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CONSTRUCTION CLOUD™
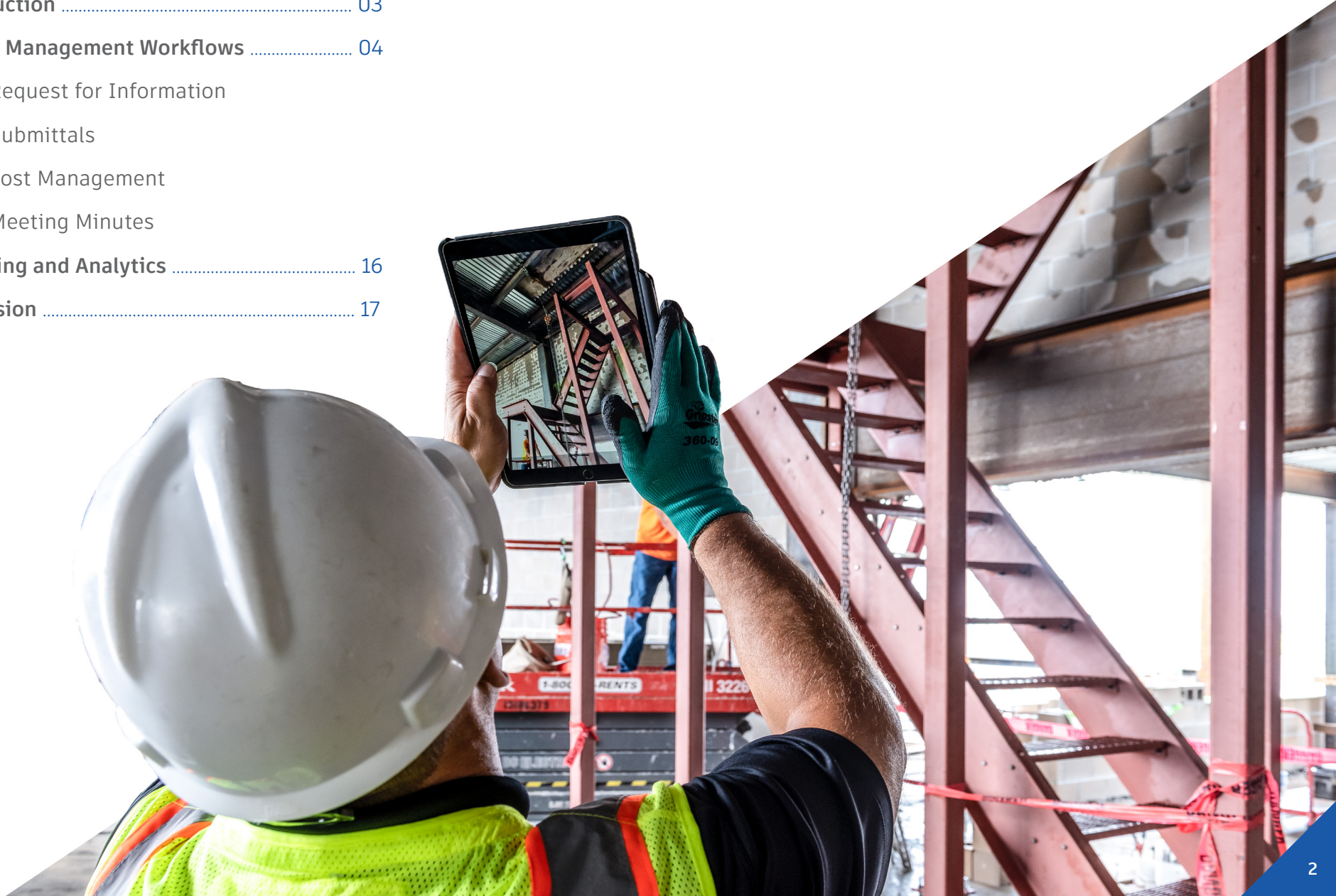
Optimize Construction Project Management Workflows with the Cloud
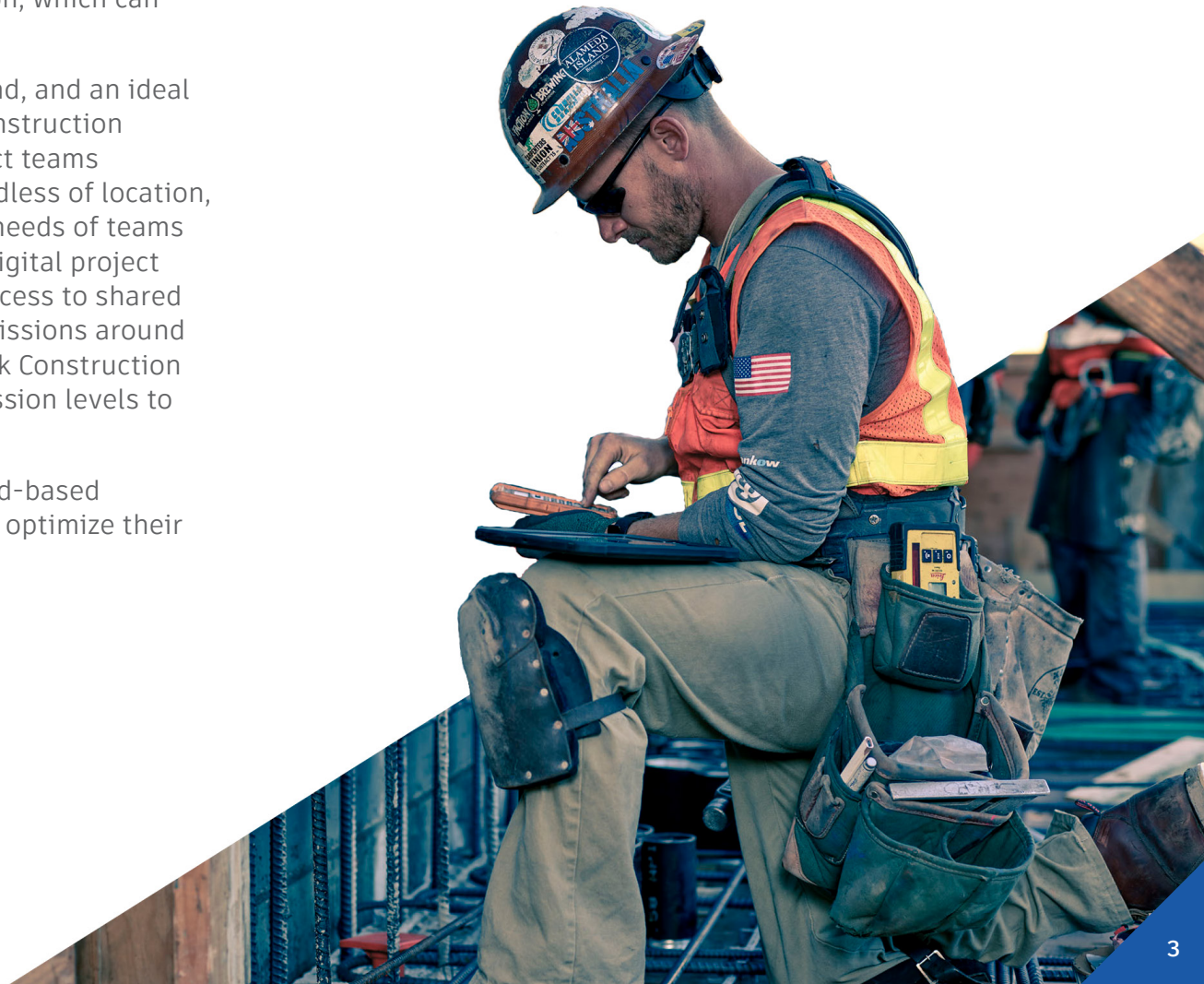
Table of Contents

Introduction

Reviewing submittals, submitting RFIs, and managing costs are inevitable parts of every construction project, but these workflows can be inefficient and time-consuming. Teams have started to digitize their workflows, but systems and data are often not connected, and they're frequently stored in separate locations. This runs the risk of incorrect or missing information, which can ultimately derail workflows and processes.

Luckily it is not too late for teams to turn this around, and an ideal solution is the adoption of a single cloud-based construction management platform. A single platform lets project teams collaborate on coordinated, shared designs – regardless of location, role in the project, or stage of the project. Varying needs of teams and contract structures can be fully supported by digital project controls. Whether team members need real-time access to shared workspaces, or more strict access control and permissions around specific files and versioning, solutions like Autodesk Construction Cloud offerings give teams flexible yet strict permission levels to control those collaboration styles.

Let's specifically look at how the adoption of a cloud-based construction management platform can help teams optimize their project management workflows.

Request for Information

Requests for Information (RFIs) are a painful, but yet contractually necessary part of any project. Whether you're the one submitting RFI's or the one responding, without seamless workflows seamless workflows to account for them, your process will suffer without fail. RFIs are essential, of course, ensuring that the crew builds correctly, reducing rework and bad blood. But for all that they're essential, RFIs are some of the biggest roadblocks of a project.
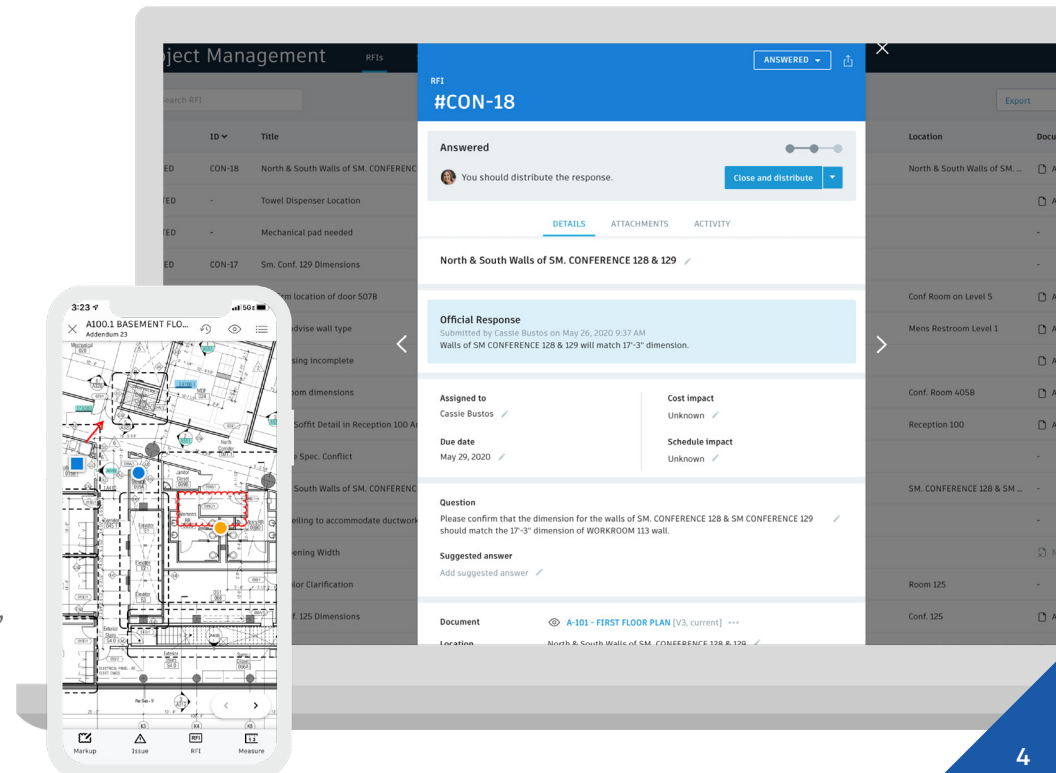
Traditional RFI processes are disconnected, relying heavily on email to move items through the workflow. Not only does this run the risk of response delays and miscommunication, but once an RFI is submitted, the creator has zero visibility into the status of the item. And when it comes to generating reports, it isn't a simple process and is limited to the information captured in the RFI log.

Instead of relying on manual, disconnected processes, teams can utilize a cloud-based construction management platform to automate and simplify the RFI process with standardized workflows that create clear accountability, and maintain transparency while meeting contractual obligations.

CLOUD-BASED PLATFORM BENEFITS FOR RFIs:

- **Controlled Process:** The flow of information can be controlled through workflow roles creating clear accountability to ensure RFIs align with contractual procedures and move through the process efficiently, eliminating the potential for conflicting responses.

- **Increased Response Rates:** Enables teams to post RFIs to 2D drawings and 3D models and include supporting information like photos and documents for great context, reducing back and forth communication.

- **Better Status Visibility:** RFI creators can easily view RFI statuses, including ball-in-court to track them through the review and approval process.
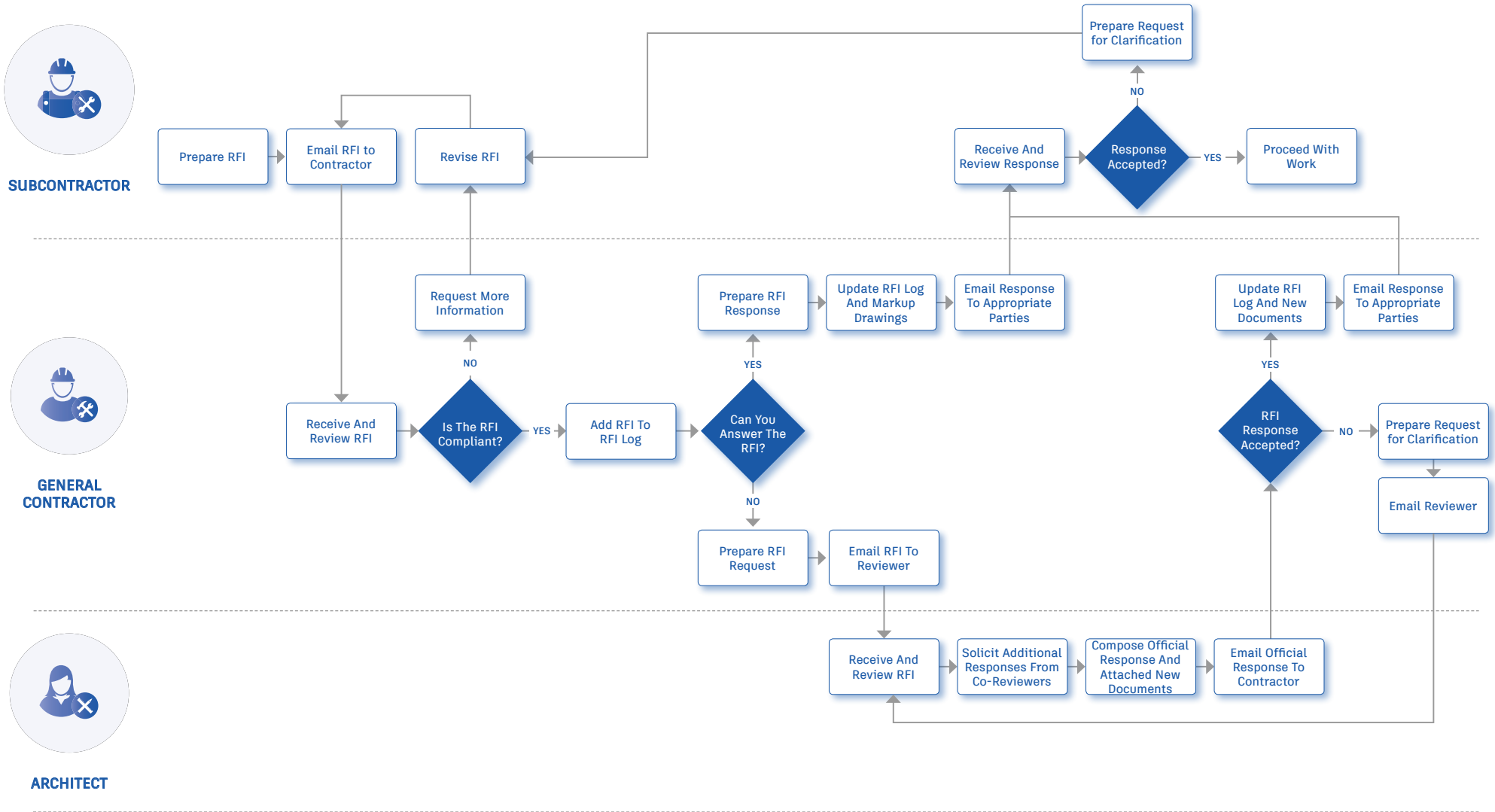
- **Field Engagement:** Field teams can view and initiate RFIs from any device, no more jotting things down, searching through emails, or waiting until you're back in the trailer to send an email.

- **Connected Data and Workflows:** By centralizing all project data in a shared data environment, teams can connect data across workflows like linking RFIs to potential change orders and meeting items.

- **Instant Distribution:** As soon as an RFI is approved it can be shared with the entire team instantly, ensuring critical information doesn't slip through the cracks and is immediately available to all relevant parties.

- **Better Reporting and Analytics:** Capturing data in a single system enables you to view summaries of critical and actionable information and gain visibility into project risk.
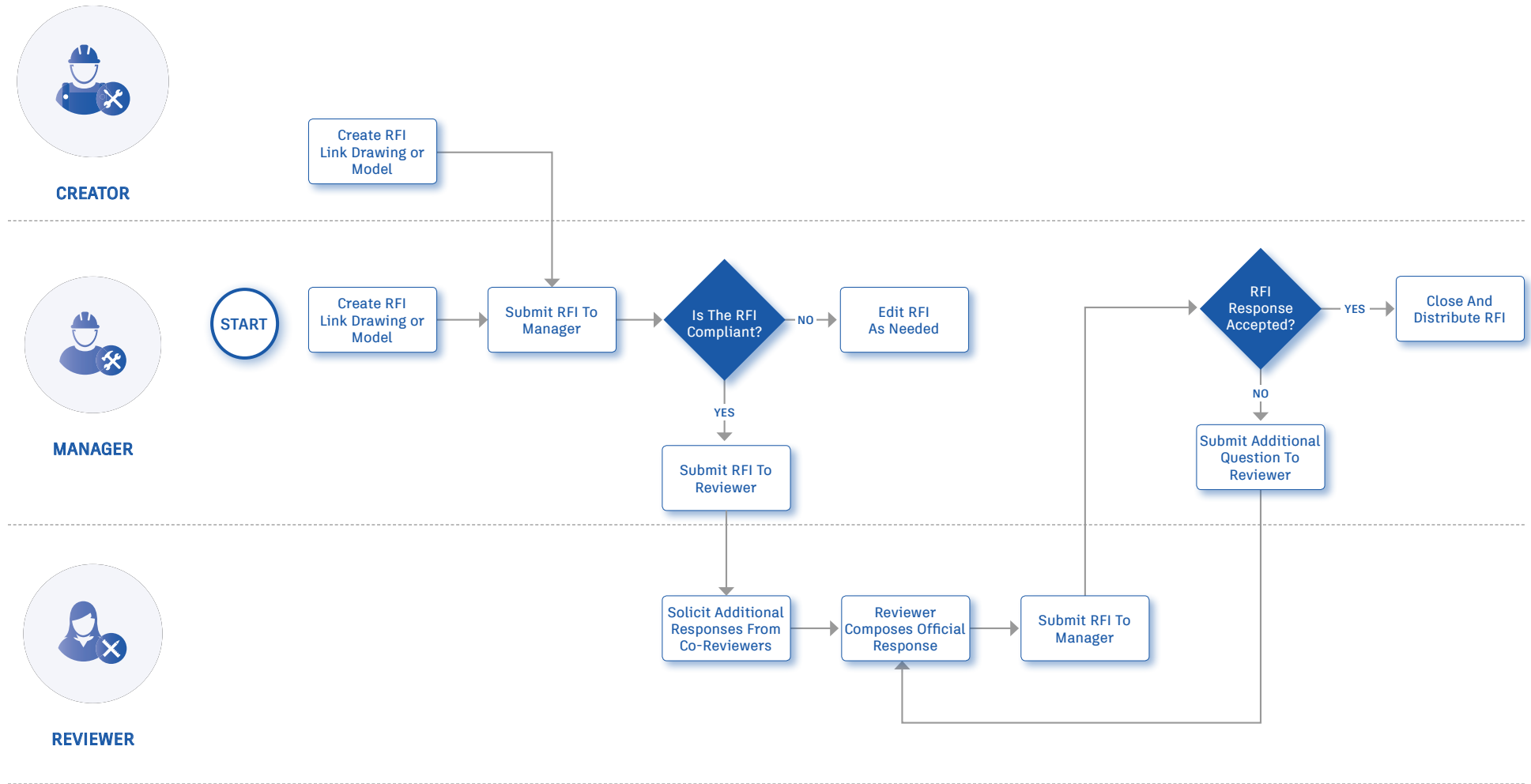
Traditional RFI Workflow

Time Consuming · Manual · Higher Risk For Miscommunication · Siloed · Restricted Visibility

SUBCONTRACTOR

GENERAL CONTRACTOR

ARCHITECT

- Prepare RFI
- Email RFI to Contractor
- Revise RFI
- Prepare Request for Clarification
- Receive And Review RFI
- Is The RFI Compliant?
  - NO → Request More Information
  - YES → Add RFI To RFI Log
- Can You Answer The RFI?
  - YES → Prepare RFI Response → Update RFI Log And Markup Drawings → Email Response To Appropriate Parties
  - NO → Prepare RFI Request → Email RFI To Reviewer
- Receive And Review Response
- Response Accepted?
  - YES → Proceed With Work
  - NO → Prepare Request for Clarification
- Receive And Review RFI
- Solicit Additional Responses From Co-Reviewers
- Compose Official Response And Attached New Documents
- Email Official Response To Contractor
- RFI Response Accepted?
  - YES → Update RFI Log And New Documents → Email Response To Appropriate Parties
  - NO → Prepare Request for Clarification → Email Reviewer

Cloud-Based RFI Workflow

Streamlined · Controlled · Clear Accountability · Real-Time Status Visibility · Collaborative · Instant · Automatic Audit Trail

CREATOR

Create RFI Link Drawing or Model

MANAGER

START → Create RFI Link Drawing or Model → Submit RFI To Manager → Is The RFI Compliant? → NO → Edit RFI As Needed

Is The RFI Compliant? → YES → Submit RFI To Reviewer

RFI Response Accepted? → YES → Close And Distribute RFI

RFI Response Accepted? → NO → Submit Additional Question To Reviewer

REVIEWER

Solicit Additional Responses From Co-Reviewers → Reviewer Composes Official Response → Submit RFI To Manager
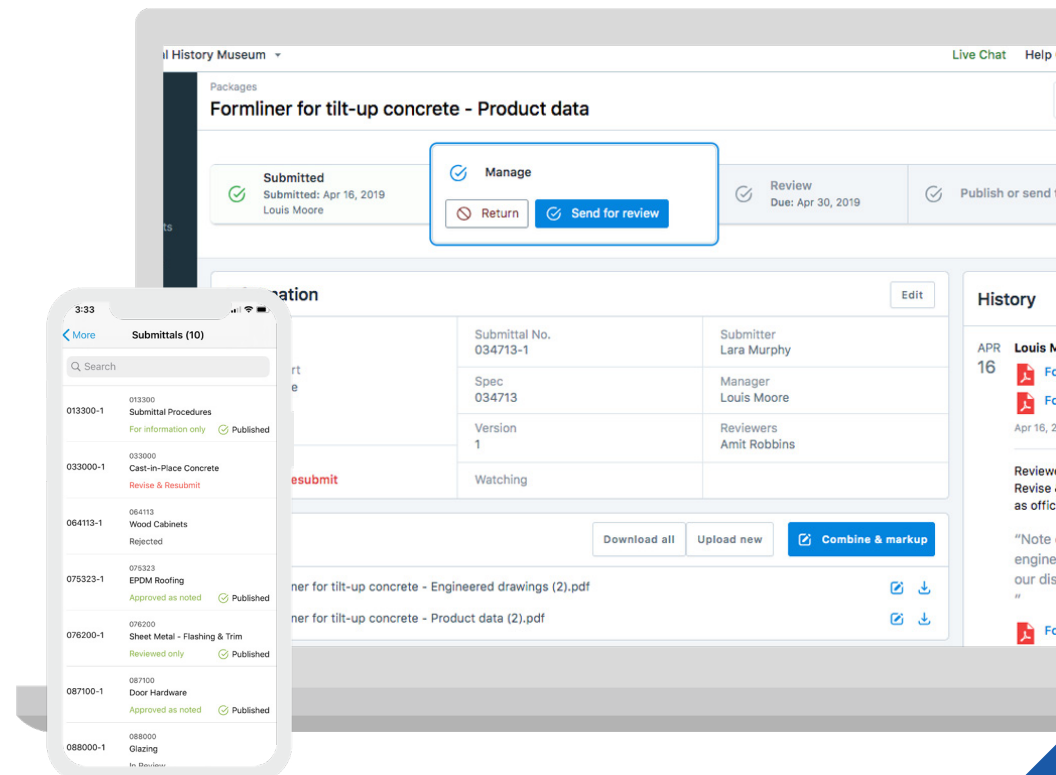
Submittals

Submittals is one of the most important construction workflows to start off a project on the right foot, and one of the most time consuming. Typically, the Submittals review process is long and brutal. Stakeholders need to aggregate them from all engaged contractors, ensure they cover each aspect of the project, and input them into a system—often manually, which introduces mistakes and omissions. This can take weeks or even months, and as the project grows in size and scope, so do the errors.

The process can be improved by using a cloud-based construction management platform. Teams can efficiently create, coordinate, and manage all aspects of Submittals in a single document library. Initiate requests, manage reviews and approvals, and sync critical information to mobile devices for offline access.

CLOUD-BASED PLATFORM BENEFITS FOR SUBMITTALS:

- **Automatic Submittal Logs:** Automatic Submittal Log capabilities enables teams to upload their spec book and get a submittal register log in a matter of minutes, all without mining data from the previous months or years of the project, or waiting on others to send it in.

- **Streamlined Review Process:** Teams can designate and control reviewer privileges to establish clear accountability and easily progress Submittals through the workflow with the click of a button.

- **Increased Visibility:** At a glance, view which Submittal items are upcoming or overdue. Use this information to prioritize, follow up, and get towards ordering the materials needed to begin construction.
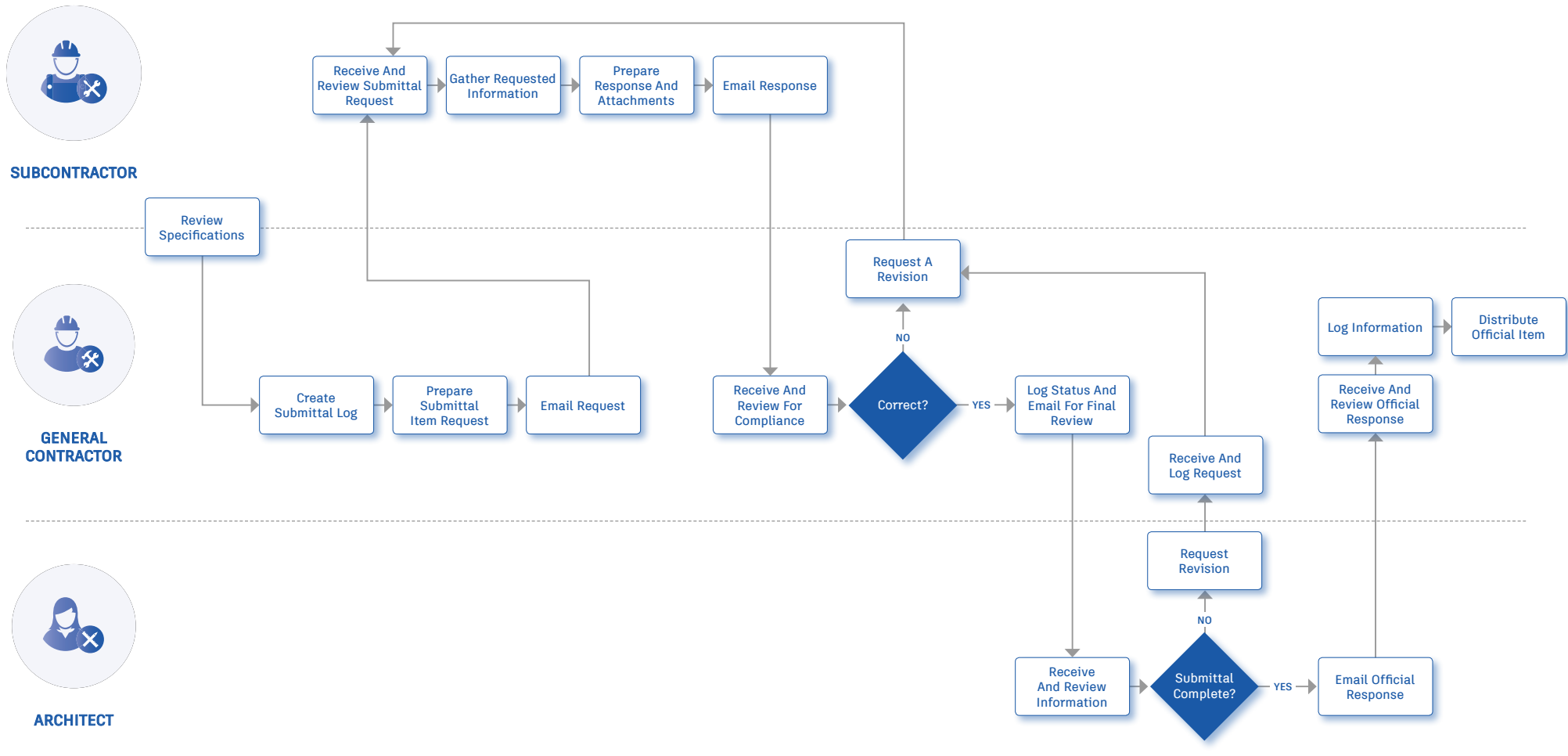
- **Instant Submittal Distribution:** Ensure zero delays by distributing approved Submittals to the entire team with a single click to ensure that the team is building with the correct materials.

- **Centralized Information:** Manage all submittal items in a single document library, ensuring data isn't lost, and teams can easily access the information they need when they need it.

Traditional Submittal Process

Complex · Lengthy Process · Siloed · Limited Visibility · Higher Risk of Missing Data · Restricted Visibility

SUBCONTRACTOR

Receive And Review Submittal Request → Gather Requested Information → Prepare Response And Attachments → Email Response

GENERAL CONTRACTOR

Review Specifications → Create Submittal Log → Prepare Submittal Item Request → Email Request

Request A Revision

Receive And Review For Compliance → Correct? → NO → Request A Revision / YES → Log Status And Email For Final Review

Receive And Log Request

Log Information → Distribute Official Item

Receive And Review Official Response

ARCHITECT

Receive And Review Information → Submittal Complete? → NO → Request Revision / YES → Email Official Response

Cloud-Based Submittal Process

Automated · Clear Accountability · Improved Accuracy · Automatic Date Tracking · Real-Time Status Visibility · Collaborative
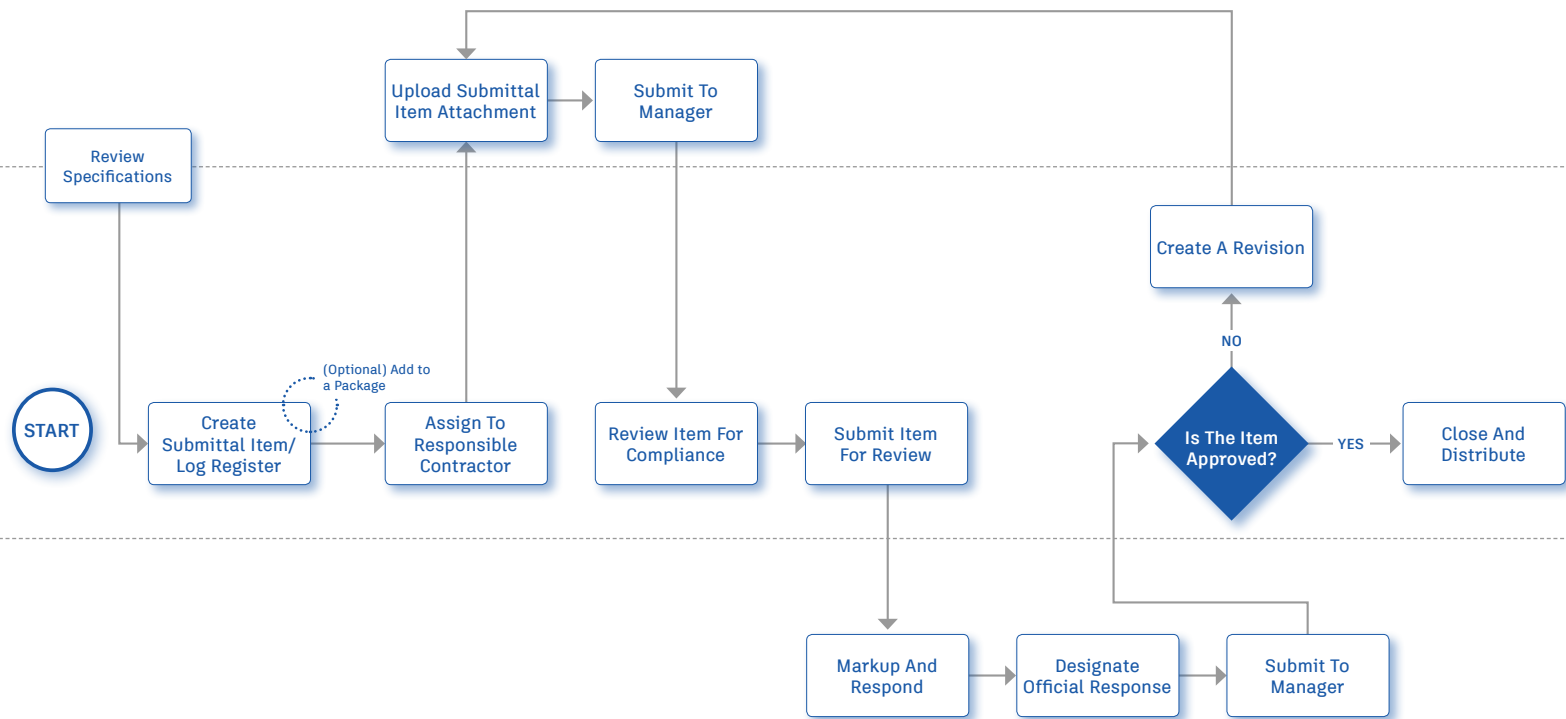
RESPONDER

SUBMITTAL MANAGER

REVIEWER

Review Specifications

Upload Submittal Item Attachment

Submit To Manager

Create A Revision

START

Create Submittal Item/ Log Register

(Optional) Add to a Package

Assign To Responsible Contractor

Review Item For Compliance

Submit Item For Review

Is The Item Approved?

NO

YES

Close And Distribute

Markup And Respond

Designate Official Response

Submit To Manager

Cost Management

Cost management is a complicated dance between numbers, schedules, clients, and vendors. Contractors often have to balance conversations between owners, stakeholders, subs, and inspectors. Add in the budgetary concerns that plague every project, and it can feel like a constant battle of putting out fires.

Project managers and engineers often have to navigate information silos, which increases risk due to outdated or missing information, unreliable response times, and convoluted processes involving various vendors, systems, and products. With data saved in multiple places, teams can't easily view the financial health of a project or see historical cost changes. Finding efficiencies in cost management workflows can make all the difference in delivering a project on time and budget.

Efficient cost control is critical for projects to ensure balanced cash flow and confirm changes are accounted for and paid on time. And this can be accomplished with the adoption of a cloud-based construction management platform to manage all cost-related construction activities.

CLOUD-BASED PLATFORM BENEFITS FOR COST MANAGEMENT:

- **Real-Time Visibility:** Rather than referring back to static spreadsheets saved in different folders, switching to an integrated cloud-based cost management solution allows teams to have a real-time summary view of budget and cost items, contracts, and pay applications providing a clear picture of revenue, costs, forecast, and variance related to each item.

- **Detailed Cost Item History:** Using a single interactive platform for financial management allows teams to drill down to get

specific details on cost items and view an activity trail of actions that took place as it moved through the change order process.

- **Streamlined Change Management Process:** Making sure all of your spreadsheets are linked can be tedious. One small mistake can make a big impact if budget items are adding up incorrectly. With a cloud-based platform, teams can streamline upstream and downstream change order workflows, creating clear accountability with transparent tracking of all cost changes and impacts to the overall budget.
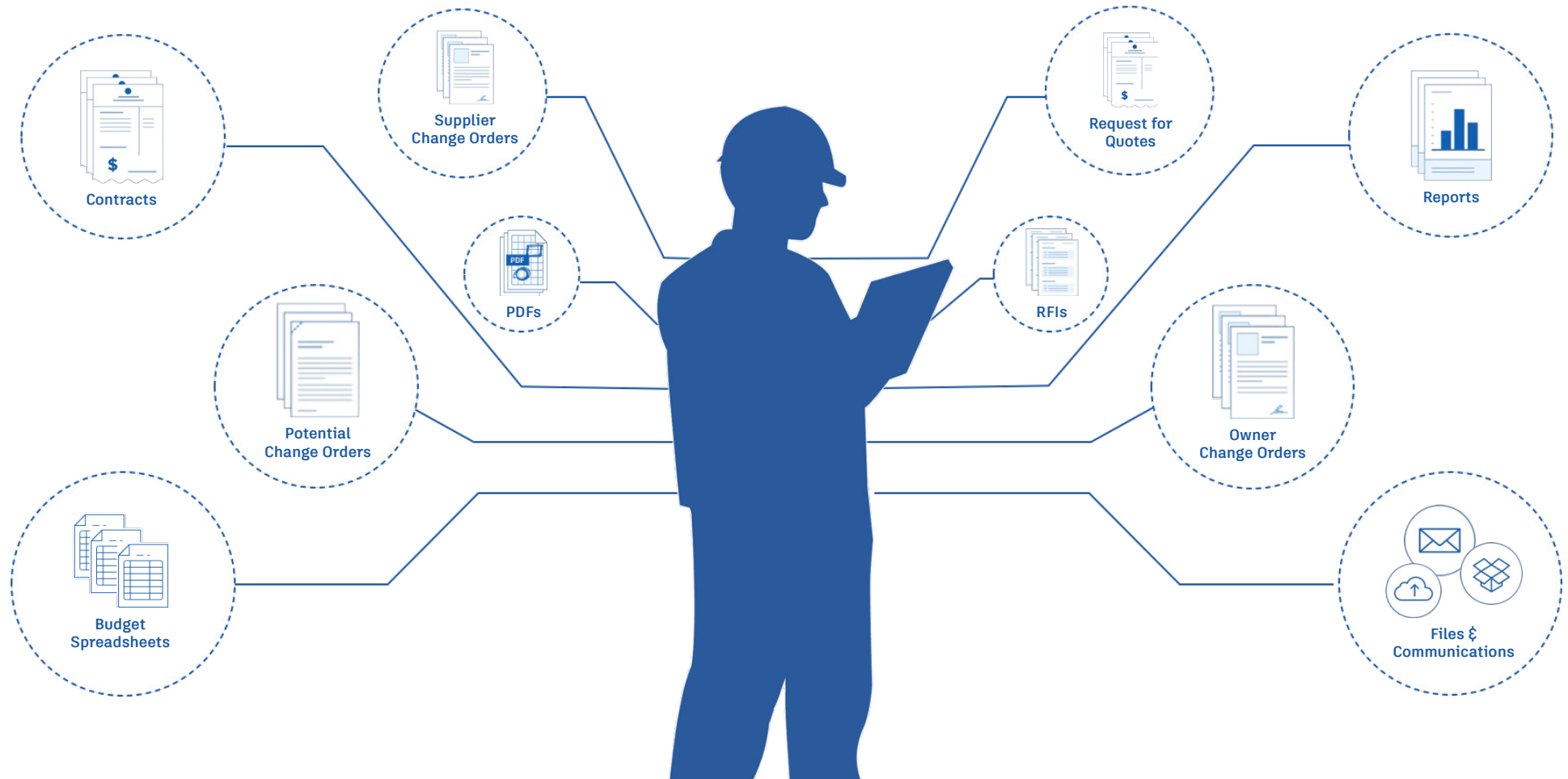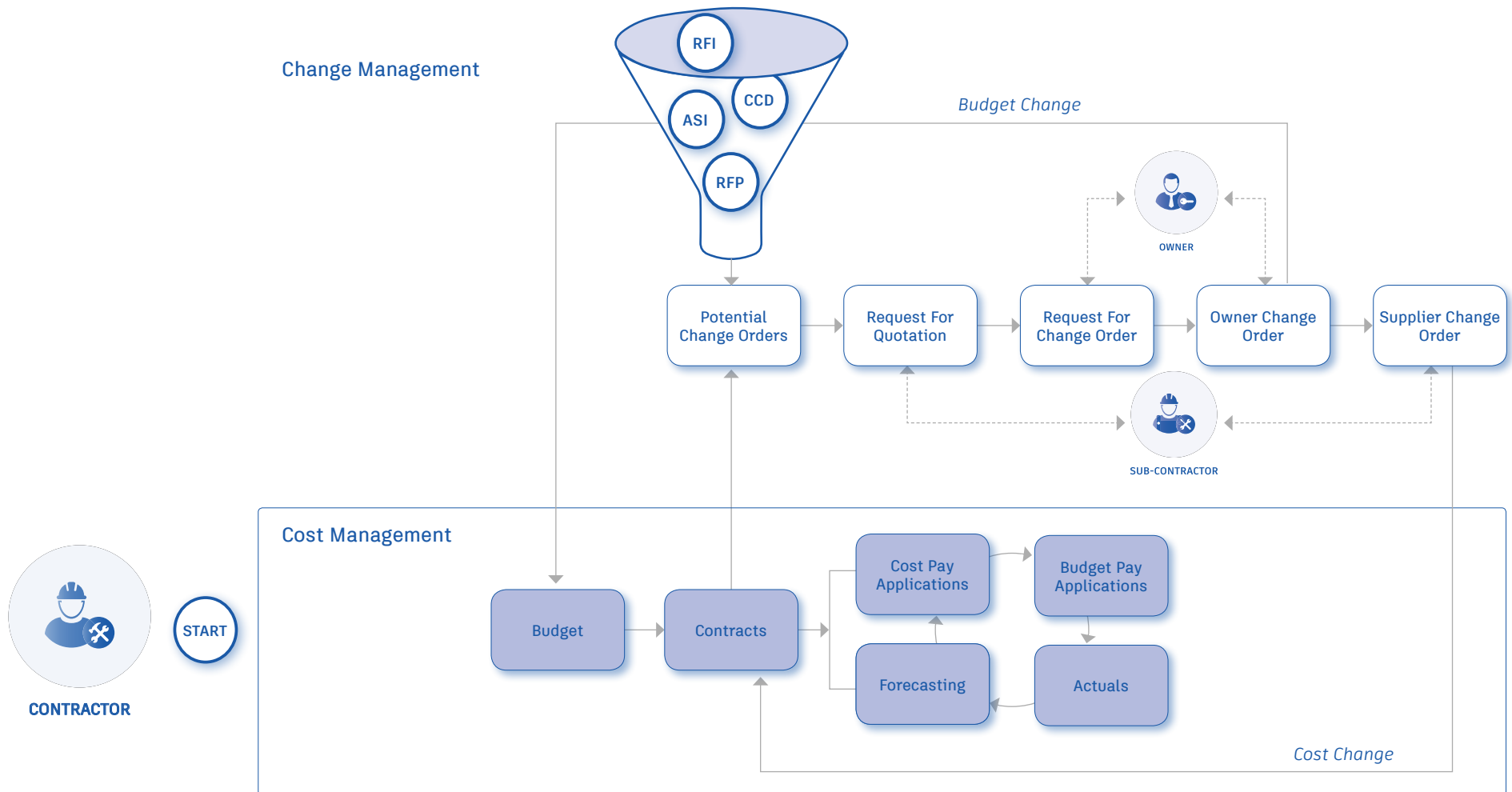
Traditional Cost Management Workflow

Complex · Siloed · Higher Risk of Error · Limited Visibility · Lack of Historical Reference · Multiple Point Solutions

Contracts

Supplier Change Orders

Request for Quotes

Reports

PDFs

RFIs

Potential Change Orders

Owner Change Orders

Budget Spreadsheets

Files & Communications

Cloud-Based Cost Management Workflow

Single Solution · Connected Data · Real-Time Financial Visibility · Transparency · Flexible · Visualized Cost Related Risk

Change Management

RFI

CCD

ASI

RFP

Budget Change

OWNER

SUB-CONTRACTOR

| Potential Change Orders | Request For Quotation | Request For Change Order | Owner Change Order | Supplier Change Order |

Cost Management

CONTRACTOR

START

Budget

Contracts

Cost Pay Applications

Budget Pay Applications
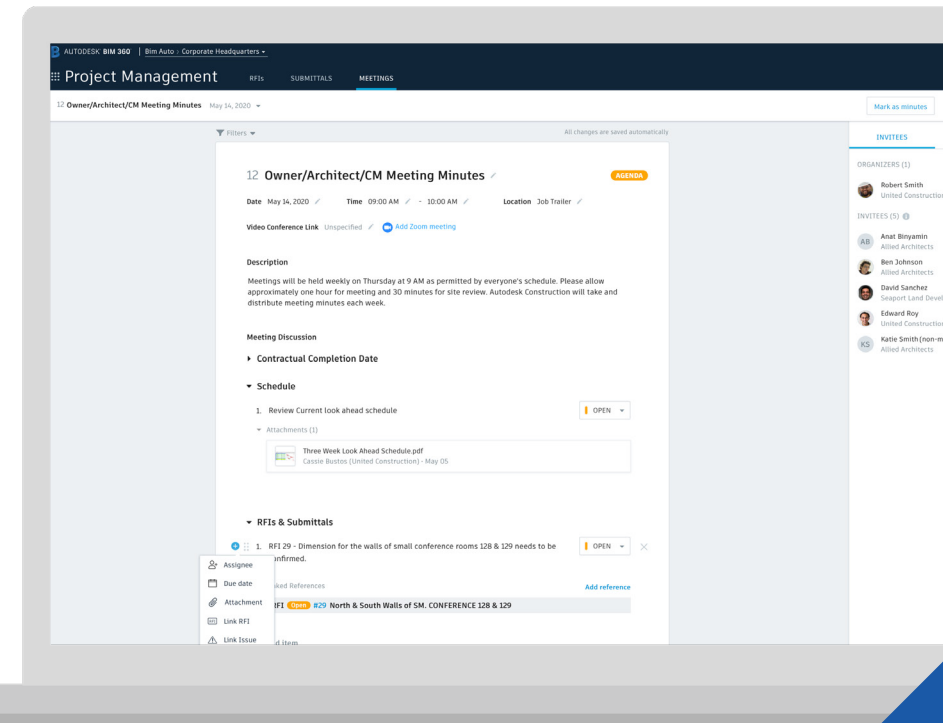
Forecasting

Actuals

Cost Change

Meeting Minutes

In all phases of construction, meetings are critical to the success of a project. They provide a time to collaborate by bringing multiple team members and stakeholders together to check in on action items, coordinate activities, and bring up issues to establish a plan for resolution. The decisions and plans made during the meeting must be accurately documented as meeting minutes serve as a record in case of future cost impacts or litigation. But without a standard agenda and meeting minute format, it's not uncommon for note-takers to miss something. If official minutes are only distributed via email, you run the risk of critical decisions going unseen, which can lead to delays in critical, actionable information being made available and solutions not being implemented during construction.

Adopting a cloud-based construction management platform can help teams keep effective meeting minutes. Robust meeting minute toolsets can help make meeting management effortless, provide clear visibility into the commitments made, and offer an organized and easily accessible history of all meeting records.

CLOUD-BASED PLATFORM BENEFITS FOR MEETING MINUTES:

- **Centralized and Accessible Information:** All meeting records are centralized, keeping an accurate historical record and providing meeting invitees with access to the information they need anytime, anywhere.

- **At-A-Glance Meeting Records:** Quickly view and identify the state of recorded meeting minutes and any association with other meetings.
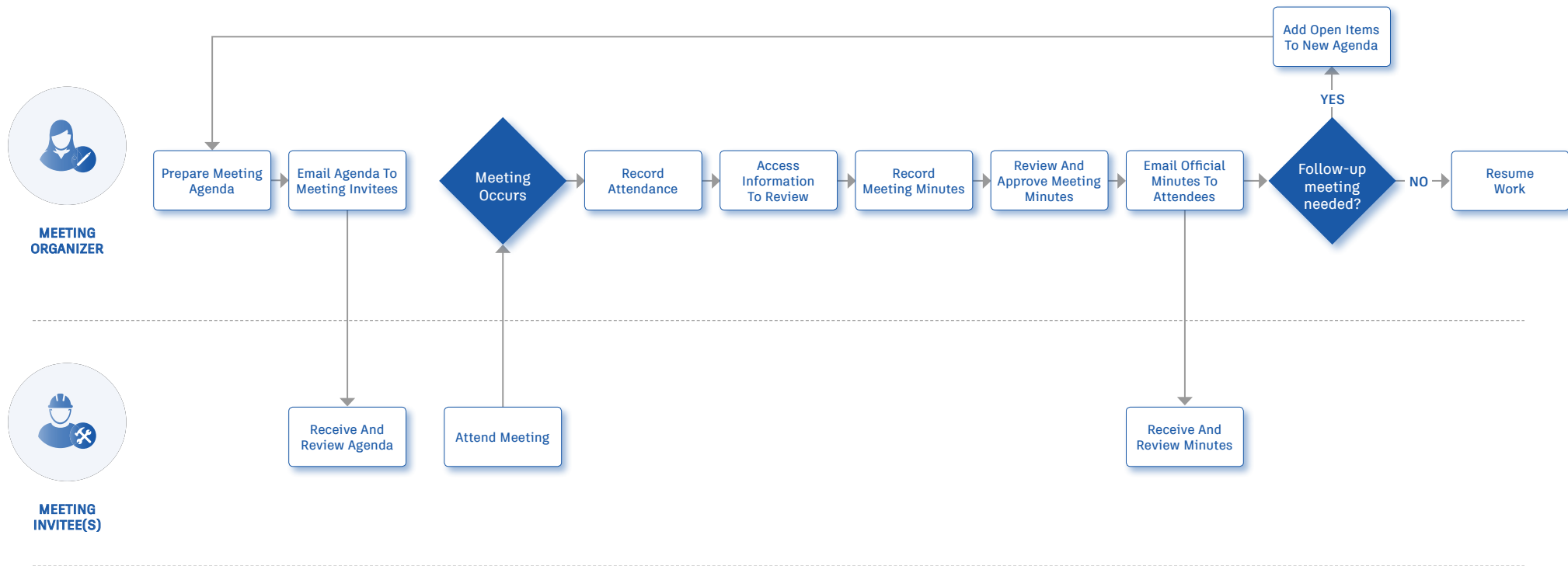
- **Increased Accountability:** Ability to assign specific action items to individuals and create a record of commitments in case of cost impacts or litigation.

- **Connected Data:** Increase accessibility to needed information by linking Issues and RFIs directly to meeting items.

- **Automation:** When a follow-up meeting is needed open items automatically carry over making it simple to track unresolved items from one meeting to the next.
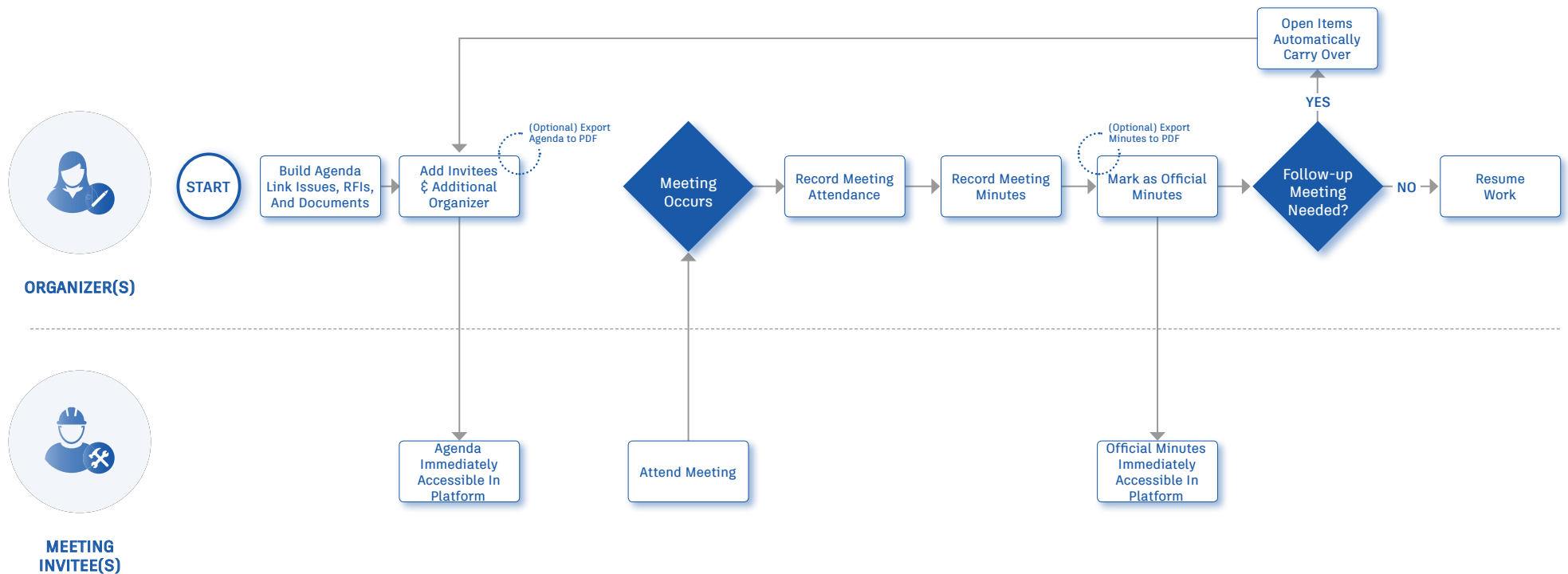
Traditional Meeting Minute Process

Manual · Risk of Information Loss · Risk of Lost Records · Tedious Meeting Follow-Up Creation · Not Easily Accessible

MEETING ORGANIZER

Prepare Meeting Agenda → Email Agenda To Meeting Invitees → Meeting Occurs → Record Attendance → Access Information To Review → Record Meeting Minutes → Review And Approve Meeting Minutes → Email Official Minutes To Attendees → Follow-up meeting needed?

Add Open Items To New Agenda (YES)

Follow-up meeting needed? → NO → Resume Work

MEETING INVITEE(S)

Receive And Review Agenda

Attend Meeting

Receive And Review Minutes

14

Cloud-Based Meeting Minutes

Effortless Management · Standardized Format · Centralized · Connected Data · Accessible · Automated Follow-Up Creation

ORGANIZER(S)

START → Build Agenda Link Issues, RFIs, And Documents → Add Invitees & Additional Organizer → (Optional) Export Agenda to PDF

Meeting Occurs → Record Meeting Attendance → Record Meeting Minutes → (Optional) Export Minutes to PDF → Mark as Official Minutes → Follow-up Meeting Needed?

Follow-up Meeting Needed? — YES → Open Items Automatically Carry Over

Follow-up Meeting Needed? — NO → Resume Work

MEETING INVITEE(S)

Agenda Immediately Accessible In Platform

Attend Meeting

Official Minutes Immediately Accessible In Platform
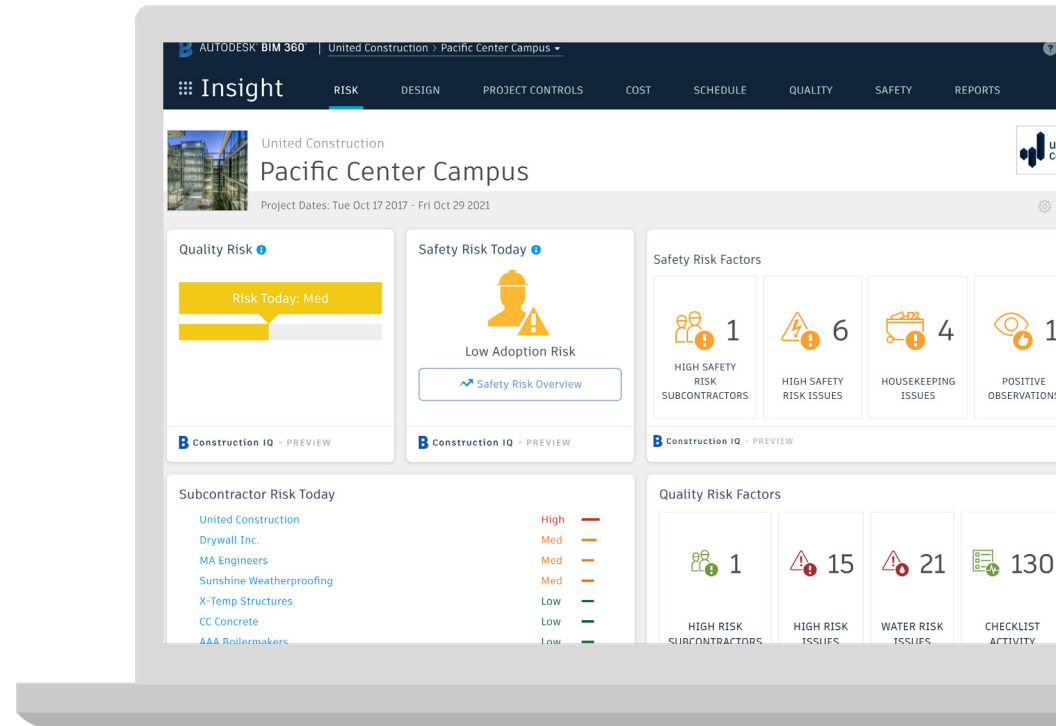
Reporting & Analytics

Simply digitizing and automating your existing tasks and workflows is not enough to drive real improvement in profitability or help minimize risk. But by adopting a single cloud-based platform to manage these workflows with robust reporting and analytic tools it will help deliver a deep understanding of project performance, prioritized daily activities, and instant visibility into root cause.

CLOUD-BASED PLATFORM BENEFITS FOR REPORTING & ANALYTICS:

- **Action Today:** See a personalized snapshot of a real-time "to do" list displaying information such as RFIs and Submittals assigned to you for review, helping to maintain clear accountability, move items through the process efficiently and eliminate the potential for conflicting responses.

- **Track project health:** Get a complete picture of project health by viewing overall project performance summary tables like overdue and upcoming RFIs and Submittals, Open RFIs by Current Assignment, and active versus closed RFIs.

- **Continuous Improvement:** Analyze company-wide performance data across multiple projects to make more informed business decisions and gain visibility into project risk.

- **Machine Learning and AI:** Leverage machine learning and AI functionality to identify and prioritize the construction risk that happens every day during project execution. Identify high-risk issues that have the potential to impact cost, schedule, quality, and safety. Evaluate subcontractor performance and predict potential risks on a day-to-day basis and for future projects. View risk patterns across projects to inform discussions with project teams and drive continuous improvement.

"Autodesk Construction Solutions give us visibility on risk and a higher degree of focus. Construction IQ is identifying the problems and constraints that now act as leading KPIs for BAM to identify hotspots, rather than relying on traditional construction intuition. We're having less reactive conversations with more emphasis on KPIs that can drive continual improvement. The simple visualization of the challenge or the issue alone helps us bring that focus."

Michael Murphy
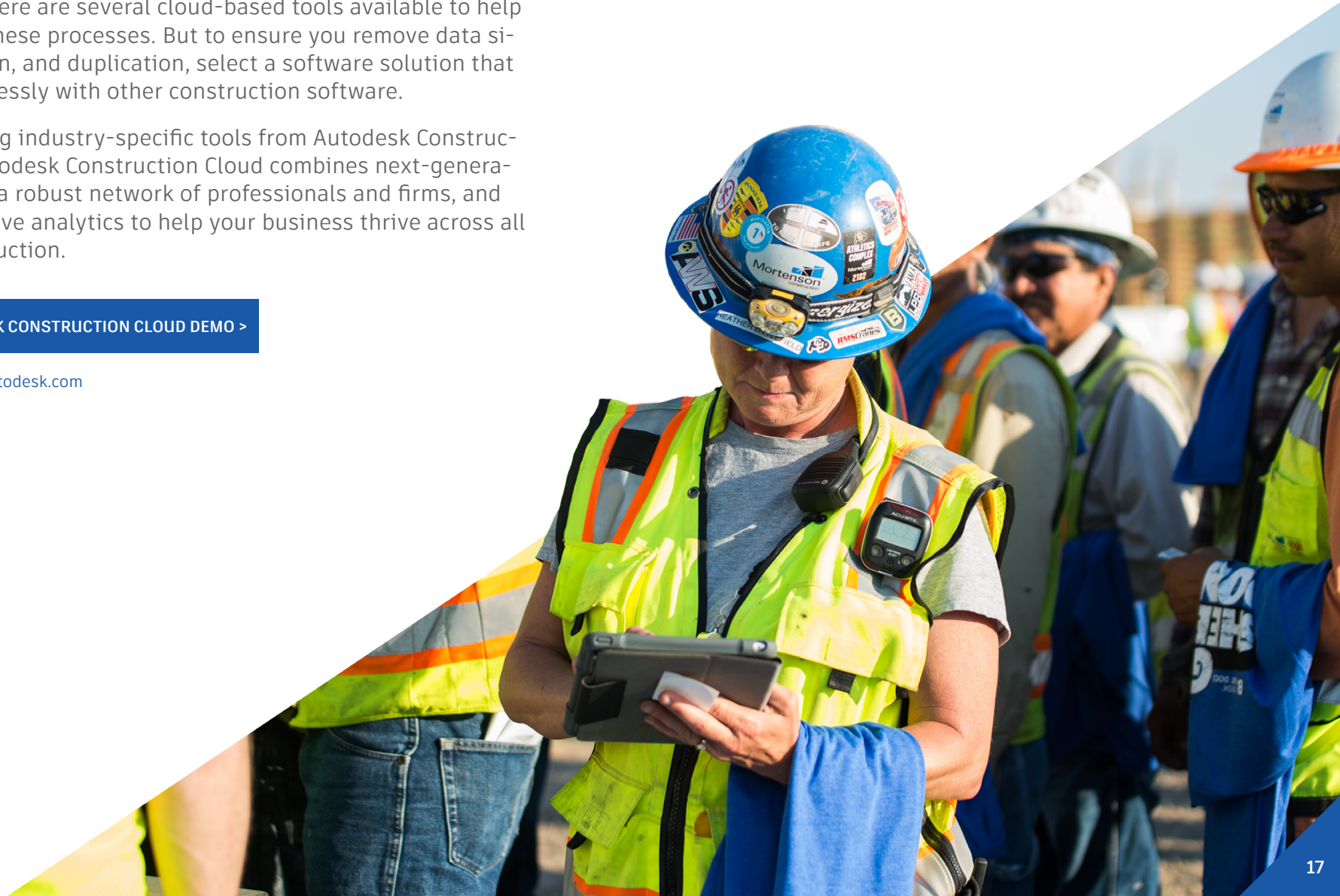**Digital Construction Operations Manager, BAM Ireland**

Conclusion

Using manual processes and disconnected systems for project management workflows is not only inefficient but runs the risk or error and data loss. There are several cloud-based tools available to help you streamline these processes. But to ensure you remove data silos, disconnection, and duplication, select a software solution that integrates seamlessly with other construction software.

Consider adopting industry-specific tools from Autodesk Construction Cloud™. Autodesk Construction Cloud combines next-generation technology, a robust network of professionals and firms, and powerful predictive analytics to help your business thrive across all phases of construction.

REQUEST A AUTODESK CONSTRUCTION CLOUD DEMO >

https://construction.autodesk.com

"

"PlanGrid has fundamentally improved the speed and quality of our communication on the jobsite unlike any tool I've ever used. The time and cost savings that it provides are noticeable within minutes of picking it up."

Brad Haygood
Project Manager, Teichert

"

"Creating submittals absolutely sucks... PlanGrid will find all of the submittals, organize them accordingly, and send them out for distribution across the entire duration of a project."

Durr Heavy Construction

"

"BIM 360's Project Management Module has given Danis the ability to invite clients into a more expansive open-book mentality and create strong partnerships with our design teams."

Aaron Phillips
Director of Virtual Design and Construction,
Danis Building Construction

"

"BIM 360 has brought CPPI an extended and centralized method for communicating RFI's and Submittals. Encouraging consolidated collaboration with Architects, Engineers, and Subcontractors under one platform has provided better organization, thus reducing the risk of missing key project information."

Brad Buckles
Director of Technology, CPPI

"

"Cloud-based software makes it easier for all construction stakeholders to collaborate more effectively, saving time and other resources."

JJ Rhatigan

"

"By implementing and using BIM 360, we have seen an enormous increase in information consistency and quality across the supply chain. Rework and cost of failure have been significantly reduced across all project stages."

Gert-Jan Ditsel
BIM Manager, Dura Vermeer

"

"PlanGrid's Advanced RFIs not only helps speed up the building process, but also shows me exactly what needs to happen to move the project forward."

Rob Winklepleck
General Manager, West Brothers Construction

"

"Every piece of construction related documentation is loaded into BIM 360 Docs. Plan, Drawings, Details, RFIs, sketches, the floor plan, everything is there and automatically hyperlinked."

KBE Building Corporation

"

"We still leverage spreadsheets but having a one stop shop allows us to have better insight into the history of specific cost items as well as reduces the amount of labor hours spent on cost tracking since all activities are housed under one user interface."

Brad Buckles
Director of Technology, CPPI

"

"The BIM 360 Meetings interface is very easy to understand; anyone can quickly get started. With features like auto-numbering and seamless follow-up creation, your meeting minutes are more consistent throughout the project."

Sam Arabia, CM-BIM
Director of Engineering & BIM Services, Torcon Inc.

"

"PlanGrid empowers our projects to become digital and connected, resulting in increased efficiency, collaboration, and profitability on the jobsite. It keeps our project team on the same page, moving in the same direction."

Dominic R. Spelich
Executive Vice President, VEC, Inc.

"

"Every piece of construction related documentation is loaded into BIM 360 Docs. Plan, Drawings, Details, RFIs, sketches, the floor plan, everything is there and automatically hyperlinked."

KBE Building Corporation

AUTODESK®

With Autodesk software, you have the power to Make Anything. The future of making is here, bringing with it radical changes in the way things are designed, made, and used. It's disrupting every industry: architecture, engineering, and construction; manufacturing; and media and entertainment. With the right knowledge and tools, this disruption is your opportunity. Our software is used by everyone – from design professionals, engineers and architects to digital artists, students and hobbyists. We constantly explore new ways to integrate all dimensions of diversity across our employees, customers, partners, and communities. Our ultimate goal is to expand opportunities for anyone to imagine, design, and make a better world.