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Walmart

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Simeon Gutman: Good morning, everyone. How are you? I'm Simeon Gutman, I'm a retail analyst, Morgan Stanley's hardline, broadline and food retail analyst. It's my pleasure to introduce Walmart. Second time at this event, represented by Sravana Karnati. Thank you for being here.

First, I'm going to read a quick disclosure, and then we will get into a discussion. For important disclosures, please see the Morgan Stanley research disclosure website at www.morganstanley.com/researchdisclosures. If you have any questions, please reach out to your Morgan Stanley sales representative.

I'll give you a little bit of an intro before the first question. You're the EVP of Global Tech Platforms, so you oversee the building and deployment of scalable capabilities and systems that are global. You used to be the SVP and CTO of Walmart International, and that meant you led development of tech platforms across the globe. You have over 25 years of leadership experience at companies such as Expedia, Disney, Amazon, Oracle and Sterling Check.

So to start off, this is the second consecutive year Walmart's at this event, second time. It'd be helpful to lay out to this audience what are Walmart's top tech priorities and initiatives and how much has changed from a year ago?

Sravana Karnati: Yes. So Simeon, thanks for the introduction, generous. And really great to be here. Thanks, all of you for being here. And some of you I met in smaller sessions.

To answer your question, retail is a detailed game, right? So you need to be -- to be good in retail, you need to be good in pretty much everything that goes into it, merchandising, sourcing, operating, e-commerce and so forth. Having the right product at the right place and the right price is of paramount importance for Walmart. That's what our customers expect as someone who prides in making sure that the people are able to live better lives by saving them money.

But take a step back, our focus in the recent past has been to improve the customer experience, to take the friction away in shopping, whether it is online or offline in the stores and clubs and to make sure that we deliver products to our customers as fast as possible, so supply chain investment has been a huge thing.

To enable all of this, the approach we've taken is to build some of our core platforms to be scalable and to be more resilient for the longer term. So that's been our primary focus in the recent past,

customer experience, and supply chain and then powered by data intelligence and of course, gen AI. I'm a tech guy, so I must mention gen AI. So that's been one.

So I would say we have made a lot of progress in the recent past, Simeon. I think since Suresh Kumar was here last year, we rolled out a single global platform for powering e-commerce and marketplace in Mexico, Chile and Canada. So that came out of the same effort. And we improved our supply chain systems. Automation is a key part of that as well. So I'll stop there and see if you have any questions.

Simeon Gutman: Let me jump. So you come from the international business, which is smaller but more diverse geographically and in some cases, businesses that are less mature than the U.S. Can you compare and contrast what stage of technology development, what you learned from them, where the U.S. may be ahead and vice versa?

Sravana Karnati: Yes. So it's a very interesting journey. So I joined Walmart right before the pandemic hit. And -- thank you. And when I started five years ago, we had pretty much of a siloed approach, right? So a lot of our technology had roots in U.S. technology, but we had forced off the code and customized it for local needs. And if you look at Mexico alone, we had four different platforms for powering e-commerce. And those are specifically designed for powering specific banners. You've got bodega format, Walmart, Sam's, and so forth.

And it was okay at some point because when you're small, time to market and speed is very important. At some point, what started to happen was we were duplicating the effort. So one of the things we discovered was we needed to really build a common technology platform so we can not only do it cost efficiently, but it also helps us move faster. So that's what we've been doing.

So we've -- my team, when I was part of international, partnered with the U.S. team to build common technology platforms, not just for U.S. or any particular country, but global focus, and we were able to deploy that. And in some cases, we actually deployed the technology first in international markets even before we were able to do it in U.S. Because international markets are typically smaller, you can experiment more easily. Chile is a great example for us. Central America is another example where we deployed transportation technology, both inbound and outbound, before we rolled it out into U.S. as an example.

Simeon Gutman: If you take all of the areas of tech application from supply chain to automation, to advertising, to software and to information, is the U.S. the most ahead of the rest of the markets today? Or is there a model out there that's more ahead?

Sravana Karnati: I think U.S. is ahead in many areas. But if you look at China, for example, or India, the consumer expectations are different, customer expectations are different. The mobile adoption and how fast we go in those markets is -- they're more ahead, I would say, in terms of adoption of technology and what they demand out of a company like us. China, for example, 50-plus percent of e-commerce adoption. I was in China twice last year, late last year, and they were actually streaming the products online live and advertising those products for sale, right?

Then another example I would give you is we have Sam's -- obviously, in U.S., we have 600 or so clubs, and we have Sam's format, both in Mexico and China. And in China, they have done an innovation where a sort of a mother club, if you call it, has got a bunch of clouds. Think of them almost like dark stores that are attached to this mother club. And that store, fast-moving items, about 1,000 to 1,500 items with which we are able to ship, deliver within 30 minutes, for example, right?

So those kinds of innovations are happening all around. So by and large, I would say, in terms of technology platform, U.S. is ahead, but there's all of these pockets of innovation that are happening in the markets, and we'll learn from that and then adapt it to U.S. as well.

Simeon Gutman: Before we get into the meat, another question from more of a retail analyst perspective. You're a technologist and you've worked at these mega tech platforms over time. Now you're working inside the veil of a retailer. Can you talk about culturally Walmart's level of embracing of technology? What's positive? What's, I don't know, frustrating? Talk about those pros and cons and how Walmart embraced technology.

Sravana Karnati: Actually, it's a great question. I have worked for some of the technology-first companies, if you will. So I worked for Oracle, which is a database company, right here in Redwood Shores. I worked for Expedia. I must also mention I was at Amazon early on in- between 2002 and 2008, helped build some of the core platforms over there as well. I was with Disney and Expedia. So a diversity of companies here, many of them technology-first companies.

But I followed Sam Walton's story, our founder story and Walmart very closely ever since I came to this country back in '89. And it's been fascinating to watch how Walmart looked at supply chain, how they looked at the merchandising, how they learn from other companies such as Kmart or what have you, JCPenney and so forth, and integrate those learnings into their ways of working. It's been a fascinating journey.

And when I joined Walmart about five years ago, honestly, I felt I should have considered the company much before. I should have joined the company much before because what struck me was the people connection, the culture and how fast we actually move for a large company such as ourselves is amazing. Walmart made a ton of innovations in supply chain. I keep mentioning supply chain because that makes retail happen in many ways. Vendor-managed inventory as an example, that Walmart pioneered back in the day. We continue to innovate in supply chain.

And so for a large company like ours, the speed with which we move is fascinating to me. And I think it's possible because we are a people-led company, we pride in our relationship culture. And we also have this concept of four-in-the-box teams where business, products, UX, technology, all of these teams come together as small teams solve problems and move faster. So that's what is making the magic happen.

Simeon Gutman: Customer-facing tech. Let's start with what's changing or what's evolving in the customer experience with tech. what is the customer seeing today? And then what is on the common terms of what they're going to experience?

Sravana Karnati: Yes. This is a great question. So I did mention that improving customer experience is one of the key priorities for us. Ultimately, I don't know how many people know, so we have Walmart cheer. And if you travel to different countries, the cheer takes on a different shape. And I think South Africa has got the best cheer, the Swahili, I think, cheer. We- the cheer is one way that we remind ourselves that the customer is #1, right? So the customer experience is #1 for us. And what is fascinating is the gen AI technology that we have now is allowing us to, for example, change the customer experience. For example, when you go to search on the site, historically, we have entered keywords. We almost became ourselves like computers. You think of a product and enter keywords. And if you didn't get the right one, try to change the keywords and then enter a different keyword. Now you can actually be more mission-focused.

Customers are mission-focused in their shopping. They can enter full English sentences. I could say, for example, tell me what toys I can buy for my 10-year-old daughter, right? Or what kinds of products do I need to throw a football party, or something like that and then refine the search.

So the art of the possible is changing with the new technology that we have available, and we are making all of these investments to bring it to our customers. It's not just what is -- what the customer is seeing, we're applying this technology in the way we develop software as well, right?

In my current role as a global technology platform leader, my team owns the tools that our developers use to build technology, right? And we are launching -- we have made available generative AI technology for our developers through which they're able to be more productive. When they build software and deploy that to production, they're able to identify any issues with that a priority before they push to production.

And a tool that we launched last year, for example, saved about 4 million hours, just one tool that we launched. That's roughly speaking, about 10% productivity for developers, right? And we continue to roll out tools like code generation tools, testing tools, agentic AI and so forth. And so we're going to see more and more productivity and faster pace of development. All this means more- quicker innovation for our customers.

Simeon Gutman: So assisted search is a fair example. What about at the store level? Are there examples of either technology or AI application that could end up at the store for the physical experience?

Sravana Karnati: Absolutely. So if you look at our Sam's exit tech, right? So customers really want friction to be taken away in every step of the way that they engage with us. So that is on the site, that is in the store. And nobody wants to stand in the checkout lane for 10 minutes, 20 minutes or what have you. And one of the innovations that we rolled out recently is in Sam's where a customer can buy things, put stuff in the car, just walk out. And we have camera technology with AI that figures out what's in the cart, does the triangulation and it's an easy checkout process. So it's one of the nice ways we innovated to make our shopping experience easy for customers in the cloud.

So there are similar innovations happening. We may not be able to do the same thing in a Walmart supercenter format, for example. But there are other innovations that we're launching in terms of simplifying the checkout process over there as well.

Simeon Gutman: So you mentioned the saving of 4 million labor hours, if I said that correct?

Sravana Karnati: Right.

Simeon Gutman: So the follow-up to the customer-facing side is the behind the scenes, operations, infrastructure. What are the technology initiatives that are being pursued there, and then what's on the come?

Sravana Karnati: Yes. So it's not just what you see, equally important is what you don't see, right? First of all, you need to have the right merchandise. You need to have the ability to sort of bring your sellers on board if it's a marketplace. You need the supply chain to work well. And one of the innovations that we've done is to look at any facility that we have as a node in the supply chain. So which means the fulfillment center, distribution center, the regional distribution center, it is the stores, clubs, all of these things become points through which we can deliver products to our customers.

Our products can engage with us in different ways. We can ship it from our stores. They can come to stores and pick it. We can ship it from our -- directly from our fulfillment center and so forth. So that is one kind of a technology that you don't see that is happening in the back. And it's not just supply chain and distribution centers, it's also what you see in the -- what's in the backroom of your store as well, right?

If a customer -- if a store operator needs to pick something from the backroom, bring it to the shelf in the front of the sales floor, we created what is called a VizPick. You can point your camera at

the shelf in the backroom, and it will identify the right case that you need to pick. And you can more easily move that your front of the shop floor. So there is innovation like that, that takes away the drudgery for the associates in the store.

And the other thing is what my team does in my current role, right? We run all of the global technology platforms. Think of this as infrastructure, the networking, data centers and so forth. This technology runs technology for Walmart. And there is a bunch of innovation that we're doing to ensure that our total cost of ownership for technology goes down, and we're also being able to be nimble.

Simeon Gutman: AI question. So as AI and then more specifically, gen AI and agentic AI, as they continue to evolve, can you give specific examples how Walmart is leveraging the technology to improve its operations?

Sravana Karnati: So AI is touching every part of our operations. AI is the -- AI and gen AI is the new iteration of broader sort of machine learning and AI technology, right? So we have been playing with machine learning for forecasting for a very long time. And if you look at gen AI, the core part of gen AI is really a technology called transformer technology that Google came up with about 10 to 12 years ago. And we've been using that and recurrent neural networks and similar technologies to power our forecasting logic. And with that, we're able to predict the demand at a granular level in a geography and place inventory at the right location. So that's a great example of how we are using gen AI.

We're also using gen AI to clean up catalog content. Our sellers come in and enter their items, they list their products. And what we want to be able to do is to match the product that they enter with a sort of -- a core product that we have in our catalog so that we can serve the right customers, so we don't have duplication on our website when a customer searches for products. So to be able to do that, we need to be able to sort of parse the product description and match and clean up the content data, so we are able to present the right content.

The other thing that we're doing is, I did say gen AI is touching every part of our operations. We've got products where a merchant can now come into work and gen AI tools present the right insights, right compilation of data for them so that they can actually focus on their job of making database decisions as opposed to spending a whole bunch of time trying to compile data. So that technology already exists. We call it Wally. I've already talked about the customer side of it as well.

So if you can see every part of this we are doing. I already also talked about how we are improving the developer productivity by launching cogeneration tools, testing tools, pipeline visualizer tools to make sure that things are happening well.

And the other thing that I would like to mention also is when issues happen in your production, being able to autonomously, automatically able to find out what the issues may be and predictively scale up and down and predictively take out a server that may not be working really well, so customer experience is not impacted. So all of the technologies that exist that you don't see as a customer that is powering our retail machine.

Simeon Gutman: Are you finding that the tech stack that you work on or that works under you, makes a difference in then deploying the AI? And this is also applicable to -- we look at retailers asking the right questions about how tech stacks are built and what they're used for in their adaptability to leverage AI.

Sravana Karnati: Yes. It's a great question. I think we -- there's no one size fits all, right? But customer expectation and how fast the marketplace is changing, you want to be able to retain flexibility to meet customer demands nimbly. So that means wherever there is core technology, you're better off, especially as a large company such as ours to own that piece of technology. So this would be how we sort of manage our supply chain like I talked about, how we build AI models and deploy them.

We do use- we have our own data centers, of course, but we also use public cloud. We have private cloud as well. We have a number of partners we rely on to power our infrastructure. But when it comes to deploying AI models using our data, we want to handle that. We built a platform called Element AI, which allows us to design machine learning models, gen AI models and deploy safely to production because you want to make sure that the data- unnecessary data does not leak into production, right?

And so to be able to do that, we built this with the appropriate Infosec controls and privacy controls as well. So to own that technology gives us a lot more flexibility to modify and also move faster. And that -- and we make a conscious choice as to which technology we need to own, which technology we need to partner with our suppliers, our vendors. And like I said, there's no one-size-fits-all models.

Simeon Gutman: In managing and building global platforms, what strategies is Walmart implementing to ensure that you can scale and then seamlessly integrate across the different markets that you operate in?

Sravana Karnati: Yes. So our -- one of our key priorities has been to build common platforms, like I said. Take, for example, e-commerce. If you look at e-commerce, your search is key, personalization is key, catalog management is key. So we build these common platforms based on the same U.S. technology and then roll it out to our markets. It is not just- I want to make sure I'm answering your question right. Is that the question you asked?

Simeon Gutman: It is, yes.

Sravana Karnati: Okay. All right. And again, it's not just -- when we look at e-commerce and marketplace, we want to make sure that our customers have access to any and all products they want to buy, right? So which means being able to bring as many sellers as possible so they can bring as many of their products as possible, being able to fulfill customer orders, both from our own 1P inventory and 3P inventory, being able to mix those products in the same box and ship it so you can lower the cost of delivery and so forth. All of this is based on standard technology, the same common technology that we're building.

And this has been a key priority for us in the recent past, and we're seeing the benefits of that because we were able to roll this out to Mexico, Canada, Chile. We are talking about rolling it out over time to South Africa as well. China, while it does not use exact same technology, we do share our learnings to that market and then adapt it to their needs as well. We learn from what Flipkart has done in India and incorporate those learnings into our U.S. business, too.

So we are- while it is- retail is retail and it's the same kind of problem at some level, there are many local nuances, and we innovate to be relevant locally. And when something works really beautifully, we productize it, we put that into the platform so we can get that scale effect.

Simeon Gutman: You hinted on this a couple of minutes ago, I think 2 questions ago, internally built versus outsourced. So can you just remind us what portion of Walmart's infrastructure, systems infrastructure, is internally built versus outsourced? Does that even matter? Should I even be asking that question?

Sravana Karnati: I think it does matter because your ability to sort of change your software to meet the demands of the customer and also your ability to take advantage of emerging technology very quickly depends on whether you own the technology, the core technology or not. So for example, when gen AI was launched, the fact that we were already leveraging transformer technology, we already had experience with that, we already had lots of code dealing with that, allowed us to very quickly integrate gen AI technology to our search, for example, right? Had we not done that, we would have had to partner with some third-party vendor and explain our business to them, and it takes much longer to go through those cycles.

And I think it is important for a company such as ourselves, especially at this scale, to own that piece of technology and do it. But it's not just that. It is -- the trick is in really knowing where do you build and where do you partner. And where we build, we don't start from scratch, we're not building compilers, we're not building operating systems, we're not building physical infrastructure. We rely on partners for those things. And even when it comes to software, we leverage open source technologies. And not only we leverage, we actually contribute back to as well. We give back to the open source community. So we retain that expertise too, and we build a larger ecosystem that builds for us, too.

Simeon Gutman: The bigger getting bigger, in retail and across actually many verticals across the corporate America. Scale looks like it should be an advantage as well for Walmart when it comes to tech spending. Is that logic right in how the company has what resources to spend and access to information so that advantage keeps reinforcing itself? Does that resonate? Is that a fair point?

Sravana Karnati: Yes. Scale does give you advantage, but -- if you are tech-powered, I would say, that's the only way to really deal with scale is to be tech-powered and if you have the right ways of working as a large company and if you have the ability to move fast. And Walmart has been in the business for 60-plus years. We've done this. And like I said, even at this scale, we're able to be very nimble because while we have really good processes to prioritize and be laser-focused on customer requirements, we're also able to operate as small teams in segments and in pockets and move really, really fast.

And I also mentioned -- I mentioned supply chain a number of times, and we talk about scale and owning technology. And I also mentioned, it's not that we own- we build everything. If you look at supply chain technology, automation in the fulfillment centers, we don't build the automated picking and delivery systems ourselves, we partner with our vendors. WITRON is an example, Symbotic is an example, Knapp is an example. And by the way, I was in a couple of fulfillment centers recently and- where WITRON automated picking and delivery systems in California, in Shafter, is amazing to watch. It's like a sci-fi experience. All you do is you pick up your pallet and put it on the thing, it disaggregates it, puts in the high bay and predictively, given our warehouse systems, predictively, it picks stuff from the high bay system, puts it in another place. And then when the store orders come, it assembles the pallet automatically, wraps it and all you need to do is to put that into the truckload- into the truck, right? So this level of automation is not possible if you take the approach of building everything yourself or if you take the approach of let's go partner with somebody else. It's got to be a best-of-breed approach, and being able to do that effectively is something that Walmart is good at.

Simeon Gutman: That illustration, which I think we'll see some of it in -- at Analyst Day, that should be cutting edge relative to what's out there in terms of fulfillment capabilities and automation?

Sravana Karnati: Yes. It is cutting edge. I was like a kid in a candy store. When I went there, I was like in awe looking at the setup. And then -- but you go to a market, it's a slightly different setup. And then

you've got goods-to-person technology where robots are moving stuff, bringing it to you, and so you can assemble the order quickly. So it's not one piece of technology.

And before we roll this out, we experiment in small ways, right? So for example, we had Symbotic system right now. So we had an investment in alert innovation technology in a system called Alphabot in our stores in micro fulfillment center. So we kind of perfected that, and we wanted to scale that. And so we recently made a transaction with Symbotic, and we will be rolling that out over time to many more stores over time.

So it is- it takes time to have the sort of the vision, but at the same time, be willing to experiment in small ways, perfect the technology, identify for what it works, for what purpose in which region and then scale it up. And it is something that Walmart has done forever, right, this experimentation.

Simeon Gutman: It was partly a loaded question because I think some competitors in e-tail that name their robots, there's a perception that they're ahead as far as some of that picking technology. And I don't- I think the market doesn't appreciate where Walmart's gotten to an automation. So-.

Sravana Karnati: Yes. So we have had -- even before Alphabot and some of the APD type systems, automated picking and delivery type systems, we've had in our regional distribution centers, high level of automation, right? And many of these things have been perfected with our associate feedback and working with the vendors, and so it is something that we've always done and we'll continue to do.

Simeon Gutman: To close, in about a minute, use of data feels like it should be a game changer for Walmart, the amount of data you have. I can only think even what VIZIO and that partnership can combine to, but not just in advertising, just pure customer data. So can you talk about how could data tip the scales for Walmart going forward?

Sravana Karnati: Yes. I think we have a tremendous amount of data. I would say, on a daily basis, now this is not just customer data, but everything is related to customer data in some ways. But if you look at all the data that we deal with, the logs and customer data and everything put together, you're talking about 10 petabytes of data on a daily basis. And that's, I would say, about 8 trillion pages of textual data, if you want to put that into context, on a daily basis.

So there is a tremendous amount of data that we deal with. But what is important is what the data is used for, what portion of that can we use it for forecasting, what portion of that can we use for identifying anomalies in your system, in your infrastructure, and what portion of it could you use to recommend better products for your customers and better intelligence for your merchants and suppliers and sellers and so forth.

So we have systems in place. We have models in place that continue to get better and better and better. It's a journey. There's never an endpoint, I don't think. But we use all of this data, all of these latest technologies, to solve various problems.

Simeon Gutman: Okay. Well, we appreciate you being here. Thank you for giving us a glimpse into how Walmart is using technology. Thank you very much.

Sravana Karnati: Thanks a lot. Appreciate it.