

BUILD vs. BUY

**Making the Right Choice
for Your Construction
Management Needs**

vitruvi

A woman with dark curly hair, wearing black-rimmed glasses and a dark blazer over a white top, is shown from the chest up. She has a thoughtful expression, looking slightly to the right. Her hands are clasped in front of her. The background is a dark, blue-toned image of a city at night, with various digital overlays. These overlays include a line graph with data points, a circular diagram, and various text elements like '14,687', '8,904', '2,653', '85-12-54-20', and 'YU-QI-pO-AW'. The overall aesthetic is high-tech and professional.



In the construction industry, managing projects effectively is the key to delivering successful outcomes. As construction projects grow in complexity, so does the demand for advanced construction management tools that can handle everything from project planning and scheduling to cost control and team collaboration. Construction companies often face a crucial decision: should they build their own custom construction management software or buy a comprehensive, ready-made solution?

This decision is not a simple one. Each option has its own advantages and challenges, and the right choice will depend on the unique needs of your business, your available resources, and your long-term goals. In this e-book, we will explore the things to consider in the build vs. buy decision making process, helping you make an informed choice for your construction management needs.

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01

Introduction

As construction projects become larger, more complex, and increasingly interconnected, construction companies need modern, reliable tools to ensure smooth operations. Project managers are tasked with juggling budgets, timelines, resources, and stakeholder communications, all while mitigating risk and ensuring compliance with regulations.

At the heart of these operations is effective construction management, which can drastically improve the efficiency, accuracy, and speed of project delivery. However, many construction companies are faced with a fundamental decision: should they build their own construction management system tailored to their unique processes and needs, or should they buy a ready-made, off-the-shelf solution?

This decision impacts not only your day-to-day operations but also your company's ability to grow, innovate, and stay competitive in the marketplace. This e-book explores the critical factors you must consider in deciding whether to build or buy construction management software.

The Build vs. Buy Debate An Overview

The build vs. buy decision is a well-known debate in the construction industry. It applies to a wide range of sectors but is particularly important in construction management, where custom workflows and specialized requirements often lead companies to consider whether building their own software is worth the investment.

In general terms, building your own software involves hiring a development team (either in-house or external) to create a fully customized solution that aligns perfectly with your company's processes. Buying involves purchasing an existing construction management software product that has been developed by a software provider. These solutions are typically configurable but not always fully customizable to the extent that a built-from-scratch platform might be.





Building Your Own Construction Management Software

Advantages of Building

When building your own construction management software, you have the ability to create a platform that is fully tailored to your specific needs. This can be particularly attractive if your company has unique workflows, complex project structures, or specialized reporting requirements that off-the-shelf software doesn't easily accommodate.

Some key benefits of building include:

Full Customization

Your team can design every feature to align with your internal processes, creating an exact match for your company's needs.

Control Over Development

You have complete control over the development process, which means you can prioritize the features that are most important to your business.

No Licensing or Subscription Fees

Once the software is built, you don't have to worry about recurring subscription costs or licensing fees associated with third-party software.



Challenges of Building

While building your own software offers customization and control, it also presents a host of significant challenges. Developing a construction management platform from the ground up is a complex, time-consuming, and resource-intensive process.

Here are some of the primary challenges associated with building:

High Upfront Costs

The initial cost of developing custom software can be prohibitively expensive, especially if you need to hire a dedicated development team with expertise in construction management. Even if you had an in-house developer, assigning them to build custom software means diverting their focus away from other critical projects and business needs, which can result in additional costs, delays, and missed opportunity.

Long Development Timeline

Custom software development often takes months (or even years) to complete. During this time, your company may not have access to the necessary tools, which can slow down project execution.



Lagging Behind Technology Advancements

By the time you build your own software, it's fully developed, and operational you may already be behind the curve, missing out on innovations like AI, machine learning, etc. that have advanced significantly during your development process timeline.

Ongoing Maintenance

Building software is not a one-time investment. You will need to continually update and maintain the platform, fix bugs, implement security patches, and ensure that the software scales as your business grows.

Risk of Failure

Many software development projects fail to meet expectations due to unforeseen technical challenges, evolving requirements, or changes in business priorities.

Buying a Comprehensive Construction Management Solution

Advantages of Buying

When you purchase a comprehensive construction management solution, you are investing in a platform that has been developed, tested, and refined over time by a dedicated software vendor. These solutions are designed to meet the needs of a broad range of construction companies, and they typically include a wide range of features out of the box, and can also be further customized to meet your specific business needs.

Here are some of the key advantages of buying:

Faster Implementation

Off-the-shelf software is ready to use, so you can start implementing it within weeks, rather than a longer time period for custom development.

Lower Upfront Costs

While you will need to pay licensing or subscription fees, the initial cost is usually much lower than building your own software from scratch.

Continuous Updates

When you buy software from an experienced software provider, you benefit from regular updates, new features, and security enhancements—all without the need for in-house development resources.

Proven Reliability

Established construction management solutions have been tried and tested by other companies, so you can trust that they are reliable and effective.

Challenges of Buying

Despite the benefits, buying a comprehensive solution is not without its challenges. Some of the potential drawbacks include:

Less Customization

While many software solutions allow for configuration, they may not offer the level of customization your company needs, forcing you to adapt your processes to fit the software.

Licensing Fee

Subscription-based software comes with ongoing costs that can add up over time, especially if you have a large number of users.

Vendor Lock-In

Once you commit to a particular software vendor, it can be difficult and costly to switch to another platform if your needs change.



The Importance of User-Friendly Interfaces and Good User Experience

Whether you choose to build or buy your construction management software, one thing is certain: a user-friendly interface and a good user experience (UX) are essential for the software's success. In construction, where project teams are often made up of individuals with varying degrees of technical proficiency, software must be intuitive and easy to use.

A complicated or poorly designed interface can lead to frustration, reduced productivity, and even a reluctance to use the software altogether. On the other hand, a well-designed user interface (UI) and UX can improve adoption rates, streamline workflows, and enhance overall project efficiency.

Simplicity

The software should be easy to navigate, with clear menus, icons, and instructions.

Accessibility

Users should be able to access the software from a variety of devices, including smartphones and tablets, to accommodate on-site teams.

Training and Support

A good software solution will offer training materials, tutorials, and customer support to help your team get up and running quickly.

Scaling Challenges:

Why Custom Software Development Isn't Always Scalable



As your construction business grows, so do the demands on your software. What works for a small company managing a handful of projects may not work for a larger company handling dozens of projects simultaneously. This is where scalability becomes a key consideration in the build vs. buy debate.

Scaling challenges arise when custom-built software struggles to handle increased workloads, additional users, or more complex data sets. Without the infrastructure and resources of a dedicated software provider, scaling custom software can be costly and time-consuming.

For example, if your custom software was not designed to handle the complexities of large-scale construction projects, you may need to invest in additional development to add new features or improve performance. In contrast, buying a software solution from an established provider often means benefiting from a platform that has already been optimized for scalability.

Systems Integration

When considering building your own construction management software, it's crucial to account for the need to integrate with various existing systems, such as GIS, billing, and enterprise resource planning (ERP) tools. These systems play a vital role in your business's daily operations. Failing to incorporate seamless integration into your other software systems can lead to inefficiencies, and data silos, ultimately slowing down project execution and decision-making processes.

If you opt to build your software in-house, your team will not only need to develop the core functionality but also take on the additional challenge of creating and maintaining integrations with all of these external systems. Each integration requires dedicated resources, specialized expertise, and ongoing maintenance to ensure compatibility as those external systems evolve. This can significantly lengthen the development timeline, divert valuable resources, and introduce more points of failure that could impact the stability and efficiency of your operations.

In contrast, purchasing a ready-made construction management solution with open APIs and pre-built integrations can alleviate these concerns. These solutions are often designed with interoperability in mind, making it easier to connect to existing systems without the need for extensive custom development. By leveraging a platform with proven integrations, your team can focus on core business activities instead of managing complex technical integrations, ultimately saving time, reducing costs, and ensuring smoother operational workflows.

These solutions are often designed with interoperability in mind, making it easier to connect to existing systems without the need for extensive custom development.



Integrating AI

The Future of Construction Management

Artificial intelligence (AI) is transforming industries across the board, and construction management is no exception. AI-powered tools can help construction companies improve decision-making, optimize resource allocation, and predict potential project delays or cost overruns. For example, AI can analyze historical project data to identify patterns and trends that may indicate future risks.

However, integrating AI into construction management software is no small feat. It requires expertise in machine learning, data science, and software engineering. Companies that choose to build their own software may struggle to integrate AI effectively without the help of experienced professionals.

Buying a software solution that already includes AI capabilities can save your company significant time and money. Many construction management platforms now offer AI-powered features such as predictive analytics, automated reporting, and smart scheduling, allowing you to take advantage of cutting-edge technology without needing to build it yourself.

Why Expertise in AI is Critical

AI is a rapidly evolving field, and successfully integrating AI into construction management software requires specialized knowledge. For companies that choose to build their own software, finding professionals with the necessary expertise can be a challenge. Without the right talent, your AI implementation may fall short of expectations.

On the other hand, when you buy a software solution from a vendor that has already integrated AI, you benefit from the expertise of a team that has extensive knowledge in emerging technology and the ability to continually integrate the latest capabilities.

Cost Factors: Building vs. Buying

When evaluating whether to build or buy construction management software, one of the most critical factors is cost. The financial implications of developing custom software versus purchasing an off-the-shelf solution go far beyond the initial investment. Companies need to consider both the upfront costs and the long-term expenses involved in each approach.

Development Costs

Building custom software from scratch comes with significant upfront costs. You'll need to hire a team of skilled developers, project managers, designers, and testers to handle the development process. Depending on the complexity of your software requirements, this can quickly add up to hundreds of thousands, or even millions, of dollars. Additionally, if your company doesn't have in-house developers, you may need to outsource the project to a third-party development firm, which can be even more expensive. If your company does have a developer in-house you could end up pulling resources and focus off of other business critical priorities.

Key components of the development cost include:

Hiring Development Talent:

Skilled software developers, particularly those with expertise in construction management systems, command high salaries. If you're assembling an in-house team, these costs will be ongoing.

Infrastructure:

Developing custom software requires the right development tools, servers, and hardware, which also come with substantial costs.

Project Management:

Managing the software development lifecycle, from initial planning and design through to testing and deployment, requires dedicated project managers who can ensure the project stays on track and within budget.



In contrast, buying an existing construction management solution involves a much lower upfront cost. Most software vendors offer subscription-based pricing models that allow you to pay for access to the platform. This pricing model makes it easier to budget for software costs and reduces the need for large capital expenditures.

Ongoing Maintenance and Innovation

The initial development cost is only part of the equation when building custom software. Ongoing maintenance is an often-overlooked expense that can add significant costs over time. Software requires continuous updates to fix bugs, improve performance, and stay compatible with new technologies and devices. Security vulnerabilities also need to be patched regularly to prevent cyber threats from compromising your data.

If you choose to build your own software, you'll need to budget for a team to handle these updates and ensure that the software remains functional as your business grows and evolves.

Additionally, any new features or improvements will require further development work, adding to the long-term cost of maintaining custom software.

Buying a comprehensive solution, on the other hand, shifts the burden of maintenance and updates to the software vendor. Most construction management software vendors provide regular updates, new features, and security patches as part of the subscription package. This not only reduces the cost of ongoing maintenance but also ensures that your software stays up to date with the latest industry trends and technology advancements.

Opportunity Costs

One often overlooked aspect of building custom software is the opportunity cost. Developing a construction management platform from scratch diverts significant resources—both financial and human—that could be allocated to other critical areas of your business. For example, while your team is focused on developing software, they might have less time to spend on improving project execution, finding new clients, or optimizing existing workflows.

By purchasing a ready-made solution, your company can quickly begin using the software to improve project efficiency and productivity, freeing up time and resources to focus on your core business activities.





Key Considerations When Deciding to Build or Buy

Assessing Your Business Needs

1

What are the specific challenges and pain points in your current construction management processes?

2

What are your short-term and long-term goals for adopting new software?

3

How complex are your project requirements, and do they necessitate a highly customized solution?

4

What is your budget for software development or purchase?

5

How quickly do you need to implement the new system?

By answering these questions, you can gain a clearer understanding of whether a custom-built solution or an off-the-shelf product is better suited to your needs.

Making the Right Decision for Your Business




Choosing between building your own construction management software and buying a comprehensive solution is a major decision that can impact your business for years to come. Both options have their advantages, and the right choice will depend on the unique needs of your company, your available resources, and your long-term goals.

Building your own software offers the benefit of full customization and complete control over the development process. If your company has highly specific workflows or processes that off-the-shelf software doesn't accommodate, a custom solution might seem like the best fit. However, the high upfront costs, long development timelines, and ongoing maintenance requirements make building a significant financial and operational commitment. Additionally, scaling custom software and integrating advanced features like AI requires deep technical expertise that many companies may not have in-house.

On the other hand, buying a ready-made construction management solution provides immediate access to a robust platform that has already been tested and optimized for use in the construction industry. Off-the-shelf solutions offer lower upfront costs, faster implementation, and ongoing updates from the software vendor. While these solutions may not offer the same level of customization as a custom-built platform, they often provide the right flexibility to meet the needs of the majority of construction companies.





When making the build vs. buy decision, it's important to consider the following:

1

Your company's specific needs

How unique are your workflows, and can they be accommodated by an existing software solution?

2

Your budget

Do you have the financial resources to invest in building and maintaining custom software, or would a subscription-based model be more feasible?

3

Time to market

How quickly do you need the software to be implemented? Can you afford to wait months or even years for custom development, or do you need a solution that can be deployed quickly?

4

Technical expertise

Does your company have the in-house expertise to build, maintain, and scale custom software? If not, are you prepared to hire external experts?

5

Future-proofing

How important are emerging technologies like AI and machine learning to your business? Can your custom software keep pace with industry innovation or would a vendor-provided solution be better equipped to integrate these advanced features?

The Case for Buying Construction Management Software

01

Speed to Implementation

One of the most compelling reasons to purchase off-the-shelf construction management software is the speed to implementation. Developing custom software can be a lengthy process, often taking months or even years to complete. In contrast, ready-made solutions can be deployed quickly, allowing you to start benefiting from the software almost immediately.

This speed is particularly important in a competitive industry where delays can result in missed opportunities and lost revenue.

02

Lower Initial Costs

Buying off-the-shelf software typically involves lower initial costs compared to building a custom solution. The development of custom software requires significant investment in time, resources, and expertise. By purchasing an existing product, you can avoid these upfront expenses and instead pay a predictable subscription or licensing fee.

For many construction firms, especially small to medium-sized businesses, this cost predictability is a crucial factor in the decision-making process.

03

Proven Reliability and Support

Established software providers often have a track record of reliability and performance, backed by years of experience and customer feedback. When you purchase off-the-shelf software, you benefit from the vendor's expertise, quality assurance, and ongoing support.

Most providers offer comprehensive support services, including training, troubleshooting, and regular updates. This support can be invaluable in ensuring that your software remains up-to-date and operates smoothly, without the need for in-house IT resources.



04

Continuous Innovation

Software vendors are continuously innovating and improving their products to stay competitive in the market. By purchasing an off-the-shelf solution, you gain access to the latest features, technologies, and best practices without having to invest in ongoing development.

This continuous innovation can be particularly beneficial as the construction industry evolves and new challenges and opportunities arise.

05

Scalability and Flexibility

Many off-the-shelf construction management solutions are designed to scale with your business. As your company grows, these software products can accommodate increasing project volumes, additional users, and more complex requirements.

Additionally, many vendors offer modular solutions that allow you to add new features or integrate with third-party applications as needed. This flexibility can be a significant advantage, particularly for businesses that anticipate future growth or changes in their operations.

Ultimately, the decision between building and buying construction management software comes down to your company's priorities, capabilities, and long-term vision. If you're looking for full customization and are willing to invest the time and resources required to build and maintain your own platform, building might be the right choice. However, if you value a faster, more cost-effective solution that provides ongoing innovation and support, buying an existing construction management solution is the better option.

Whichever path you choose, investing in the right construction management software will help your company improve project delivery, streamline operations, and stay competitive in an increasingly complex industry.