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"I'M HERE TO TELL YOU NONE OF THIS IS NECESSARY ANYMORE..."

ROB DEMILLO ON REAL DIGITAL CHANGE AND MAKING THE MACHINES WORK FOR US

TECHNOLOGY DOESN'T HAVE TO CHAIN YOU TO A DESK, LIMIT YOUR SCOPE FOR COLLABORATION OR CREATIVITY. IN FACT, FOR ROB DEMILLO, IT'S QUITE THE OPPOSITE

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THE PEOP
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"Do you remember the PalmPilot?" During an interview with someone who has been at the forefront of leading edge technology their whole career and is currently CTO at one of the world's most innovative architecture and design firms, it's a question that throws you. But Rob DeMillo does have a point. And, after moments of this writer frantically trying to recall the various archaic personal devices of the 90s, he continues.

"It had a handwriting recognition algorithm which required you to learn a new way to write in order for it to understand what you were trying to say. That's always struck me as a really bad solution. The machine should always adapt to us, not us to it. The second you've adapted to the way a machine forces you to work, you've lost the game."

Even for the sake of an analogy, we're loath to compare the typical modern, digitally-driven enterprise to a device with 1024kb of internal storage that's disappeared into the annals of time. But that analogy is a neat summation of the transformative technology strategy DeMillo has been driving at Skidmore, Owings & Merrill (SOM) since joining in April 2019: shifting to a cloud-based approach that allows architects, engineers and designers the freedom to advance, create and collaborate on projects wherever they are in the world and however they want to work. In short, making the machines adapt to us.

"You look at many design, animation or architecture firms and how they're equipped," he says, "study the workflows and they've adapted to what the machine makes them do. To have your people in the mindset of 'I have to physically be at my desk, I've got this much hard drive, I can't run the software because of hardware limitations', is never a good approach for the future. Really, we should know the task, the data analysis, the design or the animation work we need to do and be able to say 'this is where I'm doing it'. It's the machine's job to adapt."

It's a position that DeMillo has honed over a vast and hugely successful career in technology in all its forms, from early work at Brown University's Planetary Science Group, a working group in conjunction with the Jet Propulsion Laboratory [his code can be found on the Galileo spacecraft and the Mars Observer], through work on doppler radar innovation at the FAA, experience in the entrepreneurial space, technology thought leadership and work with startups, and digital media, including video, creative content and animation.

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"I wanted to be a scientist," he recalls. "From very early on I've always been fascinated by how you can translate the physical into the digital. This was back in the late 70s or early 80s, when the latest computer innovations were out; I just got hooked. I've always had a real passion for data and understanding how that data can either help people, or help us understand something about the world around us. After my work with the FAA I had, I experienced my first 'peanut' in the entrepreneurial space – you have one and you can't stop – and all of my subsequent entrepreneurial work has been focused on digital data representing for real, eventually ending up in digital video and digital media."

Such is the breadth of DeMillo's career that he has experience across a range of

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"YOU DON'T NEED THE EXPENSIVE WORKSTATIONS. YOU CAN MOVE MORE QUICKLY AND COLLABORATE MORE EFFECTIVELY BY INTERACTING IN THE CLOUD ENVIRONMENT"

organisations, from startups to full corporations – hugely valuable both in terms of expert-level technology understanding at both the engineering and architectural levels, and the business and operational knowledge needed to drive strategic change. Prior to joining SOM, he was CTO and Head of Engineering for Nimble Collective, a pioneering cloud-based collaborative animation platform designed to empower a new generation of animators to work, much in the same vein as the transition he is overseeing at SOM.

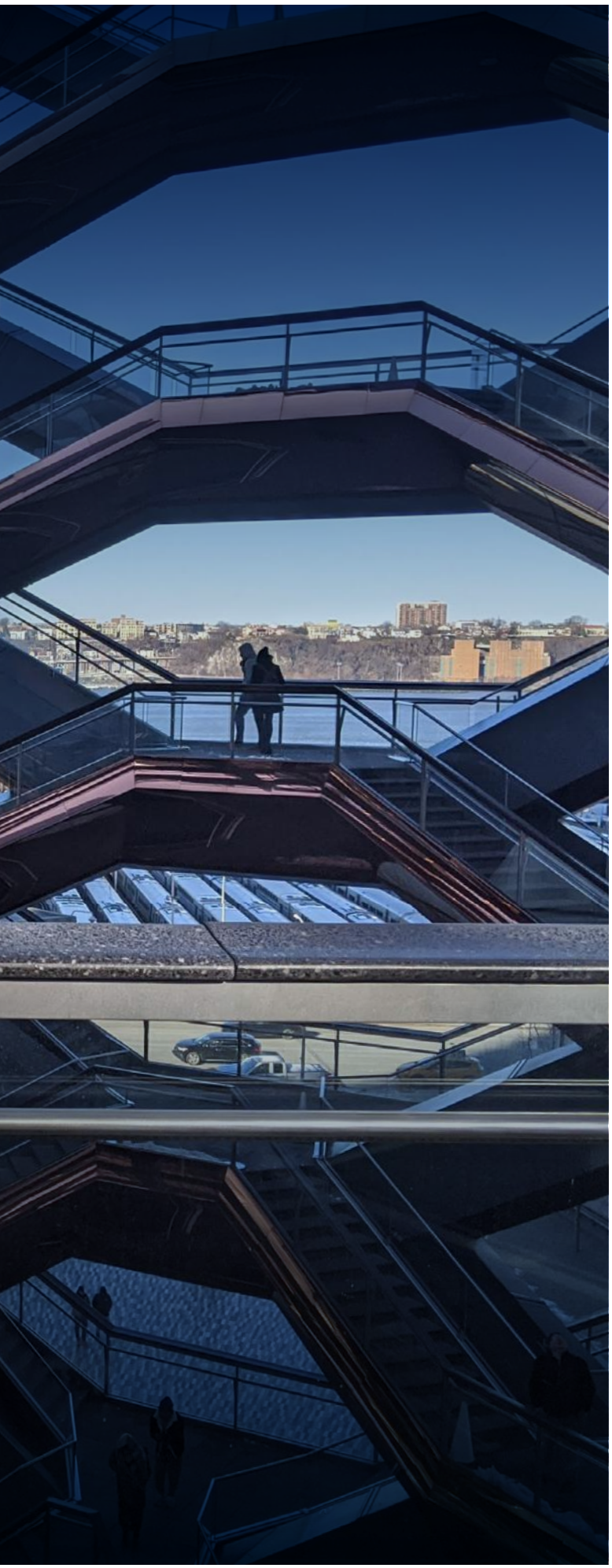
That was, until Amazon acquired Nimble, which coincided rather fortuitously with SOM seeking a CTO. He expands: "Nimble was founded by people very well established in the animation industry, these were people who made Shrek and Madagascar among other movies. In that industry, when you go from movie to movie you essentially have to set up a new studio for each film; the character models don't transfer because there's been new innovation over the duration of that movie and your technology is basically out of date. Part of the impetus for doing Nimble in the first place was to not only lessen the burden on a movie studio for every film they create, but to also allow a democratisation of where animators could live and work. It was about saying 'listen, if you want to live in Des Moines and work on the latest Avengers movie in LA, you can'. Everything is there in the cloud to let you do that.

"That's where I've found that industry similar to architecture, engineering and

construction (AEC)," he adds. "In animation, you're probably looking at about $20k of hardware per seat, per animator. And that quickly adds up if you're making a Shrek or a Madagascar. Then there is all the support and networking equipment and the fact that everyone has to be in the same building in very expensive real estate in LA, Vancouver or wherever. These animators basically have to migrate with their family for each new project. In AEC, the number of people working on a building design may be smaller, say 20 or so, but they like to work together closely in shared workspaces and offices dotted around the world. The same logic applies, though. You don't need the expensive workstations. You can move more quickly and collaborate more effectively by interacting in the cloud environment. Without adopting that mindset, you're perpetuating a legacy industry and the technology world will quickly pass you by."

This was the thrust of DeMillo's approach to the CTO position at SOM. "They'd never had one before," he says of the role, "and it's kind of interesting from my perspective. I'd really describe it as a CTO/CIO in that I'm doing both. Traditionally, the CTO is a research technologist that provides a strategic direction for a company or entity, particularly around how to leverage technologies, do research into new innovations and adopt them in order to progress. The CIO keeps the lights on. It's fair to say


"YOU USE YOUR EXPERIENCE, YOU HAVE THE CONVERSATION AND YOU RAPIDLY SHOW PEOPLE THAT IT'S EXTREMELY POSSIBLE"



that prior to my starting, SOM had several people I would consider to be closer to the CIO role; we never had a CTO that was really trying to unite the firm from a technology perspective."

SOM is one of the world's largest and most respected architectural, interior design, engineering and urban planning firms, responsible for working on famous buildings including the Burj Al Khalifa, 7 World Trade Center, London's Canary Wharf and many more. As with many international firms – in this case, 11 offices in key locations worldwide – a lack of a central technology presence meant DeMillo found an environment in which each location was to some extent operating independently of its sister offices. "The company was a technology leader in AEC in the 80s and 90s," says DeMillo. "It had carved out its own very successful niche and built software to operate very successfully in that sphere. But in my early discussion with partners about the needs of the firm it was clear that we needed a more unified technology presence. My career has been all about scalability – how you use technology to scale a business rapidly without a lot of repetition or overspin, which of course comes back to the cloud environment that was so successful at Nimble.

"When I first started talking to SOM, it was along the lines of 'listen, I've just come from an environment very much like yours with $20k workstations per animator, big server farms and drives. I'm here to tell you

that none of that is necessary anymore'. Naturally, the first thing you encounter when you say something like that to an entire business vertical that's been built of large-scale work is 'you're full of c**p, that's not possible'," he jokes. "But you use your experience, you have the conversation and you rapidly show people that it's extremely possible."

As for translating that vision into strategy, DeMillo recalls acknowledging the dissociation of the various offices' technology spends. "It was 'first thing's first, let's unify the offices'," he says. "Initially it was about keeping people comfortable on their existing technology platforms, bringing them together and slowly, one by one, bringing those services over to cloud-based services that interact in the backend. That includes

"I'VE ALWAYS BEEN FASCINATED BY HOW YOU CAN TRANSLATE THE PHYSICAL INTO THE DIGITAL"

things like abandoning corporate email servers for Gmail, adopting one piece of software that could serve all 11 offices and conducting spot tests with some of the design architects and structural engineers to see if we could support them with cloud-based services. It became apparent very quickly that we could."

To drive this initiative DeMillo formed a dedicated software engineering group consisting of engineers he'd previously worked with. "It was basically, I've got one shot at this, I need to have people that I know can pull it off," he concedes. To date, they have, working on the development of a firm-wide cloud-based solution to everything from data and file storage through to streaming solutions for architectural applications, computational engines, and communication tools.

As with any such project, change management was as essential a skill as tech

experience. Unlike animation, where the end of a movie gives a clear break to regroup, rethink and introduce the new, AEC is an ever-moving beast, with different studios working on projects consistently. "It's a hackneyed phrase," DeMillo concedes, "but it's like changing the wheels on the car when it's still moving. Here, there's really no convenient time where you can tell everyone to put down the tools you have been using for decades and shift to something new. COVID made that easier in some respects, as it drove the need for change, but we've been making those changes in small steps. You get some done and it becomes easier to introduce new technologies – the cadence of change has shifted from every several years to every several months. We want to shorten that even more going forward."

On that progression, DeMillo signposts several next steps: "Once everyone is comfortably in the cloud – and that's a transition that will take about a year – we can begin work on worldwide or firm-wide applications, software, databases and so on. It's all about giving everyone the same access, letting everyone see the interactions and enabling the imagination of the architects and designers."

The long-term vision, he adds, is the merging of the digital and real worlds further, with the cloud acting as a leveller, a common platform for everyone. It is a consistent theme that underpins DeMillo's approach to, and ongoing passion for technology. To the extent, he reveals towards the end of the interview that he lives it at home. "You should see my house," he laughs, "it's a little unnerving. My home is very self-aware. I've an IoT system with 220 sensors and activatable objects. Without getting too philosophical, it has an understanding of what I want from the environment based on the data of how I live – it's a fun hobby."

And not as challenging as you'd imagine. DeMillo explains how I could do similar: "It's cool to play with the data and try things out. There's ways you can do it with minimal headache and inexpensively. We can talk." We'll save that for the follow up...