

# DesignIntelligence Quarterly

**DAVE GILMORE** 

President and CEO

**MARY PEREBOOM** 

Principal, Research and Administration

MICHAEL LEFEVRE

**Managing Editor** 

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#### CONTEXT

Save for a few global medical experts, few of us could have predicted the appearance and impact of the global Covid-19 pandemic that began in March 2020. Unknowingly, in January of this year we set the center point of our editorial theme: Resilience. Under that banner, DesignIntelligence's Quarter 1 content addressed Research. Quarter 2 now focuses on Reframing.

Who could have anticipated such a timely, relevant topic? Quarter 3 and 4 will follow with Redefinition and Reinvention.

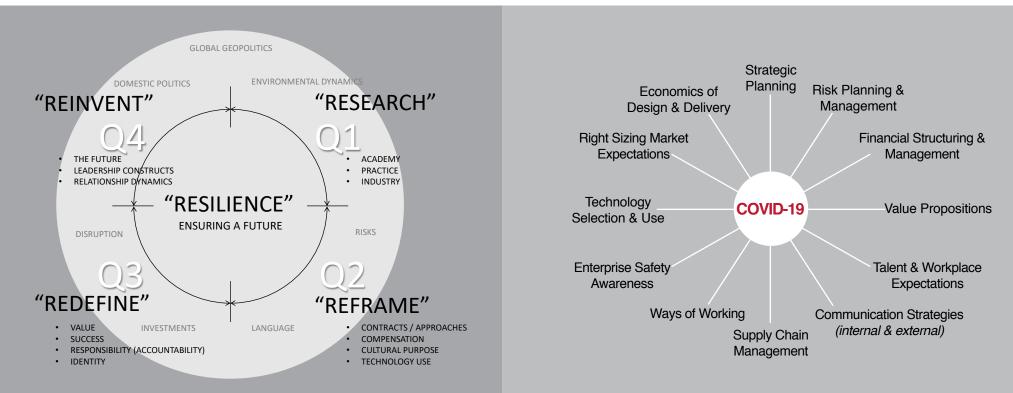
The diagram below redisplays our 2020 editorial roadmap and its four subtexts. Beneath it, our depiction of Megachanges outlines 12 trends shaping the built environment's post-Covid-19

response - vectors in traversing the recovery and creating a new normal for ourselves, our firms, and our AEC industry customers and partners.

Q2 offerings on these megachange topics include the thought leadership of more than a dozen industry experts. Dave Gilmore's provocation on Upside Down, Inside Out thinking challenges us. John

#### **EDITORIAL ROADMAP 2020**

# MEGACHANGES BUILT ENVIRONMENT INDUSTRY: POST-COVID-19



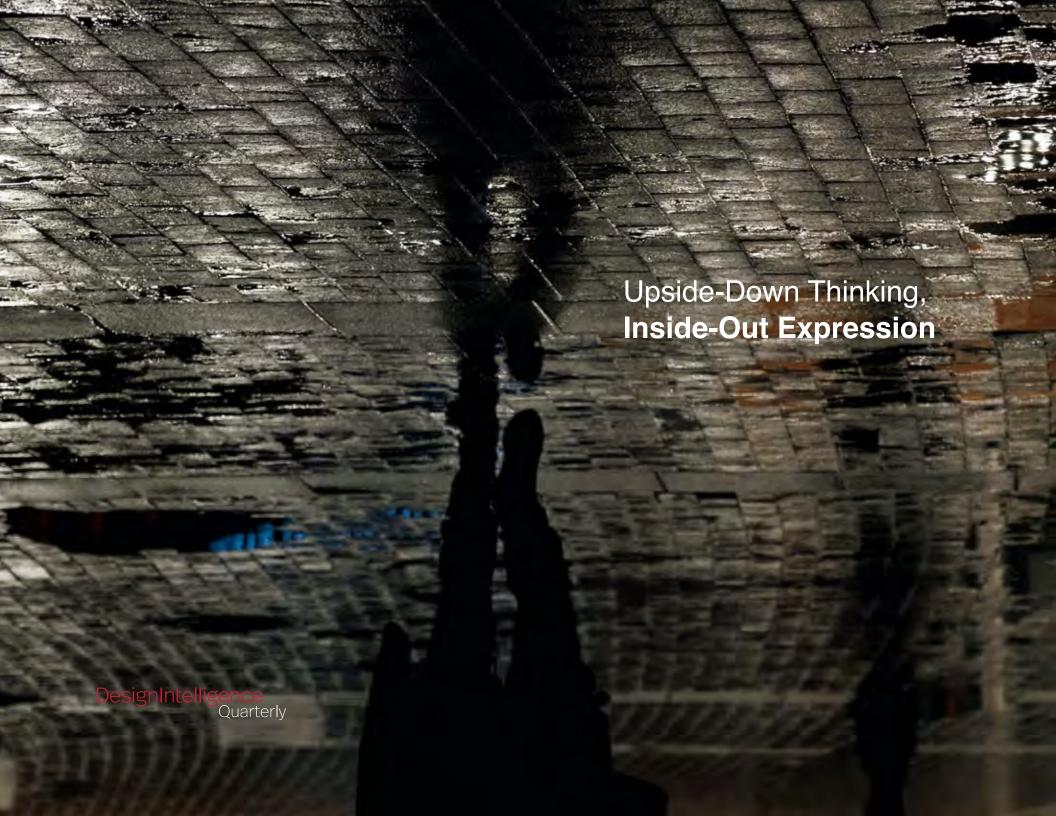
SanGiovanni envisions technologyenabled futures and new ways of working, value and compensation propositions respectively. Roberta Kowalishin shares observations on tech survival. Sasaki's Caroline Braga shares the unexpected benefits of a rich corporate culture in adverse times. Alan Lamonica writes on talent and workplace expectations. Craig Curtis of Katerra, Stacy Scopano of Skender and Federico Negro of Canoa Supply discuss reconstituted ways of looking at design and construction integration, using platforms, scale, and supply chain thinking in the circular economy to leverage value while promoting customization and sustainability. Steven McKay of DLR discusses strategies for transformation and resilience while Peter Beck shares thinking on workplace safety and strategy. Jamie Frankel and Scott Simpson's historical recounting of previous downturns and cataclysmic events and Ken Sander's discussion on market expectations offer perspective.

George Temple's leadership thinking on financial and operational measures capture sage fiscal steps. DI's Chyenne Pastrana offers advice on client-focused communication strategies, and my essay, On Reframing and the Digital Campfire examines questions, the nature of seeing, and our new virtual campfire.

Gathered from conversations with members and the thinkers above, these interviews and articles are offered to help you cope and capture the opportunity to look afresh and chart new directions.

We hope you will share your feedback, reactions, ideas, and thought leadership in these areas via essay, interview, audio, or video podcast format – and that you stay safe. Let us hear from you.

Michael LeFevre, FAIA Emeritus, Managing Editor mlefevre@di.net



**DAVE GILMORE** 

President and CEO, DesignIntelligence

### Can "right" be "wrong"? Can we upend legacy thinking?

The current COVID-19 period has turned the world, the nation, and the built environment industry on their heads. Few industries have been spared from negative impact due to this phenomenon. Whether directly or vicariously, every piece and part of the economy has felt the pain of this pandemic.

Being upside down presents new challenges doesn't it? Everything seems disoriented and confused. The traditional right-side up security is now distorted as right seems oddly wrong.

We have a unique opportunity during this COVID-19 period to apply different thinking to the near future. Is there a better world out there we can't see due to our right-side-up orientation? Is it possible by changing our orientation we will be able to solve many of the problems and challenges that have plagued us for too long?

Mark Holmgren offers a good description of Upside-Down Thinking,

"Upside-Down Thinking is both a mindset and a tool to use to look at things in a totally different way. One who is engaged in such thinking is bound to deploy wicked questions to be sure, but Upside-Down Thinking is a cognitive-creative methodology and is about more than crafting inquiry; it goes further to pose new realities or potential realities that run contrary to how we think and how we see our own identities within the context of our work. Moreover, Upside-Down Thinking has no loyalty to the status quo or to current tools or best practices. Its purpose is to give life to the contrarian within us and to see our world through eyes that wish to see something quite different from what is there."



Inside-Out Expression is yet another change in expressive orientation. When we think inside-out we open the dialogue to a more voluminous voice... the voice within that never stops processing. One that is ever-seeking answers to the wicked problems asked through upside-down thinking.

Inside-Out Expression is normally silent to outside ears, but ever audible to inside ones. We're told we talk to ourselves more than any other person though most of this is happening inside. On any given day, we are self-talking most of our awake hours and it continues while we're sleeping. Dreams are said to be the outcome of sub-conscious realities often triggered by self-talk. The question we need to be asking ourselves is the nature of the content in these talks.

Inside-Out Expression turns silent self-talk into audible expression risking the possibility of awkwardness to get to new answers. When we give ourselves and each other permission to express our inside-out self within the context of problem solving and creative endeavor the possibilities towards breakthroughs grow exponentially.

It all looks a bit strange doesn't it? Visualized in literal terms we'd all be standing on our heads spilling our guts about what we're really thinking! But is that really so bad? So prohibitive? What if we created a new reality where honest, intelligent, collaborative professionals could safely gather to think differently, allow for large thoughts, not always tethered in one-to-one constructs, to run a circuitous course towards meaningful conclusions? What if we allowed such thinking and voice to not always end with period punctuation? Maybe a string of new seed themes can be strung together by commas? Or maybe an encouragement to assemble a new inventory of provocative questions would be appropriate?

The future of the built environment professions is calling for more than legacy status quo. Incremental improvements are not the stuff of leaping innovation or transformative invention. At this critical juncture in history, new thinking must permeate the landscape of design and construction.

The work of architecture, design, and construction is a response to the future. What is the future telling us? How will we respond? Old responses to new futures will not work. Legacy practices will quickly find themselves outdated and irrelevant. Our competitors will soon become our collaborators.

The future is calling us to collaboratively expand our space of inclusion and invite new ideas, themes, and outcomes that, together, can result in better more effective outcomes for our clients.

We're calling for intentional disruption of talent structures, functions, and processes that can yield wholly new outcomes towards client value. Bringing non-intuitive parties together will spark new creativity underpinned with functional and financial value. Inviting new voices into solution brainstorming will usually generate positive, unexpected insight-revealing areas of client need largely hidden before.





We're pushing away from the traditional model of assembled intellectual property that seeks funding, wraps it with ownership protections, and hopes with fingers crossed to commercialize it somehow. There is a better, more collaborative way that benefits all participants and the industry as a whole. We're challenging the past and current models around technology development and raising new questions about relevance and effectiveness.

The near future is soon to arrive. Will you think, speak and act differently, and be different than the way you do and are today?

Try standing on your head and opening up, allowing your inside to be out. The extraordinary just might happen if you do.

Dave Gilmore is President and CEO of DesignIntelligence





MICHAEL LEFEVRE

FAIA Emeritus, Managing Editor, DesignIntelligence

Looking in new ways informs perspective. Can virtual tools and virtuous thinking lead us in our Kairos moment?

## THE QUESTIONS – AND HOW MUCH?

In his legendary poem, Rudyard Kipling poses this classic set of questions known to journalists, scientists and just-plain-curious people around the world as the Six W's. They form the foundation of all human endeavors that seek to collect facts and know the truth. In business settings, I would suggest we need a seventh 'serving man': how much? By its nature, business is always about how much. How much money? How many resources? At what cost and benefit to whom?

For practitioners in the built environment industry, these seven questions are (or should be) the origin of any inquiry. Now, more than ever, the seventh question: 'how much', needs to be interpreted more broadly. More than mere first cost (or benefit) from a singular, self-serving, or project perspective, responsible professionals must ask: what are the upstream and downstream impacts? How much? How does this decision, system, design, or construction proposal affect the community, environment, or society, long term? Armed with this fundamental question set -- the Seven W's -- we can



I keep six honest serving-men (They taught me all I knew); Their names are What and Why and When And How and Where and Who.

~Rudyard Kipling, The Elephant's Child

# SEVEN

refocus the outlooks and outcomes for the problems we solve.

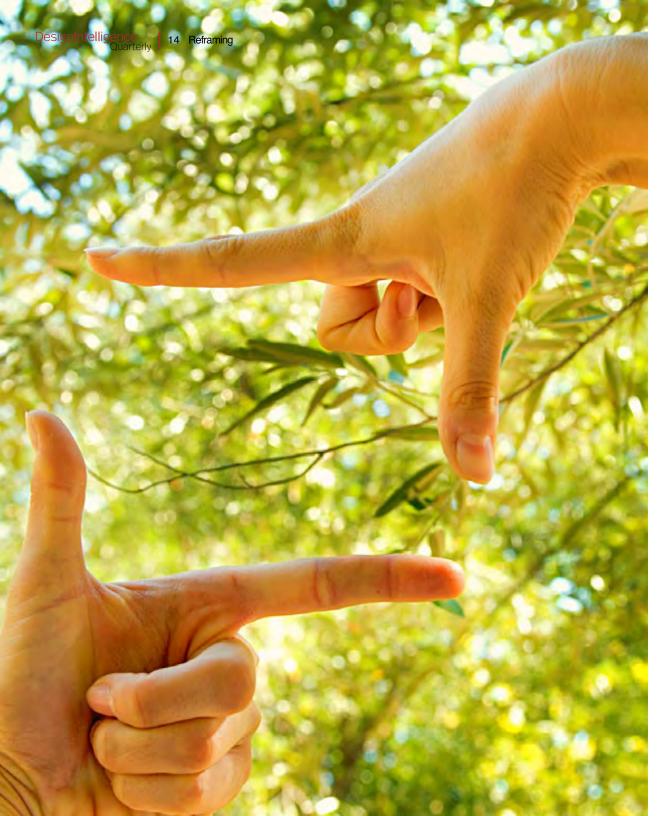
Many design professionals have historically shunned the harder, broader questions. Why? Some are ill-equipped. We may not have been trained to ask them. We want to do (and keep) our 'jobs'. But what are our jobs? What are they worth if they contribute to solving the wrong problem, or answering the wrong question?

What we need now is re-framing. A healthy skepticism and deployment of the boundary-crossing, scale-transcending, game-changing skills we learned in school as designers and builders. And we need to get better at answering: 'how much?' in several ways. First, we must care about the impacts of what we do on a wider scale and spectrum. To do this we need to be better at demonstrating, delivering, and getting rewarded for these more spectral values, services and results. Designers who can leverage their skills against the series of 10X impacts that lie beyond design deserved to be rewarded. In orders of magnitude, construction is 10X design cost. Building energy and operations costs are 10X construction cost over the facility life. The costs of the people and their productivity is 10X more. Finally, the long-term socioenvironmental cost and impact must be 10X that.

We need to get better at asking the right questions in the right way at the right time. Visioning, programming, analysis, options, dialogue, systems thinking – quantifiable with 'how much' – are the skills we need now. There's only one way to describe this process: reframing.

In the Age of Acceleration, as Tom Friedman calls it, we have the 'internet supernova' and 'flow' to move massive amounts of information. In this quickened pace of ever-less time and massive surprises, nothing is more important than asking the right questions, or, asking the ones posed to us in new ways. Kipling's questions are an always-good start, but it's how they are asked that's important.

The notion of frame connotes a border, a portal, a window through which we view a challenge. But how is it viewed? In what context? At what focal length? Any good photographer will tell you: to get good shots, change your perspective. Get closer. Step back. Shoot up. Shoot down. Look backward. Zoom in. Much like photographers, designers, and builders are trained to be better-than-average frame-changers. We're facile at it. We use



it to create art. But to answer all the 7 W's, we need to use this same ability to answer how much. At face, the 7 W's are always the right questions. But it's choosing to move the frame, step closer for a wider shot, or step away for a laser-focused longer view that makes the difference. It's where the value lies.

Let's look in a new way. Let's ask more beautiful questions. Let's put the Seven Serving Men (and Women) to work for us - in wonderful ways. There is no other choice.

#### RECENT EVENTS

Recent events have brought clarity in surprising ways. The global Covid-19 pandemic has caused many of us to question our priorities and ways of working. We face the conflict of economy vs. health and life. In pre-Covid-19 days, while interviewing more than forty industry experts for my book, Managing Design (Wiley, 2019) I was struck by the number of them focused on the idea of reframing. That is, asking the right questions.



Recent events have brought clarity in surprising ways.

Like my book's interviewees, current viral response leaders are seasoned experts, respected in their fields. But to a large degree, they didn't earn their stature playing by the rules. Each of them was skilled at changing perspective, casting convention aside, and seeing anew. When things were right side up, they turned them upside down. Now, faced with no other options in a world that has been upended against our wills, leaders are becoming adept at seeing it in new ways. In building new frames through which to view questions they succeed in finding new answers. When everyone else looks right, they look left. When the madding crowd carries on, or is afraid to, they pause and ask, as Warren Berger put it, a "more beautiful question".

But not all questions are beautiful. Some are brutally ugly in their honesty but need to be asked. How do cope with an

unexpected hidden assailant like a virus? In our quest to carry on, do we sacrifice human life for economic gain? Before and beyond virus conditions are we doing the right thing? Even when we return life as we thought we knew it, or what many are calling "the new normal" should we continue to consume resources at unsustainable rates? Can our planet, systems and humanity tolerate such behavior? Where are like-minded people we can team with to see, listen, and react well to this global correction? Years ago, E.F Schumacher asked questions such as these in his classic 1973 work, Small is Beautiful. At our own Design Futures Council conference on Sustainability last November, Jonathan Salk presented us with similar questions from his book, A New Reality. These questions demand our attention. So do others that are aggregations, combinations, or variations on conventional wisdom. Other queries

offer beauty by simply looking at the proper scale or direction -- or transcending it.

These are creative leaps. All take contrarian courage.

Reframing is the art of seeing anew and drawing new boundaries within which to focus investigation - a new outlook to catalyze re-visioning. The best of us are good at it. The rest of us should learn. In this time of bigger, more important questions - of personal, firm, professional, and planetary survival, wouldn't it be an advantage to be working on the right problems and seeing in the right ways? In these challenging times, let's ask the right questions, and work together to solve them.

We can't do it the old way – and we certainly can't do it alone.



# PERSPECTIVE: SEEING DIFFERENTLY

An old design tenet tells us the process of drawing informs how we see and think. But in a crisis, one of the first casualties is perspective. In times of trouble we often focus only on the now. We think it will be like this forever. We lose perspective.

Digital teleconferencing programs like Zoom, Microsoft Teams, WebEx, Skype, and Go To Meeting have given us a new lens and a new way of seeing. In her research at Stanford, Kathleen Liston studied the social dynamics and group behavior of teams looking as they huddled over their own data, viewing marked up hard copies - secret, individual, closely held, proprietary notes vs. the dynamics and social outcomes of the entire group focusing on a single set of shared, common data shown live on screen at the front of the room. In the latter case, "our" data, the "team's" data, (pronoun emphasis intentional) gives rise to a common vision of a single correct, coordinated data set, live edits, shared understanding, consensus and action. We're "in" our data together. We see and act differently. We reframe. Such is the power of a group videoconference. But there can also be side effects of new ways of seeing. In the case of over-Zooming, participants can suffer from anxiety, eye strain, and emotional fatigue from being "on" and "together" for prolonged periods.

Over my career as an architect I can recall thousands of instances in which the medium influenced the message- and how I saw. I sketched a column grid. A pattern emerged. Seeing it sparked a new idea to explore. Moving the idea outside my head, into my hand, and onto the paper helped me "see" it in more precise physical terms - not just imagine it vaguely. Stepping outside myself to draw on the reactions of a peer or mentor, or to contemplate a new frame such as a detail or budget aspect changed my perspective and advanced the pursuit - diverging it to alternate solutions or narrowing it to reduce options and increase certainty. It is this mysterious inside/outside, think/do, self/others alternation - and the influence of one on the other that's at the core of reframing. Whether designing, plotting a new strategy, or considering the potential

of a remote working approach, it's often how we do the looking and seeing that matters.

Covid-19 work from home adaptors to new ways of looking and seeing now use virtual meetings to cope with their essential need to commune and communicate. In these virtual meetings' gallery views, our faces are more accessible than they were when we met in person. My colleagues are framed, each in a box, each around our new "virtual campfire". They are seen in a new way, more personally, individually, and intimately, with views inside their homes and personal effects. What's more, we can now see all participants at once as opposed to only those we were looking at across the conference table in "in person" meetings (formerly known as face-to-face





meetings, a term likely to evolve.) We can see their smiles, emotions and attention levels.

# A KAIROS MOMENT... AND "THE DIGITAL CAMPFIRE"

On the same day I began to frame thoughts for this essay, in an internal DesignIntelligence staff Zoom meeting, I was serendipitously made aware of a YouTube video titled Dialogos 4, featuring Guy Sengstock, Jordan Hall, Chris Mastropietro and John Vervaeke, courtesy of colleague Rob Hart. I paraphrase heavily from their discussion, trusting they would delight in my doing so. Their purpose is dialogue. They use techniques like the empathy circle to provoke shared understanding. Their metaphorical parallels add depth to the consideration of how we might see, think, and "meet" in the future.

In contrast to the Greek "Chronos" or chronological sense of time, we now experience a "Kairos" event – an opportune moment in time. Rather than just another point in the chronology, Kairos moments are critical, poignant opportunities to be seized and acted upon. They represent the right time. Here, now, in this context. Now, seeing in our Covid-19 Kairos moment, we see as we do when we sit around campfires. Weaving into the campfire metaphor, our taking the time to lay and build the fire,

then watch it catch, fosters faith.

Think of the shaman and tribe sitting around the campfire. The campfire plays host to dual worlds at once, the darkness and the light; the concrete and the virtual; the interior life of the individual and the communal life of our sociability. As a result, we are both in solitude and in communion at the same time. Many of us are not trained to deal with solitude. We deny it. The campfire mediates between narrative and reasoning. There's something about the telling of stories and personal intimacy and disclosure that collapses it. The whole point of the campfire is that it's a refuge. People flock to it to escape the isolation. The darker the darkness gets, the more we are drawn to the campfire, to come together, stay warm, stay awake, and tell stories.

In our modern predicament, we feel the need to bring the virtual into reconciliation with the physical.

Social interaction now has an added, digitally expressed meaning. On one hand we have biological family, friends, nature, and physicality. On the other hand, we have the digital virtual world

that replaces or enables it. Our new need is to bring those together in a new balance.

Our new digital campfires are not just about the dialogue, they're also about being part of something larger. One informs the other. Circling our new digital campfire, we simultaneously experience ourselves and others while being vulnerable and exposed on screen.

To reconcile this, a philosopher, poet, seer, or leader is needed, but that is disruptive. The notion of Dialogos tries to get us to give birth to a new beauty, a new way, a new world. To listen to it is to honor it. To listen to it to be drawn into it. Socratic self-knowledge moves us into the aspiration to be other than we are.

We've become so accustomed to alienating ourselves into a context that's not of our own making: modern society, complex systems, and inertia, and now a pandemic and economic uncertainty. When our mold or form giver is removed – our status quo or comfort zone - we don't know what to do. At such times, Kairos moments, the Dialogos, the conversation, is exactly the container we

want to be in. The Socratic virtue of being able to move between categories in and out of this discussion around our new campfire is a competitive, adaptive advantage.

The ennui, boredom, and even the horror of being shapeless and alone is unbearable, and so it draws you into the conversation and the social environment. The willingness to admit you're shapeless goes to the question of vulnerability - to flow in and out of various categories to find out who you are in the next moment.

There's a lot of urgency going on, but the last thing we need is a bunch of urgent people. We need rested, wise people, people with perspective, people who have reframed and are ready to lead us to - as Jonathan Salk recently called it in his new book: The New Reality.

What can we do right now, that we have faith in? What are the invariants and core principles?

The Covid pandemic has provoked us into a cautious, interested alertness. How will we overcome the human-built

structures we find ourselves engaged with? How will we embrace the nexus between force and flexibility; receptivity and the changing context. Those who want to survive must answer those questions. Will we respond to the invitation to go beyond - into the darkness - to seek clarity and make it beautiful?

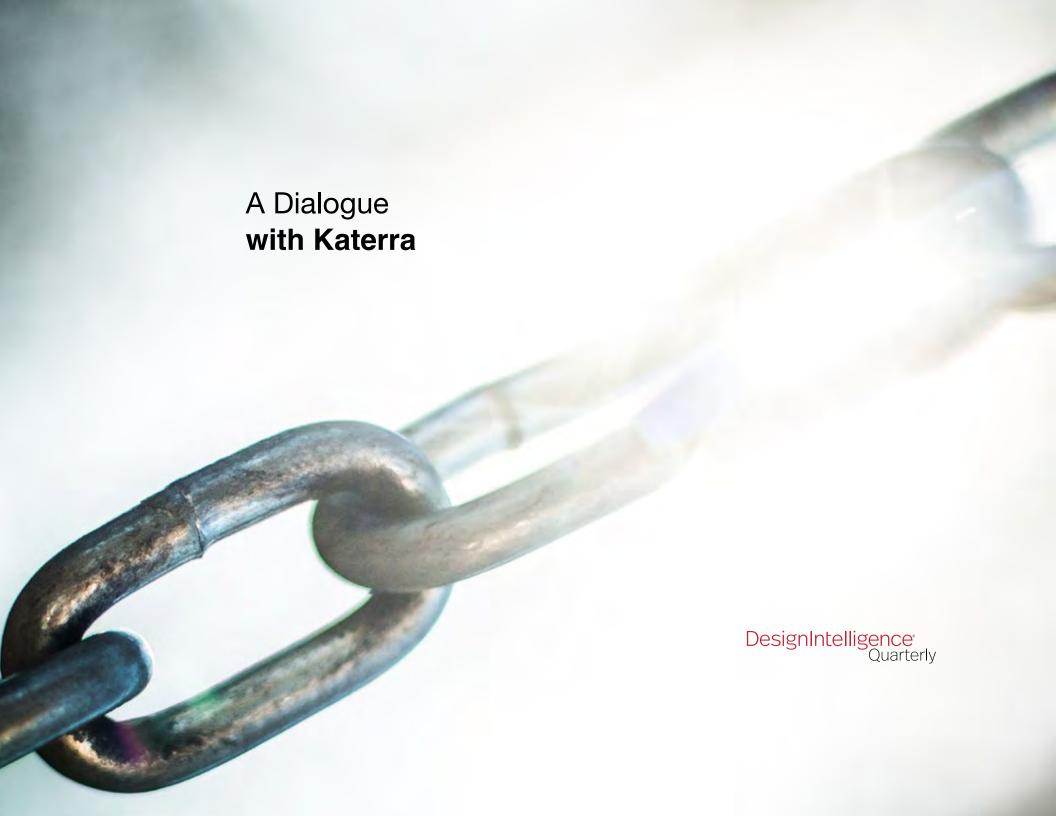
We have choices in pondering what is essential. Whether we deploy the Seven Servants to ask the right questions or use new ways of informed seeing and thinking such as our digital campfire to leverage the powers of others - we'll be better for it.

Can we use our new online stoa as great hall for public discourse, to engage in a dialectic - constantly moving between explaining and exemplifying it? A mimesis is needed. Let's come in good faith, even if we disagree, hoping there is the possibility, through dialogue, that you will transform me in some way I could not have anticipated. Let's move from sheltering and bad faith into empathy and action.

By looking anew, we can - and will.

Michael LeFevre, FAIA Emeritus, is Managing Editor of DesignIntelligence.





**CRAIG CURTIS** 

FAIA, Design Director, Katerra

# Craig Curtis speaks on supply chains, scale, platforms and mass customization in a design-quality-focused organization

DesignIntelligence (DI): Katerra has a rare position in the A/E/C marketplace as a vertically integrated company. Yet your background had been in traditional architectural practice. Can you share your background, how you got here, and your current role at Katerra?

Craig Curtis (CC:) I spent most of my career at the Miller Hull partnership. I joined the firm in 1987 after spending a few years down in California after university. I was there from '87 for almost 30 years. It was a fantastic experience. Dave Miller, Bob Hull, Norman Strong, and I were the four partners for quite a few years. The firm grew and I led the charge to open an office in San Diego for the firm. I had some incredible commissions there - a worldwide U.S. Embassy contract and a GSA land port of entry at San Ysidro, the busiest border crossing in the world, and the largest GSA project at that time. That kept our firm afloat through the recession. I was fortunate to be in that position and to work alongside Dave Miller and Bob Hull, my mentors for 30 years. A fantastic

experience and a great run. We grew the firm from 8 when I started to close to a hundred when I left. Nice steady growth with a deep bunch of talented people - which is what you need to do high-profile work.

At Miller Hull I had hired a guy out of college named Peter Wolff. Peter was one of the Wolff brothers in a family-owned Multifamily development business in Spokane. He was the lone architect/designer of the family. He wanted to go into architecture and bring higher design to his family business.

After several years at Miller Hull he went back to work for his family developing Multifamily apartments. We remained friends for years and did projects together. Both when he was at Miller Hull and later, when I designed a couple projects for him when he was back at his family business. In 2015 he told me about Katerra. I could tell he was excited about it. More passionate than I'd seen him in a long time. At the same time, I was at that point in my career, 55 years old, thinking, do I just

want to coast into the sunset at Miller Hull and not try anything else in my career? I've got at least a good 10, 15 years left. Do I want to try something else?

Pete convinced me to go to work parttime with him and launch the Katerra design office in Seattle, starting part time. I quickly realized there was nothing part time about Katerra. It was full time and more. In January 2016, I severed my ties with Miller Hull and went full Katerra. It was a nice long transition. I gave my partners plenty of time, six months of transitioning out. No hard feelings or any hardship put on that office when I left.

I joined Pete and we opened the design office of Katerra in January 2016. I recruited another ex-Miller Hull guy who was at Olson Kundig, Will Caramella. Pete brought along another young industrial designer he was working with named Will Root. The four of us started Katerra's design arm. The company was only about 40 people worldwide, primarily a supply chain company in those days. We realized the company needed to have construction, manufacturing, and in-house design capabilities to accomplish the vision.

DI: It existed as a supply chain and manufacturing company first?

CC: Yes. It started because Michael

Marks, our founder and CEO, was friends with Fritz Wolff, one of the brothers of the Wolff company, a successful Multifamily developer. Michael had been in the consumer electronics business and had been an entrepreneur. He and Fritz started talking about Fritz's business and Michael said: "Well, you must get a great deal on things like drywall or doors because you can aggregate that demand across all of your projects."

Fritz said, "No, that's not how this business works. We have different contractors, they have different subs, they have different suppliers who take them fishing every summer. There's no way of controlling where I'm going to get my doors, windows, and flooring. Even if I specify it, there's no guarantee until the end." Michael was shocked. "That's not how the rest of the world works. How can that possibly be the case?" he said. He volunteered to help Fritz put together a supply chain for Wolff's Multifamily projects, and quickly found he could, in fact, get a much better deal on materials.

What he couldn't control was those subcontractors and suppliers all the way up the multiple steps to general contractor. Work had to be specified into the project in order to get it. He had to go all the way back to the design team. They quickly understood to be successful you have to be in control of the entire process



from design all the way through installation and occupancy. From there, my role now is as Director of Design.

DI: That notion of supply chain control was part of the founding vision, the initial charter?

**CC**: Absolutely.

DI: Katerra has made several big splashes in recent years for acquisitions. Is growth by acquisition a key strategy to achieve scale?

CC: I get asked that question a lot. But I like to remind people of the size of the industry. It's massive. Even though we fully intend to have an impact at scale, we can't do it simply by buying a bunch of firms. In fact, we've only made three acquisitions.

One was a very small firm in Spokane and then we made two more significant acquisitions almost three years ago. We have made no design firm acquisitions since, nor do I think we need to, because those were very strategic. We fit with Michael Green because of the Mass Timber expertise he brought, along with Equilibrium. That was a no brainer because we we're going into the Mass Timber business in a big way. We acquired Lord Aeck Sargent for two reasons. Geographically, they provide us

with six offices with good locations and a design headquarters in Atlanta, a perfect place for us to have a second design headquarters. Secondly, they have a deep bunch of talent. A firm that's been around for probably 75 years now. As mentioned before, to do high caliber work you need high caliber people.

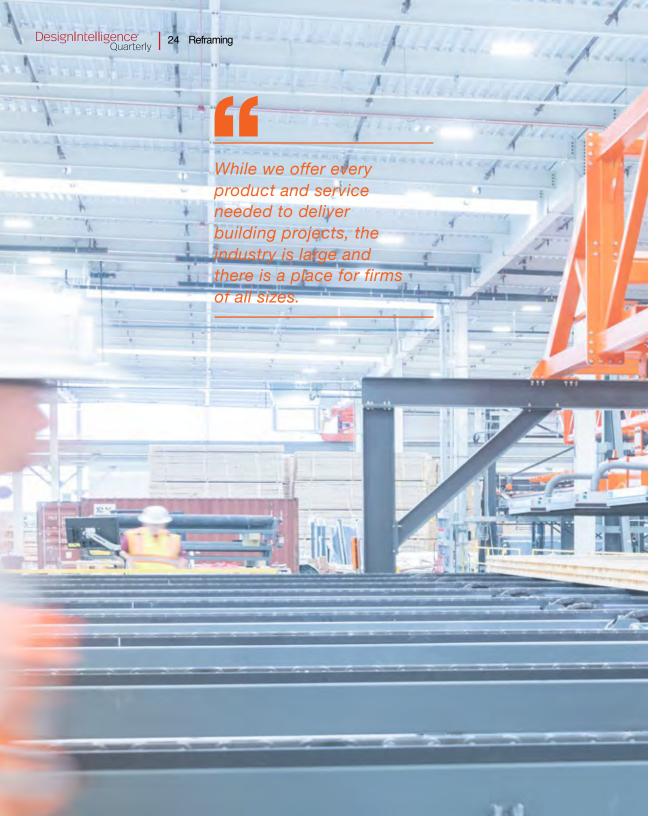
The people there are very, high quality. Processes are in place we can learn from. In the long run that's going to prove to be a smart partnership. I think of it more as a partnership than an acquisition. They got in with Katerra when we were in our infancy in terms of design capabilities.

#### DI: Talk more about size. Will there continue to be a place in the industry for the small firm?

CC: While we offer every product and service needed to deliver building projects, the industry is large and there is a place for firms of all sizes. Our focus is on designing and building platforms. My dream is that they become accessible for anyone to be able to use. That puts some of the information about costs, schedule, and other data - and the attendant power it brings - back into the hands of the architect. I know you've operated as both architect and within the office of a general contractor. I saw the reference to you as a "dual agent."



To be successful you have to be in control of the entire process from design all the way through installation and occupancy.



We're trying to get to the point where we're working together side by side with the builder with equal access to that information. If we're providing platforms anyone can use, anyone could buy one of our bath kits, for example. In the future, I would hope that people would be designing single family homes using our assemblies and being as creative as they want to be, but with access to all that information. It's pre-engineered. The supply chain and the catalog of materials is top notch because everything we do is high-quality design. Most importantly, we can provide you with the cost of those manufactured assemblies. You know, as an architect or designer, what cost to plug into a project. You don't have to wait for a bid from the contractor who has to go out to subs who have to go to suppliers to get the actual number. That's all baked into our manufacturing assembly. It's coming out of our factory, not out of somebody's pickup truck.

DI: That's interesting and it goes against my preconceptions, which were: "Katerra is interested in continued acquisitions, global dominance, trying to be the biggest." What I'm hearing you saying is: not necessarily so. You just want to have more control of what you're doing.

CC: The answer is to scale. If you think about scaling a platform, for example,

how did Uber scale? They didn't scale by growing a massive number of people back in the home office. They scaled through a platform approach. Alibaba is probably the best example of how a platform approach can work at a large scale. We could do the same thing. Sure, we can have a major impact at scale, but we don't have to do it by acquisition and by having thousands of architects. We can have maybe a few hundred architects who are providing all the information needed for other architects, who build and use that information to build smarter, to build more efficiently, less expensively and solve some of these social issues.

The reason I'm here is to try to make a difference in providing affordable high-quality workforce housing. Also, a means to utilize mass timber more effectively and promote that as a way to make a difference in climate change. Those two things are important and are two of the biggest challenges that architects have to face right now. Katerra has a good shot at having an impact on both. Sustainability is extremely important to us.

Mr. As a lifelong architect at heart, the notions of platform and scale are not household words to me. To hear you talking about that rather than dominance and acquisition is more

graspable. I can get my arms around it. We share that aspiration, even though we came at it in different ways. What we have in common is being two career architects who couldn't take the status quo anymore - and did something about it – by making a significant career pivot.

I'm thrilled you had that courage and are now an exemplar for others. What drew you to your current role? Was there an aspect of practicing within a traditional firm that destined you for such a change? Were you a designer, a production guy, a manager? What gave the impetus to want to be in this role? What drove you here?

When I look back at even the top commissions I had as a lead designer, say U.S. Embassies worldwide, that's as good as it gets. Even with those projects - and they were design-build projects - you would think in a program like that, that had been around for so long that we would be effective at managing the design-build process. That it would be collaborative and enjoyable. But it wasn't. In 30 years, I can look back and point at fantastic accomplishments architecturally but there are only a handful where I could say it was an enjoyable process through construction. There's so much angst, and so many battles to fight around the cost of a project versus design quality.





That's what I got tired of. To have an opportunity to join something and think about a completely new way of delivering a project without all that baggage and banging your head against the wall constantly. The same old battles over and over. That's what was most interesting to me. When I joined, I had no idea that Katerra would become what it is today, on our path to becoming what our vision is for this company. It's fantastic. I'm thrilled about it. But when I joined it was very small, just an idea and we didn't know this is where it was going to head.

I have loved being part of growing the design organization and learning about how almost every other industry in the world is run. Much differently than design and construction. It's really been eye opening. I've learned so much and I've met so many people from outside the industry who are running this company in a way I couldn't have imagined when I was working for a boutique design firm.

DI: Most firms in traditional design practice don't give much attention to the notion of supply chain. They're self-focused. Architects are educated and cultured that way. We're lucky if we even remember to call our consulting engineers and God forbid - the subcontractors and contractors and manufacturers, who are often seen as

"second-and-third-class citizens." You obviously embraced going about that in a new way.

What are some of the advantages of the integrated approach to design, construction, manufacturing, and supply chain you're using? What are some of the synergies, unexpected consequences, and challenges?

**CC:** Designing for platforms instead of individual projects is a new way to think about practicing. We're designing for entire platforms. For example, our Multifamily platform has a catalog of materials. The advantage is we can curate that catalog specifically to who we want to be, just as Apple has a distinctive look for all their products. If you're buying a phone, a laptop or whatever. Whatever product you're buying from Apple, you know it's going to have that certain look. That's been very successful for them. It's widely recognized as one of the best designed product lines out there. That's essentially what we want to be.

We want to have a fine catalog of products we've fully vetted that meet our standards, not only for aesthetics, but for sustainability, longevity, warranty and all those things. We build our platforms around that, which is quite a different way to think about designing.

# DI: Has the COVID-19 crisis had an impact on your supply chain?

CC: There has been very little impact. Part of the reason is we have a diversified supply chain. The recent trade war pushed us to make sure we've always got back up plans for every one of our products.

We're well diversified geographically. We've got nearly a hundred people in the company involved in supply chain and they're all over the globe. The advantage to a company like ourselves is because we have in- house all those people canvassing the globe for our products, we can react very quickly to a crisis like this. We're not tied to one particular manufacturer, or one location. We have lots of options.

DI: The benefits of what you're talking are clear for an integrated company like yours. What about firms not in a position to control their own supply chain. Are there some principles that could apply to a design only or a construction only firm? To share with those who can't go your route?

CC: That's a tough one for me to answer. It's been a while since I've operated within just a strict design firm. I'm not sure how this would impact a firm like Miller Hull, for example. But the beauty of Katerra's

supply chain is that it's accessible to the whole industry—any architect or GC can reap its benefits.

DI: Having made the transition from strict design to supply-chain-focused scale and platform design, have you ever crossed over to the "dark side" where you've said, "Oh my God, I got what I wanted and now it's oppressive. Now I'm a factory guy. I'm a manufacturing guy. Where did the creativity go?"

CC: Not at all. Designing at platform scale is challenging and creative. I thought doing a project under the GSA Federal Design Excellence program was difficult. Designing a platform that can be rolled out and provide design excellence over multiple buildings and still provide mass customization is an order of magnitude harder. We have a lot of talented architects here at Katerra. All are surprised and humbled by how difficult it is to design in this way. Because we're not about the lowest cost solution or lowest denominator. We're about providing design excellence in a new way and still providing the kind of flexibility in our platforms that allows for fantastic architecture.

Mass Timber is going to be a big part of everything we do in the future. That



alone leads to some beautiful new ways of thinking about design. That's a technology we're going to see more and more of over the next decades. I can't wait to see the award-winning architecture that Mass Timber provides.

DI: That's exciting. All I've ever attempted to do is to be systematic within a given project. To take that across a global supply chain

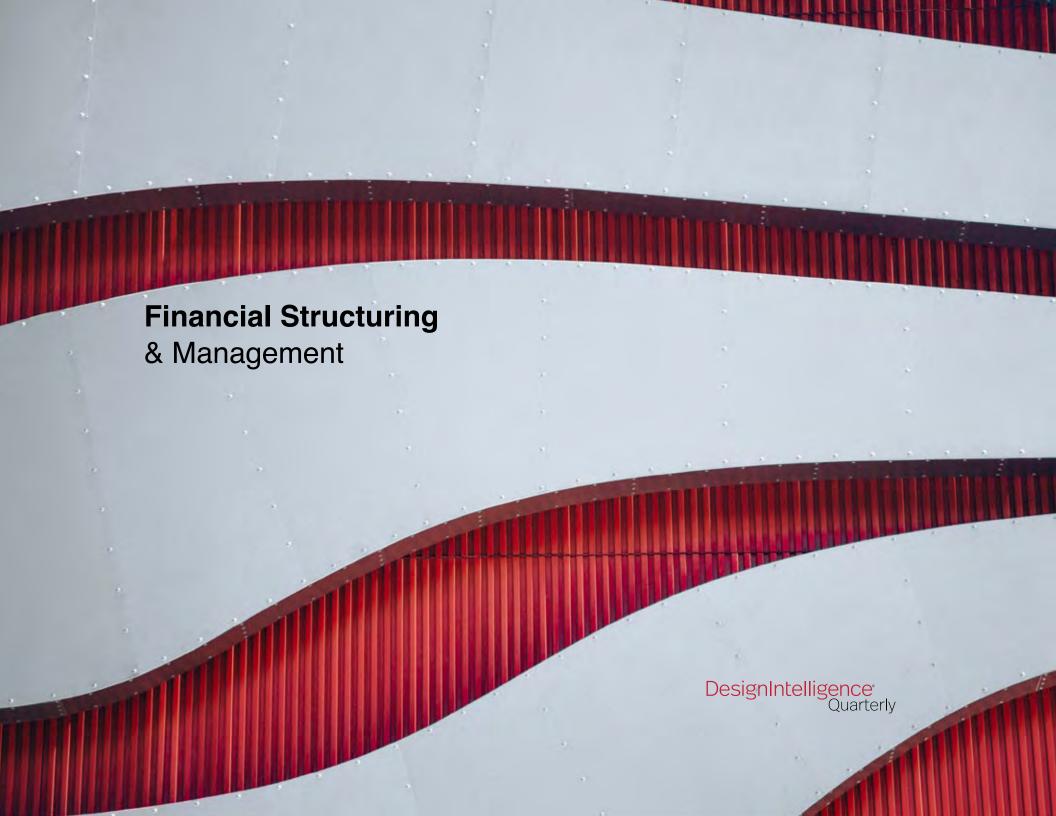
organization long term, I imagine, requires lots of talented people to help. I can only imagine what the struggles and challenges would be.

CC: Coming out of COVID-19 there's going to be a heightened awareness on healthy buildings, well buildings, biophilic design and environmental responsibility. Maybe one good thing that will come out of this is that people will care more about the health and wellbeing of the people who work in their buildings. I hope we can use this to make sure we think hard about providing healthy building materials and wonderful places for people to work. Whether you're in a home office or in a commercial office building, I think we'll see more attention to it.

DI: I hope so. Plenty of others in the industry can benefit from those things already baked into the Katerra culture and value set.

Craig Curtis, FAIA, is chief architect at Katerra where he oversees new building platforms while ensuring they meet and exceed sustainability goals. Craig was a partner with The Miller Hull Partnership for 30 years before joining the Katerra team. Craig's projects at Miller Hull included the Bullitt Center, the world's first commercial office building to meet the stringent requirements of the Living Building Challenge, and the \$450m replacement of the San Ysidro Land Port of Entry, the busiest border crossing in the world. Craig's success with the design of many award-winning projects was possible because of his integrated design approach: relying heavily on his team of architects, engineers, and contractors to solve complicated problems simply, creatively and elegantly, together.







GEORGE TEMPLE
President & COO, LS3P

# LS3P President & COO George Temple shares advice for financial reframing and monitoring post-Covid-19.

DesignIntelligence (DI): The pandemic has focused us all on the importance of coming together. Most firms used technology for internal remote connection. Are you considering any external outreach to aid in your financial recovery?

George Temple (GT): LS3P is a Community-Focused Firm. We continuously connect and develop deep roots supporting community and relationships in each of our office locations and across our region. We are leveraging local connectivity and access to identify and create revenue sources and help other firms, especially our engineering consulting partners, GC partners, and Associated Architects. As an architecture and design firm, LS3P teams with over 100 engineering consulting partners inside and outside our region and routinely teams with other LFRT firms to augment design expertise to create superior outcomes for our clients.

We are exploring how to better support our industry partners on their projects in our locales. While LS3P is often the Architect of Record on projects in our region, we also offer service to our Associated Architects on other projects they may be supporting. Outreach to assist with Construction Administration services and to provide other local support is underway. Building more alliances with smaller firms, consultants, and general contractors continues to be a priority for our Business Development professionals.

DI: Will any of these require changes to firm structure or financial models? For example, conversion from Partnership to a C-Corp to allow retained earnings for future rainy day events?

**GT:** As part of our Leadership Evolution transition planning in 2018, we engaged our external accounting consultant and re-confirmed our C Corp structure as optimal for LS3P. We have benefited from



corporate tax relief, retained earnings offset by R&D Tax Credits, and new programs for increasing deferred compensation to positively impact every eligible team member with greater financial security and more preparation for retirement. Preparing for the challenges ahead, cash conservation has been a recent top priority and year-end deferred compensation programs have been suspended pending 2020 financial outcomes.

A lesson learned from a decade ago: LS3P emerged from the great recession with financial resources gained from 179D Commercial Buildings Energy Efficiency Tax Deductions. These cash reserves were designated a non-operating asset and assigned exclusively as a backup funding source for stock redemption. This fund provides confidence and stability to our Shareholders during leadership transitions now and for the future.

DI: Assuming you were able to retain your key staff, what are your strategies to deploy and maximize their potential to help with financial balance?

GT: We continue to focus on high performance and best-in-class outcomes with our people. Increasing team members proficiency in our technology applications, specifically selected to enhance collaboration, is highly relevant to Work-From-Home (WFH) remote team member engagement.

LS3P has organized Knowledge Teams to assist with improving key aspects of practice and workflows aimed at refining our teams to deliver better services in less time. Investing in the development of our people remains a budget priority even during this COVID-19 Challenge. At the time of this writing, LS3P is maintaining professional development as a priority during firmwide budget adjustments. Reductions in travel and conferences expenses will positively impact our Professional Development budget. We value continuous learning and development in every member and aspect of the firm.

Like many firms, we are planning for possible transitions of underperforming team members. Our Vision and Values will prevail in guiding our approach for less tolerance for "less than excellent" in our firm.

**DI**: What role will technology play in your recovery? And how do you pay for it?

GT: LS3P has made strategic annual investments in technology for our practice and business to prepare for resiliency, advance capabilities, and increase capacities. These investments recently allowed for rapid adjustments from 8 offices to 345 work-from-home locations.

Our Technology Team is focused on increasing internal and external team collaboration by promoting our multiple generations of tech adopters and engaging our "laggards" in new technology and systems they previously ignored. Work-From-Home (WFH) has highlighted

significant benefits of new technology applied to Practice and Business. We are engaging every team member to identify and share improvements realized in the past 5 weeks. Multi-generational adoption of Teams and Zoom is helping us become a better, more unified firm. We've made it a priority to determine new measures of productivity during work from home status, beyond direct labor targets and utilization.

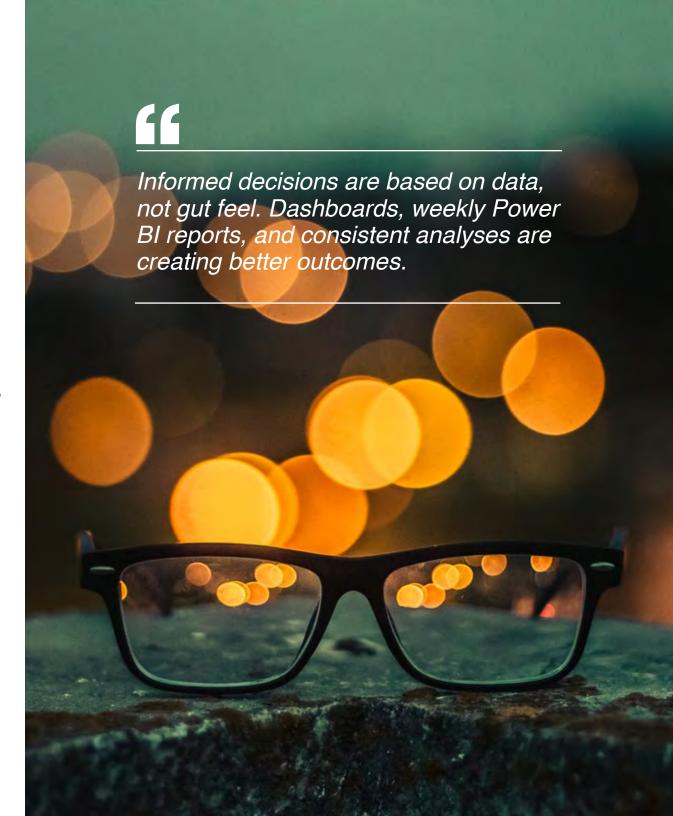
DI: As you make financial and business adjustments, what guides your decisions? Will the pandemic necessitate your realigning practice priorities for strategic advantage?



GT: LS3P is focusing on Vision and Values to guide decisions forward—we recently revisited our Vision, now through 2025, and reconfirmed Values to inform our latest Strategic Plan. Our leadership evolution is deeply rooted in aligning Vision and Values with all Practice and Business priorities. We are a diverse regional practice of four primary, eight secondary, and four emerging market sectors. We rely on this diversity in our portfolio to shift practice resources to sustain and grow the firm. Some markets may grow, some may sustain, some may delay or decline, and LS3P will adjust accordingly.

# **DI:** Operationally, do you see changes to project management and accounting controls for tighter - or different - overview?

GT: Yes. We have been increasing rigor in Project Planning and Resourcing to at least weekly to respond to dynamics of COVID-19 impacts to sectors. Work-From-Home (WFH) requires more accurate project planning by PMs to ensure team members are focused at least weekly on project tasks and deadlines, especially when project requirements change or stall. We compare project plans and billing projections from day one each month to billings outcomes at end of month with a margin goal not to exceed 10%.



Informed decisions are based on data, not gut feel. Dashboards, weekly Power BI reports, and consistent analyses are creating better outcomes. Weekly project plans updates need to be more frequent, especially when project go on hold or cancel. Continuous Project Pipeline Data Updates are high priority to direct business development resources. We implemented an Accounts Receivable Management System in 2019 to automate notifications to key personnel and keep accounts current.

DI: Externally, do you foresee changes in how you approach and work with clients to accommodate their challenges with revenues, payment and receivables?

**GT:** We are preparing to help financially stressed clients with payment plans to increase payment probability,

connectivity, and relationship strengthening during COVID-19
Challenge for remaining quarters in 2020.
Client Managers and PMs are encouraged to have frequent client communications to understand their Client's situation and how to realign with them for forward momentum. We are encouraging regular project interactions with Clients via Zoom and phone to maintain connectivity and keep up with continuous changing circumstances. We evaluate cash weekly and have requisite balancing of cash flow dynamics with payroll as a priority.

DI: Lastly, might you look externally for creative new funding sources and tools?

GT: We are embracing CARES Act PPP Loans/Grants to add tools to our financial toolkit. We've implemented minor accounting adjustments for the additional

benefits afforded by the FFCRA for paid sick leave and expanded family and medical leave (FMLA). We are applying the following approach:

- a. Focus on creating more stability for our people when financials are still strong
- b. Preparing two months of payroll and rent support to extend cash for additional protection from expected increases in aging accounts receivable and doubtful accounts
- c. Provide more flexibility and financial security for team members to address family and dependent care
- d. Renew our annual Line of Credit with potential increase to further protect financial security of business continuity—an additional hedge to address future aging accounts receivable

George Temple serves as LS3P's President and Chief Operations Officer. With a unique background in architecture and technology as well as military service, George brings significant expertise in innovative problem-solving to the firm's eight offices and 345 employees. He oversees LS3P's business operations and finance, leading a multidisciplinary team of CPAs and accountants, technology professionals, human resource professionals, an in-house counsel, and Operations and Finance Managers with the mantra "Business supports Practice."

An honors graduate of Carnegie Mellon University, George served as a regular officer and architect in the Air Force for seven years. He attended programs at the Air Force Institute of Technology, Harvard's Kennedy School of Government, and the Defense Intelligence College. In his current role, he inspires technology research, discovery, design, and application of creative solutions to improve efficiency and service delivery across all aspects of the firm. He is actively engaged in community and professional organizations including the Charleston Regional Development Alliance and the AlA.





#### STEVEN MCKAY

RIBA, LEED AP

Global Design Leader, Managing Principal, DLR Group

#### Reframing Firm Strategies for Transformation and Resilience

#### IT'S TIME TO THRIVE

Executives are discussing how they can position their companies to survive the COVID-19 crisis. Considering the uncertainties that surround us, it's only natural that business leaders talk in terms of survival and resilience.

"Resilience" implies an ability to spring back into shape – to recover from difficulties or the pressures of external forces. In looking at resiliency strategies it makes sense that design leaders have tended to consider longer-term, measured changes: evolutions of our practices. Before the COVID-19 pandemic, as I considered professional resilience, I wondered if instead of evolution, we needed to look at a more rapid pace of change – how could we transform our practice?

Design professionals have been trained as catalytic thinkers, problem solvers, and change agents. We creatives thrive when looking at challenges from diverse angles; when exploring and cultivating ways to address those challenges; and when finding elegant paths toward value-driven outcomes. We do it for our clients, why not for ourselves? We must look beyond merely surviving. Our creative natures can and should open pathways on which we can thrive.



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We do it for our clients, why not for ourselves?



You can't use up creativity.
The more you use, the more you have.

~ Maya Angelou



# CREATIVITY AS CATALYST

I've had the privilege of watching our firm work creatively with clients to address sudden needs surrounding COVID-19 outbreaks. We saw the need and were instinctively drawn to creative problem solving. In collaboration with our partners, we worked to identify and craft solutions to sudden, dire needs. In short: we did what design firms do. I'm looking forward to seeing more stories about how our profession applied creative thinking to help our clients through this crisis. But let's also look inward. How can the creativity we apply to helping our clients thrive be applied to helping ourselves become more resilient firms? Through design of our attitudes and organizations, we can thrive.

It might seem hard for us to find creative energy at a time like this. But Maya Angelou put it best: "You can't use up creativity. The more you use, the more you have."

# NIMBLE IN CULTURE, PRACTICE, AND BUSINESS

To take full advantage of our creative potential, a key factor in being able to thrive in our industry is to be nimble, flexible, agile, and precise in our enterprise decisions.

Well before the COVID-19 crisis, diverse influences guided our conversations

about change: the rapid rise of new technologies and their impacts on design outcomes and process; changing client expectations; shifting perspectives as new generations of emerging professionals enter our firms; and more. Influences like these have driven us to consider specific strategies at varying levels on how to be resilient firms. But too often, the conversations center on mid- or long-term change. What we must recognize is that the time for change is now. We must adopt an attitude necessary to nurture resiliency in the ongoing rapid pace of change.

Let's have a flexible mindset: how we used to do things is not the only way to do them going forward. Let's have the agility to pivot - easily and quickly directing our creative and enterprise energies toward building resiliency. Let's act with precision on issues of genuine significance and impact, with rigorous attention to detail.

The actions below address the essential strategies of a resilient firm. These are by no means exhaustive, but I hope you find them relevant food for thought as you contemplate what is of genuine importance to your firm.

# 1. Creativity is Key

Creativity is pivotal to resilience. Know the values that are the beating heart of your brand. Let those remain the hub of your decision-making and look at what can and should change around them. We should be just as creative transforming our own businesses as we are working for our clients. From exploring nontraditional partnerships, to new levels of employee engagement and transparency, we must transform design processes, flexible hiring practices, and more. Ask yourself: do you frame all your conversations, actions and ambitions though the lens of your creative values?

# 2. Services Diversity

A resilient practice is in tune with a shifting marketplace. It recognizes that the client needs may entail diversification of services beyond traditional expertise. Look at how aims for energy conservation shifted into demands for high-performance design; how quickly advances in technology shifted client and user perspectives from traditional space evaluations toward awareness of and influence on the full building lifecycle.; how quickly clients expected evidence as

basis of design decisions. We must think creatively about how we shift our own service offerings to diversify our revenue streams, connect with and proactively seek emerging client expectations, and recognize how much of our work leads to new service offerings we can and should have ownership stake in.

# 3. Workplace Demographics

To thrive, we need to take a radical look at how we approach hiring and retention. As a profession, we can't afford to lose another generation of design professionals like we did in 2008-2009. Even during times of crisis, our industry needs to support emerging professionals; curate and mentor new leaders; and take advantage of the new perspectives and skillsets a diverse workforce brings to our firms and our profession. Diversifying our services demands a new perspective on what our workforce looks like building outward from traditional AEC disciplines into digital programming, data analysis and applications, digital creative services, and more. Finally, we need to embrace the shifting values represented through the voices of our emerging professionals: our ongoing movement in

equity, diversity, and inclusion isn't just embedded in hiring and mentoring practices - it's transparent across the workforce. With a recognized war on talent, resilient firms should be as focused on retaining their talent as they are in recruiting it.

# 4. Design Language and Value

Our industry often takes design value for granted. In my experience it's more the exception than the rule, especially for clients who feel the pressures of executing projects from myriad, diverse angles. The rallying cry "good design is good business" is more relevant now than ever as design thinking becomes a core value in many global businesses. As such, each of us must hone our own design language, and evaluate every enterprise decision through the lens of "good design is good business." A conscious design language is key to maintaining a strong and resilient internal design culture, and to articulating design value to clients and being recognized within your communities as leaders.

# 5. Leverage Digital Technologies

As clients increase their expectations for evidence-based design, gathering, managing, analyzing, and acting on data is increasingly essential for resilient design firms. What we could do with that



data is limitless. But that's not the end of our opportunities in leveraging digital technologies. Diverse, unexplored digital applications could advance our practices. Weeks ago, setting up an infrastructure and toolkit to enable remote design work was still optional. Suddenly, it's a necessity. Technology acceleration is no longer an "if". Resilient firms will find ways to use technology to transform business practices and design processes.

## 6. Be current. Be visible.

Think about the impact your online presence makes on your target audiences. I didn't say "clients" because those who seek you out online include prospective employees; potential design partners; the press; and more. Increasing numbers of people expect not only to find your website, but to find it up to date, and reflect who you are and what you do. Make sure your web presence is up to

date. While your website is still the center of your digital universe, look at activating social media and related channels to reach the people you want to reach.

# 7. Workplace Wellness

Engaged, committed staff usually means happy clients. Attend to the needs of your people. Yes, you should have a healthy workplace that contributes to their wellness. But remember, it's about more than clean air and standing desks; it's also your working practices. Accelerated by our current COVID-19 crisis, new social norms are transforming how and when we connect to our workplace and virtual working. They are likely to play a role in how we develop our workplace wellness moving forward Options for working remotely will be a key near term consideration to define healthy, safe working environments.

# 8. Design with Purpose

Next-generation design leaders thrive on a sense of purpose and community-focused values. They need to be nourished creatively, emotionally, and intellectually. They need and expect to do work that truly feeds the health, well-being, and culture of the community a building serves. Emerging leaders in our client base look to us to express these values in how we work and whom we work with. As such, we should

transparently articulate our plans to attain projects of significance and impact and learn to tell our stories to clients in community-centric outcomes and terms. One consideration for a resilient practice is "design agency," the idea that everyone has the ability to enact transformative social change and be a positive force for their community through design of the built environment. A resilient practice creatively connects itself to the community at varying scales, from local to global.

### 9. Understand ALL Your Value

Diversifying services, leveraging new technologies, and recognizing the value of design –leads to something that our profession has been behind the curve on for a long time: intellectual property. Having spent considerable time in the past five years immersed in the research and development of ideas inside our firm, I am familiar with the excitement creativity generates. It's easy and enticing to forge ahead without recognizing the expanded value of design thinking created en route to a project solution. It's time we activated and protected that value. A resilient firm identifies genuine IP and leverages it with intention. That could mean new revenue streams around a marketable IP, or it might simply communicate to clients the additional value of IP as a part of marketing,

contract negotiations, project execution, and ongoing post-occupancy services.

# 10. Leadership Qualities

Leadership is cultivated. Many of us likely evolved into leadership positions by doing great work. Those processes didn't necessarily set us up to succeed in leading subsequent generations of professionals. A resilient practice is led by people who consciously cultivate their leadership skills. Myriad books, podcasts, lectures, webinars and courses can help you. But starting from a place of authenticity, honesty, and transparency will go a long way toward engaging and connecting with the workforce you lead. A resilient firm's human-focused leaders display humility.

### Don't Evolve. Transform!

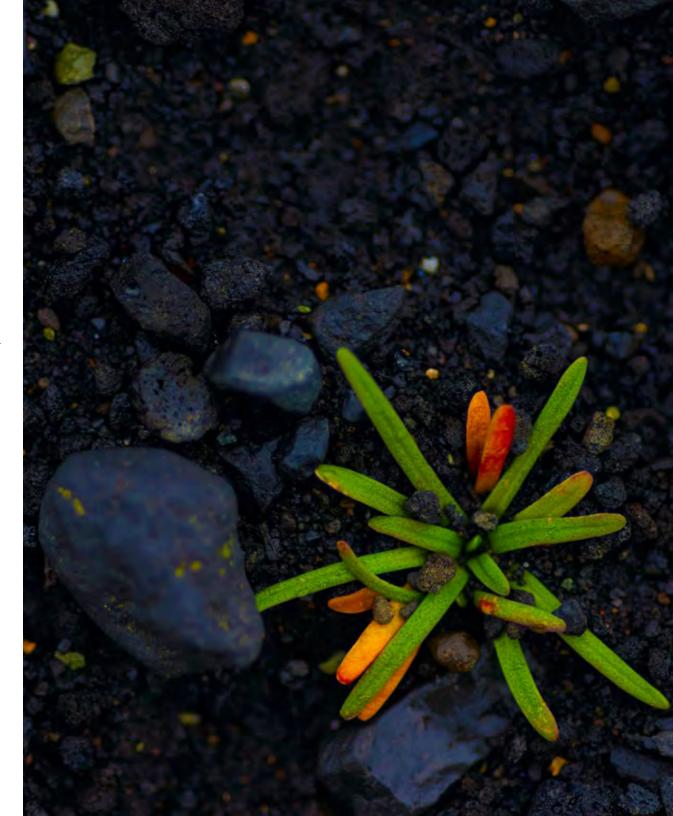
Even if these challenges and strategies don't resonate with you and your business, I'd encourage you to consider one idea: this moment for designers is about transformation, not evolution.

Evolution is a process of accumulative change over time. It can be sought, measured and a natural consequence of the flexibility with which we approach our design practices. Until now, many of us have followed paths of evolution to advance our businesses and our profession. But we are rapidly running

out of time. By contrast, transformation is the act or state of change with immediacy and can be considered a revelation or breakthrough toward something completely different.

With the high likelihood we will face a new normal after the COVID-19 pandemic subsides, we should act now to overcome this crisis. To transform how we work, let's think and act as design professionals. Let's be ready for what's next. Let's be resilient.

Steven McKay RIBA is a Managing Principal and the Global Design Leader of DLR Group. He guides the firm in fulfilling its vision to elevate the human experience through design and is involved in leading activities related to the firms design best practices and implementation of a consistent and rigorous language of design across all corners of the firm's global footprint. His ongoing involvement in the broader design community includes current and recent positions as a Senior Fellow and Advisory Board Member of the Design Futures Council; membership in the Architectural Advisory Council for the College of Design at Iowa State University; and the AIA Large Firm Roundtable Sustainability Sub-Committee and Seattle AIA Honors Awards Committee Chair. He is a Chartered member of the Royal Institute of British Architects, an International Associate of the American Institute of Architects and a LEED accredited professional who regularly presents and writes on topics of design excellence, culture and practice.





**ALAN LAMONICA** 

VP Human Resources, HMC Architects

# Caring for people in a post-Covid-19 future. An interview with HMC's Alan Lamonica.

DesignIntelligence (DI): Before joining HMC, most of your career was spent in the gaming industry. I'm curious to hear your perspective on how things differ from other industries to ours. The A/E/C industry needs outside perspectives.

Alan Lamonica (AL): The group has been welcoming of an outside perspective. It has helped us think differently and implement things we maybe wouldn't have otherwise. It challenged our thinking on certain things. Some things I've had to conform to and just understand, "Okay, that's the way that we do things in this industry."

It can be refreshing to say: "Let's challenge this assumption. Why did we do it this way in this industry and why can't we do it a different way?" Part of it is based on the monetization approach. Being a professional services organization is different than being a consumer product organization. The way you monetize, go to market, engage with clients, and where your revenue streams come from are very

different. That's been the biggest personal learning curve and where I've had questions and challenges in how I develop HR solutions.

Essentially, I worked for a consumer video game company, Activision Blizzard. They're the biggest in the business, with products like Call of Duty and World of Warcraft. They're large, 10,000 people, and it's very direct. You've got a product, you have certain channels you sell it in, and you monetize based on the volume. There's a certain predictable, understandable pattern.

That changes in a professional services firm. Understanding how we monetize through relationships and projects, getting revenue means getting project wins and understanding the capture ratio that defines success has been a learning curve for me. But it's also led to great conversation and my edification around, "Why do we do it this way?" It helped us challenge certain assumptions for Business Development and how we engage in things like that.

It's led to us thinking about how we train a differently and how we engage with our staff. I've had a learning curve, but the company has benefited to the degree that I'm bringing a perspective that isn't necessarily the same as the rest of the pack.

DI: For architects it's all about the work. Professional services, business, and clients are a distant second. AIA bylaws, canons and ethics told us: "We're not merchants, we're not in commerce." We would say, "People are our greatest asset," but we had few formal programs - or resources, because we weren't profitable enough - to train and develop them. It was the vestigial studio, guild mentality to work alongside the master to learn. In the transition from being consumer / business focused with more developed training, then coming into A/E/C, have you seen differences in people development?

AL: I agree with the perspective that design quality comes first. It's admirable. But this idea that business development, generating revenue, and people development come second needs attention. How people think about their craft and how that is paramount to everything else is fascinating. I don't disagree with it. But I think it's an "and", not an "or". If you look at it from a business standpoint, generating



additional revenue and profitability and viability only benefits employees. We're 100% ESOP, so the more we can generate revenue, the more we can care for and feed our people.

Profitability unlocks the ability to do those things. How you spend your capital has a direct relation to your values and how you think about your people. The more assertive we can be on business development and growing the pie, the more we can reinvest into our people. I've also noticed, it has been a "Come alongside me, shadow me, I'll show you how it's done" approach. We're starting to think more about programs we can put in place as formal training on the BD, professional development and technical sides. More organized around classes. We recently launched HMC University, which is a schedule of courses to traverse in the progression of your career. That's different than, "I'll just take you under my wing and I'll show you everything I know." We're trying to be more formulaic about it.

DI: Where are you on the "design vs. business-oriented practice" continuum? On the left would be a starchitect firm that's all about high design work. Frank Gehry, as an example. With your seven offices, my preconceived notion is you're somewhere right of center, a business-focused practice. You want to

do great work, but you're interested in being profitable. In some firms, profit is a bad word. Some architects scarcely talk about it. Where would you place yourself on that continuum?

**AL:** Probably in the middle, skewing towards the design side, but we have an eye towards becoming even more balanced to ensure future viability and growth. Our CEO, Brian Staton, is focused on growth and making sure that we grow for the right reasons. Not just because we want to make money, but because we think two things. One, we want to bring our design and what we do to other communities because we think we could benefit them. Second, and this is where I come in, and what I'm passionate about, is we can bring our employment experience, which we think is great, to more people. I'm interested in doing that. It depends who you ask, but if you poll our staff, most would probably say we're oriented more towards design, but I think our future sees us evolving.

DI: I love your comment about the employment experience. In architecture, it's all about the collaboration and the experience. The joke is we spend more time with people at work than our own families. You're bringing an outsider's focus, ramping up training with the goal of developing people. And then Covid-19 happens. I

just talked with another company who has a global supply chain, Katerra. They said, "We're so connected with our supply chain, we had a backup plan in place for everything we do." The rest of us may not have. We're not focused on these kinds of uncertainties. How has the pandemic affected you and what are you doing about it?

AL: Recessions usually have a little more lead time. What was so shocking about this one is that it seemed to happen overnight. Reacting to that, in the first couple weeks, without limited information, the immediate reaction was: Well, this is going to blow over in a few weeks. It's going to be fine. Sure, the market took a hit today, but it's going to bounce back as soon as we're back to work. It took some time for us to realize we were talking about a new normal. We're fortunate. California was on the front edge of the pandemic. We made the decision to work from home early on, even before there was a mandatory order across the state or nation. We had tools in place that prepared us for it. We didn't have a plan, but we learned very quickly that we needed to make decisions fast. We got the right leaders in the room and made the decisions without belaboring it. If we waited to develop a plan, it wouldn't have happened quickly enough. We would have missed the critical timing. We had technology in place that enabled

us to do this quicker than other companies that didn't have cloud-based solutions. It took some migrating, taking projects off servers and putting them into the cloud so people could be productive at home.

In the future we're going to be 100% cloud-based. We had some hurdles at first, like- laptop challenges. We were not outfitted perfectly to flip the switch immediately. We said: San Francisco is already getting these stay orders. We need to focus on them. Quickly after that came San Jose. Then it trickled into all our offices and we were able to adapt. At one point the CEO and leadership team said: We need to send everybody home because it's the right thing to do and that's where it's going.

We didn't know what we were in for to begin with. But looking back, and forward, we know this is going to be the new normal. We know we're going to get back to work. If you take the long game view, two, three, five years from now we will return to work, but it'll be different because we will have learned certain efficiencies and challenged the old way of thinking: You must be at your desk to do your job. We've learned things we want to implement. Not because we have a fear of another pandemic, but because it's more efficient.

DI: Your purpose is to attract, care, feed, nurture, and retain great employees. What has Covid taught you about that? There was a day when offering flex time or working from home was a novel idea. Now it's a requirement. Have you found any unintended consequences?

AL: There are differences and challenges between my former life in gaming and the A/E/C industry. My personal belief - and what I've seen to be effective – is I don't care where people do the work. I don't care when they do the work. With our salaried staff, we're employing people not on an hourly basis, but on the value of what they do. When and where they do it matters less.

Tell that to a die-hard designer who is very much interested in the collaboration process and getting around the table and looking at a set of drawings, and there can be controversy. There is history and incongruence in those two approaches. What this has done is show people you can have a distributed workforce with success. In the future, we assume we will have a more distributed workforce.

The tried and true, good hygiene things you should be doing are even more important today. Like being open and honest with people, straightforward communication, being genuine, having



I don't care where people do the work. I don't care when they do the work... What this has done is show people you can have a distributed workforce with success. In the future, we assume we will have a more distributed workforce. In the future, employers will ... provide an experience not focused solely on getting the work done, but on how they can create a place where people want to be and spend discretionary time.

connection and compassion with your people still matter. All those things you ought to be doing as leaders are doubly important now because there's anxiety and questions. HMC is not exclusive in this, but our communication has tripled. Our CEO is doing a video every week. He's also doing an announcement every week. Two touch points. I'm sending out one or two weekly statements around how to connect better at work. We've shared things like, "If you've got kids, here's some research on how to manage kids and work at home. Here's how to set up your desk ergonomically." The information we're providing on coping is important.

It's not just tips and tricks on how to work from home. It's also updates on the state of things, and how we're addressing them. We've been fortunate thus far - we haven't had to do layoffs or furloughs. It goes to our value. We saw preservation of employment as being important for us and our 350 owners, but we'll see what the future brings. We are seeing softness like everyone else. You can maintain that for so long and then you have to address revenue changes if they come. We're doing everything we can and informing people. We've got to let people know what we're doing.

This is not the time for leadership to be on autopilot, because if we're not doing those things, we're going to erode quickly. There's a lot of good advice out there. You need to look for it and stay connected with industry. They'll tell you: stay connected with your people, stay ahead of it. Nothing we're doing is novel. We just know engagement will decrease if we're not communicating. Simple things like I'll call my team and have a five-minute conversation about nothing. Those kinds of connections are important absent of being in the office together.

DI: It takes an external crisis chaos event like Covid-19 to force us to do what we knew we should've been doing all along anyway: connect more and reach out to people. You mentioned you're giving people advice on how to deal with their kids. You're talking about a richer set of benefits. Not just: you're hired, do the work, but blurring the line between personal life and office life. Do you see that trend continuing?

AL: I don't think we'll regress. It's becoming the new normal. Data are telling us people care more about a more holistic work experience because they recognize, to your point, they spend more time at work than they do at home. In the future, employers will understand that and provide an experience not focused solely on getting the work done, but on how they can create a place where people want to be and spend discretionary time.



What do I mean by engagement? I am referring to the degree to which employees are psychologically invested in the firm and motivated to contribute to it's success, which results in discretionary effort towards attaining firm goals.

We have data that shows your relationships at work matter. People don't leave companies, they leave managers. That relationship extends beyond just you and your manager. It extends to the people around you. It has a profound effect on the stickiness of whether you choose to stay with the organization or choose to leave. If we, as an employer, can create an environment where people appreciate those they work with, and the cultures and values we set up, they're more likely to have higher engagement and retention.

I'll share an example of what I'm trying to get at. When I sat down with Brian, the CEO, before I got the job he said, "Look, I don't like hiring a\*\*holes and I don't like working with a\*\*holes." And I said, "You know what, Brian? I really appreciate your saying that because I don't like working with them either." We realized we were going to spend a lot of time together. Do we have a cultural fit together?

How we treat one another is important. To some extent, many companies look at that as a platitude. But we've been successful through the Covid shutdown because of the genuine authentic care we give to one another. And because we avoid that a-hole factor. That way of thinking manifests itself in how we care for our people and in certain programs we've done.

DI: At one extreme you have the Googles of the world - profitable companies. Maybe it was more like this in the gaming industry where you've got ping pong tables, spas, massages, and every food and beverage available to workers. Such catering to retain people has not been the norm in the A/E/C industry. Are you giving that more attention?

AL: Ping pong tables, food for everybody all the time, catering, dry cleaning, and all those things Google has to do - we'll never have the resources to do that. At least not in the foreseeable future. But it's somewhat superficial. Those things may draw people to your company, but they won't keep them there. We know being genuine and caring about people will get us further than ping pong. Those programs can only go so far if they're not married with genuine caring leaders. For the record we do have a ping pong table in one of our offices.

We may choose to invest in different

things. We recently launched a student loan repayment assistance program. We're trying to solve a problem. Yes, it's a way to get people into the organization, but it's also a way to give back to our employee owners. I don't see that trend going away. HMC will do it smartly, not superficially. Like back massages on Thursdays. We may look at that, but we'll make investments where they have a profound impact, not just something that's flashy.

DI: That suits the architect's value set. What are your next initiatives around talent, workplace, and returning to "normal."

AL: Thoughts are percolating as we're formulating what the future workforce will look like. We know we'll have a more distributed workforce. It's taken something like this for us to look around and say, "Wow, we really haven't missed a beat." Sure, some projects are going on hold, but if you think of how we work and how productive we can be, we haven't missed much not being in the office. With Covid and being forced to be more distributed, is allowing designers who have thought differently in the past to say: you know, collaborating remotely can work!

If you extrapolate the idea of a distributed workforce, does our office footprint need to look the same? The answer is no. We've already started talking about introducing

a rotation program whereby John works Monday, Wednesday, Friday, and Mary works Tuesday and Thursday, and they share a common desk space. That reduces our footprint and lets us reinvest those costs in our people.

It's going to have a profound effect on how companies think about their footprint. We can't ignore the serendipitous moments where a designer sees another designer in the hallway and they come up with this brilliant idea. Whatever technology you're using—no matter how great it is—you do lose a little of that. If we become more distributed, does that also mean we have more opportunities to bring people together in collaboration events? Committees or meetings held on a routine basis? Leadership forums that meet once or twice a year, or monthly? Do we introduce more of those if we become more distributed?

Those are all things we're thinking about. The technology investments, making sure our technology decisions include thoughts around laptops and a distributed workforce. The cloud will play a bigger part in that.

We have a digital technology department alongside our architects. Even without Covid those things are going to come together. In the future it's not going to be digital practice and regular practice. It's going to be a combined practice. What this has taught us is we're going to need to accelerate that. I believe it's Dave Gilmore that said, "If it's happening to you, it's disruption. If you're doing it, it's innovation." We want to be the latter.

DI: That's a logical projection. It's a challenge to crack that nut - the essence of design collaboration in a studio environment: side-by-side, the master with the pencil on the tracing paper and the colleague alongside. It has intimacy, immediacy, and interactivity. We've known for years technology is affecting design process and the kind of people we need - people who know digital tools. To hear you say you're making inroads into that old guard designer mindset and see those two things converging is reassuring. Final thoughts?

**AL:** We are trying to balance the short-term reaction of what we need to do to bring people back, and the myriad of things we need to do to keep people safe. We're thinking long term. We don't have all the answers.

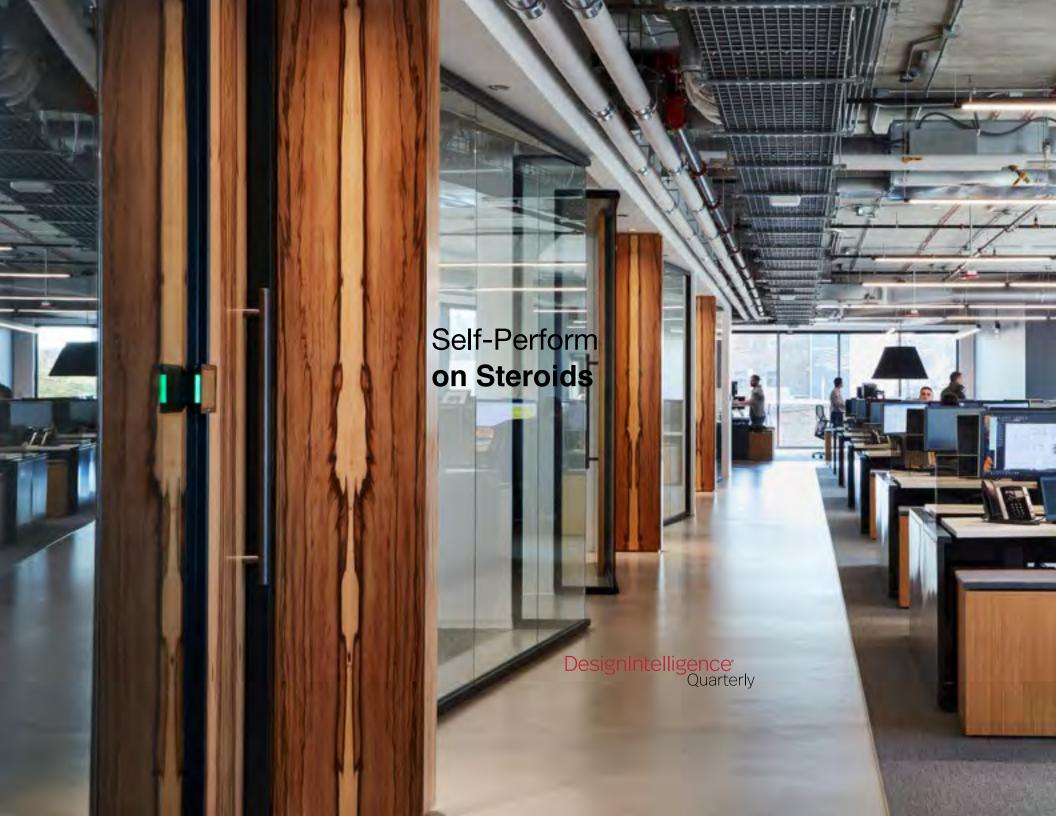
Every time we think we have a plan, we find we have to shift that plan because there's a change in legislation, a new government order, or a change in how we're working with our clients. Planning is important but having a specific plan can be a recipe for disaster because we're on a week-by-week decision making model right now. Early on we thought, "Okay, we've got the plan. We'll be back in 30 days." And every time we think we have that figured out it changes. Planning is going to be something we need to revisit and talk about on a weekly basis.

If leadership teams aren't thinking and talking weekly already, they're going to be at a disadvantage. We're not going to have an ability to have a steady state and put it back onto "autopilot" for a long time. That's okay. In my job, I appreciate that we're talking about the impact on people weekly. I want to be talking more about how the workplace is impacting people. My parting thought is: We can't assume we've got it all figured out because it's going to continue to change.

For instance, we're talking right now about how we bring people back. We have ideas, but we're not going to make formal plans until we're ready. Because we know Gavin Newsom, Governor of California will say, "Here are some different things you're going to have to consider."

It's dynamic, but we'll be ready.

Alan Lamonica is Vice President of Human Resources for HMC Architects. For over fifteen years, he has solved complex problems through people initiatives and a focus on talent. Passionate about the employee experience and creating workplaces in which people are motivated and thrive, he uses data and analytics to provide insights that create relevant, authentic solutions and increase employee engagement. His core concentration areas are HR strategy, organizational effectiveness, recruitment, retention, and rewards. Alan has worked across multiple industries including professional services, technology, entertainment, and consumer goods.





STACY SCOPANO

Chief Technology Officer, Skender

A systematic approach to integrated design, construction, manufacturing and strategic partnerships. An interview with Skender's Stacy Scopano.

DesignIntelligence (DI): Your career has been spent in the technology space with global roles at Tekla and Autodesk trying to change the industry through software, data standards, process and technology evangelism. You had a brief stint with Skanska. Now, with Skender, you're in a vertically integrated company bringing your technology know-how to bear on an internallyfocused mission. What drew you there and what are the differences to your earlier roles?

Stacy Scopano (SS): The answer predates my time in technology. When I entered the industry, I was a draftsman at a steel fabricator and Bill Gates was turning command prompts for hardware into Windows. That's where the story begins because computing and going digital versus analog was not just an industry challenge, it was a global phenomenon, especially in the '90s.

Being a draftsman for a structural steel fabricator, I was close to production. Even as a young professional I got to see a lot of the dysfunction. Faxing RFIs to each other was our equivalent of spell check for design-process errors and omissions and was an example of the relative ineffectiveness of a GC's ability to coordinate a project.

When we had to punch steel and prep work, we were the project backstop. That shaped my thinking. When Google launched in 2000, there was an arms race for all industries, including ours. I



...computing and going digital versus analog was not just an industry challenge, it was a global phenomenon, especially in the '90s.

came into technology with that mindset, as a young kid putting pencil to paper trying to backstop projects and make them as successful as possible. That shouldn't have fallen solely on the shoulders of a trade. I came into construction, design, and technology with that mindset.

When I joined Autodesk, something else notable happened. From 2000 to 2010, Google and the internet became pervasive. It was no longer analog vs. digital. Mobile technology came online. It was the first couple of years of iPhone and the first wave of iPads in construction. Now, how do we coordinate? How do we communicate? That decade saw those things happening and posed those questions. Is it a technology angle? Is the way we collaborate structural? An industry angle? Lean manufacturing and construction techniques were the result of trying to synthesize those opportunities to advance the industry.

I remember walking off the stage after speaking at Autodesk University in 2015 or 2016 talking about AI, robotics and analytics. I came home and told my wife, "Our industry is going to choke. We're over-supplying technology right now and the industry is trying its best for absorption." That's what drew me to construction.

As an industry, construction, and this statistic is well worn<sup>1</sup>, ranks only above agriculture and hunting in percentage of revenues reinvested into technological advancement. I was looking for the sweet spot of industry capacity, the real opportunities and business models that created an environment to support technological advancement. It was no longer "This button doesn't work." It was no longer the fault of the software or technology. Technology had surpassed the industry's ability to implement it. That's what drew me back into firms like Skanska that had both an integrated development arm in their heavy and civil construction businesses, as well as a history in offsite construction.

Inherently, none of us in the industry went to college to become data scientists or robotics experts. Some that entered the industry in the last five years may have some of that capability. There wasn't any capability inside the industry to absorb this. This capabilities gap is what you're seeing play out. There's opportunity. You saw venture capital begin to flood different markets, and now there is a pullback because of the capacity absorption challenge. Construction's not unique, but it was poised to be one of the problem children from a sector-by-sector analysis, if you look at our traditional stance.

This question about broad brush predictions... all of us need to set those aside and look at individual clients and markets. That detailed analysis will yield a better understanding.

DI: The industry choke point was multiple perspectives - mindset, motivation, and a lack of skills? That's what drove you to find a place where those choke points didn't exist?

SS: Yes. What was interesting about my time at Skanska was its breadth, it's volume, resources, and the scale it could bring to bear as an advantage. I enjoyed my time there. When I began conversations with Skender, there was something else I'd forgotten to appreciate. Fast forward to today, and it's what makes our advancement and innovation sing. That's our leadership team. Full stop, we're mobilizing a perspective on re-imagining the industry. More than calibrating management at a strategic offsite event, this leadership team rolled up its sleeves. It looked at that notorious industry

productivity curve. We challenged ourselves with why we're flatlining versus manufacturing.

Skender came at offsite construction from the stance of being a true manufacturer. It recruited manufacturing talent. It started the journey and realized there was more to be had. When we began mobilizing the strategy a few years back most of the other players were a version of a trade contractor inserting themselves as a multi-trade super sub.

It was taking a traditional builder adding manufacturing capability and realizing: Let's go the final yard. We said: Let's integrate with design capability and architects to build an architecture practice. That strategy effectively creates a totally different sandbox for innovation. It

creates an ability for us to sweat what integration and collaboration means in our industry, how they create a learning environment internally and how that interfaces with developers and owner-operators. That's been an area for us to advance our business objectives. For me to embrace a technological design-to-construction handshaking opportunity helped calibrate and articulate objectives that will generate value as defined by the customer, not as defined by the internal team's brainpower or desires.

# **DI**: Set the baseline. Who is Skender and what do you do?

SS: Skender is a 64-year-old Midwest general contractor. It has a long heritage as a family-based contractor operating in commercial, interiors, and ground-up



hospitality, healthcare, multifamily markets. Over the past couple years, we've grown to include an architecture practice, and now an integrated manufacturing facility that employs modular offsite construction.

# DI: Can I come to you as an owner to do my custom design, but with an integrated prefab mindset?

SS: Yes. If you have your design team and know your standards, we'll work to complement that team and begin to convert those designs for a manufacturing delivery model. If a developer drives that, we're happy to do that.

When we get in the conversation about innovations and opportunities for early engagement, we've talked about the McLeamy curve<sup>2</sup> of moving decision making as early as possible. The same is going to hold true and magnify when you're in a vertically integrated opportunity. The vertically integrated opportunity is for us to give an easy button to a developer so it's just: "Hey, I've got the land, I've got the capital, I've got the objective, run with it, come back and talk to me when we've got keys to turn." We take out the part of our industry that's not core to running healthcare, operating a hotel or getting rents from housing.

But there are many flavors of developers,

investors, and teams that have a longrunning history with which we need to complement. That's why we have an 80/20 rule, in terms of being the lead architect

DI: In contrast to others simply prefabbing and selling their products, you're providing customizable services for customers. So many people are seeing this COVID-19 outbreak as a crisis. At DesignIntelligence, we're hoping people can use that as a springboard to reframe their purpose - as a catalyst to redirect for the future - accelerating the industry change we've all been pushing for so long. You're already doing that. What advantages does an integrated approach like yours bring?

SS: In COVID-19, there's so much uncertainty moving forward. But if you look at the immediate response, there's been a re-prioritization of how we work as an industry. Construction has had to truly put jobsite and workforce safety first. What has been interesting are the conversations we've been having about what are the new normals? How do they affect us in the long run? What's interesting about offsite construction is it's a controlled environment. We can monitor, set up, even enable social distancing, and be very deliberate about it. Especially when we have work centers and production flows through them

versus people moving to the face of the work. Fundamentally, that's an enormous opportunity and trajectory to play itself out.

Top down on the COVID-19 issues being discussed, there's a huge political conversation about trade-offs.

# DI: Lives versus economy?

SS: That's exactly right. What are you optimizing for? Which takes priority? When you make that decision, you will see other outcomes that aren't your focus. They may show your decision making to be sub optimal.

That's a great metaphor. It's exactly what we do every day in a vertically integrated mindset. I think constantly about how we select product as designers. Then we value-engineer quality out based on a pricing decision from a contractor's perspective. But the unanticipated consequence may be that we increased the installation labor needed to offset the substituted product selection.

We sub-optimized on the quality of the product and on the duration. Cost and duration tend to drive everything we're trying to optimize on construction projects. When you're vertically integrated, you can look at those trade-off analyses in a different light. You can say,

"What is the installation cost? What are the real drivers?" And it's not a "first-cost, how much is this product? I'll pull it out of the catalog," analysis. There's an on-going trade-off analyses mindset when you operate in a vertically integrated business.

D1: Clear advantages. You said you do 80% of your design work in house. What are the unexpected consequences of that? One would think it's leaner and more efficient, but are there downsides?

SS: Well, it'd all be a bed of roses and collaboration would be automatic, but the rub of it is that it remains a people-driven business. By vertically integrating, we had presumptions of how smooth a project would be because our architect, our engineering, manufacturing, and construction team all had the same email address. But it still requires rolling up the sleeves, taking an empathetic mindset and looking at what those people were advocating for when they were optimizing their best position, when it became at odds with yours. You had to take a step back and realize, if we are truly a team, what do I have to give on this round to enable somebody else to hit a higher-order objective? What are those objectives? Was it standing up the factory, was it standing up the first project, was it designing our first product as a common denominator to all of them?

In some cases, when you're investing capital in a new business model, you have to find the boundaries of what you'll invest in now, versus investing in a higher vision later. You have to choose your battles. Team coordination and calibration don't just happen by putting everyone in the same room. Even within the same organization. You still have to invest in the culture and the learning environment to reflect, improve and remobilize this new version of construction to have a lean delivery model.

**DI:** Once again we have the technology guy, the CTO, coming back to empathy, people and culture. That's not a surprise, and I certainly don't disagree.

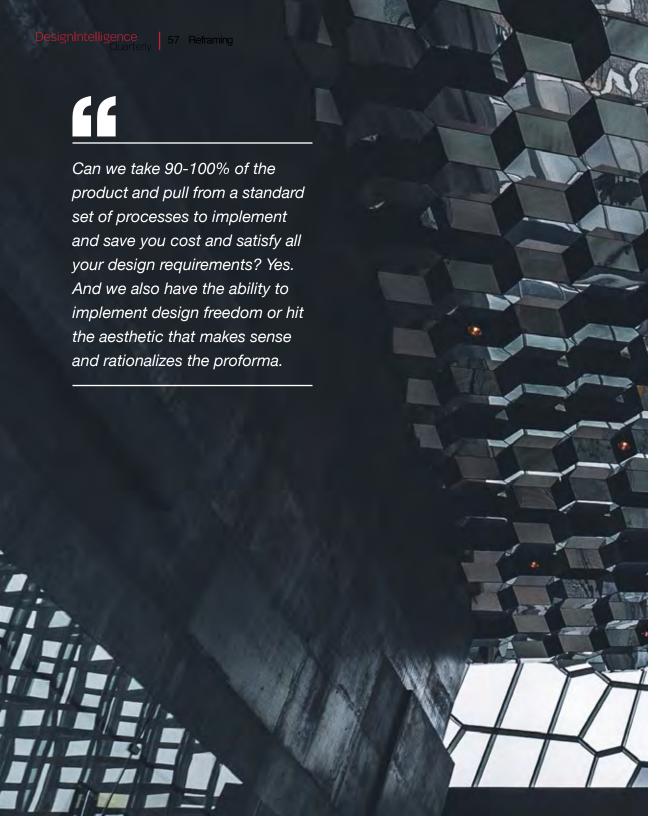
Other similar firms like Katerra and Fed Negro, formerly of WeWork, talk about having a platform and working at scale. That's different than doing one-off design like architects are taught to do in school. Are you leveraging scale or working at the project level?

SS: We have two dimensions to consider constantly. We have a platform, that develops a product, and we implement that product at the project level. If you think about the window metaphor, that's exactly what a window manufacturer would do. Well, what happens if I'm an office space manufacturer? What happens if I'm a bedroom space manufacturer? What happens if I take my bedroom and kitchen products and put them next to each other? Then if I stack that? Our project is the implementation of our product.

It just happens we're trying to get 95% of that project on the back of the truck. We have these constant considerations - the

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Our project is the implementation of our product.



journey of going from startup initiative to run rate at manufacturing capacity. How do you navigate those trade-offs? Are we optimizing for the commonality that will go across our portfolio, or having to make trade-offs for project-specific implementation?

When you're at run rate in production, the idea is the majority of your libraries and assemblies are expressed in a way that balances mass production without sacrificing mass customization. Ironically, this is where technology begins to take a seat in the conversation. We have a set of tools and capabilities in the industry in 2020 where we can take libraries and rapidly deploy 80% of design implementation objectives, then skin it outside or inside to give the experience that satisfies customer expectations and demands.

Can we take 90-100% of the product and pull from a standard set of processes to implement and save you cost and satisfy all your design requirements? Yes. And we also have the ability to implement design freedom or hit the aesthetic that makes sense and rationalizes the proforma.

Our industry has a huge spectrum to address. If you're on the affordable housing side of the spectrum, our objectives are to economize, but we don't

want to make housing that optically looks like it was cobbled together to save price. We want to provide dignified housing, even in the affordable housing market. When we shift to a market rate basis for material selection, every real estate broker will tell you it's all about the bones. The bones are what we can develop into that standardized product set. We already know what makes up most walls. We already know all about the conduit running through them. We already know and expect where the plumbing is. That's part of our industry library. We know because of building codes, the dimensionality in relationship to space. Modular thinking is already inherent in our industry. We're just creating a mechanism to deliver it.

Most importantly, treating projects as product is how we fundamentally shift the economic units of measure away from optimizing costs & budgets at the project level, to one that creates an economy of scale potential across all project that incorporate our products. This puts our industry on a pathway to become a major solution to big ticket issues like housing affordability, versus being indicted as part of the "supply-side" problem.

DI: You have a platform and you have scale. What I'm seeing as the difference is, when you're assembling teams, everybody comes with that motivation:

wanting to be systematic, prefabricated, and modular to the extent they can. Whether that's your internal design team, ownership or external partners, they're not at the table unless they want to do that.

You've found the right partners and can play your catalog and kit of parts in a variety of customized ways. You embrace the idea of supply chain because you're working at scale. But not many people in the AEC industry think in supply chain terms. What have you learned about that as it applies to external partners? Are you continuing to have to educate and find new ones?

SS: The question already tells you the pain point. I can draw a hard line on just the language we use. We "buy out", right? We already know what we want. We tend to just look for feedback on availability and price. That's the fundamental difference from a strategic partnering perspective. This tension is the opportunity to reframe a strategic supply chain. We don't just sit there and specify and then see what comes back. Most architects see what's available, write it into a spec, and then a different vendor's going to try to come in and seduce a builder to substitute an alternate product. That's a non-strategic supply chain. There's no incentive for innovation for the



building product manufacturer, and it makes the entire relationship transactional as a result. In a strategic partnership, where you're engaging supply chain, you come in with, "I'm at my wit's end. Here's the challenge I have. Here's what I need from a performance perspective, but I'm having a problem because I'm stacking it in the field off a truck."

So now I have a new constraint, a new problem statement, a new opportunity. By asking questions that way, and not prescribing the solution, you're opening yourself up to tapping into things you don't even know are on the back shelf in some R&D lab somewhere or in some expert trade contractor's head looking for a home.

There's also untapped potential hiding in things that don't even make it to the building product catalogs. By vertically integrating and creating a production/ product-oriented process we've created a platform that now has an R&D ecosystem. It's not just the amount of capital we throw into our internal box or how smart we are. It's becoming more critical how strong a partner we are with the various aspects of our supply chain. That's a different sandbox. We've seen transactional benefits and performance innovations from it, and none of it was internal to Skender. It was all because we took that, "Please help," stance. We bought resources and expertise, not commodities.

DI: Most of us are in this industry

because we love it and are expert at it, but we treat one another like dummies sometimes - without the ability to transcend the transactional barriers. Tapping the expertise and synergy that can result can be powerful.

You got into what you're doing by not being able to take it anymore: seeing the inefficiencies of the shop drawings, handoffs and process. You found your place. Now that you're living in the world of manufacturing and construction instead of software, are you finding a different value set than in your former life as a tech guru? Different values, people types, mindsets?

SS: Your quiver has got to have all the right arrows. It's top-down or bottom-up. The leadership team has to do more than rethinking. They have to start redoing. That's not an indictment for any tech teams. It's that tech innovation was coming in slow turns. Here we're creating a new platform, a new sandbox that advances our innovation initiatives. From the leadership team - and you have to also consider bottom-up in your organization - can your culture digest it? You're going to have tension from that top-down and bottom-up perspective in your organization, and you have to respect that. Also it's going to take capital. Keeping a factory open during the time of This is where leaders can realize there's a lot more creativity to be had. Are you going to drain funding? Are you going to partner with somebody? Can you model out what capital you need? In short, what we're doing is self-perform on steroids. It's not foreign to construction, so fundamentally these questions have been asked by many a contractor before

What you end up having to do is create that roadmap to your vision. This is what we're going to self-perform. This is what we're going to grow into. Is it a one-year journey until you turn the lights on at the factory? Do you turn the lights on in the factory and start doing panel work, or do you turn on the lights in the factory and go into full volumetric modular? Those are more of those trade-off decisions. And

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What we're doing is self-perform on steroids. It's not foreign to construction."

they are not just yes or no, they involve when, timing, and combine to create a roadmap. It'll take a team that's constantly checking in with itself. Did we accomplish that objective? How to recalibrate and stay agile? Because just buying the factory is not a magic silver bullet

DI: Your point is underappreciated in the rest of our industry - the greater reality of construction. It's hands on, safety, life-and-death, and takes more capital and risk. I've lived and appreciate how hard it is to deal with the codes and struggles designers deal with. But having also lived within a construction world, my respect for the people who deal with the reality of construction has increased.

SS: For the design community, your primary constituents, one of the challenges you have is designers that are going to discount modular construction as a sanitization of design expression. We scratch our heads at that notion. "Are you really in the industry to design a bunch of snowflakes that are uneconomical, uninformed and fail to understand the means and methods embodied in your design?"

I was talking to a group of graduate design students from Northwestern University a few months ago. I shared with them, in the 2000s and early teens, I attended many conferences where there was an unspoken tension. The question was: Who in our industry is going to evolve to become the master builder?

Will it be the GC that takes on more and more design scope? Will it be BIM that brings constructability to the designer? I laughed and told this group of students: "I'll take one of our junior architects that walks the shop every Tuesday and follows their design, any day." Who do you think is more likely to become that master builder?

In our industry, there's a normal distribution of project types. On one end are the beautiful, complicated, large icons that become monuments. On the other end there's a segment of gas stations. In the middle is the meat of the built environment. Most designers play in that middle, and most of them aren't just trying to go through the motions of filling a portfolio. They're going deep to understand where their opportunities are as designers. I have such a deep respect for our architecture team, that's constantly expanding their craft, beyond traditional constructability and towards a production-oriented mindset, that puts new variables on the table to consider in those trade-offs analyses that I mentioned earlier.

# DI: Your point about doing "selfperform on steroids", in a more systematic, controlled, logical, scalable way makes sense.

SS: That's exactly what I meant. You can look at us as an oddity, but if you do, realize you're constrained by your own mentality, even when I say it can be scary to commit capital. Until you realize, we've done this in construction in various increments before. If I buy my tools and rent them back from myself, project-by-project, that's a tool rental business. That's a profit enhancement strategy that has been deployed in construction, plenty of times before.

We've done things that move the needle so many profitability percentage points,

like brining on a self-performance portion of our business. When you turn into a manufacturer, you see those productivity gains and earn those profitability points, that begin transcend what is common for our industry.

# **DI**: You're only a year into your role. Let's dream. What does your mission look like in 5 years?

SS: Staying at the project level isn't the lens I want to look at. Look at the factory. Going down one line is a hospitality project. Going down another line is a healthcare project. Then a multifamily housing project. That's when production is singing. We are code-switching lines, and are agnostic to the end project. Fast forward to those projects in place. We're

over-delivering on that user experience in the housing arena, in hospitality, in health care and wellness, and supporting the effective delivery of healthcare services, with our facilities

Ultimately if you're driving by one of our projects, you have no idea it's premanufactured. It looks natural in place. It's sensitive to the community and to advancing that community's development initiatives. In reflection, the modular consideration was just a momentary conversation in time.

DI: So many great lessons. Even for the most creative designers and builders, to begin to migrate to think in more systematic scalable ways offers promise.

Stacy Scopano is Chief Technology Officer at Chicago-based Skender where he is responsible for continually evolving the builder's technological capabilities and integrating industry-leading innovations across the company. His experience includes a broad spectrum of technologies used by the real estate, architecture, engineering and construction industries. Most recently, Stacy was vice president of innovation at Skanska USA. Previously, he was the senior strategist for building construction at Autodesk, Inc., where he partnered with the global construction community to identify, develop, and deliver innovative digital workflows. He has served as past technology chairman for the AGC BIMForum and is a member of the Social and Economic Policy Advisory Board for RAND Corporation, an international research organization that develops policy solutions to make communities safer, healthier and more prosperous. He holds a degree in economics from the Georgia Institute of Technology.







**BARBARA WHITE BRYSON** 

College of Architecture, Planning and Landscape Architecture at the University of Arizona



Principal & VP,

DSK Architects + Planners

What does the Covid-19 pandemic mean to the future of higher education, institutions, facilities and campuses? Data informs. Bigger may not be better. Flexibility and adaptability are key.

In May 2020, the corridors of higher education echo only with the memories of student laughter and faculty debates. Occasionally, a lone researcher will stoically wheel a piece of equipment past empty conference rooms and classrooms, but no crack of the bat, no squeak of the sneaker, and no cheer of the crowds disturb university sports fields, stadiums, arenas, or recreation centers. Almost every office in every building across vast college and university campuses in the U.S. is unoccupied. Yet the teaching and business of higher education continue without the benefit of the millions of square feet of facilities. Even so, those same universities and colleges still bear the costs associated with financing, maintaining, and operating those facilities. Higher Education institutions cannot remake the campus planning and capital construction decisions of the past, but what can universities learn from the pandemic to shape the campus planning decisions of the future?

### ON SHAKY GROUND

Under growing financial pressure, and in the race to attract students, some institutions were on shaky ground before the pandemic hit. As universities continued to grapple with a troubled business model, online delivery models, reduced state funding, growing deferred maintenance issues, and declining enrollments, some institutions have merged or even closed their doors



...what can universities learn from the pandemic to shape the campus planning decisions of the future? just months before the pandemic, the authors observed 10% of America's colleges or universities face significant risk of closing.

Contributing to the stress on the higher education business model has been the cost of owning a growing number of buildings. Since the Great Recession, space growth has ranged from 8.5% to 19%, depending on the institution type. Initially, this expansion was needed to support continued enrollment growth. However, around 2011 a shift occurred, and enrollments began to decline - a change that seems to have gone unheeded by institutions relative to continued space growth. The highly competitive environment apparently only fueled the perceived need for more buildings to provide better housing, dining, recreation, and other amenities to attract students to campuses. In 2015, colleges and universities in the U.S. spent a record \$11.5 Billion on construction for an estimated 21 million square feet of space. These projects were usually paid for by tax-free bond financing and sometimes driven by a donor 'naming gift' covering less than half of the total cost of the project.

By 2017, 9% of collegiate budgets across the country were used to pay debt service on capital projects. According to The Atlantic, colleges and universities owed \$240 billion based on Moody's bond rating service reports. That amount had risen 18% in five years at public universities. "Just the interest payments come to the equivalent of \$750 per student per year at public universities". Additionally, budgets for university facilities and maintenance had not increased since 2010, resulting in reduced regular maintenance for buildings and infrastructure, growing deferred maintenance backlogs, and an inventory of buildings difficult to repurpose - presenting yet another tough reality that was dragging down the business plan.

### ENTER A GLOBAL PANDEMIC

On 11 March 2020, the threat of the COVID 19 disease was designated as a Pandemic. A few major universities had already begun to transition to virtual instruction and had started to close their campuses. Over the next month, almost every educational facility and learning institution in the United States made a

similar transition to virtual learning to accommodate the need for 'social distancing' due to the COVID 19 Pandemic.

When asked by The Chronicle of Higher Education about how the COVID-19 crisis might change that calculation, Bob Zemsky posited that weaker public institutions would undoubtedly be impacted due to reduced or delayed state funding and that anticipated enrollment reductions would also stress weaker colleges. His estimate of endangered institutions increased from 10% in The College Stress Test to 20% in the short term.

Universities are each losing tens to hundreds of millions of dollars through summer 2020. If students do not return to campus in the fall, hundreds of millions more will be lost.

# THE FUTURE STATE

Even if universities survive this crisis they will have to re-examine their business models and ask some tough questions. Hiring freezes are already in place at most institutions. Endowments have taken a significant hit in the market downturn, and institutions that rely on those endowments are examining how they can restore their principal and live on reduced distributions. Construction projects are being re-examined and delayed.

Many universities are already redesigning curricula, not only to provide the ability to go online in the fall if necessary, but to provide greater financial efficiency in the long run. Weaker programs will likely be cut, and larger classes will be taught by fewer faculty.

Paradigms will shift as well. Most universities will quickly realize online teaching is not as difficult as they had believed, and many students do well in the virtual environment. As a result, the number of classrooms on campuses could be reduced or leveraged for other programs. Working from home can be efficient and provide focus. Connecting by Zoom or similar video technology can be effective as well. In this new shifted environment, universities may need fewer private offices for faculty, particularly if they are used only 20% of the time. In a more drastic shift and to attract more students, university facilities may, finally, be used year-



# FLEXIBLE APPROACH

"

...Imagine a scenario where campus space use will be more clearly defined and more highly utilized year-round.

round, providing students and institutions flexible programs and degree options not available today.

A recent Harvard Business Review article proposed another flexible approach "...students could take commoditized courses online at their convenience and at much cheaper cost. They can use precious time they spend on campus for electives, group assignments, faculty office hours, interactions, and career guidance, something that cannot be done remotely. In addition, campuses can facilitate social networking, field-based projects, and global learning expeditions that

require F2F engagements. This is a hybrid model of education that has the potential to make college education more affordable for everybody." Imagine a scenario where campus space use will be more clearly defined and more highly utilized year-round.

Sports programs and related facilities, as confirmed by the Covid-19 crisis, are a financial risk to universities, especially now that there are no basketball or baseball champions to bring in the big-ticket or TV revenues. Most institutions struggle in ordinary years to manage big sports business. Last year the NCAA reported only 29 programs had revenues exceeding expenses, and nearly



\$8 billion in expenses had to be subsidized by other institutional resources across the country. Today, every program is losing millions of dollars in revenue, while institutions retain the costs of their largest and most expensive facilities.

Gordian (once Sightlines) was prescient when it reported in 2018, "Many institutions have above average space per student and below average wealth per student. Any negative return on endowment assets could force these institutions to raise tuition, increase debt or implement austerity measures at a time when they can least afford it. It is crucial for institutions to square their campus growth ambitions with their financial realities to make certain they can afford the long-term costs associated with maintaining their existing institutional assets and today's ongoing expansion. Their survival may depend on it."

### **SUMMARY**

The most important lesson learned by higher education during this pandemic is that the cost of infrastructure (energy plants, buildings, roads, landscape, technology, and debt service) is a heavy financial burden to carry when students

and faculty are no longer around. Every college and university has looked hard at their business plan these last weeks and been stunned to learn that after salaries, the cost of financing, operating, and maintaining the physical plant is one of their largest expenses. Institutions are also coming to the painful realization they have strayed far from their core businesses of teaching and research into facilities-intensive businesses of housing, dining, recreation, sports, parking, and transportation. All these can be lucrative but come with a high, inflexible infrastructure cost.

Smart universities and colleges will recognize the need to approach campus planning very differently in the future, starting with an understanding of how much physical plant an institution can and should afford within its business plan. Fundraising must be grounded in an understanding that although new buildings may be easier and sexier to sell, they come with long-term permanent costs that must be fully understood and embraced before gifts are accepted.

Space must be strategically managed with a clear understanding of the cost impacts associated with poorly managed space that is seldom used. This approach

means any space used less than 60% of the time should be repurposed. Most spaces should be thoughtfully designed to serve double or even triple duty.

In the Chronicle of Higher Education on 10 April 2020, Robert Kelchen noted financial flexibility must be a priority for higher education from now on. The traditional campus building owned by departments and deans and dedicated to a singular function is rarely flexible. Bigger is not better for the physical manifestation of universities and colleges. If we in higher education learn nothing more from the pandemic than this, we will be in a better position to manage the future.

**Barbara White Bryson**, FAIA, is Associate Dean for Research in the College of Architecture, Planning and Landscape Architecture at the University of Arizona.

**Leila R. Kamal,** AIA, LEED AP, is a Principal and VP with DSK Architects + Planners. Over the course of two decades as a practicing architect, Leila Kamal has developed and led diverse design initiatives that advanced her client's mission and purpose to create enduring architecture. From directing large, complex design projects to creating research programs, her client-focused approach has earned her the trust of public and private institutions and organizations.







JOHN SANGIOVANNI

CEO, Visual Vocal

In this impromptu conversation with DI's Michael LeFevre, technology entrepreneur John SanGiovanni offers a glimpse into the future and present of post-Pandemic collaboration and ways of working, via Minecraft, "Sculptural Sketching", "Magic Windows", and "Holo-portation."

DesignIntelligence (DI): Let's start with how you got here, and your background. What's your connection with DesignIntelligence?

John SanGiovanni (JSG): My first touchpoint with DesignIntelligence was when I was invited by Steve McConnell from NBBJ to attend the Design Futures Council and talk about our recent digital research collaborations. I show up to find this amazing tribe of artists and geeks who had had decades of continuity together. I had never been to a conference like that before - and I've been to a lot of conferences! The dynamic range was amazing. It was an incredibly cohesive, intellectual, thoughtful, focused group. I got to know Dave Gilmore in recent years and have been impressed with his strategy, leadership, directness, and talent. It's a super cool organization.

DI: I wasn't sure whether you wanted this to be an introductory conversation or dive right into the interview...

**JSG:** In the spirit of action, let's dive-in! That's where interesting things happen anyway.

DI: Let's do it. To cope short-term, what are some good technologies to facilitate remote work, stay connected, and collaborate in different ways? Post-COVID, can you speculate on how the new normal could impact the future of work technology?

Having learned what we've learned in just a few short weeks, what do we do now? Our audience is designers, constructors, and owners, ranging from the largest firms in the world down to medium and small boutique shops.



# How can we help them migrate to new collaboration forms?

JSG: In my opinion, the most interesting topic at this moment is the futures of digital collaboration. Two colliding themes are happening. One is moving fast and starting rapidly, driven by COVID-19. The other is moving slowly and is on a long path to maturity.

The one that's moving fast obviously is the theme of remote communication collaboration brought-upon overnight by COVID-19 – as everybody learns to work from home full-time! Many of us have acclimated to remote collaboration technologies over many years, but this has been a huge wake-up call for universal multi-industry fluency of remote collaboration. What if you don't have the option to meet in real life?

I observe, culturally, that the AEC industry loves to meet – in all the best and worst of ways. My mother and father had an architectural practice in the 70s through the 90s. I've never worked as an architect personally, but I have spent these past 5 years building technologies for the AEC industry. Coming into this industry from the perspective of startups and tech companies, I observed that the AEC industry honors 'The Theater of the Meeting' as a powerful heartbeat in the design process. Participants sometimes

spend as much as 30 to 40% of their office time preparing for these high-stakes meetings. As a % of workload for a knowledge worker, this is at once incredibly silly and inefficient - and also incredibly beautiful and human. A refreshing departure of the email-and Slack-centric channels used by the tech industry. Now, COVID happens, and people have to figure out how to go through these motions without the benefit of a real physical office. So, that's one of the vectors.

The other vector, which I observe as both a technologist and a father, and I chuckle when I say this, is Minecraft. Do you know it?

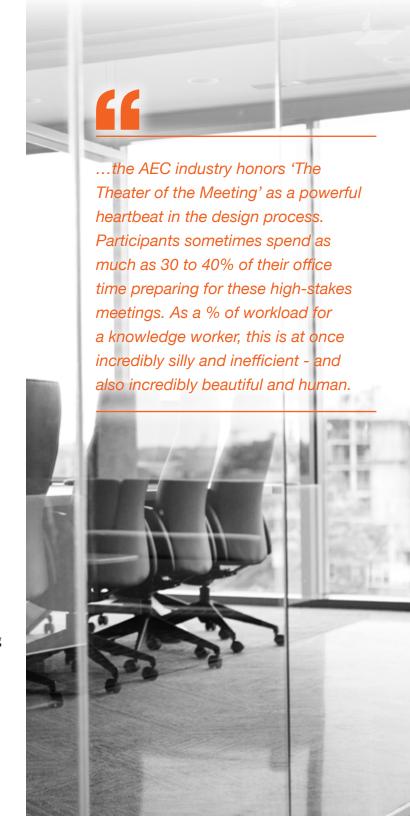
DI: I'm aware of it. I'm a boomer, not a player. :( In his interview in my book, Managing Design, Arol Wolford poses Minecraft as the future platform for collaboration.

JSG: Minecraft is a funny thing, because on one hand, the aesthetic it puts forth is pixilated, low-fi art style. Even I, as a technologist and a gamer, initially looked at it and thought to myself, "Not interested. Looks like some kitschy digital experiment." Then, you scratch the surface and you're like, "Wow, there's a fair amount of depth and complexity here." And then, you dive a bit deeper, and see that it's a wonderful creative tool,

and the foundation for a generation of future collaborators. Every single one of my friends' kids, every one of my son's peers, that's all they do. Every day, they watch people Minecrafting (on YouTube) and then build insanely complex creations of their own... sometimes individually, sometimes together – all in Minecraft.

I contend that Minecraft is a crisp expression about the future of design communication, and also, the future of education. It is difficult to overstate. It's probably the most sophisticated piece of software of any kind I've ever encountered in my life. And the reason I say that is because in moments, my son can meet any random kid he's never met before and, in 12 seconds – they're building together. One is on an iPad, another on a computer, maybe a third kid is in VR, and a fourth kid is on his Android phone and they are all in-there - in 3D - together - doing the most sophisticated collaborative BIM construction I've ever seen, all at the speed of light.

So – that's the other, perhaps more hopeful vector toward futures of AEC collaboration. These two vectors are going to collide as this generation hits the workforce. They have been learning how to build collaboratively for decades in a very sophisticated way using the most



enlightened tools humankind can conceive.

Meanwhile, old guys like us are chasing it. We're trying to figure out how we can bolt together off-the-shelf and homebrewed solutions to collaborate remotely, virtually, and in the real world. It's my belief these two things will collide in 7 to 10 years into this supernova that will change the way things are designed and built. COVID gave us a turbocharge to get us there. Now, those two lines are going to collide at a very specific future point and change the way buildings are built.

DI: That's an emotional and technological idea. More so as accelerated by this crisis. It is exciting, as I think about it, many of these kids may not be playing games much longer. They may seize this opportunity and be in business, starting up on a shoestring. That potential is exciting.

JSG: Maybe this generation will hit the workforce and having been running on a treadmill informed by this COVID moment and we will meet at a future generation of immersive design.

Two other important themes are happening at this very moment: Augmented reality (AR) and Virtual reality (VR). A lot of people say, "Oh,

yeah. We use VR. We have VR Lab. It's kind of passé. We have a VR guy." It's almost denigrated with false praise, but AR, in my opinion, is a different breed of cat. Are you fluent in the continuum between AR and VR?

DI: My former firm, pioneered some stuff where we put a target in a model and held up the model on our iPad to augment reality. That's the extent of my augmented reality knowledge.

JSG: There's a bridge drug to AR - a set of solutions, kind of a magic window - where you hold your phone up in the real world and you're looking at the phone and it projects a three-dimensional thing, which is cool. Not to dismiss those, but when I refer to AR, I'm referring to wearable eyewear with transparent lenses that can project digital content into your visual system such that it's seamlessly blended with the real world. It's virtual reality technology with the added feature of transparent displays.

We're right on the precipice. In fact, a HoloLens 2 from Microsoft has a reasonable shot at being version 1.0 of augmented reality in the enterprise. At \$3,500, it's not positioned as a consumer device, but I think it has a reasonable shot at credibly allowing you bring digital information into the real world in a very natural way, and even to use your hands

to interact, as opposed to specialized controllers.

# **DI**: Like Google Glass - second generation?

JSG: No. Google Glass was eyewear with a little monocle, with low resolution and, intentionally, a very small field of view. Google Glass tried to optimize something you could wear that would be socially acceptable and wear all day. Google Glass was much more about providing a heads-up display like what you see fixed on an automotive windshield. AR blends digital content together with reality much more seamlessly.

Microsoft's approach has been several orders of magnitude more ambitious. Their goal is to hijack your entire ocular system and field of view, so your wetware is looking at the real world. But you're projecting digital objects into the physical world in a way that's pinned accurately into the physical world. You could have a digital object sitting on a table and the table's real. Your actual optical wetware is looking through the lenses at the table, but the digital system is projecting that building on the table into your eyes, so when you walk around it, it stays pinned to the table. The virtual and the physical interplay and a way that is organic and beautiful.

We're in the earliest versions of that, but the added thing that's super rad is that HoloLens 2 brings perfect 10 finger hand tracking, so now you can reach out and interact with these objects.

That isn't some science fiction-y thing. It's shipping in volume at this moment. And – the technology is not just Microsoft's. Apple's working on it. Facebook's working on it. Google's working on it. They haven't announced their plans, but there are multiple billion-dollar efforts flying in formation that are going to release, let's say in years. Within the decade, it will look like glasses I'm wearing, will be able to see and track my hands and project 3D objects into the lenses.

Another trend worth tracking is Sculptural Sketching. The only reason why 2D sketching is the primary way we interact with one another - two people, using a pencil, sitting over a paper and sketching in two dimensions, this awkward kind of flattening 3D things into 2D – it's all we've had for millennia. We spent thousands of years sketching in 2D is because until this moment, it's been easier to draw in 2D than it was to sculpt in 3D. For 3D, you had to have clay or stone. It was kind of a pain in the ass.

We are at a point where, eventually most design professionals will wear digital AR-enhanced glasses all day every day. These will allow them to sculpturally sketch... together! They'll do it in a way so easy, so organic, and so flexible that it will become easier than drawing on a white board. It can happen anywhere. If you so choose, it could eventually become the foundation for the building model itself. In this way, we find ourselves at an

incredibly unique moment in time.

As proof of this movement, we're just now to see major companies invest in this new set of "immersive authoring" tools. It's more interesting than the tools we use today, which are more about walking through the model. Examples of this next generation of Sculptural Sketching is Google Tilt Brush, Google Blocks, Microsoft Maquette, Sony Dreams, and others. These tools are designed to allow you to create 3D content in an immersive and expressive way. Super-powerful.

DI: We recently migrated our publications from their former lives as dead tree documents. The DI media group website has gone live. www. di-mediagroup.com. We are transitioning to be remotely web accessible, with more of a constant feed



dynamic. So, I hope we can include links to these videos in this piece.

JSG: You should absolutely do that. The HoloLens 2 demo is quite current and contemporary, as the hardware is just now becoming available. HoloLens 2 Demo: https://youtube/e-n90xrVXh8?t=235

Another must-see clip was released five years ago associated with the awesome Future of Storytelling event. It shows legendary Disney animator Glen Keane diving-in to the then-new domain of room-scale VR. Glen Keane – Step into the Page: https://youtu.be/GSbkn6mCfXE

Interestingly, the rig he's using in this video, which was shot back in 2015, includes a high-end PC and external sensors, likely costing \$4,000 or more. And it probably took them half a day to rig up that prototype and configuration he uses in that video. But now, that hardware and software solution is \$400, and is ready for creative expression (using the same tool – TiltBrush) in about 2 minutes. No PC is needed. You just get the Oculus Quest for \$400, put on your wifi, put it on your noggin, and you're doing sculptural sketching. So, in five years the cost has reduced by 10X, the cable has disappeared, the PC is now optional, and the setup is accessible to anyone, regardless of their technical acumen.

DI: There's no shortage of new ways of working, visualizing and collaborating, all with great potential. But as Dave Gilmore says, since many of the folks running firms are "pale, male, and stale", we need help implementing. Most people my age are looking for their places in the pasture. We'll be gone, but the younger folks - your son and his cohorts - have a vested interest in saving their firms when we come back from all this. But they'll need help solving the money problem - and demonstrating new value propositions for architecture.

Every other industry says, "Technology? Solution! Let's invest. Let's use it." But in architecture, we see it as, "Oh, the technology problem. It's an expense. We can't afford it." We have a blind spot for technology. So, we still have to get over that hump. Maybe when the new generation comes and we're gone, it'll finally be here.

JSG: There's another thing we should consider, that feeds into the remote conversation around COVID. In five years, you'll have eyewear that looks like mine or yours that can project content in three-dimensional space you can use to interact in an elegant way with your hands. Collaboratively, we'll all be able to see a shared thing and work on it together.

Everything you can do together "copresent", you can do just as easily together "distributed". And, you can do it synchronously in the same time zone, but also asynchronously.

So, you can imagine I could drop-in and work on a form and tinker and leave that as a ghost, or an "echo" for you to drop into an experience and interact or iterate at another time, in another place.

This was the vision of our Visual Vocal project. In retrospect, maybe our first project was a bit too ambitious for the day. But this notion of being able to do something synchronously and

asynchronously, something copresent and something distributed, on two axes, gives tremendous dynamic range for this new sculptural sketching pattern.

The third axis, which is thrilling and terrifying at the same time is the axis of humans and machines playing together. Particularly when you're talking about geometric form, there are certain things humans are way worse at than machines are. So, hence the Grasshopper generation, people who grew up building sculptural forms through math. That will be just a control inside this thing where, as you're crafting, certain people will be able to sculpt in a way that is not just their

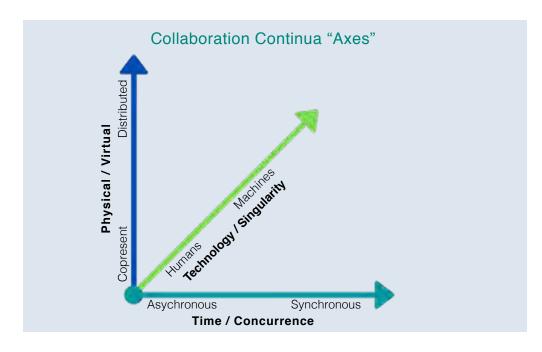
hand. The output is informed by machine learning. That will be a whole new brush or tool. I don't know what that tool is called in sculpture, but that's a whole new implement you'll be able to sculpt with in this new world.

### DI: It's called a chisel.

JSG: A "chisel". That's perfect. That will be the sort of machine-learning-enhanced chisel you'll be able to place into these forms that has all the goodness of Grasshopper, but all the accessibility of AR and sculptural sketching. If we had those tools today in the context of COVID, we wouldn't even hit a speed bump. We'd be able to just do this method.

Another thing comes to mind - holoportation, which is kind of holographic teleportation. Microsoft did a paper in 2016 that was the first time this was shown. Microsoft Holoportation: https://www.microsoft.com/en-us/research/video/holoportation-virtual-3d-teleportation-real-time/

Think of this as the next generation of videoconferencing. You and I would be whole-body-projected virtually into the same space together. We'd be interacting and I'd see you. I'd see your social cues and you'd see mine. Right now, all we've got is a Zoom meeting. I can at least see if



you're laughing, but there's more possible. Granted, in the video, there's thousands of dollars worth of hardware making it possible. The day after tomorrow, this will be built into every office and every home office in the world. So, how will Holoportation change architecture? Incredibly, I think.

DI: We had a visioning session in my former firm. We were redoing the office. We asked, "What are we going to do for AV, telecom, and collaboration?" I said, "I want to be able to walk into the room and just start talking and interacting. I don't want to hook up any cords. I don't want to reserve any meetings. I don't want to have to do anything. Just sound, sight, or motion-activated, and we're seeing and working together and sharing data. We interact and get to work. You're saying we can do that?

JSG: Yes.

DI: OK. I've heard all this. I'm excited. What do I do to start? I'm a practitioner in a mid-sized firm. Where do I start? What do I do first?

JSG: I get asked that a lot. Controversially, I don't usually recommend three things you should start doing Monday morning at work because I think those things have a high disruption factor. You need to get people to agree to do it. Without buy in, you pick a tool and move on and life gets in the way. It doesn't stick.

Rather than starting with WORK, maybe start with PLAY. Very smart, creative teams are doing a tremendous amount of experimentation with virtual worlds that forecast the same types of tools we'll be using together very soon.

Let me share two ideas of a possible place to start, both from the domain of immersive entertainment. Both offer best-in-class VR, and maybe even allow you to scratch the itch of hanging-out (hiking, even!) during the COVID-19 pandemic?

### **Entry-Level:**

System: Oculus Quest

(Self-contained – no PC needed \$400) Experience: <u>Google TiltBrush</u> (\$20)

### Advanced-Level:

System: Add a gaming-grade PC (must be at a specific level of performance – good guidelines are here), connect the PC to your Quest via USB cable using Oculus Link.

(Note: Some games are too powerful to run on the headset alone, they require an attached videogame-level PC.)
Software/Experience: No Man's Sky,
Purchased via Steam (requires a PC – doesn't run on the Quest alone).

In modern, state-of-the-art VR systems, there are games/experiences that allow you to solve problems collaboratively, and/or "Be Together Distantly" – a pattern of immense value, particularly during the COVID-19 pandemic. However, among these, No Man's Sky, in particular, provides a broad array of experiences, from creation to crafting to interplanetary exploration, each with excellent in-game tutorials of the in-VR UI and interaction approach.

I contend you'll learn more faster if you



find something that is joyful, exploratory, and/or creative than something that makes you think, "I really NEED to learn this." As a bonus, you can convince a friend to join you in VR and create and explore together!

DI: That's always my answer too. Get your head right first. I don't care how cool a thing is, if you don't want to, or aren't willing to get over that hurdle, paradigm, or mindset, you're doomed to fail. So, you have to start with your head - and by tinkering. JSG: Sounds like we're in orbits around the same planets, so, I hope these conversations continue.

DI: John, I can't thank you enough. I had way more fun than I thought I was going to have. Dave said you had a lot of energy. That's clear.

JSG: The honor has been mine. I'm such a fan and supporter of the work of Design Intelligence, and the critical role you play in elevating the conversations about design futures."

John SanGiovanni has more than two decades of experience as entrepreneur and inventor. He has authored more than 20 patents in the areas of augmented reality, wearable hardware systems, and UI, many of which have subsequently been licensed or purchased by Apple, Microsoft, and others. John has led product teams which have shipped more than 30 top-tier Apps for iOS/Android, 10 of which achieved top-5 in their respective App Store category and won major digital/interactive awards. Earlier in his career, John worked in various technology/entertainment roles for the Walt Disney Company, and served as a Technical Evangelist for Microsoft Research, where he led external research funding in mobile technology and AR, and co-invented several UI metaphors now used on more than a billion devices worldwide. John cofounded and served as executive / board director at Zumobi (mobile app platform) and Visual Vocal (AR/VR spatial communication platform) and cofounded the nonprofit TeamXbot, focused on technology mentorship of inner-city teens. SanGiovanni frequently consults, writes, and speaks on technology trends, and has been honored as an IIDA Design Pioneer and featured at the MIT Investment Forum, Microsoft Research Summit, and TEDx Seattle.



# Workplace Safety, **Tactics, and Strategies**



PETER BECK

Executive Chairman,
Managing Director, Beck Group

In this candid discussion, Beck CEO Peter Beck shares rapid-response measures implemented in office and jobsite workplaces, as well as future-focused implications – and responses to the Covid-19 pandemic.

DesignIntelligence (DI): Thank you for taking the time to do this.

Peter Beck (PB): I'm focusing my energy over the next few months on the civic and business challenges for which I'm responsible. I'm having to thoughtfully prioritize my time given the fluidity and uncertainty of these times.

DI: Understood. You have already made some immediate changes for enhanced workplace safety. I saw photos of onsite physical distancing, temperature checks, signage, and other measures already in effect on a jobsite. How were you able to develop and implement those tactics so quickly?

**PB**: Yes. I've just sent you the initial protocols we're adopting on construction projects. Construction is considered an "essential" business in many parts of the country during this pandemic. To continue building, we must adopt the safest practices we can through screening and quarantining. It would not surprise me to see many of these practices adopted across many industries as we begin to "open back up". We had the people, processes, and systems already in place, so it was only a matter of adapting. It's simply a heightened, more focused set of behaviors now. We must anticipate crises as a matter of course.

But I think this is a far broader subject than just jobsite safety. We think this



But I think it's a far broader subject than just jobsite safety. We think this pandemic could dramatically impact demand for various types of space, cause us to think more carefully about how to quickly repurpose space in the future, and perhaps redefine ownership in projects of the future...



Jobsite — Temperature Check Station



Jobsite — Handwash Station

pandemic could dramatically impact demand for various types of space, cause us to think more carefully about how to quickly repurpose space in the future, and perhaps redefine ownership in projects of the future where the public assumes the cost of redundant space to ensure community safety, while the private sector underwrites space required in normal times.

DI: Can you elaborate on the issue of repurposing space? It seems that would require an owner willing to invest in a more robust infrastructure, flexible systems - and reprioritizing traditional past values from first cost, user-specific and purely architectural treatments to ones of flexibility, function, adaptability, and safety awareness. As a design-build organization have you investigated any of these issues yet? Are you initiating such work as an owner or finding any like-minded owners or new forms of partnerships to do what you're imagining?

PB: It's far too early to project how such public-private partnerships might evolve, but we can be fairly certain that we will need more healthcare capacity in the future than that required in normal times. Government should underwrite this

additional capacity and there is no more efficient way to do it than through the private sector.

DI: You have always had a futurefocused outlook to the design and construction process. Incorporation of design integrally within your organization and early technology leadership are just two aspects that come to mind. Do you see this in-house, vertically-integrated-approach as offering cultural, financially or strategic advantages to other firm models and operational modes? Because contrarily, one could imagine - in a post-pandemic industry - the opposite as advantages. Being smaller, nimbler with discrete, more liquid corporate components.

PB: You make some very good points. I can see the advantages of being smaller and nimbler in a post-pandemic world for large, consolidated industries. But our industry is so fragmented across so many disciplines, that integration across just a few critical disciplines dramatically increases efficiencies. We need to integrate regardless of what the world will look like. Through the limited integration we and others have achieved, we see remarkable reductions in schedules and costs, and most importantly, far greater



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Trade Partner Questionnaire

6-foot distancing separation

efficiencies in decision making by better integrating the supply chain into the design process.

DI: What advice do you have for leaders? Not just about safety, but about their core roles as leaders? In an unprecedented Black Swan/Star Trek environment, we're boldly going where no one has gone before. On whom or what do you draw to set strategy in uncharted territory?

PB: I think it would be a mistake to assume that the post-pandemic world will be some completely transformed environment. Yes, many great restaurants, hotel chains, and perhaps airlines may no longer exist, but others will take their place.

Instead, I believe this crisis will accelerate trends which have been building for some time. Online retail will expand dramatically as more of us appreciate the value and convenience we've recently realized. As a result, repurposing malls and strip retail spaces will accelerate in the coming years. Online work will also accelerate as we're learning how to do it efficiently; perhaps resulting in more time with our families and less intense travel schedules. Public and private education

will likely move online more rapidly as today's students embrace the convenience of learning wherever they wish.

Can you imagine an efficient public education system that provides online content for 60% of the day (created by the best 1% of educators) in smaller spaces (monitored by proctors) through strip centers conveniently located in neighborhoods? Then we would no longer need those expensive school buildings and all the costs associated with them including the staff to operate our current bureaucracy. The cost of education might meaningfully decline, while the quality may improve dramatically - particularly for those most disadvantaged.

In a more global context, this crisis may cause countries to repatriate manufacturing of essential products (pharmaceuticals for sure). Nationalistic trends will likely accelerate along with the associated polarization of society. Democracies may accelerate towards socialism, which has been the trend, as more voters lose confidence in the private sector to service their needs, believing that governments are more reliable. Main Street still feels victimized by the Great Recession. And the U.S. will accelerate its withdrawal from global leadership as it

tries to protect itself. Our government is doing just that in this crisis by reacting independently from other nations.

These are all trends that have been evolving for years, but they will accelerate now due to this crisis. We may not like some or most of this, but it will work out fine for those who try to understand it and prepare for it. I have no doubt that many new ideas currently being incubated will flourish to our benefit as we emerge from this crisis.

This is a time to learn from others and reflect on how the acceleration of these trends will create a new landscape for all of us. Let's hope we don't lose the good things we've learned during this crisis as we get back to work.

Peter Beck is Executive Chairman of The Beck Group, a national design-build firm headquartered in Dallas.







FEDERICO NEGRO

Founder and CEO of The Canoa Supply Co.

# An Interview with Federico Negro, Founder, Canoa Supply PBC

DesignIntelligence (DI): What's so radically different about what you're doing?

Federico Negro (FN): It starts with the idea that when you're doing one building that's a one-off, that's called project delivery. But when you have to do several hundred, that's called a supply chain. It's as simple as that. Instead of analyzing where things come from and how they get there, working at scale is a fundamentally different framing of the problem of building and operating than most people get exposed to. It's super fun, something I like to nerd out about.

Other people may not find it as interesting.

DI: But more will need to. That's an industry problem that may never be fixed. The lion's share of architects may still want to just cobble away on one-off things, because that's what they got into this business for. But more people may need to go down the road you're on. I had a good chat with Craig Curtis from Katerra. He talked about platform and scale. I had the mistaken impression they were trying to be as big as possible through acquisitions. He said, "No, we're just trying to have a platform, and to scale. We don't want to do all the work ourselves, there's a place for



It starts with the idea that when you're doing one building that's a one-off, that's called project delivery. But when you have to do several hundred of them, that's called a supply chain. It's as simple as that. partners and other people." My preconception was wrong. But the supply chain and scale notions you're talking about are at the core of it.

Your career has been eventful. You were traditionally educated as an architect and designer. You formed a groundbreaking firm in Case, and then you became part of the unbelievable growth at WeWork. Now, you've pivoted yet again to do a very different thing around supply chain. Tell us about that evolution.

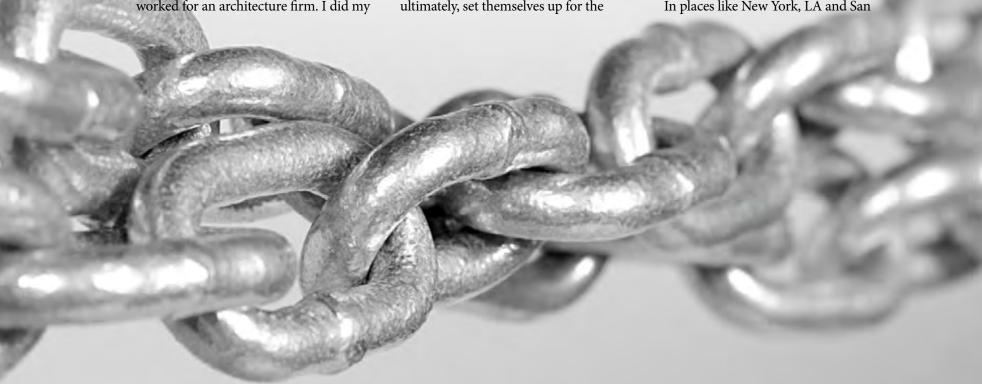
**FN:** I got into architecture because I love the space. I love design and buildings. I can't get enough of it. After grad school I worked for an architecture firm. I did my share of design, project management and construction administration. I was on the path to licensure. Then, the 2008 recession came. With a couple friends, we spun-off and started a company called Case. At that time, there was very little investment from a tech perspective. No venture capital money. Real estate technology ('re-tech') funding didn't exist.

If there were small funds out there, we didn't know where they were. So we did what we knew how to do, which was sell our expertise. That focused on technology. Trying to help design firms use technology to reposition themselves, improve their design processes, profitability, employee experience, and ultimately, set themselves up for the

coming decades. That came in varying packages. All the way from management consulting where we helped companies decide whether they would need a CTO, or whether CTOs might be fundamental in the future in a completely different way. Instead of being a cost center they might be a profit center. All those kinds of discussions, from training, to services and software development for hire.

DI: You almost invented a space that hadn't existed by making yourselves an integral part of a supply chain to design firms who didn't have those capabilities.

**FN:** If we didn't invent design technology consulting, we made it a household name. In places like New York, LA and San



Francisco. Less so in other places. The idea that a technology consultant could be a vendor to an architecture firm was very much unknown up to that point. It took a lot of convincing. People thought: "Wait a minute, we're paying somebody to help with technology and it's not just about fixing our email?" That started to resonate and accelerate. We borrowed a model that bigger firms may have had internally, notably Foster Associates and SSG Group. We loved the energy we had and were seeing in conferences. We saw a different type of practitioner in our peers, and wondered: "When all these people who 25 are 50, what are they going to be doing? What are their roles going to be? What do those architecture firms look like once all these people have worked their way up the ladder?

We tried to get firms ready for that future. We were lucky enough to do well over a few years. We grew to about 60 or 70 people, but by the end of it we found our best clients were large brands that had internal design teams. Companies like WeWork, Apple Retail, Estée Lauder, Disney Imagineering, and companies like that that had internal design teams where space was a fundamental part of their core offering. But they didn't sell services. They were product companies that used space as a way to deliver their product.

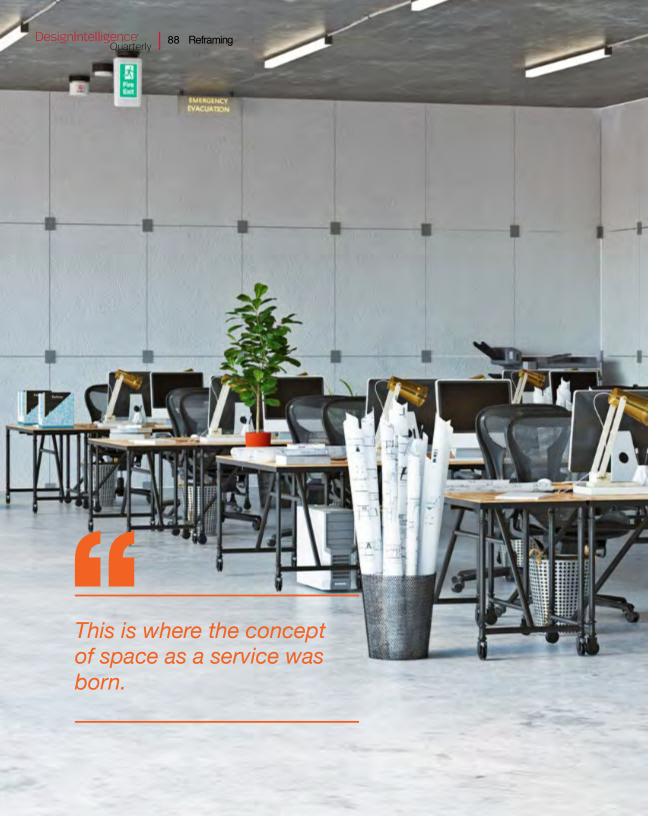
From a supply chain perspective that was interesting. Very much like an OR is a fundamental piece of infrastructure for a hospital, an Apple Store is a fundamental piece of infrastructure for Apple. They need it to be open by Christmas.

Retail had interesting business practices we saw permeate into other sectors. Most notably, workplace. That's what was interesting about WeWork at the beginning. They didn't invent co-working. They didn't invent a lot of things, but we said: "We've built technology and consulted for retail companies, we believe applying a retail methodology to workplace would effectively create a roll-out model that would allow us to build at speed, improve quality, and drastically reduce our costs and risks on a per-project basis.

Those conversations ultimately led us to join WeWork full-time. They acquired our company. For the ensuing few years we built the internal machine to be able to get all the work done. Several million square feet a year. The last year I was there we did 16 or 17 million square feet of interior renovations. In one year.

It was a fascinating experience from the perspective that we had to build an internal studio. We still needed the





knowledge but had to deliver it in a fundamentally different way. A more effective, more efficient way.

When you've got to make a decision about door hardware, that decision is going to get amortized across a thousand projects, so you can take a little bit more time to make that decision correctly. Once made, we're not going to revisit it again for a year or two. Unless there's some innovation or something we want to bring to it. We were of thinking of architecture as a product. That allowed us to pivot our thinking around project delivery and the software we used, our processes, the types of people we hired, and how we did procurement. We did all the procurement for our projects. It gave us a way to map how this stuff gets delivered. We were involved in everything.

We had the product definition, the design of a prototypical space, what we call our design system. That got applied and instantiated across many different locations. Geometrically, environmentally, and - depending on specific base building conditions - that design system would respond accordingly. Then we would procure, build and operate it. We didn't leave. We had five, six, seven hundred thousand people walking through our doors every day.

# SPACE AS A SERVICE

It was fascinating. If somebody didn't like orange, I would hear about it. So, across a whole portfolio, we would have to find how many buildings had this specific color of orange. Potentially, we'd have to send crews in to repaint it. If it's just one source or one datapoint it's not good enough. If something becomes a trend across multiple locations, members, and potentially, multiple countries, then you're getting direct feedback as to whether it works or doesn't work. It's no longer: do the best we can for this client and go away.

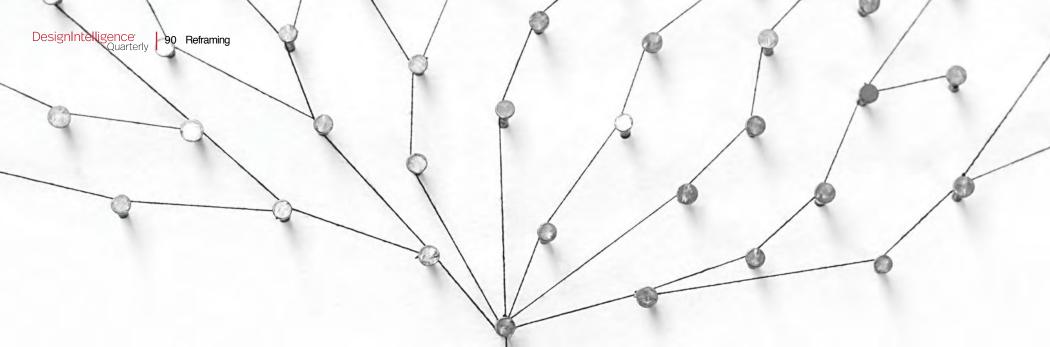
This is where the concept of space as a service was born. A lot of people get that wrong. Space as service is founded upon the idea that it's iterative. It continues to improve over time. It has to learn from its users. It has to take a page from user experience. As a result, it has to adapt. Being able to be there and recall a chair, repaint a wall, or push out a whole new security system over an entire portfolio, are things we had to manage. From a supply chain perspective, it's not about just procuring for your project, it's about the managing a portfolio of work.

That's the part that I fell in love with. The idea that number one, buildings can and should get better over time. Number two is that as architects we draw this line in post-occupancy and call it post

occupancy. It's like there's an imaginary wall. On the other side of that wall we know there are humans and buildings and operations. We've tried to break that wall down. To a lot of firms, it's unattainable. Some people have been able to, and they've not been able to do it at scale. Figuring out what services are on the other side of that wall is hard.

But we got in. We had a front row seat to it and it was amazing. It taught us so much about design, people and how they use space. About how you can measure different things, improve space, and how you change your processes as a result. How maybe even the tools we were using were fundamentally wrong and where we were spending money was fundamentally wrong.

It opened a whole new world for me in terms of how to look at space and experience. From that perspective, all the different layers created what we called a product - which was a typical WeWork location. From landlord-scope infrastructure all the way to the actual tenant fit-out we tried to codify everything. Everything. For low-voltage design, our specifications were handed to local teams everywhere to make sure from municipality to municipality we were abiding by all the codes. We had a standard much like retailers have



standards. We could say: here's our standard, now make sure that it works locally. The idea was that this network of buildings was in fact a network of buildings, and that the buildings weren't singular. It wasn't a collection of buildings it was one giant thing that had to be managed together.

If somebody calls you one day and says, "Hey, this dishwasher we've specified is breaking within a year. I still need to use it and it's broken at 7% of our locations," we have to get rid of it. You then have to develop a process that recalls all the ones in operation, the ones already procured but not been installed yet. Then, we have to push a new standard for future projects and renegotiate all the deals with the suppliers and installers that were providing them.

If we didn't have an internal team, all this would have been layers upon layers upon layers of change orders. Eventually, you realize: I need an architecture group. I need an interior design group. I need millwork experts. I need an electrical engineering group, and a low-voltage group. And I need plumbers. Part of the idea was not to vertically integrate our supply chain but to vertically integrate the knowledge needed to buy that supply chain well.

So, we became a cross-disciplinary internal design studio, where every team and region had low-voltage people, AV-IT people, architecture people, interior design people, material experts, technical directors, and creative directors. Because we were buying lots of services and products on the outside, we needed to be

the smartest people at the table to buy them well.

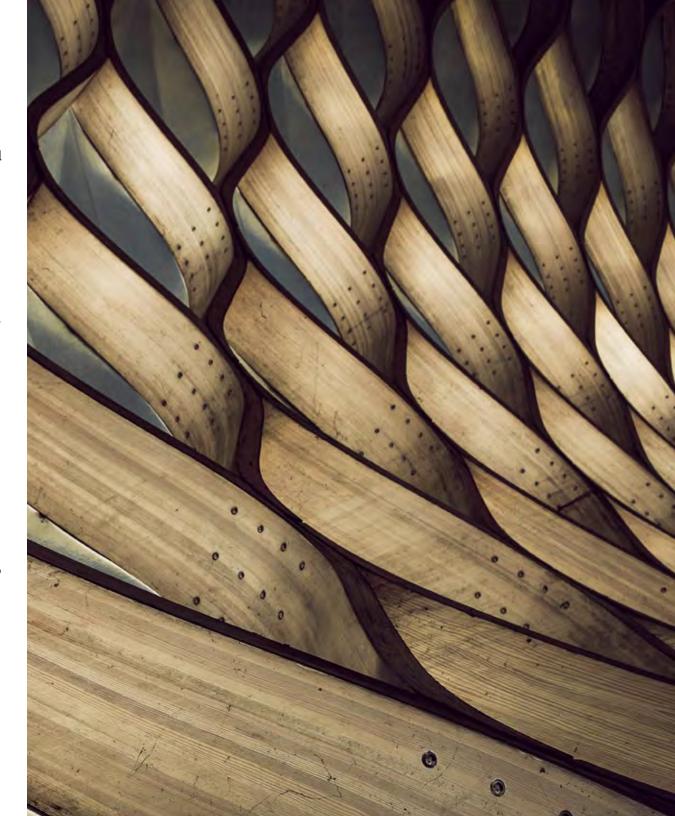
People would often ask us, "Why do you have a lighting group?" Or, "Why do you have an acoustician?" Because our product is defined by all of the above, not just the architecture. I wanted my architects to be sitting right next to the construction manager. A lot of the aspects of integration people talk about with design and building, we got to dowithout having to evangelize or convince anybody. We did it because it was the best thing to do for our product.

DI: You're a designer at heart, but you've loved the mindset change to deal with things that scale. Did the old designer's mindset ever get in your way? For example, you've made the hardware decision, but now somebody on the team wants to pick a new one because it's cool, different, or innovative. Were you fighting with yourself in that regard or were you able to cross that line and think like a businessperson?

FN: Architecture is interesting because some aspects, specifically in the world of web and digital design, consider design research to be fundamental. In those fields of design thinking something is cool is exactly the wrong thing to do. It's a different approach, applying different thinking to find the best fit for this particular product at this particular time. None of them are right or wrong, it's just that for us it was all about creating a product that got better over time. I had countless conversations with people who said: "I just found this other cool new thing." I said: Prove it. Test it.

We had a research group and a product development group. Part of their task was to validate things. If we found something we think might work better, first, it had to be related to a problem we know doesn't work well yet. Second, it had to be proven that it will work better. Go install it in 10 buildings. Test it and see it. Then come back with the data and say, yes, this fundamentally works better.

Aesthetics played a big part. From a creative perspective we wanted to have a



strong, identifiable brand. Concessions were made, but all the decisions had to go through a series of filters, the last of which was: is it scalable? If it wasn't scalable it wasn't worth doing. That's fundamentally opposite to the world of art and certain design contexts where uniqueness and rejection of scale are the right answer.

DI. Is it just a different program requirement or criteria set? When you're designing to scale it's irresponsible to do anything else?

the best product while reducing global cost by 25%, then I need to choose a door handle, not just because one person thinks it's cool, but because I can source it, afford it and it meets code in multiple

regions and countries. There's a whole host of decisions to make. For us, it takes a long time to make a decision, especially an expert decision. Sometimes it takes multiple experts to come together. And it takes testing, data, and user feedback. It takes all those things.

Once we've made a decision, we have to make sure it applies across all our locations, or the majority of our locations. Otherwise, we could never be able to afford to do it over and over. Part of the reason we were able to scale so quickly was we built an amazing cross-disciplinary team. Remember, there were no contractual agreements between my engineer and my architect. Zero. They were coworkers. There was no barrier, no insurance layers, nothing between them.

DI: A common mission, can't fail mission. You're talking about the hubris of building it all from scratch. I was astounded by your growth rate, having to figure it out, create a system and deal with the growth - doubling every year. What kept you going? Was it the energy? The people? How did you cope with the accelerated pace?

EN: A common mission, and it's just "go". We have a thousand dollars and I need to yield as many locations as I possibly can with those thousand dollars. That's it. And the product needs to be as good as it possibly can be. The team was amazing. We removed 100% of the typical project delivery bureaucracy, which, by the way is designed to spread risk across a large pool of entities. Here it was one entity. We were the operator and the client, so if we revenue was bigger than the investment in design and construction cost.

Speed was everything, so it didn't make sense to go out of house, redesign, or go out of house for anything besides code consulting, expediting, and those kinds of things. From a design perspective, it's more like designing a car or what I would imagine Steelcase or IKEA go through. You're making something adaptable and applicable to a large pool of people and locations. That one thing has to be absolutely as good as it can be and be the

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The one big piece I'm adding is the circular economy underlying it all. I want to be able to take an architect's responsibility for the stuff we put out into the world.

lowest cost it possibly can be - while still remaining good. You're trying to make the design inclusive, not exclusive. We wanted to be able to have a nice workplace for as many people as possible. As opposed to only Google having a nice workplace because they can pay a great architect to do it for them.

## DI: And now, another pivot. What is Canoa's mission?

Mark I left WeWork I took some time off. It had been 12 years of nonstop startup hyper-growth mode. But, after a few months off, I realized I missed it.

What I'm trying to do at The Canoa Supply Company is use the lessons of the last four years, plus consulting years before that. Six and a half years of retrofitting buildings and workplaces. I realized I really enjoy scaling design - almost more than doing the design to begin with.

I'm effectively building a company that takes that scaling service and - instead of it being internal to one company - serves different brands that have that same necessity for scale. When I say brands, it could be enterprise companies with many offices, a retail client, or a senior living facility with many locations who wants to be able to make their portfolio more efficient in the way it's designed, deployed, procured, and maintained. We're building technology to help us with that supply chain.

The one big piece I'm adding is the circular economy underlying it all. I want to be able to take an architect's responsibility for the stuff we put out into the world.

To some degree we're looking at models of furniture as a service, for example, where you can buy all this stuff, rent it, or lease it. We're looking at these financial structures to be able to augment our core revenue because we're designing decommissioning into our services. For us, the moment you're done with it it's still my responsibility. There's a big business opportunity there, but it also has to do with our responsibility as architects.

We are not defining the design space correctly with the traditional business model. It's not that I don't want to use a traditional business model, it's just too siloed. I want to be able to go to from beginning to end.

DI: "When you get done with something, it's still your responsibility..." Is that because you own it, or is it just your moral, environmental responsibility to care about its disposition?

Both. I want to be able to help people with decommissioning and liquidation or convince them they may not need to buy it at all. They could just rent or lease it. We've researched this. Commercial furniture is usually made to last 20 to 30 years. The first buyer in class A office space on average, uses the asset, say a piece of furniture, for five to seven years. Which means most of them are liquidating it. They've already written it off from an accounting perspective. Most are moving on for stylistic or functional upgrades, or the lease ran out. For whatever reason, most people are letting go of their assets 25% to 40% of the way through their estimated life. 60% of the life of that asset is still available to somebody. That's money. It's being sold for scrap or thrown out. We're focusing on interiors and

retrofitting. A big part of that is furniture. We believe in the future, furniture is going to have more prefab and demountable solutions, all the way to HVAC and other systems. Less construction is going to happen in the field and more systems will be deployable. From a sustainability perspective that's a huge gain. Construction has a very heavy footprint, and also from a time and cost perspective.

We've launched Canoa with a first offering we're calling a "construction-free workplace solution." We believe it can meet 80% of the use cases. We're purposefully evading construction because we can offer something at 15 or 20 bucks a square foot that would typically be 125 or 150 dollars a square foot for a medium or large business. By the way, it's 100% adaptable, so if you're done with it or want to rearrange it, you can do it.

DI: In your financial analyses rent or lease versus buy or build, have you looked at sharing? The granularity of rideshare or bike sharing? Is that feasible in your world?

FN: I don't have an answer yet in terms of what the right solution is. What I'm saying is we're exploring the space. Mostly because we're effectively creating the company I wish we would have been able

to hire at WeWork. If your job is to manage multiple workplaces, retail spaces or restaurants, you're doing that at scale. It's a fundamentally different proposition than if you're only doing two or three locations. Effectively and efficiently managing all that stuff, deploying new ones, and refreshing all that is hard. It takes real technology to do it, and a different type of organization. It also takes a different financial model. Most of our revenue is going to be subscription or product-based revenue. Services are going to be a minor part of what we do needed to do a large customization.

The sharing economy? Sure. When was the last time architects bought plotters? It's been more than a decade. You get the plotter free if you buy the ink and paper contract. By the way, don't even use plotter space, use a reprographic service and they'll do it all for you. Most businesses moved to leasing or renting automobiles, printers, plotters, coffeemakers, and restocking the fridge decades ago.

For whatever reason, furniture is still considered an asset and gets depreciated over time as if it was technology or IP. It's not. It's just a chair. If you're going to be using that chair a long time, that's fine. But some types of spaces require refreshing relatively quickly. What we've seen over the past few years used to apply



mostly to retail, restaurants and those typologies. Now we're seeing workplace being 100% part of that category, not part of what we're going to build for 10 years or for 15 years. Workplace now wants to refresh every two to three years.

DI: You saw that before COVID was a household word. Now more than ever we're talking about needing less space, and more flexible, adaptable space. How do you see Canoa supporting that in five years? Can you share your vision?

**FN:** We have a strategy and a few goals we're aspiring to. We've incorporated as a public benefit corporation, so, first, we're going to be transparent. After one year of operation you can apply to be a B corporation, which we'll be pursuing. The idea is to collapse design and installation as a turnkey service through effective technology - because we want to be responsible for what we're putting out into the world. We won't specify product we're going to have to be responsible for when a customer liquidates. We know something used is more likely to move quickly if it's made of wood, steel, or aluminum. Plastic things don't have a

second life. Usually, even their first life isn't as long as you'd like it to be. We're creating kits or solutions called 'office in a box'. It's 99% plastic free. We're thinking about doing a vegan model. All these go to decarbonizing the built environment. We have to be responsible for what we're putting out into the world. The way we've defined that is if I put something into your space, when you're done with it, you need to call me. I'm going to be responsible for going to get it, and I'm going to try to get a second life out of it, reuse it, or recycle it.

Our supply chain platform includes partners signing up for donations, recycling, and buying stuff based on weight or container. Because we make it, we take it apart. That's our objective. Where do I see us five years from now? Ideally, I see us having been able to achieve scale where the full supply chain has been proven out. Where we've created a model where we can continue to deliver ever-better, healthier environments for people that are also healthy to the planet. And we're doing so under a sustainable financial model. That's my objective. That's where we're going. Any more than

that would be guessing.

DI: A noble vision. Another chapter in what I have to believe is a career only 25% into its journey. I look forward to seeing what will happen. This is radical thinking that could open some eyes and help people.

**FN:** I'm glad to hear that. Thank you for this conversation. Sometimes it's lonely out here.

**DI**: It takes courage and conviction to do what you are doing. I have no doubt you'll succeed.

Federico Negro is Founder and CEO of The Canoa Supply Co. From 2015 to 2019 he was head of Design at WeWork. Previously, he was founder and head of the projects group at technology consulting firm CASE Inc., which was acquired by WeWork. He has experience with SHoP Architects and holds a Master of Architecture degree from the Parsons School of Design, and a Bachelors degree in Architectural Sciences from the University of Illinois. A native of Uruguay, he currently lives in Brooklyn, New York.

# Words Have Power

# **Reframing** Communications





**CHYENNE PASTRANA** 

Director of Marketing, DesignIntelligence

Words are more than words – they represent the dynamic shift from empathy to action.

As we struggle to navigate a sea of messaging during the Covid-19 centric world we are currently a part of – the true weight of words should not be ignored. With so much focus on information – and often -misinformation, marketers need to carefully craft timely messages that support and educate their core audiences. We are in the middle of a reframing in communication that is shifting from consumer-based, revenuedriven agendas to a focus on the emotional relationship between brand and customer.

The relationship between the marketer and the audience is crucial – we are all bound by the same current day limitations. With many of us operating in "survival mode", the general public is trending towards loyalty and safety they are unsure and emotional - and so are we. Customers want to hear from familiar brands. Brands they already

have a relationship with. They want to know how companies are helping, not what they are selling.

### **MARKETING & COMMUNICATIONS NORMS** HAVE BEEN BROKEN

When the pandemic first began taking form in the United States, companies' messaging to their core audiences had to shift greatly and with absolute speed. As



We are in the middle of a reframing in communication that is shifting from consumer-based, revenue-driven agendas to a focus on the emotional relationship between brand and customer.



**DURING THESE UNCERTAIN TIMES** 

# WE'RE IN THIS TOGETHER

NOW, MORE THAN EVER

WE OFFER OUR
SUPPORT

the nation entered shelter at home measures and a new lifestyle, brands needed to respond with compassion. Commercials, advertisements and emails quickly shifted tone from revenue generators to support systems. The general audience could no longer be "sold" in the same fashions they were just a week before. Products and services took the backseat and blank screens, thoughtful music, and words of support took the forefront. Phrases and sentiments like "During these uncertain times" and "we are in this together" began to flood advertising space. Many brands reacted quickly, showing their presence through comfort and charitable actions. Words brought comfort to their audiences while showing the brand was healthy enough to respond timely and directly. It felt good - we are all in this together, uncertainty became a communal feeling. Fast-forward a few weeks. While some still crave the support and charity-driven paths many companies are taking, some of the public is growing inpatient - yearning for clear direction and the ability to return to normalcy. But what is not clear is how companies can navigate this public divisiveness.

With a constantly changing audience – the need to respond quickly and thoughtfully is breaking the mold of

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... is it time to ditch cookie-cutter planning and ROI-centric strategies and focus on breaking the barriers between brands and audiences?"

tried and true marketing and communications models. We are being led by the virus, an invisible influencer that has marketers working double time without solid plans. How do we plan a campaign when the state of the nation has been a roller coaster ride for the last 10 weeks - with no solid end in sight? Even without the normal revenue-focused missions, the role of marketing and communications, is important to any brand's health.

Unfortunately, according to estimates from a March 2020 survey of marketers conducted by the Interactive Advertising Bureau, nearly a quarter of all brands have gone dark, pausing their paid marketing communications for the first and second quarter of the year.

The world is watching – now is not the time to retreat and wait until it's safe to reemerge. There is an opportunity not only to survive the fallout of this pandemic but to use it as a conduit for positive change.

# NEW MODELS OF APPROACHING CONSUMER COMMUNICATIONS

So, let's think about the shift - is it time to ditch cookie-cutter planning and ROI-centric strategies and focus on

breaking the barriers between brands and audiences? Many experts are beginning to cite a model that leads with consumer empathy and connectedness.

vay. He and

A recent Harvard Business Review article suggests that organizations follow the HEART framework of sustained crisis communication which consists of these strategies:

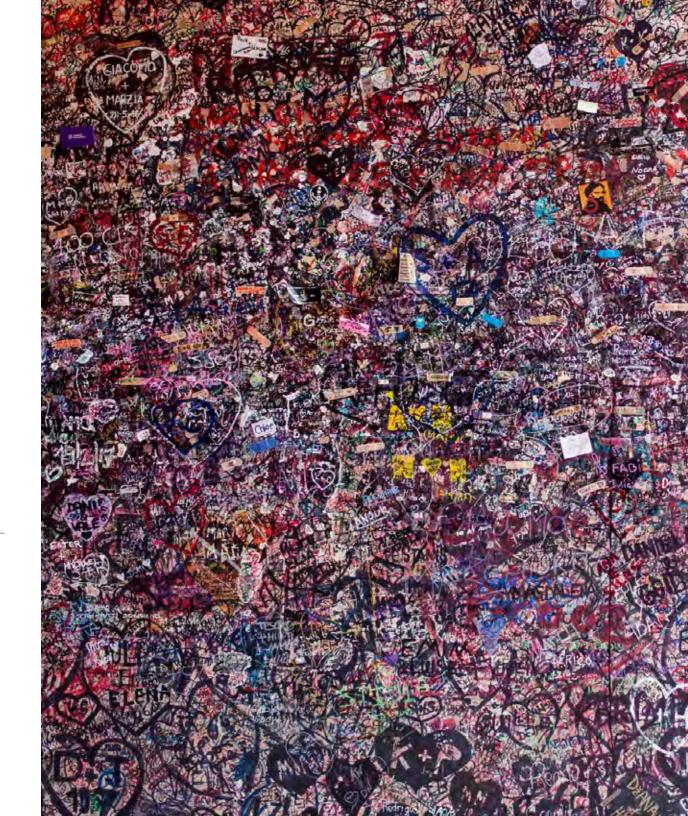
- Humanize your company
- Educate about change
- Assure stability
- Revolutionize offerings
- Tackle the future

This model and others like it bring the focus to connecting and empathizing with consumers through being clear, concise and thoughtful with your brand's mission.

Companies now have the reason and the means to break the barriers and show we are all experiencing a similar story. Educate your audience to know how your brand is helping during this crisis. Empathize with them by letting your audience know how your brand is affected by the crisis. Offer something – free or discounted services, products, deliverables – or an offer in good faith to build consumer trust.

Given time, your brand's stability and support during this crisis can turn into a new value proposition – by staying focused, connected, and genuine.

Chyenne Pastrana is the Director of Marketing for DesignIntelligence. Her focus is in brand development and creative direction. A native New Yorker, Chyenne studied at CUNY Queens College and Parsons School of Design before spending a bulk of her career in design and art direction for clients including: Bloomberg, Bloomberg Philanthropies, Metlife, W.P. Carey, Douglas Elliman and Assa Abloy.







**KEN SANDERS** 

Managing Principal, DesignIntelligence Strategic Advisors Rapid-response and long-term strategies require granular, client focus. Opportunities abound. Ken Sanders shares post-pandemic market thinking.

DesignIntelligence (DI): Anticipating a gradual post-COVID recovery and return to work after this sheltering and economic hiatus, how do you see firms adjusting their market expectations for volume and backlog?

Ken Sanders (KS): My first suggestion is not to have a broad expectation about future volume and backlog. COVID-19 is an unprecedented event and trying to predict or compare the recovery to come with any prior downturn is not going to be very helpful.

Here in the U.S., never in our history have we lost over 26 million jobs in five weeks. And there are more job losses to come. No one knows how long it will take to restore those jobs or return to a similar level of economic activity after a phased reopening, which is just starting.

The answer really needs to start with clients. AEC firms are confronting the short-term and long-term impacts of COVID, but so are their clients. Leaders should look at this from their clients' perspectives. How is this affecting *their* business, *their* customers, *their* backlog?

Starting with clients is the key to unlocking understanding, more so than comparing this to past economic cycles. For example, COVID has been a disaster for some retail chains and small businesses, but others, like Home Depot, Walmart, or Amazon are doing fine. It's very different depending on the client and market.

In the healthcare market, where one might assume things are bullish, they're not. Many hospitals, not just in the U.S. but around the world, are struggling with empty beds. It's one reason why phase one of the planned reopening allows the return of elective surgeries. Without them, hospitals have had a problem.



Leaders should look at this from their clients' perspectives. How is this affecting their business, their customers, their backlog? The strongest AEC firms are staying close to their clients, and undertaking a deep dive, granular assessment and analysis of their clients, their markets, and projects to better understand the future. That's the way to do it. They're positioning themselves to be agile and move quickly as the world continues to change rapidly around them, to deal with the challenges and opportunities that are still unknown.

Some firms I talk to are looking at their backlog, not just monthly, but daily because things are changing so quickly. At the same time, they're staying strategic and thinking creatively about new opportunities. You have to do both.

This is an unprecedented, black swan event. It's never happened before in our lives. It's unlike any other economic cycle we've been through, and it deserves its own unique response.

# DI: The other sense of market is geographic. Any comments on building type or regional markets?

KS: My answer is going to be granular again. Some retail chains have been shut down completely while others are doing fine. That's related to their government classification as essential or non-essential. It has nothing to do with their leadership or performance.

It's the same with entertainment or film

production. Theater chains are closed, but streaming services like Netflix have benefited. They're doing great. Amazon has never been in a stronger demand position, and they're continuing to invest in expanding their distribution network globally. That's an example of how you've got to look under the hood at specific clients and what they do to understand trends within that marketplace.

One company I've been thinking about a lot, a great company, is Disney. They're in a tough position. Most of their revenue comes from theme parks, hotels, film entertainment, and cruise ships, all of which have been shut down.

### **DI:** All discretionary.

KS: Yes. That's who they are. By design they're a non-essential company. Much of their revenue stream has stopped.

As the economy slowly reopens, theme parks are going to be an important case study in how good design of public environments shifts long-term. It's not just about public policy, screening, PPE, and social distancing. It's about how we design public environments where people still feel safe. Perception is reality. In the case of Disney, will visitors ever feel safe in the same way again packed into lines and along parade routes at theme parks? That's an interesting question. I don't know the answer, but that's one example

where the "new normal" has yet to be understood.

The issue is: can AEC firms help clients like Disney? Absolutely! They are going to have to reinvent how they entertain customers in ways that still generate good revenue and margins, but where their customers feel safe. That is going to be a big transformation.

Similarly, there's a huge opportunity to reinvent dining or retail venues as building types that are both experiential and safe. The issue of safety is not going to go away when the economy reopens. We're going to bring that with us going forward as individuals, families and groups.

The same with healthcare. How can healthcare environments be more flexibly designed to deal with sudden changes in demand? And based on what we're learning about working from home and virtual collaboration, what are the new mobility strategies? How will they affect workplaces and real estate portfolios of the future? All those are opportunities for design innovation in places where people can be creative, not focused on cutting expenses and retrenchment, but thinking about this as opportunity.

DI: Great observations. Rather look at overall markets or economic trends, we need specificity and granularity - the

conditions for this client, segment, or building type. In contrast to what we see on television every night, when it comes to markets, we're not necessarily "all in this together."

KS: Exactly. Firms need to dive deep into their own client base. I can think of three leading healthcare firms. What they're dealing with is going to be very different depending on the services, project types, and geographic markets they're providing. This question about broad brush predictions... all of us need to set those aside and look at individual clients and markets. That detailed analysis will yield a better understanding.

DI: What about new services? I talked to a a national leader of a sports design practice. As a forethought research exercise, they're doing an investigation on what it means to hold mass sporting events. What does that mean when you get out of your car, scan your ticket, have to go to the bathroom, the hot dog line. Can you still tailgate? Will there be a section for the young, carefree, crazy, drunk people still willing to sit together? And another for those of us who are more careful, and perhaps willing to spend more for our ticket because we're spaced out every four seats? That's one example. Does anything else come to mind?

KS: That's a great example. The safety

overlay is going to influence and affect the design of entertainment and sports venues. Again, it's not just about the practical considerations of keeping people safe, it's about the emotional dimension of that.

People have to feel safe whether they are or not. It's important to differentiate between those two. I couldn't agree with you more. That is a new frontier with opportunity for firms regardless of the project types or markets they work in.

The other observation is that all of us have wanted for years, if not decades, to transition away from charging by the hour and move toward charging for value. One of the things I'm seeing now is clients valuing and rewarding speed, agility and responsiveness. Because they're confronting a fast-changing uncertain world they want partners and advisors who can respond with them.

Leaders, individuals and firms that can demonstrate those characteristics are in better position for higher margins and repeat business.

DI: I hope people are smart enough to seize the opportunity to redirect the way they provide services and get paid, to be quicker and more valuable. If we don't get it now, I don't know if we ever will.



**KS:** A crisis can produce opportunities to rethink value propositions and rewards.

DI: You started with clients. You're still serving on corporate boards and keeping in touch with clients and your network. You're one of the first to articulate the possibility that this sheltering experience could result in a reduced demand for office space. How do you see this forced experiment we've had of remote work and work from home affecting clients' facilities planning thinking?

KS: We are all learning more about what works and what doesn't work in terms of virtual collaboration. The ability to collaborate and collaborate virtually is



foundational to effective cross-disciplinary AEC teams, which almost always involve talent from multiple companies. This notion of being able to collaborate virtually well remains important.

There are four classic modes of work: social, learning, collaboration, and focused. Some people add a fifth: rejuvenation. When you think about it, only social truly needs physical interaction. Focus and rejuvenation are introverted, where you're mostly spending time on your own. Learning and collaboration are increasingly happening virtually, online. Not always, but increasingly.

I'm not arguing, and I don't know anyone who does, that teams can work as effectively 100% of the time remotely. Physical connections are important to building relationships and trust. Physical separation is not emotionally sustainable. Virtual cocktail parties are fun on Facebook, but they're already growing old and tired. People are saying, "That was fun the first or second time, but now I want to be with my friends. And I can't."

At the same time, firms are discovering teams can continue to produce, be productive, and are becoming more comfortable with collaborating online and virtually. The missing ingredient is

they don't have physical contact, which is a problem. That needs to be restored.

But do people really need to be 100% co-located 40 hours a week, full-time? Maybe they can get together one or two days a week and they'll be fine. The question is what is the right balance going forward? How can we leverage what we're learning?

The flip side is also true. People have learned that working from home may or may not be a good place for focus depending on the presence of a spouse, partner, children, or roommates. There are many variables and dimensions. For AEC firms, it's an opportunity to demonstrate to ourselves and to our clients what we've learned through this crisis. Ways that create new value and better experiences. It may also be a headwind in terms of corporate real estate because people may be more comfortable than they were before allowing people to spend part of the week working from home or off-site. They may implement more aggressive mobility strategies and desk-sharing, reducing overall demand.

DI: I love your breakdown of the four ways of working. When you look at "work" analytically and break it down into those functions, only one is social. Rather than assuming, "Work is work. We go into the office, have lots of

meetings, they're inefficient, the processes are what they are," if you analyze the functions - only one requires being together.

KS: Social activities demand physical connection. You want to hang out in person. The other four, in many but not all cases, can be accomplished virtually. What's the right balance? Perhaps it's not to have everybody physically co-located 100% of the time. I think that model is going to fade away.

It's an exciting design opportunity, not just from the standpoint of workplace design, but real estate strategy and designing your portfolio real estate and dealing with density and mobility. I'm looking forward to seeing the work that firms are going to do in that regard.

# DI: Our unanticipated external event has accelerated what we're talking about.

KS: Yes. I'll tell you another story which addresses your question. One of the companies on which I serve as a board member is Clarus, a product manufacturer. They're one of the leading manufacturers of glassboards. Basically, a glassboard is a whiteboard made of glass. Clarus offers them in a variety of fixed and sliding and portable configurations. They are popular products in

collaborative workplaces, hospitals, schools, sports lockers rooms.

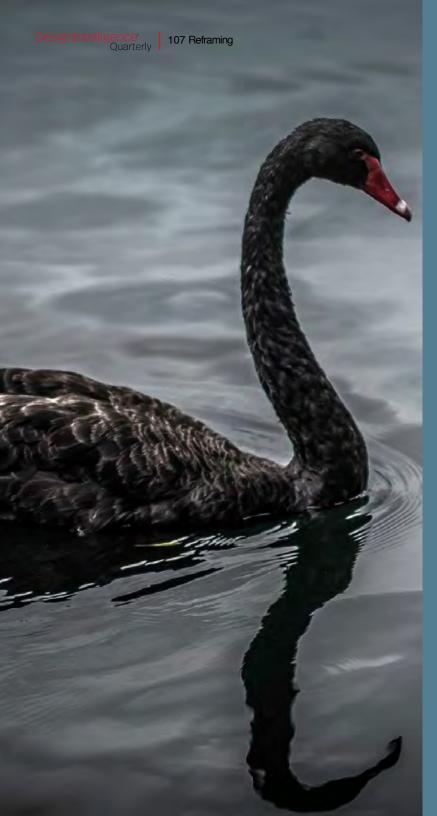
In response to COVID-19, Clarus developed a cool new product called TherMobile. It's a glass partition on wheels with a vertical slot in the middle at eye level that allows temperature checks while minimizing exposure between the person being checked and the person performing the check. The screening of workers, guests and visitors will be key as we re-open. How do you make sure they're not sick?

This product facilitates that. It provides a transparent safety barrier between the two people involved, but through the slot it allows the visitor to get tested. As companies reopen their workplaces, as nursing homes reopen to visitors, as healthcare screening is strengthened at airports and hospitals, this product helps people stay safe, and has amazing potential.

But the real story is that Dony Dawson, VP of Design at Clarus, and his team developed this product in seven days. From napkin sketch to manufactured product for sale, seven days. It was an incredible turnaround, and relates to my earlier point about speed, responsiveness, value, and rewards. Being smart and moving fast usually generates rewards. With TherMobile, three things came



Thermobile, courtesy Clarus



together. First, recognizing market opportunity. Second, executing quickly. Third, applying design innovation to create new value. All three of those things happened at the same time. Because Clarus' design and manufacturing teams are co-located in one facility, their integration played an important role in rapid prototyping, turnaround, and being able to pull this off in seven days.

It's a wonderful story and amazing credit is due to the team at Clarus. A great example of how you create opportunity out of crisis. The worst thing any company can do is to retract into survival mode.

As a leader, of course, you need to be realistic, willing to make tough, painful decisions. You have to be transparent and authentic in communicating with all your people through good times and bad. But you also need to be creative and agile in exploring brand new opportunities. And you need to encourage everyone in your firm to do the same. Good ideas can come from anywhere. That process starts with your clients and customers and looking at problems from their perspective.

**DI:** That's a fabulous story on so many levels. Our conversation is about markets. Your story is an example of seeing a need, imagining the market

and filling it - an example of what can happen at record speeds in an integrated way when it has to. For thousands of years architecture has been thought of as slow moving. "Good design takes time..." Architects haven't valued speed despite our clients valuing it. Most of the AE community has complained for decades about the accelerating pace rather than doing something about it and responding in a different way.

Your quick response story makes me wonder. If firms are now monitoring and thinking daily, vs. in the past, annually or not at all, extrapolating the status quo into the future, is there another side to that continuum? I would imagine firms might now have rapid response plans, Plan Bs, Plan Cs, and "Black Swan" Plans now, but is there a need to balance the quick / agile perspective with a longer-term view?

KS: It's both/and. You have to get more granular and assess what's going on weekly or daily rather than monthly or quarterly. But in a tactical granular way. That's important to navigate through a rapidly changing business environment. But don't take your eye off the long term. Stay strategic, creative, and opportunistic.

Many firms are experiencing a tough environment. Projects put on hold.

Projects canceled. Suddenly you look at your staffing capacity and pipeline and there's an issue. What's unique about this circumstance is the speed at which it's happened. Even when the financial crisis occurred, notwithstanding the Lehman bankruptcy drama on that infamous Monday morning, it took months for it to play out, and years to recover. Here, this has happened in weeks. It's heartbreaking and unsettling. People are losing their jobs. They're losing their ability to provide for their families. To cope, I believe one of the things you should do is cut from the top. The top folks should experience salary cuts, cuts to their bonuses, or to their compensation package first. Rather than letting somebody go, you can also look at salary reductions and/or reduced workweeks. There's a lot available to firms to sustain employment and navigate through this environment.

Many people, of course, are losing their jobs because the restaurant, retail store, or hotel they worked at is closed. Working from home is a white-collar privilege, after all, and. workers in hospitality, retail and restaurants don't get to work from home. The only place their job exists is in that facility. So, there's been a disproportionate impact on lower-income and blue-collar workers. Those of us in service or high-tech businesses just go virtual and on we go. The disproportionate social impact, not just in

the U.S., but globally, is part of the tragic reality we're grappling with. But whatever your circumstance as a leader, you need to realistically align your investments with the work that's available to you while also doing your best to preserve jobs and employment.

I've been pleased to see the companies I work with doing just that. That's been a good sign. But we're far from done. We still have a lot of choppy water ahead of us, but I'm seeing strong, enlightened leadership from companies across the industry.

DI: That's encouraging. Resilience seems to be needed more than ever, not only in leadership, but in our buildings. If there is too much space, or the wrong kind of space, will clients take a more serious look at existing building stock, building reuse, and repositioning? The people leading the sustainability movement have been arguing that for a long time.

WS: Great question. This crisis has underscored the importance of real estate flexibility and adaptability. We're seeing convention centers turned into field hospitals. We're seeing empty hotels turned into housing for the homeless. We're seeing these crisis-driven real estate transformations. When we design facilities in the future, it's going to be

increasingly important to think about different scenarios and how this facility could be transformed into something else.

We've been talking about that with regards to parking garages for years. There's an oversupply of parking garages when you think about the transition toward ride-hailing services and eventually self-driving cars. What's going to happen to all those garages? For the garages we build now, can we design them in a way that helps facilitate their transition into a different building type down the road rather than tearing them down and building anew?

The sustainability and environmental responsibility component of that has only been underscored by this crisis. Going forward, the notion of flexibility, adaptability, and resilience will be an even more important ingredient of real estate design.

DI: Agreed. If granularity and forging opportunity from crisis are key, if you're back in the position of running a design firm tomorrow, or advising somebody who is, what strategies would you deploy to gird your firm for future cataclysmic events?

Staying close to your clients should always be a top priority, especially during

times of rapid change. Flexibility, diversity, and agility are more important than ever. And investing in scenario planning. What would we do if this happened? What would we do if that happened? I'm not claiming anyone could have predicted this once-in-a-lifetime pandemic. Black swans are called that for a reason, but the value of scenario planning is it allows you to preemptively establish priorities.

If you suddenly had a huge surge of new work or clients, how would you deal with it? If you suddenly confronted an economic downturn, how would you deal with that? I have found that firms who spend some time on scenario planning are best equipped to navigate through uncharted waters, because those priorities and sensibilities are already established. Then it's about making decisions and acting. You're not stuck like a deer in the headlights in analysis paralysis. You're not over or under-reacting. You're simply better prepared.

Strategic outsourcing is another opportunity. I like to look at outsourcing based on a yardstick that measures client value and client experience. On the one end of the yardstick is, "What does my firm do that is closest to our client and creates the most differentiated value and experience for them? And strengthens their loyalty and generates repeat

business?" That's one end of the yardstick. The other end of the yardstick is, "What things are central to running a business, but my clients may not even know about, and they don't create differentiated value?"

If you think about all the things a firm does, you can line them up on that yardstick. Those activities that are furthest from your clients are often the ones best suited for outsourcing. For example, do you really want to run your own phone system? Your own IT security? Your email system? Computer servers? Most people don't manage their own real estate. They've outsourced that to a real estate company to manage for them.

Activities furthest disconnected from creating differentiated client value are the best candidates for outsourcing. That's not to say those services or the people providing those services aren't important. Those activities are essential. But it's healthy to assess what's vital to keep inside your firm and what things you can invite others to take care of for you. That's one way of purchasing flexibility and agility. Coming through this, I predict that many firms are going to take a renewed look at strategic outsourcing.

From a construction or product manufacturing perspective, we're also seeing reassessments of global supply chains and the associated risks. Independent of politics, companies want to understand more about where their products are coming from. Consumers too. Where was this thing made? People are leaning more towards localized procurement when possible. That helps the environment and improves supply chain reliability and robustness. The crisis has illuminated the risks when a company or a government is dependent on one or too few suppliers.

And finally, as I mentioned earlier, AEC firms should revisit their own real estate portfolios and strategies based on what they've learned during this shelter in place phase. Think about what a safer workplace looks like. How much physical time together is required? Can companies produce the same or better results with smarter mobility strategies and less real estate? That strategic question will take some time to figure out, but I would suggest spending time on it. All these are design opportunities. Not only for clients, but for AEC firms.

DI: Everything you talked about reminds us to look beyond ourselves. It's not just about us.

KS: Yes. I'll share one interesting statistic. In the month of March this year, total deaths in the U.S. are down compared to the same month last year. I think we all

believe and understand the economic shutdown has reduced COVID-19 deaths. But you know what? It's reduced all deaths. The shutdown has saved more lives than have been lost due to the virus. I'll repeat that. The shutdown has saved more lives than have been lost due to the virus. It makes sense. There are fewer car accidents. There are no elective surgeries. There are no bar fights. The bars are closed.

I don't know anyone who would argue in the interest of saving lives that we should continue sheltering-in-place permanently, that we should be locked down forever. The point is there is a gigantic push and pull right now between health and employment. It's epic and unprecedented and the stakes are huge. It remains unresolved, not just in the U.S. but globally. That push and pull is going to continue long after COVID-19 is extinguished. There are going to be long-term impacts on culture, health, emotional safety, and environmental design. Those impacts remain unknown. I'm saying this as an optimist. In

architecture, engineering, and construction firms, uncertainty and change are scary and challenging. But they are also fertile ground for creating new opportunity. Even if this virus is fought back and beaten in short order, its long-term effects and impacts are going to continue. People should think and be creative about that, to transform those shifts, when and how they occur, into new opportunities for themselves and their clients.

DI: Great insight. This is not just a guns and butter economic decision. It's an economy versus life and quality of life decision. It's not a four-week decision, it's a multi-generational decision.

Ken Sanders, FAIA, is Managing Principal of DesignIntelligence Strategic Advisors and a former Managing Principal and Board Member of Gensler.







**SCOTT SIMPSON** 

FAIA and Senior Fellow, Design Futures Council

## A perspective on post-Covid recovery with actionable steps for firm leaders.

In February of 2020, the economic outlook had never looked brighter. The stock market reached historic highs and both interest rates and unemployment were at record lows. It was clear sailing ahead with no clouds on the horizon. Just a few weeks later the market was in freefall, plummeting by more than 30%. Trillions of dollars in asset value were wiped out along with tens of millions of jobs. Over 50% of the world GDP was in lockdown. Nobody saw it coming.

Every competent business leader plans for the unexpected in both good times and bad. But the breathtaking speed of the crisis, compounded by its breadth and depth, have overwhelmed us all. It seems everything has come untethered; there are no reliable benchmarks by which to navigate. All predictions about the economy in the coming year need to be re-thought, and those handsomely bound strategic plans can be consigned to the shredder.

Design firms will be particularly hard hit. In many cities, construction has been shut down entirely. Clients are in survival mode and scrambling to find ways to stay alive; they are not in the mood to make long-term capital investments. Some market sectors, such as healthcare, are simply overwhelmed, while others, like education, face a very uncertain future. By necessity, schools have converted to on-line learning, and those which must



The best laid schemes o' mice an' men Gang aft a-gley...

~Robert Burns

rely on tuition to pay the bills may not be able to re-open at all come September, if ever. Commercial clients see empty stores and offices, and residential developers must contend with the prospect of tenants who simply cannot pay their rent. For design firms, backlog is quickly evaporating, accounts receivable are lagging, and prospects for new projects are dim at best. Now what?

#### THINK POSITIVE

First, the good news: in these uncertain times, there is one certainty: things will eventually get better. While the pandemic has hit like a tornado, severely damaging everything in its path, there is still much left intact. The economy may be in a deep freeze, but the basic infrastructure remains in place, and certain elements such as financial services continue to operate well. Thanks to the vibrant and creative biotech industry, sooner or later therapeutics and a vaccine will be found to effectively combat the virus. In the meantime, as with all crises, this one has much to teach us if we are willing to pay attention.

This is when design thinking is needed most. Schools may be closed, but we are getting a crash course in the benefits of e-commerce. Business models are being entirely upended as supply chains get re-jiggered and working from home becomes the default option. When the dust settles, we will quickly discover that many of these changes born out of necessity have become permanently baked into the system. Sometimes it's hard to tell disaster from opportunity, but the bigger and more disruptive the changes are, the more interesting the options.

#### STRATEGIC OPTIMISM

Design thinkers are optimists by nature; they believe solutions exist if we are willing to search for them. As Daniel Pink writes in his book A Whole New Mind, "The future belongs to a very different kind of person, with a very different kind of mind—creators and emphasizers, pattern recognizers, designers, storytellers, big picture thinkers and meaning makers. These people will now reap society's biggest rewards and share its greatest joys." This perspective provides the framework for how we can move forward.

Two basic perspectives are required for effective planning: what to do and what not to do. Both are equally essential. There are also two kinds of priorities: what's most important, and what needs to be done first. (Note: they are rarely the same things.) As we make the pivot from the pre-pandemic mindset to the post-Covid-19 world, it will be difficult but essential to discard the baggage of prior assumptions which simply no longer



apply. That's excess baggage. We'll have to accept the fact that some businesses will fail outright, and others will need to make radical changes in order to survive. The trick is to understand what remains relevant and should be retained or re-engineered, and what must be discarded and replaced. These points of view can be applied to internal operations as well as externally, to the world of clients. Clients are, after all, the reason design firms exist in the first place.

### SILVER LININGS AND UNINTENDED CONSEQUENCES

For starters, be on the lookout for both silver linings and unintended consequences. Silver linings can be hard to spot because they are often counterintuitive. What looks like disaster at first glance may in hindsight turn out to have been a stroke of good luck. When things can't get done by conventional means, other methods will inevitably be devised. Often, the new workarounds will reveal just how inefficient, or even unnecessary, conventional practices were in the first place. The best way to deal with ineffective things is not to do them at all. As for unintended consequences, they will always surface sooner or later, both for good and ill, and as with silver linings, they are usually well camouflaged. Sometimes what seems like a good idea at first turns out to be self-destructive in the long run.

This is not a one-size-fits-all pandemic. Some sectors of the economy, like travel and hospitality, have been especially hard hit, while others, like e-commerce and logistics, are flourishing. The impact has been dramatically different based on a number of factors. Densely populated urban centers are the hardest hit, of course, but not all equally so. It follows that the path forward is likely to be very different in different locations. This requires organizations to be alert and nimble.

#### **IMPLICATIONS AND ACTIONS**

The same will be true for design firms. For many, business has ground to a halt, but others are reporting little if any impact, at least so far. Obviously, size, location, market focus, current backlog, and client mix are key variables. Those with a higher proportion of public vs. private sector work will be better insulated. Also, some firms are better prepared than others for the working from home scenario, which is now standard operating procedure. That change alone has interesting long term implications, not the least of which is how much office space is really needed to function effectively.

Firm leaders need to attend to the home fires first by doing an objective review of the status of all projects under contract. Which ones have been delayed or

cancelled, and which can still proceed? What is the current backlog and the firm's cash position? Assuming no new work will come in over the next several months, how long can the firm survive given the burn rate? The answers to these questions will inevitably lead to the question of staffing. Some will need to be laid off, some furloughed, and others may still be viable depending upon how long the downturn lasts. Selective pay cuts, always a last resort, may be necessary. The prospect of cutting staff or compensation is the most painful decision that firm leaders will need to face. However, if the appropriate action is not taken, it only serves to hasten the demise of the enterprise.

While conducting the internal assessment, it's also essential to get in touch with clients. All of them are hurting, but each in a different way. More than ever, they need help, and design thinking can provide it. One of the silver linings is that clients have more time to chat. Lunches, dinners, presentations and conferences are no longer viable, but you can still communicate effectively via phone, e-mail, and videoconferencing. Now is the time to get inside your clients' heads to understand what they are thinking and what they need most. (Note: this is not about seeking new business, but rather developing deep understanding and empathy so that you will be better



able to help when the storm passes.)

It helps to remember that in times like these, there is no such thing as "normal" or "fair". While there have been pandemics before (the Spanish flu of 1918, polio in the 50's, and AIDs) each one was unique. If there is any good news, judging from the data available so far, COVID-19 is far from the worst, though it has yet to run its course and reliable data is hard to come by. The economic impact is still unknown; it will be more severe in some sectors, but less so in others.

Once you've got a firm grasp on what's happening inside your firm as well as in your clients' organizations, then apply design thinking to your own business model. Don't assume the task is merely to

survive the pandemic and get back to normal; rather, the goal is to emerge as a better, stronger, more proficient firm. In this regard it helps to recall the words of Wayne Gretzky, the world champion hockey player: don't skate to where the puck is today, skate to where the puck will be next. What does a post-Covid-19 world look like? What factors are likely to be the same, and what will be different? What changes are needed so that when the pandemic begins to subside, which it inevitably will, your firm will be better off? The key to is to imagine the best possible outcome and then work backwards from that.

Above all, maintain strategic optimism. We've seen this movie before. During the great recession of 2008—2010, many design firms were severely damaged or

wiped out entirely. Unemployment, especially among young designers, exceeded 30%. Yet within a few years, things had rebounded and the stage was set for the biggest economic expansion in history. Things did not "return to normal"—they actually got much better. The same thing will happen when the current pandemic subsides. Strategic planning will provide the roadmap. Design thinking will make it happen.

The recovery is likely to be a bumpy road, for sure, but it is a road we all must travel.

Scott Simpson, FAIA is a Senior Fellow in the Design Futures Council and a frequent contributor to DesignIntelligence.





**CAROLINE BRAGA** 

Chair, Firm Culture, Sasaki

A look inside a culture-rich firm offers insight into the power of people, connection, obstacles overcome, and pleasant surprises.

DesignIntelligence (DI:) You have a unique role within your firm. You also benefit from a recent strategic firm re-focusing.

Caroline Braga (CB): We restructured Sasaki's governance two years ago to include a CEO and board of directors, which includes my role as chair of firm culture. We also completed a strategic plan that unites the firm's different practice areas, and each practice group developed a specific mission and goals in line with the firm's.

### DI: How has that helped your response to the Covid -19 pandemic?

CB: It's been helpful to have clear goals as we make decisions that will change how we work now, and likely how we will work in the future. Our CEO, James Miner, has also played a central role as we have responded to the pandemic. It's been helpful to have someone dedicated to managing the crisis full-time. From a cultural perspective, he's been the consistent voice presenting a clear and

hopefully reassuring message to our community. He's been sending out a daily email to the entire firm, which combines official company announcements with tidbits shared with him by other Sasakians. These messages have ranged from announcements about our finances and remote work plan, to personal stories and links to interesting news articles. There has been something reassuring about knowing that email is coming, even if it may contain difficult news. He's probably asking himself what he's gotten himself into, as he is now on daily message #44!

### **DI**: How have you coped to stay connected and be productive?

CB: In keeping with Sasaki's collective culture, we have responded to this crisis by conducting a lot of meetings! We are currently holding weekly HR meetings, biweekly board meetings, monthly stockholder meetings, and monthly all-company meetings to make timely decisions and keep everyone informed. It's a lot of Zooming, but making sure that



all Sasakians know what the plan is as it evolves, and have a chance to ask questions, has been an important part of helping us all move forward together.

We have also been trying to continue our usual gatherings and traditions virtually to provide as much of a sense of normalcy as is possible. Our practice group socials most definitely continue, our Sustainability In Practice (SIP) blog has been going out, our Earth Day celebration happened online, and we hosted an artists' reception for the opening of a new exhibition in the Sasaki lobby, only staged

in virtual space! I am currently planning our next new employee welcome party, a quarterly onboarding event, for the unfortunate people who joined the firm between January and March this year.

A good example of adaption is that rather than postponing our Q1 quarterly meeting, which was scheduled to occur just as we were getting into working from home, we hosted it as a massive online meeting. We included an all-staff interactive polling activity, where we asked staff about what COVID-19 would mean for our practice, as well as for design of the physical environment at large. It was fun to see the range of creative answers we got. We closed the meeting with an interactive panel with several firm leaders, who picked up on some of the threads raised by staff in the poll in a live discussion. It was inspiring to come together to think beyond our immediate tactical needs to envision positive outcomes that we could contribute to. We also included an anonymous Q&A session using the zoom chat function, so staff could submit questions to the CEO, who answered them live.

DI: That's impressive you were able to pull that off. I love the surprise in getting that kind of feedback. You might think technology is less effective than being face-to-face, but it yielded some unexpected benefits.



CB: Technology has been absolutely critical as we try to stay connected, keep project work moving ahead, and win new work.

We rolled out Slack the first week we were working from home, which was a little crazy. Slack allows for a continuous back and forth discussion, similar to what happens informally in the office within teams. It records a continuous thread of collaboration that you can refer back to, and allows for easy file sharing. There were some lessons learned from that rollout – while some people were instantly up and running, happy to have a new tool, others resented being asked to learn a new technology in the middle of a

crisis! We were definitely learning on the fly how best to support everyone.

Following the Slack rollout, I collaborated with Sasaki's Chief Technology Officer, Holly St. Clair, and VR master David Morgan, on a Sasaki guide to remote work. It includes tech tips on Zoom, Slack, and other technology, as well as cultural best practices to help people manage their remote work-life balance, which is challenging in different way than regular office work-life balance!

Holly and team then conducted a survey to collect input on how remote working is going for our staff, to see how we can best support their needs going forward. DI: What have you learned about caring for and retaining talent as a result of Covid-19? What strategies will you employ to make the best of things once we return to a new normal?

CB: The strain of remote work is emphasizing the need to support wellness across the firm. People are experiencing a variety of stresses, from too much kid time during work time to too much alone time.

To try to provide some relief, we're adapting our existing cultural practices to the media we have available. Our lunchtime yoga classes and "younger next year" fitness classes still happen twice a week, only online now vs. in the office. We are encouraging people to schedule team lunches or happy hours on Zoom, as well as meetings with their advocate, even if those meetings are now less about professional development and more about making sure everyone is doing okay.

We already had a flex-work policy, which allows employees to negotiate their hours in the office with their teams, but few people had previously asked to work entirely remotely. I expect once we're able to be back in the office (and schools and daycares are open) we'll see a greater percent of the office making this choice, whether part or full time, now that remote work has been significantly





de-bugged. The better we master remote work now, the better we will be able to meet our staff's diverse needs later.

## DI: You've had some positive outcomes from this forced change. Any epiphanies or profound moments?

**CB:** We hope the experience of remote work will dramatically improve for working parents once daycares and schools reopen, making it an option we can more confidently offer to those who would like it. It would be a big win if our improved work-from-home ability would help us retain working parents.

We've also lost staff in the past who wanted to move back home to be closer to family, or ecologists to the pull of less urban locales. Perhaps in the future, we could keep them all on, even if they live in the mountains or across the country!

# DI: How has your staff reacted? Are expectations changing? Any heroic acts, shining lights, exemplary leadership, or creative leaps in this time of crisis?

**CB:** Lots of small heroic acts are taking place across the firm. When quarantine began, there was a quota on how many laptops people could buy, because companies were all rushing to do it at once, so our IT team pretended to buy five computers each individually on

behalf of the firm to make sure people could work effectively at home. Our IT team was also working crazy overtime hours to be available to help people address VPN, Revit or other technology crises, and to plan out our next round of investment in technology.

I spilled tea on my laptop the first week we were home, had a minor panic attack, and tried to revive it with a hairdryer. When that didn't work, one of our IT team members met me at the office to triage my machine, and I was back up and working within 2 hours. They are awesome.

### **DI**: Have you seen any impacts on design process?

**CB:** The biggest challenge has been drawing together. We're testing a range of technologies to better enable this core function.

Another challenge of remote work is that while experienced staff can run without direction, entry level staff need and deserve more frequent, hands-on guidance to advance the work. Good communication and good management is even more important than it was before.

### DI: What about impacts on clients, partners, or consultants?

CB: In a funny way, the unplanned intimacy of Zoom meetings has been positive for building relationships with clients and consultants. Seeing into one another's home lives seems to reduce barriers and make it easier connect with people on a personal level. That foundation helps to build a strong working relationship, where you truly feel like partners grappling with new challenges together.

D1: Another unanticipated consequence: You're getting to know your colleagues better than you did before because you're seeing inside their homes, personal effects, dogs and kids

CB: Not only our colleagues. Our clients. Our consultants. Everyone's in -- maybe not the same boat, but some kind of weird boat they weren't in before!

#### **DI**: Small moments of delight.

CB: I'm enjoying the Slack social channels that have been popping up. Lots of kid pics, pet pics, home office set-ups, home crafts, recipe sharing etc. It's a nice way to understand where everybody is literally and figuratively. I noticed the other day that someone started a Tiger King channel...

## D1: Are you considering moving to a more remote approach long term when you come back?

CB: As we go through this experience, we're all considering what we do and don't like about remote work. In addition to the complaints about Zoom fatigue and drawing remotely, I've heard parents say, "I'm tired, but I appreciate spending more time with my family." I've heard non-parents say they are cooking, eating healthily, and working out more. There are many things that most of us like about NOT commuting. So we know there are pros here that people may want to extend. That said, we are wondering if, once the pandemic ends and working remotely becomes a choice, will there still end up being more value put on in-person face time? Will the need/desire to work remotely create an unequal situation between people who have more and less flexibility to be in the office? We will definitely continue to offer remote work as an option, but we don't want to create inequity between employees. The good news is that it looks like we will have a while to figure it out as the involuntary beta test continues!

To complement the potential for more remote work, we have also talked about the need for our space to better support the activities that really work best in the office, like team collaboration, making

### Sasaki social Slack channels started to date...

#social\_binge-book-pod-books

#social eats

#social experinstruments

"social\_joeexotic-tigerking

#social\_happy-things

#social homiestations

"social kids

#social nookscranny

#social pets

#social\_plants-and-gardens

#social\_podcasts

#social\_misfits-lounge

#social sasaki-garden

"social\_sip (sustainability in practice)

#social\_song-of-the-day

#social virtualdiner

#social virtual-pod

#social wall-of-shame

#social\_wrt (womxn's round table)

#social\_yoga



large drawings, model making, sample review for CA etc. So maybe the office will end up looking different. Maybe it will have fewer desks and more collaboration space.

DI: What about travel in the future? Now that we've learned remote work is possible, do we really have to drive all the way into Boston for that meeting? An activity analysis may be in order to save that trip in the future.

CB: Not just driving, but flying! A lot of people in our office who routinely get on multiple planes each week to travel around the country and the globe would love to do less of that. It's tiring, it's time away from home and family, and it burns a lot of fossil fuels. We're thinking it's not all or nothing. We are imagining scenarios where we might go to a kickoff meetings, get to know a client, visit the site -- but maybe then we don't need all of the subsequent meetings to be in person.

DI: Has there been consideration given to using this crisis to reevaluate what you're doing as a firm? Has it caused you to ask: "When we go back to normal, was what we were doing okay in the first place, or is this an opportunity to revisit things?"

**CB**: At the Q1 meeting, Michael Grove, our chair of landscape architecture,

shared a photo of Wuhan after the quarantine was lifted. People were right back out on the street. Everyone was wearing masks, but they were mobbing the public open spaces. There's a lot of doom and gloom prediction right now, but we continue to believe in public space and are excited to be part of creating those resources for communities. We're writing a number of articles on the subject now, and hope we can find ways to be more active in advocating for public resources to be allocated to new types of green infrastructure, whether spaces for safe movement or access to wild green spaces for recreation and reflection.

DI: Has all this given rise to looking for new kinds of talent? Risk managers, scenario planners, strategists, crisis managers, researchers, or other new kinds of talent or skills?

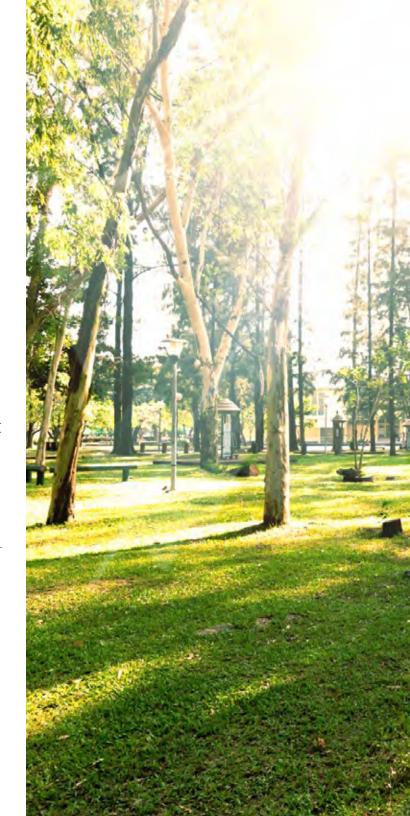
**CB:** I don't think we are going to get into risk management, but we will likely

continue to develop our resiliency planning skills, which has been a growing practice area for us over the past 10 years. We have also talked about partnerships with industries that allow us to contribute what we do well - think creatively about problems from a design perspective – to more specialized teams grappling with new challenges. For example, we're not in the healthcare market, but we'd love to be part of designing healthy spaces indoors and out.

DI: Having learned more about your firm in our Design Futures Council conference, its reinvention, your role, and those of your colleagues, it seems you have a gold mine - an embarrassment of cultural riches in your firm. I commend you for that and I thank you for sharing it.

**CB:** Thanks for your kind words – this has been a nice opportunity to reflect.

Caroline Braga is a proven thinker, collaborator, and leader who teams with architects, planners, urban designers, and civil engineers to create beautiful and ecologically functional landscapes. She is passionate about connecting people to nature through design. Her experience spans from planning to built work, with a focus on integrated campus contexts. She brings to each project—as well as myriad corporate initiatives—strong critical thinking, a willingness to engage in thoughtful debate, and a commitment to quality. Caroline provides critical thought and design leadership for Sasaki's campus landscape and planning practice and is helping to strengthen and expand Sasaki's national presence as a campus planning and design leader. She also serves on Sasaki's board of directors as the Chair of Firm Culture and holds a master of landscape architecture from the University of Pennsylvania and a bachelor of arts from Georgetown University.







ROBERTA KOWALISHIN

Director of Technology (CTO), DIALOG

COVID-19 is going to sort design practices into two categories – the Digital Thrivers and the Digitally Unequipped. Where will you land? Observations about this massive disruption from DIALOG's Director of Technology (CTO) Roberta Kowalishin

Design Intelligence (DI): How was DIALOG ready and able to get all 600 DIALOG employees working from home successfully, securely, and supported by your technology team in less than a day?

Roberta Kowalishin (RK): Innovation is a core value – we experiment with many modern solutions and continue to do so. Fortunately, we were well-positioned to work remotely before the pandemic forced it upon us. Two thirds of our employees are equipped with laptops while all others can access their equipment remotely with virtual desktops that include several choices of modern collaboration tools, automated tools to monitor infrastructure and update employee workstations, and additional solutions that better secure our users and infrastructure. A culture of rapid adaptation is needed in this new normal.

**DI:** Thank goodness your leadership and tech team invested in a "Business Continuity / Disaster Recovery plan", right?

**RK:** Not at all. There's been a lot of talk about resilience especially in the technology world - both in our own personal and social health as well as that which is related to our technology. Maybe some firms had more robust plans than we did but predicting for a pandemic response was not a scenario in our business continuity plan (BCP) or disaster recovery plan (DRP). I'll wager that it wasn't in many other tech group's plans either. Instead of spending a lot of time documenting a traditional BC/DR plan, we focused on modernizing our infrastructure to make it more accessible remotely, moved to multiple cloud providers (providing instant resilience) and reduced our own data center footprint.

We will be rethinking how we approach Business Continuity and Disaster Recovery planning in the future (and I expect my peers will as well). This pandemic has proven that a cloud first strategy and modern IT Infrastructure with solutions from several vendor clouds (For example Microsoft, Amazon,







Google, Oracle) and technology that lets users work from anywhere played the most important role in our ability to shift in a day to 100% to work from home.

## DI: Yikes, 600 remote studios – everyone working at home. Aren't you worried about cybersecurity?

RK: Sure, we are. Many new threats and scams are using coronavirus as a reason to communicate including plenty of coronavirus email phishing scams and invitations from unknown "helpful vendors". We've been beefing up security layers of "defense in depth" for several years now. We remain vigilant and aware that risks always exist. That's all I'm going to say on that topic.

DI: – Seriously, how can design practices work with customers and do design without the help of technology in the short term? They can't. And what about the long term if employees or clients prefer remote work or COVID forces additional rounds of stay-athome? We all know a new normal is being defined right now.

RK: Clients will migrate towards designers who are easy to work with, who can work flexibly, and who have easy-to-use solutions. We have a solid base of technology solutions, but we can't stop innovating and learning about what this new normal will need.

On the journey to understanding remote work – internally and with clients, the winners will be the early adopters who continue to pay attention to the people, processes and technology solutions that enable remote design and collaboration. This means cloud-based solutions that can be remotely managed, in 3rd party data centers with security controls and redundant network connections.

We know that some firms are still struggling with technology solutions that can't be accessed remotely, with little or no gateway connections to other internet or cloud systems for collaboration, connection, design, documents and shared BIM models. It's not too late to get going on this, but it's may be a lot harder to find technology resources, partners, vendors, experts to help right now. We're all in this together and I'd welcome connections with peers who need help or to discuss approaches.

DI: Reframing the new normal - what are you learning about the humans and wellbeing in our community by working remotely with all this new technology?

RK: A few years ago, DIALOG invested in a joint research project with the Conference Board of Canada, which yielded the Community Wellbeing Framework - a values-based design thinking framework for improving the health outcomes of architectural design

projects. Our rationale was simple: given the proliferation of research into the relationship between spatial design and health, design work needed an easy-touse set of guardrails to shore up the results we wished to produce. In the same way this framework sets boundary conditions at the front end of design, it can also be used as a measurement tool once a design project is complete and in use by occupants. DIALOG's Community Wellbeing Framework (CWF) is different from certificationdriven checklists like LEED and WELL because it defines health along welldefined metrics of social, economic, political, cultural, and environmental wellness.

In our first few weeks of working from home, DIALOG's Leader of Social Research and Strategy recognized an opportunity for DIALOG to measure the wellbeing of its 600+ employees during this time when they'd all become designers of their own workplaces. Using these ideas as basis as the work from home experiment continues, we can generate data in the indicator categories established by the Community Wellbeing Framework and learn a lot about supporting employees working from home. This data driven research is needed to understand how to evolve shared, studio workplace environments in the new normal to support our own employees, clients and create healthy,



There's no going back 100% to the way it was. The effects of this period of history will be a prominent thread in the tapestry of human history.



resilient spaces in the future.

No surprise that in fact many of our team members really like the remote work environment and don't want to return to a studio. Others miss the camaraderie. I sense guarded optimism as one of my colleagues noted "I'm optimistic. I think coming out the other end of this change we will see some incredible developments and innovation. I am hopeful that the positives will eventually outshine the negatives and we'll move into the 2020's a revivified culture locally and globally. There's no going back 100% to the way it was. The effects of this period of history will be a prominent thread in the tapestry of human history."

#### DI: How is it possible to support employees when they are at home and our Tech team can't just walk up to their desk and troubleshoot?

RK: Technology support on any platform has moved well beyond needing IT support to "touch" broken things. We've focused on automating how we make remote changes to software, solutions and tools our employees need, from their workstations, laptops, and virtual desktops. We're continuing to experiment in this area, especially on how we can depend more on cloud-based solutions – and strong dependence on tools in the cloud.

## DI: Don't you need more tech people to support a remote work-from-home company?

RK: No, we haven't increased staffing at all. Our overarching approach has been and continues to be continuous improvement and how to right-size the tech team to scale with our operations. We have been proactive by focusing on building a diverse team that's coupled with putting people with the right skill set in the right positions. This approach has really paid off.

One area we underestimated as we were ramping up to work fully remotely, was the need to the one-stop-shop publishing and training hub: in the matter of days, we quickly produced helpful hints, user and training guides. We also began to offer video training sessions and continue to iterate support tools - our team now offers weekly emails and drop-in training – this week we focused on advanced video and webinar functionality.

# DI: Are your existing video platforms flexible and robust enough to keep you connected with employees and clients all day?

**RK:** Yes, we are working 100% remotely using video but this is not enough. How does working remotely make us different from the design firm down the street, or across the country? Video collaboration



is now table stakes for any organization. It's become a commodity and required to do business - whether you're using Zoom, MS Teams Video, Skype, Blue Jeans (now Verizon), Cisco WebEx or others. We're big fans of Zoom and have been amazed at their agility to scale from 30M to 300M customers in a month while recently upgrading security. As an alternative, we also have Microsoft Teams video available for clients with different needs, and we can connect to any other platform our clients use.

At DIALOG, we recently conducted what

would have been a two and a half day in-person all partners retreat via Zoom. While we had to schedule ample breaks, the platform enabled us to collaborate with our leaders and external guests in a seamless way.

## DI: Looking to the future - what other kinds of solutions besides video are needed?

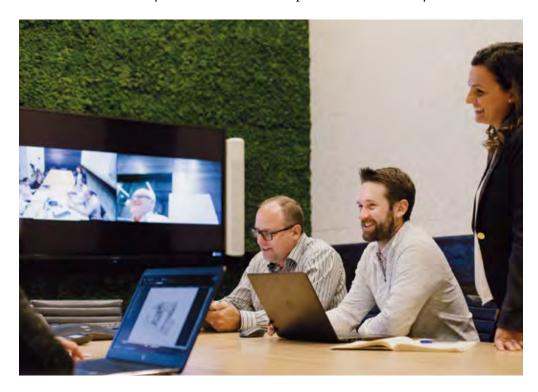
**RK:** Whatever we do with clients (in a meeting or within a physical space), must also be available online. We continue to experiment with a variety of new tools

like whiteboarding, polling, breakouts, webinars, Q&A, sharing models, marking up drawing and designs for different meeting formats and design goal outcomes. In addition to our internal meetings, we're running multi-day client and stakeholder workshops using online whiteboards, panel discussions and company-wide updates and polls to keep projects moving forward.

We've learned in a very short amount of time that productive virtual meeting design takes time. It requires significant planning and a thorough testing of technology solutions. I recommend starting with your desired outcome to determine what technology solution will meet your goals. Sometimes the simplest technology solution (like marking up a document or using a basic whiteboard) is all that's needed. A word to the wise: don't overcomplicate things or overwhelm clients or your company with advanced tools where they aren't really needed or tested well - especially in larger group or with novice users.

DI: But designers, clients, investors, owners, tenants need to walk around spaces, imagine, survey, inspect. How's this going to work if you can't visit a site?

**RK:** Even before COVID, the pressure for efficiency and quality in design-build and remotely visiting sites at all stages of





projects was growing. COVID is making the need for remote site work even more essential and accelerating the adoption of new solutions. Laser scanners, sensors, robotics, drones, robots and construction tools that used to be a novelty are moving rapidly into construction sites. Our 360 cameras are loaned out to super users in each studio location as we work from home, and they have been in constant demand by project teams to capture site information and allow remote clients and project teams access and collaboration. Sites visits are done virtually on Zoom calls with everyone being able to see conditions. Why have another person on-site when a drone or pre-programmed robot can wander the site and capture updates and conditions? We are also using immersive VR headsets and AR solutions for walkthroughs and expect especially as prices drop this will continue to grow quickly.

Although automated camera equipped drones patrolling a site is a significant change to the way our industry has worked, we need to start simply – increasing laser scans and remote work and partnering with construction companies who have tools like IoT (sensor) based devices to monitor progress and on-site conditions. We expect that governments (city inspectors) will start to demand more use of remote solutions as well so that they can playback (and store) the assembly of a project to

ensure things were done correctly. This is a challenge that unionized workforce might not appreciate at first, but in time we expect to see everyone adapt – first perhaps for COVID reasons, but also driven by efficiency.

The biggest way to prevent issues on-site is to remove on-site construction altogether, building in factories and off-site facilities where implementation of sanitary processes and solutions improves the wellbeing of workers and the quality of the product (and isn't subject to weather or other environmental delays). Imagine bringing teams from crowded messy construction sites into manufacturing construction indoors. So, we expect to see the new normal drive integrated modular and pre-fabrication more deeply with bespoke design that we are known for and a further acceleration of the adoption of off-site and modular construction into our industry.

## DI: Our industry is heavy on paper drawings and stamped approvals, so now what?

RK: Welcome to the future! First, we're pleased to see even less paper (with less access to printers) during this pandemic, and virtual 2D drawings that can be marked up with real-time collaborative virtual markup tools like Bluebeam.

We've seen more requests for training and access to digital signature solutions that



# Welcome to the future!

were already in place for certified professional to digitally approve digital documents in the jurisdictions we work.

Longer term, we are anxious to address the issue identified by Thornton Tomasetti's CTO Rob Otani who estimates 34% of project cost today is "flattening" 3D models into 2D drawings. Maybe this first step of moving to more digital drawings and e-signatures that eliminate or greatly reduce paper will encourage more of our industry to ask how we can move toward clients and permitting authorities expecting 3D vs. 2D models. Some of our work today already involves more advanced BIM and 3D models and visualizations for clients. We are already working with industry groups and governments to innovate in this area and eventually eliminate 2D drawings with new 3D standards.

DI: Video chats, online whiteboards, polling tools and virtual walkthroughs are great, but is this Radical disruption? Is this what will sort the Digital Thrivers from the Digitally Unequipped?

**RK:** Not completely. Our Work from Home technologies just let us do our work remotely and prove that our industry can and is innovating and introducing technologies faster. It's about time.

But, as the pace of technology accelerates relentlessly and as our design industry gains agility with change, the push to innovate even faster will continue. Design automation especially of repetitive design tasks - mechanical, electrical, structural design will continue to grow. DIALOG is already innovating building our Green Toolkit and Green Tracker tools that generate, store and use data from early stage design to provide more information to designers and clients about a project's viability. Our Green Tracker solution collects and automatically submits AIA2030 challenge data to the AIA and we are exploring making this tool publicly accessible to the industry in the next few months. Our Green Toolkit uses and generates data from public and our own private modeling and machine learning to assess architecture - engineering design tradeoffs. Longer term we plan to add tools for other disciplines to other metrics earlier (like total lifecycle costs, carbon embodiment, risk metrics) and drive more collaboration and workflows in the way we work across disciplines. That is Radical Disruption - coming within a few years to our world. COVID-19 is just preparing this generation's workforce to adopt technology even more rapidly than ever. Even small projects to "get in the game" with new ways of technology will pay off as the push to innovate in our industry accelerates.

### DI: So, what's on the other side of COVID-19?

RK: The better we get with technology, the more our clients will expect efficiency and quality. They will expect us to continue to do more with less; always looking for more automation and better quality. Billions of dollars are being invested in automated design workflows, construction, fabrication, modular and other innovations in our industry. Now that we've proven we can adapt to this

new normal, the pandemic will put even more cost pressure on design efficiencies – driving automation in our workflows from early stage design through construction.

In many ways, COVID-19 is technology's chance to shine and prove the investments we've made over many years have been worth it. Unfortunately, it seems that pandemics and disasters (like a few hurricanes and floods early in my career) are a silver lining for innovation

and rapid acceptance of new technology. In this sense, a pandemic can be a catalyst for innovation.

I remembered one of my favorite colleagues who wandered by my (studio) desk a few months back and commented "Roberta, I'm tired of the pace of technology change" and I thought to myself "How do you think I feel?"

And that relentless beat never stops.

Roberta Kowalishin is Chief Technology Officer at DIALOG, a design practice with studios across San Francisco, Vancouver, Calgary, Edmonton, and Toronto. DIALOG's work includes designing for community wellbeing and urban vibrancy, health and wellness, transportation, education, arts and culture, residential, retail and commercial, as well as mixed-use solutions. Roberta brings out of the box thinking and technology experience to the AEC having previously in consumer news media as the CIO of NY-based Hearst Newspapers, and in cybersecurity and records management as director of privacy and forensics practices for PricewaterhouseCoopers. Roberta was also VP of technology at CapRock Communications, a venture-backed satellite network service. She uses her vast experience from other industries to help us learn and adapt to new and disruptive technologies. Roberta holds an MBA from MIT, a BCom in Economics from McGill, and Harvard's graduate certificate in Cybersecurity as well as the CISSP (Certified Information Systems Security Professional) credential. She has been cited as a next-generation CIO by the Wall Street Journal and has been quoted in Business Week, Wall Street and Technology, and Information Week.





JAMIE FRANKEL

Senior Partner, Schiff Hardin, LLP

Jamie Frankel offers perspective on prior calamitous events. Relationships, supply chains, working capital, experience, and wisdom will be key for survivors.

DesignIntelligence (DI): Our focus is on risk management in the post-COVID era. You suggest that COVID is causing disintermediation. Why is this disintermediation different from those we may have experienced in the prior recessions of 1987, 1990, 1997, 2001, or 2008?

Jamie Frankel (JF): Risk as we knew it pre COVID has been redefined by the unknown. Black Monday and the tragedy of 9/11 are only relative benchmarks to the risk we're now experiencing. COVID has disintermediated relationships, norms, expectations, and many of the historic definitions of risk. COVID has removed and/or altered the important economic role of intermediaries in the supply chain. Some of those "intermediaries" are human capital, material supplies, and legal tender.

#### Specifically:

- a. Capital has either been diverted or lost.
- b. Human capital has been sidelined by disability, death or dismissal.
- c. Projects have been placed on hold or are now being redesigned or abandoned.
- d. Redeployment of the world's economic engines is uncertain.
- e. We don't have economic or political visibility equal to what we had three months ago.

DI: Disintermediation is not a household term. Can you restate or redefine that in simpler terms? Does disintermediate simply mean disconnect?



JF: Historically, intermediaries have played an important role in our commercial world. We knew where they were and how to access them to achieve our business goals. The world order has now been disintermediated by the "Three D's," Death, Disability and Displacement. What we depended on may no longer be available to us post-COVID. Contract terms and conditions that informed our commercial lives, are and will be changing. When the economic engines of the world are re-engaged there will be a rush for the commodities to move our projects forward. Those terms and conditions are going to be governed by a new paradigm.

## DI: How will the industry ensure future supply chain continuity? Might there be a new set of rules?

JF: The rules we live by are the rules of "respect." The written or common law contract terms we've lived by throughout our business lives have allocated risk accordingly. The contract clauses that guided our performance are now moving into a phase of uncertainty. Price and supply certainty are now open to new supply and demand forces that haven't been experienced by today's project managers, professionals, and owners in the private or government sectors. Price and Cash my trump contract certainty, post COVID. To some, it might be "better" to breach a contract in the world's

supply chain than to perform a pre COVID obligation and perhaps not face the consequences of that breach until sometime in the distant future, if at all.

### DI: Citing force majeure or some other reason?

**JF:** No. Citing the lack of respect and the need to become economically viable after having been shut down for many months. Survival may trump force majeure.

#### DI: So, it's not force majeure, it's for their own survival. Are there no rules to the game anymore?

JF: There are still rules, and there may be consequences for breaking those rules of respect set forth within contract terms and conditions. But because of the need to survive economically, even though you were first in line pre-COVID, you may not get your goods at all, or not when you expected to, because someone may have jumped that line. They may jump the line by taking your employees from you by offering them 20% more, or they may jump the line by taking your supplies by offering 20% more to the vendor, all in order to "survive."

DI: This scenario you're painting is almost a wild-west scenario, every man and woman for themselves. The respect that had been developed potentially through societal behaviors and legislation is now lacking the government leadership you're saying society had. It drives us to go back to every man for himself, lowering the bar for respect.

JF: You're correct. You don't need a written contract if you can rely on a handshake, and a handshake is simply mutual respect. I'm anticipating mutual respect will change because of the COVID disintermediation factor. Even a signed contract may not be respected post-COVID. We need to guard against that.

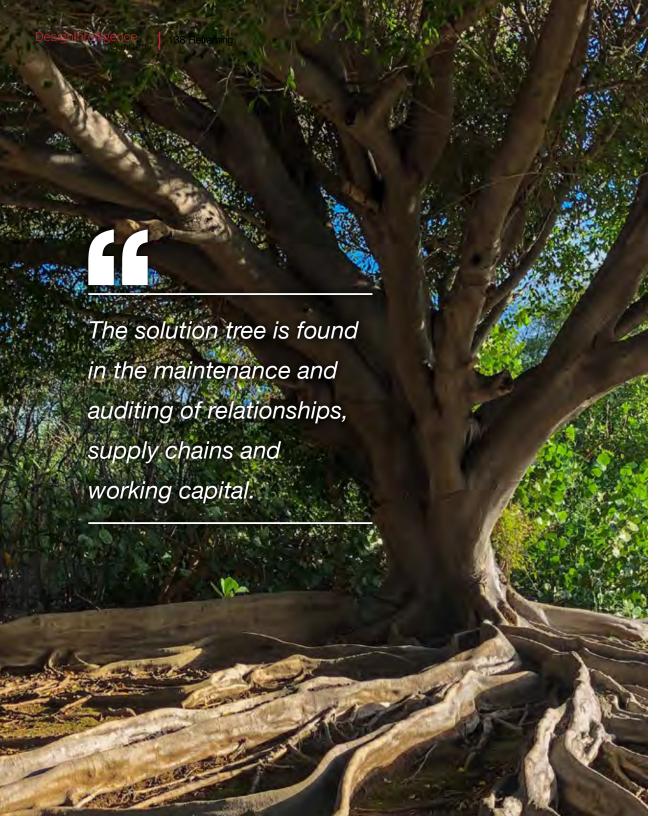
I believe to perform and move projects forward in today's COVID marketplace, those that have the labor and access to a reliable supply chain are going to look at existing projects that can move forward for one reason or another and place their labor and material supply on those projects. Contractors, subcontractors, and material suppliers may be taking on work they didn't have pre-COVID because they have access to money, labor and material, post COVID.

#### DI: For their own survival...

JF: Depending upon how long COVID commercially impacts the A/E/C community, that's correct. Owners, CMs, and contractors will be searching for backlog and larger margins coming out of this first wave of COVID recovery.

- DI: Given this potential scenario, what can designers, builders and owners do to manage their risk? Money solves many of these problems. Are there other solutions? How can we guard against these conditions in a wild-west environment?
- **JF:** It seems there are three keys to the solution:
- 1. There has to be a continuity of relationships. Every major contract in the chain of design and construction needs to be maintained throughout this indeterminate period of COVID.
- 2. Subcontractors and critical material suppliers will need to provide assurances of ability to perform. ("Trust but verify"). Financial resources and contracts for material supply will need to be audited. Supply of labor and back up labor sources will need to be audited if quarantines are imposed due to failed testing for the virus.
- 3. Set up a "auditing protocol" to examine domestic and international suppliers and their labor sources. That audit should be updated every two week and needs to include financial resources.





We started this conversation by going back to 1987. Those people who experienced and lived through Black Monday of 1987 as well as the technology and housing busts of 1990-91 and 2008 are the people I want on my team. I'm more comfortable with team members that have experienced the dislocation or disintermediation of 2008 and hopefully gained the wisdom of an experienced advisor because they've been on the playing field a long time. I'm looking for wisdom on my projects. I want my advisors, suppliers and team members to have that wisdom.

DI: In this near-term future, you're saying take nothing for granted. Trust but verify. And that those with experience, perspective and wisdom will be valuable. Great advice.

Additional funds are available now from the government, tax free or interest free. Is now the time to harvest refunds and R&D credits from the IRS?

JF: Design, construction, and manufacturing are some of the industries for which research and development tax credits were designed to benefit by the U.S. Government. Similar opportunities are available in Europe and abroad. The R&D tax credit was initiated by the United States in the early '80s to provide tax incentives to keep U.S. companies competitive with our competitors in those

foreign countries that were underwriting manufacturing, design and construction companies. Three to five years ago the architectural, engineering and construction industry started to recognize they could harvest such credits.

I'm informed that R&D tax credits can be harvested going back three tax years and therefore can be a meaningful source of cash in the near term. I'm also informed that these tax credits can be realized by way of paying a reduced amount of current federal tax or can be realized by way of seeking a tax refund for prior tax years. I'm suggesting that our clients examine this possibility in the near term to gain desperately needed working capital in this COVID era. They should do that by way of their tax advisors who practice in this area.

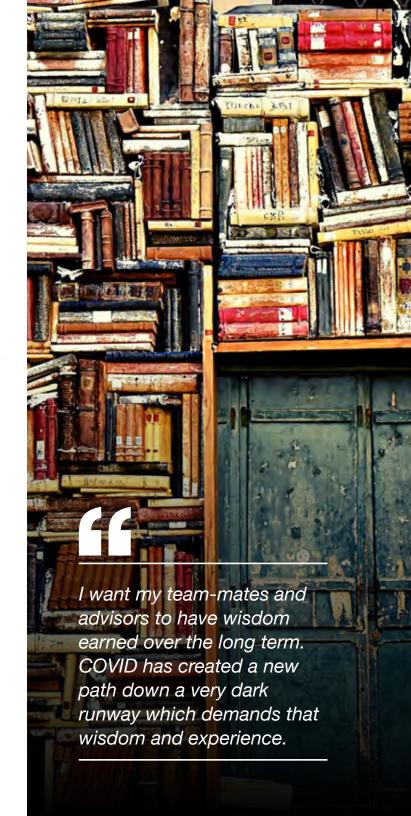
DI: That's an opportunity for firms who have struggled with how to begin or gain momentum in their research efforts. But it begs another question. When the world opens its doors again, is this a time of opportunity and aggregation, or a time for reflection and retrenchment? Where do you see design firms in six months to a year or two from now? Will the answers of the past serve a new tomorrow?

**JF:** If the COVID disintermediation takes a deep cut at our economy, we're going to

lose a lot of the more expensive talent who are not yet equity holders in their design or construction firms. We experienced this in '87,'90, '91, and '97 and 2008. This means to me that when the economy heats up again, we may not have the experienced team members needed to service client demand. This picture gives rise to added uninsured risk which can't usually be sustained over the long term.

I anticipate the consequences of COVID disintermediation will give rise to consolidation within the A/E/C community as well as the development of new products within that community. That consolidation will be funded by private equity as it has been in the past. Firms available for consolidation will have trimmed their overhead obligations to free themselves from the bloat created during the period of growth and profits experienced within 2012-2019 time-period. They will become targets.

Certainly, we're going to see technology take a bigger piece of the built environment economy. Smart cities are being developed by technology companies such as Sidewalk Labs / Alphabet / Google. I think we're going to see those smart city entrepreneurs look at 50, 60, 70-year-old women and men owning design firms and say:





"Three Rules of Work:

- 1 Out of clutter find simplicity;
- 2 From discord find harmony;
- 3 In the middle of difficulty lies opportunity."

Albert Einstein

"Friends ask you questions; enemies question you."

Criss Jami

"I like the scientific spirit—the holding off, the being sure but not too sure, the willingness to surrender ideas when the evidence is against them: this is ultimately fine—it always keeps the way beyond open—always gives life, thought, affection, the whole man, a chance to try over again after a mistake—after a wrong guess."

Walt Whitman

"Each good decision starts with a stop. Stopping to think before we act allows us to muster our moral willpower to overcome temptations."

Michael Josephsor

"There are no rules to this thing. You can make the worst of it or the best of it. I hope you make the best of it. And you might surprise yourself. You might find you can be anything you want to be."

F. Scott Fitzgerald

"What we refuse defines us."

Charles Wright

"If anything, if you can get somebody interested in something and get them excited, that's great. You should be praised for having opened the debate and having asked the right questions."

Oliver Stone









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AS OF JUNE 30, 2020









### PROFESSIONAL EXECUTIVE MEMBERS

AS OF JUNE 30, 2020





























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### PROFESSIONAL EXECUTIVE MEMBERS

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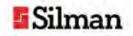
### PROFESSIONAL EXECUTIVE MEMBERS



































### **ACADEMY AFFILIATES**

AS OF JUNE 30, 2020





































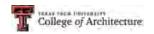
### **ACADEMY AFFILIATES**

































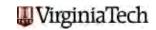
















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