

Preparing Your Company for Growth and Innovation

By John Murphy

How E&C firms can think out of the box and become true “innovation machines” during the years ahead.

As a leader in the current market, you may be feeling a bit schizophrenic right now. On one hand, many markets are growing, and there’s so much work that you can be more selective as you face the tension of deciding whether to hire more people or take on less work.

On the other hand, the sands seem to be shifting at an ever-growing rate. Not only are we looking over our shoulders, trying to anticipate the next turn in the market, but also we are increasingly aware that technology may make our way of life obsolete—whether it is removing our key retail client, destroying our value proposition or quite literally doing our jobs for us. In an industry that drives toward control and risk mitigation, if you are not uneasy in the current market, then you probably have your head in the sand.

In this article, we explore the need for innovation and the various factors that drive it; the challenges that engineering and construction firms face on the path to innovation; and the roles that vision, divergence and understanding play in some of the most innovative organizations in the built environment.

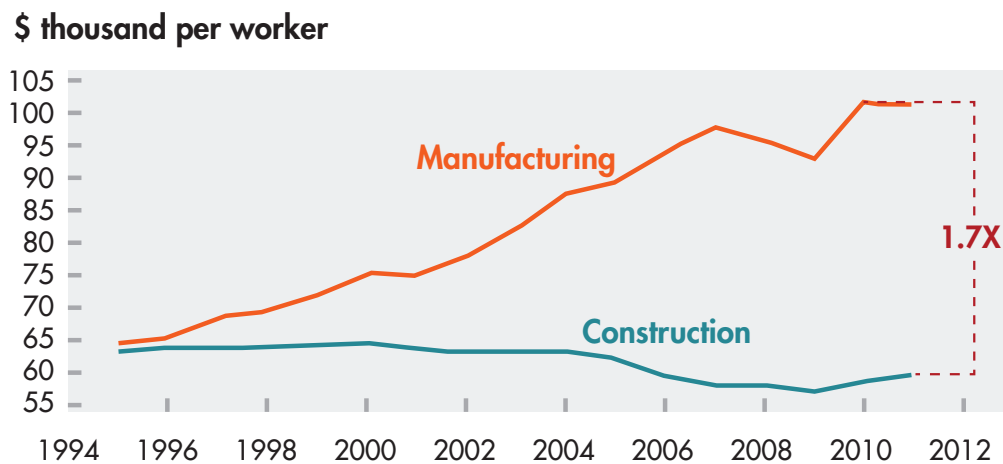
Visions of the Future

In “Visions of the Future,” theoretical physicist Michio Kaku states that during this century, we will transition from the “age of discovery” to the “age of mastery.” That means that rather than observing new phenomena, technology will converge, enabling industries to fundamentally transform, whether it is the impact of high-capacity batteries and photovoltaic cells on the power industry or the impact of artificial intelligence on the transportation industry.

The built environment is no different. From drones that can take precise measurements to virtual reality, to artificial intelligence and autonomous vehicles, most of the technology needed to radically transform the industry already exists. At this point, it's a matter of combining and integrating technology in a manner that is new and valuable to customers. For it is not the technology itself that matters, but rather how we use it that determines the pace of change in the industry.

An innovation revolution in the built environment can't come soon enough, since our industry is ripe for transformation. On the supply side, we have a lean labor market (1.5 million fewer U.S. construction workers compared to pre-recession levels), and construction productivity levels remain flat (Exhibit 1). At the same time, project margins are thinner, contractual conditions and projects are more complex, and baby boomers are reaching retirement age at a rate of 10,000 per day, with a younger and more inexperienced (millennial) workforce moving into the industry.

Exhibit 1. Overview of productivity improvement over time¹



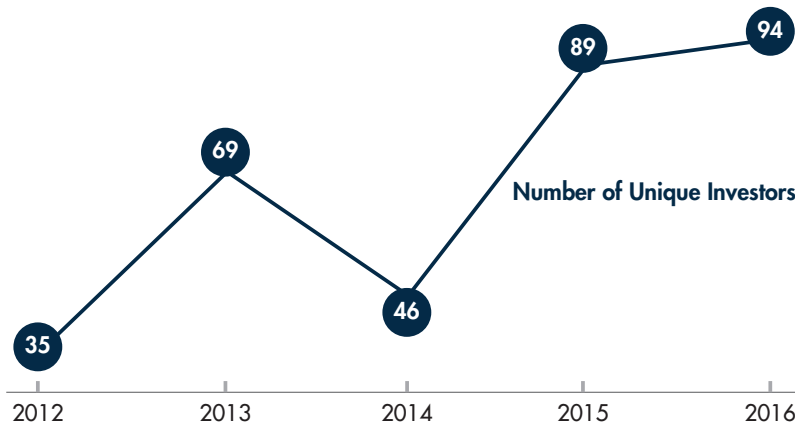
Source: Expert interviews; IHS Global Insight (Belgium, France, Germany, Italy, Spain, United Kingdom, United States); World Input-Output Database

Increasingly, we are seeing private equity firms making investments in construction technology firms. According to CBInsights, 2016 hit an all-time high of 94 investors, following some ups and downs in prior years. This represents a 169% increase from the number of investors in 2012 (35) (Exhibit 2). This shouldn't come as a surprise when the global construction industry is predicted to grow to \$15 trillion in revenue by 2025.² Fundamental transformation in the engineering and construction industry will be necessary to meet such demand.

¹ Sriram Changali, Azam Mohammad and Mark van Nieuwland. "The construction productivity imperative." McKinsey. July 2015.

² "Shaping the Future of Construction: A Breakthrough in Mindset and Technology." World Economic Forum. May 2016.

Exhibit 2. Yearly Unique Investors Into Construction Tech



Source: CBInsights

It All Starts With a Clear Vision and Strategy

Fortunately, if your organization is not particularly innovative, at least you can be. It all starts with strategy. “Ha!” you may say, “Well, we have a strategy and we are not particularly innovative.” Chances are that you really don’t have a strategy. You probably have a business plan dressed up with words about strategy.

To determine whether you have a true strategy, or if it is just a plan, ask yourself questions like:

- Do I have a clear picture of the industry and where it is likely to move in the next 20 to 30 years?
- Do I have a clear picture of existing technologies and an understanding of how they might evolve?
- Do I understand how technologies can help me deliver value?
- Do I have a clear understanding of my company’s role in that future?
- Do I know what investments I need to make to be able to achieve that future?

If you answered no to any of the questions, you probably missed one or more of these three key elements:

Vision

Often overlooked or dismissed, vision is a critical element of strategy. Lauded in theory, but much maligned in practice, vision has had a checkered past because it is usually improperly developed in organizations. But as I conveyed to a boss in a previous life, “Vision is the difference between leadership and management.”

Jim Collins’ and Jerry Porras’ quintessential book, “Built to Last,” provides a solid framework for success and is as relevant today as it was 20 years ago. In it, the authors describe how a well-developed vision provides the essence of leadership via purpose, direction and motivation. Their vision framework prompts the exploration of a company’s core values and purpose to define “who we are and why we exist.”

An organization's core ideology establishes the foundation upon which to make decisions, while the envisioned future provides a compelling view of the potential of not only the company but also the industry itself. Arguably, this is the most difficult part of developing a corporate vision, and yet it is the element that is critical to driving innovation in an organization. Having a sense of what can be helps you shape the future towards what will be.

Unfortunately, many corporate visions revolve around a revenue or profitability goal. In such organizations, the best you can hope for is incremental innovation—or improvements based on raising revenues or decreasing costs. To break out of this mindset, companies need to think beyond what they can be doing better and look more closely at “how to do better things.”

Understanding

In “The Art of Innovation,” Tom Kelley, partner at IDEO, a consumer products design firm, states that innovation begins with an immersion into the consumer experience. The theory was popularized on the “The Deep Dive” episode of ABC’s “Nightline,” where IDEO team members developed an in-depth understanding of customer needs based on interviews and in-situ observations. Through this process, the team members developed a novel design to one of the most mundane tools: the shopping cart.

Within our own organizations, we can see the impact of in-depth understanding through some of our most innovative employees (e.g., our superintendents and foremen). Closest to our customers and experts in their crafts, these professionals are constantly evolving means and methods, developing new ways to increase efficiencies, and overcoming challenges in the field. Likewise, as business leaders, we must develop our expertise in market dynamics and associated impacts on our customers, our competitors and ourselves.

After all, how can we begin to develop a view of the future if we don't even understand the present? As leaders, we should be like inquisitive children who are constantly asking “Why?” and “What if?” For example:

- Why are our competitors able to consistently underbid us?
- Why do our customers buy from us?
- Why do we work in our current markets?
- What if we worked differently?
- What if we attracted different customers or worked in different markets?



We must seek answers through scanning the environment (i.e., by reading industry publications; attending conferences; and speaking with employees, peers and customers, etc.) and filling gaps through commissioned market research. However, we cannot do this alone. After all, construction is too complex of a topic for one person to master on his or her own. As a result, we must challenge organizational leaders to expand their knowledge and share it with their teams.

Divergence

It takes time to develop a coherent, compelling vision coupled with an in-depth understanding of our market, but it is well within the capabilities of most companies, and we need only to exert the effort. Unfortunately, instigating the actual moment of innovation—when new ideas are created—requires an entirely different mindset. Fortunately, we know that divergent thinking is a catalyst for creativity and, if used when formulating strategies, will support the development of an innovative approach that propels your company into the future.

Divergent thinking comes from a diversity of ideas and can be used to effectively frame and solve problems. Much innovation is propelled from the concepts in one field and then applied to another. Unfortunately, most construction companies are very homogeneous and focus on building expertise in an industry that thrives on mitigating risk to deliver within cost, schedule and performance. As a result, we tend to hire those who think and work in that mindset. To buck this trend, as leaders we need to expose ourselves to ideas from outside the industry. Similarly, when we are in the process of developing new ideas, we should include individuals who have different educational and experiential backgrounds.

After all, it wasn't Hollywood that created YouTube, the largest provider of video content. Hollywood early on recognized the value of "reality television," but could not conceive that user-generated content would be a profitable means to tap into the demand. Similarly, we have had modularization and prefabrication in the construction industry for decades; however, its transformative potential wasn't realized until recently, with entrants from the manufacturing and technology sectors applying that capability to innovative projects.

Jump-starting Your Innovation Engine

Be Proactive

You will never lead your organization to new levels of innovation if you are always working in the business and not on the business. Too often, I work with clients whose CEO or president is involved in making day-to-day decisions, because the company relies on the entrepreneurial instincts of a founder who exploits opportunities as they arise. Unfortunately, this behavior creates a reactive mindset. Empower your lower-level managers and field leaders to make decisions and innovate their activities to adapt to changing situations. Create space to allow yourself to think about the big picture and focus on proactively shaping your company, markets and the industry within which you operate.

Focus on the Customer

Most companies tackle new technology with an incremental, one-off approach. They take a new technology and think about integrating it into their current delivery model to reduce costs. This “capabilities-based” approach can be effective for incremental innovation, but more often than not, it creates churn as corporate chases the latest and next best technology. Disruptive innovations start from the customer’s perspective. This may require a little bit of empathy, but it shouldn’t be too hard. Just think about yourself as a consumer and your ideal situation: “I want to get what I want, when I want it, at the lowest cost and with little risk.”

Then Focus on Competing Differently

Competing differently not only addresses the integration of new technologies, but also means re-evaluating and constructing relationships with new and current partners to develop a delivery model that generates a competitive advantage. Business model innovation has been the most disruptive in business from the top retailer that started without stores to a top ride-hailing service that started without cars. Since we haven’t had an Amazon or Uber moment in the built environment, are we next?

Get Your House in Order

It is very difficult to develop and implement innovation if you don’t have the money and time to invest in the process. If your company is not financially strong, you must either tighten up your operations to internally generate the capital or return to your entrepreneurial roots and develop an idea so compelling that you can find external investors. Regardless, you need to get your house in order.

When people think about an innovative leader, they envision someone who has the latest technology gadgets and who constantly discusses new product introductions and trends. While this may be true in some cases, there is more to the story than just technology, according to FMI’s series “[The Innovation Collection 2017](#).” To effectively drive innovation, leaders in the built environment must focus on more than just the way they design and build structures; they must harness very different characteristics than what stereotypes and tradition would tell us. Only then can we begin to fully leverage the power of innovation across the entire enterprise and industrywide.



John Murphy is a senior consultant with FMI. John specializes in designing and implementing solutions to complex problems through systematically developing a comprehensive understanding of the environment, applying multidisciplinary models to design solutions, and integrating assessment analytics to allocate and prioritize assets for optimal strategic impact. He can be reached at jmurphy@fminet.com.



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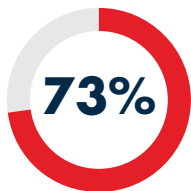
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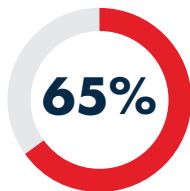
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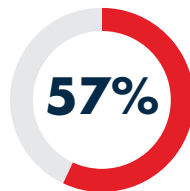
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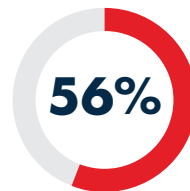
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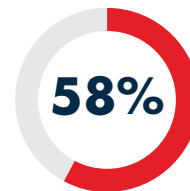
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