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Companies like Amazon and DoorDash are challenging the status quo by blending digital and physical innovation. In her Disruption Week webinar, investment manager Kirsty Gibson details two different approaches to creating long-term growth via this mix.

Your capital is at risk. Past performance is not a guide to future returns.

Malcolm Borthwick (MB): Hello, and welcome to the start of Disruption Week. I'm Malcolm Borthwick, Managing Editor at Baillie Gifford, and today we're going to be talking about the next wave of disruption, how companies are mastering both the physical and digital worlds.

Let me start by taking you back to 1997. This was a significant year for Amazon. The company listed on the Nasdaq but, at this stage, it was still relatively tiny. The online retailer just sold books, and its annual sales were a mere \$15m, so it was a bold move when it announced it was opening up a giant warehouse in Delaware. The company proudly stated it spanned three football pitches, and founder Jeff Bezos travelled across the US to cut the ribbon.

These days, Amazon's warehouses are up to 20 times the size and span the globe. What's interesting about Amazon though is people often view it as a digital disrupter, but it's much more than this. It's its mastery of infrastructure and the physical world that is also behind its success. And this is what Kirsty Gibson, an investment manager at Baillie Gifford, and I will be discussing today.

Hello, and welcome to the first in our series in Disruption Week. Kirsty, thanks for joining us.

Kirsty Gibson (KG): Thank you very much for having me.

MB: And just a reminder, these webinars are about 40 minutes. Kirsty and I will be chatting for 25 minutes, and then we'll open up to questions from you, the audience, for the last 15 minutes. And we'd love to hear from you, so if you do have questions, please use the 'Ask a Question' button, which is in the bottom-right-hand corner of your screen, and we'll come to your questions a little bit later on.

But I'm intrigued on your perspective on a topic that we'll be discussing shortly, and that's about Amazon Web Services, the cloud computing services of Amazon. And the question in today's poll is what are their annual sales? Is it 800m, is it 8bn, or is it 80bn? So if you could choose one of those options, and we'll come to the answers shortly. Kirsty, I wanted to start off by just asking you broadly about your thesis of the merging of these digital and physical worlds.

KG: Absolutely. So, for much of the last century I guess I would say that physical strength has been the greatest advantage that a company could possess, and by that I mean that they had physical assets, and their competitive positions were founded upon those physical assets, and the ability to access capital in order to fund them.

So if you think of the aviation sector, or aerospace, or the telecommunication sector, or the chemicals industry, and even industries we now think of as much more digital, like the newspaper industry or even retail, the proliferation of the internet gave rise to a new type of business model, and this was the digital business model. And this became a model which was capital-light, in which a great idea combined with nimbleness and creativity and the ability to attract great talent allowed companies to build formidable competitive advantages, if you think of Alphabet, or what we would commonly call Google these days.

And so you saw these specific industries, such as advertising and analytics and socialising, if you can call that an industry, move into the digital realm. And they built businesses of formidable competitive positions with economies of scale, with data flywheels, network effects and strong return profiles.

Now, the physical businesses, they continued to exist and, in some industries, though, that strength, what had been their greatest strength, suddenly became their greatest weakness. And this was because these businesses had spent so long building their moat really, really deep against the competitors that they could see, they'd lost their ability to be agile and they'd forgotten about those competitors that might come from that leftfield. Think of someone like Blockbuster. They were literally outcompeted by Netflix and the advent of streaming.

So these business models, what we saw with these business models is that these digital businesses, certain industries, really began to move into the digital realm. Now, the challenge is that not every business, or not every industry, can be disrupted by digital tools. There are some industries which are physical by their very nature, and whilst we could argue that the transformation we've seen over the past decade was very much driven by these digital businesses, what's really exciting about the moment is that there's this new wave of transformation gaining momentum, and that's the combination of those two things together, so the digital part and the physical part together.

And the reason that's exciting is that that opens up a whole new realm of industries that are potentially able to be disrupted. Think restaurants, the chemicals industry, transportation and even healthcare, for example. And I would characterise these businesses that are combining digital and physical into two broad categories.

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The first category are those companies which are building a completely new system. These are capital-intensive businesses. It will take time for them to be able to build these businesses, and it will cost them money to do so because they need to build out high levels of infrastructure. Examples here would be Amazon or someone like Rivian or Tesla, who are both electric vehicle manufacturers.

And then we have the second type of business that combines the digital and the physical, and these businesses, they're actually building their infrastructure or building their offering on top of existing infrastructure, but they need that existing infrastructure to continue to exist in order for them to succeed. Examples here would be Aurora in autonomous trucking, or DoorDash. And [these businesses are] much more capital-light by their nature, but they face a different challenge, and that's friction. And that's because they have to convince an existing industry to cooperate with them.

MB: You mentioned the two different models, there. Let's start by looking at the first model. Because Amazon, as we talked about in the introduction, is the classic model here of a company that invests both heavily in digital and physical infrastructure. And they did that from an early stage, didn't they?

KG: Yes. If you think about it, Amazon and eBay arose at a broadly similar point. eBay, what they were looking to do at the time was to facilitate commerce, so they were looking to build a marketplace where people could buy and sell product. What Amazon was looking to do, they were looking to sell books, and this was a transaction which, up until that point, had been done in the physical world. But Amazon wanted to sell books online. And the reason they wanted to sell books online is that online gave you ultimately unlimited shelf space, so it gave you a lot more ability to offer a huge range, a huge choice for people to buy from you.

But books at the time were, ultimately, a physical product, this was a long time before the Kindle existed, so Amazon needed to build out the digital side of its offering, so its website for you and I to interact with but also its ability to accept their payments, etc. And they also needed to build out the physical side of their offering, so they needed those distribution centres, that ability to hold that inventory. And it was the combination of the two of those that enabled them to really build the business there, going forward.

But the combination of the two of those, what that allowed them to do, on the digital side it meant that there was ease of access, it's very easy to search on Amazon for what you're looking for, there was lots of choice, there were economies of scale and efficiency, which ultimately reduced prices for consumers, and then, on the physical side, you had this idea that your distribution warehouses meant that it was much quicker in order for you to deliver a product to somebody else.

MB: So, let's have a look at the poll results which have just come in. Most people, well, not quite most, 47 per cent are going for the 80bn, 44 per cent, that's close, for the 8bn, and 8 per cent, slightly less, for the 800m. So what's the answer?

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KG: It is 80bn. 80bn of sales.

MB: And that's extraordinary. Just to put that into perspective, that's the combined annual sales for Nike and McDonald's combined, or equivalent to something like \$2,500 a second, I think. So that is absolutely extraordinary. And I find the cloud computing service of Amazon, AWS, fascinating, because we think of it as digital but essentially it's data centres, it's infrastructure, isn't it?

KG: Yes, ultimately, again, what Amazon has built there, over the past decade or so, that's when the business has really, really grown, is physical warehouses that have lots and lots of servers. It's a data centre for people to access. And again, it's about them providing scale, because scale in the provision of those data centres allows them to bring that price down, which makes it accessible to a lot more people.

So I think this is one of the things that's really fascinating about Amazon. If you think about where their greatest competitive advantage comes from, it comes from that back end that they've built that's very physical in nature, but all of our interactions with Amazon are all digital. We interact with their website, we order things from them, and yes, we receive a physical good but I don't think a lot of us think about all of that level of physical investment that goes on behind the scenes. Amazon talked about, during the pandemic, that they basically built a FedEx within Amazon in order to deliver products during the pandemic.

MB: And what is your case for Amazon, going forward, combining those physical and digital elements?

KG: Ultimately, our case is all about the combination of those two things. It's about the fact that AWS, yes, it's an \$80bn business right now, but many different players in this industry have talked about the fact that the majority of IT spending, probably 80 per cent-plus, is still on-premise today, so around 10 per cent to 20 per cent is in the cloud. So there's a huge opportunity for expansion there. And ultimately, this is a scale game. There aren't that many players that offer a scale cloud offering, so it's between a top four.

And then you've got the fact that the retail business, that's a business that Amazon has allowed to be unprofitable for a significant period of time, and that's transitioning now to be profitable. It's not going to have the same margin profile as AWS, AWS is going to have a lot higher margins, but there's no reason why the retail business can't also be an extremely successful business as well.

MB: And we talk a lot about this, the idea of companies building up competitive moats because the spend, like you say, is huge to get into these businesses in the first place, isn't it?

KG: Yes, and I think what you need is, we were talking about this before the camera started rolling, a competitive moat but you need that ability to pick your castle up and be able to run about with it as well. You need the competitive moat but you need the agility. You need to ensure that you are constantly running, because if you're not running, somebody else is going to overtake you, or somebody else is going to be running faster.

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MB: So it's not just looking at what your customers are thinking and doing at the moment, it's what they might be doing in a few years' time.

KG: Yes, exactly.

MB: So give me another example. We've talked about Amazon as a case study for a company that's invested in both physical and digital infrastructure, what about other companies that would fit this model?

KG: Another company that probably falls into that second category of one that is building their offering on top of existing infrastructure, that would be DoorDash. DoorDash is a food delivery marketplace in the US, so they offer food across restaurants, convenience stores and grocery. Restaurants are the most established. They also have an international offering as well.

Now, what's most interesting about DoorDash is that DoorDash has three sides to its marketplace, so it has three different parts of its marketplace that it has to keep happy in order for it to succeed. First is the consumer, so you or I if we're ordering food, we go on and interact with them on their app. The second player would be the suppliers, or in this case it would be the restaurant or the convenience store or the grocery store. And the third are the delivery drivers, or what they call Dashers.

What's interesting about the DoorDash model is you need all three of those things to work. This is not a model that you can just switch on overnight in a new city. You have to have put in the time and effort to get the restaurants on the platform, you need to have got the Dashers on the platform. And actually, the consumer's the last thing that you need. It's great to have loads of consumers that want to use you, but if you don't have anyone that can deliver the food, well, your marketplace falls flat.

What's interesting about DoorDash is that they've built software apps for each of the constituents of that marketplace. So for you and I, we have an app that we can go on and order. For the restaurants, they have an app that helps them to understand how many orders they manage per hour, when people are going to come and accept the delivery, when the order's been placed. And for the Dashers, they have an app that helps them to route through different locations to take the most efficient route.

So that sounds very software, I guess, by its nature, but if you think about it these are people who're having to interact with the physical world in order to make those deliveries, in order to make that food. So what DoorDash is doing is it's taking its understanding of the physical world and it's applying that software in order to solve that. So they might say the most efficient route through this shopping mall is to take this escalator to ensure that the Dasher arrives at the optimum time, they don't arrive too early to collect the food, because that's wasted time that they're sitting around, but they also don't arrive too late so that your food is cold and you have unsatisfied customers.

MB: That's also logistics. And everyone needs to be a Dasher, don't they, to an extent?

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KG: Yes, everyone in the company actually has to do Dashing once a month, all the way up to the CEO. They seem to have quite a lot of competition between them to see who can get the most tips.

MB: And they're a very unusual company in the sense of the ecosystem and neighbourhood networks that they're building. They are doing something genuinely different.

KG: Yes, they're also investing themselves in having their own first-party distribution centres. And the idea here is to say it provides flexibility. So you could think about it from the perspective of if you're a grocery store in the US, your opening hours might be 8:00 until 8:00, maybe if you're 7-Eleven they're 7:00 till 11:00, but you're not open throughout much of the night. Whereas, if you place some of your inventory within one of these DoorDash distribution centres, you can continue selling that product during periods of time that you would not normally be receiving revenue.

DoorDash is also investing in having its own offering, its own products, because ultimately a can of Coca-Cola is a can of Coca-Cola, whether you buy it in Walmart or you buy it in Costco or you buy it from DoorDash, so they're doing that as well. And then what I think is most interesting is that if you have this distribution centre, you're potentially changing the dynamics of how maybe a new player could enter the industry.

So if you're somebody who sells cookies, for example, on the East Coast of the US, and you fancy trying to sell them on the West Coast, rather than having to put in all that capital upfront yourself and having to say, I'm going to build a store and see if I can gain popularity, you could actually put those straight into a DashMart, as they're called, and test the waters a little bit and see if you can gain traction without having to bear a lot of that initial investment cost yourself.

MB: So they're working really closely with other parties that they're working with. Let's have a look at some other companies that fit into this model that DoorDash fits into in terms of the digital model but relying on a separate infrastructure, physical infrastructure. Give me an example of some other companies that might fit into this mould.

KG: I would say someone like Aurora. Aurora is an autonomous driving software company. It does what it says on the tin, they create autonomous driving software for trucks. So not for passenger cars at the moment, they hope that they can leverage something like that in the future. But they ultimately use partnerships.

If you think about it, building your own trucking fleet is ultimately going to be really expensive, but it's also challenging because we're not talking about small pick-up trucks, we're talking about the really iconic semitrucks that you see in the US, the massive ones that go barrelling down a highway. There are a lot of trust issues with regard to that. You have to deal with the fact that people need to believe that you're reliable, that you're efficient and you're going to deliver on time.

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So what Aurora's done is Aurora's partnered with two, well, more than two but the two largest trucking players in the US. One is Volvo and the other is PACCAR, which owns the Peterbilt brand. And so it works with those two trucking companies and it installs its software on those rigs. It's also working with Continental. Continental is creating or building the computer itself, so they're building the software but they're building the actual computer for Aurora, and will be doing so going forward.

And most interestingly, they've negotiated a really fascinating business model where Aurora pays Continental for that service per mile driven. So when that's installed on a truck, Aurora receives a... It's called 'Driver as a Service', so Aurora will receive a payment for that software being installed, and then it pays some of that Driver as a Service fee back to Continental for each of the miles driven. So again, they're reducing their upfront costs, they're spreading the cost of R&D, they're spreading the cost of manufacturing over the lifetime of usage, which is quite an unusual business model that we haven't seen before.

MB: And we hear a lot about Tesla with autonomous cars, but less about autonomous trucks. Why might that be an attractive market?

KG: There are a couple of different reasons. Safety is a massive challenge when it comes to trucking. Ultimately, drivers are fallible, they have accidents, there are a lot of accidents in the US, so the cost of insuring a driver in the US has gone up dramatically, so there's not that much ability for small fleets to operate anymore because their insurance costs are so high.

Secondly, drivers can't drive all the time, and increasing regulation has been brought in which means that drivers are mandated that they can only drive for a specific length of time before they have to have a certain length of break. The third reason would be that drivers are actually quite inefficient in the way that they drive versus something like autonomous where you can set the speed limit and you can drive that truck at the most efficient fuel usage that you can possibly have.

MB: I think it's easy to forget that trucking is a massive business. We look around us, a lot of these things are being transported by truck. I think the industry in the States alone is worth something like \$800bn. It's massive. But you've also been to Dallas and you've been on one of these trucks, so tell me about it.

KG: Yes, in September this year I was really lucky that I went and had a ride-along. So I turned up at 7:00 AM at the Dallas trucking port and had a ride-on with some of the Aurora team. The CFO took me along. The truck still has an individual who sits in the truck and sits, like this, away from the wheel, but the entire journey was actually... So it was 45 minutes, we drove out of the trucking stop and the truck drove itself out of the trucking stop, it drove itself around, over the top of the highway. We then merged onto the highway by itself, carried on the rest of the journey, and then we returned in the same fashion, and the driver didn't have to intervene once in that whole journey.

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I would say it drives quite cautiously. It doesn't drive really, really slowly, we were still going at 60 miles an hour, but it doesn't break over the speed limit. It was really interesting to watch. I had a small screen next to me that showed me what the Aurora driver was seeing, so what the software was seeing, and it had this excellent little picture, it labels a slow driver, it puts a little snail over the top of them and says, there's a snail on the road, and it allows the truck to understand, am I going to have to do an overtake?

Because obviously these are vehicles that take a long time for them to do things. It takes a long time for them to stop, it takes a long time for them to increase speed. So they have to look out a couple of hundred metres up the road to be able to understand what their next move is going to be.

MB: There's quite a behavioural challenge being on a driverless truck. How did you find that? Was it weird or was it...?

KG: I didn't really notice, actually. You sort of got used to it quite quickly. I felt perfectly safe. We even had a moment, towards the end, where the truck came to a four-way junction, and when it was its turn to move, somebody else actually took their turn and the truck just came to a... The breaks just went on a we came to a very quick stop. But it felt very much like the truck was in control. I didn't feel nervous at any time.

MB: Wow, extraordinary. So, we've looked at those two models, let's move to something a little bit different. Because Meta, it does do both physical and digital, but I think what's interesting about Meta is that your case is purely digital.

KG: Yes. On the team I'm on, the US equities team, we actually sold Meta a couple of years ago, and we've actually re-bought it back earlier this year. We sold it on concerns around what we called the three Rs, which would be relevance, recruitment and regulation. And I think they'd made progress on those three Rs in the past few years. The regulatory environment is not what it was, and I think that they have navigated that quite effectively.

We had concerns about relevance with the rise of TikTok, and again, they seem to have done pretty well at fighting that off. Reels, which is their offering to compete with TikTok, has recently reached a \$10bn revenue run rate, up from \$3bn at around about this time last year. And in terms of recruitment, we were worried about why would people want to go to Meta. Historically, Meta has been a very strong business, but it's unlikely that they're going to be allowed to acquire anything else, anything of any scale, so they were going to have to create from within.

And when we sold this holding, we were concerned that there was just a lack of great opportunities within Meta by comparison to all the other tech companies that these engineers could work for. And so I guess what's changed there, now, is AI. And the fact is Meta has an absolutely colossal dataset which is entirely personalised or owned by them, and that's an amazing opportunity to attract great talent to their business.

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MB: And we'll be coming to your questions soon, so if you do have questions, please use the 'Ask a Question' button on the bottom-right-hand corner of your screen. And we'll be coming to that in a few minutes. You mentioned there TikTok and Reels. One of the things that Meta have been very good at is copying others, in a way.

KG: Yes. I think actually it's probably one of their greatest strengths now, the speed at which they can copy others. They have, I think, a \$61bn cash pile. Yes, they have some debt within that but they're a free cash flow generating business. They have a lot of money at their expense to catch up with individuals. And then they're also leading the way on something like AI. It offers them the ability to potentially monetise WhatsApp, which has been a real challenge for them because many of us use WhatsApp and we enjoy it for the fact that it doesn't have advertising in it and we can just chat with our friends.

So what they're hoping to do, potentially, with WhatsApp, is to allow businesses to take individuals from the Instagrams of this world onto WhatsApp and use chatbots on WhatsApp to answer people's problems. Some of those will be provided by the businesses themselves, they can use their own chatbots, but some of them will be managed and run by Meta and ultimately leased out to these businesses, for those businesses to be able to offer an alternative way to interact with their business online.

MB: You mentioned earlier that you bought Meta, probably then Facebook, then sold it, then bought it again. That sounds quite unusual. Is that unusual?

KG: It's something that we probably do less of, but it has happened. Another example is we reduced Amazon when Jeff Bezos stepped back as CEO, and after doing some work, given the fact that the valuation had come down, and we did some additional work on Andy Jassy, the current CEO, as well, we decided to add to that.

So you have to be willing to be wrong. It's that opposability of mind. You have to be willing to say I have conviction in one case but also, on the other hand, hold that idea that you might be wrong in your mind at the same time, and be willing to admit it and change your mind.

MB: That ability to change your mind, is that hard, as long-term investors? If you think about holding period, roughly eight years, is it hard to change your mind about a company?

KG: On the team that I'm on, we write forward-looking hypotheses for each of our companies, so it's basically what we think the investment case will play out like in the long run. And the reason we do this is because actually it can be very easy to rewrite history. When you're an investor, when you're a long-term investor, a new piece of information will come your way, and it might be good, it might be bad, but you can be like, I thought that would happen.

And the forward-looking hypothesis for us, as a team, is about keeping ourselves true. It's about saying, okay, maybe we want to integrate that into our forward-looking hypothesis, but it's holding yourself

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accountable. And so I think that allows you the ability to change your mind. Because as humans, we don't want to be wrong, that's just who we are as individuals, but it's very important to be able to recognise where something has deviated from what you believed was going to happen and to be able to admit that to yourself, and decide, as a consequence, what you're going to do about it.

MB: Because the facts will sometimes change about a company and it's important you're flexible to...

KG: Yes, exactly. This is this point we talked about earlier, if you're going to pick up your moat and run along, then you're going to evolve, you're going to change, and your forward-looking hypothesis and conviction in that company is going to evolve and change over time. You don't want to hold any company too tightly, you don't want to fall in love with them, but you also need to be able to hold these companies through those periods of volatility that they will experience.

And for me, that always comes back to revisiting fundamentals of companies. Looking at, fundamentally, what is this company doing? Not thinking about, what's the share price doing? [But] what are the fundamentals of this company and how does that reflect in the company's valuation?

MB: And I'll sneak in one more question before going to the audience questions, because I think what's really fascinating is that idea of the companies that maybe haven't shown that flexibility, that have maybe been stuck in the physical world or stuck in the digital world and haven't adapted. Could you give me one example of each?

KG: Yes. The great example that most people talk about would be Kodak, I guess, with the rise of digital cameras. And actually, Kodak saw digital cameras coming, but they were just so ingrained, they made so much money from their existing film business, that kind of consumable element, that they just couldn't bring themselves to really go for, really heat themselves up and go after a new opportunity. And that allowed those other people to come in.

And then, in the digital world, I think you have something like Yahoo. And I think Yahoo, ultimately, they just didn't pick the right business model. This was very early on. You had a number of different search players, and actually it turned out that everybody didn't want a really busy first page with loads of information and loads of news flow. They wanted the pure simplicity of Google. But I'm not necessarily sure that Yahoo made a massive starting error. In hindsight, they made an error, but it wasn't clear how things were going to play out when they got started.

MB: I remember, they were huge.

KG: Yes.

MB: So, let's go to the audience questions now.

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Your questions answered

And we've got lots of questions coming in, so thanks a lot for asking your questions, and please do keep asking the questions. You can use the Ask a Question button in the bottom-right-hand corner of your screen. Let's go to the first one here, Kirsty. What steps can incumbents take to protect themselves from the kinds of disruption you describe?

KG: I think the starting point is to have that agility within your business model. And I think a lot of that agility, from my perspective, comes from company culture. It comes from this idea of constantly pushing and striving and being flexible. And everyone talks about *Move Fast and Break Things* and all that, and actually with lots of these physical-digital businesses, probably moving fast and breaking things is not ideal. You kind of want to move fast and not break things, because breaking things is rather expensive.

But I think it's having that culture that's quite different from the traditional incumbents of that industry. We didn't touch on this specifically earlier, but we own a business called Solugen which is ultimately looking to reinvent the chemicals industry. What's really interesting about Solugen is they have people from the traditional chemicals background but they're also merging that with individuals from more of a digital background. Engineers who are used to designing proteins in software, for example. And it's combining those two cultures together.

Because I don't think we should say that traditional industries, people can't learn from them, but it's how you take people from those industries and combine them together and create a new type of culture that's much more effective for the mission that you're trying to achieve.

MB: We've got a question that you've partly answered there, which was about Amazon and the chemicals industry, and another company that fits into that idea of investing both in physical and digital assets. But maybe I could slightly cheat with this question and say, well, what about a company like Rivian, which we didn't talk about earlier but you mentioned?

KG: Yes. Rivian, perfect example of a company that's combining both. In manufacturing cars, Rivian is following in the footsteps of Tesla. Manufacturing electric vehicles is physical, you expect a car at the end of it, but what's interesting is a lot of the value that these businesses can potentially deliver in the future comes from the software.

And that software can be upgraded over the year. You don't need to take your car to a garage to necessarily make improvements to it. Recent over-the-air software updates that Rivian have provided has improved the ride quality. People were complaining it's really bumpy when I'm driving along in my car, so they produced a software update to reduce some of the tension that they had in certain areas of the car, to make that experience smoother.

That's just a completely different way of thinking to what the traditional OEMs would be doing. Once a car's made, you can't really improve it. You can change the colour of it, I guess. I remember there was a

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programme called *Pimp My Ride* but we won't go on to that. But it's difficult to make changes in the same way, whereas these business models are just a completely different way of approaching the problem, which allows you to make changes continuously. Which, ultimately, helps delight your customer base, which probably keeps them much more loyal to your offering.

MB: And is a challenge for a company like Rivian, because I guess that will involve a lot more upfront investment? Because they're also investing in charging stations and various other things. Is that a risk, investing in the hardware, the software, the charging bases and everything?

KG: I think it's the risk and opportunity. Like you say, it's much more capital-intensive than, say Duolingo, which is a digital business in our portfolio, gamification of language-learning. They have lots of challenges, and I'm not saying it's easy for them, but they don't have that same upfront level of investment required. Many of these businesses, particularly those in that first category of digital-physical companies that I was talking about, ultimately they are trying to recreate the industry, and that means that they have to invest not just in themselves but also in the ecosystem.

I think what's different for Rivian's experience versus Tesla, for example, is that Tesla paved the way for others to be able to do this. Rivian has been able to raise an awful lot of capital upfront because people have seen what Tesla have achieved. Tesla went through many more periods of time in which they were running on empty and they were really struggling to raise money. And they were getting towards the fumes and they were having to rebuild those things out, because there was a lot of scepticism about whether it could be done.

Rivian, I think, when it IPO'd was sitting on close to 20bn of cash for them. They're now down at around about 10, 11. But they need to push now towards profitability, and that's what they're doing. Because these are really interesting business, again, because these are not companies that can cut their way to profitability. This is a company that needs to get to scale in order to be profitable, because the only way you get to profitability is that if you're using this massive upfront cost that you've had, which is your fixed cost of your manufacturing plant.

MB: And a question here, which is much more of a general question, if you could pick one company with the highest potential upside, which would it be?

KG: Oh, god, that's really tough. I think I'd pick something like Ginkgo Bioworks which is a synthetic biology business. This is a business that is basically trying to make biology as easy to engineer as something like coding a computer. This is a very, very broad-based application, a huge potential upside, but it is early in its opportunity. But it has the potential to completely transform ways of doing things that we have traditionally used the chemical industry [for], or various other bits and pieces. Now, we're saying, actually, biology has the tools that we could use to make these products.

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MB: And how do you consider valuations when analysing disrupters with extremely volatile year-on-year revenues? Is it growth at any cost, or is it more narrative-driven?

KG: No, I think valuation is important, but it's understanding how you view valuation, through what lens. So I think I, personally, don't like to say, that's expensive or that's cheap based on its PE or its price to sales, etc.

I think what you need to do is do your valuations from a fundamental perspective. Built it up. What's the market opportunity, what's the competitive position, what's the culture of this company worth, what do I think the financial profile of this business could be? And, consequently, what do I need to assume in order to make a specific return for my client base?

And that involves considering how the company's currently valued, but that tells you what other people's expectations for that business are. It doesn't tell you whether something is cheap or expensive.

MB: And is it helpful or unhelpful, knowing what other people's expectations are?

KG: You need to have that base, because if you're trying to make a specific return for your client, other people's expectations play into that, because other people might... It's about where you're differentiated. Do I really like this business, and do I have a significantly differentiated view? Or is it I really like this business but everybody agrees with me? And ultimately, that's great but you're not going to be able to make a satisfactory return for your clients if that's the case.

MB: And how do you gain faith in the ability of management teams to be able to execute on what sounds like huge investment requirements?

KG: I think it's about building trust. This is not blind trust. It's not saying... People often ask, how do you not fall in love with a management team? But the fact is it's about not bringing it back to these forward-looking hypotheses what we talked about. It's about bringing it back to opportunity sets. It's about saying how much do you expect that this is going to cost these companies? Are they executing? It's following these businesses over a long period of time, and it's understanding their background and how they've arrived at the conclusions that they have and looking at what they've done historically.

Andy Jassy's a really interesting example of this. Andy Jassy is not Jeff Bezos, but he's Andy Jassy and that is, in itself, quite an impressive thing. A very impressive thing. He's been at Amazon almost as long as Jeff Bezos, and he was ultimately the mastermind behind AWS. He then became the CEO of AWS, he ran that for a significant period of time.

And I think that my own personal bias has been, oh, but he's not Jeff Bezos. But actually, when you look at it, he has founded and run an \$80bn revenue business himself within a company. He's also a very

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impressive individual who has a huge skill set that he can bring to this company. And he's worked at it so long that he understands the underlying culture that Jeff Bezos helped develop. He's part of that.

MB: That's really interesting, because you talk about the culture, and I guess that must have been a concern when Bezos stood down, but he's managed to maintain... How's he done that? Is that through his leadership style or continuing with the style before or...?

KG: I think Andy Jassy's superpower is that he has an unbelievable attention to detail and extremely high standards, but he's almost universally liked by staff. Not very many people have a bad word at Amazon to say about him. He is extremely fastidious, he will cut people down to size, he's not someone to be messed with, but all of that challenge comes from a place of care. And people know that he only wants the best for Amazon.

And his ability, and I think this is something that he learned from Jeff Bezos, is about having really, really high standards. Because really high standards incentivise your highest performers to really push forward and succeed. Amazon's probably not been the easiest environment to work in, but what's really interesting is if you look at Amazon's senior leadership team, many of those individuals have been there for two decades plus.

MB: And we had a few questions come in about Amazon, actually. This one here, probably comparing the two hypotheses you have, do you think Amazon and other companies like it, which have invested deeply in physical infrastructure, have a more defensible moat than the second type of company that's more capital-light?

KG: I think it's just different. I think it's the industry that you're investing in defines whether or not you need to do one or the other. I think potentially they have a stronger moat because it is more expensive for somebody to replicate you, but I think they probably need to be much more aware of that nimbleness side of things and not get too entrenched in one way of doing things.

I think the others that are building on top of others' infrastructure, those partnerships themselves can also be quite powerful. But yes, it does open up opportunity for maybe others to do that as well. But if you can keep running, if you can maintain that agility and stay far enough ahead, then I think it's also a very powerful competitive position. It's just different.

MB: And this is a related question to that, possibly where the competitors come in from. Large capital requirement seems to be a key part of the theme, as you've just alluded to. How do you account for competition coming from well-funded players? And the question here is do you see reliance on India, becoming a dominant player in digital retail, supported by very large balance sheets?

KG: I think that that has been much more of a characteristic over the past decade than maybe it will be for the next decade, given the interest rate environment that we find ourselves in. Actually, DoorDash would

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say that 2020, in which demand for their product just exploded, they actually said that that was a much more difficult period of time for them than it is now. And that's because there was this push of very well-funded competitors driving in and saying, we're going to give this a go.

And actually, many of those competitors, their funding sources have now dried up, or they're having to double down on their existing businesses and focus on what they specialise in rather than trying all these peripheral offerings. And it's potentially providing the likes of DoorDash with an opportunity to really emerge from this environment a lot stronger than they went in, because capital has basically been sucked out of the industry. You basically have two players in the US, which is DoorDash and Uber Eats, and can you then go on to establish an unassailable lead when the next round of opportunity comes for others to try and disrupt? Potentially, yes.

MB: One last question. As an investor, is it hard to spot a company that's possibly running out of road? We talk about spotting winners, is it harder, or as hard, to spot a company that's running out of road?

KG: I think if you only focused on companies, probably yes, but I think one of the things that we do to try and help with that [is ask], are we going to get every one right? No. A couple of things we try to do to help us with that is we do invest or have relationships with private companies. That allows us to see what's happening in private markets, how potential competition might emerge in the future.

And then I guess the relationships that we have with various academics as well, helping us understand new technologies and new areas that might emerge in the future, and how that might affect our potential portfolio, are ways for us, at least, to test those hypotheses, so say, actually, are we being blind to the fact that this could be the company that's disrupted in the next ten years?

MB: And I want to give you the opportunity [to leave] the viewers with one topic, in no more than, say, a minute, if you were to leave them with one thought, what would it be?

KG: I think for me it would be that if you really want to change an industry, that it takes time. And that companies really have to invest in that entire ecosystem to really, really cement their position, to build those relationships going forward. It's not as simple as saying it's going to be a really quick fix and I'll do it in the next two years.

MB: That's a great place to end it, Kirsty. Thanks very much. And I hope you, the audience, have enjoyed the conversation as much as Kirsty and I have. And if you want to find out more about Disruption Week and the topics we'll be discussing later this week, then please check out bailliegifford.com/disruptionweek. And we'll have articles on all the themes that we're discussing a day or two after we talk about them. And if you do have any questions, please get in touch with your client contact or email us at disruptionweek@bailliegifford.com.

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