

# FORVIS<sup>®</sup>



## **Construction Quarterly by FORVIS**

Streamlining Back-Office Operations:  
Harnessing the Power of Emerging Technologies

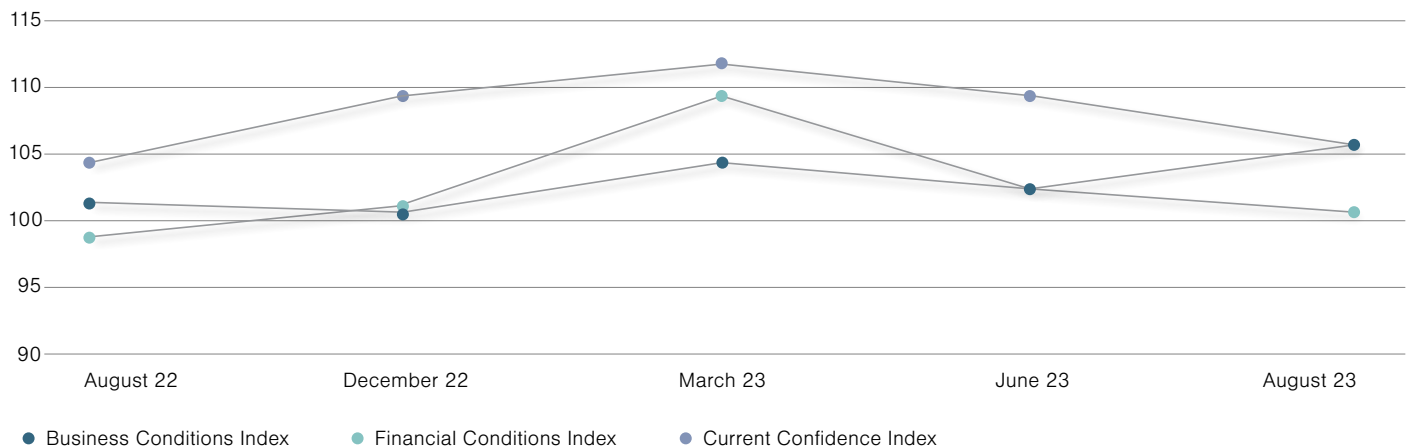
November 2023

Construction industry CEOs and CFOs know how difficult the last few years have been. Yes, jobs were often plentiful and government funding was flowing, but many of the pandemic-related difficulties persist to this day, from import bottlenecks to high materials prices to skilled labor shortages. Today, construction leaders are having to manage their businesses with fewer resources and at a higher cost, and there's seemingly no end in sight.

## What Is the Current Outlook for the Construction Sector?

Each quarter, the [Construction Financial Management Association \(CFMA\)](#) talks with financial professionals in the construction industry to get their take on the industry's performance and outlook for the future. Like last quarter, construction leaders are a bit uncertain. Though current-year sentiments are somewhat positive, construction leaders' faith in future financial and operational successes is continuing to fall.

### Year-Over-Year Confidence



SOURCE: <https://cfma.org/articles/wait-for-it>

A few of the trending concerns reflected in the CFMA survey results are:

#### Skilled Labor

As always, labor is a top concern for most construction CEOs and CFOs. They know that without a reliable workforce and access to skilled labor, even the most ideal projects can become a burden.

#### Political Environment

Right now, especially as interest rates rise and inflation remains a keen concern, state and local governments present a tricky path forward for contractors. Although many states have provided infrastructure funding since COVID, much of that funding is about to expire with no promise for future support from heads of state.

### Green Campaigning

We hear from construction leaders that they are keeping a close eye on environmental policies. One respondent from the CFMA survey said they expect “a push in public policy for more sustainable buildings and lower environmental impact of the construction process,” with another saying, “fossil free projects will drive costs substantially.”

### Project Uncertainties

Although there are projects out for bidding, contractors often feel like those contracts are out of reach. With overloaded backlogs, overextended resources, and supply chain bottlenecks, the success of projects can be uncertain.

Many contractors feel like they are treading water, and we get it; their efforts help them barely eke by. Fortunately, there are remedies. In fact, there may be a path forward that you hadn't yet considered, one that is not as difficult to implement as you might think.

## How Emerging Technologies Can Help Improve Efficiencies in Construction Companies

We have a prediction to make: A decade from now, we believe the most successful construction companies will be ones that were early adopters of emerging technologies. Robotics, artificial intelligence, augmented reality, autonomous equipment, and machine learning are the way of the future, and companies that embrace those technologies will be one step ahead of their competitors.

Why?

Because these types of technologies help improve efficiencies across the board, from back-office work to the jobsite and everything in between.



On average, companies lose **20-30%** of revenue each year due to inefficient processes<sup>1</sup>

<sup>1</sup> How Inefficient Processes Are Hurting Your Company



On average, workers spend **530 hours** annually on tasks that could be automated<sup>2</sup>

<sup>2</sup> How Repetitive Tasks Are Hurting Your Business



On average, **68%** of workers suffer from work overload in which they have too much to handle daily<sup>3</sup>

<sup>3</sup> Key Business Automation Statistics You Should Know

New technology has the potential to assist contractors in some of the following ways:

**1. Quality Improvement**

Developing technologies can perform tasks more accurately than humans, potentially reducing clerical errors.

**2. Speed**

Developing technologies can take over tasks that are repetitive and perform them in just a fraction of the time.

**3. Improved Functionality**

Developing technologies can free up personnel to do creative or value-added tasks rather than spend a portion of their workweek on processes that could be automated.

## Emerging Technologies in the Construction Industry

Next quarter, we will dig deeper into the developing technologies used on the jobsite, but currently we want to focus on technologies that can help improve the efficiency of your back office.

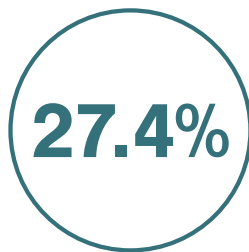
### Robotic Process Automation

Robotic process automation (RPA) is one of the easiest things you can implement, and it won't take much effort to get started. In fact, RPA is likely already integrated into your enterprise resource planning (ERP) software—you just need to know how to use it.

#### Tailwinds Insights, Automation, & AI Can Address



Return on investment over three years\*



Reduction of errors on average\*



Of all occupations have about 30% of activities that can be automated\*\*

Find high-volume tasks that yield low-value results

\*SOURCE: FORVIS analysis & The Total Economic Impact® of Microsoft Power Automate—Forrester 2020  
\*\*SOURCE: A Future That Works: Automation, Employment, and Productivity—McKinsey

But first things first: What is RPA?

RPA is software that emulates human actions by interacting with other systems and software. The user defines a set of instructions—typically following “if/then” protocols—that the software (or “bot”) performs. RPA is best at performing repetitive, computer-based tasks. These tasks can be seen as monotonous by your staff and drive down employee engagement.

Many types of businesses, not just those in the construction sector, are working to adopt RPA in their accounting and back-office functions. A few of the most common back-office tasks RPA software can help with are:

- **Payroll processing.** RPA can extract information from your employees’ timesheets and generate pay stub information. Once payroll is approved by management, RPA can then take that information and send it to your bank so that your employees are paid both timely and accurately.
- **Invoicing.** RPA can generate more accurate invoices in a fraction of the time it would take for a staff member to do the same task. It can take hours for employees to collect information from multiple supporting documents and summarize those line items on an invoice, but RPA can do it nearly instantly if it is given the right protocols to provide greater insight into your financial forecasts.
- **Accounts payable.** When invoices are sent to your office, RPA can read those invoices, review the request, input the data into your ERP system, and send them off for approval. This helps to reduce manual errors, speed up data handling, and provide an extra layer of fraud detection.

The remarkable thing about RPA is that it can be customized. A great need in the construction industry is better subcontractor management. RPA can step in and help. RPA protocols can update subcontractor lists with new contact information; organize and categorize subcontractor contracts; onboard new subcontractors; set up payment systems; collect lien waivers; etc. In general, any paper- or data-driven process can be simplified with RPA, which helps to reduce cost, improve decision making, and enhance overall efficiency.

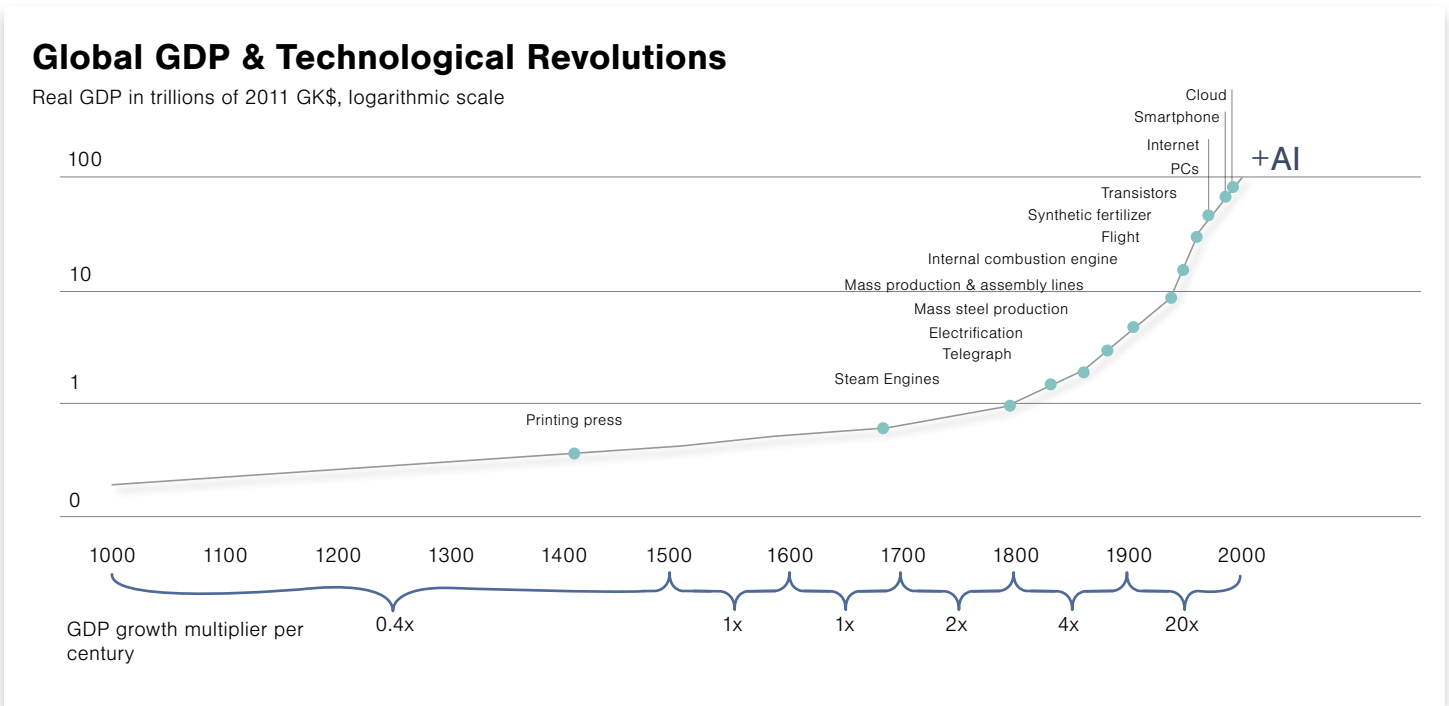
## Intelligent Process Automation

Intelligent process automation (IPA) takes RPA one step further by using machine learning.

While RPA only automates the tasks it’s programmed to perform, IPA uses machine learning to build its own programming. For example, consider how RPA and IPA would use optical character recognition (OCR) when reading invoices. You can program your RPA software to read an invoice using OCR and then categorize its findings according to an if/then protocol. IPA can do this same process without the if/then protocol. It would review how prior invoices have been read and categorized and then perform those functions on its own.

The traditional task-automation platform of RPA is a simple and easy way to improve back-office efficiencies, but IPA takes RPA one step further to drive productivity. For any paper-driven industry, like construction, that marriage of RPA and IPA may be a match made in heaven.

**Generative AI (Artificial Intelligence)**



World historical GDP figures source: University of Groningen. "Maddison Project Database 2020." May 2022. [www.rug.nl/ggdc/historicaldevelopment/maddison-project-database-2020?lang=en](http://www.rug.nl/ggdc/historicaldevelopment/maddison-project-database-2020?lang=en). Licensed under Creative Commons Attribution 4.0 International (CC BY 4.0): <https://creativecommons.org/licenses/by/4/0/>.

Generative AI has been all the rage this year and embraced and explored by nearly every line of business. ChatGPT, one of the most well-known generative AI technology companies, has certainly made its mark. Just two months after its launch, it reached 100 million monthly active users<sup>1</sup>. Businesses are even finding ways to use these powerful tools.

Generative AI is artificial intelligence software that’s able to generate new text, images, or other media using data that it’s given. ChatGPT, for example, will use deep machine learning to understand a question or prompt and then scour the internet to build sentences and paragraphs that emulate a human response. Generative AI for business uses this same concept of deep machine learning, but the information it’s given is often restricted. Instead of pulling data from any source on the internet, businesses tell the software to pull data from their archives. Let’s see how generative AI can help in the bidding process.

Construction businesses will only be successful if their bids are accurate. Generative AI can draft expense projections based on the business’s prior contracts and finances. This not only can save time, but it can remove human bias from the equation. Once the estimate is generated, construction leaders can then tweak the projections as needed.

<sup>1</sup> "ChatGPT Sets Record for Fastest-Growing User Base—Analysts Note," reuters.com, February 2, 2023

## Top Construction ChatGPT Use Cases

<b>Project Planning &amp; Management</b>	Assist in project planning by helping contractors with tasks like project scheduling, resource allocation, and task prioritization. It can generate project timelines.
<b>Cost Estimating &amp; Budgeting</b>	Estimate project costs by providing details about materials, labor, equipment, and other expenses.
<b>Regulatory Compliance &amp; Permits</b>	Keeping up with building codes, regulations, and permits is essential in construction.
<b>Material Selection &amp; Procurement</b>	Suggest appropriate construction materials based on project requirements, budget constraints, and environmental considerations.
<b>Safety &amp; Risk Management</b>	Develop safety plans, identify potential hazards, and recommend safety measures.

## How To Adopt New Technologies When Resources Are Already Strapped

These recent technologies are easier (and cheaper) to implement than you might think. RPA, for example, is likely already integrated into your ERP or accounting software; you simply must start using it. Reach out to your ERP software provider and ask them about their software's capabilities. They should be able to walk you through the basics and provide resources that can help you build customized tools.

Chatting with your software provider is a great first step, but they can only help so much. They may have knowledge of the software but are missing the business skill set to know how to enhance its functionality for your business. This is where technology consultants can come into play. Our construction consultants at FORVIS are familiar with the ERP systems commonly used in the construction industry and would be happy to help you use those technologies to their full potential. Our staff can even help build RPA tools external to your software, one that's more unique to your business or niche.

## What's Next?

Back-office technologies are only one piece of the puzzle. There are even more technologies you can implement on the jobsite. FORVIS' construction consultants keep tabs on innovative jobsite technologies and are excited to share what they've learned. Next quarter, we will examine how a handful of emerging technologies (drones, the internet of things (IoT), augmented reality, robotics, machine learning, etc.) can help improve efficiency on the jobsite. Sign up for our quarterly digest here or reach out to our consulting team to chat with one of our leaders one-on-one about your needs.

## Contributors

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