The Cloud's Critical Role in Construction Cost Control

Learn how to improve profitability and reduce risks with cloud-based software.

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Streamlining Cost Management Workflows and Maximizing Returns with the Cloud

At the core of any successful construction project is effective cost management. You need it at every phase of the project, from planning and design to change orders, and to the final signoff on a project's completion.

Construction projects require a large cash flow with a high level of variability, making it difficult to predict total profits. Considering how many activities a general contractor juggles during every project—from managing continuous payments to dozens of subcontractors—having the right amount of cash on hand is critical. Ultimately, cash flow depends directly on the work put in place, which is directly tied to the schedule and the work that teams are getting done.

Without proper cost management, projects won't stay on budget and profits are jeopardized. However, with a robust set of cost management tools that are connected in the cloud, teams can control costs, get real-time visibility into financials, and forecast accurately. The ultimate reward—reducing financial risk and increasing profits.

However, ensuring that team members participate actively in this critical task isn't easy. Effective cost management requires that every stakeholder gets access to up-to-date information, which means you need really good data management. When teams and data are stuck in silos, you can't control cost and profit is sacrificed.

As construction becomes increasingly complex, dialed-in cost management practices become essential.
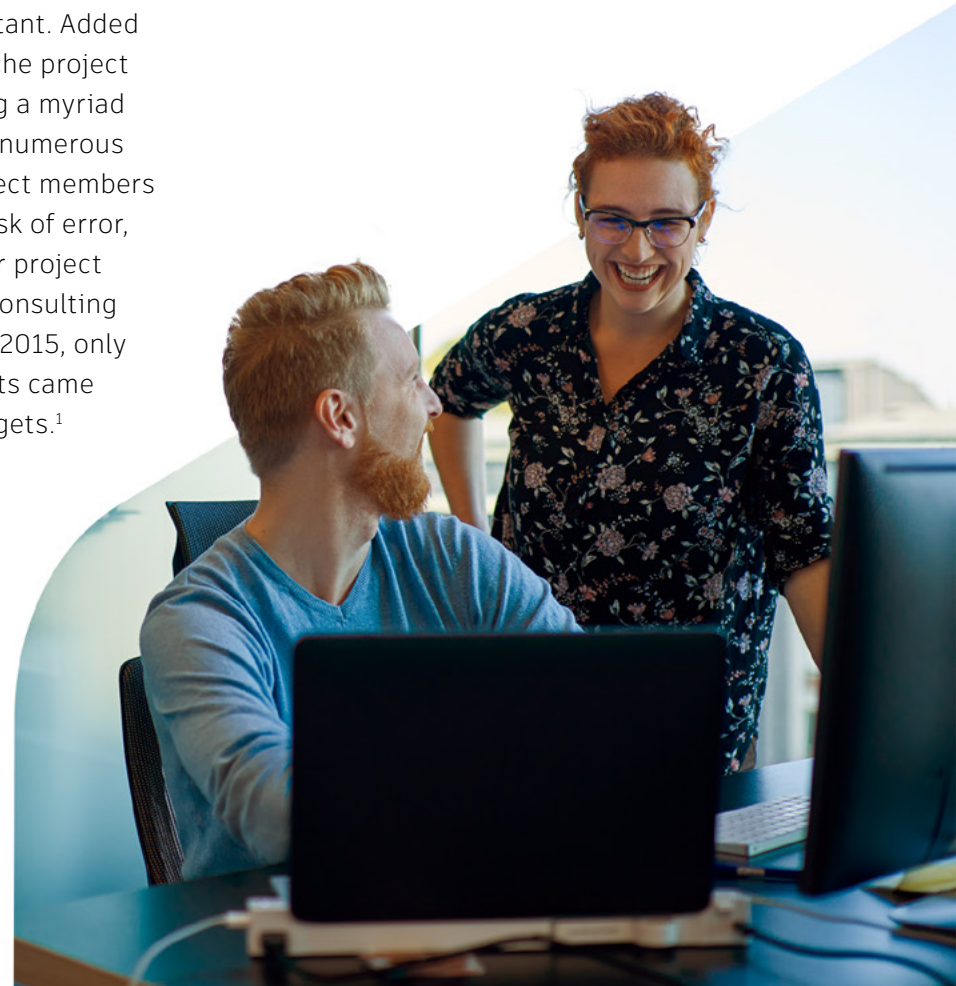
In this guide you'll learn:

- Why Cost Management Matters

- How to Overcome Common Cost Management Hurdles

- How a Real-Time Digital Platform Can Save the Day

- How to Avoid the Pitfalls of Technology Adoption

Why Cost Management Matters

From forecasting material costs to calculating overhead costs, cost management begins during preconstruction and continues until the project is finalized. Without the right strategy in place, cash flow is poorly managed and profits are minimal at best, nonexistent at worst.

In construction, the battle to keep costs as low as possible while ensuring quality and timely completion is constant. Added to this challenge is the headache project managers face when balancing a myriad of spreadsheets saved across numerous locations. In many cases, project members work in silos, increasing the risk of error, miscommunication, and higher project costs down the road. In fact, consulting giant KPMG estimates that, in 2015, only **31%** of all construction projects came within **10%** of their initial budgets.[1]

How to Overcome the Most Common Cost Management Hurdles with the Cloud

CHALLENGE:

No real-time visibility into financial health

SOLUTION:

Real-time access to up-to-date cost information

Linking all necessary spreadsheets can be arduous, if not impossible. One small budgeting mistake can have a massive impact. Rather than referring to various spreadsheets, an integrated cost management solution allows teams to centralize all cost activities in the cloud, providing an accurate view of project costs. Whether viewed on site or in the office, changes are made instantly, and everyone can view the real-time impact of a cost change.

Plus, as questions arise during construction, you can elevate an RFI to a potential change order to track the origin of changes easily. With the right tools, this can all happen in real time, ensuring a constant view of the financial health of a project.

CHALLENGE:
Documenting and tracking constant change

SOLUTION:
Streamlined and centralized change management

Properly managing contractually binding documents is critical. With an integrated platform, teams can seamlessly manage all aspects of the change order process. Streamlined upstream and downstream change order workflows create clear accountability and ensure company-defined processes are completed.

Teams can get a snapshot of all potential change orders—their type, scope, source, status, and cost-related impacts. Cost items can be associated with hierarchical build-ups, to detail the effects of a change and connect it to the budget and contracts. With a click, cost items are moved quickly through the change process, predefined markup configurations are applied, and documents are automatically generated for review or e-signature. Throughout the entire process, a detailed activity log is captured for audit purposes.

CHALLENGE:
Keeping contracts up to date

SOLUTION:
Centralize contract management to easily process payment

Any given project can have dozens of subcontractors/suppliers who require individual contracts, payment terms, and payment tracking. Staying on top of multiple spreadsheets and folders to manage contracts and track payment applications burns precious time. By switching to a comprehensive cloud-based platform, teams can leverage custom document templates to standardize and auto-generate contracts and payment documentation.

Teams can also streamline and manage incremental payment applications, tracking both pending against the total work to be completed, so it's easier to balance cash flow and make accurate forecasts. The data automatically updates, providing teams with a real-time view of the project's financial health.

CHALLENGE:

Connecting your schedule to your budget

SOLUTION:

Integrated schedule and budget management

With an integrated platform, teams can visually plan time-based allowances and align them with the overall project schedule. This type of cost management tool allows you to manage budgets and associated sub-items by adding start and end dates, ratios of time changed, associated unit costs and more, displayed in a Gantt chart.

CHALLENGE:

Disconnect between accounting and operations

SOLUTION:

Integrating accounting and cost managements

A software platform that integrates your existing tools means that the right data will move freely from ERPs and other project management tools into your cost management solution. This eliminates the need for duplicate data entry, removes the risk of human-generated mistakes, increases transparency to needed information, and streamlines workflows.

An integrated cost management solution can also address the following issues:

- Cost activities being tracked in siloed systems resulting in a need to rely on others to update information for an accurate view of profitability

- Poor change management processes that lead to unreimbursed costs

- Forecasting with out-dated information leading to inaccurate reporting of risk

- Unpredictable cash flow

- A cumbersome process to generate reports and check data

- Limited or no visibility into the status of change orders or payments

How Cloud-Based Software Saves the Day for Commercial Construction

A key to improving cost management is adopting technology that offers access to real-time data that is up to date in a single location. A cloud-based platform like Autodesk Construction Cloud allows construction teams to work from anywhere at any time on the same project, with all cost activities managed in one place.

Through user-, role-, and company-based permission levels, teams can easily control who has access to specific information. Suppliers and owners can even be brought into the system to increase collaboration and streamline workflows. This allows suppliers to review their initial contracts, create their schedule of values, review their pay applications, and view their change orders directly within the platform.

The right technology also allows teams to adapt the system to their specific needs. Find a solution that does more than let you customize the budget structure. Look for technology that also enables you to:

- Customize terminology within the system

- Create custom calculated budget columns to incorporate within the budget summary view

- Configure multiple project level financial markups

- Standardize documentation with custom document templates

- Save views

- Customize reports

- Create custom approval workflows to automatically route contracts, change orders, and payment applications for internal review based on specific conditions

Additionally, technology can automate repetitive processes. With an integrated platform like Autodesk Construction Cloud, teams can generate potential change orders from issues and RFIs to easily track the origin of changes. With the click of a button, change orders can be moved through the approval process, generating contracts and documents faster.

Finally, by centralizing the management of all cost activities in the cloud, data is connected and auto-updated across a single platform, providing an accurate view of the project's financial health in realtime. Cost-related risk is highlighted, and teams are able to forecast more accurately through every stage of the project.

The result is that teams achieve a more predictable cash flow and profitability projections, increasing profit margins.

Key Workflows for a Successful Cost Management Strategy

Construction cost management workflows help control cost and confirm all changes are accounted for and managed effectively to maintain positive cash flow, reduce risk, and maximize profits.

This graphic outlines cost management workflow and provides a real-time summary view of all budget items and contracts while streamlining upstream and downstream change order workflows. From budget management to contract management, from change order management to pay applications, forecasting and actuals, taking control of cost ends in increased profits and better managed, more efficient workflows.

Key Workflows for a Successful Cost Management Strategy (cont.)

Each of the following workflows is critical to the success of any project. With an improved cost management strategy, real profit increases can be achieved.

Budget Administration and Contract Creation

From the earliest stages of any project, a single platform can streamline cost management. The right technology can improve budget and contract management when it can do the following:

- Customize budget structures that work with any accounting system and work breakdown structure

- Import the master budget list

- Rearrange, rename, or create custom calculations within budget columns to show the most critical information

- Supports custom tax calculations

- Auto-generate contracts and other documentation using custom document templates

- Compile appendices from multiple locations into a single package

- Easily create and manage prime contract(s) and supplier contracts

- Define the schedule of values from the budget and create connections between the main contract and supplier contracts

- Connect multiple main/prime contracts to the budget

- Support custom workflows to automate the internal review and approval routing of contracts based on specific conditions

- Streamline invoice and expense management by linking accounting/ERP systems

- Generate Excel-like summary views for easy data consumption

- Update data across the platform automatically for clear visibility into cost-related risk

- Make forecast adjustments, track actuals, and leverage custom columns to more accurately project cost to complete, final cost, and variance

- Define user-, role-, and company-based permission levels

Key Workflows for a Successful Cost Management Strategy (cont.)

Change Orders

Effectively managing change orders is critical to controlling project costs. A single platform that includes the following capabilities allows for better change order management and alleviates the risk of error:

- Centralized management of all aspects of the change order process with streamlined upstream and downstream workflows that create clear accountability

- Supports custom financial markups

- Provides an at-a-glance view of all potential change orders—their type, scope, source, status, and cost related impacts

- Associates cost items with hierarchical build-ups to detail the effects of a change and connects to budget items and contracts

- Supports the creation of a potential change orders from Issues, RFIs, and Submittal Items—increasing access to critical information

- Ability to auto-generate documents needed during the change order process

- Automatically syncs approved change order data into the budget summary view and relevant payment applications

- Supports custom change order terminology to align with your company or project standards

- Sends requests for quotes to validate the cost impact of change orders to suppliers directly from the system

- Supports the ability to send a request for a quote to multiple suppliers in a single, simple workflow

- Groups suppliers into cohorts to simplify the process and ensure the right suppliers are notified

- Supports custom workflows to automate the internal review and approval routing of change orders based on specific conditions

- Streamlines workflows and enhances collaboration with owners and suppliers by bringing them into the system to review and approve specific information

Key Workflows for a Successful Cost Management Strategy (cont.)

Payment Applications

Managing payment applications can be complex. However, technology can help alleviate the pain by:

- Managing owner and supplier payment applications in a single integrated system

- Easily creating primary contracts and automatically generating the Schedule of Values from selected budget items, creating a connection to supplier contracts

- Defining billing periods to manage incremental payment applications easily

- Visualizing and tracking supplier payments against total work to be completed

- Auto-generating standard payment documents

- Quickly collating all supplier payment applications, change orders, and back-up sheets for each billing period to provide the foundation for the owner payment application

- Automatically incorporating approved change orders into relevant payment applications

- Providing a summary view of statues with the ability to generate reports and export data to Excel

- Streamlining workflows with owners and suppliers by bringing them into the platform for review and approvals

- Providing custom approval workflows to automatically route payment applications for review based on specific conditions

Forecasting

A critical component of cost management, forecasting is an ongoing task, requiring accurate, real-time data to ensure success. Choose a platform solution that offers the following to improve forecasting:

- Centralizes all cost management activities in the cloud enabling the ability to forecast with the latest data

- Supports an integration with accounting softwares to ensure actual cost data automatically flows between the field and accounting

- Budget summary that automatically updates, providing a real-time view of actual costs compared to planned

- Connects schedule tasks to budget items. Allowing time-based allowances (e.g., General Conditions) to be visually planned alongside the schedule and in the same system as all other cost activities

- Visual distribution of budget items using built-in curves and a dynamic time-versus-money chart to visually represent project-level cash flow analysis for better tracking

- Custom calculated columns to tailor the system to meet teams needs

Conclusion

It is easy to see why switching to a cloud-based solution benefits the cost management process. However, to ensure that the adoption of a new system is successful, choosing the right system is vital. The following pointers will help guide teams as they look to improve their cost management workflow through implementing new technology:

1. Look for technology that will become a single source of truth. Rather than having multiple spreadsheets saved in different locations, a common data platform allows teams to centralize cost data in one place, accessible anytime and anywhere.

2. Look for technology that connects all systems. A cloud-based platform with an open API allows for integrations to other cost applications and connects with other construction workflows.

3. Look for a flexible solution. Many teams default to using Microsoft Excel because they can easily customize fields and equations to meet their needs. This flexibility also needs to be built into any new technology adopted, allowing budget codes, hierarchical buildups, and custom segment options to be customized.

4. Look for technology that improves collaboration. Unlike static spreadsheets or outdated desktop software, anyone on the team must have real-time access to the financial health of a project to make well-informed decisions.

5. Look for technology that is secure. An integrated cloud platform like Autodesk Construction Cloud allows teams to set user permissions, ensuring that only the right people have access to the information they need.

Technology is leading cost management in construction to a better place. Through software solutions like Autodesk Construction Cloud, teams can more accurately track costs, predict risks, and ensure effective collaboration across key stakeholders. The end result is increased profits—the ultimate goal of any construction professional.

References

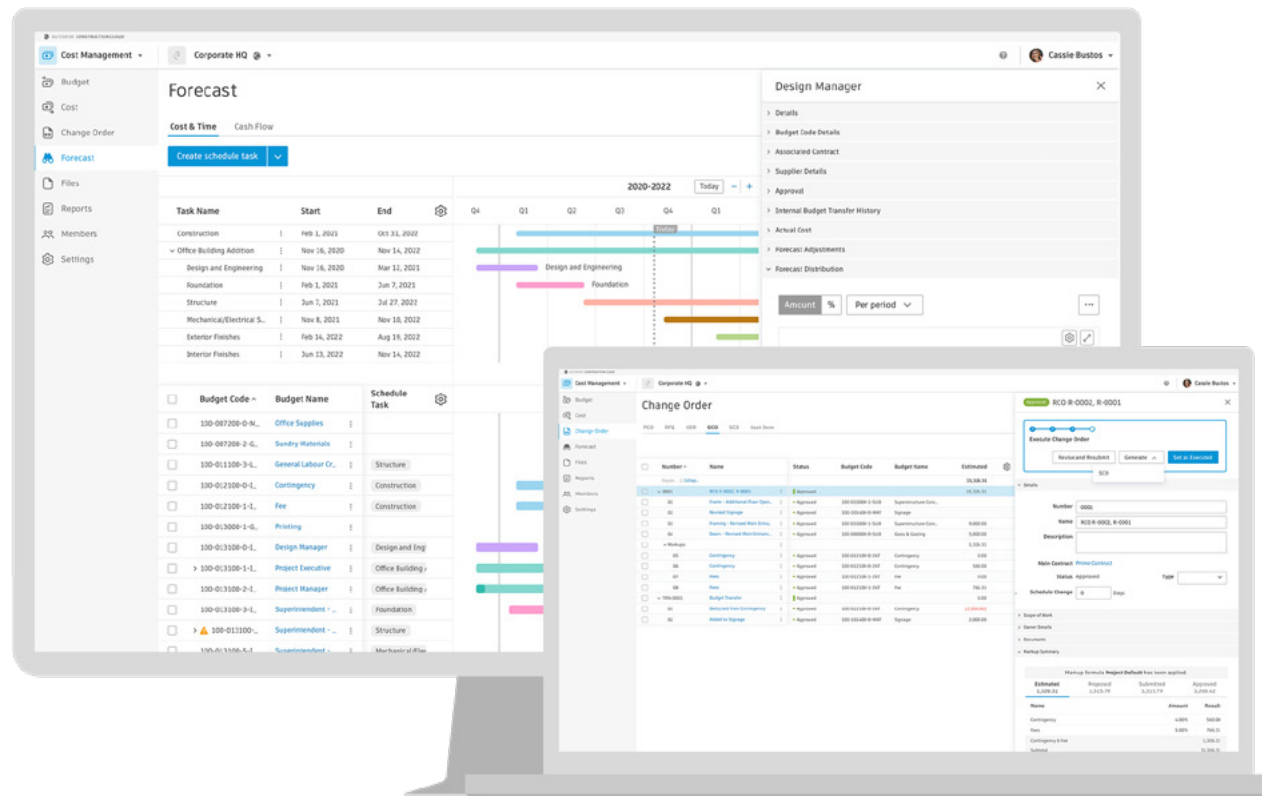[1] **KPMG Global Construction Survey**
KPMG International, 2015

See the Future of Construction
construction.autodesk.com

Our industry requires solutions that connect their information, teams, and technology —breaking down data silos and disconnected processes that hinder true transformation. As we navigate the ever-present push to do more with less, we need to uncover new ways of working, enhance connected digital workflows, and incorporate advanced analytics. To support us on this journey of transformation, we must lean into tools that connect construction — from design to plan, build, handover, and operations.

Built on a unified platform and common data environment, Autodesk Construction Cloud is a powerful and complete portfolio of construction management products that empowers general contractors, specialty trades, designers and owners to drive better business outcomes. Autodesk Construction Cloud combines advanced technology, a unique builders network and predictive insights to connect teams, workflows and data across the entire building lifecycle.

While the industry experiences unprecedented transformation, our mission remains the same: to help construction teams meet the world's rapidly expanding building and infrastructure needs while making construction more predictable, safe, and sustainable. And we've remained steadfast in our promise to deliver the industry's most compelling solutions, connecting data, teams and workflows from the field. This is our commitment to connected construction.

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