EXECUTIVE INSIGHTS

Uncovering Opportunities in Construction Management Software

Construction management software (CMS) has been around in one form or another for years. At its most basic, CMS is a suite of tools that helps contractors manage part or all of a construction project. As projects become increasingly complicated, with materials, labor and other aspects of the business environment in flux, CMS can help building and construction companies increase productivity and bring greater control to the construction process.

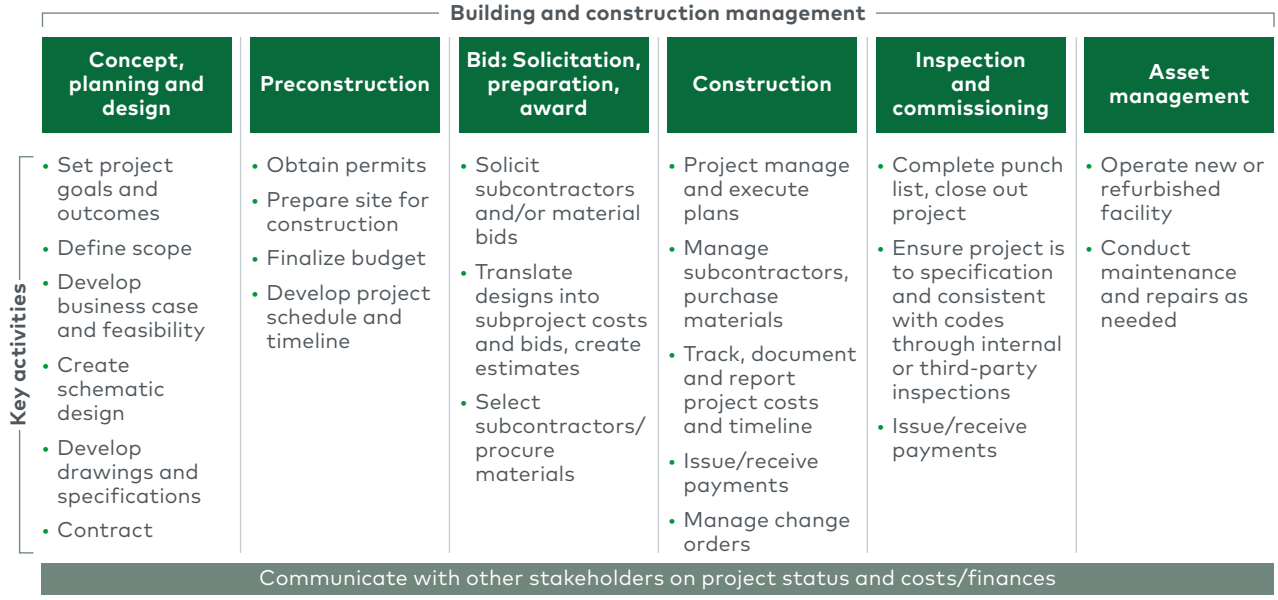
But CMS remains a relatively untapped market. The construction industry has been slow to invest in technology despite what CMS can do to help stakeholders navigate the construction and building management life cycle. What are the barriers to adoption, and what can CMS companies do to sidestep them along the journey to growth? We'll answer those questions in this *Executive Insights*.

The construction and building management life cycle

To understand where CMS fits in, let's take a closer look at the construction and building management life cycle. Whether a simple residential project (e.g., a single-trade repair) or a more complex commercial project involving multiple trades, each construction project has multiple stages (see Figure 1).

A construction project starts with concept planning and development of a detailed design. Next is the preconstruction phase, which involves budget and timeline development and site preparation. After that, bids are solicited, prepared and awarded. Once construction begins, so does the management of materials, labor, project milestones and finances. Upon completion,

Figure 1
Simplified construction project stages for residential and commercial projects*



*These steps may be simplified or eliminated in a simple residential project
Source: L.E.K. research and analysis

and after inspection and commissioning, ongoing building operations processes begin, with maintenance and repair as needed.

The presence of many stakeholders throughout these phases adds to the complexity of the construction process (see Figure 2).

Technology use in construction and building management

Despite this complexity, the building and construction industry has been slow to embrace technology and process innovation. One study found that 90% of contractors don't budget for innovation.[1] Beyond that, 47% of construction and management executives say that their data collection and processes are manual.[2]

Lack of technology adoption leads to several challenges, including the following:

Data inaccuracy and job mistakes. Sixty-one percent of installers say they make decisions with inaccurate data.[3] Half of installers claim that an inability to track work has resulted in mistakes, and many spend nearly an hour each workday looking for information in different applications.[4]

Reduced productivity. Among construction workers, 45% say switching between different tools reduces their productivity.[5]

Figure 2
Stakeholder involvement at each stage of the building and construction management process

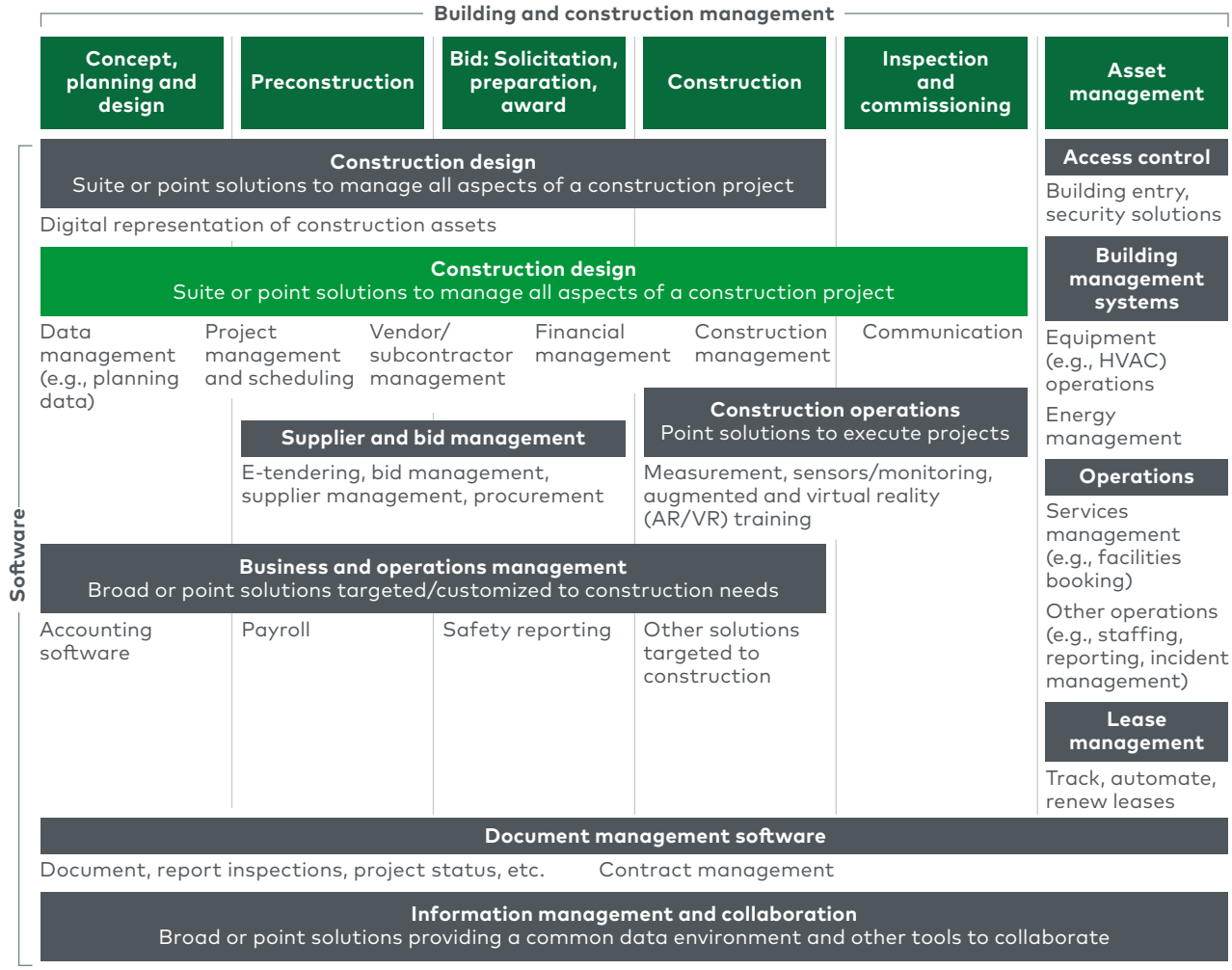
Source: L.E.K. research and analysis

Duplication. Forty-four percent of installers claim that a lack of or disparate digital tools make it hard to tell whether their work is duplicative.[6]

Overall cost. An Autodesk/FMI Corp. study found that bad construction data in 2020 may have caused $1.8 trillion in losses worldwide and may be responsible for 14% of avoidable rework, amounting to $88 billion in costs.[7]

What's driving this lack of innovation and investment in technology? Complacency is part of it. Among nonusers of CMS, 40% say they don't have significant need for a software solution and 34% say they prefer a manual approach.[8] Only 12% say that they always factor project data into their decisions.[9] Companies are also concerned about technology implementation. Over 60% of contractors say field adoption is a serious concern.[10]

Figure 3
Types and applicability of software in construction and building management



Source: L.E.K. research and analysis

In reality, construction and building management software can drive significant benefits, helping stakeholders navigate the complexity of the construction and building management life cycle. Software can also help stakeholders manage processes such as planning and design, construction operations in the field (e.g., measurement), and business operations such as financial management (see Figure 3).

The opportunity and growth of CMS

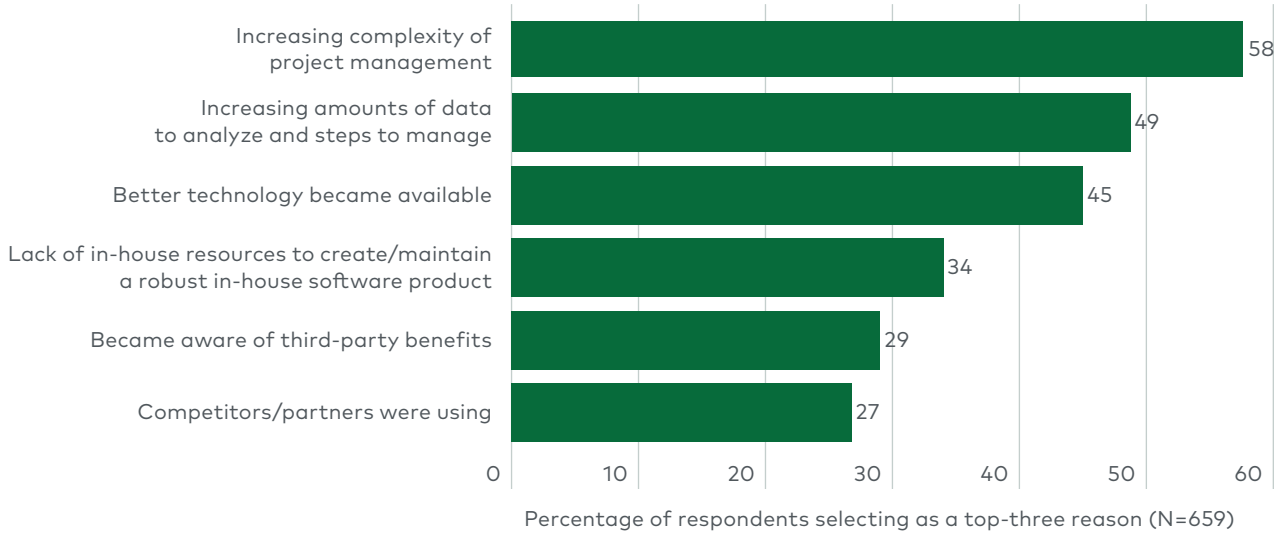
Despite its track record on technology adoption, the industry's attitude toward technology generally, and CMS specifically, is changing. Several trends are behind this shift:

Greater complexity. The volume of available construction data in some form has doubled in the past three years,[11] and managing projects is getting more complex. These factors, along with improving technology, are driving adoption of CMS (see Figure 4).

Adjacent software growth. Another driver is innovation in areas that are adjacent to CMS. For example, building information management (BIM) is boosting demand for a "golden thread of information," or integrated solutions across the building life cycle or value chain. That in turn encourages broader adoption of software solutions.

A number of worksite technologies are also increasing digital data capture on the job site, including digital ticketing versus paper ticketing (e.g., deliveries), measurement technologies (e.g., drones) and digitizing aspects of site management (e.g., ruggedized tablets for information capture).[12] Half of contractors are now using ruggedized tablets, and most of that group are using them frequently.

Figure 4
Top six reasons for purchasing third-party vendor products (2020)*



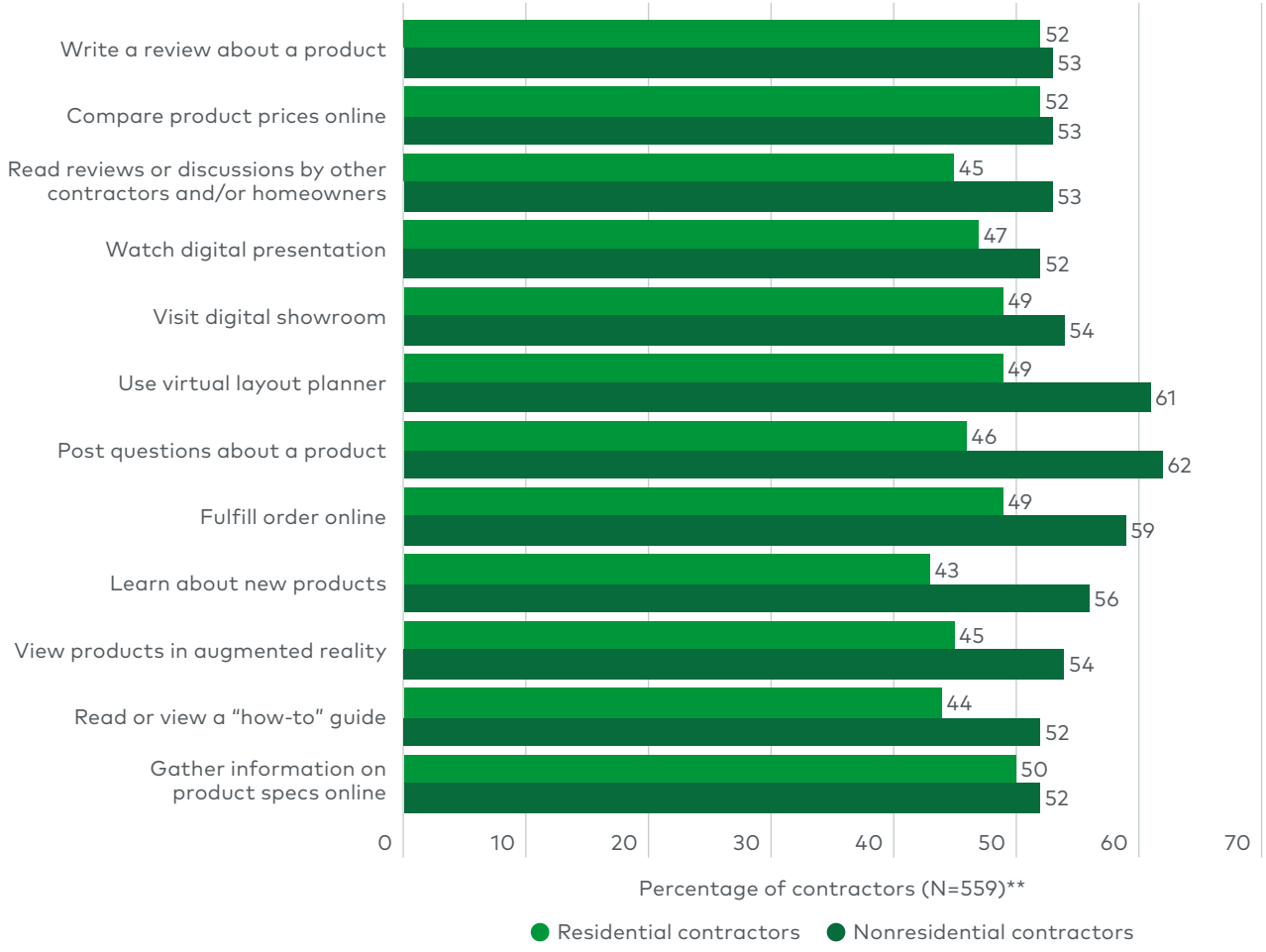
*Survey questions: What are the top reasons you began purchasing third-party vendor products for your construction management needs? Which of the following best describes the reasons why your organization utilizes third-party cloud service providers/vendors (versus managing these activities in-house)?
Source: L.E.K. research and analysis

In addition, new technologies that enable the construction process are continually being developed. For instance, Bridgit recently secured funding to further develop its Bench solution, which provides project data for bidding, project management and forecasting.[13]

COVID-19. Work from home and social distancing on the job site have deepened the industry's appreciation of technology's benefits.

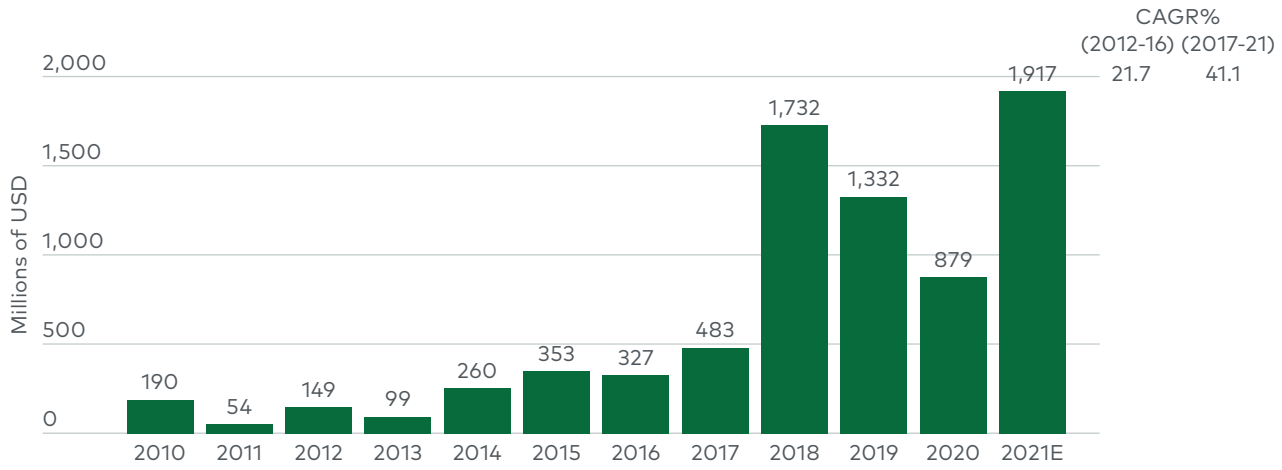
A new generation. Digital literacy among employees is growing, paving the way for the adoption of more advanced construction software. Millennials are more willing than older generations to adopt technology for different business processes. More generally, residential and commercial contractors are turning to internet solutions for support with key processes. That's likely to lead contractors to progress to more sophisticated software solutions (see Figure 5).

Figure 5
Expected change in contractor net internet usage (2021)*



*Percentage of responses expecting more internet usage minus those expecting less internet usage
**Survey question: How do you expect your use of the internet for the following activities to change over the next 3 years?
Source: L.E.K. 2021 Contractor Survey

Figure 6
Private investment in construction technology (2010-2021)



Source: Construction Dive

Greater investor interest in construction technology. The level of construction technology investment has increased to record levels, and at a faster rate in 2016-20 compared to 2010-16 (see Figure 6).

As a result of these forces, adoption of CMS and adjacent solutions is going up. For instance, 13% of installers report increased use of estimating software.[14] At the same time, the increasing number of CMS solutions is intensifying competition. We identified 21 construction management solution suites, and that's on top of numerous smaller and point solutions.

Even so, the CMS industry may not be delivering everything that the building and construction industry needs. One sign is that switching is frequent, with around a third of users saying they would definitely or probably switch from their current vendor over the next few years.[15] There are also indications that many contractors and builders are still holding off on adoption, despite the obvious benefits across a range of functionality (see Figure 7).

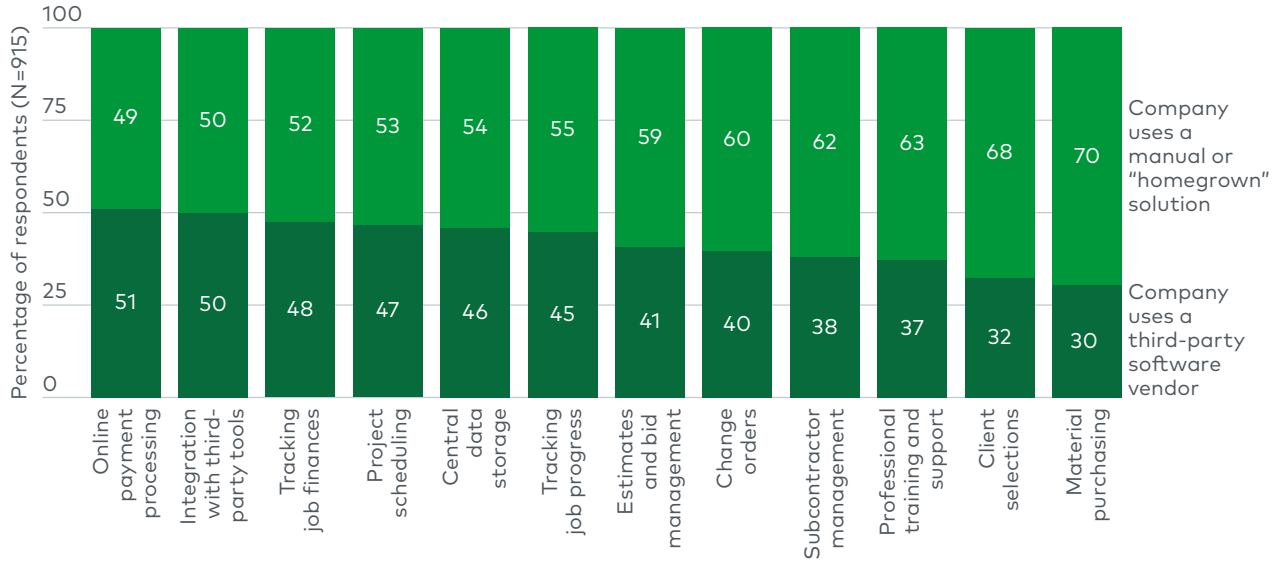
Six key priorities for CMS providers

So what can be done to spur the use of construction management software? We've identified six key priorities.

1. Specify the area of CMS focus.

In determining where their software offering begins and ends, CMS providers must strike a balance. On one side is the need to avoid complexity in the features and breadth of processes they support. On the other side is the need to be competitive in meeting a broad set of users' day-to-day construction management needs.

Figure 7
Percentage of builders and contractors using third-party software by activity (2021)*



*Survey question: Which of the following best describes your utilization of each of the following categories of construction management solutions below?
Source: L.E.K. interviews, survey and analysis

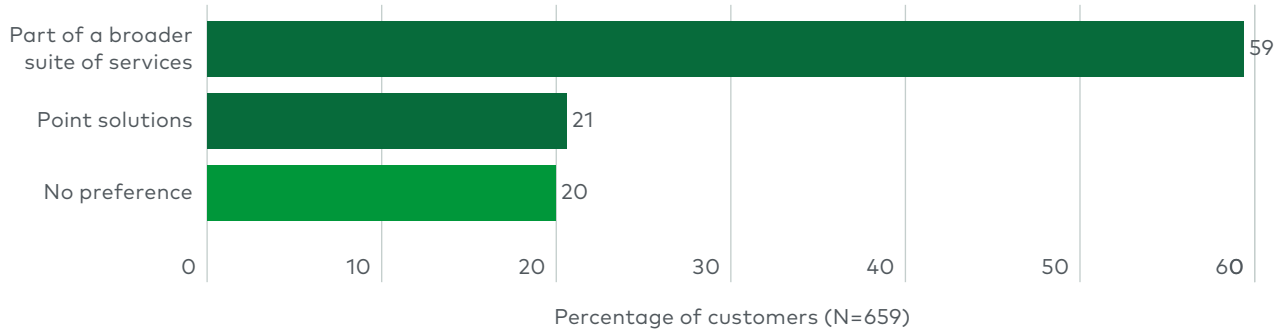
The challenge of building and construction management is that it requires a wide range of disciplines, from finance and inventory to purchasing and people management. At a minimum, this requires integration with other solutions outside of CMS (e.g., enterprise resource planning systems).

In addition, CMS providers need to consider the direction of the competitive environment. Suite solution providers continue to add features and support more business processes. Point solutions are extending into other offerings. For example, Hover evolved from takeoff measurement to estimation, proposals and contracts; supplier ordering through Beacon distribution; and more. Users tend to prefer suite versus point solutions (see Figure 8).

Companies can take an evolutionary or visionary approach to feature development. An evolutionary approach emphasizes broader solutions that support multiple processes such as project management, purchasing and so forth. A visionary approach focuses on creating a single, best-in-class solution for a single process or activity — think software that creates takeoffs for the exterior building envelope.

Providers must also consider how to integrate with solutions outside their chosen scope. For example, CMS providers may want a partner that provides property owner financing solutions to their installer customers.

Figure 8
Preference for suite of services vs. point solutions (2021)*



*Survey question: When thinking about the construction management software solutions that you currently use, do you prefer purchasing these as part of a broader suite of services or as individual point solutions?
Source: L.E.K. research and analysis

2. Communicate the basics and choose an appropriate customer segmentation approach.

A significant barrier to CMS adoption is the industry's reluctance to change; this presents a challenge for CMS vendors to create and communicate a compelling value proposition that drives adoption and persuades users to abandon manual or generic alternatives. Meeting this challenge requires a deep understanding of the customer base and calls for a granular customer segmentation approach, incorporating firmographic as well as behavioral characteristics.

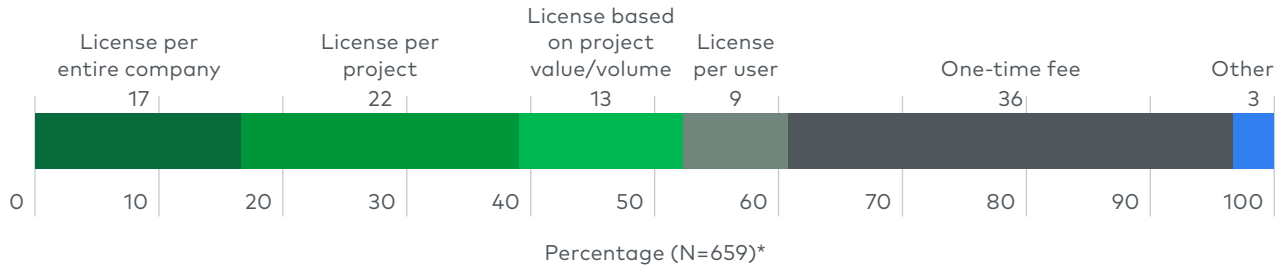
For example, custom builders will have different needs from production or spec builders that aren't customizing the project to property owner needs. A larger builder or general contractor may need a rich software solution that manages all its subcontractors. Meanwhile, a small specialty contractor may seek a solution that helps run its business and is tailored to the cadence of its trade — such as the degree of industry specificity (roofing, painting, etc.), the volume of projects and the length of time on those jobs. A firm grasp of these nuances can help CMS providers target their sales and marketing messaging to specific customer segments.

3. Revisit pricing given increasing competition and the evolution or addition of features.

The diversity of user needs — not to mention the breadth of processes that construction and property management software touches — creates many options for bundling and pricing software features.

Customers have divergent pricing model preferences, and there's no one standard for price construction software. An L.E.K. survey found that builders and contractors prefer a variety of different pricing models (see Figure 9).

Figure 9
Preferred construction software pricing model



*Survey question: When thinking about the construction management software solutions that you currently use, do you prefer purchasing these as part of a broader suite of services or as individual point solutions?
Source: L.E.K. survey and analysis

Partly because of the different ways contractors want to see software priced, there's sometimes a wide divergence in the price of similar offerings. For example, there can be significant variance in the price of specific products such as takeoff software.

CMS providers need to find out which features are valued, and to apply a robust, triangulated set of pricing analyses to determine the optimal packaging and pricing. We've found that companies can increase revenue by 10%-30% with better pricing.[16]

4. Determine where and how to deploy premium training solutions and concierge support.

The growing complexity of solutions, together with construction labor turnover and limited user familiarity with software, has users looking for more support. In response, a number of companies have deployed premium training and support. For instance, BuildBook includes direct access to a dedicated team member with its intermediate offering, adding personalized setup with its most advanced package. UDA includes a dedicated success coach with its intermediate and advanced bundles, and also provides on-site training. Hover adds white-glove onboarding with its most advanced package.[17]

Companies need to determine the best form of support for the customer they're targeting, such as basic training for smaller, less sophisticated users. They also need to decide how to deliver it, whether through boot camps, customer visits, distance learning or other formats. Another decision involves how to price and bundle the training — say, as a stand-alone service or as part of a package of other features.

5. Find ways to support users' need for data to meet corporate sustainability goals.

Corporate sustainability goals have increased focus on buildings and their construction, providing an emerging opportunity for construction management companies. Net-zero

commitments have to be measured, which means an increasing need to demonstrate sustainability practices and to measure the use of materials and energy on the job site.

In light of this trend, CMS providers should consider ways to help installers burnish their sustainability credentials and measure the carbon impact of their construction. One example is a feature that provides pro forma carbon footprint information on a bill of material.

6. Identify ways to monetize data given building and construction investors' appetite for insights.

Investors and players in the building and construction industry are eager for more insights about the state of the marketplace and the use of specific materials and channels. This is an opportunity for CMS companies to think about where they can monetize data. For instance, takeoff solutions can be redesigned with a specific goal to pool and generate insights from multiple takeoffs.

Data aggregation and monetization will become more important over time as more and more installers adopt solutions. CMS companies can prepare now by designing and implementing the optimal data gathering and analysis mechanisms to capture future benefits.

Rolling back the barriers

As is so often the case, it's one thing to know what to do, and quite another to know where to start. We suggest CMS companies prepare by answering the following questions:

Strategic focus and communication

- Have we defined our core area and delineated between core offering, extended offering, areas of nonfocus (partnerships) and areas where we won't compete?
- Where does our competitive set truly begin and end?
- Does L.E.K. analysis affect our space?
- How can we use scale to create a differentiated advantage?

User targeting and support

- How can we sharpen the communication of our value proposition through a deeper understanding of our customer base?
- How do we best provide premium training to support users and minimize churn?

Pricing

- Have we segmented our customer base appropriately?
- Are we pricing features and packages to maximize revenue?

Adjacent offerings and services

- What's the best way to monetize our rich construction data?
- How can we support our customers' sustainability measurement needs?

Although the building and construction industry has been slow to adopt CMS, several trends are coming together to open up this market. That's challenging CMS companies to determine whether they're doing everything they can to address the needs of their target customers. By tackling six key issues, CMS providers can deliver on the potential they've always had and position themselves for lasting success.

For more information, please contact strategy@lek.com.

Endnotes

[1]ForConstructionPros.com, "Three Keys to Technology Adoption in the Construction Industry." https://www.forconstructionpros.com/construction-technology/article/21115716/three-keys-to-technology-adoption-in-the-construction-industry

[2]TrackVia, "Infographic: Manual Data Collection Affecting Construction Profitability." https://thebossmagazine.com/trackvia-infographic/

[3]TrackVia, "Manual Processes in Construction and Engineering." https://trackvia.com/wp-content/uploads/2020/01/trackvia-survey_report-cs.pdf

[4]TrackVia, "Manual Processes in Construction and Engineering." https://trackvia.com/wp-content/uploads/2020/01/trackvia-survey_report-cs.pdf

[5]Report from software company Qatalog; the study, conducted in partnership with the Ellis Idea Lab at Cornell University, surveyed 1,000 workers

[6]Report from software company Qatalog; the study, conducted in partnership with the Ellis Idea Lab at Cornell University, surveyed 1,000 workers

[7]Autodesk/FMI, "Harnessing the Data Advantage in Construction." https://a.storyblok.com/f/64835/x/137c281eda/harnessing_the_data_advantage_in_construction.pdf

[8]L.E.K. analysis

[9]Autodesk/FMI, "Harnessing the Data Advantage in Construction." https://a.storyblok.com/f/64835/x/137c281eda/harnessing_the_data_advantage_in_construction.pdf

[10]McClone.com, "Top 4 Technology Challenges in the Construction Industry." https://www.mcclone.com/blog/top-4-technology-challenges-in-the-construction-industry

[11]Autodesk/FMI, "Harnessing the Data Advantage in Construction." https://a.storyblok.com/f/64835/x/137c281eda/harnessing_the_data_advantage_in_construction.pdf

[12]Dodge, "The Civil Quarterly Exploring Digital Project Delivery in the Construction Industry." https://www.construction.com/toolkit/webinar/exploring-digital-project-delivery-in-the-construction-industry

[13]TechCrunch, "Bridgit secures $24M CAD in funding to provide construction companies with 'workforce intelligence.'" https://techcrunch.com/2021/10/26/bridgit/

[14]StLouisCNR.com, "AGC Workforce Survey Reveals Accelerated, Increased Adoption of Virtual Construction Technologies." https://stlouiscnr.com/agc-workforce-survey-reveals-accelerated-increased-adoption-of-virtual-construction-technologies/

[15]L.E.K. analysis

[16]Based on L.E.K. estimates from Conjoint analysis

[17]Public research conducted from website reviews as part of L.E.K. analysis

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