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Managing Risk in the Face of Industry Disruption

By Ryan Howsam

How smart E&C companies must get ahead of disruption by finding ways to adapt and innovate to remain relevant.

Technology is evolving at an exponential rate. In fact, approximately 90% of the world's current existing data have only been collected in the last two years, with the amount of data being produced worldwide now exceeding 1.8 zettabytes (which basically means there are now as many bytes held electronically as there are stars in the universe).

For engineering and construction (E&C) firms, harvesting this data, deriving meaningful insights from it, and then using those insights to drive business innovation to increase productivity and profitability are all critical to survival. Of course, these imperatives wouldn't be as disruptive had the industry evolved and advanced over the last two decades. Unfortunately, most firms lack the vision, strategic initiative, will or expertise—and most importantly, the financial capital—to evolve at a rate to ward off disruption.

For example, research and development investments are not part of the traditional E&C industry's vocabulary—the vast majority of contractors invest 1% or less of their revenue compared to other industries that invest conservatively an average of 2-3%, and rightly so. After all, the average general contractor's net profit margin is 1.46% (source FMI Insights; RMA). As such, there is little incentive to innovate because there is no significant return on investment, given the limited financial resources.

The problem is that only when your business model is obsolete do you realize disruption has occurred. Back in 1900, for example, Fifth Avenue in New York was filled with horses and buggies. By 1913, the horse and buggy had disappeared from the picture. A similar disruption took place in the photography industry, where Kodak's inability to adapt to digital photography (a technology it created) as a disruptive technology led the company to filing for bankruptcy. And AT&T, hoping to get ahead of the disruption curve, in 1985 hired consultants to project the usage of cell phones in the year 2000. The answer at the time was 900,000 users, concluding there was no need to adapt to a threat that wouldn't be disruptive.

The actual number of cell phone users in 2000 was 109 million, disrupting the antiquated business model, and AT&T's failure to adapt from a declining landline market resulted in missing out on a multitrillion-dollar opportunity in the marketplace. The question is, why can't companies, insiders and experts see disruption coming and leverage the opportunity effectively. How can E&C companies take advantage of opportunities resulting from disruption.

Driving Innovation Today

In his TEDxBerkley talk, "The Art of Innovation," Silicon Valley-based author, speaker, entrepreneur and evangelist Guy Kawasaki illustrates why disrupters come from outside most industries rather than from within. He illustrates how, in the late 1880s and early 1900s, ice block cutters, sellers of blocks of ice, dominated the ice harvesting industry (9 million pounds of ice were harvested in 1900) in cold winter climates. Thirty years later the ice factory disrupted the ice block cutters with the introduction of the ice man, coupled with the rise of ice-delivery trucks that were no longer limited by season or climate. Then, another 30 years later, the ice factory was disrupted by the refrigerator, providing all consumers an in-home "ice factory," regardless of climate, season or location.

Herein lies the real lesson in disruption: It rarely is led by the current industry experts or insiders. Ice harvesters did not innovate to become ice factories, and ice factories did not innovate to become refrigerator makers. "Most companies define themselves in terms of what they do, not as the benefits they provide," Kawasaki points out. Thus, most disrupters are innovators from outside the industries that they disrupt. There are indicators that a similar "outsider disruption" is occurring in the E&C industry today. If you narrowly define yourself as a contractor who builds buildings, then you may be destined to stay on the builder's curve.

Innovation occurs on the next "jump curve," not simply by modernizing, but by creating an entirely new business model. This opens the possibility of being a disrupter by moving from defining your firm as a builder, for example, who stick-builds projects using craft labor, toward becoming an innovative construction manufacturer that leverages technology to reinvent the entire construction value chain.

Today's Risk Environment: A Changing Landscape

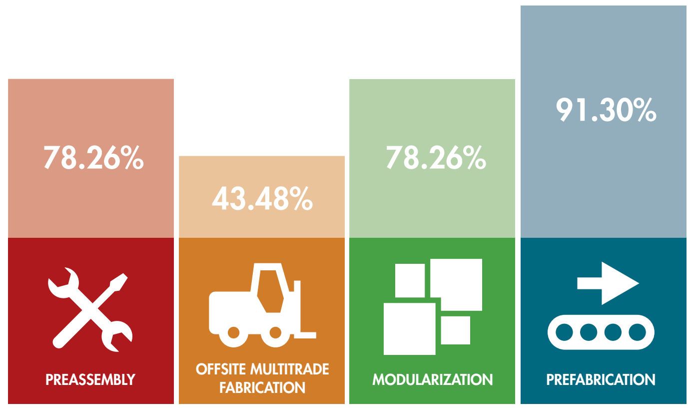
Looking at E&C market conditions in the U.S. and Canada today—and barring any unforeseen events—project opportunities, margins and resulting profitability are all positive indicators of a robust climate. Broadly speaking, looking across the breadth of the built environment as a whole, industry backlogs are (on average) fully booked through the end of 2018, and the next 12 months should be as positive as—or even better than—2017 (see "FMI's 2018 Overview" for more details).

FMI continues to see signs that the industry is becoming more sophisticated and company leaders are better educated and have increased aptitude to run their organizations effectively. However, when it comes to the "digitization" of E&C, firms are lagging significantly. For example, the financial and insurance sectors are digitizing at a far greater rate than E&C companies are, and they are adapting to the changing risk environment of disruption while others continue to do "business as usual" or innovate "around the edges." The adoption of BIM capabilities that don't go beyond clash detection and relatively small utilization of multitrade prefabrication on projects (see FMI's recent offsite construction study) are indicators that firms are too slow to adapt to the rapidly changing business landscape (Exhibit 1).

Working with hundreds of E&C firms, we have also witnessed a heightened risk awareness among business leaders and a certain level of unease about the future. In FMI's most recent 2018 survey conducted with the AGC Surety Insurance and Construction Management Conference, over half of all respondents expect more change in the next five years than in the last 50 years combined (Exhibit 2). Those who expect change are over six times more likely to innovate than those who disagree that disruptive change is coming. The question is, are these firms truly innovating, or are they simply modernizing, integrating new technologies into their existing processes and operating models.

EXHIBIT 1

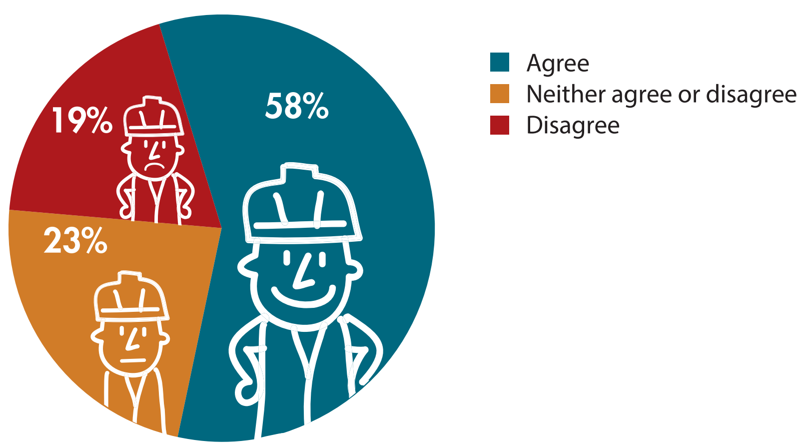
Offsite Construction Method Breakdown (for Owner Organizations)



Source: 2018 FMI/CURT/CII Offsite Construction Owner Survey

EXHIBIT 2

How strongly do you agree or disagree with the following statement? There will be more change in how construction is put in place over the next five years than in the last 50 years combined.



Source: 2018 AGC/FMI Industry Risk Survey

Given this dynamic, fast-changing industry context, company leaders need to focus on five key organizational areas in order to navigate the unsettled external factors shaping today's E&C business environment. Following is a summary of these five root causes of contractor failure that we identified in FMI's 2007 study "Why Contractors Fail" and that are still relevant in adopting to today's digitized world with technology disrupters at the gate:

1. **Poor Strategic Leadership.** This remains by far the biggest reason for failure in today's business environment, where strong leadership serves as a cornerstone for success in even the most difficult market conditions. For example, many firms ignore technology and innovation strategies in favor of the status quo and fear of change. Chris Daum, FMI's president and CEO, recently stated, "Most importantly, owners and leaders of E&C firms must not mistake a healthy robust market as an excuse to practice business as usual. Instead, pay attention to the fundamental transformations and irreversible trends that are currently impacting the industry, look carefully at how you're operating today, and then come up with ways to become more proactive about transforming your company to become even more competitive and agile in today's new and changing marketplace."

2. **Excessive Ego.** A majority of E&C firms still refuse to believe that their markets and business models are at risk of being disrupted by new technologies and external competitors such as Katerra, a technology firm that is changing the traditional construction business model. The mindset that "my business is different and will remain relevant" and that "true disruption is not going to occur during my tenure in the industry" might put more E&C firms at risk today than at any time in recent history.

3. **Too Much Change.** Many E&C firms are adopting technology, new systems and processes, led by new leadership with inexperienced hires. However, this adoption is occurring without the proper procedures, processes and accompanying training to facilitate change management for successful implementation. Our research shows that in 90% of the company-failure cases, "too much change" was a stated root cause and a crucial element in the actions that led up to the disaster. To avoid driving too much change in the organization and managing it more effectively, we suggest companies make a list of everything that's new, including customers, projects, geographical targets, superintendents, project managers, systems, etc., to fully understand the speed of change the organization is currently going through. The more changes they can name, the higher the risk of failure. Therefore, it is critical to manage the rate of change on an ongoing basis, balanced with the necessity to adapt to irreversible trends.

4. **Loss of Discipline.** Successful construction firms tend to be extremely well-disciplined and well-informed in all areas of their businesses. In our research, most companies that experienced failure grew from small, regional operations into national powerhouses (e.g., J.A. Jones, Guy F. Atkinson, etc.). Along the way, these firms almost universally lost their internal business discipline, became overall bureaucratic and started doing things outside of their core competencies. Today, advances in big data and information sharing are allowing companies to transmit knowledge across operations and place relevant information into the hands of those who need it most. Leadership teams that orchestrate effective information flow will see operational advantages—quicker decision-making, earlier identification of risks, increased employee engagement, etc. (see more details in our Quarterly article "Technology and Operational Excellence: Catalyst or Obstacle?"). Executives who don't leverage data collection—and associated business intelligence—in strategic ways to improve productivity are putting their firms at risk.

5. **Inadequate Capitalization.** Most firms lack the financial resources needed to compete in the digital age and, as such, continue to funnel only a small fraction of their overhead dollars into innovation and technology. This was also confirmed in a recent JB Knowledge technology report, in which the authors reported the following staggering statistics:

- 46% of respondents have an IT budget of less than 1% (of annual sales volume).
- Almost 13% of respondents don't know the percentage spent on IT.
- Only 50% of survey respondents have a dedicated IT department.

Keeping Up With Change

Today's fast-paced E&C environment is pushing firms to reinvent themselves not only to keep up with the competition, but also to stay relevant in the future. The productivity status quo is demanding a better approach to designing, manufacturing and constructing projects, and requires a tight focus on the present while also keeping an eye on long-term positioning. And while technology and innovation are clearly industry disruptors, the most important thing to remember is that the core success of a business remains its greatest asset—its people. Where historically outsiders are the disrupters, E&C firms must prioritize technology strategies to innovate corporate cultures and antiquated mindsets to buck the status quo and embrace disruption as an opportunity to win in the future in order to remain relevant.

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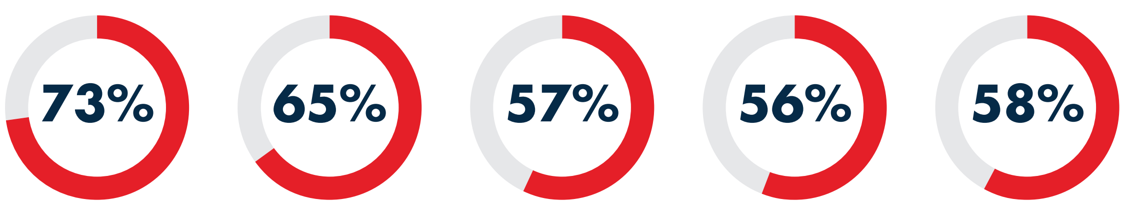
FMI Client Highlights



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