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# BEYOND SMART BUILDINGS: THE 8 PRINCIPLES OF INTELLIGENT SPACE

## Episode 1: An Introduction to Building Intelligence, with Vincent Dermody of CohnReznick

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**Franco Faraudo:** When you think of cities known for advancements in technology, you probably don't think of Hartford, Connecticut. But when it comes to technology for buildings, Hartford was the birthplace of a pretty significant innovation. In 1983, construction had just finished on the City Place building. The office tower sits next to the XL Center, where the now-nonexistent professional hockey team the Hartford Whalers used to play. From the outside, the building looks rather ordinary. But it wasn't what was on the outside of the building that landed on the front page of the New York Times. Okay, it was the front page of the Business section. But still. The City Place building was considered the first quote-unquote intelligent building. It was a pilot project for a company with the inventive name of Building Systems. Building Systems is a subsidiary of United Technologies, which is now known as Raytheon. The project put a system of fiber optic cables in the building called by the then-trademark name "data highway." The information from all of the building systems flowed into a central computer terminal with a large, domed monitor and a chunky keyboard that looks like something out of a '60s-era science fiction illustration. This move made a lot of sense for United Technologies. At the time, its other subsidiaries were Otis Elevator and Carrier air conditioning. One of the things that makes this project interesting in hindsight was the way that United Technologies tried to monetize it. They agreed to pay for the infrastructure up front, hoping to create a new data service business line that would charge each tenant for their data and telecommunications needs. This business model obviously didn't work out. The internet made data infrastructure a necessity in buildings, and placed internet service providers as the middleman for tenants' data services, not the building management systems. Today, the City Place building does not trade at a premium from the other buildings in the area. There's no mention of the building's technology or its designation as the first intelligent building anywhere in its marketing material. So why didn't the innovation put into the City Place building stand the test of time? Why didn't United Technologies become the leader in smart building technology like they'd hoped for?

One of the things that was missing from the City Place project was a focus not just on the technology, but on the outcome. A building can be more intelligent, but if it doesn't help its occupants, it's hard to make a case that it is any better. This idea that the smarts of a building has less to do with the technology and more to do with what it can do for the end user is a growing one. It requires rethinking the way buildings are architected both physically and digitally with the end outcome in mind.

I interviewed someone who has placed his flag in the sand as a strident defender of this way of thinking about building intelligence. He thinks that in order to get the most out of our buildings, we need to create frameworks that will help make buildings not only smarter, but better.

**Vincent Dermody:** My name is Vincent Dermody. I'm a civil engineer, managing director with CohnReznick in Asia-Pacific. I've been working in the smart space, smart building, smart city area for well over 10 years now, and in that time, I've seen the industry grow and take on a great dynamic as it has done in the last few years. But I'm very, very keen that we grow the industry in a very structured framework-driven manner. I think that's critical. So if we look over history of IT and technology, when we start to bring frameworks to bear and bring structure to bear, we actually get the best outcomes. So when it comes to getting the best out of your digital assets, I really truly believe we have to be architected in how we do it from a digital point of view, to build and live the strategy. The world doesn't run in functions, the world runs in processes and flows. So everything is about the flow. So my experience in your building is a flow of all these things together. You have to design for that. And that flow needs all aspects, not just the technical aspects of, I have an app. Well, that's wonderful, but it has to connect to all the stages of my experience. Otherwise, my experience is gone. All it takes is one mistake in your experience chain, and the experience is a negative experience.

**Faraudo:** Vinny has worked with real estate teams all over the world to help them upgrade their buildings and portfolios. He and his team have created a framework for the technology that uses eight important principles that all need to be considered for a building to be thought of as smart. The first four are technical. The first one is obvious: The building technology has to integrate.

**Dermody:** The functional, technical side, we saw four fundamental capabilities, principles that you have to hit. The very obvious one that everybody can see very quickly is integrate. You have to be able to integrate, you have to have sensing system connectors, you have to have effectively the nervous system of the building has to be in place, has to be integrated. And I would actually say nervous system is a good way to think about it, because in the same way as a nervous system in your body connects the physical, your muscles together, it also connects the virtual, as in the concepts in your brain together. The same thing happens when we talk about connecting, integrating in the building. You connect the physical things that actually manage the building, but you've also got to connect to these virtual things that are beyond the building, that are conceptual when it comes to the building.

**Faraudo:** Buildings have a lot of component systems. Getting them to talk to each other is fundamental, but it's only the first step. In order to use the data that buildings gather to help make them better, the next principle needs to be considered: Insight.

**Dermody:** On top of integrate, you then have to have insight, as in I'm getting information out. So at some point having sensors, networks, and all kinds of stuff. It has to tell you something, it has to inform you, it has to give you insight. I'm using the word insight and inform, not data, because data is the product of sensing. But insight and inform is the product that actually informs decisions. I am now making decisions based on insight. In other words, I'm getting the content and the data that helps me make decisions and do something.

**Faraudo:** Only once integration has been created and insights are being generated can a building work on the third principle on Vinny's list: Intelligence.

**Dermody:** Then once you have your integration, and your insight, the third capability we're really trying to achieve is intelligence, of course. So intelligent is where the digital world is making decisions for you. So, x amount of people come through your door, air conditioning responds [with the proper load to address that], and you start optimizing lifts, and things of this nature. All those algorithms and all the machine learning, all that smart stuff you talk about. It's effectively that intelligence, building that responds to the integrated, insightful information that's coming to it, and it's actually starting to optimize itself based on that.

**Faraudo:** Making a building intelligent might seem like the endgame for any building designer. Generally, this is where the purview of technology is seen as ending. But Vinny is just getting started with his principles. He argues that none of the technology is really worth its cost, none of it is robust, unless it has integrity built into it.

**Dermody:** You're trying to ensure integrity. Now, integrity is a broad holder for a number of things. It's about security, it's about risk, it's about privacy. It's all those aspects put together. It's not just about the risk to the actual building, the risk to the equipment in the building. It's also risk to individuals who may be actually sharing some information with the building. So integrity is that broad cyber umbrella that makes sure that okay, the integrate, insight, intelligent is done in a proper way.

**Faraudo:** The next four principles are not technical. They are behavioral. Smart buildings have to consider not just how they function, but how they function *for their users*. The first one of these behavioral principles in the smart building framework is intuition.

**Dermody:** I think that is a critical one that gets overlooked quite a lot. Intuition is, you know, if we walk into any building, any skyscraper in Chicago, or in Singapore, or in London, we by default have an instinct as to know where the lift shaft is and where the actual restrooms are, because they're typically at the core. So intuition of how we interact with the building is something we've got to leverage and not ignore. And I'll give you a quick example of that. There was a real flurry for a few years for everybody to have their own app for the building, you know, the X app for our building. And you've got to think about this. If I go to L.A., do I want to have a different app to see the maps of L.A., or do I just want to use Google Maps? If I go to New York, I just want to use Google Maps. So my intuition is that I know I'll use Google Maps. My intuition is, I look for something [where I already know where to find it]. Why would you enforce somebody to change the app by which they're actually using every time they go into a different building? So we've got to be careful of that and not get caught up in our own ideas of our uniqueness. There are certain things that are unique about our buildings. There's also things where we've got to go, OK, play to the intuition that people are going to actually have when they go into a

building, and leverage it strongly. And that will make it a more enjoyable and more consistent experience for people.

**Faraudo:** One of the hard things about designing anything is that you have to think about how it might be used by the vast array of people who might use it. To make sure that buildings keep in mind the different ways that buildings can be experienced, as different as humans are unique, the next principle should be considered. That principle is inclusion.

**Dermody:** The second behavior one we talk about is inclusive. And this is a massively critical thing that I think is totally missed by a lot of digital strategy at the moment and smart buildings. It includes being mindful of all the variations of ableness that we actually have to accommodate and think for. For the obvious one, everybody thinks, if I have a wheelchair around, it's wheelchair accessible, I've pretty much covered it all off. And unfortunately it's not the case. A classic one that came up in pandemic times was touchless doors, touchless lifts, things of that nature, which is great to solve that problem. However, we roll this back and you think about somebody who's visually challenged or had visibility problems, they tend to use touch as a primary way of actually getting around. It's a key way by which they navigate. Braille on doors or Braille on buttons is a critical part of navigation for them. Likewise, talking about service dogs, things of that nature, and accommodating all that into your thinking. And then you think, they're the very evident inclusion element you have to think about. But you also have to think about people who are neurodiverse. Some people aren't particularly keen on a lot of noise or a lot of speaking or robot noises or robospeak of that nature. So you've got to really work through the full spectrum of all of your inclusiveness to make sure that when you're designing digital, you're not just thinking of a, you know, your generic Mary and John. That tends to represent a very, very small amount of people when you actually look at it. So it's really about making sure you actually have a broad thinking of inclusive, looking at mobility, looking at neuro, looking at sensory diversity, and ensuring that you're designing with a robustness that allows all these people to actually experience the building in a genuinely pleasurable way.

**Faraudo:** Unlike other products, a building is just one piece of a larger organism that we call a city. This means that for a building to perform at its peak, it needs to do right not just by its occupants, but by its neighbors and society as a whole. This is the basis for the next smart building principle: Involved.

**Dermody:** Involved is really about looking at your building and saying, or looking at any asset and saying, Okay, how's this involved around itself? So again, this is very ESG-centric kind of work, but you're involved in your precinct, or you're involved in your environment, or you're involved in your community. How is it behaviorally, socially, physically, resource-wise, utility-wise, how is it involved? Does it contribute power back to the grid via a solar array? Is the building integrated well with local transport to encourage the use of local transport? How is it connected to the city? How does it inform the city? All those aspects. So it's really about connecting it into its ecosystem, from a utilities point of view, from an experience point of view, from a contribution to community point of view, and as a resource to community. We've seen a lot of thinking with architects whereby the foyers of buildings and the space around the buildings are actually public spaces that actually try to draw the living city into that. Well, how do you do that in an involved sense?

**Faraudo:** It is only after all of these things are considered that building systems designers should think about the last principle: Innovation. Innovation is the robustness built into

buildings that allows them to be flexible, or at least as flexible as giant immovable objects can be.

**Dermody:** And then finally, innovation. Innovation meaning, the constant ability to change and evolve, problem-solve, and basically respond to the needs of people. It's not about sitting down and putting wonderful tech in. It's about being flexible, being flexible and agile, to constantly respond, and constantly problem-seeking, problem-solving, in how you do it. So effectively, what we're saying is, putting in technology in a structured way that allows it to evolve. And this is, there's a critical way to do this, because you can remove an app from your iPhone just by deleting it. You can actually have an app on your iPhone and you can dismiss it in six months' time and replace it with a new app. That's very simple. When you've got to take out a screwdriver or a sledgehammer to change something, you know, it's not very changeable. It's a harder thing to change. So you've got to stratify your technologies to understand, okay, what's the stuff that actually is going to be sledgehammer to change, screwdriver to change, and what's the stuff that's an app that it can change? And making sure that you're actually getting the sledgehammer stuff right. There's stuff that's gonna be stuck there for a while. Make sure it's right. Make sure it's broad. Make sure it's purposeful. Make sure it has capacity to do more than what it's needed to do right now and can evolve very quickly, very easily, and it can actually serve tomorrow's purpose, not just today's.

**Faraudo:** These eight smart building principles again are integrate, insight, intelligent, integrity, intuitive, involved, and innovative. They are all needed to make our buildings better and should be considered as we decide the future of our built world. In order to explore all of these principles in more depth, I have chosen eight building and real estate experts, each with their own stories of how these ideas have affected their work. Please join me in my exploration of these topics in this podcast series about the In8 principles of intelligent space.

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## Episode 2: Innovate, with Maureen Ehrenberg of Blue Skyre IBE

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**Franco Farauo:** Hi, everyone, and welcome. My name is Franco. I'm the editor of Propmodo. And this is my podcast about smart building principles. This is just one episode in a series of nine where we look at what it means for a building to be smart. This episode is about a concept that is often talked about but really rarely clearly understood. And that's innovation. With me as always to go through the journey of discovery is Vincent Dermody, a smart building consultant.

Hi Vinny, how are you?

**Vincent Dermody:** I'm well, friend, thank you. Today's topic is a really interesting one because, as you said, innovation is a word that gets thrown around haphazardly quite a lot. The tech industry has been signed to the innovation for decades. And I think the focus on innovation has somehow jumped the gun on what exactly innovation really means.

**Farauo:** Absolutely. I mean, it's gotten to a point where that that word means nothing and everything at the same time. And you know, now when we talk about something being an innovation, we kind of associate it with, you know, a piece of hardware or maybe a new software program, but the true meaning of innovation is actually much broader.

**Dermody:** Yes. This is why you see so much of the property industry focus on which technology they can add to a current business process rather than rethinking what way they're operating from the ground up. Do they actually need to change the process at all? Does the process even need to exist? Innovation is about being creative and problem-solving and thinking differently, not just finding a reason to use technology. Technology is a by-product of innovation, not the purpose and cause.

**Farauo:** Yeah, you know, when I first started writing about technology and buildings, all anyone wanted to call it was PropTech. And now we see a bit of a pushback against that term. Because, you know, tech is just one aspect of the innovations that are happening behind the scenes in the built world. So to help give some examples of exactly how innovation in its broadest definition is unfolding in real estate, I was able to talk to a woman who has spent her whole career helping property firms with their strategic operational redesigns and business transformations.

**Maureen Ehrenberg:** Hi, my name is Maureen Ehrenberg, and I'm a co-founder of Blue Skyre IBE, and we're a strategic partner of Colliers.

**Farauo:** Maureen was quick to point out that another misconception that people have about innovation is that they always happen with this a-ha moment. While big breakthroughs make good fodder for movie montages, they don't represent how most design evolves: incrementally.

**Ehrenberg:** When I think of innovation, I always think of big innovation, and then I think of continuous improvement, which is, in my mind, probably one of the most important parts

of innovation for commercial real estate and buildings. Because when you get stuck on thinking it's only big ideas, you miss so many of the things that you can do to really change the way you operate. Very often, real estate tends to think of itself building by building. So if you are part of a portfolio, you really do need to take a step back and ask yourself, If I am managing my data or my buildings building by building, what am I doing in the aggregate to pull that information up for reporting? And that's where I see a lot of the breakdown, particularly in investment real estate, because that data can be very siloed, the systems can be different, the way the data's been set up is different. That makes it very challenging. And many companies today are leveraging that to operate, for example, with a network operating center across small like fragmented portfolios. So it is stepping back and really thinking. Because when you asked about, how do you innovate in real estate, one is maybe looking at your buildings differently than it just being a building. And I can give you just a quick example. I went to visit someone recently at their office. They're in a million-square-foot high rise in the Chicago Loop. When I went into the building, the whole lobby was empty. Security was empty, they had one person sitting to check you in. I went up in the elevators. There was no one on the floor except this one company that I was going to visit. And as I was leaving and looking at all of these empty offices, this completely empty high-rise, you almost felt, you looked at that building and said, Boy, in so many ways, all this business is still happening, people aren't here. In a way this building, when the tenants do return, it's gonna have to be a little bit different than what it is, because it was almost like time stood still. And so part of the challenge is just rethinking that business that you are doing, and then how do you take, whether it's technology, other amenities, services, rethinking your lease fundamentals, to change the product.

**Faraudo:** There are plenty of new ideas in the commercial real estate world that have nothing to do with technology. Granted, new ideas often become the genesis of whole new ecosystems of technology vendors eager to solve new problems, but they usually start out as little more than a new way to monetize a product.

**Ehrenberg:** Another great example is just the idea of shared office and space on demand. When people started talking about the idea of hoteling and co-working and, maybe not a lease, but it's a shared office amenity within the building for people to use and they use the space as a service, that was not viewed traditionally as a landlord amenity, it was looked at like a WeWork or a co-working group would be coming and taking that space down. Today you're seeing property managers and landlords actually developing that kind of space within the building and offering it as a type of space that you can lease that's not necessarily a lease per se, it's more of an agreement that you're using the space in increments of time. That's very forward-thinking. And you're seeing certain landlords taking down floor after floor and making that an option.

**Faraudo:** At its core, innovating something is just figuring out how to make it work better. While that seems really straightforward, it gets much more complicated when you realize that what it means to make something better depends on who you ask.

**Ehrenberg:** I like to look at a property as almost like two sides of the same coin. But one piece of it is really those building operations. It's those behind the scenes, where things are happening but the tenants aren't seeing it but they're experiencing it. So whether that's the comfort, the safety, the uptime, the resiliency, power supplies, Wi-Fi isn't working. You know, today tenants will go in a building and turn their Wi-Fi on right in the lobby, just to test to see, hey, am I having a problem here or not? Because it's a very good

indication of why they may be looking in the first place. It's very fundamental and simple. They might get in the elevator just to see if it's working while they're going up and down. And these are things that from a leasing-agent perspective to be well aware of, what these tenants are looking for and why they may be looking. So that would be building operations and infrastructure. But the other side is really those occupancy needs. And that includes everything from just the ability for your people to be more productive – that's why they want the Wi-Fi to work in the garage, if they went down the elevator and got to their car and they still want to be on the same call, they don't want to drop two or three times. And then all the way down to, if they are coming in, what amenity, what access do they have to food? How long does it take them to get through the building? Are there areas, like for example outside, that they can work? So really thinking about, what is the tenant journey when they're coming to the building? What are those amenities? And then what can you do through, whether it's the use of technology, an app, through your lighting systems, that you have been able to develop a set of solutions that make the building seem smarter, more occupant-friendly, and then ultimately more cost-effective for those tenants?

**Farauo:** Some innovations are groundbreaking. They are a step in a completely new direction. But others are more subtle. Sometimes innovating means refining a process that most people don't think needs to be improved at all. In fact, sometimes when these new ideas finally come to light, they make you wonder why you never saw the possibility for change all along.

**Ehrenberg:** I know a big issue that's coming up right now, and it's really something that is going to have to be solved for relatively quickly, is even giving someone an accurate estimate on what their utility consumption truly is. For a building that's got one central meter, the typical way to bill out is based on your square footage. And so hey, if you occupy X amount square feet and my electricity bill is x, you know, your proportionate share is y. But if you are actually a small sales office and people aren't in there very often, and you're getting billed the same rate as a huge power user up in the building, really that person is shedding some of their carbon over to you. And while all of a sudden your reporting out on all of this data is far more important now. SEC said in April, they're going to start auditing and they have given more scrutiny to these audits – the SEC is not going to audit these, they're going to challenge the internal auditors, who are looking at statements of base size and savings and things like that. But all of a sudden, you really do need a really good data audit trail for what you're doing and what you're consuming and what you're reporting. So these are tenant-landlord issues that are going to have to start getting solved that really haven't been an issue until now.

**Farauo:** Zooming in on certain inputs and outputs is a great way to find innovation. But sometimes to understand what needs to be innovated in the first place, you have to zoom all the way out. This can be difficult for property portfolios because oftentimes they are set up in a way where analyzation only happens on the building level, and not as part of a collective whole.

**Ehrenberg:** If I was a manager for one client that had many buildings in my portfolio, if I was not doing this already, I would ensure that every property that I'm managing for that specific client, if those properties are in the same ownership group, I would have the ability to aggregate their data and roll it up to them, rather than giving them building-by-building reports. Another very basic thing I'd be doing with my reporting tools is, again, just talking to someone today, they're just having huge issue, again, for their ESG reporting.

They got a big data dump from all of the payables in the building, and the question was, how much diverse spend? You know, out of their whole budget, how much was earmarked, really, for diverse suppliers? And they gave them a lump sum number. And they said, That's great, but we need to know what's been spent with women-owned businesses, what's been spent with veterans, disabled businesses? They went through the whole kind of grouping. And they said, Well, we don't break it down by that. And that's again, you go in your system, and you set it up that way, if you're going to process the payables, it will automatically mark it if you're rethinking your process. So when I think of some of these tools, I guess you do have to ask the question, are they able to capture the data? But let's assume they can. Let's assume your software can, let's assume these different things that you're using to manage the building are. The most important thing is to think through your end-to-end process, like what you're collecting here and your data strategy here and how people are operating here. That data is gonna come out in your reports and in your system. If you're not set up to capture it, it's not going to magically get captured somewhere and reported out. So it's a very important thing to relook at what it is that the expectations are from your tenants as far as the utility example I gave you for carbon, whether it is the diverse spend, these different areas that typically maybe a manager hadn't been asked in this amount of detail in the past, but now with a real emphasis on what is happening on sustainability, carbon reduction, social impact, governance and compliance as far as good data and good governance behind the data. You really have to rethink your data strategy and the way you are using the different tools you're using to manage the building.

**Faraudo:** It has been said that larger organizations struggle to be as innovative as smaller ones. The late, great Harvard professor Clayton Christensen wrote a really influential book on the subject called "The Innovator's Dilemma." He explains that larger organizations have different constraints, and are oftentimes set in their ways, hampering their ability to innovate. Real estate companies are often large, stable, and risk-averse, making them more like an incumbent company that gets disrupted than the startups that usually do the disrupting. Making matters worse, there's a bit of an agency issue that can arise. Innovative projects that benefit tenants need to be paid for by ownership, and that doesn't always pencil.

**Ehrenberg:** With the equipment itself, you're beginning to see a little bit more uptake with not only the preventive maintenance component, but also in the capital lifecycle planning. And so getting a much better handle on the condition of the equipment and then the amortization that you're using, rather than just a straight percentage of how long it's been there, so you can really begin to forecast more accurately what projects you need to do. And also just from an energy perspective, you know, what are ways that you can start bringing in more renewable sources? I think a really old mindset that's been around forever was that, for example, many buildings that are separately metered, a manager would go to an asset manager and say, Hey, I want to do this lighting project or I want to do the solar process, or, you know, they've come up with ideas, and the landlord says, Why would I spend capital on that? Because I'm going to pay for that retrofit, or I'm going to pay for that renewable energy, and all that does is reduce the tenant utility bill. So what's my ROI? Today, that whole business decision has changed. Because how does it change your ROI? One, what you're doing for your own ESG and your own impact, it will show the impact that you're doing as far as converting, you know, just the carbon reduction in your buildings. It's an initiative. But number two, your tenants will be very interested to know if there's a potential for a power purchasing agreement or something else where you're actually thinking about how they can reduce their energy.

**Faraudo:** The saying is that necessity is the mother of all invention. Right now assets like office buildings are feeling the strain of changing market demand, making innovation a necessity instead of a perk.

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## Episode 3: Intelligent, with Sheridan Ware of Charter Hall

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**Franco Faraudo:** My name is Franco. I'm the editor of Propmodo, and this is my podcast about smart buildings. I've identified eight smart building principles that are really needed in order to make a building smart. With me, as always, is my co-host for this, Vincent Dermody. He's spent much of his career thinking and acting on these kind of frameworks for smart buildings.

Hi, Vinny.

**Vincent Dermody:** Hi Franco, I'm looking forward to this one.

**Faraudo:** Yeah, me too. Today we're talking about an important, seemingly obvious aspect of a smart building, which is intelligence, right? We all have a sense of what it means to be intelligent, particularly for a human, what it means for a human to be intelligent. But when it comes to buildings, that definition starts to get a little bit fuzzier. The classical definition of an intelligent machine or building is it's, quote, "able to vary its state or action in response to varying situations, varying requirements, and past experiences." I think that helps give us an understanding of the kind of responsiveness that's needed and this idea of intelligence when it comes to buildings, but it still leaves out a lot when we're thinking about how and why a building is responding to these outside sources. So, Vinny, what can you tell me about how you think about intelligence as it pertains to buildings?

**Dermody:** Typically, the thinking behind a smart building is that we have all these functions that must occur inside of a building and we apply technology to it. Adding more and more technology to these functions doesn't necessarily give you a smarter building or more intelligent building. What we have to do is pivot our lens from these verticals of technology and function and think of it horizontally. So we've got to think of the user. We've got to think of the actual user experience, considering all the variety of users that are there, and making that frictionless, making that seamless, and making that continuous. That's the critical part of it, getting to intelligence in the space rather than just technically smart.

**Faraudo:** Yeah, and obviously, this is a bit tricky, right? Because, you know, we're dealing with lots of different users, lots of stakeholders in the building who all are asking different things of it. And, obviously, there's people that actually work and live in these buildings, right, and guests that are in there for the first time, the staff that's actually doing the work of the building and maintaining it. And so, how do all of those different viewpoints have to mold into this one concept of intelligent buildings?

**Dermody:** Well, perception is the reality when it comes to intelligent buildings. How somebody perceives the actual building to be is actually how it is. And so it's irrelevant how much technology you have underneath the hood if somebody finds it unwieldy to use, not instinctive to use. So getting those perceptions right, and getting that frictionless feeling in how we use buildings, is critical. And we've got to do this for a large queue of people,

say a large range of people, with a variety of expectations on what they expect from the building.

**Faraudo:** For this episode, I was lucky enough to talk to someone to help me define this idea of intelligence when it comes to buildings, that has a background in user design. She's helped a large property firm define and implement user experience-driven intelligence across an entire real estate portfolio.

**Sheridan Ware:** I'm Sheridan Ware. I'm the Chief Information and Technology Officer at Charter Hall, who is one of the leading property fund managers in Australia, currently custodians of more than \$52 billion in funds under management in Australian property.

**Faraudo:** Sheridan has a unique perspective on designing intelligence into buildings because of her background designing for the digital world.

**Ware:** Yeah, I grew up in the technology world, more from a user experience point of view. So back many, many years ago, when we were all moving businesses online, it was my job to make sure that we were designing those websites in a way that actually made sense for the people who were going to use them every day. And I think that's given me a really good foundation these days in how we design technology in the built world.

**Faraudo:** Designing intelligence is like designing anything: It requires designers to be both an engineer and an artist. First, function needs to be considered. What is it that you want this intelligence to do? What are the constraints? How can you most effectively achieve any desired outcome? But then the artist part kicks in, and purpose becomes important. Why does it exist? How will it make people feel? Sheridan thinks that this is an important conversation for every landlord to have.

**Ware:** I don't think that any landlord these days can not consider user experience in the way that they're not just designing the physical structure, but also the digital structure around buildings. I don't even think it's a nice-to-have anymore, I think it's a must-have, especially in Australia, all of the landlords are thinking this way. And that really requires teams to think from the outset, and even within existing buildings, about, what do they desire that experience to be? Clearly it has to be frictionless, but what are the moments of engagement and meaning that we can also build into that experience for our building community, so that coming into a Charter Hall building is not just easy and convenient, it's also engaging and meaningful? Because especially in a post-COVID world, I think it's really important to be deeply curious about what the value of commuting into an office is going forward for people who come into work in our buildings in particular.

**Faraudo:** One of the difficulties of designing building intelligence is the broad meaning of that word. Not only does every user have their own perception of intelligence, there are so many different options for creating it, with so many systems in a building, all with their own list of technologies, vendors, and integrations. Sheridan thinks that it can seem daunting, and ultimately slow down the pace of progress industrywide.

**Ware:** When you're designing a smart building, I think the biggest issue that we have as an industry is one of focus. There is just such a broad range of options out there, and it can be so easy to be overwhelmed, I think, when you're considering a smart building, because those options are also constantly changing, and you can feel like you're drowning in a sea of PropTech. And so what's become really clear the last, from testing

and learning over a number of years, is you've got to focus not on the what, which is the smart building, but you've got to focus on the why, which is the outcomes that we're trying to produce. Because no one really wants a smart building at the end of the day, they want whatever the smart building can do for them that a non-smart building perhaps could not. And so for us, that is very much around the experience, the operations – so, how do we operate the building efficiently and sustainably? – and increasingly about risk, so, how do we protect our buildings, the physical and the digital assets in our buildings, from threat? And of course that's becoming increasingly necessary given the increasing and emerging impact presented by cyber threat.

**Faraudo:** There's a famous quote by productivity guru and author David Allen: You can do anything, but not everything. This applies to designing smart buildings, according to Sheridan. She said that rather than try to upgrade every system, they wanted to first target the ones that had the most impact. To do this, they used a principle made famous by a different kind of productivity guru, Joseph Juran: The 80-20 rule.

**Ware:** What we get laser-focused on is, what's the 80-20? So what are the 20% of things that will solve 80% of the issue in those areas? In the experience side, we know it's HVAC, ... we know it's cleanliness. In the operations side, most of the consumption comes from, again, HVAC, comes from lighting. And in risk, we know that a lot of the threat comes from how people are accessing those systems and when those systems are properly patched and maintained over time. So instead of trying to focus on everything, we try to focus on, what is going to drive the most amount of benefit against the few core outcomes that we really want to be well-known for?

**Faraudo:** For a product to be intelligent, it has to be designed by a team that is willing to experiment. Experimentation is risky, and can often be avoided in a corporate setting. So in order to create an environment where risks are taken and envelopes are pushed, many organizations have to embed some of these ideas into their culture. Charter Hall is a good example of how this looks in the often risk-averse property sector.

**Ware:** We do like to start, think big but start small. I think that's what most innovation teams try to do. And I think really importantly, we call it, you either have a pilot or a project and you win on it or you learn from it and you keep getting better. There's no concept of failure at Charter Hall, failure is just a failure to learn. So I think having that cultural dimension in place is really important. I'll give you an example. So, we tend to try to pilot something first and then start small and then expand big as soon as we've got the learnings that we need in order to make something scalable. And often the way that you can test some of those things out is when you actually do have the greenfield projects where you're not operating within the same sort of financial and technical and physical constraints that we have with buildings that are older in our portfolio. So a great example for us is the GPO Exchange, which was a building that we completed in 2019 in the city of Adelaide in Australia. It's a really gorgeous building, a beautiful sort of unification of the old and the new, because the original building on the site was built back in the 1900s, the early 1900s, and we've put in a modern office building integrated into that site. And so we had a blank sheet of paper there, we put in 25 different building control systems, everything from measuring occupancy and space utilization and providing access to smart and trip facilities like lockers and what have you, all the way through to lighting and visitor management, contractor management, waste, looking at utilization of loading docks, electric vehicle stations, I mean, this thing had it all. And it was a real challenge, right, bringing together the data points that we made. I think there was something in the region

of 32,000 different data points that were all pulling together in a unified way to try to operate that building. And broadly speaking, this was a very successful building. It's been recognized with multiple different awards for what it's done. But I think there were some learnings in that for us around how large you need to go, right, how many of those different data points, how much of that analysis actually is useful for our team on a day-to-day basis.

**Faraudo:** Focusing on smaller, impactful projects helps narrow the scope of work for creating smarter buildings. But that isn't the only benefit. After getting a few smaller wins, the benefits start adding up. They start justifying the time, effort, and money that they require, and maybe more importantly, win over the people who have to change the way they work in order to implement them.

**Ware:** Working small and then expanding out quickly, we were able to in a number of months start to analyze the key metrics across our portfolio, and more importantly put actionable insights into the hands of our on-the-ground operations team to start changing. And then we ended up with hundreds of different initiatives, hundreds of different things that we could do that were very small, that in aggregate led to a sizable reduction in cost and waste in our buildings. And now we're working with a provider to extend those data sets into other areas like cleaning, so that we can feed up through that same platform more and more actionable insights that help us continue to improve over time.

**Faraudo:** In the battle for intelligent buildings, the foot soldiers are the facilities managers. They are the ones that will have to use any technology at the building level. That means that any building that wants to be intelligent will have to be mindful of them as the important stakeholder that they are.

**Ware:** We had this real realization that it's not just about the end user experience. If you want to drive an outcome for an end user, who is responsible for changing the way that they work in order to drive a different outcome? And you go engage those people, right? Particularly facilities managers. I feel so sorry for them. They're expected to be the face to the customer in the building community, they're expected to be a compliance expert, they're expected to be a master coordinator. I mean, we pull our facilities managers all ways and sideways. And ultimately, if you're putting technology in their hands that doesn't make their life easier, then it either won't be used, or you're making an incredibly difficult position already even harder. And so we have to design this experience, we have to integrate it into the way that they work, as effectively as possible if we want to get anywhere. And I think that's been a miss for a lot of us in this community, we've been too focused on the technology rather than who needs to use it to drive what change that gets you that outcome that you want.

**Faraudo:** Sheridan struck me as an optimist. She never once gave off the impression that I get from others on this subject that there's only so much innovation that can be brought to bear on a building. They're just large concrete steel boxes after all, right? Instead, she sees our buildings' new digital layer as blank canvases with unlimited possibilities, much like a website. This means a just-as-endless amount of opportunities exist. But the only way to seize these opportunities is to try them out in the real world first.

**Ware:** Having grown up as a human-centered designer, there's so much opportunity here in our industry for human-centered design and co-creation. So let's get into their world, let's understand a day in the life of the facilities manager, let's understand their pain points.

And if we want to get to a different outcome, let's design their world so that it's easier for them to get there. And you can't do that in a lab, right? You have to do it with them. Because otherwise the whole investment would fail, or fail to meet the outcomes that we had originally intended.

**Faraudo:** Designing even the smallest widget is hard. Designing something as amorphous and complicated as intelligence is incredibly hard. The easy thing for commercial property owners to do is nothing. But it's likely not the one that will create the most value. With the right people and the right teams with the right culture, intelligence can be designed into buildings, no matter how you choose to define it.

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## Episode 4: Integrity, with Lisa Shanahan Stanley of OSCRE

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**Franco Faraudo:** Hi everybody, and welcome. My name is Franco, I'm the editor of Propmodo, and this is my podcast about smart buildings. I've identified eight principles that are needed in order for a building to really call itself smart. Today we're going to be talking about the idea of integrity. With me is my co-host as always, Vincent Dermody.

Hi, Vinny.

**Vincent Dermody:** Hi Franco, thanks again for following down this rabbit hole.

**Faraudo:** [Laughs.] Yeah. So today's episode is an important but often overlooked smart building principle, integrity.

**Dermody:** Yeah, right off the bat I think it's important to know what we mean by the word integrity for this purpose. Most people hear integrity, they think of moral integrity. And that's certainly a part of what we mean. But since buildings are not people, we're talking more about the data integrity. That means writing the rules of how the data is collected, organized, and used, so that, with so many property organizations nowadays being data-driven, integrity can not only mean the difference between success and failure, but can also dictate the very culture of the company and all the implications that that has.

**Faraudo:** Yeah, it's just so important to everything, right? If any of your intelligence isn't built on this kind of good foundation, it's likely not going to mean much. And as I learned here, data integrity is becoming more and more important as companies in the property industry start making sustainable commitments. Like now both buildings and tenants are required to report on things like energy usage, resource management, carbon footprint, the business world has kind of grappled with all of these corporate responsibility metrics, and they've lumped them into this term, ESG.

**Dermody:** So most of the conversation around ESG has been on sustainability, and rightfully so. But the G, the governance, could also be the most important part of the equation. And none of that happens without data integrity. As we report the "E" parts going forward, more and more pressure will be brought to bear on how credible and how well-governed the sourcing of that data is.

**Faraudo:** Obviously there's more and more scrutiny on the claims that companies are making and the claims that buildings are making, and so that kind of governance is so important to be able to accurately report all of these metrics. And luckily enough, I was able to talk to someone for this episode who is building the standards around which this governance works.

**Lisa Shanahan Stanley:** I am Lisa Shanahan Stanley. I'm the CEO of OSCRE International. We are a member-based organization focused on the development and supportive implementation for real estate data standards.

**Faraudo:** Data standards are certainly not the first thing that come to mind when people think about corporate governance. But Lisa sees the two as going hand in hand. As much as a leadership team might be interested in corporate responsibility, none of their goals can be achieved without the ability to measure their progress.

**Stanley:** So if you look at corporate governance and how it's increasingly being scrutinized by a lot of exterior forces – certainly investors, but employees and other stakeholders as well – it's difficult to have a conversation about effective corporate governance without recognizing the importance of governing the data that drives corporate decisions at virtually every level of the organization.

**Faraudo:** ESG is just the latest iteration of the idea of corporate responsibility. Oftentimes, these soft metrics can be overlooked by organizations. They usually don't directly impact a company's revenue, after all. But there are still plenty of reasons to take these commitments seriously.

**Stanley:** As we're looking at ESG requirements, why do you care? So, one is attracting investors. One is certainly addressing risks, that's become front-and-center consideration for every organization out there, regardless of size. Compliance with regulatory reporting. And then streamlining operations as well. So as you're working towards developing an ESG framework, it really is that. It is the bone that creates a platform, an initiative, an allocation of resources to help the organization move forward.

**Faraudo:** Investors are looking at ESG metrics for a number of reasons. One is that more money than ever, from large investment groups, pension, and sovereign wealth funds, is earmarked for sustainable investments. But another important reason behind the push to back companies that take ESG seriously is because it signals that the company is taking a long-term approach to growth.

**Stanley:** You know, when you get to the G and the governance, from an investment perspective, that really is the most important part of the ESG, because the corporate governance is what provides the acknowledgment of the importance of environmental issues and social responsibility, and also denotes where those priorities are going to be moving forward.

**Faraudo:** One important piece of good data governance is the creation and adherence to data standards. Getting data to conform to a predetermined standard isn't just a good way for corporations to keep track of what they are able to achieve sustainability-wise. It can also help them make faster, better decisions. Which came at a painful lesson for some over the last two years.

**Stanley:** Data governance requires that there be some standardization, if you will, of collection of data, of analysis of data, of the ability to analyze the data in a way that empowers the organization to make better decisions. And increasingly, that need for speed for responsiveness – particularly as we've seen over the last 18 months, with a health crisis that virtually overnight became an economic crisis – organizations have struggled, significantly struggled in many cases, in trying to get access to that information, being comfortable with the consistency and the accuracy of that information, to help them assess risk and to move forward. And in some cases, frankly, from some of the people that I've talked to, that lack of access, that lack of reliable information, has hurt organizations.

**Faraudo:** Setting up a data governance policy is painful, and therefore can often be overlooked as a priority for some companies. But making the effort to create a transparent, fair system to use data goes a long way for showing everyone in the organization what the leadership stands for.

**Stanley:** The corporate governance piece, I think, really involves a demonstration of change leadership skills, the tone at the top is what I like to call it, at the top of the organization that says, we're making a commitment. And oftentimes people just look at it as a financial commitment, but it really is much bigger than that. And part of that responsibility of the change leaders is to help the very people that need to implement this change understand why they're doing it, why it's important, and just as importantly, why the individuals at the frontline for implementation should care.

**Faraudo:** So much technology has been created in the last few decades that can help organizations make better decisions. Few of them will make any difference, however, if an organization does not create a data architecture that can allow them to work.

**Stanley:** The advancement of some of the emerging technologies out there – artificial intelligence, machine learning, to a lesser degree distributed digital ledgers or blockchain – that ability to empower decision-making is extraordinarily powerful if an organization makes that leap to start using the information and to plan for it. Because it takes an allocation of really three primary things: The resource allocation overall, the financial commitment to do it, the corporate support. And also the skill to match the will within the organization to ensure that the team members are able to carry out what the vision is.

**Faraudo:** The push for more sustainable investments has forced corporations around the world to report on their ESG initiatives. It has also had a direct impact on the real estate world, as buildings are feeling the same pressure.

**Stanley:** As you're looking at these smart buildings, particularly from an investment portfolio perspective, if you're looking at organizations that have invested in building these types of facilities, or retrofitting as best they can these types of facilities, you have to believe that becomes a more attractive investment for investors out there than a building that could be 75 to 100 years old in an urban environment that has a lot of challenges as it relates to energy efficiency, clean air quality, and those types of things that are increasingly more important and getting more attention.

**Faraudo:** Just because a company is struggling with their data governance doesn't mean they are not sophisticated operators. The complicated nature of building systems give rise to lots of potential pitfalls. They create a huge amount of data from a large array of building systems, all with their own data schema.

**Stanley:** A lot of organizations contract with service providers to collect information on various software platforms, to analyze that information and bring it back to them. And in many, many cases, those platforms don't communicate with each other. Frankly, neither did the managers of those platforms communicate with each other. So it creates a significant challenge for the owner of the data to be able to pull it back in, normalize it, if you want to call it normalizing it, in a way that they can effectively use it.

**Faraudo:** The famous adage is that if you can't measure it, you can't manage it. And the same is true for ESG commitments. The process of establishing a baseline and seeing how you're performing compared to that line is called benchmarking. This is particularly tricky for the real estate world, since even the biggest asset managers only control a tiny sliver of the entire building stock. Part of Lisa's role at OSCRE and the entire reason that the organization exists is to help companies work with each other to get onto the same data standards and share information that can benefit everyone.

**Stanley:** From a data governance, data standards perspective, look at opportunities for collaboration. Oftentimes, there are other organizations, other companies, that are dealing with the very same challenges that you are. And that's where industry-sponsored standards development and implementation really is valuable. It's very difficult to do effective benchmarking if you're not using an apples-to-apples comparison of the information that's submitted by the various companies that are doing so. If you don't have standardized terms and definitions, for instance, how is it that you come up with a reporting mechanism that really adequately informs decisions?

**Faraudo:** Integrity is important for people and for companies. It defines the very reason for our existence and determines how we react to adversity. For companies, particularly those in the property industry, integrity of data is a cornerstone of how they operate, how successful they will be, and how they will be viewed by both their employees and investors. ESG is a great term, one that I am glad has caught on as well as it has. But grouping environmental, social, and governance initiatives into one broad category undermines the unique nature of each. A company's commitment to the environment and social good can come and go. Governance and data governance, on the other hand, become ingrained into the very fabric of the organization, and can help steer it towards these larger goals, no matter who is at the helm.

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## Episode 5: Insight, with Susan Gerock of WashREIT

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**Franco Faraudo:** Hello, everybody. I'm Franco, I'm the editor of Propmodo, and this is my podcast about smart building principles. With me as always is my co-pilot on this journey, Vincent Dermody.

Hi, Vincent!

**Vincent Dermody:** Hi Franco, great to be here as always.

**Faraudo:** Today's episode is about insight, how buildings need to create insights in order to make them smart. Vincent, maybe you can help define that term a little bit, this insightfulness.

**Dermody:** Sure. So when it comes to people, we think of somebody who's insightful as they are thoughtful. But when it comes to buildings, insightful's really about, how are we getting to a conclusion based on data that we're observing? And, you know, the critical part here is really defining the question that you're asking of the building. Not just consuming data for the sake of it, but be quite precise in the questions you're trying to answer, the conclusion you need to come to, and the insight that's gonna support that conclusion.

**Faraudo:** Yeah, you know, like, obviously, it's not just about having this huge data set that you're kind of running queries over and over again. I mean, that's part of it, right? But that doesn't always create what I would consider insight, right? This happens when you look for correlations that you haven't found before. And, you know, it takes kind of a thoughtful approach to think about, like you said, the right questions to ask. And with so much data that buildings are producing right now and so many external data points that can be used, figuring out which are your kind of key things to look at can be really tricky. How can buildings maybe think about, what are the most important pieces of data to look at?

**Dermody:** The tendency to look for any way to call out data and bring it together and find similarities and consume huge amounts in doing that, it's really critical to have a clear view on the actual key outcomes that you're trying to support, the key performance indicators that you're identifying, and effectively the decisions you have to make. That will actually give you a true view on the data you need to actually acquire and use.

**Faraudo:** To help provide some real-world examples for how these insights can be made and where they come from in the property industry, I was able to talk to someone who was brought in from the manufacturing industry to help a real estate company effectively collect and leverage data.

**Susan Gerock:** Hi, my name's Susan Gerock. I'm the Vice President of IT and Chief Information Officer at WashREIT, a multifamily company located in Washington, D.C.

**Faraudo:** One of the first things that Susan explained to me was that creating more insights from data has more to do with the questions you ask than the answers you get.

**Geroock:** Having good questions that you're trying to answer is really the foundation of what we're trying to do. What is it that we want to know? What is it that we want to understand? And quite often, when you're going about it that way, you will stumble over things you weren't expecting. And I think in most cases, it's a very pleasant surprise. In other cases, you find, you know what? The data just doesn't tell us anything. Or, you know, the data isn't of a quality that it's going to be helpful, so we need to address this, if this is something that we really think is going to be valuable for us.

**Faraudo:** Starting with the questions that need to be asked and working from there helps make sure property companies are thinking first about what it is they want to accomplish with any new technology. Susan explained that depending on what you want the technology to do, what kind of insights you want it to create, you have to have very different metrics for success.

**Geroock:** We've been looking at, what are we trying to do here? Are we trying to put the PropTech in and make it so that it is a value-add for the particular tenant, that it is something that we have an opportunity to increase revenue because we have a smart home technology available to them? Or, are we looking at it from a standpoint of, this is PropTech that we can put in place that's going to be a real cost saving for us? And so we may look at the two different products very differently and determine which one is right for this particular property. I'll give you a great example on the cost-saving side. One of the biggest problems that we have in multifamily relate to water leaks. And if we can detect them and detect them quickly, we can address them, and we really have the opportunity to eliminate or dramatically reduce the damage. That's something that is a significant cost saved to us, if we catch something like that. If we put smart home locks in place, in many cases, we save a lot of time and a lot of maintenance hours from someone having to go and unlock a door for someone who's lost their keys or forgotten their keys. That's cost avoidance, that's expense savings. We look at opportunities like that, versus someone who might be really looking for a smart home package who says, Hey, I want something that controls my life. I want something that controls my fans, my window shades. I want to connect it to my smart home device and be able to control my thermostat. That's something that residents will pay a premium to have in their particular apartment. So we really look at the positioning of our different properties to determine, what is really needed here? What kind of PropTech makes sense for this particular facility?

**Faraudo:** As easy as it would be to say that they are universal questions that can be asked that would help reveal useful insights for any property, that's not the case at all. Portfolio-level insights are always valuable, but to understand where improvements can be made, real estate owners need to think about each property individually.

**Geroock:** Different properties have different kinds of data and different kinds of needs. And I'll give you a great example. We have different kinds of properties in our portfolio. We have some high-rise buildings that are very dense, and we have others that are more garden apartment style. And you're going to have very, very different kinds of measures in the two different kinds of buildings, because you have different setups as far as your physical plans, you have different setups as far as ways that you may be, for example, billing your residents for utilities. There's so many different types of information that

there's really no "one size fits all," I think, certainly definitely in the multifamily space. So from our standpoint, we really take each building, each property, as an individual in its own right. And we think, what is the best for this property type, for the resident makeup, for the people we hope to attract to live in this property? And how do we make this ideal for this particular space? And that's how we approach our portfolio. There is really no "one size fits all."

**Faraudo:** To better understand how to utilize a space in a building, using data to see what amenities that people use, and maybe more importantly what they don't use, is a good first start. From there, property managers need to use a bit of intuition and creativity to change spaces so they are more useful and ultimately more valuable for residents. Susan had a really good example of this.

**Gerock:** I think one of the things that we've seen a lot, and this is both in the commercial space and the multifamily space, is understanding how space is used, and the use of sensors in space. You know, whether it's in the commercial space and understanding how conference rooms are used or how amenity spaces are used, the same with multifamily. I'll give you a great example. I just recently was watching the series "The Americans" on Amazon Prime, and because it was set the '80s, you saw a lot of racquetball. Two of the main characters were always playing racquetball. Well, some of the properties that we purchased in the last few years had as amenities racquetball courts. When was the last time you really saw somebody playing racquetball? So recently, as we have refurbished those properties, we have turned those racquetball courts into more social spaces, into more business-focused spaces, where people can grab a pod if they don't want to be in their apartment all day to work, and that they have an opportunity to work in. That's really understanding, how are people using spaces, and then how can you change the spaces to be more attractive to your resident or to your tenant?

**Faraudo:** Understanding each property individually means both collecting data and using on-site knowledge. So much of what happens at a property can't be easily broken down into data sets. So to gather insights about a property, the value of institutional knowledge should not be overlooked. These human-generated insights can help point researchers in the right direction, something that is extremely valuable when you consider the sheer number of ways a building and a community can be analyzed.

**Gerock:** We have people at our properties that may have been there for a really long time, and they have such great institutional knowledge that they know that building like the back of their hand. They can tell you pretty much anything that's going to happen on any given day with any kind of condition, they know it. But, you know, we see in today's society, we have a lot of turnover. It's a fact. And you know, we're certainly seeing that across all industries, but we see that in the multifamily industry as well. And so you're not necessarily going to have that person there who knows everything about the building. You are going to want systems like this that are mining your data that are looking for trends, that are looking for patterns, that then will allow people to make really good, educated decisions, to find those opportunities where it's like, hey, we need to look into this further, we need to know more about this. And then determine, what do you do with that information? You know, who needs to act upon it? Who needs to know about it?

**Faraudo:** As important as the boots-on-the-ground operators are to a property for generating useful insights, they're also often forgotten when it comes to implementing them. Having an insight is just the first step. Putting them into action in a meaningful way that's

actually going to benefit the property doesn't happen without finding a way to help teams navigate the changes that come with that implementation.

**Gerock:** Change is always a challenge. And it's a situation where everyone has to be on board and understand why you're making the change, what you have to gain from it, and how their job is going to change. Because so much of the property technology that we are seeing, whether it's on the residential side or on the commercial side, is really changing people's jobs. And that can be hard sometimes. You know, you might not like that you have to do 30 door unlocks in a month, but when all of a sudden you're not doing that, you might say, well, what am I supposed to be doing? How does my job change? Am I still okay? What's next for me? And that's why companies need to be really clear, as to hey, you know, we're eliminating this one really repetitive, unnecessary part of your job, and giving you something that's much more interesting for you and value-add for the company.

**Faraudo:** The need to create insights is so fundamental to the future viability of a property that it is not something that can be left to an outside group or a siloed team. For insights to be discovered and acted upon, the entire organization needs to be on board. That can sometimes mean giving champions of change, like Susan, the leeway and leadership needed to make the changes happen.

**Gerock:** Capital allocation has always been very well informed by research. But we're taking that even a step further to say, what else can research tell us? What outside information along with inside information can be combined and really help all aspects of the business? Not just our capital allocation, but our marketing, our operations. And our head of research is really playing a significant leadership role, along with me, in looking at, how do we do this? And we have support from the very top of the company. This is something that is very important to us, and we believe can end up being a real differentiator in the way that we're able to serve our residents.

**Faraudo:** Finding and implementing insights needs to come from within. But that doesn't mean that there isn't a place for outside help. Continuous innovation means looking at data from as many angles as possible. And sometimes it takes an outside team to bring in a new perspective. Susan gave a great example of how an outside company helped them better understand how weather conditions affect their service calls.

**Gerock:** We worked with a company a few years ago, and one of the things that they suggested we look at is, look at the number of work orders that you're getting, look at the temperature that day, look at the precipitation that day, and look for trends. You know, are certain things happening on certain days when it's hot outside, or when you have 100% chance of rain, that are not happening on other days? Does that influence your staffing, for example? Do you know that if you're going to have five hundred-degree days in a row, and you know that you always have a real bump in work orders, especially related to air conditioning issues, during that time, then you're not only just thinking to yourself, Oh, we always get a lot of calls when it's hot, but you have real data to back up and say, Hey, you know what, we may have to have three maintenance team members on site Monday through Friday, and it's going to cool off, so maybe we only need two on Saturday and Sunday.

**Faraudo:** An insight is really just a new idea. A new way of doing and thinking about something. But insights go deeper than just a flash of inspiration. Taking an insight, vetting its

legitimacy, and enacting change based on what it teaches you is a tricky but important process. Finding insights can answer some of the questions that have thus far gone unanswered of properties. But they usually also lead to the conclusion that more investigation is needed. Answers lead to more questions. And finding a surprising insight, one that was likely right in front of your face all along, only makes you wonder what other good ideas are sitting in plain sight, waiting to be discovered.

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## Episode 6: Integrate, with Miao Song of GLP

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**Franco Faraudo:** Hi everyone, my name is Franco, I'm the editor of Propmodo, and welcome to my podcast about smart buildings. In this series, we are looking at all of the different principles it takes to make a building smart. And in this episode, we're going to be talking about integrate, how buildings can integrate not only within themselves, but with the larger context of what they're doing with their tenants. With me as always is Vincent Dermody. He's one of the people that has turned me on to this idea of all of these amazing principles for smart buildings.

Hi Vinny, how are you doing today?

**Vincent Dermody:** I'm well, Franco, good to be here.

**Faraudo:** Yeah, great to have you. You know, I have to admit that when I kind of first thought about the idea of integration, you know, it was all about APIs and protocols and how to get computers to talk to each other. But the more I learned about the subject, the more I learned that, you know, that's just one example of how buildings need to integrate, right? And as we go along, you know, the property industry is increasingly becoming one that provides more than just space, right? It provides a service. So they really do have to have an integration mentality, not only internally but with their tenants as well.

**Dermody:** Yes, Franco. The ability to integrate systems is a key aspect of any building to make it smart, and that's the fundamental internal focus on being smart. So it's sensing and integrating and bringing stuff together, bringing the information together. But it also has to then react to externals and actually has to integrate with the outside world and the outside business and the outside purpose, so that it can serve that purpose as well. And then fundamentally beyond that, it has to contribute back out. You have to integrate to contribute back out to those purposes. So the integration layers are threefold. It's amongst itself, it's reacting to the externals, and it's driving out to the externals.

**Faraudo:** Yeah. And obviously, this changes a lot depending on the property type, right? I mean, you certainly have, you know, some properties that are required to kind of integrate a little bit more than others, right? And someone that I talked to for this episode about this was kind of in the logistical space, and this is really interesting to me, because, you know, industrial is always kind of seen as one of the most hands-off property types, you know, but it's quickly becoming one of the most closely connected with its tenants.

**Dermody:** In the industrial space, the ability to integrate fully and competently into the overall supply chain is becoming and will become critical as we go forward. It will become critical for pure product, the basic operation of the supply chain, the efficiency of the supply chain, and all the other considerations that we're now thinking about when we talk about climate aspects and elements of that nature.

**Faraudo:** For this episode, I was lucky enough to talk to a woman who has a long history of helping big companies craft the digital strategy, and now she's doing so for one of the biggest logistical landlords in the world.

**Miao Song:** My name is Miao Song. My current role is Global Chief Information Officer of GLP.

**Faraudo:** GLP is based in Singapore and has a network of logistical real estate that stretches to 17 countries around the globe. They have around a whopping \$90 billion currently under management. And this is after they sold their U.S. logistical network to Blackstone last year for \$18.7 billion in what was reported to be the biggest private real estate deal in history. Miao is relatively new to the company and to real estate in general. But her previous roles have made her a sought-after asset for a company going through a wholesale digital transformation.

**Song:** [Prior to this,] I've worked in different companies, including Johnson & Johnson as their Chief Information Officer for Asia-Pacific. Prior to J&J, I worked in oil and gas at Shell for more than 14 years. I've been working and living in more than five countries in the last 20 years and taking on regional roles and global roles primarily in supply chain technology, data, and digital areas.

**Faraudo:** Digital transformations do not work when they're done piecemeal. They need to integrate the data layer that is being created into the very being of the company. Decisions about the strategic direction of a company need to be made based on insights being generated by a company's information systems. Finding the best way to interpret the information that a company gets from their data means figuring out what you are optimizing for. That leads to a larger, almost philosophical discussion about what a company is and what it does, and whether short-term revenue is the variable that needs to be optimized for after all.

**Song:** From a customer perspective, digital transformation really means, enhance the customer experiences and make sure that we understand customer better, either from understanding of the customer insights or create more value-added services for the customer. I think it's not purely, say, Hey, we just add revenue. I think it's really around, improve and enhance the whole experience. And I think digital and data play a key role in that, for example, create some value-added services through some digital apps so the customer can use those apps to manage their day-to-day operations in some of our parks. These are to me our value-added additional services.

**Faraudo:** Having a central data strategy is important. But any time a company operates in as many countries as GLP does, they need to be able to create a system flexible and responsive enough to tailor data collection to the changing landscape of private and security concerns. Different data collection rules for each country or even state can limit what can be done with the data and can dictate how it needs to be stored.

**Song:** Each country probably has their own data privacy law or data security law. The first thing is to be compliant, because it's important as a licensed operating in those countries. Understanding the consequences and implications of those regulations and laws is super important. That's the first part. The second one is that based on those requirements, we have structural infrastructure, whether it's on cloud or it's on premise. We want to make sure that data we collected are safely stored in our infrastructure, with the right data encryption, data protection, to make sure there's no noncompliance issues

in our organization. So for example, I know in China now it's more, the Chinese government is issuing the security law, the data security law for November 1, the new one, there will be some consequences around how you collect personal data, etc. So we will have to be fully compliant with the new regulation. So it's quite sensitive for us, and therefore we are putting more focus and effort to understand the consequences of that well, but also make sure from an architectural design perspective data is stored safely and in a compliant fashion.

**Faraudo:** What other services a property company can provide is something central to how Miao plans to integrate data into GLP's digital transformation. One of these is already emerging around understanding sustainability. Companies that want better insights on how to reduce their carbon footprint are often able to benefit from logistics parks that have sensors monitoring CO2.

**Song:** For example, we build out into smart buildings or smart parks on a daily basis. You know, just actively collect and monitor information including the IoT devices, sensors, etc., in the parks, including the information of energy consumption, including data of traffic, etc., to our parks. But these are just some of the data, right? There are more where we haven't even captured. Leveraging this data to generate insight will help the customer experience.

**Faraudo:** All buildings have data about their occupants that they likely don't even know about themselves. This creates an opportunity for the real estate industry. Logistical real estate has an even greater ability to help its users. Understanding how best to deal with the almost incomprehensible flow of people, vehicles, and goods that pass through a logistical warehouse can only be done with the help of the property's management. The need for this kind of additional service is only heightened now that the entire supply chain has been strained to the limit in the aftermath of the pandemic.

**Song:** The other area will be traffic, through traffic monitoring but also collecting data on traffic, and eventually we'll be able to predict the traffic. And then based on that information, there are many opportunities, for example, provide recommendations to optimize the route and also the customer delivery. So for example, if we were able to help the customers optimize their traffic route, eventually we should be able to reduce the consumption of energy of the logistics, and then that will indirectly help them to achieve their ESG target.

**Faraudo:** Helping customers become better organizations is something that Miao thinks that every landlord should be focused on. Traditionally that has meant helping tenants save money. But now the new focus on sustainability from global consumers has made integrating with customers' decision systems about a lot more than just cost savings.

**Song:** The consumers, younger consumers nowadays, when they purchase a product, they look at the packaging. They look at whether you have sustainable, recycled packaging. One of the things that is really a big problem at the moment is plastic packaging. And they look at this where if your product is not sustainable, if your product is not focused on longer-term sustainability goals, they will not buy this product. I think that's where I'm from. And the companies who are doing really well, focused on ESG, they do things very thoughtfully, they focus on longer-term strategy instead of short-term financial gains. They're willing to invest, and they're willing to work on the ESG initiatives seriously, as part of their strategy, as part of what they do on a daily basis.

**Faraudo:** In the end, any business decision comes down to involving understanding of what a company's purpose is. This purpose doesn't always have to be one of straight utility, either. From Miao's experience working with older companies, oftentimes a better long-term approach to understanding a company's purpose is more about what it does for people and for the world than what it can produce monetarily.

**Song:** Organizations I've worked for before, they all have a clear purpose. Actually, they don't talk about revenue in that purpose. They talk about why the company should either improve life quality of people, or contribute to the society. And for me, this is super important. I think only the purpose and vision ties people together to work for a great organization. I mean, it's not just saying, you know, Every company should change the world, but I think contribute to the society, connected to the society, is very important for a company. That's why I'm very passionate about this topic. And some companies are actually doing this very well. They don't just talk about the purpose to their stakeholders or shareholders, but they actually do a lot of work to actually contribute to the society and community.

**Faraudo:** On its surface, real estate is about selling space. One that doesn't need to have an introspective conversation around purpose like, say, a Johnson & Johnson would. But if you think about how important our buildings are to the way humanity utilizes its precious resources, you have to admit that in the long term, our properties are an important piece to the solution to our global challenges. Instead of thinking about every property company as just an entity designed to sell space, we need to have a bigger conversation around how to use space and how it integrates into our larger systems. When you start challenging the mindset of the pursuit of short-term profit overall, you can open yourself up to a much broader, more integrated view of where a company fits into the world, making for better strategic decisions and a better world as a whole.

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## Episode 7: Inclusive, with Lisa Harvey of the Spiritual Quotient

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**Franco Faraudo:** Hi, everybody. My name is Franco. I'm the editor of Propmodo. Thanks for listening to this podcast about smart buildings. In this series, I've been looking at eight different principles that we need to have for a building to be able to call itself smart. Here to help me understand these principles a little bit better is Vincent Dermody, who has spent much of his career crafting these frameworks around the way we think about buildings.

Hi, Vinny.

**Vincent Dermody:** Hi, Franco.

**Faraudo:** So today's episode is a particularly important principle, right, this idea of inclusion. And I think it's important to remember that, you know, inclusion actually is a little bit of a loaded word, right? We come into this with some preconceived notions about this idea of inclusion. But they're a little bit different when we think about what that means for a smart building.

**Dermody:** Yes, Franco. While most people think of inclusion, they think of racial diversity. And that is really an important aspect, but the idea of inclusion doesn't just stop there. When we think about how buildings should be designed for everybody, it should include everybody. We have to think about all of the ways that people can be unique. We have to think about people with different abilities and preferences. This is true for both digital and the physical layers of the building.

**Faraudo:** Yeah. And you know, since many companies are looking to their workspace to help kind of manifest their own corporate values of inclusion, it's vital that these ideas come through in their office building. That's the physical connection they have with a lot of their employees. So for this episode, I was able to talk to a change management expert that has helped companies and property firms reinvent themselves to better align with their goals, their market, and their mission.

**Lisa Harvey:** Hi, my name is Lisa Harvey. The last 20 years, I've led culture and capability transformation. For me, my passion is about leading people, and I've led global teams for the past 30 years. And I love being able to provide an environment for people to step in and thrive.

**Faraudo:** There's been a collision recently between workplace and HR departments in corporations as the business world is learning the importance of the physical office on employee health and well-being. It is this collision that created a vacuum for people like Lisa, eventually sucking her right in.

**Harvey:** I had been in an HR business partner role for about three years in an organization, and my director came to me and said, The workspace team are doing this project where we're looking to save 30% of our costs by going to activity-based working. Can you go

and meet the project team and make sure that they're aligning to our flexible work policy? And I went, Yeah, sure. Hadn't had any involvement with workplace. My mindset at that point in time was, you have a desk, you have a meeting room, you have your kitchen, and that's about it. And when I went into the room to meet the project team, they'd been told I was coming in to be the change lead, which is that I had a change background. And I said, Oh, no, I'm just here to talk to you about policy and making sure that you're aligning whatever you're doing design-wise to the policy. They said, No, no, they told us you knew the change. And I went away and thought about it, and I then thought, Yeah, okay, I'll give this a crack.

**Faraudo:** Coming from HR gave Lisa a unique view of how a workplace should benefit a company and its employees. But it also gave her an outsider's view of the office that led her to ask the difficult first principal question: Why do we need a workplace at all?

**Harvey:** We'd just come up with a workplace transformation, and we'd signed an agreement to lease for our new headquarters. Amazing location on Sydney Harbour, our design partner said it was the best in the world, blah, blah, blah. But instead of actually saying we're going to replicate the transformation we'd just come off the back of, or to evolve it, we asked the big question, what is the value of even having a common place to an organization? And so if you think about it, what we're scoping is, what's the value of place to an organization from an inclusion perspective?

**Faraudo:** Lisa was quick to point out that offices are not just important because of what they can do for the people working in them. They can also be seen as a vital part of the profitability and sustainability of a corporation.

**Harvey:** Place is an organization's visual, physical, and tangible demonstration and differentiation of its brand. It's where people can embody and feel the culture. And if you think about it, it's where the collective come together. And so if I'm a team of 10, I, sometimes, if I'm virtual, all I'm going to feel like is I'm part of a team of 10. If I come to a place that encompasses three and a half thousand people of my organization, I'm all of a sudden going to feel like I have a sense of belonging to something that's much far greater than myself, which once again deepens that sense of belonging.

**Faraudo:** There are a lot of similarities between creating corporate policies and designing a building. Both require someone to think long and hard about not just how they will function, but how they will make people feel.

**Harvey:** What we design, we design place and humans. What's similar to organizations is that you have humans arriving to your workplace. And once again, it comes back to, how do you want them to feel, what do you want them to think, how do you want them to act? Where it becomes unique for organizations is the nature of their business. So, who's their client? And how do they actually connect and engage with their client? Is it in their place of business? Or is it in another place? Or is it virtually? What is the nature of their business? What is the nature of their workforce? What is the nature of the work they do? That will all then determine what the value of the workplace is to that organization.

**Faraudo:** Workplace design seems to keep reinventing itself. Offices were communal, then private, then open. And who can forget the rise and fall of the practical but uninspiring cubicle? Office layout seems to adapt to the new ways that work gets done, and to conform to the cultural norms of the time. Now we are in an era where diversity and

inclusion are at the forefront of our collective identity. That means that it needs to take a much bigger role in the parameters of the workplace. Lisa thinks that for this to happen, there needs to be a larger place for change management experts like herself.

**Harvey:** Design has come so far in the last 20 years. There's been a drive around enabling workplace practices, workplace culture, workplace connectivity. What we need to do is, design needs to still stay at the forefront, but the power shift needs to move to change management. And the reason why I say that is, people need to be educated and understanding of the design of the workplace and how it's in service of getting the best out of them. But then when you look at it from a neurodiversity perspective, it's all about energy state. What is my current energy state? What do I need that energy state to be to get the best out of me? And what spaces are going to support me to do that? At the moment, what we tend to do is, we exist in spaces. We turn up to a space and we might collaborate, but does that space actually get the best energy state from us? Does it give our best energy state? And so what I would be hoping is, if we educate individuals and leaders to say, Okay, this is how I'm feeling right now – Am I overwhelmed? Am I overstimulated? And what does my energy state need to be? And what spaces and/or actions on my part will help me get to that energy state, and I can do that with dignity for myself? And so if we can actually get people to be moving and flowing around space that's right for them, the nature of the work that they're doing, and the people they need to connect with, that creates that sense of safety, that sense of contribution, that sense of value, respect, and ultimately, that sense of belonging, which is all, that's all inclusion.

**Faraudo:** So Lisa and her team did what every good designer should do: They went step by step and thought about every possible way that their audience would interact with their product. This led them to classify which part of the workplace people were interacting with, and what the intentions of each point of interaction were.

**Harvey:** So in the first instance, what we're doing is, we're designing for the humans show up, and to evoke and shift emotion in service of performance advocacy, etc. The second thing we looked at designing for was the diversity of our people, and how do we design equitably for those people? So if you think about it, legislation takes care of some elements to do with the diversity of people that show up, and what I'm talking about here is people with disabilities. What we did was, from an experience perspective, we said, Okay, what are the moments that matter that we need to design for diversity, with the intent to remove friction and allow flow with safety, autonomy, and dignity? And the way we did that was we said, Okay, what's the particular moment that we're looking to design? And then, do we want that moment to be human-led, digitally led, or spatially led, and then supported by digital, human, or space? I'll give an example in a tick. To help guide us whenever we make those decisions, we actually looked to the experience vision that we created, which was in service of the noble purpose of that company, the brand and culture of that company, the principles of that company. So that was always our guide. And I'll give you – this is a really simple example, but if you think about ensuring that you're catering to diversity to create that sense of inclusion, we looked at our arrival experience. Did we want our arrival experience to be human-led or digitally led? i.e., you can actually come in, you've got a token on your phone, you can click in, and you can walk through. And yes, it's seamless, and it's frictionless, but is that the experience? i.e., What's the emotion we wanted people to have on arriving? And in this particular organization, their noble purpose was all about help. And it was all about the human element of help. And so what we did was, we said, No, for every person that's arriving into our organization, to set them off for the day, we wanted the arrival

experience to be human-led, and supported by digital to ensure it's frictionless and to enable flow.

**Faraudo:** Safety, contribution, value, respect. All of these things are critical to trust. And all of them are a by-product of inclusion. There's an altruistic aspect of creating an inclusive workplace. After all, who wants someone not to feel safe, valued, or respected at their job? But again, Lisa was quick to point out that organizations exist only thanks to the people working in them. So what is good for the people is good for the organization as a whole.

**Harvey:** From an inclusion perspective, there is a business imperative and a social responsibility. So from a business imperative, the fastest way to build relationships, trust, respect, and navigate conflict is face-to-face. If you have connection, trust, and respect, that helps create a sense of safety, confidence, and belonging. And until I can physically feel your energy through a screen or a hologram, physical connection will trump virtual for speed and effectiveness. Then the second point is, if we think about the incredible speed at which technology is advancing and changing how we live, it's crucial we understand the impact on how we work. And our ability to adapt is going to be critical. And so people and teams need to mobilize and organize quickly, they need to transfer tacit knowledge, they need to network and build relationships. And particularly trust to collaborate, to be able to innovate and change. So once again, workplace is not the only place where it can occur, but it's going to be the fastest and most effective way.

**Faraudo:** As we said earlier, talking about inclusion can be tricky. The term takes on a new meaning for almost everyone. What Lisa wanted to talk about, rather than trying to define the term, was the outcome of an inclusive environment, and why it can help people be both happier and better at their jobs.

**Harvey:** In an inclusive environment, or when inclusion occurs, I would expect to hear things like, I feel safe to show up as myself. I feel seen. I feel safe to speak my mind. I feel heard. I feel respected. I feel valued. I feel a sense of belonging within this collective and/or community. And so inclusion is an outcome, and it happens at the point of human connection and/or congregation. And that's why we'll get on to place being so important to inclusion. And inclusion is a really hot topic at the moment because of its value. And so its value to an organization – if you have an inclusive environment, it's in service of engagement, loyalty, advocacy, and ultimately business performance. If you combine that then with diversity, that leads to innovation, growth, and profitability. The value of inclusion to a community is, it's in service of its mental and emotional well-being. And if you have that in a community, that in turn in its ability to grow and thrive. And for me, I'm really passionate at the moment about this because we know globally we are facing into a mental health crisis. And so we need to look at interventions and constructs that actually support inclusion.

**Faraudo:** Companies should be able to find value in all types of people. For the same reason, workplaces should be designed for all different types of people. Inclusion is having its moment culturally, and rightfully so. Our physical environment has to strive for the same level of inclusivity that we want from our organizations. For this to happen, the gap between the teams that think about the people in an organization and the teams that think about the building needs to be bridged. It will take a lot more bridge builders like Lisa to ensure that this happens.

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## Episode 8: Intuitive, with Alana Collins of Zoom

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**Franco Faraudo:** Hi, everybody. My name is Franco. I'm the editor of Propmodo. Thanks for listening to this podcast about smart buildings, where I look at the eight principles that it takes to make a building intelligent. With me always as my co-pilot on this, Vincent Dermody.

Hi, Vincent.

**Vincent Dermody:** Hi, Franco. Excited for this one.

**Faraudo:** Me too, Vinny. You know, when you think of the things that it takes to make a building smart, some of them are so straightforward. There's intelligence, there's kind of the innovation behind it. But this idea of an intuitive building, something we're gonna talk about today, is a little bit outside of that, right? And so, I wanted to ask you, as one of the people that has thought about this, why do you think it's important for buildings to be intuitive?

**Dermody:** Well, Franco, we have to remember that how smart a building is depends on how well it functions for the users. So having a really smart building that no one can figure out how to use doesn't really help anybody. So it's important that a building retains certain similarities and continuity in how we expect it to work.

**Faraudo:** Yeah, absolutely. I mean, I know this concept of an intuitive design is really big in the product development, in the software world, right? Something that technologists think about a lot. But you know, it's a tough one to get, because what is intuitive to one person is not necessarily intuitive to another.

**Dermody:** True. We all have our own expectations of what a building should look and feel like. But to understand intuition and the intuitive, we have to actually start peeling back the different levels of human cognition and getting to that base layer of the fundamentals and knowing the people and knowing how they're going to interact. That often takes a lot of research, but it also takes a bit of just human understanding and a bit of interaction, to just get a sense of how somebody will interact. So while you may use data and you should use data, it's often so important just to observe people interacting and actually draw from that.

**Faraudo:** Yeah. For this episode, to help me understand how we can make our building, something that is very rigid, more intuitive, I spoke to an unlikely champion of the workplace.

**Alana Collins:** Hi, my name is Alana Collins. I'm head of real estate and workplace at Zoom.

**Faraudo:** You would not be alone to think it a bit peculiar that Zoom, a company synonymous with the pandemic-induced switch to working from home, would be a company that is embracing the value of the office. But you have to remember that Zoom is a company

that was an early adopter to the hybrid workforce and distributed teams. That means that they were able to embrace the value of an office long before they were locked out of theirs.

**Collins:** We still see ourselves as a hybrid company. I think right when the pandemic started, I think we were all kind of like, Oh, my gosh, when are we going to go back to the office? We quickly shifted that mentality to, Wow, when the office opens, that will be really great as a place to go and come together. Right? It wasn't that that was the place to go to work. We believe that – I mean, I'm speaking for myself, but I've been at the company for almost four years now – the leadership really see our technology as a way to have a hybrid experience. And we're going to embrace that. And our customers want to see how we're doing that in a hybrid way. And we hope to be kind of one of the trendsetters in that, in really showcasing how you can be successful in a hybrid approach. And that's where that dynamic – I just keep going back to the word "dynamic." I think the world is dynamic, I think work is dynamic. But I think we have to create a dynamic space to bring people together.

**Faraudo:** When you think about intuitive products, there have been few that have had to fulfill that promise more than video chat. During the pandemic, everyone from toddlers to grandparents, Luddite to technophile, has had to figure out how to use video conferencing software. Zoom had to make that transition with us, updating their product feverishly to try to make even the least tech-savvy of us happy. It is that experience that they hope to bring to the next iteration of their product, becoming a platform for all work, remote and in person.

**Collins:** We've had a tagline for many years, and it's "It just works." And I think, you know, now you've found that, you know, your grandmothers, your great-great-grandmother, have been able to use this platform. And I think even children can open a Zoom gear box and build that and have it working within I think 15 minutes. So our company has always been, you know, it needs to be simple, it needs to work, and it needs to be easy for the customer to navigate. We're trying to move toward being a platform, of course, not just video communications, but you know, I think we're going to approach even the platform aspect in that way. It just works. It needs to be easy, simple, and accessible to all.

**Faraudo:** Zoom actually sees themselves as more than just a video conferencing tool. Instead, they think that they can act as a hub for the workplace, because the idea of a workplace has now evolved to mean just about anywhere.

**Collins:** I've heard a lot of people kind of say to me, like, Zoom is now our HQ. And it is in a lot of ways. And, you know, I think what it's going to do is, I think it's going to be able to help people design their lifestyle for what suits them. I think that you're always going to need a place to come together and bring teams together, but there's different aspects of people's lives, whether it be a pandemic or children or location-specific. We're hiring people in amazing markets right now, we're hiring the best talent in any market. And Zoom has empowered that. And yes, I think the face-to-face is great, but it also lends itself to really helping people design their lifestyle. Before the pandemic, Zoom was really a culture of being in the office. And I think we've even learned from this the power of the tool and the power of how we can still be an inclusive company, even when we're spread out all over the world.

**Faraudo:** So when Zoom set out to design their own offices, many of them knew to accommodate for their massive growth. They did so with the understanding that they would be used as a place to assist a hybrid workforce.

**Collins:** During the whole pandemic, you know, I think it's tough, right? People had to get adjusted. Managers had to understand. And we're all doing it now, right? So we're all still remote. So it's working, right? We've all gotten very comfortable. I think where the real challenge and the real experimentation comes in is when we do fully go hybrid. Some people – we're going to have three modern workstyles. There's going to be in person, and that's probably more like a professional on my team where you are there to support the infrastructure of the business and support the individuals that are coming in. Then there's going to be the hybrid that will be, you know, maybe working from home a couple of days a week and then office. And then there's going to be the folks that were probably already brought on as remote nor near one of our Zoom locations in a reasonable commuting distance. So there's gonna be three different modern, dynamic work styles.

**Faraudo:** To help make their offices more intuitive, they designed them to have much more choices than they did before. So there's something for everybody, no matter where you are.

**Collins:** So I think we're gonna lean towards about 20% of desking space. Before it was a one-to-one ratio. So we're leaning more towards a 20% kind of fixed desk, but we also are going to do very different types of offerings on each desk, where we'll have some desks that will be fully open with no monitors, no screens, and maybe some moveable whiteboards near it so that it's more of a kind of high-top huddle environment. We're going to have some quiet pods that will be dedicated to really heads-down. And then we'll have, of course, the Zoom Room, which is very important. Different sizes, different shapes, from lounges to – you know, I think you almost look at it as kind of walking into, you know, a really cool hotel experience and going, Okay, well, that couch looks good, but I kind of need to work over here today, or I'm definitely going to need a monitor, so I'm going to go over here. And I think we want to give folks different types of options. But we've kind of set it to where it's approximately 20% fixed desks, 20% more mobile experiences – whether it's on wheels or rolling whiteboards or movable furniture like soft furnishings – and then of course our 50% will be the Zoom Rooms, and then probably 10% more of large, all-hands, kitchen environment.

**Faraudo:** Zoom is a software company, so they have feedback loops ingrained into their anatomy. Rather than just designing new offices, they have chosen to run three different proofs of concepts at different locations: Denver, London, and Amsterdam. What they will learn from the way office workers return to each location will help them understand the design of the office and further tailor it to what workers want. That analysis is done with actual usage data, employee surveys, and by talking to the onsite manager that have an intuitive understanding of what is happening in the space that might not be represented in the data alone. Alana expects that what they will learn will vary depending on each location, since each building is so unique.

**Collins:** I think each market's going to be very different. And that's why we're trying to hone in and do a proof of concept in each market, to really learn. I think San Jose is probably, you know, it will always be the nearest and dearest. We took on those spaces a floor at a time across several years. So each year as we grew as a company, the design standards changed a little bit. We learned more about our technology. Each new floor

had something bigger, better, or we'd done away with things that didn't work on other floors. So I can even say this new world or this new reality that we're living in, it's not very different than design and construction involvement as you grow at a fast rate at a company like Zoom. It's always been dynamic, we've always been learning from our design. So I think if we stick with that mentality of, it's a proof of concept and we're gonna listen to our employees, we're going to listen to our customers, and we really want to see the proof.

**Faraudo:** One of the barriers to making hybrid work intuitive is that the new way we work is not intuitive at all. We all have a sense that a hybrid meeting is a bit less free-flowing than an in-person one. So Alana and her team have set out to try to make hybrid work feel at least a bit more familiar.

**Collins:** I think it comes natural. You just want to get right to business, right? You want to get on the Zoom meeting and you want to go, Okay, so we're here for this. I always start a meeting with – and I tend to interrupt people, because they'll dive right in – and I'll just say, Hey, how is everybody doing today? How was your weekend? And it's really important, because you would do that in person, right? And now, some of us may be in the office and have already had that conversation before they walked into the meeting room. So I really, really always will try and lead a conversation with, How is everybody doing? And you know, sometimes even complimenting people on, Ooh, that color looks great on you, even though you're on Zoom. You know, make it more humanized, I think, is really important. And I think that's another thing that just popped in my head when we were talking about food service, I think, you know, there's gonna be some teams that can't sit across from each other, and really coming up with some really creative ways to have team lunches, even on Zoom, where some people are in the room and they have lunch and perhaps they get a budget around, you know, Hey, I'm gonna host a lunch and learn today, please use \$15, expense \$15, to buy your lunch today, or DoorDash it. My team and I have done that numerous times. But I think really integrating that into a lunch and learn or a team meeting at lunchtime, so everybody can break bread together, even though you're remote, just humanizing it a little bit, I think, is really important.

**Faraudo:** One of the things that Alana has learned from her surveys around what people want from their office is that one of the most intuitive activities, eating, still ranks really high. This might have to do with the nature of socialization. We may not intuitively know how to connect with people remotely, but if you put us at a shared table with some good food, we all know exactly what to do. For that reason, she sees food playing a big role in the workplace going forward.

**Collins:** You'd be surprised at our survey results, that food almost beat out the use of the Zoom Rooms technology. And that's how much people love coming together and breaking bread together. It was phenomenal. We were really shocked by that. Zoom has always been very food-centric. And I was worried when the pandemic hit, I was like, Oh my gosh, all the little bins we used to have and people used to steal, but I don't think we'll ever have those again. And I think now we can get really creative with it. It may be pre-packaged in the beginning, but I think we will get to a place where people feel comfortable. If they're comfortable going to a restaurant and being served, they will probably warm up to the idea once they start doing it, being served in the office as well.

**Faraudo:** Humans are varied and complicated. It is a lot to ask of a building to be intuitive to all of us. But that doesn't stop us from asking anyways. When technology gets complicated

and hard to use, people are vocal about it. So in order to be more intuitive, workspaces will need to do their best to learn from us. That means looking at how we actually interact with the space and trying to decipher how we want technology to fit into our lives. It also means finding ways to bring familiarity to an unfamiliar hybrid work world, whether that means personalizing our spaces, changing the way we conduct our meetings, or finding a time to break bread with each other.

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## Episode 9: Involved, with Joanna Frank of the Center for Active Design

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**Franco Faraudo:** Hello, everyone. I'm Franco. I'm the editor of Propmodo, and welcome to my podcast. Today we're going to be talking about smart buildings. Great topic. Particularly we talk about the principles that it means to make a building smart. And here with me, as always, is my co-host, Vincent Dermody.

Hi, Vinny.

**Vincent Dermody:** Hi Franco, it's great to be here.

**Faraudo:** Yeah, great to have you. The principle we're gonna talk about today is a little bit outside of what you would think it means to make a building smart. It's about a building being involved, right? And I think this concept that buildings need to be involved both with their occupants and with the world at large is really fascinating. And it really gets to the heart of what it means for a property to be valuable, to have value.

**Dermody:** It's interesting because in our quest to calculate building value, we've typically looked at the financial metrics and space metrics. But what we really need to start considering is the true value of the building to the people and how useful it is to them and the actual enterprises that depend upon those buildings. And then beyond that, the actual precincts and the areas in which it actually exists. And it's not just about the business functionality, it's also about its environment, how contributes to well-being in the sense of the people and the purpose, and all of this sort of mind to the levels of sustainability focus and social consciousness that is becoming part of what we do at the moment.

**Faraudo:** Yeah, and I think it's really interesting because there's some connections here between, you know, obviously we understand that buildings should be valuable for their tenant, for their occupant, for their user, but there's certain connection between how doing right by the world, doing right by all of us, also affects the tenant, right? And so when it comes to office buildings, for example, you know, workers today, they really want to know that they're working for a company that is socially conscious, that oftentimes kind of comes down to how the building is, how the workplace is. And even still the connections between healthy, sustainable, socially involved buildings and the more traditional idea of value in real estate can be a bit removed in the minds of the industry.

**Dermody:** There is certainly an altruistic aspect to this at the moment, but other than the past, things that start as high principle become a fundamental characteristic that's expected as time goes on. And more and more tenants are expecting this kind of involvement. They're asking the questions about not just about space, but how does it fit and how does it feel? Employees will ask [more from their workplaces] in the post-pandemic era, it's going to become more and more relevant, and it's going to become more relevant faster.

**Faraudo:** Yeah. And I think when it comes to efficiency, to energy efficiency, that's very easy to track, right? We have good metrics for that. But when it comes to something like involvement, it's a little bit fuzzier. It's a little bit harder to understand what's going on. And luckily, for this episode, I was able to talk to someone who's doing exactly that, who is trying to bring some sort of metric to this idea of involvement for buildings.

**Joanna Frank:** Hi, my name is Joanna Frank. I'm the president and CEO of the Center for Active Design. We are the operator of the Fitwel healthy building certification program.

**Faraudo:** Fitwel is a certification that quantifies health impacts of a building's design. They use data to try to understand not only what can be done to improve buildings, but what can be done to improve their impact on human health.

**Frank:** We really look at the research that we're looking at public health research, and translating the research into the strategies that really inform how to design and operate buildings and neighborhoods. So it's all about the people. And when you really think about, how do I create places for people, obviously, you have to think about all people. The motto of Fitwel is actually building health for all, because that is the point, right? We could create one splendid building that was perfect and impact, you know, 1,000 people, and it really wouldn't make a difference to health outcomes. So our mission and our goal as a business is really to bring about market transformation around health. So in order to bring about market transformation, it's really like, how do you ensure that health is always part of the decision-making when it comes to investing in our built environment, in our infrastructure, in our buildings, and really creating spaces where people can thrive? We really need to be looking at all assets and all neighborhoods, because if we can really kind of raise the base for all buildings, it will actually have a far greater impact on health than taking buildings that are already in the 99th percentile and making them better. That's not actually achieving very much when it comes to health.

**Faraudo:** Health impact has been an important criteria for buildings forever. In the last two years, it's been front and center to just about every aspect of our lives. This new interest on how buildings can contribute to our health will likely last long after the pandemic ends.

**Frank:** The role of an occupant in a building has really evolved because of COVID. This is something that we've heard from investors, that they as investors in portfolio buildings, investors in assets where they were pre-COVID, they were really thinking about building, and they certainly weren't thinking about the individuals within that building. So they were thinking portfolio, they were thinking the assets within a portfolio, but not about the individuals. And because of COVID and because of the impact that COVID has had on occupancy rates, where people have stopped going to their offices, individuals have used their power of staying at home to really kind of change the market, where now investors, global investors, are telling us that for the first time they are really thinking about that they have to address the demands and the needs of the occupants, because it has a direct correlation with the overall financial performance of their assets and their portfolio of assets. That's a huge shift, because when you start thinking about the individuals in a building, then obviously you start thinking about health. Because when health, as we describe it, it's holistic health. So it's really creating places that people thrive in. It's about physical health and mental health as well as social health. This isn't about not getting sick. This is about creating places that are optimized for people.

**Faraudo:** While Joanna's mission is about helping buildings create healthier environments for people, she realizes that she has to take a holistic view of what the impact of every action is. In fact, there are instances where optimizing for the immediate health of occupants can be at odds with the long-term health of the larger environment.

**Frank:** There's a little bit of tension between health and sustainability. And you really need to look at it as a system, as a whole system. So just an example would be, if you are in an environment that has poor outdoor air quality, that is obviously detrimental to health. If you breathe in high levels for particulate matter, you actually have a higher risk of dying from COVID, as well as a lot of other issues. So, outdoor air quality is poor because of climate change and because of putting a lot of pollutants into the air from our heating systems, or car exhaust, all of these things, then you're going to have a higher level of filtration within the building in order to create the optimum air quality within a building. But by increasing the filtration that you have to use in order to create that good-quality or high-quality indoor air, you are using more energy. You know, this is where you really need to be thinking, we all need to be thinking in this industry, holistically. We really need to be thinking about the full system of how we affect human health, and then how, by creating environments that are optimized for people, how we don't get stuck into one of these kind of vicious cycles, which is what I just kind of described.

**Faraudo:** It's easy to think that if you're in real estate, then your job only pertains to what happens inside a building. But Joanna thinks that this isn't the case at all. Buildings are only as good as the neighborhoods that they're in. And evidence suggests that changing how buildings interact with the world around them can significantly improve nearly everything and everyone they touch.

**Frank:** Every building is actually creating that larger neighborhood or that larger built environment. And as such, it is affecting the health of the community at large, because it's creating the places that we live and work in. So your willingness to walk down the street is really affected by your built environment. You are much more likely to walk down a street that has a lot of visual interest at the ground floor. So you can see into windows, you can see what's going on. We get bored really quickly as a species. So you can create visual interest at the ground floor. The amount of lighting on a street also greatly affects people's willingness to walk down that street, their perceptions of safety. Having street furniture, like benches and so on that you could provide as a landlord or as the building owner, will actually increase the likelihood of people to walk ... Which sounds counterintuitive, but it is actually true. Having plantings as well, so access to nature, there's just no downside to access to nature. So having street trees, having planting strips, really thinking about creating an environment that has a lot of nature in it. And obviously that extends out into the public realm.

**Faraudo:** It's not just enough for buildings to be involved with only a small group of people. As Joanna said, for buildings to have the largest benefit to us, building designers, owners, and managers need to think about how they affect all of us. That means taking into consideration almost every way that a building is involved directly or indirectly in people's lives.

**Frank:** Are you creating a built environment that is universally accessible? Are you creating walking paths and so on for the public that everybody can use? And other design for that universal accessibility. It's really kind of a two-way. You want to put your building, you want your employees want to be within a tribe and community. We know that from the

statistics. So it's actually in your interest to create an environment that supports the surrounding community. And then the community obviously directly is impacted by your building. What kind of streetscape are you creating? Are you putting in bike paths when you're doing large-scale developments? Are you hiring from the local workforce? Are you ensuring that there's a mix of income levels supported by the pricing strategy of your property? So really, the built environment isn't a building, right? It's the collection of buildings. So yes, there are individual buildings, but collectively they make up our built environment and the way we experience the places that we live and work.

**Faraudo:** There are plenty of good reasons for buildings to think about their surroundings. Improving the lives of people that live and work in a building is certainly something most can get behind. But it's important to remember that there are very well-researched financial reasons to do so as well.

**Frank:** So the location of your building is pretty much the single most important aspect of the value of your building, especially for residential, but some for commercial as well. So, what are some of the things that are so important about the community at large? So, access to well-maintained public spaces. Every foot that you're closer to a well-maintained park increases the value of your property. [Laughs.] There's a lot of studies around this, up to about a block or so. But you know, proximity to well-maintained outdoor space. Whether you're providing it as the building owner, right – so you can provide publicly accessible outdoor spaces – or whether you are locating your building near a public park and then maybe you're helping to maintain it. So that has a direct correlation and a very well-documented correlation with increased value. Another thing that has total correlation with increased value is walkability. So the higher your walk score, which is kind of one of the metrics we use, but really the higher the walkability of where you are, so all those things I said, street trees, street furniture, the actual size blocks, you can't really affect that, but proximity to transit, proximity to parks, the outdoor spaces that you're creating with your building, all of these things factor into Walk Score. Walk Score, actually, if you go into Walk Score, you can see by city, by neighborhood, you can see the increase in value, and it's a lot of money. So the higher the Walk Score, the higher the value of that property.

**Faraudo:** Part of the difficulty in trying to improve the way the buildings are involved in our lives is trying to figure out a good standard by which to judge our efforts. The growing corporate focus on ESG has given us some criteria for evaluating sustainable practices. But they also need to be placed into a more narrow context of the built world.

**Frank:** When you promote health of people, how do you then translate that into environmental, social, and governance metrics? So it's not a one-to-one correlation. You can't say public health metrics are ESG metrics. But by promoting health – and many of the strategies that are in Fitwel that are evidence-based, that they promote health, there is evidence that shows that they also correlate with ESG metrics that are being used in the industry right now. So we know that there's a correlation between your Fitwel score and tenant satisfaction, for example. Tenant satisfaction is something that folks are beginning to look at as far as ESG metrics. Other ESG metrics are directly health metrics, so indoor air quality. So there's a metric that we measure, and it's already being recognized for ESG.

**Faraudo:** One of the big changes that Joanna has seen in the investment world when it comes to healthier, more involved buildings is that now investors are starting to understand ESG efforts to be less about marketing and more about risk reduction.

**Frank:** As global financial institutions start to assess health as a risk, they obviously want to create environments that are optimized to promote health in order to mitigate that risk, in order to reduce the risk. So that's the game-changer, because health has gone from a nice-to-have pre-COVID, where once you've dealt with sustainability and looked at other social aspects, then you look at health in order to further differentiate your portfolio asset. But it certainly wasn't seen as a necessity. But now with COVID and with investors and everybody really understanding that promoting health is essential for occupancy and businesses to be successful, it's a game-changer that it's moved into the risk category.

**Faraudo:** When you think about how much time the average person spends indoors, it's no wonder that the way our buildings perform has a profound impact on our health. Buildings have always been involved with almost every aspect of our lives. But now we are finally starting to realize that this involvement is the responsibility of the buildings, not the occupant. A shift in thinking by the property industry from being completely focused on short-term financial outcomes to now considering other factors like environmental impact and social responsibility will not happen overnight. But if we want to make buildings truly smart, the shift will have to happen eventually. Hopefully soon, the property industry will be able to come to the realization that what is good for the people in and around a building is also good for the building itself.

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