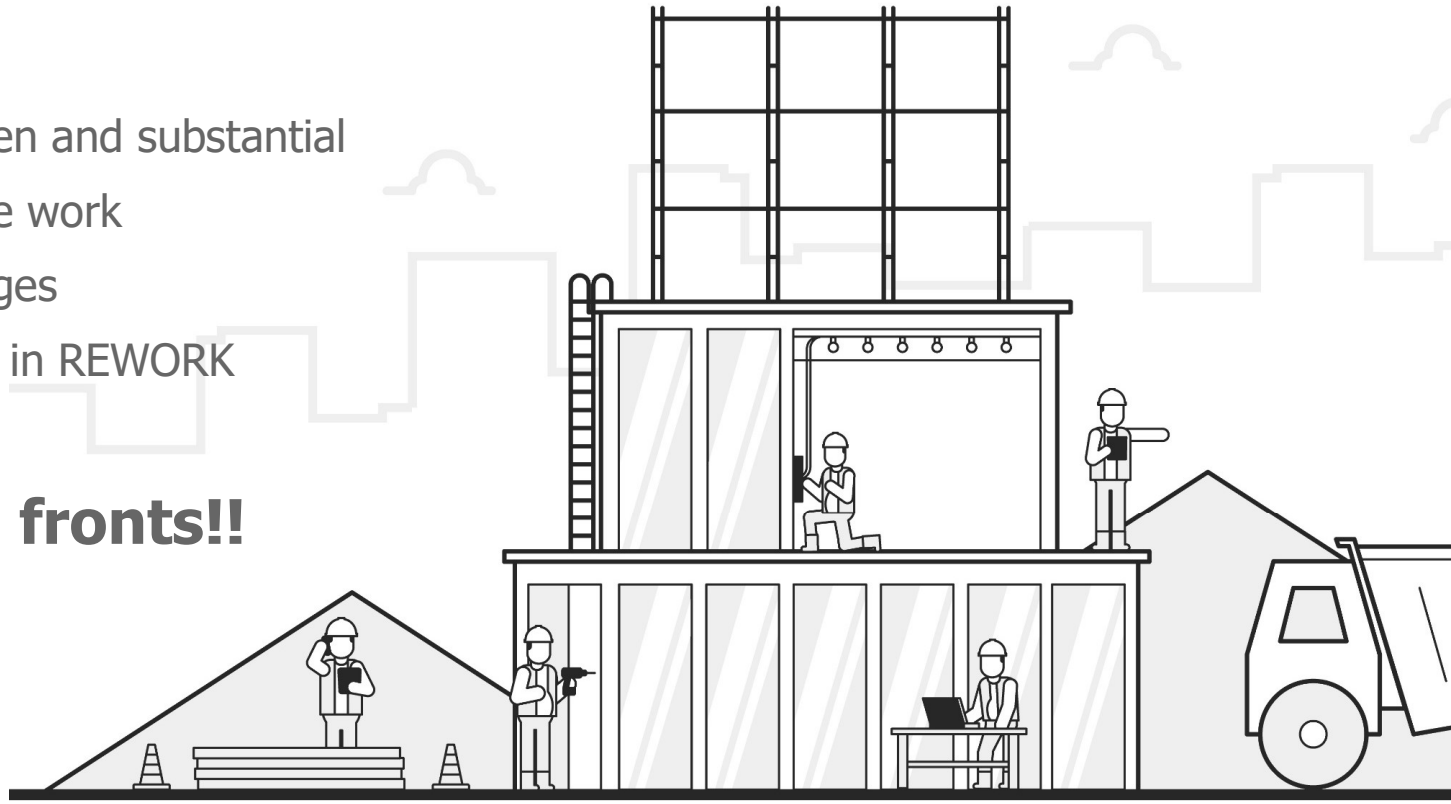
Changes in the field are often and substantial

Catch 22-too busy doing the work

Don’t track/document changes

Lack of coordination results in REWORK

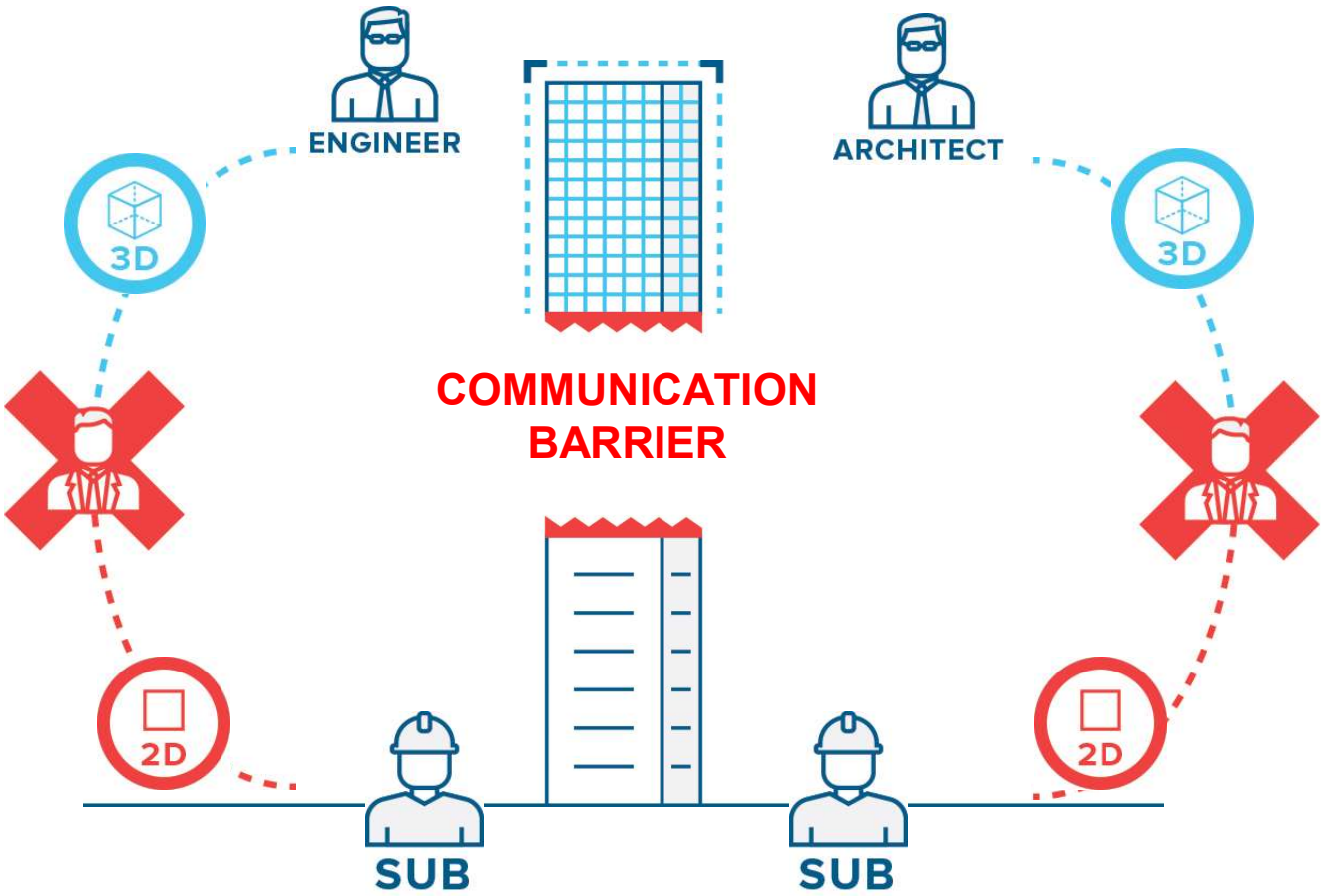
Lost profits on all fronts!!



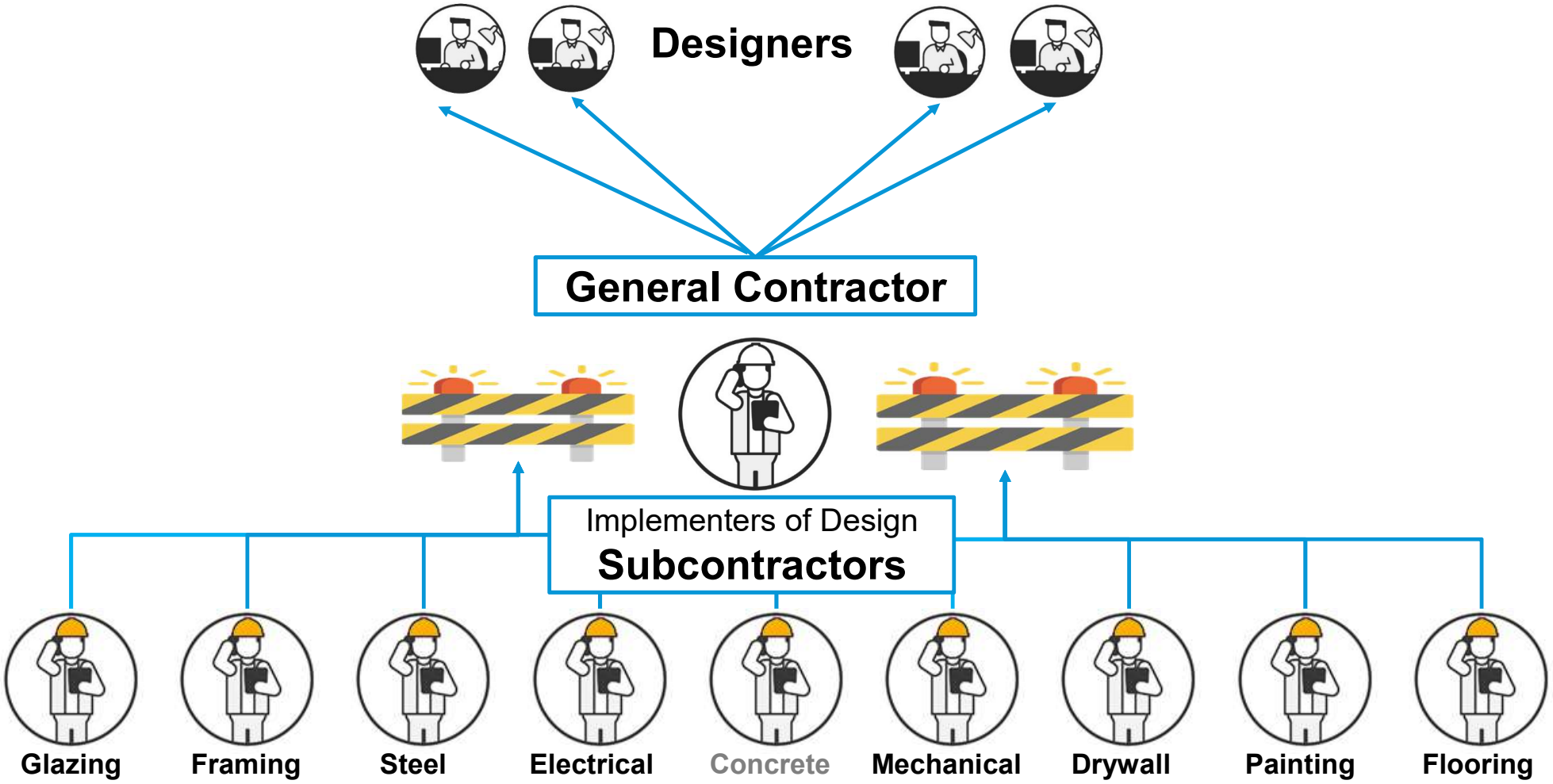
PROJECT INFORMATION

COMMUNICATION

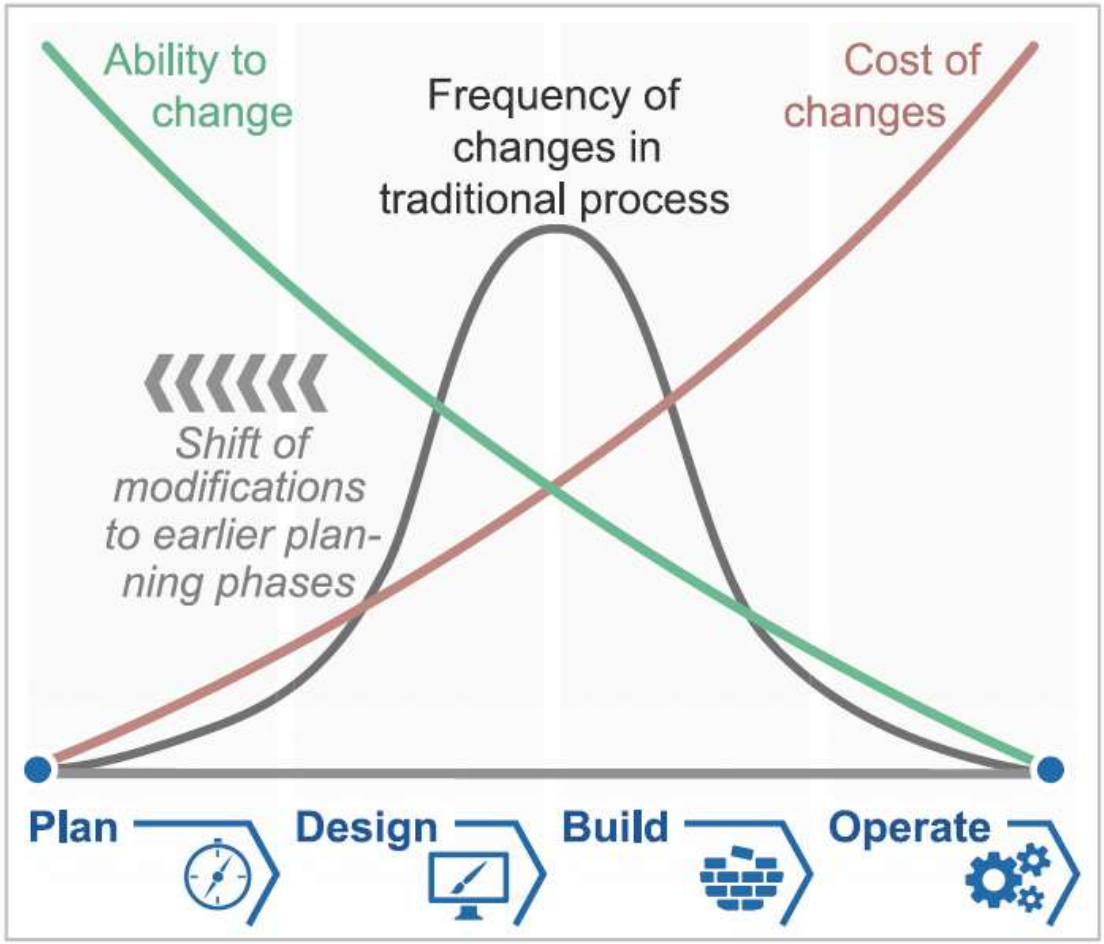
LACK OF ACCESS TO PLANS

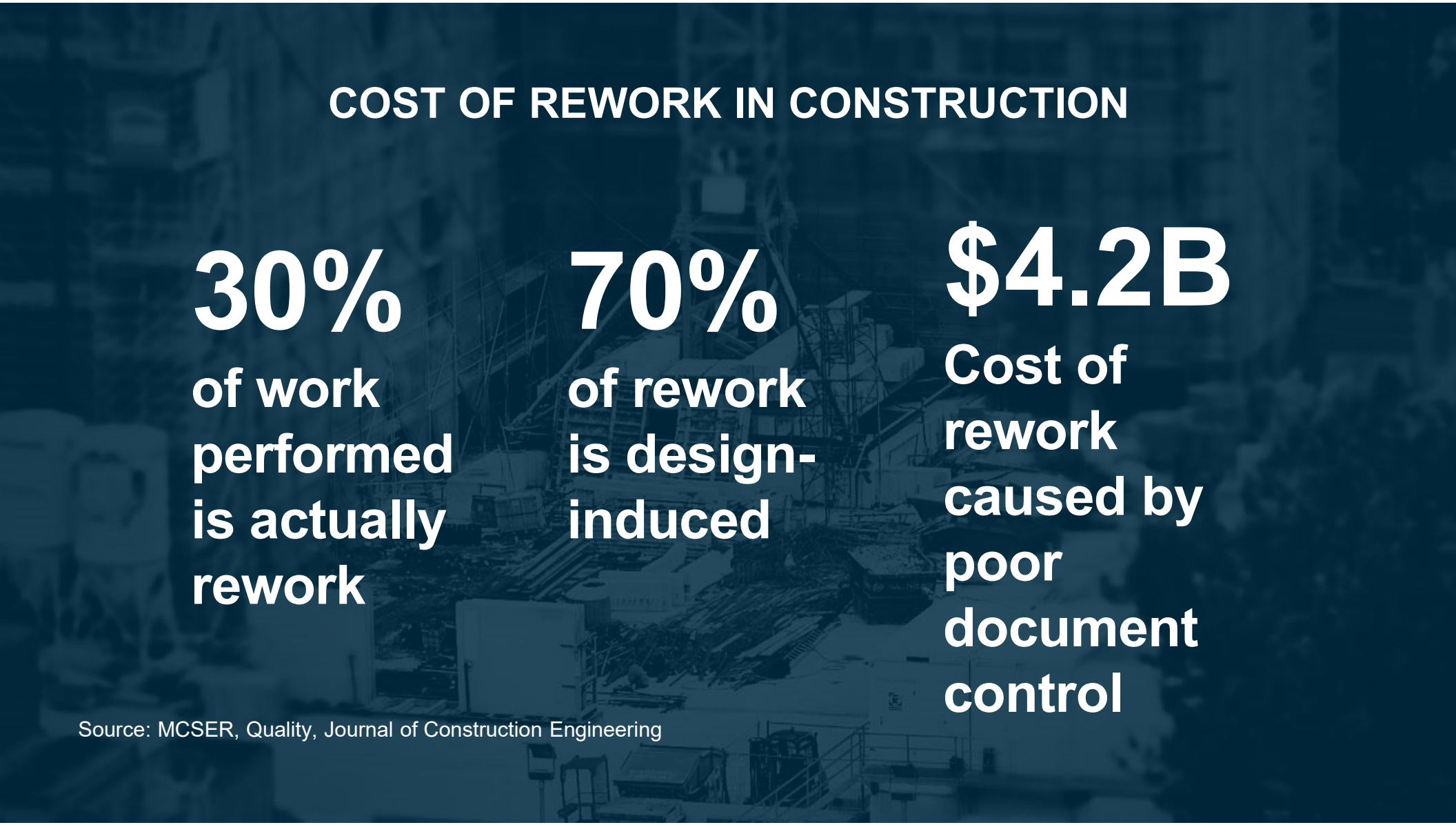


COMMUNICATION BREAKDOWN



IMPACT OF TIME IN CHANGE PROCESS





COST OF REWORK IN CONSTRUCTION

30%
of work performed is actually rework

70%
of rework is design-induced

$4.2B
Cost of rework caused by poor document control

Source: MCSER, Quality, Journal of Construction Engineering


eSUB & BIM360 AS A
SOLUTION

ABOVE ALL STORE FRONTS INC.

Solution

CENTRALIZED PROJECT INFORMATION

A complete document management system stores and shares all project-related Information to both the field and the office with standardized and centralized project data.

REAL-TIME INFORMATION

Capture information in the field (photos, labor productivity, issues) and share with the office in real-time.

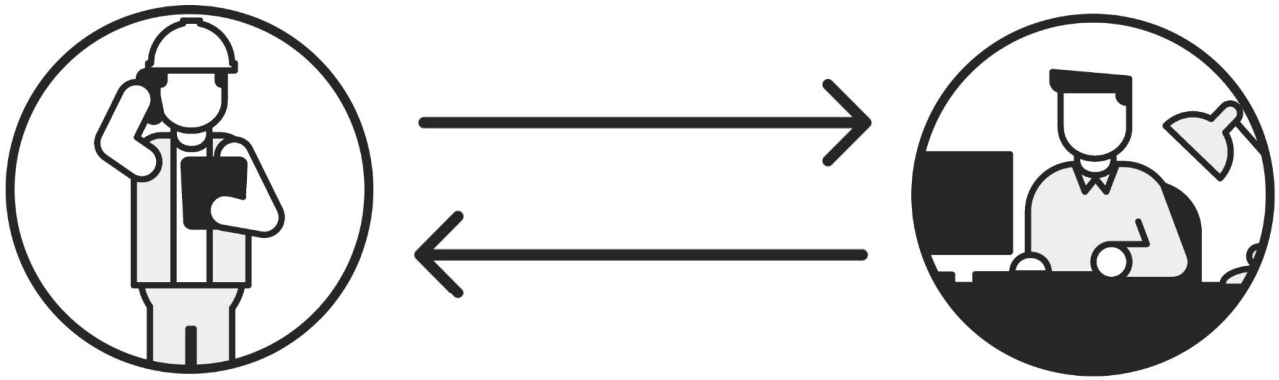
TRACK ALL PROJECTS

Complete visibility of all projects, documents, and tasks to proactively control costs and deadlines.

PLANS IN THE FIELD

Ensure everyone is working on the most updated documents to reduce rework.

FIELD & OFFICE COMMUNICATION



eSUB connects field/office in real-time using mobile devices and cloud technology.

Eliminates silos (Disconnect) Field Office/Estimating PM/ Design PM/ PM Accounting

Automates manual processes (Word, Excel, Outlook)

Increases collaboration and transparency throughout the project

Introduction

Cloud-based project management and document control software

Web-App

Mobile-App

Share documents and drawings between the office and the field in real time

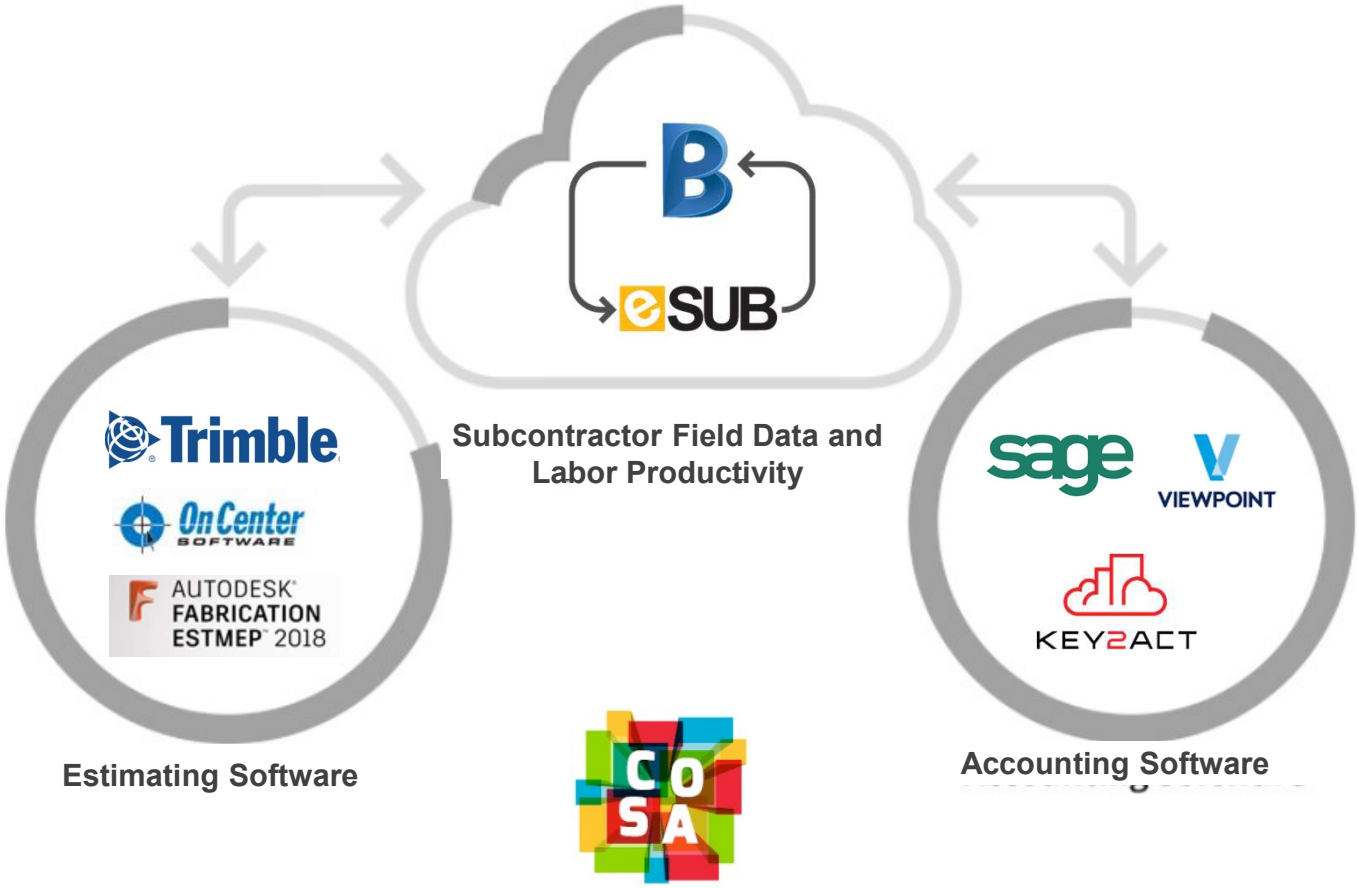
Designed specifically for subcontractor document workflows

Communicate, share and track project documents in a single location

Automated workflows eliminating tedious paperwork

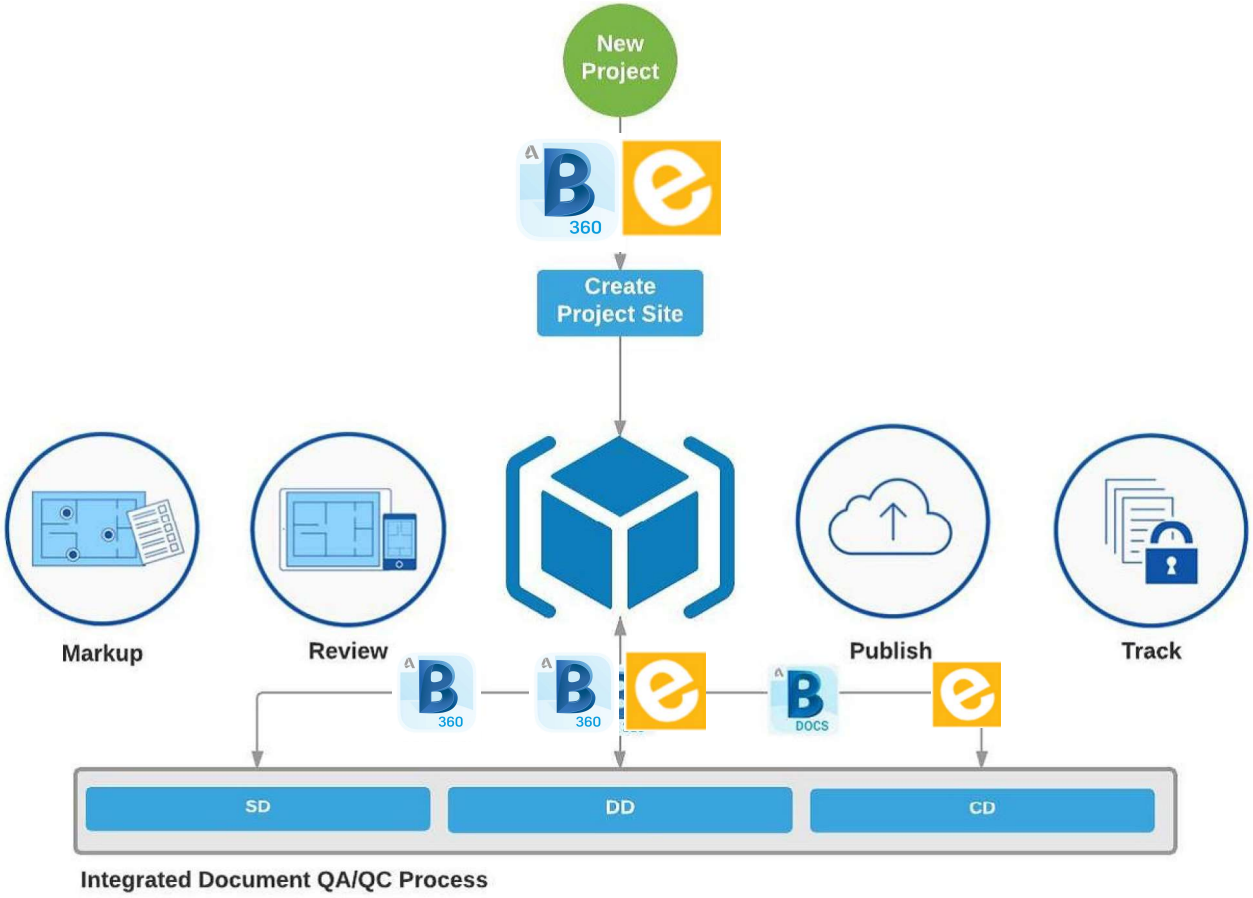
eSUB construction software

SUBCONTRACTOR WORKFLOW




BIM 360 + eSUB construction software
A Winning Combination for
Commercial Subcontractors

STREAMLINED WORKFLOW



eSUB DRAWINGS Powered by BIM 360 Docs

KEY BENEFITS

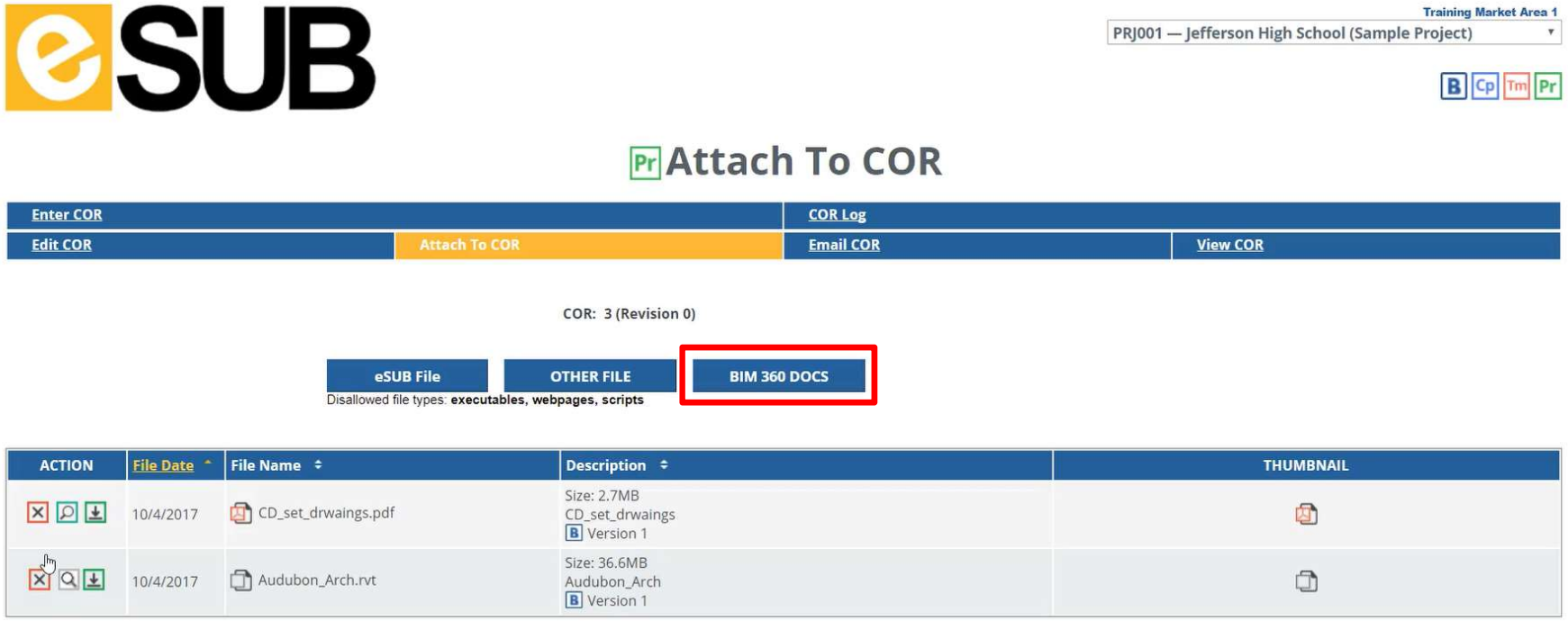
Address issues before construction to prevent costly rework and errors

Attach 2D and 3D markups for more thorough documentation

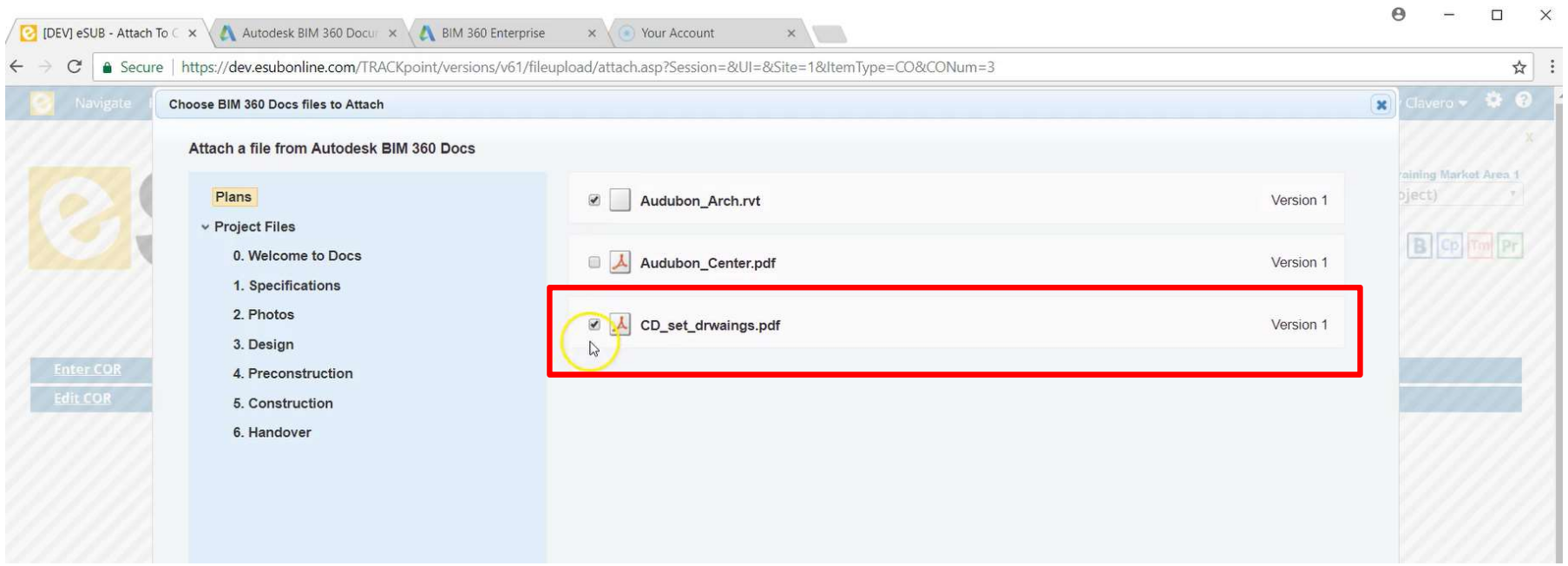
Faster response to RFIs and Change Orders

ACCESS BIM 360 DOCS FROM eSUB

ATTACH BIM 360 FILES TO ANY eSUB DOCUMENT
RFIs / CORs / SUBMITTALS



SELECT BIM 360 FILES TO ATTACH



DOCUMENTATION TIED DIRECTLY TO 2D/3D PLANS

eSUB
built by subs

Request For Information

PRJ001 — Jefferson High School (Sample Project)

RFI Subject : new electric panel

To
Jenny Clavero
Clavero Construction
jennyc@esub.com

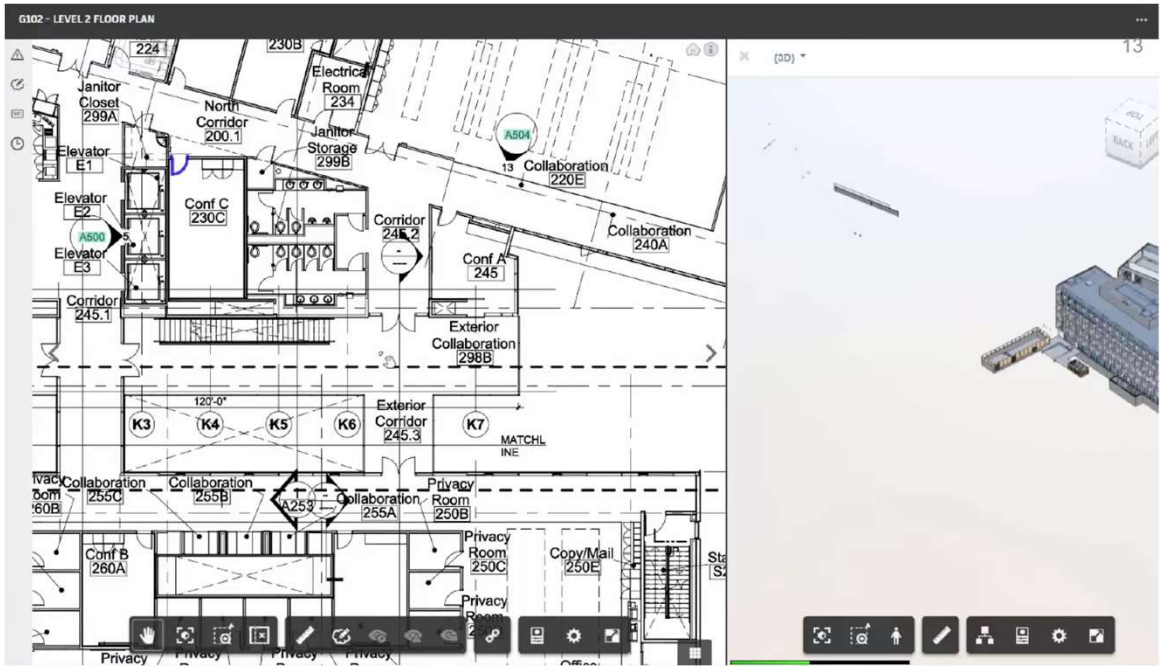
RFI Number : PRJ001-25
RFI Revision Number : 0
RFI Date : 7/17/2017
Type : Original RFI

Return To
John Vendor
Vendor Company
Vendor Address Line 1
vendor@vendorcompany.com

Clarification Requested
Please let me know how to proceed.

Schedule / Cost Impact
To mitigate schedule delay, return by the following date **7/22/2017**.
This problem is possibly impacting our progress
This problem is possibly impacting our costs (other than schedule costs)

Please provide a written directive on how to proceed. Descriptions of materials and methods should be accompanied by drawings, sketches and specifications if not covered by applicable contract documents. Please re-review relevant submittals referenced above.



eSUB

FUNCTIONALITY

Your whole team gets involved and everyone is on the same page!

CORPORATE MANAGEMENT

PROJECT MANAGEMENT

FIELD WORKS MOBILE APP

Document Management

FIELD NOTES

DAILY REPORTS

RFI

PROJECT FILES

Built In Convenience and Protection

ISSUES

REMINDERS

MILESTONES

CORRESPONDENCE

The Mechanics that Drive eSUB

EMAIL INTEGRATION

CONTACTS

CALENDAR

AUDIT LOG

eSUB- Core Product

eSUB construction software

Features

- MEETING MINUTES
- PAY APPLICATIONS
- DRAWING SETS
- EQUIPMENT RENTAL
- CHANGE ORDER REQUESTS
- SUBMITTALS/TRANSMITTALS
- TIME CARDS
- SCHEDULING (Gantt)
- RESOURCE MANAGEMENT
- DRAWING SETS
- PURCHASE ORDERS

Accounting Integration

- SAGE 100 (WEB SERVICE)
- SAGE 300 CRE (CONNECTOR)
- SAGE 300 TIMBERLINE
- SAGE 300 TIMBERLINE WITHOUT EXTRAS
- VIEWPOINT
- COMPUTEREASE
- QUICKBOOKS
- FOUNDATION FOR WINDOWS
- FOREFRONT BY DEXTER + CHANEY
- ACCUBUILD
- JONAS
- CONSTRUCTION PARTNER
- SAP FINANCIAL ACCOUNTING

eSUB construction software

eSUB's Mobile App

Easily collect information from the field:

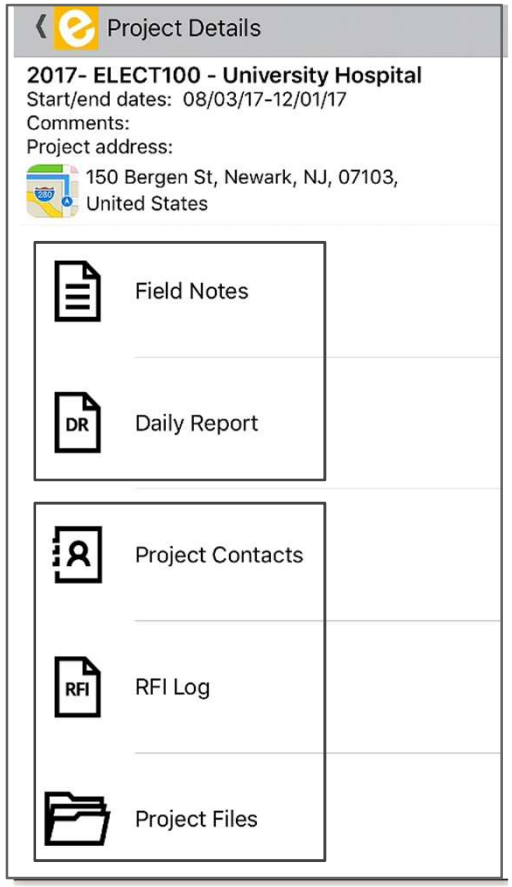
- Descriptions of work performed
- Pictures of work performed
- What was being worked on (cost code)
- Who was working on it
- How many hours spent

Automatically keep the foremen in the loop in real time

- Project team contact info
- RFI log with status
- Project drawings and documents

Send

Receive

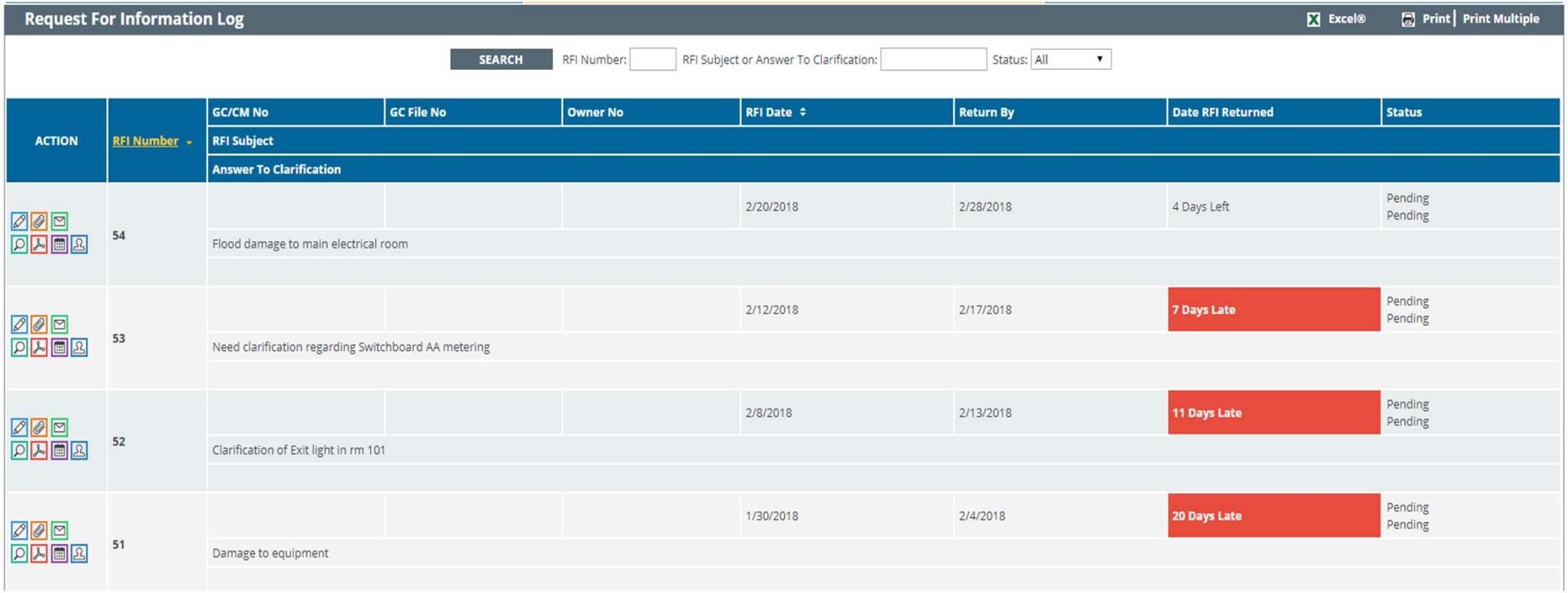


Easy to Learn

Effective Results

eSUB construction software

STREAMLINING RFI PROCESS

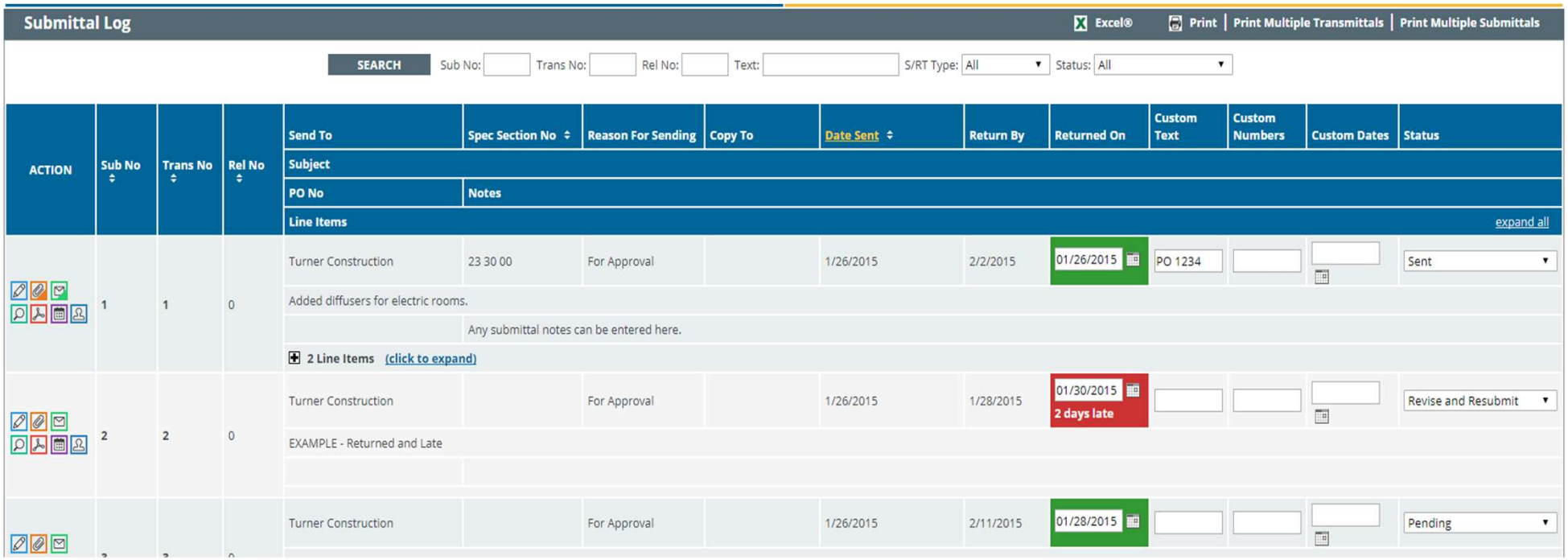


Request For Information Log — Excel® | Print | Print Multiple

SEARCH — RFI Number: — RFI Subject or Answer To Clarification: — Status: All

ACTION	RFI Number	GC/CM No	GC File No	Owner No	RFI Date	Return By	Date RFI Returned	Status
		RFI Subject						
		Answer To Clarification						
	54				2/20/2018	2/28/2018	4 Days Left	Pending Pending
		Flood damage to main electrical room						
	53				2/12/2018	2/17/2018	7 Days Late	Pending Pending
		Need clarification regarding Switchboard AA metering						
	52				2/8/2018	2/13/2018	11 Days Late	Pending Pending
		Clarification of Exit light in rm 101						
	51				1/30/2018	2/4/2018	20 Days Late	Pending Pending
		Damage to equipment						

STREAMLINING SUBMITTAL PROCESS



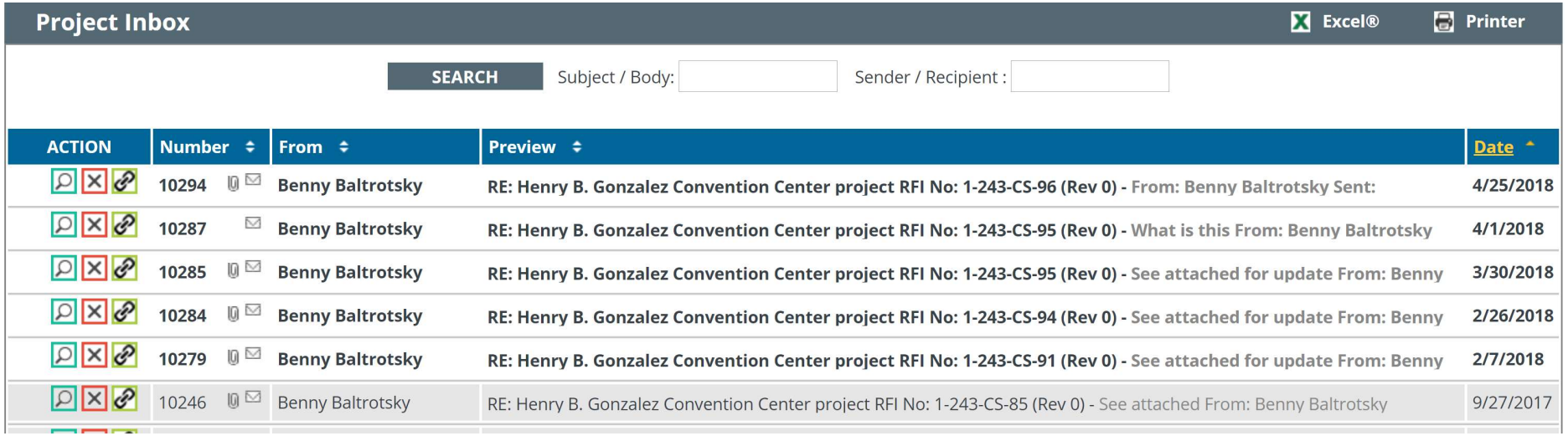
Submittal Log

Excel® | Print | Print Multiple Transmittals | Print Multiple Submittals

SEARCH Sub No: Trans No: Rel No: Text: S/RT Type: All Status: All

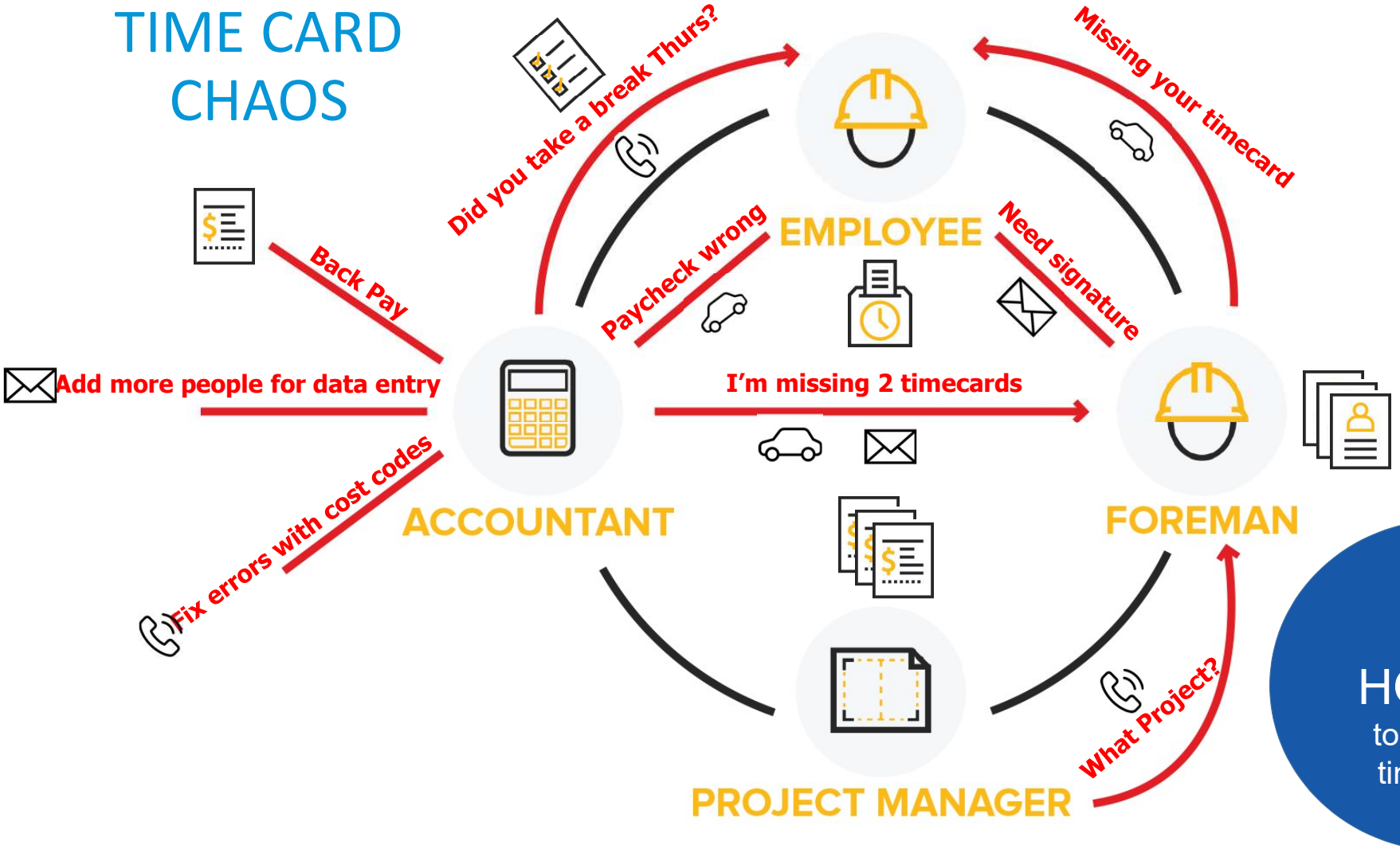
ACTION	Sub No	Trans No	Rel No	Send To	Spec Section No	Reason For Sending	Copy To	Date Sent	Return By	Returned On	Custom Text	Custom Numbers	Custom Dates	Status
				Subject										
				PO No	Notes									
				Line Items										expand all
	1	1	0	Turner Construction	23 30 00	For Approval		1/26/2015	2/2/2015	01/26/2015	PO 1234			Sent
				Added diffusers for electric rooms.										
					Any submittal notes can be entered here.									
				2 Line Items (click to expand)										
	2	2	0	Turner Construction		For Approval		1/26/2015	1/28/2015	01/30/2015 2 days late				Revise and Resubmit
				EXAMPLE - Returned and Late										
				Turner Construction		For Approval		1/26/2015	2/11/2015	01/28/2015				Pending

CENTRALIZED PROJECT INBOX



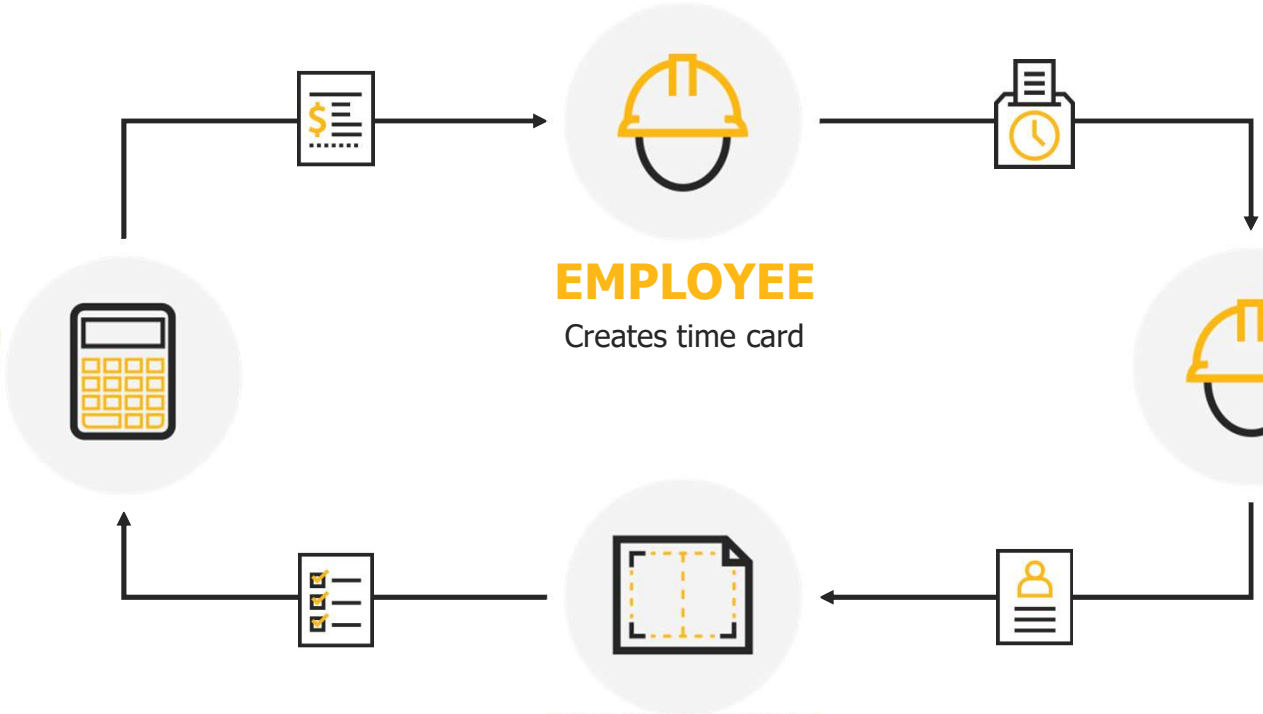

NUMBER ONE RISK TO PROFIT IS
LABOR
HOW DO WE TRACK LABOR PRODUCTIVITY?
TIME CARDS/DAILY REPORTS

TIME CARD CHAOS



40 HOURS to process timecards

MANAGING TIME CARDS



EMPLOYEE
Creates time card

FOREMAN
Collects time cards; reviews / approves

PROJECT MANAGER
Reviews / verify time to project and cost codes

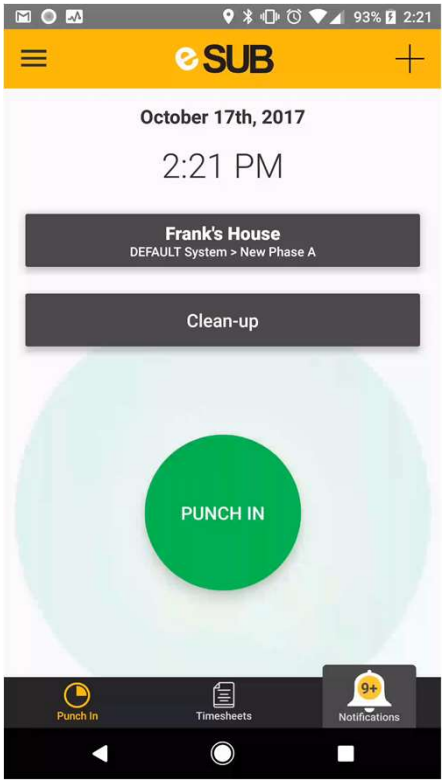
ACCOUNTANT
Process for payroll

1 HOUR to process timecards with eSUB

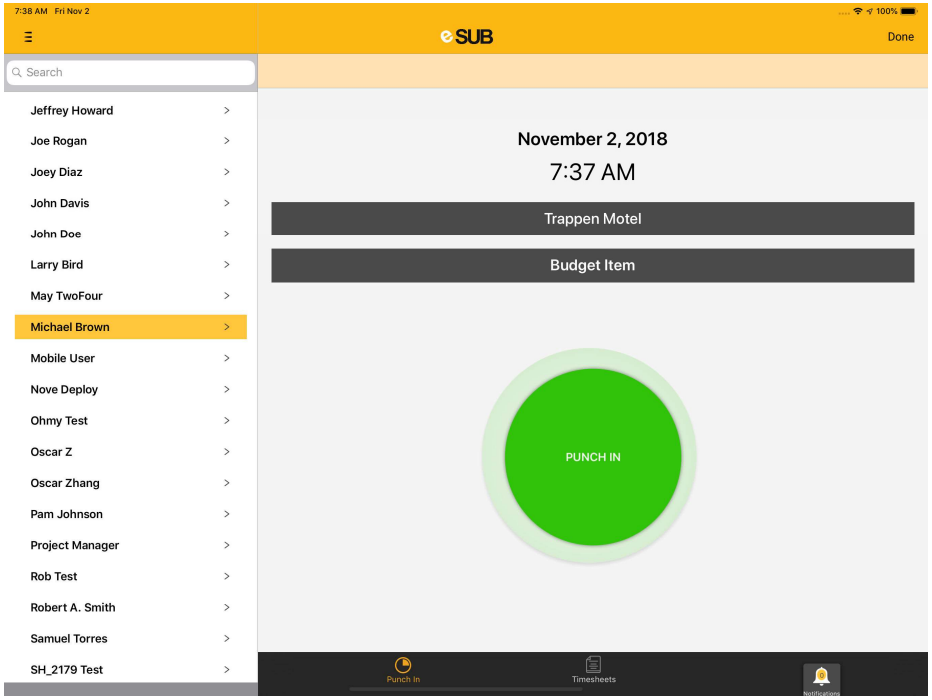
TIME ENTRY IN THE FIELD

Real Time Labor Productivity

GPS Punch In/Out



Kiosk



Daily Field Reports

PRODUCTIVITY TRACKING

Percent Of Efficiency

No	Phase	Est Cost	Act Cost	Orig Budgeted Hours	COR Budgeted Hours	Total Budgeted Hours	Used Hours	% Used Hours	Rem Hours	% Comp	Proj Used Hours	Proj Rem Hours	% Of Eff
1st Fl	1st Fl	$261,500.00	$16,320.00	3,300.00	0.00	**3,300.00**	288.00	8.7%	3,012.00	8.9%	3,220.00	2,932.00	**102.5%**
2nd Fl	2nd Fl	$0.00	$0.00	0.00	0.00	**0.00**	0.00	0.0%	0.00	0.0%	0.00	0.00	**0.0%**
3rd Fl	3rd Fl	$0.00	$0.00	0.00	0.00	**0.00**	0.00	0.0%	0.00	0.0%	0.00	0.00	**0.0%**
Roof	Roof	$0.00	$0.00	0.00	0.00	**0.00**	0.00	0.0%	0.00	0.0%	0.00	0.00	**0.0%**
	Totals	**$261,500.00**	**$16,320.00**	**3,300.00**	**0.00**	**3,300.00**	**288.00**	**8.7%**	**3,012.00**	**8.9%**	**3,220.00**	**2,932.00**	**102.5%**

PRODUCTIVITY TRACKING

Budgeted Hours

Actual Hours

% Hours Used

% Complete (manual input)

Projected Completion)

% of Efficiency

Percent Of Efficiency

Cost Code	Cost Code Description	Est Cost	Act Cost	Orig Budgeted Hours	COR Budgeted Hours	Total Budgeted Hours	Used Hours	% Used Hours	Rem Hours	% Complete	Proj Used Hours	Proj Rem Hours	% Of Eff
01-120	Rough- Branch	$160,000.00	$48,000.00	2,000.00	0.00	**2,000.00**	800.00	40.0%	**1,200.00**	30%	2,666.67	1,866.67	**75.0%**
01-130	Rough- Feeder	$64,000.00	$16,320.00	800.00	0.00	**800.00**	288.00	36.0%	**512.00**	40%	720.00	432.00	**111.1%**
01-230	Wire Pull- Feeder	$15,000.00	$0.00	200.00	0.00	**200.00**	0.00	0.0%	**200.00**	0%	200.00	200.00	**0.0%**
01-330	Distribution	$22,500.00	$0.00	300.00	0.00	**300.00**	0.00	0.0%	**300.00**	0%	300.00	300.00	**0.0%**
	Totals	**$261,500.00**	**$64,320.00**	**3,300.00**	**0.00**	**3,300.00**	**1,088.00**	**33.0%**	**2,212.00**	**28.0%**	**3,886.67**	**2,798.67**	**84.0%**

eSUB & Autodesk

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