Written Testimony of

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"Review of Emerging Tech's Impact on Retail Operations and Logistics"

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Thank you, Chairman Latta, Ranking Member Schakowsky, and members of the Subcommittee, for the opportunity to testify before you today.

I am Dan Sanker, Founder, President & CEO of CaseStack, Inc. We work closely with large retailers to create collaborative programs that help take waste out of supply chains for about 2,000 clients. In simple terms, we bring our clients' products into warehouses in Los Angeles, Seattle, Dallas, Chicago, Toronto, Atlanta and Scranton. Then, we work with retailers like Walmart, Amazon, Whole Foods, Kroger, Target and others to create multi-supplier orders destined for those retailers - and ultimately consumers. On average, each of our trucks, like the 600 that will go out to Walmart Distribution Centers this week, will include an average of 16 less-than-truckload orders. By collaborating with the retailers as they create those orders, we transform those otherwise 16 truck deliveries into one very efficient combined, perfectly weighed-out, cubed-out truckload. We have other offices in the Bentonville area, Cincinnati, Minneapolis and Seattle where we actively work with large retailers like Walmart, Kroger, Target, Whole Foods and Amazon. The result for supply chains: Less time in transit, less damages, less wasted miles and empty space, less environmental impact, and ultimately lower prices for an American consumer. No mom, trying

to make ends meet should be paying for an inefficient supply chain, and our kids shouldn't be impacted by any more gas emissions than is necessary.

Our company has been fortunate to have been recognized as #1 in the Deloitte Technology Fast50, made the Inc 5000 list of fastest-growing companies in America nine times and has been recognized as one of the Best Places to Work in two states: California and Arkansas. CaseStack was recognized as Global Logistics & Supply Chain Strategies "100 Great Supply Chain Partners" and Food Logistics Top 100. The Company was also acknowledged for its technology innovation and service by PC Magazine.

Prior to starting CaseStack, I worked with some of the best industry mentors a person could ask for while at Procter & Gamble, Nabisco, Deloitte, and KPMG. Prior to all of that I studied in the US and abroad, and I keep pretty involved in the happenings domestically and internationally on supply chain, logistics, tech, retail and consumer packaged goods. I also have about 400,000 LinkedIn followers who help me stay connected and two Generation Z teenage boys who are unusually tech-centric and keep me current.

We are currently developing a new division of CaseStack called SupplyPike with the expectation that it will spin off to become the leading cloud-based platform for supply chain professionals in the consumer goods industry. The CaseStack cloud-based technology platform already enables consumer packaged goods companies to manage everything from merchant interaction, account management, improvements in sourcing & forecasting, item setups, sell-through optimization, logistics and business analytics. The SupplyPike technology platform will open that up to more of the half-million Americans who are somehow involved in the supply chain as supply chain professionals.

Hopefully that gives some background as to where my thoughts come from. It's all a great vantage point where I get to see the effects of supply chain innovation on consumers, retailers, trucking companies, warehouses, technology companies, and thousands of consumer packaged goods suppliers. Some are household names with products you probably used this week, and many are emerging companies; like a small family rice farm in Arkansas that is packaging products that will sell around the globe.

So, what is currently top-of-mind:

Education - As a company, we are investing a lot into training our next group of technology developers and job creators. When it comes to tech, there is somewhat of a divide in the US. The first-tier tech clusters (Silicon Valley being the most obvious) aren't the only places where there are talented tech developers. We are working with Universities, but more importantly we are working with high schools throughout Arkansas to engage students in technology; providing inspiration and a path for kids to transform themselves from technology users (i.e. game and app players), to technology makers. My two boys attend what has been rated as the best high school in Arkansas, but even there they have very limited access to some technology tools or training. I sometimes see kids taking computer classes without computers. Anyone here with kids knows that they grow up fast. As a business person, I also know that we'll be recruiting from this pool of candidates in just a few years. We'll need these kids to have experiences that they're just not getting. Our Company is doing what we can; literally with high school interns in our office every week, and we're hosting meetups and conferences. But, I would urge Congress to take every chance to allocate resources to schools that also support our meritocracy; get the talented kids access to training and tools.

Sustainability - I moved to Arkansas about 10 years ago; mainly because Walmart had embarked on a ground-breaking sustainability initiative. At the time, I started a 501c3 called Green Valley Network to help foster sustainability in supply chain, consumer packaged goods and retail. We all got a lot done; there were simple concepts like removing the excessive packaging on childrens' toys, adding fuel-efficiency equipment to trucks, using solar energy on our warehouse roofs, experimenting with alternative fuels in our trucks - and most importantly our core consolidation business; taking wasted truck miles and space off the roads. I'm sure you've seen the great statistics over time as traditional retail business pushed to remove waste - waste that hurt the environment and cost American consumers money. Now, consider what's happening in a post-traditional retail environment. The long tail of commerce is here and that alone means that all of us consumers have access to our favorite niche items. We all see the effects on our doorsteps, and in our garbage pails every week. As an industry that spent a decade removing wasteful packaging; we are now in a mad dash to add packaging, so that products as small as your favorite niche product can ship directly to your house. It was once one of the most efficient supply chains in the world - imagine full truckloads shipping from factories to retailers; then consumers self-serving by driving to the store and loading up their cars with groceries. It was a model that didn't need a lot of wasteful packaging, that consolidated products for optimal efficiency. That is being replaced by an entire supply chain that is built to handle small volume, long tail items. They move in frequent, smaller and less-efficient shipments in a supply chain that consumers never see, and they are delivered in boxes stuffed with paper and plastic dunnage destined for landfills and driven to your house on thousands of small trucks; many only carrying a small item, but burning almost as much fuel as an 18-wheeler. About 10 years ago, I learned from sustainability experts that sustainability is really a state of mind. There isn't usually a magic button; instead it requires that each of many decisions

consider sustainability all the time. So, I would urge Congress to include sustainability into decisions. For example, are there externalities that we'll all pay for later? Is the full cost of small package delivery actually being paid for - as it all uses public infrastructure from roads, the USPS, publicly-supported waste disposal, etc.

Capacity - Will eCommerce requirements somehow be constrained by capacity? In our industry, sometimes, I feel like there is an 'everything shortage.' There is a driver-shortage to drive the trucks that move the products around - during the holidays this past December we had a week where there were lanes where there was only one available truck and seven loads needing to use it. ECommerce is a heavy warehouse user - traditional retail relies on storefronts while eCommerce pushes most of that work to warehouses. Our warehouse partners estimate that an eCommerce dollar uses up to six times as much warehouse capacity as a traditional store bought dollar's worth of product. Take a recent example, Amazon Wardrobe - they will be picking and packing clothes for you to try at home with the intent that you'll try them, return what you don't want and only actually buy what you kept. All of this requires a lot of warehouse and transportation workers and capacity. I see this issue as more of an opportunity than a problem. Millions of entry-level jobs will be created in logistics. Salaries will increase as demand goes up. The free market will fix it, but you can expect it to come with higher costs and higher consumer prices. There's nothing free about free shipping. The market fixes everything, but sometimes it needs adequate time. I would recommend that Congress consider timing legislation in ways that reduce the impact on the market. For example, if new regulations will reduce driver-time or increase costs of trucks; continue trickling those into the market over several years.

Consolidation & New Methods - Our company is founded around collaborative consolidation between supply chain participants. According to McKinsey & Company: "Parcel delivery: The

future of last mile" (Sept 2016), over the next 10 years in the US, volume of parcel delivery (including domestic express segment) will reach 25 billion parcels per year. And, although there is a mad-dash to provide beyond-expectation customer service right now, many retailers are providing more immediate delivery services than consumers are even asking for. For example,

- 70% of consumers are content with the cheapest form of home delivery
- 23% of consumers are willing to pay extra for same-day delivery
- 5% would pay more for reliable, timed delivery
- 2% would pay more for instant delivery

As costs increase, and we return to a more rational market, we'll likely see increased pressures to find more efficient delivery methods. We are currently working on developing the critical mass, so we can mode-shift parcels into less-than-truckload. A lot of our previous successes in a bricks and mortar world revolve around moving from the less-than-truckload mode up to the direct truckload mode. We are preparing for the analogous need in eCommerce now. We'll be consolidating all of those parcels into mini-pallets that will show up at your doorstep or at a locker facility. Instead of the onesie-twosie packages that make their way to your door every day; imagine a lower cost, less-wasteful alternative to receive a mini-pallet at your door every few days. It can come with substantially less wrapping which makes it convenient to unload and less trash intensive in disposal. Return logistics can be aggregated similarly, so you can send back more than a single item as well. We are working with a few retailers on the concept. In addition, whether the last-mile is a parcel or a pallet, we can expect that there will be new forms of transportation. For example, in rural areas, we'd expect that flying drones will play a role. In more urban areas, expect autonomous vehicles and lockers. And, in dense urban areas, we'd also expect couriers and droids.

Mckinsey defines seven main operational models for parcel delivery, based on 300 startup reviews and 2,000 patents filed:

1. Today's model: Dedicated delivery person employed by the parcel delivery service provider picks up the parcels at a consolidation point, e.g., delivery base, and delivers them directly to the recipients. Large vans are typically used as delivery vehicles.

2. Drones: Autonomous aircrafts, e.g., copters or vertically starting planes, carry parcels (up to 15 kg) to their destination along the most direct route and at relatively high average speed. Like droids, they too need to be supervised.

3. Crowdsourcing: Any member who has signed up as a driver to the crowdsourcing network can choose to complete a specific delivery order. The advantage of this model is its flexibility in supply, especially in covering peaks and troughs, the multipurpose use of certain assets such as cars, as well as the low investment requirements for parcel companies. Furthermore, some companies hope to create synergies beyond regular parcel delivery, e.g., with taxi services.

4. Autonomous ground vehicles (AGVs) with lockers: AGVs deliver parcels without any human intervention. Customers are notified of the exact arrival time. Upon arrival at their door, customers are asked to pick up the parcel from the specified locker mounted on the van or truck – picture a mobile parcel locker. Granted, such vehicles would need to be supervised. We assume that a central supervisor could manage roughly eight to ten AGVs.

5. Bike couriers: Couriers employed by the parcel service provider deliver a small number of parcels by bike. Today, this is often seen in point-to-point delivery, especially for B2B documents and prepared food.

6. Semi Autonomous ground vehicles: A delivery person is still required, but could theoretically use the driving time more efficiently to take care of sorting or smaller administrative tasks, e.g., scanning or announcing arrival while the vehicle does the driving. These advantages need to compensate for higher investment costs, as autonomous ground vehicles are likely to be more expensive than regular cars or vans, at least initially. However, the delivery person will likely not be allowed to move freely while the vehicle drives, limiting the tasks that can be performed in transit. We find it difficult to see how the savings in terms of streamlined administrative tasks can compensate for the higher investment cost.

7. Droids: Small autonomous vehicles, only slightly larger than a regular parcel, deliver parcels to the doorstep. These vehicles are relatively slow at 5 to 10 km/h and use the sidewalk rather than the street to reach their destination. Such droids also need to be supervised, but due to their size and low speed, developers currently believe that a single supervisor could manage 50 to 100 of them.

Public acceptance towards new operational models has already begun to shift:

- Over 40% of consumers claim that they would definitely or likely use AGVs with lockers. Among 18 to 34-year olds, over 50% stated they would definitely or likely use AGVs.
- Nearly 50% of consumers indicated that they would or would likely use crowdsourcing.
- 60% of consumers indicate that they are either indifferent to (25%) or even prefer drones (35%).

I would urge Congress to allow free market experimentation with the new delivery methods.

Blockchain - Our company considers the blockchain revolution to be unusually-applicable to supply chain management. The current statistics are already interesting:

As currency: The cryptocurrency market is about $600 billion (according to CoinMarketCap). More importantly, the growth: That $600 billion market was about $16 billion a year earlier. SupplyPike is already enabling bitcoin payment for logistics services.

As utility: We are partnered with a company called ShipChain to apply blockchain technology to Supply Chain Management. There is currently $2.1 billion in investment in blockchain technology occurring (according to IDC).

As a job-creating industry: The number of blockchain-related LinkedIn job postings more than tripled over the last year. Organizations badly in need of blockchain developers are setting up training centers, outsourcing, or even nabbing talent before they've graduated college. 13 percent of Senior IT leaders say they have clear and current plans to implement blockchain, according to IDG Connect research.

There are already obvious advantages of blockchain on Supply Chain, including:

- Enhanced Transparency. Documenting a product's journey across the supply chain reveals its true origin and touchpoints, which increases trust and helps eliminate the bias found in opaque supply chains. Manufacturers can also reduce recalls by sharing logs with manufacturers and regulators (Talking Logistics).
- Greater Scalability. Virtually any number of participants, accessing from any number of touchpoints, is possible (Forbes). In my experience, greater collaboration lowers costs.
- Better Security. A shared, indelible ledger with codified rules could potentially eliminate the audits required by internal systems and processes (Spend Matters).

I have to imagine that it's tempting to legislate around blockchain, but I would humbly suggest that too much regulation might deter innovation. When I reflect back on the last 30 years, I'm

actually surprised that there was so little legislation to protect consumers and businesses from the Internet. Similarly, I would submit that blockchain might have the potential to bring a second wave of innovation, and it should be left somewhat unregulated. According to McKinsey, the Internet accounted for 21 percent of GDP growth over the last five years among the developed countries studied, a sharp acceleration from the 10 percent contribution over 15 years. Most of the economic value created by the Internet falls outside of the technology sector, with 75 percent of the benefits captured by companies in more traditional industries. The Internet is also a catalyst for job creation. Among 4,800 small and medium-size enterprises surveyed, the Internet created 2.6 jobs for each lost to technology-related efficiencies. The United States is the largest player in the global Internet supply ecosystem, capturing more than 30 percent of global Internet revenues and more than 40 percent of net income. Other countries did regulate; and they missed growth opportunities.

Nobody can confidently say where blockchain will lead. Unfortunately, many people will make unfounded amounts of money and many will lose more than they expect. That is the price we all pay for disruption, innovation and a future. The blockchain is so much more than crypocurrencies, but those currencies are one of the biggest drivers of blockchain innovation. I encourage people who want to understand blockchain's potential upside and risks to actually use it before passing judgment. Buy a little bitcoin, and figure out how to buy lunch with it. Watching the process is a great way to understand blockchain.

Entrepreneurial Wherewithal - Finally, I'd be remiss if I didn't stress the importance of entrepreneurial capacity. It's probably one of the most truly American cultural legacies that creates economic opportunity. I see the great work that has been done in the local venture scene from the SBA Regional Innovation Cluster (RIC) funding and the Department of Commerce EDA i6 funding (e.g. Ozark Regional Innovation Cluster). Those programs have been catalytic in our

ability to foster innovation and entrepreneurship in a small rural Arkansas region, and I can only imagine that they're driving a lot of technology that will continue to keep us all stronger.

In summary, there are epic changes occurring in retail, in the supply chain behind retail, for employees, for companies, and for countries. I appreciate the fact that as an American company, we have so much latitude to experiment. That is what creates innovation and sustainable prosperity for all Americans. I am looking forward to answering any questions, and humbly appreciate your attention and consideration.