# HOW COULD LAST MILE DELIVERY EVOLVE TO SUSTAINABLY MEET CUSTOMER EXPECTATIONS?

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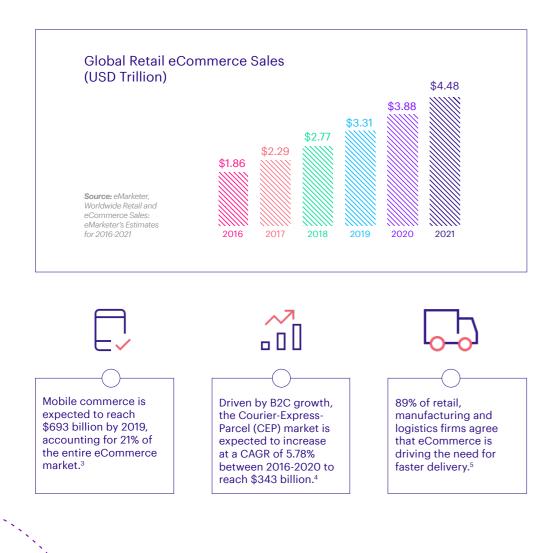
# **Evolving Customer Expectations**

ECommerce has evolved into a \$2.8 trillion<sup>1</sup> global market where increasingly the default demand from customers is that they 'need it now'. They want faster, cheaper delivery with greater control over their experience.

The need to deliver more parcels faster and at a lower cost to meet customer expectations is increasing the pressure on retailers, delivery providers and their wider supply chain as the "last mile" – the final phase in the delivery process when the parcel reaches the end-customer – is the most expensive and time-consuming step of the fulfilment process.<sup>2</sup>

As a result, these companies are looking to improve their operations by intelligently leveraging new technologies and processes to improve efficiencies and reduce delivery costs.

This Point of View examines the key drivers behind the continued evolution of the last mile and outlines Accenture's proposed solution to sustainably satisfying these new customer expectations.

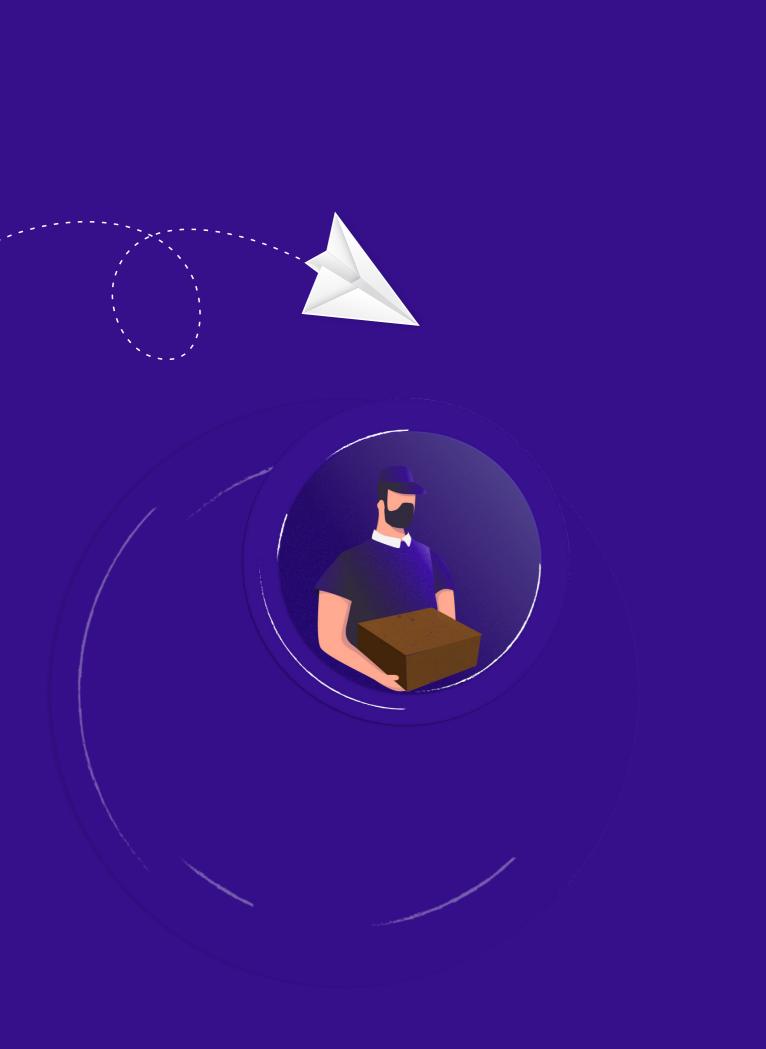


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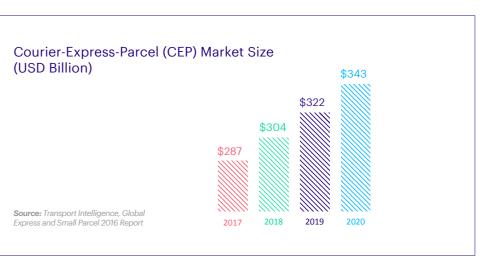




Last Mile Delivery 3



# **Evolving Customer Expectations**



The growing need for a seamless, more immediate delivery experience is influenced by a marketing paradigm shift that Fjord, the global design and innovation consultancy, terms "liquid expectations"6. Customer expectations are no longer limited to a given product category: instead, they extend across unrelated industries and experiences. For instance, customers increasingly compare the slick user experience offered by digital natives such as Uber, Deliveroo and Amazon with their airline flight cancellation, their visit to the doctor or their recent product return.

Most traditional, non-digital experiences fall short in comparison. This is particularly true for established delivery carriers within the Courier-Express-Parcel (CEP) industry where much of the innovation (e.g. process automation, parcel scanning and enhanced sortation) has occurred behind the scenes and out of view of the average customer. As a result, end-customers are feeling increasingly frustrated with the standard of service provided by existing delivery carriers and are more open to the charms of disruptive new entrants that can meet their expectations.

Influenced by these experiences, always-on, tech-savvy customers are demanding faster delivery. They also want additional features, which are largely focused on increased control over the delivery experience. For example, the ability to select and modify delivery windows, track deliveries in real-time and even communicate directly with drivers. These features will dramatically improve the delivery experience and are key to satisfying customers at a time when their loyalty is at an all-time low<sup>7</sup>.

In this context, retailers have turned to the last mile as a key battleground to differentiate themselves to customers by offering fast, flexible and even free delivery.

# **Evolving Customer Expectations**

Providing a differentiated delivery experience while remaining profitable is a significant challenge for retailers and delivery carriers. This is due to the high cost of transporting goods, continued margin pressure from intense competition and the need for increased visibility throughout their supply chains. Overcoming these challenges could be the difference between these businesses having a future or falling by the wayside.



# **Amazon is Leading the Way**

In the battle for the last mile, Amazon is the undisputed king of eCommerce. Accounting for 25% of all US packages today and on track to reach 50% by 2020, Amazon offers free 2-day shipping on all items and free same-day delivery on specified items in return for Amazon Prime membership, which is priced at \$119 per year or \$12.99 per month in the US (£79 per year or £7.99 per month in the UK) and now has over 100 million subscribers.<sup>14</sup> Other retailers increasingly find themselves having to match Amazon with similar deals and promotions just to stay competitive in the market.

Amazon's delivery advantage lies in their vertically integrated network, which has positioned the eCommerce giant to dominate across retail, fulfilment and logistics. Their integrated approach enables them to gain efficiencies and synergies across their delivery operations by picking, packing and dispatching large volumes of orders from a single origin point and consolidating them into individual driver routes. In contrast, most other retailers are reliant on third-party delivery providers to efficiently aggregate orders at their own sortation centres before assigning them to their drivers for delivery.

To further cement their competitive advantage, enable even faster delivery, reduce transportation costs and fill the current gap in the market for a low-cost, rapid delivery option, Amazon continues to invest heavily in their own delivery network and infrastructure. They have built regional fulfilment centres to hold inventory closer to the end customer and plan to create over 100 small fulfilment centres across the UK<sup>15</sup>– Amazon are currently responsible for c. 25% of all warehouse space new lets in the UK ; they have launched Amazon Flex as their own on-demand, crowd-sourced delivery service; and they have developed advanced analytics capabilities to better predict order demand and optimise inventory deployment.

These investments are paying off with industry experts arguing that Prime Now – a service that offers one- or two-hour delivery – achieves higher productivity than other same-day delivery carriers. It has an average of 1.5 deliveries per stop (compared with closer to 1 for competitors) and up to 15 deliveries per hour per carrier (compared with 1 to 3 for same-day competitors).<sup>16</sup>

Average deliveries per hour by c
CEP Carrier (Next-Day) Amazon Prime Now (Sa
34

Source: Accenture, The New Delivery Paradigm, 2017



# **The Omnichannel Opportunity**

Amazon has a first-mover advantage in the battle for the last mile, but omnichannel retailers, who seamlessly combine their online and instore experience, have an excellent opportunity to cost-effectively meet consumer demand for faster delivery and increased control by utilising new technologies to better leverage their existing physical infrastructure.

Traditional brick-and-mortar retailers have struggled against Amazon's leading customer experience and competitive pricing. However, as delivery becomes increasingly local (trips of less than 50 miles are growing 25% annually)<sup>17</sup>, their dense store network could become their most effective weapon in the race to provide a more responsive customer experience.

To better compete in the on-demand customer economy, retailers are largely seeking to minimise delivery times and reduce transportation costs by: transforming their supply chains from single node to multi-node networks; retrofitting stores to double as "eFulfilment" centres that pick, pack and dispatch online orders; and by creating "dark stores" and "metro hubs" in high-density urban areas to position inventory closer to the end-customer.

To do this, they are developing next-generation supply chain capabilities that predominantly leverage digital technologies and advanced analytics. These provide increased opportunities for automation as well as improving their inventory visibility to rapidly drive down fulfilment costs. In addition, the data that they capture will lead to sharper business intelligence and more informed decision-making.

A next-generation supply chain is built on five core capabilities.



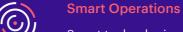


#### **Real-Time Inventory Visibility**

To accurately accept, fulfil and complete orders across an increasing range of delivery options requires real-time inventory visibility across stores, fulfilment centres and the extended supply chain. Retailers need to have pinpoint accuracy on their inventory locations to improve planning, fulfil orders quickly, reduce out-of-stock and replenishment errors and better resolve problems in their supply chain.



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Smart technologies are crucial for streamlining retail supply chains. Retailers are experimenting with warehouse robotics and augmented reality (AR), further automation of pick, pack and dispatch processes, and advanced forecasting and planning tools to improve sales forecasts and inventory planning.

#### **Agile Distribution Network**

To better provide a range of delivery options to meet customer needs, retailers are fulfilling orders from multiple inventory locations including stores, metro hubs and fulfilment centres. Stores are increasingly being retrofitted to double as eFulfilment centres to move inventory closer to the consumer and enable faster same-day delivery, while centralised warehouses are being utilised for next-day or international delivery. Similarly, retailers are evolving their distribution networks to better process returns. Efficient reverse logistics is increasingly an essential requirement given the exponential growth of returns, which is further squeezing retailer margins and operational efficiencies.



Under current conditions, customer expectations are higher, and the supply chain is much more complex. So retailers are using distributed order management systems to intelligently manage orders across a variety of systems, processes and partners. By aggregating orders from multiple sources, retailers can fulfil orders placed in-store or online from any inventory location - be it a store, a fulfilment centre or even a delivery truck. As a result, any node in the supply chain can be leveraged to improve fulfilment performance.

#### **Seamless Inventory Deployment**

To minimise delivery times and maximise product availability, retailers are using intelligent algorithms to automatically allocate and replenish their inventory in real time. If retailers have full inventory visibility they can share it across all their channels and trigger replenishments as

# **The Omnichannel Opportunity**

### Supply Chain Case Study -Target

Target plans to invest more than \$7 billion in the 3-year period between 2017-2019 on technology and supply chain improvements to improve its delivery proposition. The retailer is focusing on further leveraging its c. 1,800 stores to enable faster delivery, drive online growth and reduce transportation costs. Shipfrom-store now accounts for more than 40% of all online units shipped. Target plans to continue to expand this capability. In 2017, it added an additional 350 locations, bringing total ship-from-store availability to c. 1,400 stores.<sup>18</sup>

# Supply Chain Case Study - JD.com

JD.com is China's secondlargest eCommerce business. It specialises in selling electronics and home appliances. The company has invested heavily in its own logistics network to develop a market leading supply chain that has enabled it to gain market share from its chief competitor, Alibaba's Tmall. JD.com is widely seen as the world's leading company in high tech delivery and has experimented with drones, autonomous vehicles and robots. The company has the world's largest drone delivery capability.<sup>19</sup>

A digital and evolved supply chain built on the foundations of an existing store network will help retailers to greatly reduce their fulfillment time, provide greater flexibility to fulfil orders from multiple locations and enable a differentiated last-mile delivery offering.

However, these solutions only go so far. To conquer the last mile, small and large retailers alike will need a delivery solution that meets their customer requirements for speed, flexibility and control.

While large retailers may have sufficient order volume to justify experimenting with their own delivery capability, most retailers do not have the scale to operate their own fleet. Instead, they are leveraging a combination of established carriers alongside new, disruptive on-demand delivery start-ups, such as Stuart and Deliv, to meet their specific requirements for speed, control and cost. These, though, are imperfect solutions, and the last mile remains unconquered territory with significant challenges and costs for retailers.



Last Mile Delivery 11

#### Own Delivery Fleet Case Study - Argos

Argos currently have an advanced delivery capability that leverages a node and spoke infrastructure. Large stores double as eFulfilment centres that hold inventory for click and collect delivery to smaller convenience stores and for local same-day home delivery. By leveraging their existing infrastructure, Argos can provide same-day delivery on specified items to 85% of the UK population for a charge of £3.95. Orders can be placed as late as 6pm to avail of the same-day offering with customers selecting between one of four delivery windows.

# **The Dilemma for Post & Parcel**

Traditionally, retailers partnered with established carriers to provide last mile delivery. These carriers had successfully found a solution to the principal challenge with last mile delivery, namely efficiently completing many delivery stops with low drop sizes.

To overcome this problem, they built national delivery infrastructures to consolidate parcel volumes in ever larger sortation centres, which were then allocated to individual driver's routes for final delivery to the end-customer. Over time they continued to drive operational efficiencies throughout their fixed infrastructure by using technology to increase automation, including sortation machines, hand-held tracking devices and scanning machines. However, the fundamental process remained the same. This approach, while hugely successful, is now struggling to provide the speed, flexibility and responsiveness needed for a compelling same-day delivery proposition.

While this delivery model was effective when eCommerce was small and will remain extremely efficient for providing national and long-haul delivery services, retailers now recognise that a faster, more flexible delivery proposition can act as a key differentiator within their customer offering. As a result, they are demanding speedier delivery that leverages their multi-nodal supply chains, alongside additional capabilities - such as flexible delivery windows and the ability to redirect orders in real-time – which the traditional delivery model is not designed to fulfil.

For example, UK clothing retailers including Next, ASOS and Boohoo previously offered customers next-day delivery if they ordered by 8pm. These retailers are now offering delivery cut-off times to as late as midnight to provide customers with greater flexibility and convenience.

To cope, post and parcel companies are implementing a second wave of collections and sortation across their operations, which is hitting their operating efficiency and delivery costs. Meanwhile, large retailers such as Amazon are maintaining their relentless pressure with free shipping on a range of delivery options, which is providing additional downward pressure on delivery price-points. This is unsustainable. The continued growth in eCommerce combined with consumer demand for faster, more flexible delivery requires a new and innovative delivery model.

# **On-Demand Delivery: Too Good to be True?**

The response from retailers and delivery companies has been to experiment with alternative delivery models to identify a more cost-effective solution for same-day delivery. This often means working with a variety of new and disruptive on-demand delivery partners, including start-ups such as Instacart, Deliv, Stuart and Postmates.

Characterised by the gig economy, most of these start-ups can be compared to a rapid point-to-point taxi service in that they fulfil one order at a time by collecting from a single origin and delivering to a single destination. This model typically leverages inventory from existing stores to fulfil same-day demand – which also means that these companies don't have to operate their own distribution facilities.

These disrupters offer asset-light, data-driven delivery models that typically leverage crowdsourced labour from the shared economy. To make this model as efficient as possible, they concentrate on urban areas that provide a high density of supply and demand. And their set-up means they can offer customers increased control over the delivery experience through capabilities such as order tracking, text notifications and flexible delivery windows. (*Continues on page 16*)



#### Personalising the Delivery Experience

A key trend among customers is the desire for increased control over the delivery experience. In addition to quick delivery, there is an increased focus on delivery experience and performance.

Confirmation and Notifications:	Ratings:	Delivery Windows:
Confirmation that the customer will be at the delivery location and ongoing updates to keep them informed of their order status	To enable customers to rate their delivery experience or delivery driver.	Ability for customers to select specific delivery times or slots.
Real-Time Tracking:	Delivery Instructions and Driver Messaging:	Redirection:
To provide visibility of the order location using live gps tracking.	To provide specific delivery instructions or communicate directly with the	To make last- minute changes to the delivery location or time window.

driver

#### On Demand Delivery Case Study - Disruptive Start-Ups



Deliv is a crowdsourced on-demand delivery service targeted at fashion and general merchandise retailers. The service can be easily integrated with a retailer's own eCommerce systems to provide a same-day delivery option for customers. Retail partners include Adidas, Nike, Hugo Boss and Farfetch.

Deliv agrees a same-day delivery fee with each retailer, which they may pass on to customers. For example, Kay Pharmacy offers free same-day delivery with Deliv whereas Best Buy charges a delivery fee.

Deliv offers additional delivery services to enhance customer control over the delivery experience including real-time GPS tracking, delivery scheduling, reoccurring delivery slots and customised delivery slots from 1-hour to same-day.

In early 2018, Deliv launched Deliv RX, which is a confidential delivery service for pharmacies. Its service features include photo ID verification, age verification, signature at delivery and end-to-end order tracking.

**	POSTMATES

Postmates is an on-demand delivery service that connects customers with local couriers who aim to collect and deliver orders from any store or restaurant in minutes. Partners in the US include Walgreens, Apple, Starbucks and Chipotle Mexican Grill. In addition, Ford are collaborating with Postmates on several autonomous vehicle pilots.

The Postmates delivery fee is \$1.99 to \$3.99 for partner merchants or a delivery fee in the range of \$5.99-\$9.99 for other merchants. In addition, a variable percentage service fee of c. 9% is applied to the customer's order value.

Interestingly, Instacart recently announced a partnership with Postmates to have them deliver some of their grocery orders at peak times to help keep up with demand. Postmates is usually quieter during late morning and early afternoon when Instacart is at peak demand, so the partnership improves efficiency across both carriers.

instacart

Instacart is a crowdsourced on-demand grocery delivery service in the US. Personal shoppers fulfil online orders at local stores and deliver to the customer's home usually within one or two hours after receiving the order. Grocery retail partners include Whole Foods

Market, Costco, Kroger and Target.

Instacart adds a 15%+ mark-up on the grocery order price in addition to a delivery fee that varies depending on the selected delivery window. However, customers can avail of free delivery if they register for an annual membership with Instacart Express. Membership starts at \$99 for the first year before increasing to \$149 per annum thereafter.

Instacart has developed some advanced analytics capabilities to manage their liquid workforce including:

- Demand Forecasting: to predict order volumes.
- Supply Forecasting: to predict supply availability.
- fulfil predicted demand to better enable workforce management.
- required to meet predicted order volumes and adjust personal shopper hours and delivery pricing in real-time to maximise demand conversion.<sup>21</sup>

Supply Planning: to forecast the required number of personal shoppers to

Real-Time Capacity Management: to estimate the number of delivery windows

# **On-Demand Delivery: Too Good to**

**be True?** (Continues from page 13)

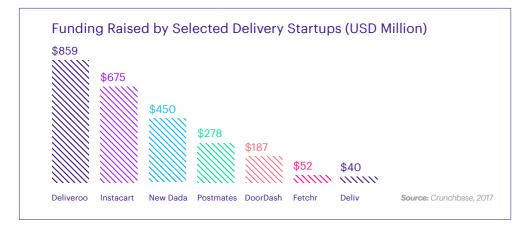
These start-ups are experiencing mainstream success. In the US, grocery retailers such as Whole Foods Market and Kroger have partnered with Instacart to deliver their groceries to local customers in as little as 1 hour; Nike and Adidas are working with Deliv; and Apple is offering same-day delivery through Postmates.

Post and parcel organisations have also begun to conduct same-day trials through partnering with, acquiring or investing in point-to-point delivery start-ups to offer retailers and consumers the delivery services they demand. For example, DPD Group acquired Stuart in 2017 after previously partnering with them for same-day delivery and UPS invested \$28m in Deliv in February 2016 to better understand their service.<sup>20</sup>

However, concerns remain around the profitability and sustainability of these new delivery models as they continue to face fierce competition, thin margins, potential regulatory action against the gig economy and a host of operating challenges that have blunted the effect of economies of scale.

To date, these delivery models have failed to effectively leverage and consolidate the high density of supply and demand provided by the urban areas in which they operate into efficient delivery routes. In their pursuit of speed, they have sacrificed parcel consolidation, larger drop sizes and route density, which are the key factors required to reduce operating costs. While both Amazon and established parcel carriers in the US can achieve productivity of over 15 parcels per hour per carrier during delivery runs, a point-to-point courier can typically log no more than 2 or 3 point-to-point deliveries per hour<sup>22</sup>.

As a result, their average variable costs per delivery are as high as \$7-\$10.<sup>23</sup> While consumers are willing to pay for same-day delivery, the majority are unwilling to pay more than \$5.<sup>24</sup> To date, a combination of retailer delivery fees and venture capital funding for start-ups has subsidised the real cost of delivery with the consumer only paying c. \$4-\$6. For instance, delivery start-ups raised \$2.5 billion from venture capital funds in 2016.<sup>25</sup> This approach is unsustainable. As the volume of same-day orders increases, retailers and start-ups' ability to subsidise deliveries at scale will diminish. To survive, these companies need a more sustainable operating model.



# **Our Vision for the Future**

# Designing a better last mile delivery solution is the next major battle within eCommerce.

To achieve this, retailers and delivery providers will need to move to a Continuous Delivery model to achieve a cost-effective same-day proposition while leveraging the wider delivery ecosystem to drive efficiencies and provide end-customers with a comprehensive last mile delivery offering.

# **Introducing Continuous Delivery**

One approach to provide cost-effective same-day delivery requires the ability to continuously add parcel collections and deliveries to a driver's route throughout the day. For instance, a driver may start their day by collecting 16 parcels at a local fashion store, proceed to deliver 10 parcels to local customers before collecting an additional 8 parcels at a local general merchandise store.

This continuous approach will increase route density, improve fleet utilisation and reduce the cost of delivery. To enable Continuous Delivery and meet customer demand for faster, more flexible delivery, carriers need to leverage four essential capabilities:

# Advanced Forecasting

Intelligent algorithms are used to accurately predict collection and delivery locations, and time of order. These forecasted orders are provided to the route optimisation engine to improve driver response times, increase collections and deliveries on each route, and reduce transportation costs.



## Optimised Delivery

Dynamic route optimisation is employed to optimise and re-optimise routes throughout the day to quickly respond to and efficiently schedule incoming collections and deliveries across the network. This keeps drivers on an efficient route while enabling them to rapidly respond to changes throughout the day by leveraging realtime data.

# Intelligent Insights

Machine learning and advanced analytics capabilities will measure delivery performance and identify opportunities to further increase route density and delivery efficiency. These can include additional features to provide retailers with increased transparency over the end-to-end delivery process to monitor carrier performance and find the optimal solution among their delivery options.

## Real-Time Tracking

GPS breadcrumbs and scan events are used to provide customers with increased visibility and control over the end-to-end delivery experience. This includes real-time track and trace capabilities, delivery notifications, flexible delivery windows and instant communication with the delivery driver or customer care operator. These live customer updates are then fed back into the route optimisation engine alongside all real-time data updates.





# **Identifying the Right Approach**

While the complexity and investment required to implement a Continuous Delivery framework may seem overwhelming, it is complementary to the investments retailers are already making to enhance their supply chains.

Furthermore, with the same-day delivery market forecasted to account for \$200 billion in US online sales by 2025<sup>26</sup>, retailers, post and parcel companies and on-demand delivery start-ups all stand to gain from utilising a more localised Continuous Delivery model.

However, each individual company's approach and investment will depend on whether they have sufficient scale to cost-effectively offer their own same-day delivery service or if it is more efficient to leverage a partner's delivery network and supply chain capabilities.

As a result, the established post and parcel companies are likely best positioned to leverage Continuous Delivery to provide retailers with a costeffective same-day solution as they already have the parcel volume, retail customer base and existing delivery infrastructure required to provide the necessary route density.

However, to date, most post and parcel organisations have operated their same-day delivery services as stand-alone trials and they have yet to benefit from leveraging the scale of their wider infrastructure, technology and operations. To gain the operating synergies necessary to create a marketleading, same-day proposition, these carriers must start to integrate their same-day capabilities within their existing delivery infrastructure.

To achieve this, they will need to develop a Continuous Delivery model to provide the required flexibility and responsiveness across their entire delivery framework to enable drivers to quickly identify, respond to and collect incoming parcel volumes in real-time.

# **Partnering for Success**

The core capabilities required to implement Continuous Delivery rely heavily on new analytics methodologies and techniques which make the best use of an organisation's available data. Embracing these analytics methods is proving to be a major challenge for many companies as many do not have existing capabilities or skillsets in this area.

To plug the gap, businesses are increasingly collaborating with academic institutions and technology companies to develop the capabilities required to take advantage of the evolving last mile and to instil a greater understanding of analytics and quantitative methods within their organisations. This has resulted in a significant increase in the piloting of new solutions as companies work together to explore and validate the commercial potential of new approaches and technologies.

### Innovation Partnership Case Study - Walmart

Walmart is partnering with Alert Innovation to develop and trial an automated fulfilment system called Alphabot in its Salem, New Hampshire store. The solution will pick and collate online orders for customers to reduce manual input, increase speed to fulfil and reduce pick costs. Alphabot will be housed in a 20,000 sq. ft. facility that is connected to the store. Walmart is aiming to test the solution by the end of 2018.28

Greater collaboration has also led to greater experimentation with companies increasingly working together to trial advanced technologies including drones, autonomous vehicles and robotics to further reduce the cost of fulfilment and delivery.



# **Conclusion: The Road Ahead**

As the rapid growth of eCommerce continues to fuel consumer expectations for faster, more flexible delivery, current and emerging delivery models will struggle to survive if they do not adapt to a cost-effective delivery solution, which enables them to intelligently consolidate orders into efficient delivery routes that increase route density and drop sizes.

Existing post and parcel delivery models currently lack the flexibility and responsiveness to provide a cost-efficient, same-day proposition while on-demand delivery providers have an unsustainable cost structure, due to their lack of operating synergies. Furthermore, with the number of packages delivered globally expected to increase from 74 billion in 2017 to 100 billion by 2020, delivery carriers will be increasingly stretched without the ability to better collaborate to consolidate parcel volumes across their infrastructures.

To survive, current delivery models need to evolve to leverage advanced analytics, dynamic route optimisation and artificial intelligence so that they can provide greater speed and flexibility to respond within a fluid delivery environment.

Retailers are showing more initiative. They are making significant investments in their supply chains to move their product closer to the endcustomer, to minimise delivery times and to reduce transportation costs. In doing so, they are transforming their supply chains from single node to multi-node networks, retrofitting stores to double as eFulfilment centres, and launching forward-stocking metro hubs, which is rapidly reducing fulfilment costs and laying the foundations for a more flexible, cost-effective solution. In addition, retailers are increasingly demanding that their supply chain partners enhance their own systems and operations to provide the required visibility and flexibility to support these investments.

To take advantage of the opportunities offered by the boom in eCommerce, last mile providers – including delivery start-ups, post and parcel carriers and retailers - must evolve to leverage Continuous Delivery to increase route density and reduce the cost of last-mile delivery. To succeed, they need to strike the right balance between speed and control - by ensuring they have sufficient time to consolidate orders to drive delivery density and increase drop size - while providing value-added perks that consumers now expect, including last-minute order modification, real-time tracking and driver-rating systems.

As technology further reduces the cost of fulfilment and delivery, retail will continue to evolve to a marketplace model that intelligently orchestrates between multiple inventory sources and delivery providers while meeting customer expectations for increased choice, speed, flexibility and personalisation. As a result, the battle for customers will be increasingly won or lost in the last mile. To succeed and survive, a Continuous Delivery solution will provide the complete package.

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