Builder

July 11, 2023

HOW HOME BUILDERS INTEGRATE TECHNOLOGY INTO CURRENT SYSTEMS

From digital home buying experiences to job scheduling and automated material ordering, builders are employing technology in a variety of applications to drive efficiency.

By **Vincent Salandro**

Iillustration by Mike Ellis

While the technological revolution has continued to cast a wide net in society, from two-step authentication for cybersecurity to image recognition to the latest smartphone technology, the construction industry has been slow to get on board.

"The construction industry is generally way behind the times relative to adoption of technology solutions throughout the industry," says Don Neff, president and CEO of LJP Construction Services, provider of CaptureQA, a proprietary quality assurance app.

The technology sector is ripe with startups, oversaturating builders with solutions to a range of pain points. With such a variety of options, it is important for builders to evaluate how the software or technology will integrate into current systems. Neff says careful consideration should be given to the costs and resources that will be needed to implement relative to the expected benefits and potential risks.

"We don't fully commit to [a technology] investment until we really dial in our business model first, then wrap technology solutions around our business to gain efficiencies," says Alex Benshoof, chief operating officer of Berks Homes, ranked No. 128 on the Builder Next 100 list. "Too many builders fall into the trap of thinking new technology will magically solve root issues they have but find after implementation they have the same problems, but less cash."

Linda Mamet, chief marketing officer of Tri Pointe Homes—No. 17 on the Builder 100—says business intelligence and technology touch each part of the business, and, to be successful, builders should push themselves toward solutions that elevate both operational efficiency and customer experience.

Currently, many builders employ technology across their business, from back-end office software to customer-facing sales and marketing innovations to technology platforms that reduce job costs and reduce cycle times.

Illustrations by Mike Ellis

Implementation of Technology

For home builders, implementing new technology can be the most important step in the adoption process. Taylor Morrison chief information officer John Lucas says before rolling out a technology or software, the firm—No. 7 on the Builder 100—does a proof of concept with one or two markets. Taking the process a step backward, the builder makes sure "there is a real need and desire for the new process" before even committing to a trial period.

"I subscribe to the line of thinking Mark Zuckerberg became famous for: If you're going to fail, fail fast and fail on a small scale," Lucas says. "We certainly don't want to make a mistake that impacts the entire company, which is why testing and phased integration are critical."

Mamet says Tri Pointe employs a similar approach to evaluating opportunities, looking to both incrementally improve the company's foundation and develop new initiatives.

"At Tri Pointe Homes, we typically prototype or pilot new solutions with specific user groups or divisions before implementing company-wide initiatives," Mamet says.

At Century Communities, ranked No. 9 on the Builder 100, the firm has multiple team members responsible for discovering, evaluating, and selecting new technology that has the potential to improve operations.

"Once new technology is identified, a team of Century associates determines how the technology can help improve our business and how much time and capital it will take to fully implement the solution," says Genji Nakata, executive vice president of national operations for Century Communities.

The evaluation process is particularly important for companies looking to develop software in-house, as Berks Homes did with its sales and land management software.

The home builder invested in its own platforms to integrate with its existing enterprise resource planning system. The company researched plug-and-play software solutions and the manual implementation that would be required to integrate those across its existing platforms before evaluating an in-house solution.

Benshoof says while the company used to offer custom kitchens and more than 100 home plans, it scaled back the number of plans and standardized its options to create a framework for its in-house software to operate.

"We spent about five years figuring out what we wanted to do, who we wanted to be, and dialing [that] in," Benshoof says. "If we hadn't done that, we wouldn't even be able to talk about the technology that we've been working on."

Jobsite and Production Technology

Builders are utilizing technology on the jobsite and in various stages of the production process to improve efficiency and reduce the risk of costly delays.

[Century Communities](#) is focused on reducing direct and indirect costs and building cycle times through its use of building information modeling, allowing the builder to create accurate construction documents, bill of materials, and architectural details. Nakata says the use of BIM helps teams build faster with less waste and helps the purchasing department reduce direct costs.

"BIM also allows for the creation of 3D construction models to identify mechanical conflicts and floor plan issues before a home is built in the field with marketing material that is linked directly to construction documents, to ensure plan changes immediately get incorporated into customer-facing information," says Nakata.

Both [Taylor Morrison](#) and Tri Pointe Homes utilize software for integrated scheduling and purchasing to help drive down costs and shorten cycle times. Taylor Morrison employs BuildPro—a platform that connects stakeholders and allows for scheduling and supply chain management online—to optimize construction processes with real- time information and UIPath Robotics for automation in the material ordering process. Lucas says the builder is also interested in exploring tools to improve jobsite efficiency to combat labor shortages.

CaptureQA, the flagship product of Neff's LJP Construction Services, combines project photographs with the associated narratives from jobsite visits to provide builders information in real time. The stoplight-organized, color-coded photographs provide builder clients from [California](#) to [Florida](#) with important jobsite information in simple terms: Red identifies deficiencies, yellow identifies scheduling hiccups, and green identifies good assemblies. The software also can provide clients with comparisons among quality assurance metrics of a single project; comparisons to another project or portfolio of projects completed by the client; or comparisons to the competitive market of similar project types.

For single-family detached work, CaptureQA helps track the various stages of construction—including foundations, framing, weatherproofing, roofing, and building envelope—and the real-time reports have helped production builders drive down construction costs by identifying and correcting inefficiencies, according to Neff.

"The reports [are] easy to read, but with enough technical detail that [builders] can address the problems with the trades and get them fixed," Neff says. "The stoplight convention of providing these metrics, it's evaluating the trades, identifying where the screwups are happening, and what the quality of installation [is] and how responsive they are to fix [problems]."

Landsea Homes

Sales, Marketing, and Land Technology

Prior to the COVID-19 pandemic, a majority of the construction industry was reliant on a business model that required in-person customer visits to win business and provide pricing. However, many builders have begun to engage with customers differently, through QR codes driving users to websites, electronic contact information, and automated chat features.

Taylor Morrison, Century Communities, and Tri Pointe anticipated shifts toward virtual shopping and online buying prior to the pandemic, and all three have implemented technology to improve the online user experience. The website enhancements and customer touch points implemented by Century Communities enables customers to purchase homes completely online.

Taylor Morrison chief marketing officer Stephanie McCarty says the firm first rolled out a direct-to-consumer appointment scheduling tool and has integrated self-touring. The builder also has technology that allows buyers to reserve a quick move-in home or to start the to-be-built process where they can pick lots, floor plans, and options.

According to McCarty, the changes are not just winning business from younger generations: baby boomer customers are also reserving homes and scheduling appointments online. She says the company is collecting data, including evaluating incremental sales to determine how many buyers would not have purchased without online technology available.

"[Online leads] are converting on average 40% to sale. In May, we saw our highest conversion month of approximately 56%," McCarty says. "These reservations are not happening between 10 a.m. and 5 p.m., people are researching and planning for their future outside of business hours."

Tri Pointe has mobilized a technology platform that facilitates an omnichannel experience for customers. The builder has added interactive floor plans, 3D elevation renderings, virtual and video tours, and a buyer portal that updates customers throughout the build process. The digital effort resulted in 2,000 kept appointments in 2022 with 65% of new-home orders coming from appointments the online sales team generated.

"Innovations we are constantly working to expand and improve on, such as the automation of home buyer and customer care portals, smart contracting, marketing automation, and our online design studio, all enable a more seamless, cost-effective operating model and an improved customer experience," says Mamet. "When you're committed to always improving the customer experience and our top and bottom line like we are, then you're committed to pushing the innovation envelope, which means tech advancement."

Landsea Homes, No. 35 on the Builder 100, has utilized technology to enhance its communication around its High Performance Home (HPH) program. The builder launched the HPH Interactive Experience, which uses animation technology by [Focus 360](#), to help prospective buyers visualize the four key pillars of the Landsea HPH program: sustainability, healthy living, home automation, and energy savings. For Berks Homes, its in-house sales and land platform solutions enable greater connectivity and efficiency across the business. Benshoof says having technology integrated with an existing business model removes hours of manual data entry and eliminates the risk of data errors, which could compound and become major building problems.

For its sales platform, Benshoof says Berks Homes wanted a solution that offered transparent pricing on demand, which "required the ability to process complex rules in real time" and meant the system would need to consider multiple variables to produce a pricing output.

"After diligently planning, sketching ideas, building mockups, and proofs of concept, we began investing in building our own software," Benshoof says. "The passion for success is what drove us to create OSCAR (Online Sales Companion and Recommendation system)."

Benshoof says a major value- add for the OSCAR system is the ability for Berks Homes to program a set of rules and responses to problems. For example, if a customer changes their preferred structural option, which has ramifications for flooring, paint, cabinets, and countertop options, OSCAR can calculate the impact of the change and also refactor all other selected options, quantities, and pricing to provide a record for both the buyer and the sales team. Having the program in-house also creates a simpler onboarding process for new sales team members, according to Benshoof.

After delivering the first generation of the OSCAR platform, Benshoof says the company identified many opportunities to integrate land-specific data points into the platform so

that it could drive efficiency and create a "single source of truth" to accelerate the land acquisition process.

Benshoof says the goal is to ultimately build an operating system that takes Berks Homes from raw dirt to home settlement, allowing the company to track and report on every action and milestone along the way. The builder is also beta-testing a shareable version of its platform for its customers.

While the volume of technology solutions may seem overwhelming, builders are consistent in the message that investments should help solve pain points within existing workflows, not create new processes in hopes of solving an abstract problem.

"Sometimes it's important for us to be out there on the edge pushing the limits, while other times, it's more important to view technology as a utility that provides the organization with consistent, reliable service," says Lucas. "Taylor Morrison has really found that balance—we're pushing in the right places while keeping the status quo where it makes sense."

Permitting Help

PermitFlow, the 2023 Ivory Prize co-winner for policy and regulatory reform, has set out to provide a technology-driven solution to a pain point felt by all builders: the permitting process. PermitFlow helps companies identify the sequencing of required documents and submits applications to municipalities, monitoring the process every step of the way.

PermitFlow says it reduces the time of permit application for builders by 50%. The firm operates nationwide, with a large presence in California, Texas, and Florida—home to many of the largest new-home markets, according to BUILDER's latest Local Leaders rankings.

"We take all of the disparate communication and bring it into a single, holistic platform," says Chad Waite, head of growth for PermitFlow. "We provide a very clear line of sight on something that otherwise went into the black municipal box."

Permitting is a time frame problem that also can add human capital costs for companies. Team members working on permitting are often required to take time away from their company role to devote to the permitting process. Waite says a knock-on

effect of more efficiency in the permitting process is a direct linear impact on affordability: Streamlining permitting helps keeps all costs down.

"Everyone shares the friction, there's just different problems that result from that friction," Waite says. "We are able to help take a very large problem off [builders'] plates, especially if there is a high repeatability in their permitting for new developments."

 VINCENT SALANDRO

Vincent Salandro is an associate editor for *Builder.* He covers products for the *Journal of Light Construction* and also has stories appearing in other Zonda publications. He earned a B.A. in journalism and a B.S. in economics from American University.