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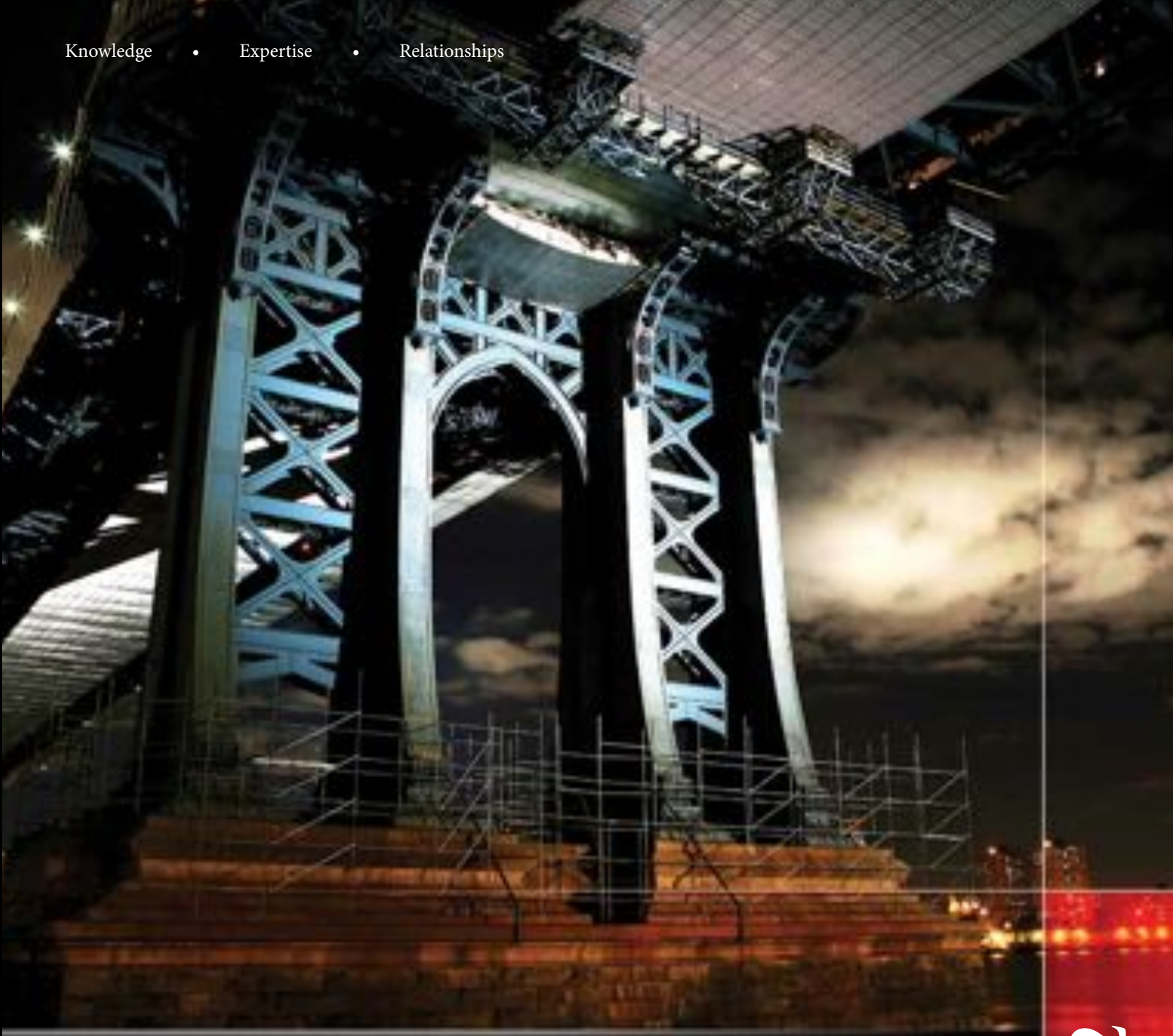

U.S. Markets Construction Overview

2012

FMI

Management Consulting • Investment Banking
for the Engineering and Construction Industry

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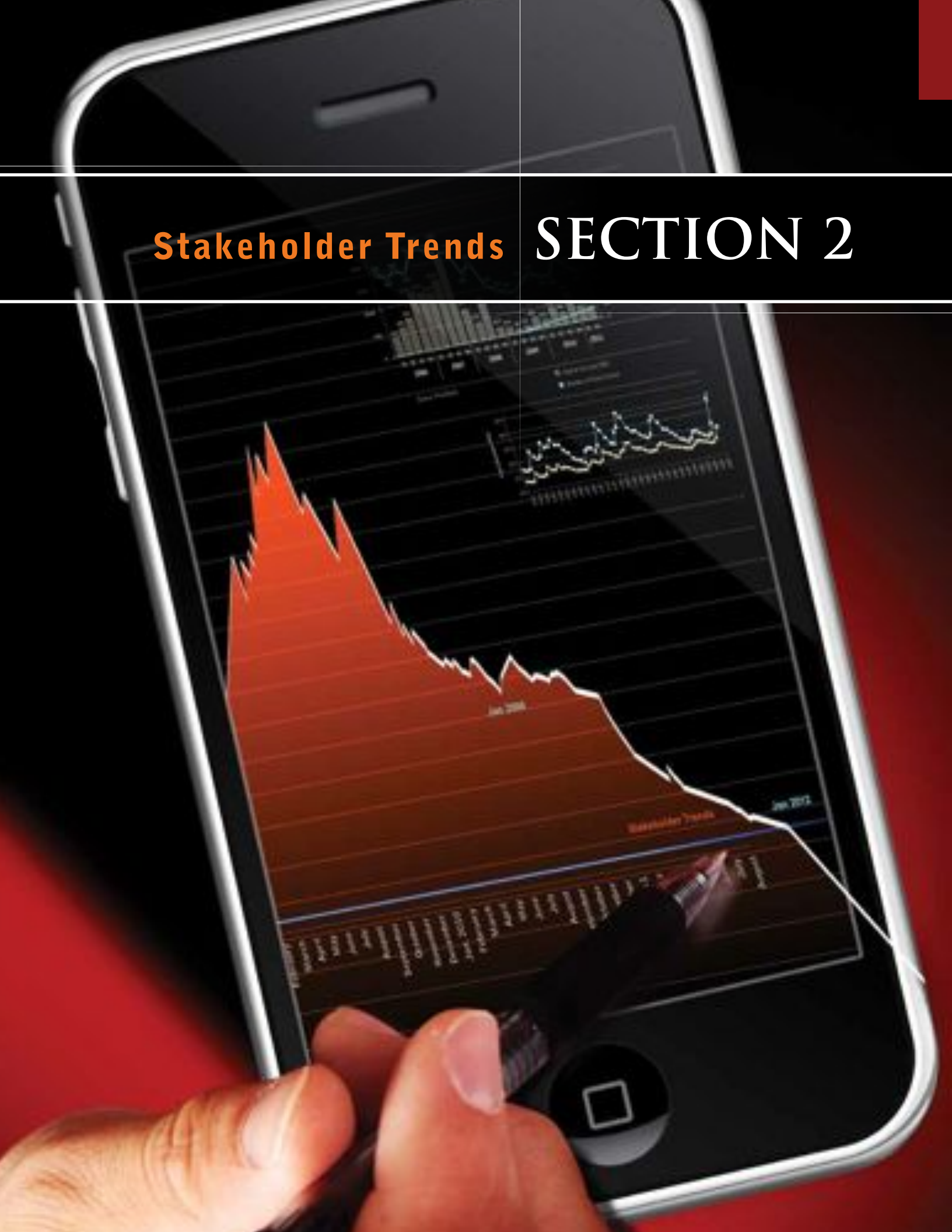
Stakeholder Trends SECTION 2



New technology and processes continue to shape the way projects are designed and delivered today. As pressures mount to keep project costs down and increase efficiency, design firms and contractors alike have embraced Building Information Modeling (BIM), lean construction and Integrated Project Delivery (IPD) as tools for more efficient execution. Prefabrication and modularization are becoming more prevalent for trade contractors as they search for production gains as their labor force shrinks. Improving business development processes as well as the results, has become a priority for many companies as they compete for hard-won market share.

In this section, we attempt to paint a clearer picture of the current industry environment for each constituent as we examine these and other more pertinent trends.

Architects/Engineers/ Constructors (A/E/C)

By Louis Marines, Steven J. Isaacs, Karen L. Newcombe, Michael Landry, Grant Thayer and Hunt Davis

Over the past three years, design firm leaders have gone from ensuring survival during a deep recession to guiding firms through an exceptionally slow and flat recovery. No one at this time expects a normal rebound from this recession, and the current pattern of small steps forward alternating with jolts backward, is widely projected to continue for at least the next year.

To maintain our understanding of conditions facing engineers and architects, FMI conducts ongoing surveys throughout the year. Recently, we have conversed with CEOs, presidents and other senior executives of consulting design firms about the greatest challenges facing them through 2012. The six major trends we have identified as a result of these interviews and related surveys are:

1. Project funding
2. Evolving delivery methods
3. Competition
4. Finding and retaining staff
5. Technology driving change
6. Industry consolidation/merger and acquisition activity

Project Funding

The greatest challenge facing firms today, and likely through at least 2013, is finding funding for projects. With the economic recovery moving like a slow-motion roller coaster, CEOs report to us that projects start, stop, are put on hold for indefinite periods, then start again with little warning when funding comes through. Reports on the deterioration of the nation's infrastructure continue to appear regularly, yet little work is expected while tax coffers remain low.

Terry Neimeyer, CEO and chairman of the board of KCI Technologies, Inc., told FMI that, "Our transportation sector used to lead our company in growth and profitability. Today, it lags our other businesses, as project-funding issues have caused many state DOTs to reduce their programs. Given a lack of a robust federal [transportation] bill, the outlook for the future is not promising."

The funding picture is complicated further by pending federal agency budget cuts. An August 2011 analysis by Deltek, Inc. projects that the federal budget for architecture and engineering services will grow slowly between now and 2016, with the current budget of $8.1 billion expected to rise slightly to $9.5 billion over the next five years.

While overall construction budgets will be cut by $2 billion in 2012, two areas will see increases: Health facilities and veterans hospitals will grow from $1.81 billion to $3.06 billion, and projects supporting energy initiatives will rise from $7.41 billion to $10.47 billion. These numbers align with the perception of the CEOs who spoke with us in the first quarter, many of whom said that health care and energy-related projects seem to have readily available funding.

When federal funds are lacking, can communities find alternative methods of project financing? If those methods happen to include tax hikes, will voters accept those increases? Kenneth M. Wightman, CEO of David Evans Enterprises, Inc., Portland Ore., says, "From a project funding perspective, a good percent of public-sector work is stressed due to the lack of private development. Typically, this development generates tax revenue, which feeds back into local, state and federal budgets, and then back into the agencies who hire engineers and architects. We expect that through 2012 on into 2013, funding for public projects will remain flat. Contributing to this problem at the federal level, the partisan bickering and entrenched positions within Congress are leaving the country unable to create jobs through reasonable tax increases. Transportation infrastructure work is being held up by outdated gas taxes that have not been raised since the early 1990s. Fortunately, the local populaces in Oregon and Washington have supported tax increases when they can see a relationship to specific projects that will benefit their communities or the states'

economies." This civic-mindedness is not new in the U.S. On November 4, 1930, one year into the Great Depression, voters in the San Francisco Bay area went to the polls and put their homes, farms and business properties up for collateral to support the $35 million bond issue that financed the construction of the Golden Gate Bridge. Alternative project funding methods continue to gain ground. President and CEO of the American Consulting Engineers Council (ACEC) David Raymond recognizes this shift and calls for continued advocacy of public investment in infrastructure: "As government budgets for public works continue to be constrained, we see growing interest in public-private partnerships (P3s), infrastructure banks, new forms of bonding authority and other mechanisms that facilitate project financing by bringing in private capital, shifting risk and monetizing infrastructure assets. At the same time, we must recognize that private investment alone cannot overcome the tremendous funding gap we have between current levels of public investment and what is needed. Therefore, we must continue to advocate for sizable public investment in core programs to sustain and improve existing infrastructure as well as to leverage public funding to generate supplementary private investment."

Evolving Delivery Methods

"Delivery methods are evolving – if you do not have full life cycle abilities, you are stuck and cannot have control of the market," said one of FMI's survey participants. Although it is not new, design-build is back on the front burner for clients due to the cost savings associated with this method. Public-private partnerships were mentioned in many interviews, but one firm with experience in P3s asserts that the entry costs and risk may be too high for many firms to take on. "Our firm is one of a handful of firms with the funding to be able to get into P3s. The financial risks are high, but we are pursuing it … The process to get in and the risk you have to cover, the terms and the timing are significant impediments. If you win, it's great."

Someone is winning these projects, though cost may not be the only barrier to entry. Terry Neimeyer notes, "The trend of P3s as a way to increase project funding is good. However, P3s tend to exclude many engineers who are not familiar with the large contractors and financiers who make the selection decisions. Regardless, this is a good trend, but we all must remember that P3s will not apply to freeways and require a revenue stream (tolls) to pay out the debt and concessionaire."

Peter Beck, CEO of The Beck Group, agrees. "P3s have enormous potential, but are typically best for projects of $300 million and up, where the cost of papering the transaction can be justified." Peter suggests that, "We may eventually develop standards like Canada has that allow municipalities to get smaller projects done using P3s. Canada's standardization of P3 contracts has made this possible, but we have not yet achieved this in the U.S."

BIM as a design tool will also have large impacts on project delivery, yet it is early in BIM's development and some executives are uncertain how best to implement it or where it will lead. Many construction managers as well as specialty contractors have embraced BIM, as have enlightened owners who have witnessed the benefits of better clash detection, improved project planning and fewer change orders. In a recent McGraw Hill Construction survey of AGC BIM forum members, Gilbane Building Company "saw a nearly 1,500% return on its BIM-related expenses" on a recently completed 96,000-square-foot data center. "With 1,445 clashes detected before crews even got in the field, Gilbane saw a 43% reduction in anticipated requests for information … that could have cost the owner roughly $863,000." [1]

Integrated Project Delivery (IPD) continues to gain ground, and Peter Beck offered FMI his perspective on the changes that IPD may bring about: "In our minds IPD is a half-step toward where the industry needs to go. One of the problems we have as an industry is the difficulty of aligning motivations between the disciplines using contracts, a number of disciplines really struggle with sharing the risk of other disciplines – but this is not something we can eliminate. Some of the best firms using IPD now tell me that trust between the disciplines is essential in IPD and most important in the early stages of a project, but people do not want to share their contingency until after they trust each other."

Beck goes on and adds, "The logical conclusion is to merge disciplines, or form long-term alliances between a particular team and the client. IPD may be a strong driver in bringing this unification about. The cost of investing in acquiring, customizing and developing the database can't be justified by a single job, and there is no guarantee that your firm will work with that architect again, or that this particular customization and protocol will ever be required in the future. Standardization of IPD would solve this problem, but that is still years away. Therefore, the cost has to be amortized over many jobs to make financial sense. This is where an alliance or merging of the disciplines makes sense. There is an architecture firm in the Midwest that has formed a shared subsidiary with a contractor. Both firms staff it; they pursue one type of work together and are integrated in a functional way to form this successful subsidiary. Trying to align on one project and then dispersing is not the answer."

1. Buckley, Bruce (2009) BIM at Its Best: Contractors Report Big Returns of BIM Investments. Constructor Magazine.

Competition

Firms are seeing prices driven down as competition intensifies. "There is now big competition for projects and more firms than is typical pursue every project. In the past we would see 15 firms pursuing a bridge project in our geographic area; now we see as many as 45 firms competing for the same kinds of projects," says Ken Wightman. FMI's survey respondents agree, with design firm executives reporting that competition for projects now comes from all quarters, including firms from other regions, other service sectors and outside the U.S.

Large firms have been seen competing for small bread-and-butter projects, in spite of likely having to take a loss. This brings into greater prominence the need to counter commoditization and find creative ways to differentiate the firm from competitors, put more energy than ever into relationships with long-term clients, and look for problem-solving opportunities that can get a firm in the door earlier or bring the firm into greater public view in the marketplace.

Several executives reported to FMI that they have seen clients make choices based on cost alone that could prove to be costly to them later (i.e., a contract that is too low to complete the necessary work accurately and safely.) Engineers and architects can continue to battle the lure of the too-low fee by maintaining close contact with clients and constantly educating them about what is necessary and realistic for a project to be designed and constructed effectively and safely.

Some firms are turning down long-term projects at reduced fees, opting for short projects that will be over quickly, when better-paying work becomes available. Others are giving long-term clients discounts now with the caveat that this is not business as usual; but all are concerned that as prices are driven down, it will be difficult to get them back to normal again.

A few clients are trying a new way to leverage this heightened competition for their own benefit by conducting electronic "auctions" between firms of similar capability on a project shortlist. The shortlisted firms typically are offered the chance to see how the firms' fees are ranked on the shortlist. Then they are asked to "bid" against each other online by revising their offers, for the opportunity to move up in the rankings. Some of these are held live, like an eBay® auction, so that firms can see in real time how the rankings change. Will this become a trend, and will bidding of architecture and engineering fees become a predominant process in the nonresidential marketplace, or is it just a few clients taking advantage of a difficult market? The direction of this trend will have a lot to do with the willingness of architects and engineers to participate in this process; so far, we have not identified firms walking away, primarily due to the ongoing need for new commissions.

Finding and Retaining Staff

As the recession eases, the recruiters have seen their moment arrive and are actively courting the top talent at design firms; firm leaders are equally determined to hold onto them. Some acknowledge that their leadership and staff development efforts have lagged due to the recession and are anxious to get these back on track.

Firms tell us that staffing remains a tremendous challenge at this time. Most firms cut back to their essential staff during the depths of the recession, but now face difficulty finding highly qualified talent for projects as they become available. With the irregular start/stop/start again pattern many projects are going through, firms are also reluctant to hold staff on standby, waiting for project funding that may not come through.

Recruiters are pursuing senior executives and those with specialized training in BIM, energy-efficient design and similar technologies. One COO reported to FMI that even though he is only five years from retirement, he is called repeatedly by recruiters. Another firm is frustrated in attempts to build up an experienced staff in cutting-edge energy modeling; those they train invariably are hired away by other firms. Strong staff engagement and retention policies can help firms hang on to key staff.

Bringing the brightest young people into the design and construction industry is an additional challenge. One executive expressed the fear that once again, the most talented young professionals are leaving engineering and architecture, never to return – there may be people available, but they are not necessarily the top talent that firms need now. The number of annual graduates in engineering and architecture who do not actually enter the professions is believed to be high. The National Society of Professional Engineers (NSPE) says that "only about 20% of those who graduate with a B.S. in engineering in the U.S. go on to become licensed professional engineers."

Corresponding data for architecture graduates is not available. Architect Matthew Arnold, author of an independent study on architectural licensure, believes the number is approximately 30%.

Beyond simply meeting staffing needs today, there is a large challenge to our industry to understand why the greater number of graduating engineers and architects are choosing other careers, and how to bring the best and brightest minds of future generations into these professions.

Technology Driving Change

Firms are under pressure to keep up with technology and are caught between clients and software companies. Clients, dazzled by what software developers show them, are driving firms to use technologies that do not always do what is advertised – but at no extra cost. One survey participant told FMI, "The software and tech folks are pushing for things that don't exist yet, leading clients to have high expectations that they can get from us a higher level of technology than actually exists yet. We are caught in the middle."

Many firms are seeking to fill positions now to prepare for expected future needs in BIM, energy modeling and similar areas, but find that few people are fully conversant, and those they train are poached by others. There is also a need to look beyond this year's trends and the next software update to identify and prepare for possible long-term impacts of technology on the entire industry.

A CEO in our survey said, "We are trying to enhance what we think about technology; we would like to jump over some increments and get to what is coming two to three years from now. It is a little risky to do this, but we are early adopters and want to take a broad-based approach. In BIM and information management, we are improving to some degree. We are looking for new ways to support project information, new technologies that also help us across the firm for marketing efforts and so forth. You can go online and customize your Nike shoes, so what if I could go online and get a custom brochure, on demand, for a client in Beijing – on his iPad? We suspect that in one year, the iPad will be a game changer – wait a year or two and see what happens."

Peter Beck sees not only the immediate benefits technology is offering, but also possibly a future resolution to the shortage of people entering the A/E/C industry. "Technology is definitely driving change and also contributing to commoditization among the sub-disciplines across architecture, engineering and construction. We are also seeing benefits. We are able to do estimating faster and with fewer people, and I expect to see the same happen in design. The hours in production phase will go down, while the time in design development will go up to ensure the necessary level of detail is there. This will help us solve many problems before we get to the field, which will help keep costs down. On a recent $200 million project, we estimate that we found 4,200 coordination issues before we got to the field that we would not have previously identified in advance. This translates to a smoother job and fewer field engineers needed. Over time, as we all are accustomed to working with these tools, it could result in less contingency held by subconsultants. Fewer man-hours will be required over time, so unless there is a massive increase in the demand for square footage, ultimately – just like banking, insurance, music, publishing and others – we could end up needing fewer people in the industry."

FMI will follow this trend closely, to see how technology affects future staffing needs as it becomes more deeply embedded in the work of architects, engineers and constructors.

Industry Consolidation / Mergers & Acquisitions

The perception among design firm leaders is that M&A activity is way up. Firms with M&A as a strategy are generally happy with the results and are using it to expand into new markets and bring strong talent on board. One survey respondent said, "We would like to double today's business and become bigger, more diverse and more geographically spread out. Right now we are predominantly looking for complementary services to those we offer already, firms that have value on their client list, talent and the prospect for a good financial return. We have had a good track record of turning firms around that had potential but were having difficulty managing their firm."

Terry Neimeyer shares another perspective: "The M&A market has changed from an aggressive market with high earnings multiples to a defensive market with lower multiples and firm owners looking for a way to cash in on their capitalization before it declines any further." Some firms are seeking strategies that will position them to avoid

becoming acquisition targets. One commented, "We're 500 to 600 people right now, and we are pretty sure that is not big enough to stay in business down the road. We are looking to grow, and organic growth is only feasible in states where we already have a presence. So if we are going to expand, M&A is probably going to be the right vehicle. We want to grow enough that we don't get gobbled up."

A few said that the industry could use some consolidation to clear the playing field of too many firms. One such comment collected during the FMI survey was, "Personally I think the industry is too fragmented. The large firms carry the burden for the small firms. The large firms end up taking on the risk for all the small firms … Consolidation will turn out to be a net positive for the industry; there are too many small firms right now."

The outlook for 2012 on into 2013 appears at this time to be a continuation of the slow-moving recovery we have experienced during 2011, with some movement forward and some backslides as markets and economic conditions seek the stability needed to begin an upswing. ■

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General Contractors

By Mike Clancy

As 2011 heads into the history books, many general contractors and construction managers are looking forward to increased demand and a return to normalcy. While in some parts of the country, there is cause for guarded optimism, vertical construction markets nationwide remain challenged. Those firms that have spent the past few years improving their business development and estimating have started to see the fruits of improved capture rates and recovering revenues. Most firms have made deep and painful changes to their cost structures in order to rationalize their overheads to the continued bear market in construction. However, contractors throughout the industry are being generally conservative, making sure that they remain flexible to face whatever new challenges the market has yet to reveal.

Work Acquisition — The Most Important Strategic Challenge

It seems intuitive that work acquisition is a strategic imperative given the current economic environment. However, many general contractors and construction managers have failed to develop strategies and implementation plans that adequately support and clearly demonstrate the importance of their work acquisition efforts.

According to FMI's "Survey of Construction Industry Business Development Practices," most firms that have changed their business development approaches have followed the method of increasing the involvement of firm principals and executives in business development. This is an important first step to developing a business development culture. However, a business development culture also requires operations employees (project managers and superintendents especially) to develop relationships with key client personnel, and this is where many firms struggle in implementation. Contractors often express frustration with the business development aptitudes of their operations employees, and many have decided that only a select few have the skills needed to be effective ambassadors for their companies.

Many of these same firms have failed to invest in their operations employees, seemingly expecting project managers and superintendents who have never been asked to act in a selling role before to develop the needed skills organically. Implementing the correct processes, providing the proper training and guidance, clearly defining expected actions and following through with accountability measurements, the business development effort and the acumen of these key

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