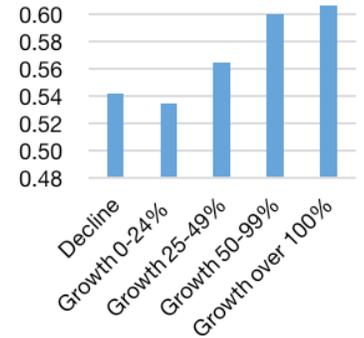


## TRENDLINES

Value to NSR



According to Zweig Group's 2017 Valuation Survey, firms that experienced increased growth in net service revenue over the three years prior to the valuation had incrementally higher Value to NSR ratios than other NSR growth categories. This ratio provides a clear picture of how revenue growth impacts firm value. (Special discount to TZL subscribers: Use code **SRVY35off** to order surveys at 35 percent off at [zweiggroup.myshopify.com/collections/frontpage](http://zweiggroup.myshopify.com/collections/frontpage))

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## Becoming a better leader yourself

"If you want to be a better leader, there is always something YOU can do. Don't wait for the company to come up with a leadership development program."



Mark Zweig

### EDITORIAL

There's so much written about leadership training and developing better leaders in your AEC firm. But there's little information about how to become a better leader yourself. It's all about what you can do for people. Time for the onus to be on the people themselves!

Here are some thoughts:

- 1) Know how you will coexist with personality types you don't normally "get along" with.** Here's the reality – not everyone is alike! And thinking about how you will react to certain things someone could do in advance of them happening can only help you deal with them better. But being equipped for these people can only happen once you are able to spot them. Your instincts about people must be honed and tested. And then you have to follow those instincts and anticipate problems.
- 2) Know what your weaknesses are and work on improving them.** I am all about playing to my strengths. Do more of what you are good at. But you also have to know what your weaknesses are or they can destroy you. What are you not so good at? How will you get better at it? How will you mitigate your weaknesses? Better work with people who are good at these things!
- 3) Never forget how critical your employee selection skills really are.** When we get overloaded and have way too much work to do the tendency is to start hiring people we think can do the immediate job at hand – or part of it – despite our instincts telling us they have other weaknesses that will hold them back. Doing

See MARK ZWEIG, page 2

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# Atlantic shores

## TRANSACTIONS

**HARLEY ELLIS DEVEREAUX ACQUIRES NORTHERN CALIFORNIA-BASED ARCHITECTURE FIRM DEEMS LEWIS MCKINLEY** Harley Ellis Devereaux (Hot Firm # 23 for 2016) announced that **Deems Lewis McKinley** has merged with HED.

A recognized leader in K-12 schools design, DLM brings more than 55 years of experience in the design of educational facilities across California. With offices in Sacramento, San Diego, and San Francisco, DLM further diversifies HED's 380-person design expertise and expands the firm geographically.

From Northern to Southern California and beyond, DLM's designs have advanced the world of hundreds of local communities since 1959. DLM's notable projects across California include a masterplan and complete campus replacement of the CHPS Demonstration De Anza High School in Richmond; a new Performing Arts Center for Palo Alto High School; a complete campus replacement for Edna Maguire Elementary School in Mill Valley; a new Student Center for Monta Vista High School in Sunnyvale; and a complete design of the new Susan B. Anthony School in Daly City.

"The combination of DLM's experience and reputation in the Bay Area and Sacramento and HED's extensive K-12 schools portfolio will provide our clients with an even broader range of services, thought leadership, and design excellence," says J. Peter Devereaux, CEO of HED.

"We are looking forward to merging the talents of our two teams and are excited to be part of a very talented studio with deep resources," says Wallace Gordon, president and CEO of DLM.

MARK ZWEIG, from page 1

this will create a lot of problems for you later! You cannot be too picky when it comes to adding team members. The wrong ones won't carry their weight – or worse – be a negative force that drags down the entire ship. Pick the right people in the first place!

- 4) Keep yourself calm.** Remember, nothing good, when it comes to leadership, will ever come from you losing your temper! No matter what is happening – no matter how bad or ugly or stupid it is – you have got to remain calm. You set the example for everyone else. And if you are "losing it," how can you expect them to keep it together?
- 5) Keep yourself "up."** Depressed people don't inspire anyone. They just depress other people. Depression is like a disease you can catch. Again, my personal philosophy is that it doesn't do me any good to be depressed so why do it? At a minimum, even if we as leaders feel it we cannot show it. We have to be optimistic beacons for hope and possibility. Always.
- 6) Treat others how they want to be treated.** That isn't treat others how **YOU** want to be treated. You may have a completely different value system from them. Or, you may have a completely different personality from them. What matters is them and their perceptions. Not yours! This is the one problem with the golden rule.

**The point is this: If you want to be a better leader, there is always something YOU can do. Don't wait for the company to come up with a leadership development program. Look in the mirror and get started immediately!!** ▀

MARK ZWEIG is Zweig Group's chairman and founder. Contact him at [mzweig@zweiggroup.com](mailto:mzweig@zweiggroup.com).

**BELCAN ACQUIRES THE KEMTAH GROUP** Belcan, LLC, a global supplier of engineering, technical recruiting, and IT services, announced that it acquired the Kemtah Group.

Founded in 1987 and headquartered in Albuquerque, New Mexico, Kemtah provides a complete suite of IT support services.

"The acquisition of Kemtah greatly enhances our government IT services business, which has been rapidly growing since our purchase of Intercom Federal Systems five months ago," says Lance Kwasniewski, CEO of Belcan. "Kemtah's deep domain knowledge and outstanding relationships will provide Belcan with increased capabilities to support our existing and new customers."

"Belcan brings exciting growth opportunities and a breadth of IT and engineering resources to complement and expand Kemtah's capabilities," says Steve Wade, CEO at Kemtah. "Kemtah will be a great fit within Belcan's government IT services segment, and should benefit from the added software engineering and cyber security we will be able to offer our customers. We believe we will see immediate synergies from the combination of these two companies."

"Kemtah is the fourth acquisition Belcan has completed since AEI acquired the company 18 months ago," says David Rowe, managing partner of AEI and chairman of Belcan. "Each addition has greatly enhanced Belcan's product and service offerings, while also extending our reach and presence in the marketplace, allowing us to continue to deliver excellent outcomes to our clients."



[thezweigletter.com/category/podcast/](http://thezweigletter.com/category/podcast/)

**THE ZWEIG LETTERS**

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## What's in a job description?

Marketers, what does your job really entail, and what should you be doing to move your company forward?



**Christina  
Zweig**

**MARKETING  
MATTERS**



**W**hether you are in an exclusively marketing related job or have a different title but actively participate in marketing activities, it's important to occasionally evaluate what you do. Technology and social media have rapidly changed marketing approaches as well as traditional advertising, and a marketer's role has to change with the industry and the wider business climate.

Zweig Group's 2016 Marketing Survey of A/E/P & Environmental Consulting Firms found that 86 percent of firms in the industry employ full-time dedicated marketing staff. Nearly 100 percent of firms with 250 or more people employed at least one full-time marketing person. Those in top leadership positions – presidents, vice presidents, and COOs – are most likely to take on the role of marketer, both when a firm has dedicated

marketing staff and when they do not.

The most common job duties for marketing people include the development of brochures and other collateral, planning social media campaigns, graphic/web design, public relations, presentation development, and proposal development.

Marketing directors specifically spend most of

See CHRISTINA ZWEIG, page 4

## BUSINESS NEWS

**JACOBS HELPS LIVERPOOL FOOTBALL CLUB BOOST ANFIELD ROAD STADIUM CAPACITY: MAIN STAND EXPANSION ADDS 8,500 SEATS** Jacobs Engineering Group Inc. announced the culmination of its work for the Main Stand redevelopment at the Liverpool Football Club's Anfield Stadium, Liverpool, United Kingdom.

As engineering design consultant on the expansion, Jacobs provided structural, civil, mechanical, and electrical engineering services, also public health, lifts and escalators, fire, and acoustic consulting services.

The stadium's Main Stand has been transformed into one of the largest all-seat

single stands in European football, with a combined interior floor space five times larger than the football pitch. Accessibility has been improved, and some 8,500 additional seats have been added. The redeveloped stadium opened for its first game on September 10, 2016, providing Liverpool with its biggest ever home game crowd of 53,000 fans.

Jacobs responded to the club's brief by designing a new upper tier including the installation of a large cantilevered roof over the existing roof, which was later demolished. The new and existing elements of the stand, dating back to 1906, were ultimately joined together and the seating re-profiled. The expanded Main

Stand's structural engineering incorporates a 140 meter roof truss, equivalent to the length of two jumbo jets end-to-end. The works were completed within the 12 week season close period during the summer 2016.

In making the announcement, Jacobs Senior Vice President Buildings and Infrastructure Bob Duff stated, "We're tremendously proud of our team and its role in creating this unique engineering structure. The expansion showcases Liverpool FC's commitment to establishing a sustainable sports environment with a strong legacy. We congratulate Liverpool and all parties involved in delivering this remarkable project."

CHRISTINA ZWEIG, from page 3

their time on business development activities and RFP/RFQ submissions. It's been my experience consulting – especially at smaller, stable firms – that the marketing department spends most of its time on proposal development, with extra time spent on stable, repeating activities such as a newsletter, preparation for an annual event or tradeshow, and occasionally social media.

There is no denying the importance of these functions, but even if what you're doing is working at the moment, change, flexibility, and creativity are going to be necessary if your firm is to thrive in the future. Consider adding these five things to your marketing to-do list every day.

"The most common job duties for marketing people include the development of brochures and other collateral, planning social media campaigns, graphic/web design, public relations, presentation development, and proposal development."

**1) Do something creative.** Draw something, write something, create an advertisement, compose a photo, or direct a movie clip. Get out of your comfort zone – creativity begets future creativity, something that is currency in today's marketing environment. No matter your job role, I promise you'll need this skill in 2017 and beyond!

### 2) Commit to learning something new.

Technology is changing at a rapid pace. Instead of saying, "I can't," try to learn how. This could be anything from a piece of software, a program, or a physical skill.

"Staying connected with the work of the firm is the best way to understand its position in the market – its strengths, capabilities, and, most importantly, the people!"

**3) Teach someone something.** You will be surprised at what you can learn by teaching someone else. You may also find that by teaching and delegating certain aspects of your job they are done better by someone else and you are freed up to be more productive in other areas.

**4) Have a conversation with someone at the company about their job and what they are working on (this can be someone from any department).** This is so important. Marketing has to stay connected to the daily work of the firm and its true purpose.

**5) Work on or get involved with a billable project.** The *2016 Marketing Survey* reported that 56 percent of respondents say their firm's marketing staff work on billable projects. Like No. 4, staying connected with the work of the firm is the best way to understand its position in the market – its strengths, capabilities, and, most importantly, the people! ▀

CHRISTINA ZWEIG is Zweig Group's director of marketing. Contact her at [christinaz@zweiggroup.com](mailto:christinaz@zweiggroup.com).

## MARKETING SURVEY

The *2016 Marketing Survey of Architecture, Engineering, Planning & Environmental Consulting Firms* will help you:

- See which marketing activities can provide the biggest bang for your buck
- Set a realistic budget, including staffing levels, compensation, and investments in marketing systems and infrastructure
- Determine reasonable goals for your own proposal activity, hit rates, and more



If your firm isn't keeping pace with industry standards, you're risking the future of your business. But how do you know if your firm is over- or underinvesting in marketing compared to your competition? Do you know which marketing strategies lead to success, and which ones you should avoid? Do you know how many marketing staff firms like yours need to get the job done? If you want answers to these questions, you need this survey. It's the source the most successful A/E firm leaders and marketing staffers have been turning to year after year.

The 2016 edition of this report is a must-have resource that will show you all the benchmarks you need to find out just how your firm's marketing efforts stack up to your peers and your competition. You'll get all the latest available statistics on all areas of marketing – spending, staff, proposals, strategies, and much more! These survey results will help you see where you stand right now and enable you to start making plans and informed decisions about your marketing strategies for the upcoming year.

For more information, visit [bit.ly/2iSKZ0y](http://bit.ly/2iSKZ0y) or call 800.466.6275.



## Risks aplenty

Growth is all but assured in a healthy market, but if a firm doesn't watch out, it can grow helter-skelter to the point of extinction.



Stephen  
Lucy

**BEST  
PRACTICES**

**M**any firms are experiencing growth during this post-recession period and you can almost sense the excitement generated by the current talk about infrastructure investment. After so many years of contractions in the marketplace, the return of optimism in the AEC industry is a welcome change.

Most translate growth as meaning increased revenue, profit, and opportunity. However, along with all the positives, growth also brings increased risk which can imperil both current and future firm operations. Absent recognition of these risk factors, you may grow your firm to the point of extinction before you even realize it. Some specific risks to avoid include:

- **Lack of planning.** When business is down, we fret, lament the competition, and focus on the long-term in a concerted effort to prevent failure. When business is good, we rejoice, celebrate the easy wins, and focus on the short-term in an effort to meet immediate needs. Why is planning for the future one of the first items pushed to the sidelines when we get

“After so many years of contractions in the marketplace, the return of optimism in the AEC industry is a welcome change.”

busy? Absent development and adherence to a plan, all the benefits of great economic periods are expended in the short-term with no goal of sustained growth for your firm. You don't want to be that squirrel who eats all the acorns as they are gathered and then starves to death in the cold winter ahead.

See STEPHEN LUCY, page 8



# SPOTLIGHT ON: Fulfillment

## PROFILE



The Therapeutic Learning Center, a division of the ARC of St. Johns, in St. Augustine, Florida. Matthews Design Group designed the facility. / Matthews Design Group

## Atlantic shores

If at first you don't succeed, don't give up. Cast your net again and chances are you'll catch another fish.

By LIISA ANDREASSEN  
Correspondent



Rob  
Matthews,  
President,  
Matthews  
Design Group,  
Inc.

**R**ob Matthews, president of **Matthews Design Group, Inc.** (#10 Best Firm Civil for 2016) worked for several different companies, both big and small, before forming his 27-person firm based in St. Augustine, Florida. He says that while he liked the opportunities available to him at a large company, he preferred the more intimate, personal feel of a small one.

"I always wanted to build something from scratch to make it the best of what I saw in both these large and small companies. And with that in mind, MDG was formed."

"I always wanted to build something from scratch to make it the best of what I saw in both these large and small companies," Matthews says. "And with that in mind, MDG was formed."

### A CONVERSATION WITH ROB MATTHEWS.

**The Zweig Letter: How have you seen the company evolve since its founding?**

**Rob Matthews:** In 2005, MDG was formed as a land development engineering firm. Most clients were private sector. However, I knew from previous employers that diversification, in client type and services offered, was the key to success. We grew very quickly in 2005 to 2008 due to the boom in the housing market, but were hit hard by the economic downturn. By 2009, MDG had been reduced by 70 percent. The need to diversify was imminent. We ventured into forensic engineering and started pursuing municipal continuing service contracts in 2007. We landed our first municipal contract in 2008 and that trend continued. With the private sector screeching to a halt, we focused on writing RFQs for municipal contracts. Today, we currently have continuing services contracts with a number of public sector clients which accounts for about 30 percent of our workload.

**TZL: What are your key leadership strengths?**





**RM:** I have a vision of what the company should be, build a good team and trust them to do a good job. A good leader needs to know when to lead, but also know when to get out of the way. Overall, I find that people know what they need to do, but they just require some reassurance and the knowledge that they have backing to move forward with their decision.

“I find that people know what they need to do, but they just require some reassurance and the knowledge that they have backing to move forward with their decision.”

**TZL:** How would you describe your leadership style?

**RM:** I would like to think that I operate with a hands-on approach and am available to my team to bounce ideas around as needed. However, I let them operate independently, and check-in. Since I am ultimately responsible for what goes out the door, I do oversight reviews of plans to make sure we are consistent in quality and accuracy.

**TZL:** To date, what has been a top challenge and how did you deal with it? What was the outcome?

**RM:** My greatest challenge was leading MDG through the recession. We had grown so quickly when we opened and it looked like there was no end to work coming in the door. However, overnight the economy crashed, but we hung on. We reinvented ourselves, our services, our team, and our mindset. Since 2010 we have grown steadily, diversified, built a great team, and not allowed ourselves to get in the same financial or singularly-focused position that we had then. We grow more cautiously now and have strategically put MDG in a much better position to weather future economic downturns.

**TZL:** What is your vision for the future of Matthews Design Group?

**RM:** We have just started a strategic planning process with Zweig Group and will be sharpening that vision so that everyone on our team understands and shares the same vision.

**TZL:** Tell me about a recent project you are especially proud of and why.

**RM:** The Therapeutic Learning Center. The TLC is a division of the ARC of St. Johns which provides schooling for children ages 3 to 6 with intellectual and developmental disabilities. I was asked by a friend to provide the services pro bono to design the site for TLC's new school. I had recently had a child that was born eight-and-a-half weeks early and could imagine when seeing these kids that it could have been my son that needed these services. The more I learned about the organization, the more I wanted to help. Now, I

am an active board member for the ARC of St. Johns. This was not a large dollar project, but it was one that had a huge impact on me and our community.

**TZL:** Any news you care to share about firm projects or anything else?

**RM:** Through our strategic teaming relationships, we just completed the off-site roadway design for an Amazon Distribution facility in North Florida. We had worked on many roadway projects, but how this one came together and the scope and timing of this project made it truly unique. It showed a much larger firm how we can integrate into their team when needed to take care of critical aspects of projects.

**TZL:** Are you married? Children? Pets?

**RM:** I have been married to my college sweetheart, Keri, for 19 years. I met her while she was taking my scuba class. I also have two wonderful children, Robie, 10, and Abby, 8, and a two-year old King Charles spaniel named Stripe.

**TZL:** What's one thing most people at the firm don't know about you?

**RM:** I spent my summers working with my dad on a longline commercial fishing boat (just like in the movie *the Perfect Storm*) fishing for swordfish and tuna. We would go out for two weeks at a time. I really enjoyed my time on the water with my dad and it was a great experience, but it was also a great motivator for college. It taught me the value of hard work and the need to work as a team. It takes five guys to make the boat work efficiently.

“Since 2010 we have grown steadily, diversified, built a great team, and not allowed ourselves to get in the same financial or singularly-focused position that we had then. We grow more cautiously now and have strategically put MDG in a much better position to weather future economic downturns.”

**TZL:** Best vacation spot? Dream destination?

**RM:** I love to scuba dive. So far, Hawaii has been my favorite. I would like to visit Australia and New Zealand.

**TZL:** What's the last book you read?

**RM:** *The Finest Hours* by Michael Tougias and Casey Sherman.

See Q&A, page 8

STEPHEN LUCY, from page 5

■ **Lost focus on finances.** Cash flow and access to financial resources are always king in a down economy, but in a fast growth economy your capital needs also invariably grow. Expenses escalate as you increase staff, need more office space and acquire additional equipment. Are you prepared to handle the financial demands of a growth spurt? Also, are your collections dragging and your aged receivables increasing? Don't fall into the trap of praising your increased invoicing and lose sight of fact that it is of no value until you receive payment.

“Along with all the positives, growth also brings increased risk which can imperil both current and future firm operations.”

■ **Pressure on staff.** As your work volume increases, pressures will invariably intensify on your staff. Firm leaders often view expansion as creating greater opportunity, but staff may see that same expansion as imposing a greater burden on them. The firm may hire new staff, but to existing staff this may be interpreted as diluting their opportunities for individual growth. And if you have expectations of increased hours or productivity from your staff, you better be prepared to lead by example. It is important to acknowledge the many different points of view regarding growth and firm leaders must communicate in thought and deed why they have decided to grow. It is critical that you maintain buy-in from staff.

■ **Strained support systems.** Increases in billable staff may also mean that you need to increase support staff. What was adequate to support a staff of 20 is woefully inadequate to support a staff of 60. The last thing you want is to have highly paid billable staff focus on non-billable work. Not only is that unproductive, it is extremely frustrating for all involved. Similarly, your technology must keep pace with the needs of your staff and clients. Failure to adequately invest in all areas of business operations will create process inefficiencies resulting in lost revenue and profits.

■ **Reduced quality.** With more work and abbreviated project schedules comes thoughts of short circuiting normal work

processes to gain back time. You might even rationalize that you don't need quality assurance reviews on all your projects, just those overseen by your younger or recently hired staff. Regardless of experience level, we are all human and when pressured we all are more prone to make mistakes. Failure to produce quality work will derail any thoughts of growth as no one wants to hire a firm which extols poor workmanship. There are reasons professional liability claims increase after periods of economic growth, and failure to maintain the quality of your work is a primary cause.

■ **Impact on culture.** When your growth requires new hires, you decide to expand geographically or you expand through acquisition, are you able to maintain the culture and values you embraced prior to this period of growth? Successful firms usually attribute some of their success to differentiating traits within the firm culture. If that is the case, then your culture must be protected and nurtured. You cannot afford for your culture to become a commodity that is altered as a matter of convenience. Without respect for the intrinsic values of your firm, your growth may be impacted by turnover or lost clients because your firm no longer offers anything meaningful that differentiates you from your competition.

“Absent recognition of these risk factors, you may grow your firm to the point of extinction before you even realize it.”

Planned growth can be a great ride, but growth just to keep up appearances is a terrible decision under any circumstances. If you chose a strategic path which identifies and addresses the risks, your firm will benefit from your leadership. However, turning to ad hoc decisions made strictly to address ever changing daily challenges will undermine your firm's performance and long-term success. ▀

STEPHEN LUCY is CEO of JQ with offices in Austin, Dallas, Fort Worth, Houston, and Lubbock, Texas. Contact him at slucy@jqeng.com.

Q&A, from page 7

**TZL: What's the best piece of work-related advice you've ever received?**

**RM:** Work harder than everyone else. If you want to get noticed or move ahead, you have to set yourself apart. My favorite quote is, “Failure is not an option.”

“Stay true to your ideals and understand that you are only as strong as your team and that you need to take care of that team.”

**TZL: Is there a leader you really admire?**

**RM:** My dad. He taught me what was needed to get the job done and the value of hard work. He also taught me that you can work hard and not succeed, but that you cannot let it get you down. You'll get another chance tomorrow to try

and catch another fish.

**TZL: What advice would you give to someone interested in starting their own firm?**

**RM:** The list is long, but primarily stay true to your ideals and understand that you are only as strong as your team and that you need to take care of that team.

**TZL: When you're not working, what types of activities do you enjoy?**

**RM:** We live at the beach, so we love to spend time on the water. We are often on the boat or at the beach with family and friends.

**TZL: Favorite lunch?**

**RM:** Blackened mahi tacos at a place called Beaches in St. Augustine. The food is great and the atmosphere and view are even better. ▀

## OPINION



# Artificial ingredients

The first industries to adopt a new technology are the ones that succeed. Is your firm prepared for the age of artificial intelligence?



**Phil  
Keil**

## M&A INSIGHTS



According to Zweig Group's 2016 *Financial Performance Survey*, net service revenue per employee has steadily risen from about \$127,000 in 2014 to \$137,000 in 2016 due to efficiencies gained through utilization of technology. Still, that doesn't change what we know – the AEC industry is notoriously slow to embrace innovation.

A survey published in *The 3rd Annual Construction Technology Report* by JBKnowledge shows that the AEC industry's information technology budget is lower than other industries and only 4.1 percent of construction professionals used two-way cloud and server-based data transfers in project phases such as bidding and estimating. Architect and designer Lee Poechmann cites historical examples in his blog as well. Adoption of Six Sigma took nearly 20 years to become a mainstream manufacturing process and LEAN principles, developed by Toyota for automotive production, are still struggling to be introduced into the construction industry despite the massive benefits seen by firms that adopt these processes.

According to CB Insights, merger and acquisition activity for artificial intelligence startups has seen a more than 650 percent increase between 2011 and 2016. There were 38 such transactions in 2015 alone. Most of these businesses were acquired within their first four years. The usual suspects such as Google, Apple, and Twitter were some of the most active, but also at the top of the list are firms such as Salesforce, IBM, and Intel.

You may think artificial intelligence is over-hyped, a buzzword, or the stuff of science fiction, but the reality is that you need to start planning

See PHIL KEIL, page 10

PHIL KEIL, from page 9

for how it will affect your business. My background in chemical engineering and physics has spurred my interest in this area for the last few years. In addition to using the normal CAD programs TK solver and Maple, I've dabbled in machine learning and building neural networks in MATLAB.

“Just in the last few years, AI has had monumental impacts in our daily lives ranging from medicine to education and hopefully now to how we interact with the space in which we live.”

Just in the last few years, AI has had monumental impacts in our daily lives ranging from medicine to education and hopefully now to how we interact with the space in which we live. *The Zweig Letter* has even highlighted some of the trailblazing firms utilizing drone technology and virtual reality to add a competitive advantage to their business. If you fall past the early adopters on the bell curve of “diffusion of innovation,” developed by Everett Rogers back in 1962, you may already be positioning yourself to be behind the competition. We are approaching Ray Kurzweil’s “singularity” and the pace of technological change may leave you at risk. Let’s take a look at some of the longer-term, more transformational impacts of AI on our industry and how we might integrate them into the strategic plan.

How much time do you spend responding to RFPs, drafting, and messages? These are all things that AI can already handle. Right now, it appears that if you have a job that is done in a regular and consistent way, then that is a good job for AI. Artificial intelligence, however, will soon expand beyond this. A great example of using AI to solve problems that would take days for an architect, is the space syntax software depthmapX developed by the Bartlett Space Syntax Laboratory at UCL. It uses AI to perform spatial network analysis on many levels without the need of going on-site. Soon, with the amount of data that is analyzed from our personal devices, AI will be the one designing, planning, and organizing complex structures, with architects and engineers only adding finishing touches.

They will already know the client’s desires, what they buy, where they go, and how they utilize the space from data collected instantly. It will prioritize projects, respond to email, and analyze our growth plans. AI is something to be embraced as it has tremendous potential to change the world. How will this impact your staffing needs? Recruitment? Will you become a learner, a more efficient organization, or will your employees’ roles simply shift? How does this affect the way you interact with clients? It is important to your bottom line to embrace this change while managing the risk that implementation of new technology can present.

There will be a lot of uncertainty with new companies and technologies vying for dominant design in the next 10 to 30 years. It is important to have some criteria in place to

intelligently embrace and implement emerging technology into your enterprise. Here are a few questions to assist in determining which technology to integrate into your strategic plan:

- How does the solution fit into your existing environment?
- How does the business benefit (even if I cannot show ROI yet)?
- Who in my organization will use it?
- Does my staff have the expertise to manage the change?
- How will the technology affect my clients?
- What are the risks?
- Can I test the solution as a pilot program without significant business disruption or cost?
- Will the solution scale to the entire enterprise?

Now that you’ve determined the technology is important to accomplish the long-term vision for your organization, there are always risks in the implementation process. Books have been written on the subject, but I’ve added a few tips below.

- Give the leaders of your firm a layman’s tutorial on the role of any emerging technology.
- Make sure your firm understands the risk of any new technology and the steps you are taking to mitigate those risks.
- Invite members of your IT team that are more conservative to weigh in on emerging trends. It may prevent costly mistakes during implementation.
- Test unproven technologies in small pilot programs before firm-wide implementation.
- Blast the success stories from the early adopters out to the rest of the organization as a good example of what works.
- Create a concrete process or application for accepting, analyzing, and implementing new technologies in order to weed out ideas that are not far enough along to make good business sense.

“Change can be hard, but it should be embraced. Allow your firm to evolve for the future and make sure it has the tools to create the value your clients need.”

These are just a few suggestions to get you thinking about how to continually analyze and implement new technologies. What tips do you have for implementing technological change in your organization? We would like to know.

You will see many iterations at varying levels of AI in the coming years. Change can be hard, but it should be embraced. Allow your firm to evolve for the future and make sure it has the tools to create the value your clients need. In the end, that’s why your firm exists. If you want to continue, AI will have to be part of the plan. ▀

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## Risk management

Claims are not like fine wine – they do not get better with time. So take these four steps to assess and manage potential exposures.



Dan  
Knise



Rob  
Hughes

### GUEST SPEAKERS



**D**esign firms are always looking for ways to increase revenues and decrease costs. This takes many forms, but one initiative that will clearly pay dividends is to manage risk on both a pre-claim and post-claim basis.

What do we mean by manage risk? Well, simply put, it is the process of identifying, quantifying (if possible), mitigating, transferring, or accepting risk. This is something we all undertake every day as we evaluate the risks of any action (or inaction) and move forward with life. Sometimes, we undertake this type of risk assessment and management informally; at other times, we employ a more disciplined approach. For design firms to address risk most effectively we encourage a formal process.

**FOUR-STEP PROCESS FOR BASIC RISK ASSESSMENT.** Our experience is that the best run architecture and engineering firms utilize a four-step process as follows:

- 1) **Evaluate.** Assess the project and client at an early stage and make a reasoned go/no-go decision.
- 2) **Negotiate.** Once the decision to go ahead is made, work actively to manage the contract negotiations.

“It is important to begin the risk management process at a very early stage. In fact, this work actually starts even before considering a particular project or client.”

- 3) **Manage.** Practice effective project management, including active communication and documentation.
- 4) **Take action.** Once any signs of trouble, or even potential trouble, appear be proactive in addressing any concerns or issues.

**PROJECT EVALUATION AND GO/NO-GO DECISION-MAKING.** It is important to begin the risk management process at a very early stage. In fact, this work actually

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starts even before considering a particular project or client with ensuring that your firm has the proper business and professional licenses for the project jurisdiction.

“The most important thing to keep in mind is that good risk management does not have to be a barrier to success. In fact, when properly exercised, it can help enhance profits and growth while reducing the risk of negative consequences.”

The next step is to evaluate the nature of the project and the project owner. Historic claim information tells us that certain projects and certain types of clients represent greater risk than others. This includes projects such as condominiums and schools. Developers, in particular, tend to come after architects and engineers more often than state departments of transportation, for example.

You should evaluate the project owner’s track record with regard to length of time in business, financial stability and integrity, decision-making approach (e.g., committee versus hierarchical), and style (wheeler-dealer, conservative, etc.). You’ll also want to understand how they select their professionals – will this be a qualification-based selection process or low bid? In most cases, QBS is preferable by far.

Throughout this process, and the related step of making sure you have the necessary skill sets in-house (or access to such skill sets through qualified subconsultants), there should be a procedure to seek approval at various levels. This no/no-go decision process is critical.

Navigating the proposal phase: During the proposal phase, be sure to evaluate whether or not you have the skill sets in-house, or access to the skill sets, required to undertake the work being proposed.

“Once the project is underway, it is important to continually communicate with the project owner and others, as appropriate. A key step is to document all such communications with an email or formal meeting report to avoid misunderstandings later.”

Equally important is this – are the right people available to actually work on the project or is your backlog too full? Will you need to work with any owner-selected subconsultants (e.g., geotechs) and, if so, what is their track record?

On a related note, what is the adequacy of the project information (e.g., soil tests)? Can you rely on owner-

furnished information or will you need to undertake independent evaluation and testing?

Once you’ve jumped these hurdles you’ll want to look at the adequacy of the compensation (avoid “buying work”) and the scope of services. Additionally, what is the timeframe for the project? Is there adequate time to do a proper design and provide meaningful response to requests for information or other construction-phase issues? The owner’s overall project budget is also important. Are there adequate funds to build the project? Are the owner’s expectations realistic?

**CONTRACT NEGOTIATION ISSUES.** Once you’ve made the decision to move forward, then attention must be turned to the actual contract document that will control your relationship with the project owner. While the entire contract must be reviewed, the clauses that typically garner the most attention are:

- Scope of services
- Standard of care
- Express warranties or guarantees
- Time limitations
- Owner-supplied information
- Ownership of documents/intellectual property
- Indemnification/hold harmless

“Once you’ve made the decision to move forward, then attention must be turned to the actual contract document that will control your relationship with the project owner.”

**PROJECT MANAGEMENT IS KEY; DON’T LET ISSUES SIMMER.** Once the project is underway, it is important to continually communicate with the project owner and others, as appropriate. A key step is to document all such communications with an email or formal meeting report to avoid misunderstandings later.

It is also important to be on the lookout for any signs of issues. Project delays, cost-overruns, nasty emails from the owner or contractor, can all be signs of trouble ahead. Should any of these occur, don’t be afraid to put your professional liability insurer on notice and seek their assistance with these pre-claim matters. Claims are not like fine wine – they do not get better with time.

In closing, the most important thing to keep in mind is that good risk management does not have to be a barrier to success. In fact, when properly exercised, it can help enhance profits and growth while reducing the risk of negative consequences. ▀

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