Hitachi Solutions

Microsoft

Optimizing Construction with App Integration for Unified Data and AI

Many construction companies are leveraging technology and digital tools to improve collaboration, communication, and reporting with their project stakeholders. This infographic highlights how modern data platforms that integrate applications can provide a single source of data that can be used to collaborate transparently and drive better project outcomes. We also share examples of how companies can take that collective data and use it to reap the benefits of generative AI.

Wrangling Construction Data is a Formidable Challenge

The abundance of data in construction can be both exciting and overwhelming. Construction projects involve a multitude of specialized systems each with its own set of data, that typically isn't centralized, unified or maintained for accuracy.

VALUABLE DATA LOST

30

Percent of initial data created during design and construction phases lost by project closeout

REWORK DUE TO BAD DATA

14

Percent of rework attributed to poor decision making due to bad data

LACK OF CENTRALIZED DATA

11.5

Number of hours management and supervisors spend per week analyzing and researching data

More Data and More Systems Make Integration Difficult

Most construction companies have multiple internal and external stakeholders and struggle to aggregate and share their data because it's typically stored in multiple systems and applications that don't talk to each other making use of existing data an impossible task.

> *The biggest challenge that we're overcoming, and we're working through it right now, is aggregation of all the different data sets and data models* - ***Construction Industry Leader State***

Data Abounds

- Cash Flow Forecasts
- Budgets and Profit Margin
- Financial Statements
- Percent Complete
- 2D drawings & 3D Engineering Data
- Project Documentation & Schedules
- Change Orders and Daily Logs
- Submittals & Requests for Information (RFIs)
- Asset Maintenance
- Materials & Equipment Information

What Companies Need

The best way is to adopt a solution and an architecture that empowers access to data and doesn't overly restrict it. A modern data management platform uses all the data an organization owns to accelerate informed and more accurate decision making. It's also the foundation for advanced analytics like AI and machine learning.

Democratization of Data

In a best-case scenario, an organization's entire data ecosystem would be available through a single portal. In reality the average organization currently uses five different systems to access their data. While some data is sensitive and must be protected, most data must be shared and made readily available for it to create value.

Seamless Integration of Project, Finance Data

Without streamlining project and financial systems, project teams are left guessing on forecasting and budget. When these systems are integrated, project teams can make budgeting and forecasting decisions based on actuals from the accounting team. Both sides are empowered to make better decisions.

Platforms that are AI-ready

To get the most out of construction data, using AI and machine learning (ML) to gain insights on modern data solutions and takes advantage of machine learning and large language models to generate more accurate forecasts of cash, labor, equipment, materials, and more. Because these processes can be run in real time, the information is always up-to-date.

Solutions that seamlessly integrate with existing networks and dynamically scale as needed bring peace of mind to concerned IT decision-makers.

A Centralized Data Platform Built for Construction Analytics and AI

Empower Data | App-to-App Data Exchange

Hitachi Solutions' Lumada Empower for Construction is a new kind of platform for engineering and construction organizations — an intelligence engine inside a data lake house. Through connectors to the popular and common construction software tools, it brings in project and scheduling data, along with the costing data and financial performance from your ERP system.

It doesn't matter what format the data is in (structured unstructured) and who needs the data (project teams, subcontractors, vendors), Empower can serve it up in integrated dashboards to all who need it.

The Empower Data Platform centralizes your AEC firm's data – from Procore and Autodesk, to SAP and Dynamics 365 – acting as your hub for app-to-app integration and reporting.

Empower Data Platform

How is Empower Different?

It takes care of all the technical plumbing so you can focus on revenue-generating activities

Cuts on average of six weeks of implementation time accelerating your time to insights

Outages? Don't worry Empower offers full-tier support so you're never scrambling to get back up and running

All data is deployed in your own tenant, you own your data, your data models and visualizations

Data Platforms Open AI Opportunities

Without a data foundation like Empower for Construction, AI can't happen. But when you have it, you can use to accelerate all kinds of time-consuming tasks, so teams can work on the tasks and projects that provide true business value. And it's all built with generative AI capabilities to take it another step forward.

1. Automating Specification Approvals

GenAI can summarize trade specifications, extracting the most critical information and highlighting key details and formatting them in a consistent, clear layout. This makes it easier for reviewers to quickly understand the key aspects of the specification, reducing errors and saving review and approval time.

2. Accelerating Sales Proposals

Proposal writing can be a huge time sink. AI can generate high-quality, personalized sales proposals and RFP responses based on customer data, previous interactions, and specific RFP requirements, as well as cover letters, summaries and narrative content.

3. Ensuring Worker Safety

Fewer accidents mean lower insurance premiums, reduced worker compensation claims, and less downtime due to injuries. AI-driven IoT devices and wearables can monitor GPS location, provide audio/video feeds, and alert workers and responders to developing hazardous situations.

Job Scenarios

$10,000,000	($2,741,692)
Contract Value	Cost to Complete
$3,991,692	$3,250,000
Earned Value to Date	Budget Spent
$750,000	$250,000
Approved EOT	Budget Approved EOT

Percent Complete vs Projected Target Complete

4. Making Change Orders Transparent

GenAI can analyze the impact of change orders on project timelines, budgets, and profitability and identify potential issues or missing information and generate comprehensive change order documentation based on project details and contract terms.

Outcomes

Improved Efficiency

Behind-the-scenes automation makes jobs easier as a helper for repetitive tasks, reducing the manual effort that employees spend searching for information and conducting their own analysis.

Reduced Risk

Increase awareness of potential pitfalls and figure out how to prevent problems arising. AI and machine learning can anticipate problems, measure their impact, and use predictive analytics to help you reduce risks.

Optimized Financial Management

Embedding AI in ERP systems can drastically improve financial functions: payments, expense management, forecasting, budgeting, receivables management, and financial close.

AI has the potential to increase the construction industry's profits by **71%** *by 2035.*

Discover how our integrated data solutions and AI tools can provide the visibility and insight you need to transform your construction projects.

Learn more about our data integration and AI services.

For over a decade, Hitachi Solutions has been working with construction organizations around the world to enhance their technological infrastructures. We can find a solution to help turn your project inefficiencies and expenses into opportunities for growth, increased cost savings and rising productivity.

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