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The Tech Revolution Hits Hard Assets

A summary of the Privcap expert webinar

▶ *Featuring*

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The Experts

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Institutional investors have poured trillions of dollars into investment strategies termed, variously, "real assets," "infrastructure," and "hard assets." The popularity of these strategies has to do with the perceived downside protection, counter-cyclicality, and predictable cash flow. Thanks to new technologies and business practices, these underlying assets can now be better assessed, monitored, and optimized. It is notable that otherwise mundane, old-fashioned assets like parking lots and pipelines are now turning up in business plans that might include the application of big data, data science, artificial intelligence, machine learning, virtual reality, and even drones. We asked three hard asset experts to describe the exciting opportunities these technologies might spell for the asset class. Below is a summary of our conversation.

Privcap: Brandon, how has KKR sought to evaluate the impact that various new technologies might have on its infrastructure investment platform?

Brandon Freiman, KKR: A number of years ago at KKR, we realized that we had a lot of technology content and depth at the firm, but it all really sat within our technology private equity group. And of course, the reality is that all these technology trends cut across everything we do as a firm, whether it's in industrials or consumer products or, of course, infrastructure. If you look at the three largest sectors that we tend to focus on within infrastructure—midstream, power and utilities, and communications infrastructure—each one of those is really susceptible to disruption from these technologies. So we created an innovation team that cuts across the entire firm to help all of our investment teams think about how to get ahead of these disruptive trends. Having this team has allowed us to be a bit more thoughtful around which trends we lean into, and which ones give us real pause.

Tim, as someone who runs a company that tracks millions of hard assets, how have you seen asset managers use the data they are collecting?

Tim Buchner, Mercatus: As we look at the sheer growth of hard assets over the last 5 years from over $8 trillion in new energy and infrastructure industry investments, Mercatus has seen tremendous proportional growth in assets and data tracked across its platform. We've also seen significant variance in how investors and operators manage and utilize data across decisions, strategies, investments and everyday workflows. Where we've seen differentiated innovation is within some of the best run companies where they're starting to leverage real-time data streams across financial, risk and technical sources for forward looking intelligence that previously would have been done over

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quarters. One example, in particular, is the emergence of dynamic pricing across the infrastructure market—like with Electric Vehicles—where leading companies are now able to—in real-time—adjust charges based on a variety of variables including consumers' ability to pay, the value they place on the service balanced against the urgency of usage. To get this to work right, such companies are having to align systems monitoring from EV charging operations with financial performance and risk systems.

Privcap: Brandon, can you give a specific example of an investment that you've made where a specific form of technology made a big operational difference?

Freiman: Within infrastructure, the real opportunity is that you look at a lot of these industrial businesses and in many ways they're really built on a 1980s and 1990s software architecture. And that's if you look at where the top engineers and technologists go, they're going to technology companies. They're not going to parking businesses and to waste management businesses and so on. So through leveraging our operational team at Capstone, we're able to deploy 21st-century technology and software architecture to drive pretty dramatic performance improvements. Just to pick an example, we own a parking business in Europe. If you think about what a parking business does, it manages an inventory of parking spaces. The historical approach to that is you set a price and you get what you get from a revenue perspective, and that's really been the 1980s and 1990s architecture of pricing and revenue management. If you can deploy a revenue management system that really looks at your historical data, understand the trends and time of day and areas for revenue optimization, you can introduce time-of-day pricing and other features to optimize pricing and revenue without any real capital deployment.

Dana Sands, Energy Infrastructure Partners: I'd like to jump on parking as well. I think it is one of the great public-private partnership opportunities for investors. There's so much that can be done to maximize revenue and to minimize costs. Almost every part of the parking chain can be automatized. Take parking enforcement: Now a van can just drive down the street and start issuing tickets automatically. Then there's pricing. I've worked on a really, really large parking transaction where the city refused to let the investors do dynamic pricing, or lower the prices. There was a minimum price that we always had to charge, and the city didn't realize anything about elasticity of demand and how to maximize revenue. I think that people have learned a lot since that transaction got done, both in the on-street and off-street parking. It's about sensors, it's about wireless communication, it's about increasing the number of cars that can be put into the same amount of space. You can completely automatize garage parking. You can fit three to four times the number of cars than you otherwise would, and it's much faster than going to get your car. There's a garage in Boulder, Colorado, that is completely automated. It's got a parking robot. They guarantee delivery of your car in three to four minutes without any human interaction at all. They use lasers and sensors.

Freiman: Think about pipelines, whether it's on the water side or on the energy side. You've got thousands of miles of flows and data collection at various intervals along those lines, and one of the areas where we have seen machine learning be quite relevant is around leak detection and predicting when you're going to have operational issues. Given the amount of data you're able to mine, you can forecast when you're going to have an issue and go fix it before it happens.

Dana, you have some interesting observations about bridges as investable assets. Can you comment on that?

Sands: It's a faster, it's cheaper, and it's safer to inspect bridges with drones. Very few humans are now climbing up on the rigging. It's all done by drones. The other thing that really changed bridges is transponders. Again, it's sort of like parking and real-time revenue generation. I know one bridge owner that sends out emails for discounts over the weekend because they want to get the traffic up, because a lot of the traffic on this particular bridge is work-related. The bridge has been able to increase its revenue by 5 to 10 percent, just by using real-time pricing via something as simple as email.

There's optimizing the assets that you own, but then there's vetting and performing due diligence before you decide to buy the assets. What have been any advances that allow you to understand the assets that you may invest in better?

Freiman: We don't yet have a supercomputer where we just feed in a bunch of data and it spits out an answer. We may get there, but we're certainly not there yet. That said, we looked at a waste management company a couple years ago that had landfills but also a collections business. As we looked at the nature of the collections business, I go back to my comment about

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> –Tim Buchner, Mercatus

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1980s, 1990s architecture. There's so much data there to be mined around how to optimize that route management. You now have the ability to actually have a feedback loop so that the customer can actually buy waste collection on demand, which could be quite disruptive. Having the capability to understand those trends can impact these businesses and can be game-changing.

"If you look at mobile applications and the usage of data, that just seems to bode very well for continued growth in communications infrastructure."

–Brandon Freiman, KKR

Sands: The technology that is improving due diligence can be something as simple as traffic studies. You can have a much more comprehensive traffic study because people aren't out there counting cars anymore, they're using sensors. Any technology that decreases risks for investors is just great for the industry.

Buchner: Because of the industry's fairly low barrier to entry, we see considerable differences in diligence and underwriting practices across investors. Some have the philosophy to raise their first few funds while proportionally adding headcount to maintain process. Then, somewhere into their third or forth fund, the complexity, diversity and scale of investments with corresponding increase of risk pushes the need for repeatable process and best practices for the next phase of growth and scale. We've found a select few create these practices from the outset based on past experiences or failures. In either case, across infrastructure investors we've found the most common challenge are that most struggle with the management of information across due diligence, underwriting and management; thus, a heavy reliance on Excel due to its ease of use, power and flexibility. However, few organizations have put the necessary process, controls or systems alongside Excel to ensure history is retained. Some have created a strong connection to assumption management, financial and risk modeling across their investment processes in order to extract, in real time, all changes into data warehouses that allow for decisions that are truly informed and lead by data.

Talk about the investment opportunity in electric mobility, which seems to have been born as an asset group with advanced technology supporting it.

Freiman: We have been thinking about charging stations and the electrification of the fleet. There's going to be need for a lot of capital to build those facilities across the whole landscape in the U.S. There are two challenges around charging stations that make them not actionable at scale today. One is that the technology's getting up the curve—it's now more about evolution rather than revolution - but I think once you can get to the point where someone can charge their vehicle when they're outside the house and not at home, and it takes 15, 20 minutes instead of an hour, that's when you're going to see the adoption increase significantly. The other question that's very much up in the air is what the revenue model is going to be around these facilities. Is it a Whole Foods that pays for the facility while you shop inside? Is it advertising based? Is it a user fee? Once there is greater clarity on those issues, infrastructure capital like ours will be a part of the solution.

Buchner: Many investors are treating each EV station as an asset, as its own investment in its own right. These organizations are having to be flexible in how data is coming in from those assets. They might need to turn on a dime, because in some markets it's one business model, and in other markets it's another.

Buchner: We have one great example of a very fast-moving customer that's based in Italy, and they're building out one of the largest networks across Italy and across Europe, and as they're doing that, if there's one thing they've said to us many times over, it is "The flexibility of our business model is paramount as we continue to grow."

Dana, you mentioned P3s before. Are PPPs a key area where technology will make a big difference?

Sands: Every P3 is a challenge. The difficulty with P3s is getting them approved. When I was CFO of Alinda Capital, we ran the Alligator Alley P3 [toll road in Florida]. We were awarded it, and then the next day the governor took it away.

Freiman: We've done a couple of municipal water P3s in the Northeast. They're still two of the three that have ever been done in the U.S. on the municipal water side. I definitely agree with Dana's comment—the answer to more P3s is not going to lay in technology. There's a ton of capital on the sidelines that

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would love to participate in P3s. You have a lot of aging infrastructure, whether it's water or elsewhere. Everything points to the notion that there ought to be a lot more P3s, but the day-to-day inner workings of various layers of government make them so challenging, so a lot of investors just say, "You know, life's too short."

As we enter 2019, what makes you excited, and what makes you worried about the infrastructure investment opportunity?

Freiman: If you look at mobile applications and the usage of data, that just seems to bode very well for continued growth in communications infrastructure. It seems like there's a lot of runway ahead of that, and it feels like we're in the early innings of growth. Now, valuations are high, and there will be disruption in some of those business models, but I think some part of the value chain, like fiber for instance, is probably more durable and immune from some of that change.

Sands: I think there's too much competition among the bigger funds, and a very limited number of good assets. I think that some of the returns are going to be a little bit lower. I believe that the definition of infrastructure is going to be broadened, so that the investors can become more creative in what they're doing and try to get a little bit higher a return.

Buchner: What is really exciting is that infrastructure is drawing roughly $2 trillion a year, and by 2030 that is expected to grow to roughly $80 trillion. That means many more investors, much more complexity, and many more assets out there, and that points to a huge need around data. That's what gets me excited. ■