Scale: Supply Chain Thinking **in the Circular Economy**

DesignIntelligence Quarterly

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

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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

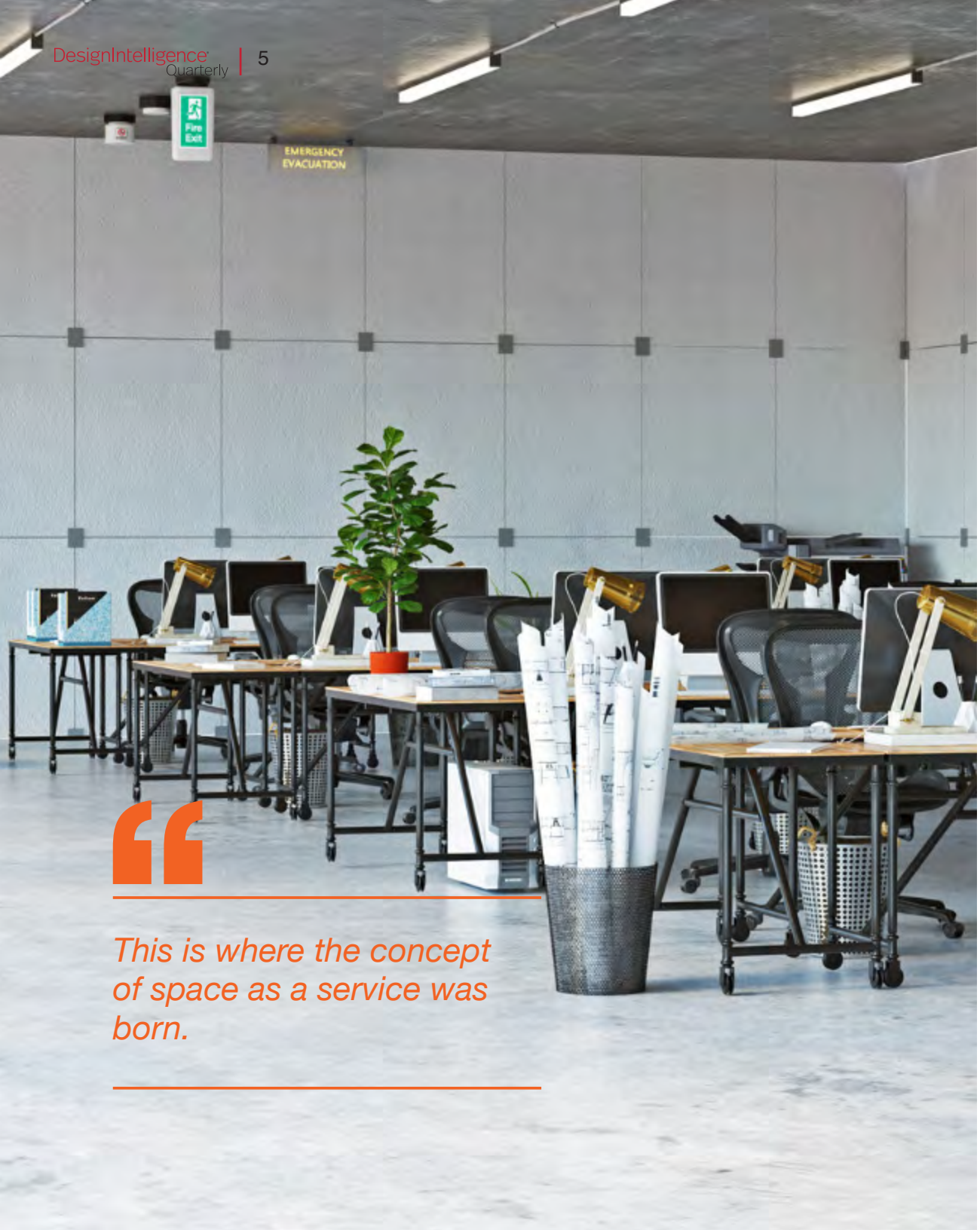
Francisco. Less so in other places. The idea that a technology consultant could be a vendor to an architecture firm was very much unknown up to that point. It took a lot of convincing. People thought: "Wait a minute, we're paying somebody to help with technology and it's not just about fixing our email?" 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



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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.

It was fascinating. If somebody didn't like orange, I would hear about it. So, across a

SPACE AS A SERVICE

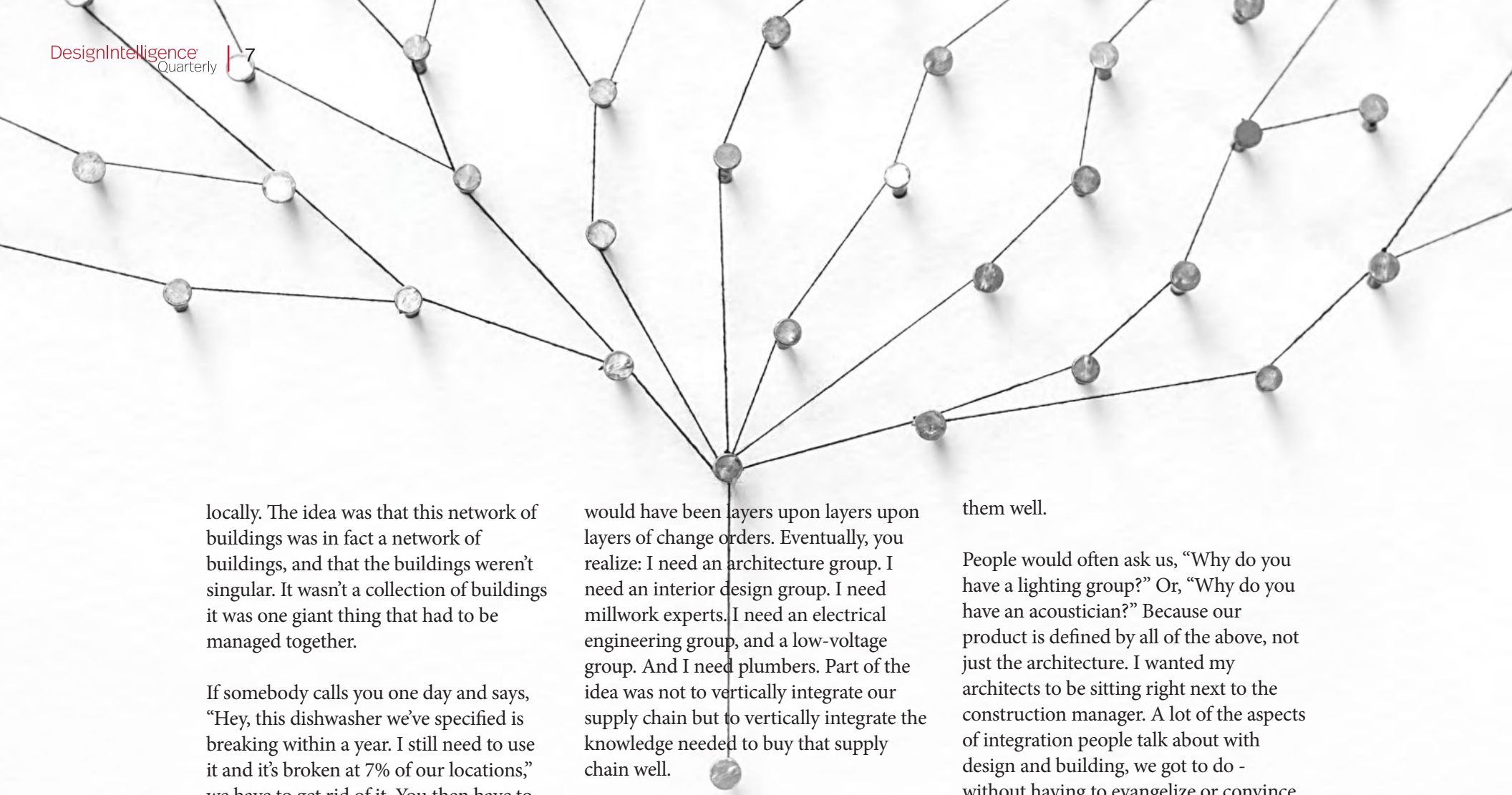
whole portfolio, we would have to find how many buildings had this specific color of orange. Potentially, we'd have to send crews in to repaint it. If it's just one source or one datapoint it's not good enough. If something becomes a trend across multiple locations, members, and potentially, multiple 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 do - without having to evangelize or convince anybody. We did it because it was the best thing to do for our product.

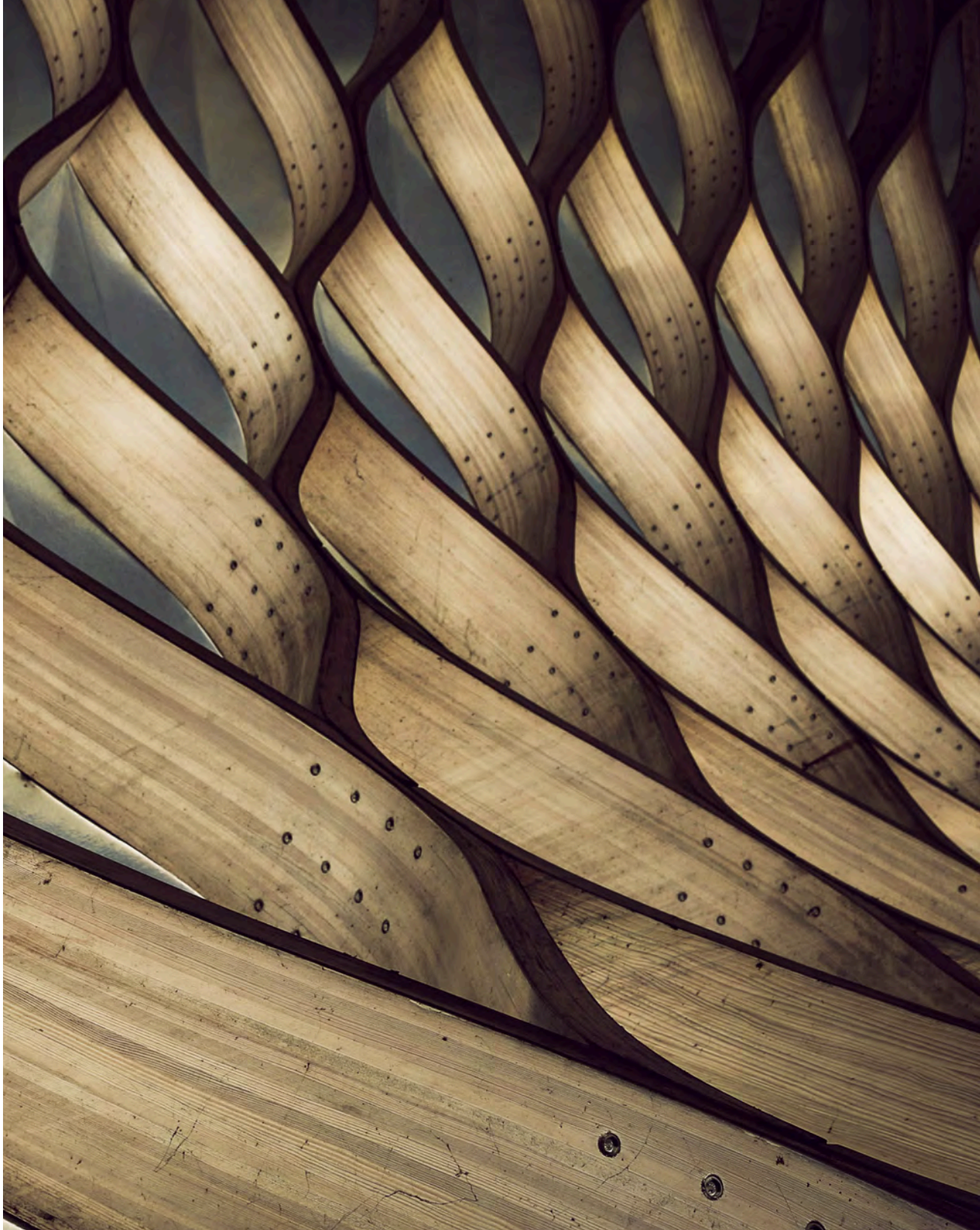
DI: You're a designer at heart, but you've loved the mindset change to deal with things that scale. Did the old designer's mindset ever get in your way? For example, you've made the hardware decision, but now somebody on the

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?

FN: Exactly. If part of my task is to make 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?

FN: 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 lowest cost it possibly can be - while still

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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?

FN: After 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.

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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?

FN: 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

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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.