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Paul Thies: In the realm of building management, safety of tenants is of paramount importance. This has led to robust regulatory requirements to ensure that facilities, especially older facilities, are properly maintained and that complete digital records of upkeep are accessible. Through the advent of digital technology in this space, it has given rise to the concept of structures as living buildings, with building managers now able to track wear and tear with a much greater degree of visibility, and even anticipate potential structural problems before they occur.

Hello, I'm your host, Paul Thies, and on this episode of *If/When* we unpack the topic of data-enabled building management. My guests for this episode are Leighton Cardwell, Jacobs Sector Growth Director Cities and Places Europe, and Liza Jane Sapsford, Technical Director of Digital Products Jacobs. During this episode, Liza and Leighton talked about Jacobs' Track Record Facilities product, a web-based compliance management platform which enables our clients to deliver full compliance and condition assessment with evidence audit trails all at lower cost and risk.

All right. Liza and Leighton, thank you so much for joining me today. I'm looking forward to talking with you about the Jacobs' Track Record Facilities product in particular, and then just also how tools like this can help project planners, project managers be more efficient and more cost resourceful. Let me start. Liza, I'm going to ask you this question, and Leighton, it's also going to be a question for you as well, but we'll start with Liza. Can you tell me how is digital transformation and new emerging technologies upgrading the building of facility maintenance industry?

Liza Jane Sapsford: Good question. Buildings are becoming cleverer really. That's one of the key points is that with the use of sensors and live asset tracking, they're gaining the knowledge of how buildings actually are maintained in real-life situations, so what's actually going on in the day-to-day operations of a building, and that's helping change the industry. As new technology comes in, the designers at the design stage need to be aware of the ongoing use and how that actually operates and moves forward. Suddenly, the lifecycle from conception to building is suddenly essentially moving forward.

Paul: Leighton, let me ask you the same question. How is digital transformation and new emerging technologies upgrading the building of facility maintenance industry, and what's your viewpoint on that?

Leighton Cardwell: I think for me across, well, all markets at Jacobs, we're seeing a really strong drive for digital, we're seeing a drive for data and that's leading us to effectively our clients asking us how do we do this more efficiently, how can we do it more effectively and ultimately leading to data and evidence-led decision-making. I'd agree very much with Liza. I think we see this very much in the buildings and buildings management space, but I think we also see it in the data and data capture space.

How can we use technology beyond the building or within the building in terms of smart sensors, artificial intelligence, increasingly drones, and even some robotics

now to look at how do we capture data? It's really the integration of the two that I think really drives a lot of the thinking in the new emerging technologies in the space.

Paul: Liza, what are some of the main challenges that asset owners have to contend with or had to contend with, rather, prior to the advent of a tool like Track Record Facilities? What are the key problems that it solves and how does it differ from the competitors?

Liza: One of the biggest things is that building owners often relied on their supply chain to know their estate for them. This resulted in various data formats, and often only recorded at high-level detail and not granular. Over the years of working in the industry, I've been honest, and I've seen clients who didn't even know assets existed previously, until suddenly they identified during inspection. That's because they don't record it or historically recorded it at a level that they felt was necessary. They met an expectation within the industry, and as long as they recorded it, they felt that they had met those requirements. The reality is, as we move forward, that's not okay anymore, and that's why we're moving forward. The biggest aspect was not enough detail and too high level to be able to record that data.

How does it solve those key problems? The biggest thing is the solution brings it all into one place. One of the items that can be avoided in the industry is the fact that there are multiple systems across multiple requirements all coming out to different areas. How do they manage that? How do they move that forward? Now, what we're able to do is we're able to bring in contract assistance, facilities management assistance, in-house systems owned by the clients and collaborate it into one working space somewhere that's accessible for all.

Often systems are hardwired into the local space and therefore cannot be accessed by outsourced people. What Track Record Facilities does is it pulls all this data into one central repository that's simple and easy to use. It embraces openness, rather than closing down of data, and enables us to bring control back into the client that then removes duplication moving forward.

Then ultimately, how is that different to competitors? We're about evidence-based activity. We're not about meeting a KPI requirement on a contract and ticking a box to say, "We've delivered what we need to do, and we've moved that forward." It's about taking the evidence of the item, finding out what's happened, by who, what was the output and how have you followed that through. Have you mitigated what has taken place within the estate, and enable that to get you the best results for the operations of your buildings in real-time data?

Paul: Let's talk about real-time data for a moment and its ability to accelerate things. With Track Record Facilities, how does the on-site mobile data capture speed up inspections?

Liza: One of the biggest things that we've done over the last couple of years is our building surveying team within the business has enabled then the use of Track Record Facilities to actually record their inspection data, which they hadn't done previously.

Having old formats and some traditional, they would go out, a surveyor would attend the site, they were to take photos, they would make notes, they would then find the information that they need to, they would go back to the office and then they would spend a couple of weeks writing up all of the information, collating it, working out what photo that was for that place and then they would provide their recommendation to the customer.

Now, what's happened now is suddenly, through the use of mobile apps, we're able to collect the data, complete the inspection, take the photos and name them and categorize them there and then with GPS tracking, as well, so we can actually put a physical location to that information in the customer's building, and then as soon as they're synchronized with the Wi-Fi, they're able to upload it straight into Track Record. This suddenly means that data that was taking weeks and volume of information that was excessive to be able to manage is suddenly categorized, informative, and goes into Power BI, effectively to produce a report that is suddenly useful to the client in the sense of, they get what they need straightaway and it's live, instant, and they can see it happening there and then. They don't have to wait weeks to see that happen.

Paul: Picking up on this idea of getting what they need with some immediacy. Let me start with you Leighton on this question, but Liza, I also invite you to weigh in. Can you describe how tools like Track Record Facilities can help clients with regulatory and safety issues, they're very important, such as the Building Safety Act and the golden thread regulations?

Leighton: Sure, absolutely. I think that the first thing I'd say around this is that these are really, really important legislations. They're a step change in what we do in the UK and they've acted as a golden thread of what we do in this industry. I think because of the importance of them, we're then seeing a really sizable increase in the amount of work to meet the regulations, and also the complexity of data management required to meet them. That really leads us to Track Record Facilities and that connected to compliance. That's really what it's all about.

Ultimately, what the regulations mean, particularly from a golden threads point of view, is you got to do two things. The first is that you got to understand a building and keep it safe. That's a really key aspect of what the data and the compliance does, but then secondly, it's the accuracy, making it easily understandable and accessible by those who need it that really then firm up the second part of the requirements.

For me, it's having that golden thread. It's having the interlinkages between those two aspects that are really important for clients, really important for safety, and in meeting regulations. That's really what Track Record Facilities has been and designed to do.

Paul: Then, Liza, do you want to add any additional thoughts you want to weigh in on safety and regulatory issues and how it can help?

Liza: I think, yes, Leighton's covered a couple of really key points in there and the two that stand out for me that's changed this is ownership and digital records. That's the two biggest things that have come out of the fact that regardless of whether a

building owner outsources their estate to a third-party provider, the shift has been back to the building owner being ultimately responsible for the condition of that building and making sure that it's safe for people to be in. I think that's one of the biggest things around true ownership coming back forward has been really good with this regulation.

Then the second one is, we've been saying it for quite some time about digitizing their records and moving forward, and we've had clients who have moved away from a lot of paper base but this actually says that in there of you must have a digital record. They will not dictate how and what, but it must be digitized. That is a massive, significant shift forward in actually making it regulatory to move into the new industries.

Paul: That's interesting. It's interesting that they're somewhat agnostic in terms of the format, but they do want it digitized, which makes me think that they want it searchable. They want to be able to apply algorithms or something, a little machine learning or whatnot, to draw forth the data that they want, but let me ask you, Liza, what are the key industries that you're aiming for?

Liza: The reality is over the years, we work already in quite a number of industries, but what we are seeing is a high demand in three core areas, and that is predominantly the public sector. That sits in healthcare, which is quite a strong area for us in terms of healthcare, hospitals, community hospitals, and local areas, local governments. Buildings where the public are going into on a regular basis, and then central government where government employees are located and situated within the building. Really, again, coming back to the importance of public-facing buildings within the UK portfolio.

Paul: Then Leighton, are there any other adjacent industries that you might be working on?

Leighton: Yes, it's really then mapping into both new areas particularly high technology, advanced facilities, making sure that we are facilitating future improvements, and increasingly, this is becoming a platform towards a digital twin and operational efficiency and excellence of our buildings. That's very much a focus for us as well. Anywhere where there's a size of all portfolio, I think Track Record is really well facilitated to that portfolio approach. As Liza said, we're obviously working with a wide range of organizations at the moment, but particularly those who are looking for that programmatic single source of truth across multiple buildings and assets is where I think Track Record really then comes into its own.

Paul: Okay. Then, Leighton, let me ask you, talk to us about some of the challenges that local government clients face, that a solution such as Track Record Facilities can help solve for.

Leighton: Yes, thank you. I think there's several strands to this in talking with our clients. I think the first one that comes up quite a lot is just the ability to keep up with the regulations, to be able to keep up with a number of the changes and having a platform that can help you do that. I think secondly, it's also then around the size of budgets and team structure. There are a vast number of competing authorities, particularly with some of our local authorities and local government clients, and

ensuring that ultimately the platform here is not only efficient, and Liza has talked through some of the ways that it can drive efficiency, both from data capture and integration.

I think at Jacobs, we're really keen that these products act as a collaborative piece of software. They help and deliberately help teams break down silos, join together, create some different ways of working that are both hopefully improve safety but also efficiency as well. I think that's really important for me. I think the final aspect of this is then what we can do with the data and visualizations. Dashboards are all important, but I think I see two benefits and from the client side of this as well that are really coming to the fore. I think the first is around digitalization of workflows, so making things more efficient for downstream parties and contractors.

Also, particularly in local government, we are seeing a need in terms of the questions, not just, Leighton, how can you help drive some efficiency and make us do more with less. Also, how do we realize more value out of some of our assets? That's increasingly coming up in conversation as well. Well-managed, well-maintained, digitalized buildings, and approaches to them have a really positive impact on asset values and valuations. I think that benefit of not just the cost side of things necessarily, but that benefit is also coming through quite a lot in conversations, particularly as portfolios interlink to cross governments and then a city space.

We don't just work with the NHS. We might be working with the local council with a range of other organizations and bringing it into that more integrated ecosystem is, I think, something where Track Record Facilities can really help. Some of those adjacents actually unlock additional asset values and asset lives for organizations, which is really important on the benefits side of the equation and not just that efficiency part as well.

Paul: Okay. Then, Liza, let's flip the script a little bit. Let's talk about the communities that are beneficiaries of the buildings that the government entities are managing. Can you talk to us a little bit about how this new legislation benefits communities directly?

Liza: I think one of the biggest things to recognize is that the UK did sustain a significant strategy and it has woken up how things have been done. I think one of the biggest things that has come out of it is every person has a right to live and work in a safe environment that they know is sustainable. I think one of the biggest things around the change is the recognition from not just maintaining a building, but actually who's going into that building? What is its use? Why is it doing what it's doing? Making sure it's impacting those individuals.

A couple of key things that's come out to the golden principles, it outlines a number of key aspects, and I think Leighton's touched on this already, but out of the 10 core principles, there are three that really stand out for me, that I think affect the community. One is about being accurate and trusted. The data is evidence-based, as we mentioned, and it's real, it's accurate data. It's there and it's visible. The next one, which really is powerful for it to be written down, residents feeling secure in their homes. That's one of the biggest things that's come out around the community

aspects of the highrise buildings, buildings classified of as risk, is that they now have and will have access to the data.

They'll be informed, they'll know, they'll be able to see that information, which is a big thing on that digital record. The third one that again stands out is culture change. The industry and the government have recognized that not every working practice is ideal. Some need to improve, others need to change. That's where they've set this out to enable the actual regulations to be an enabler in moving this forward and creating better ways of working and collaborative working that benefits everybody in the community overall.

Paul: That's very interesting. It makes me think for some reason like it's almost treating buildings in a way like there's an organic aspect to it. It's the life of the building. It's not-- Obviously, it's an inanimate object but keeping up with how it's performing, where potential bailers may come, it's like actually looking at it more as a living thing as opposed to just something we built and then we walk away from, and you're articulating the life of the people living in that building. It's an ecosystem almost.

Liza: Suddenly there's a thought process around not just bricks and mortar and how and design, it's actually who and where and what. As Leighton mentioned about different communities and different authorities coming together around local governments to healthcare, suddenly it's becoming more cohesive in that thought process as they move forward.

Paul: That's very smart. Now, Liza and Leighton, let me ask you this. Obviously, London is a global leader in artificial intelligence. It may be the smartest city on earth, I think I have actually seen lists where London is number one. Obviously, it's a very data-rich environment, it's one of the greatest cities on earth. It's got a lot going on for it. Using these data-rich tools like Track Record Facilities just make sense. My question is, can you import this or export this? Can you tell us how Track Record Facilities could be used across different geographies? Does it happen through a databases safety and compliance regulations across geographies? How's that work?

Liza: Track Record Facilities is one of four core products within the overall Track Record platform within the business. It already supports clients in many regions including Europe, the Americas, Middle East, Australia, and it has done for many years. It's 20-plus years and it's been utilized. The advantage of Track Record Facilities itself is the fact that it's highly configurable. It enables clients to tailor it to their needs. It's not a one stop shop off the shelf, you use it as it is, you can't do anything to it. Actually, it's designed to make it tailorable to the needs of the customer. The data is owned by the customer, and that's the importance of it is moving it forward.

What this enables us to do is to take a client, for example, Jacobs, who uses the product to manage their real estate. It enables the Americas, Canada, Europe, US, to all have their needs and their requirements in one place. That makes it one single source of truth to the business. It makes it a lot easier to move it forward. It adapts to the needs and makes it sure that you don't have to fit into a box to move forward and there's different needs and different regulations and different requirements within that that lay effectively.

Paul: Then, Leighton, coming off of that, can you talk about some anecdotes may be that you have with clients in different geographies? Any stories that might be worth sharing here?

Leighton: Yes, sure. Thank you. I think the first one to say is I live a fair distance away from London and a range of clients across the UK very much use this tool, use this product, and is at the center of a very smart, efficient, and future-proofed buildings compliance. I think across the UK, across Europe, we see this. I think the one I'd really focus though, and I think the genesis of Track Record and a lot of the products we develop at Jacobs is that you have to have the pedigree of understanding of the building, that these are tested, developed, and then used by many of our global clients as well.

I think it's that approach to many of our global clients and key brand names in the industry that allow us to over time build up a set of benchmarks, build up a set of approaches with these clients that absolutely says they can be tested across geographies and drive compliance, not as we're saying earlier, not just at one building or a set of buildings, but a portfolio.

That could be across the city, could be across the north of England where I live, it could be across London, or it could be a portfolio across the globe. It really doesn't matter that that scale is really dependent on the client and their requirements rather than the functionality of the software so to speak.

Paul: That's great. I'm sure you're picking up best-demonstrated practices constantly from different buildings, different building manufacture, different regulations, different geographies, can then be used to inform efficiencies and other geographies and whatnot. My last question for you all, and this is for both of you is, what do you see? What's next for Track Record Facilities, and what are client's asking for? Let me start with you, Liza. What's on the horizon for Track Record Facilities?

Liza: A couple of key ones there. Again, I'll just, for those-- Track Record is owned in-house by Jacobs, so we develop it. That's one of the advantages of having that flexibility to be able to evolve to our Jacobs clients and what's going on in the industries. What this does is with it being a cloud-based system, as we just talked about, for the other aspects, is that we're listening to what's going on in the industry, we're making sure we're adapting, evolving, and remaining competitive.

The two things that stand out for us at the moment the focus is the continuation of the mobile apps. That point of digitizing the workflows for our customers and making sure that it creates efficiency, and puts all the information they need in the correct place, but continue to do that to enable mobile apps that work offline that enable people to work in areas where there's no signal, and then synchronize later, that creates efficiencies there.

Then the second one and the biggest one for me is around building information visualization, where we get things like BIM data that comes off from the design phase, and moving through to maintenance. It's a lot of data for people to digest. In reality, it's reams and volumes of information. It's a bit overwhelming. What would be really nice is if we could take that data, visualize it, and categorize it for clients in a better way, they can see it in plans, live in Track Record associated to their

geospatial location, and enable it to be better visualized for them moving forward to enable those different types of individuals that like heavy volume of data to those who just want to see a click of a button. That's the areas that we feel is the focus for our clients.

Paul: Then, Leighton, the same question for you, what do you see is next on the horizon for TRF, and what are your clients asking for?

Leighton: I think in terms of the clients ask, it's fairly consistent and fairly familiar around net zero and carbon and actually using Track Record to help clients and portfolios of buildings on that net zero journey of next couple of years is really where the conversation has gone. Track Record helps in a number of ways already. I think what we're really looking at as part of the next stage is really looking at this evidence and data-led approach to what are the best and most cost-effective ways of decarbonizing this particular building, or this particular set of assets from the broader toolkit of options that we have at Jacobs.

I think it's really focusing on not just the carbon values and the carbon data, but also homing that with the economics of that carbon transition, and ultimately trying to get our clients into a space of looking at whole life assessments. As you said earlier, these buildings are living breathing, they've been around for a long time, and actually, that whole life approach the data and tool can give us-- I think, provides a really sound basis for making decisions.

Then ultimately, Track Record and Track Record Facilities becomes an integrated digital platform with carbon outputs. That, hopefully, in time, we can then obviously, through use of the software, build up a database of a range of different types of buildings, and you start to then be able to benchmark your building or a particular type of building and say, what are some of the short and medium term interventions that seem to be working really well on these types of buildings to help our clients meet their decarbonization objectives in the same way that this already does from a safety point of view.

If we look forward with future carbon and net zero requirements, it's obviously very clear that they're instilled in regulations, and we have only a number of years to meet them. I think for me, that's where I can see this naturally morphing to and placing greater and greater emphasis on overtime.

Paul: Oh, fascinating. Liza and Leighton, thank you both so much for your time today. I really appreciate you walking us through, not just the Track Record Facilities tool itself, fascinating as it is, but also just unpacking this idea of living buildings, your buildings come to life and really how we, like Liza said, really focusing on the who and the what and the how, as well as the where. Thank you both so much for sharing your expertise with me today.

Liza: Thank you very much for having us. Appreciate it.

Leighton: A pleasure. Thank you.

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