META-PLATFORMS AND THE EVOLUTION OF DELIVERY LOGISTICS

CONSUMERS TODAY ARE MOTIVATED by convenience when it comes to purchases of products or services – getting what they want, when and where they want it. Couple this with the digitalization of the supply chain and the prospects for artificial intelligence, and a vision of the future of delivery logistics begins to take shape.

This future will be more asset-light and agile, compared to the asset-intensive operations of today's major logistics companies, with their fleets of trucks and planes. Making market entry easier for hungry tech disruptors, the focus of delivery logistics is increasingly shifting toward customer data, connectivity, and operational flexibility.

A key enabler of these changes will be the development of "meta-platforms" – massively wide, deep, and intelligent computing environments that allow logistics companies to interact with disparate and rapidly changing operating systems, software, and apps – and, most importantly, across company boundaries to seamlessly service their customers. These meta-platforms are not likely to be directly end-customer facing; instead, they will steer the logistics flow of products on the operations side, while ensuring that operations is well connected to sales – where customer preference data resides.

Meta-platforms are thus at the heart of future delivery logistics systems, and even today's early adopter meta-platforms – such as Amazon's – have proven to be a road to industry dominance. (Amazon's meta-platform provides customers with transparency into order status and integrates downstream delivery partners, but as yet does not enable customers to change where and when shipments will be delivered, nor does it fully integrate upstream and downstream transportation options.)

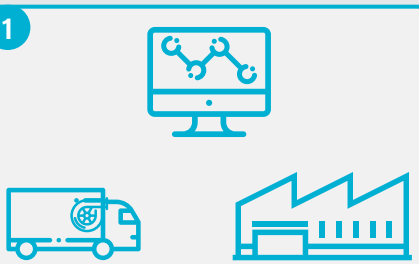
Through the use of meta-platforms, networks that were once established to simply push goods through at the lowest possible cost will be able to evolve to offer customized solutions that reflect customer priorities. Thus, for example, it will soon be possible to have a spare part from one place and a mechanic from another standing at the ready to service a plane landing at a third location, without disrupting the airline's schedule, all initiated by an automatic alert from the plane. Or, an overnight shipment headed to one factory will be rerouted while en route, based on a sudden need at another factory, and still arrive on time.

DRIVEN BY DATA

As meta-platforms evolve to incorporate more big data analytics and machine learning, layers upon layers of customer data will drive their competitive value. Goods will be routable depending not just on the geography of the destination, but numerous other factors: For example, is this a VIP customer? Was it a discount sale? Are there other purchases that should be bundled together? Some of this happens now, but it takes considerable human intervention, which slows down the process and carries a higher risk of errors. In the future, deliveries will be channeled automatically by technology that can make decisions efficiently and quickly.

META-PLATFORMS IN ACTION: AIRLINE PART REPLACEMENT EXAMPLE

1



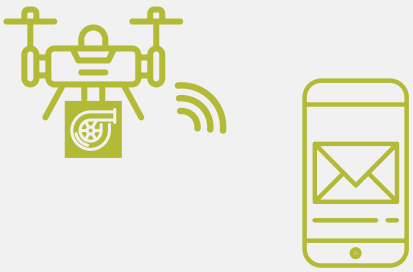
An OEM's forecasting system predicts that an airline will have a thrust reverser failure (probability 60 percent). The breakdown location is predicted to be either Denver or Chicago in 18 to 22 days. A thrust reverser is ordered from the distributor and shipped to a centrally located delivery logistics provider. The OEM informs the airline of the likely breakdown and predictive shipping.

2

A breakdown of a thrust reverser occurs on one of the airline's large aircraft. An on-board computer detects the problem in flight and transmits the requirement for a new part to the OEM and the airline's maintenance hub. The information is assessed and approved, triggering delay-saving actions.

3

The new part is labeled and sent via drone for same-day delivery as soon as the electronic order comes in. The airline's flight operations center is informed of the expected repair time, a replacement plane is requested, and airports and passengers are digitally informed of expected flight delays.



4

A technician is notified that the plane will be landing and of the part replacement that needs to take place. She is given an estimated time for the arrival of the part and views a detailed repair demonstration via a virtual reality system.

5

The part arrives via expedited drone service. Using a detailed repair plan sent by app, the technician replaces the broken reverse thruster. All data on the breakdown is saved in a centralized database to further increase prediction accuracy.

Sales platforms will no longer be able to offer just a few generic options and hope they cover a customer's situation, once meta-platforms are able to reach out to customers and report back their delivery needs and expectations in real time. For example, if a buyer doesn't need same-day delivery, then offering it isn't worthwhile. Instead, the customer might want to be able to change the destination of the package at any time, and the ability to deliver on that promise may determine which company gets the business.

This emphasis on data and customer knowledge is why an enterprise such as Amazon has been able to outflank more established logistics companies. Like many other technology-based disruptors, Amazon focuses on getting to know as much about each customer as possible. This is true for Google as well, and the reason both of these companies have been able to integrate themselves so easily into the supply chains of many different industries.

This transition has taken away the advantage traditional logistics suppliers once had and has attracted a raft of new asset-light digital natives to the space. (See "How Start-Ups Are Digitalizing Logistics" in this issue.) Even Amazon, which has always been involved in logistics, continues to create smaller, more nimble operations, such as Amazon Fresh and Amazon One, to perfect logistics for various industries. Traditional logistics suppliers will find it challenging to follow suit unless they develop the same levels of connectivity and data analytics.

NEXT-GEN LOGISTICS

With meta-platforms as an enabler, the future of delivery logistics will involve diverse solutions accommodating diverse needs. Some of this future is already being beta-tested, such as locker stations with roofs that accommodate drone delivery of packages (a conveyor belt takes packages the final few feet to customers' lockers), or apps that allow customers to re-route packages mid-delivery. In some European and US cities, remote-controlled delivery carts now share the sidewalk with humans.

Advances in data science will be required, however, to make this future fully a reality. Just having terabytes upon terabytes of data isn't enough, if it's sitting in 20 different databases scattered across the supply chain. And delivery systems with high levels of volume fluctuation will need five critical enablers: connected data along the entire value chain, dynamic planning, agile networks, enhanced channel management, and open platforms integrating all channels with customer interfaces.

Equally key will be the further development of nascent technologies. For example, 3D printing will allow the production of spare parts and products closer to the customer and faster customization. Augmented (virtual) reality could help reduce returns by enabling customers to make better choices when they order, thanks to three-dimensional modeling and interactivity.

Ultimately, due in large part to the connectivity enabled by meta-platforms, most of us won't even recognize delivery logistics a decade from now: Fleets of drones buzzing by as they deliver and pick up packages, mobile lockers driving autonomously through cities, and robots cruising down neighborhood sidewalks on quick trips from local stores. Incorporating all of these new ways of operating may require companies to seek out partners or even crowdsource solutions, but simply standing still will no longer be an option.

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