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Supply Chain Last Mile Report 2020

Table of Contents

Disclaimer

Introduction

The last-mile pressure continues to mount going into 2020, with e-commerce driving growth in developing markets and market share shifting from B2B to B2C. Accelerated delivery times have conditioned consumers to expect speed, yet there remains a tension over the environmental cost of this trend. As a result, monitoring changes in consumer preference has become an increasingly important aspect of brand strategy, with expectations of immediacy and visibility in delivery, companies must intelligently leverage emerging technologies without sacrificing sustainability in order to succeed in a post-carbon digital economy.

Key Facts

Delivery

'Faster, Cheaper and Greener' are the three key words for delivery in 2020. As the market matures, consumers begin to tie cost, environment and speed together, augmenting buying habits.
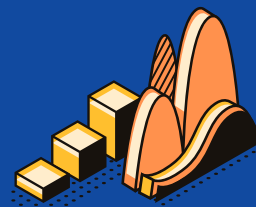
Technology

With current Transportation Management Systems found lacking, companies would do well to invest in an optimization software solution to improve planning and delivery flexibility.
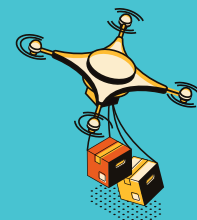
Environment

Environmental concerns begin to take centre stage in business decisions as companies adapt to new legislation and quickly changing consumer preferences.

Future

Improving delivery options whilst improving on cost and sustainability are key challenges going into 2020. Technologies such as autonomous vehicles and Digital Freight Matching platforms may yet yield viable solutions to these critical issues.

Dassault Systèmes Opening Insights

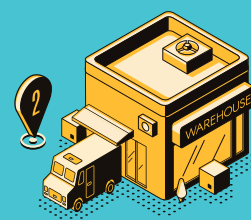Having great products, competitive pricing and a user-friendly retail platform are not enough to win and retain consumers. To excel in the 21st century retail landscape, you need to deliver unique experiences, on time, based on a planning system that is able to support the ever changing consumer demands. Your markets are transforming: more delivery options, flexibility, speed, expected savings, and operations needs to run in the most eco-efficient way. Only then can you get maximum value from your supply chain.

The retail and express logistics industries are using the supply chain as a strategic driver of competitive leadership. Retailers are now going the extra mile to provide shoppers with the convenience of home delivery.

However, the many moving and interdependent parts of last mile delivery make it the most complex and expensive segment of supply chains. Finding the optimal balance between ever-changing consumer needs and operational costs is an ongoing challenge.

According to this Supply Chain Last Mile Report 2020, there are plenty of improvements yet to be made!

- Only 18 percent of retailers surveyed think they satisfied customers with their last-mile delivery service

- Another 12 percent said they could not meet customer expectations

- The remaining 70 percent said there is room for improvement

This is also an opportunity: for the majority of retailers, there is a battle to win and retain consumers at the last mile — and it starts at the planning stage. Fortunately, rapidly advancing technology creates new ways for supply chains to be more efficient and responsive to consumer demands.

First, retailers need to choose a software that integrates multiple systems and optimizes planning. This will help your planners to gain insight into vehicle assets, workforce dynamics and real-time product locations. With this, they can make better planning decisions that keep each delivery cost-efficient, with the least impact on the environment as possible.

Dassault Systèmes Opening Insights

Second, new innovations that are revolutionizing last mile logistics to satisfy consumers' most important wishes — choice of delivery time slots, narrow delivery time slots, and time slot adherence — are already here. The right planning solution is able to incorporate intelligent metrics and optimization technology, take incoming data in real time, make sense of it, and respond with accurate plans.

Third, a planning system that can truly anticipate and support future developments and new innovations will help you master last mile logistics. With the right planning solution, you'll be able to successfully convert shopping basket selections into real sales, build consumer loyalty and gain market share.

This is how you win and retain customers through last mile delivery. Use the learnings from this report to bring more value to your supply chain, and support your strategies to meet your business targets.

Philippe Loeb

CPG-Retail, Home & Lifestyle Industries VP
Dassault Systèmes

Dassault Systèmes' DELMIA Quintiq provides companies with solutions to model, plan and optimize their business operations from end to end. Its advanced planning software is used to plan and optimize complex production value networks, optimize intricate logistics operations, and plan and schedule large, geographically diverse workforces.

Built around a perfect-fit model, it's configured to respect all of an organization's unique rules and constraints, such as production capacity, inventory and logistics constraints, contractual requirements and more.

For more information, please visit: https://www.3ds.com/products-services/delmia/products/delmia-quintiq/

Methodology

314 supply chain executives from across the globe were surveyed for the 2020 iteration of our Last Mile report. We gathered information from retailers, eTailers and brands, logistics service providers, technology solutions providers, legal and financial solutions providers as well as media associations to bring you insights for 2020. Representatives across 11 industries including apparel, consumer electronics, cosmetics, food & groceries, publishing and wholesale are featured in this year's report, giving a broad indication of the concerns, challenges and intentions organizations have for the Last Mile across the global supply chain in 2020.

314
Industry Professionals

152*
Solutions Providers

84
Logistics Providers

78
### Retailers, eTailers, Brands & Manufacturers

* Made up of 76 Technology and 76 Non-Technology Solutions Providers

Delivery

Faster, Cheaper and Greener have become the three key words going into the new decade. Whilst speed has been an important factor as long as Amazon has made it "free", consumers have been happy to engage. However, now that the market is more mature, consumers understand there are hidden costs associated such methods. As environmental awareness progresses, more and more consumers are inclined to wait a little more if the CO_2 footprint is better (by grouping deliveries for instance). With demands for same-day and next-day delivery skyrocketing, managing these expectations in line with efforts to decrease operational costs will be a difficult balance to negotiate in the coming decade.

As researchers from McKinsey note, the cost of global parcel delivery (excluding pickup, line-haul and sorting) sums up to close to $70 billion, with China, Germany and the US accounting for over 40% market share.[1] E-commerce has been driving growth in developing markets in particular, shifting the market share from B2B to B2C. As a result, monitoring changes in consumer preference has become an increasingly important aspect of brand strategy, with the last-mile becoming a key differentiator for success.

What is your biggest challenge in last mile delivery?
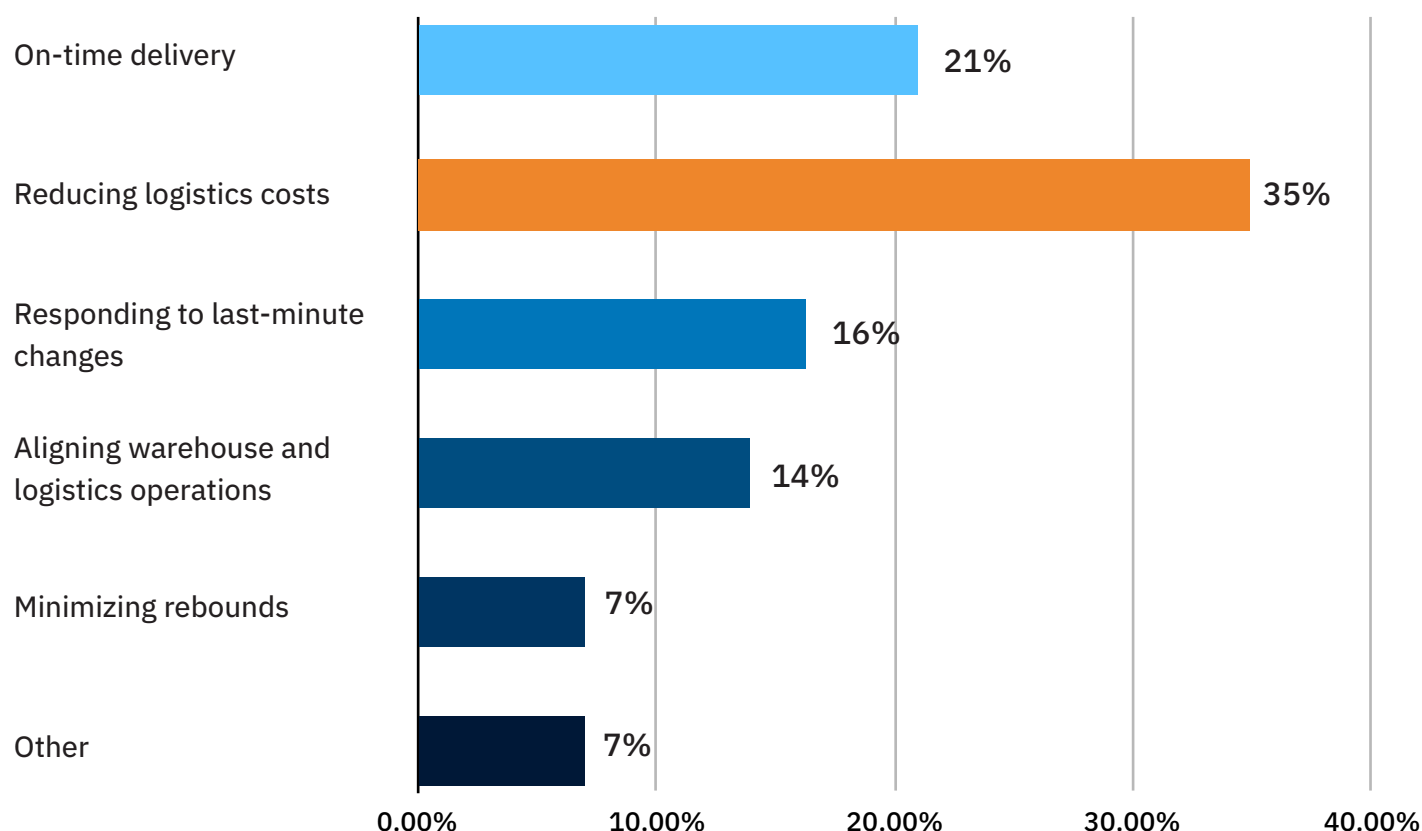
Delivery

Our retailer, eTailer and brand respondents maintain that the biggest challenge in last-mile delivery for 2020 is a reduction in logistics costs. The boom in eCommerce across the globe has led to a surge in demand for same and next-day delivery, and is coupled with a growing interest in alternative delivery methods. This uptick in demand may see retailers partnering with technology groups to drive digital-first strategies: absorbing last-mile delivery costs, improving response times to last-minute changes (16%) and reducing rebounds (7%).[2] Furthermore, such technology focused partnerships may be the solution to the challenges of on-time delivery (21%) and improving on warehouse and logistics operations (16%), perhaps through an enhanced analytics and metrics platform. These digital strategies, as well as traditional methods such as strong relationships with suppliers will be key to improving and maintaining good customer relations, as well as reducing cost in the last mile.

How involved are you in the organization of your customers' last-mile delivery process?

61% of Logistics Service Providers are responsible for the planning of their customers' last-mile delivery processes, with just 8% of retailers choosing to plan themselves, or outsource the organizational aspects. 18% of LSPs are only involved on the delivery side.

61%

12%

18%

8%
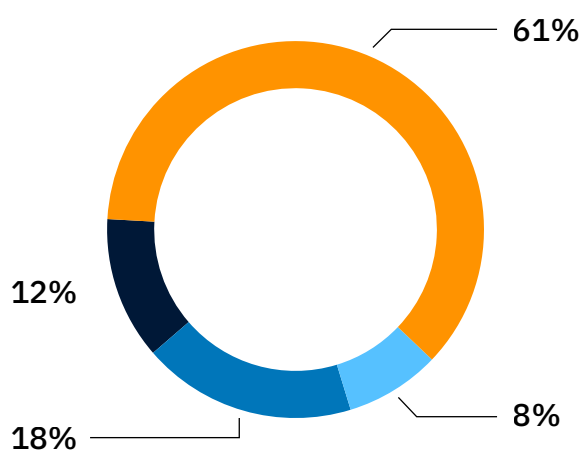
🟧	LSPs are responsible for the planning
🟦	The retailer either does the planning or has outsourced it.
🟦	LSPs are not involved in the organization process, just the delivery.
⬛	Other

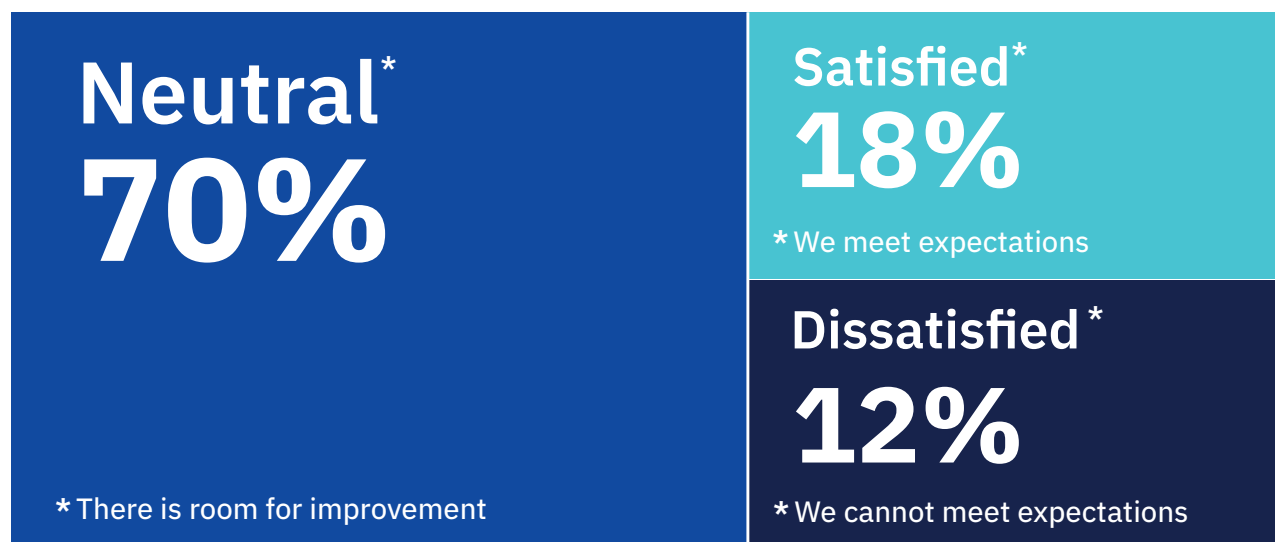[2] 'https://www.ft.com/content/65784240-1ff8-11ea-92da-f0c92e957a96

E-Commerce

What delivery models do you have for eCommerce?

A small proportion of retailers are still managing home delivery through their own services (12%). Clearly managing this kind of service in-house is costly and many retailers simply lack the scale and capital required to effectively fulfil their own product delivery, hence the need to utilize third part logistics services. The vast majority of retailers are organizing eCommerce deliveries through 3PLs, with 82% of all those surveyed choosing to deliver via parcel or postal services. Given the need for simple and fast delivery services, both click and collect (25%) and third-party pickup points (32%) are a growing market. Leveraging a diverse, distributed fulfilment location network is critical to providing a last-mile performance that is fast and efficient. Brick-and-mortar locations, dark stores, and warehouses are potential choices, with convenience stores, gas stations and self-service locker facilities emerging as third-party alternatives to avoid failed and repeated delivery attempts.

How satisfied do you think your customers are with your current last-mile delivery service?

Neutral*
70%
*There is room for improvement

Satisfied*
18%
* We meet expectations

Dissatisfied*
12%
* We cannot meet expectations

Delivery service has become central to customer experience, to the extent that 3PL services can be seen as extensions of the retailers themselves. As such, given the clear reliance upon third party companies, selecting the right company firm is pivotal to the success of the retailer in question. With this in mind, despite the reliance upon third party companies, the overwhelming majority of retailers (70%), eTailers and brands surveyed expressed a clear need for improvement to improve customer satisfaction with their last-mile delivery service. Pressure to provide adequate insight into the delivery process continues to mount, with consumers demanding more control over the delivery experience in the form of the ability to select and modify delivery windows, track deliveries in real-time and even communicate directly with drivers. Improvements in these areas would go a long way, not only to

E-Commerce

improve upon customer satisfaction rates, but possibly decrease last-mile costs, and boost efficiencies as both consumers and retailers find ways to synchronize across logistical networks. As such, flexibility and adaptability were also key demands, with 69% of customers believed to need greater flexibility in delivery slots, and 18% requiring the ability to adapt the delivery location following their order.

Only 18% of firms felt that they had met expectations, with 12% expressly stating that they are failing to provide the service required of them. This set of statistics points to a clear opportunity for a Logistics Management Division firm that can effectively and reliably deliver for their customers going into the new decade.

What delivery models do you have for eCommerce?

11%   9%

37%

44%
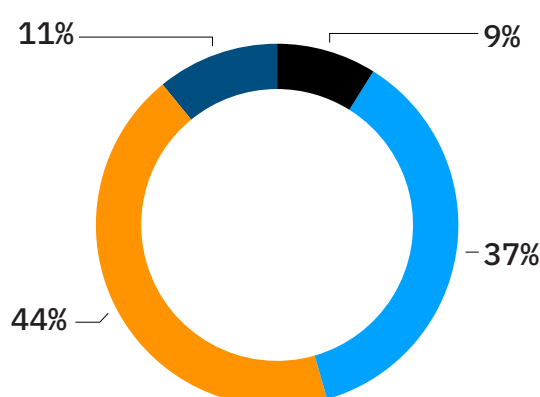
■ Home delivery managed by ourselves

■ Home delivery using third party logistics company (postal, parcel, etc,)

■ Click and collect (in store delivery)

■ Pickup point

Delivery models are changing to meet the 'want it now' attitude and expectations of consumers, and over a third of companies (37%) rely upon 3PLs to deliver to their customers as demand increases. The majority of companies (especially those with established brick-and-mortar locations) are turning to alternative options such as click and collect (44%) or pickup point (11%) models. For instance, Walmart has partnered with Alert Innovation to develop an automated pick-ing solution ('Alphabot') for its New Hampshire store. When customers arrive at in-store to pick up their order, workers can input an order number into any of the stations attached to the Alphabot shelving system, to receive the groceries bagged and ready to go. The hope is that this will bring down last-mile delivery costs by encouraging collection as well as reducing congestion in store.[3]

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[3] *'https://www.businessinsider.com/walmart-unveils-alphabot-to-battle-amazon-and-kroger-2020-1?r=US&IR=T*

E-Commerce

What are consumers' 3 most important wishes when it comes to last mile delivery

Category	Value
Choice of delivery slots	48%
Narrow delivery time slots	12%
Time slot adherance	28%
Same Day Delivery	13%
Eco-efficient Delivery	14%
Low Costs	34%
Free Delivery	42%
Real-time updates on delivery	42%
Adjust delivery location after order	16%
Adjust order content after securing slot	5%
Smart Delivery	9%
Wide range of products	8%
Home Delivery	26%
Click & Collect	8%
Other	11%

E-Commerce

There is a clear mismatch between the expectations of retailers and the delivery performance of their delivery partners. Delving deeper, the retailers we surveyed highlighted: improved flexibility in delivery time slots (69%), adhering to given time slots (71%), and real time updates (78%), as the key areas that need to be enhanced to hit the consumer satisfaction that is required. These three key areas represent a persistent theme of our findings for this report: the need to increase visibility over the parcel's journey.

This has been a keen desire for retailers for a number of years now, but as these statistics suggest, the execution hasn't caught up to the rhetoric. For this to be obtained, there is a need for more data across the network. Improvements in these areas would go a long way, not only improving on customer satisfaction rates, but also would allow retailers to asses their networks and identify the areas where costs can be cut. Many networks are riddled with inefficiencies and a holistic view would allow retailers to effectively cut costs.

Smart Delivery
A new model for delivery in which the consumer can give drivers remote access to their house or vehicle to fulfil their order when they are away from home.

As noted in our 2018 whitepaper[3], the stakes are high with final mile delivery. Customers are increasingly making purchase decisions based on delivery options and, as the last mile begins to mature, offering smart and personalized delivery services could be a prime candidate for those retailers looking to gain the competitive edge in 2020. 10% of organizations believe that consumers want the ability to allow drivers access to either their home or vehicle when they are absent, mitigating the need to deliberate over delivery dates and avoiding repeat attempts. One such service has been trialed in the UK by supermarket brand Waitrose, who partnered with lock firm Yale to provide customers with a smart home delivery service. The customer must grant temporary access to their lock to a delivery driver through a code which then deletes upon completion of the delivery. Customers are afforded extra visibility over the process with the institution of a body-camera, worn throughout the delivery by the driver. They can request this video from Waitrose the following day, should there be anything amiss. Investment into multi-agent delivery teams will play a role in the development of smart delivery services, as the demand for home delivery of large items grows, delivery teams necessitate access to customers' homes for product installation, packaging re-cycling and other final mile services that extend beyond the drop-off at the door.

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3 *'The Last Mile Logistics Whitepaper: The Iconomization of the Last Mile'*
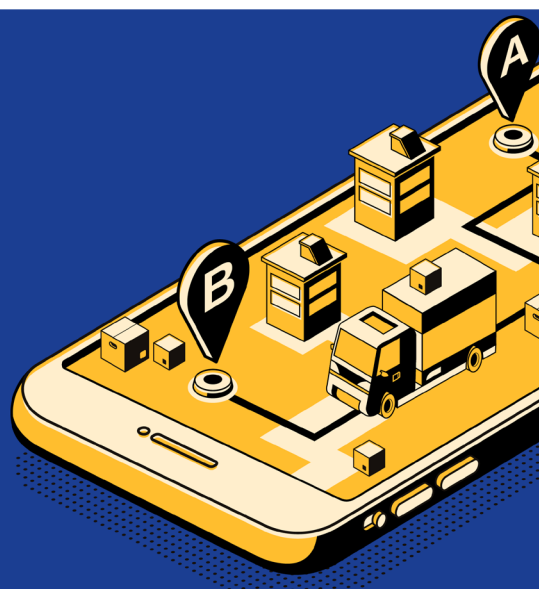
Technology

What type of planning tool(s) do you think is most popular with retailers to plan last mile operations?

Transport Management Systems (TMS) currently play a large role in the modern supply chain. Often seen as an essential software system for those organizations looking to gain an upper hand in the last-mile, a good TMS enables your organization to plan for the varied and fluctuating needs of transport distribution, through every stage of the delivery process. However, as the industry moves forward a TMS is not enough. Unable to generate optimal plans and schedules for all time horizons, as its primary calculations infer from historical data and completed task data, retailers and LSPs will find that emerging delivery challenges are best tackled with an advanced planning tool (that's backed with mathematical optimization), which will allow them to plan more deliberately across broad time scales. From real-time exectution to years in advance, dedicated optimization software will give retailers the upper-hand and provide added value in a modern planning stack.

Our survey found that solutions providers expected a TMS with planning capabilities to be the most popular retailer tool used to plan last mile operations, with 58% of solutions providers expecting retailers to opt for them and 44% of retailers living up to expectations. The remaining companies were still expected to use Excel (21%), or custom built solutions (20%), with slightly less using an off the shelf commercial planning system (16%). In reality, a far greater proportion of retailers are still using Excel, with 37% opting to plan their last mile operations with Microsoft's stalwart spreadsheet software, 27% deploying a custom instance, and just 12% opting for a commercial offering.

Route Optimization
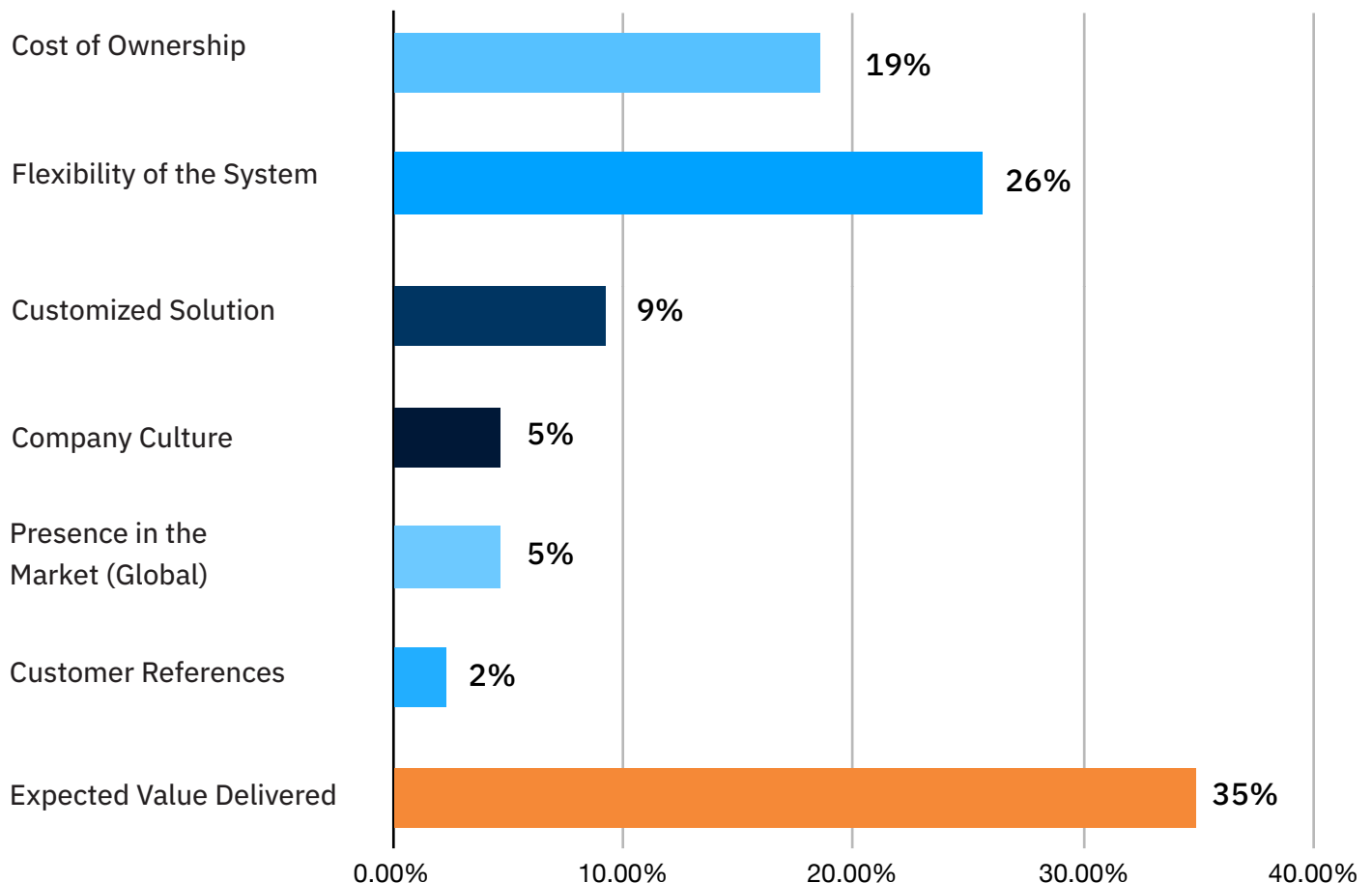
Effective route optimization is a crucial component of any competitive last-mile operation. Consumers expect flexibility and visibility, but organizations are struggling to scale their existing solutions to the new digital world. With so many variables in play there is a heightened need for an advanced software layer to calculate planning solutions to emerging and complex optimzation problems.

Technology

What would be the main decisive factor for you to invest in a new planning system?

| Factor	Percentage
Cost of Ownership	19%
Flexibility of the System	26%
Customized Solution	9%
Company Culture	5%
Presence in the Market (Global)	5%
Customer References	2%
Expected Value Delivered	35%

It is no surprise that "Expected Value Delivered" came up as the top factor when deciding whether or not to invest in a new planning system. Supply chain is a 'cost centre' and there has been a historical reluctance to invest in this area. RoI is critical for all decision making and is front and centre when decision makers are assessing whether or not to invest in planning software (or any logistics software for that matter). Additionally, two other crucial factors were identified: flexibility (26%) and the cost of ownership (19%). A degree of customization might also sway users looking to invest (9%).

Indeed, of the organisations surveyed, many expressed dissatisfaction with their current planning software, with 37% expecting further optimisation of routes, and another 27% limited by software that only evaluated single scenarios. When implementing advanced planning software as an optimization layer, companies benefit from a flexible system, capable of rapidly adapting to the fluxes of day-to-day operations; producing feasible plans, optimized against key performance indicators, always in sync with the realities of the business.

Technology

As such, 16% felt that their current systems lacked adaptability when unforeseen circumstances arose and changes needed to be made. 12% of respondents also felt that their current systems were too labor-intensive, requiring manual input in areas that might easily be automated.

Which statement best describes your last mile routes?

| Mostly Dynamic	Hybrid	Mostly Static
—	—	—
44%	**39%**	**17%**
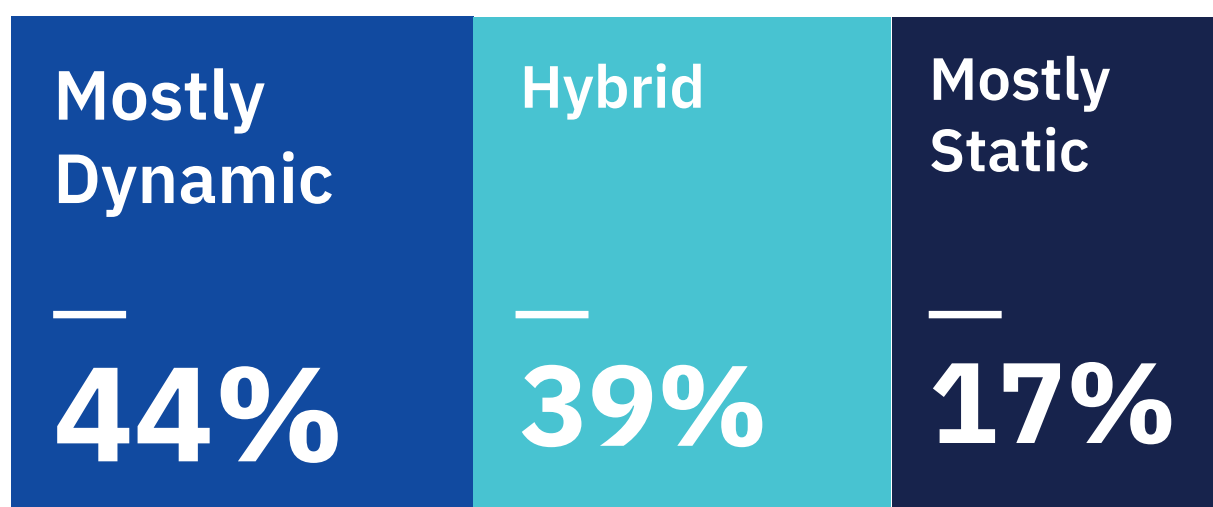
Almost half of all respondents (44%) are using dynamic delivery slots to manage orders, in which the capacity per slot is determined based on the current plan. Here, the actual number of bookings available is highly dependent on the exact location and order size of each booking. 39% are still using static slots to organize deliveries - defining times and capacity up front with an upper limit for each region - and just 17% have a hybrid routing system in place.

Optimizing task assignments based upon routes is a crucial part of reducing costs in the last mile and automating a scalable system that leverages the available fleet to solve vehicle routing problems is a key factor in achieving this goal. Route congestion can be tackled through a diversified fleet — using e-bikes, for instance, will help cut through the traffic in cities. Automatic route planning has substantial benefits over manual inputs, as integrated software can pull in constantly changing parameters such as traffic congestion, weather conditions and road restrictions, allowing for a more agile and efficient optimization process. In B2B routes with standardized schedules and regular routes we often see lower efficiency on lighter demand days. Although dynamic routing would provide greater theoretical efficiency in this regard, there is something to be said for familiarity, as irregular routes and changing driver schedules may mean that customers find themselves delayed when a new driver doesn't know their delivery process, or lacks the same level of comfort with their location.

Environment

Which statement on environmental impact does your company agree with?

29%   10%

27%

34%
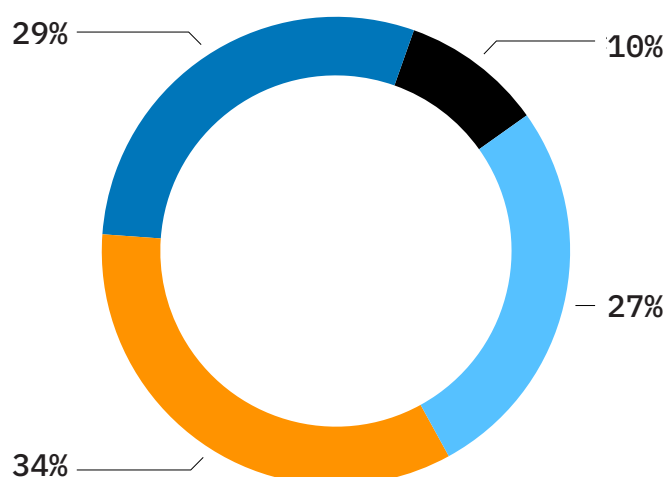
- ■ The environmental impact of logistics is one of our company's top 3 priorities
- ■ We adhere to the required processes within laws and regulations, but do not have extra internal motivations
- ■ We have internal targets to reduce our environmental impact.
- ■ We distinguish ourselves, and aim to gain market share, by being the greenest alternative available.

Our respondents this year suggested that they were in the early stages of an internal push towards more environmentally sustainable practices, with 27% of retailer, eTailer and brand respondents claiming that consideration of the environmental externalities of the logistics process was one of their top three priorities going into 2020. A further 29% of those surveyed noted that they had established internal targets to reduce their environmental impact, and 10% led with their business' environmental stance as a differentiator in the market.

Despite this, 34% of firms have told us that, whilst the environment might be a growing concern across the industry, they have no internal impetus to do more than the law stipulates. This may be due, in part, to the costs involved in implementing sustainable practices into their operations. A July 2018 report by McKinsey and Company notes that, whilst semiautonomous and autonomous vehicles might reduce delivery costs in cities by approximately 10 to 40 percent.[4] Electric vehicles, on the other hand, fail to yield notable cost savings, in part due to the low basis for cost improvement on vehicles in dense

[4] McKinsey & Company, "Fast forwarding last-mile delivery - implications for the ecosystem", July 2018

Environment

networks. Therefore, these companies may be looking more towards investment in autonomous technology before sustainable practices, in order to bring costs down in the last mile and free up capacity to deal with emissions across the supply chain. However, the use of electric vehicles will no doubt become commonplace as emissions-regulation legislation moves forward, and these companies would do well to realize the potential of electrification early within semi-autonomous and autonomous vehicle development to further reduce costs. In Europe, Ikea has planned to make 100% of their delivery fleet electric by 2025, as well as transitioning long-distance shipping to trains and ships instead of trucks. In the short-term, they plan to make deliveries in five cities — Amsterdam, Los Angeles, New York, Paris and Shanghai — entirely electric by the start of 2021.[5] We may well see this pattern repeated across Europe in the next 5 years, given the introduction of a ultra-low emission zone in London, as well as diesel vehicle bans on schedule for 2025 across Europe in key urban centers such as Athens, Paris and Madrid. The push towards a post-carbon economy thus goes hand in hand with improvements to autonomous vehicle technology as a cost-reduction measure.

> *"The environment is important and will become more so. We need to minimise the footprint of home deliveries, that means not just exhaust emissions, which is relatively easy, but also congestion and noise, plus the impact of the supply chain behind the last mile. Importantly, we also need to look at how we can better manage risk and working conditions."*

Justin Laney
Partner & General Manager,
John Lewis Partnership

Accelerating delivery times have not only conditioned consumers to expect speed, but have also instilled a preference on the use of air freight rather than overland travel, which has in turn led to an increase in greenhouse gas emissions, from both retailers and the logistics service companies fulfilling their deliveries.

Managing sustainable practices in this era of speed is thus is a complex issue, contingent on constantly fluctuating decisions made in other areas. For instance, establishing urban delivery hubs (a practice favored by Amazon to meet their rapid delivery promises) may be a good way to ensure faster delivery to city-dwellers and meet customer demands for immediacy and flexibility, but can be environmentally unsustainable and unproductive without updates to delivery fleets (e.g. automated vehicles delivering between hubs) or a primarily renewable grid powering these new locations.

[5] *https://www.ft.com/content/2f7203dc-1b63-11ea-97df-cc63de1d73f4*

Environment

> *"The environmental impact of last mile operations is very important to us. DHL has committed to operate 70% of their first and last mile with clean solutions by 2025."*

Markus Reckling,
*Managing Director,*
DHL Express Germany

Improving on delivery accuracy may be a more logical place to begin, and a more approachable starting point to implement sustainable practices, as achieving a high rate of first-time delivery can avoid triggering a further chain of events and emissions. This can be done in partnership with 3PLs and by utilizing different delivery modes (such as click and collect, or partnering with brick-and-mortar stores to act as pickup points for deliveries and returns). The UK retail association IMRG noted in their 'Valuing Home Delivery report that the cost of packages failing to reach the customer at the first time of asking is £1.6billion, lending further weight to the argument that implementing strategies to reduce failed and repeat delivery attempts would appear to be both a cost and carbon saving strategy.

Greater visibility would also be achieved with improved communication protocols between warehouse and shippers. An optimized TMS integrated with a Warehouse Management System (WMS) might offer useful data to provide enhanced insights across the warehousing and shipping processes. For instance, in-cab communication allows the warehouse to be notified of developments on the delivery side - which deliveries were made or whether there were any returns - or if pallets, bags or containers have been left with customers for returns, an automated report might be generated with instructions to follow up, reducing wastage and unwarranted purchases.
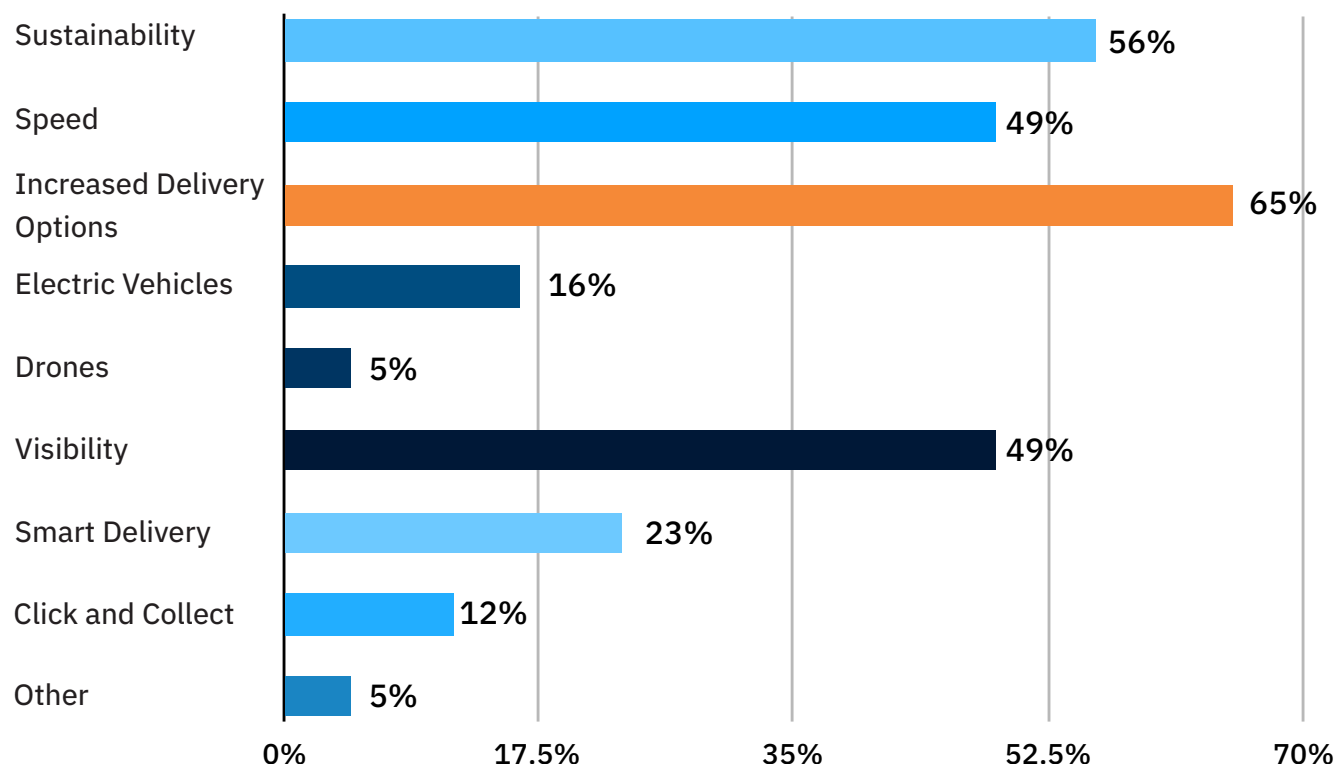
Autonomous Vehicles

A quickly growing field of interest and investment, autonomous vehicles (AVs) such as trucks and drones are set to become key components in a software-first logistics chain.

When coupled with the development of renewable, electrified modes of delivery, AVs have the potential to become key cost and carbon-saving measures in the last mile going into the new decade.
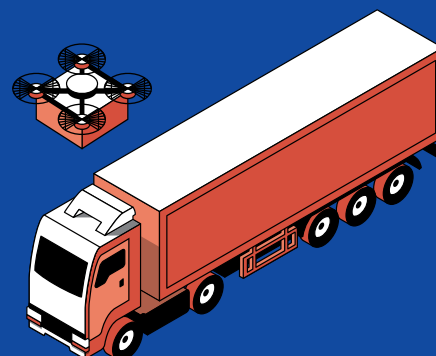
Future

Which areas of the last mile do you think will be the most important in the next three years?

Category	Percentage
Sustainability	56%
Speed	49%
Increased Delivery Options	65%
Electric Vehicles	16%
Drones	5%
Visibility	49%
Smart Delivery	23%
Click and Collect	12%
Other	5%

(x-axis: 0%, 17.5%, 35%, 52.5%, 70%)

Thinking about the years ahead, 61% of retailers, eTailers and brands told us that increased delivery options would be the most important part of last-mile delivery over the next three years. This is a sentiment that resonates across the industry, with researchers at McKinsey predicting that same-day and instant delivery could reach a combined share of 20-25% of the market by 2025, in part due to the uptick in consumer demand for more flexible delivery options, as noted earlier in this report.

Sustainability was another key concern for going into the new decade, with 56% of respondents noting this, along with 16% citing electric vehicles as a driver for transformation. As e-commerce continues to grow, 3PLs are forced into navigating less well trodden terrain in order to fulfil deliveries, and the lower drop density typical of rural areas has fueled an increased interest in autonomous vehicle technology in the hopes of further reducing last-mile costs. Whilst instant delivery may not be feasible in these areas, automated vehicles such as drones can help to improve success rates and aid an expansion.

[6] https://www.wsj.com/articles/economists-dont-see-path-to-3-growth-in-2019-11568296800

Future

> *We need to understand what customers need and provide the information that guides them to the most sustainable options. This means taking a wide view to consider if there are better ways of getting an object to a customer other than someone driving it to their doorstep. A holistic approach that involves town planners and legislators is necessary. I would expect the outcome to be a range of solutions that fit multiple lifestyles. Some solutions - like drones - will play a niche part, but I would expect to see more synergies between public transport and freight transport.*

Justin Laney
Partner & General Manager,
John Lewis Partnership

The distribution of autonomous technologies globally may suffer from some latency, as countries with lower labor costs may not be willing to invest so significantly into such technologies. On the other hand, however, countries with larger rural populations may see the benefit of introducing this infrastructure early. Those countries with higher labor costs ought to begin to lay the investment foundations for this infrastructure at the top of the decade to see returns by 2030. Higher density environments may still favor human and semi-autonomous delivery. For instance, grocery delivery still requires human operators to expedite returns and aid with delivery in apartment complexes and tower blocks.

Truck OEMs are driving the move towards 'trucking-as-a-service' (TaaS) as part of a digitization strategy, diversifying income streams by re-tooling their infrastructure in order to provide a solid foundation for IoT and other automation solutions in the last-mile. Not only excess packaging waste, but also pressure of faster delivery speeds in last-mile instances. Atomized routes, with multiple residential drop-off points, and multiple delivery attempts can all contribute to increased emissions.

Digital Freight Matching (DFM) platforms, which match shipper demand to carrier capacity through mobile or web-based platforms, are one of the ways in which to make efficiency gains and reduce costs in this area. Introducing DFMs into your process can help to improve price transparency, ease of use and accessibility in the last-mile instance through online load boards and freight marketplaces. This is especially important for multi-vehicle handoffs, as load is distributed from larger vehicles to smaller ones, such as cargo bikes, which are more efficient in dense environments. The growth in DFM software thus goes hand in hand with the development strategies around autonomous vehicles and greater visibility in the delivery chain and last mile instance.

Future

As noted in our 2018 report, micro-containerization (denoting vehicle handoffs in the last-mile) results in productivity increases, a fall in total cost of ownership and a drop in energy use by a factor of 15. Such solutions in the last-mile, especially in urban areas, require parcels to be placed in containers at the sorting terminal, picked up by larger vehicles for transport to handover points where they are picked up and taken to their location by a smaller vehicle, more suited to urban environments and traffic.

The growing presence of micro-mobility solutions (e.g. e-scooters) hints at an emerging possibility to decrease costs and emissions further in the containerization process, as the cities looks to become smarter and more sustainable. The future of mobility looks to transition away from high-emission and space dependent single-occupancy transport, instead focusing upon more nimble solutions which reduce congestion and fight pollution. The introduction of legislation permitting the use of micro-mobility solutions will allow for greater integration into the delivery fleet and provide another option for vehicle handoffs in the last-mile. Micro-containerization networks are a prime candidate for optimization, and those with a standard TMS would do well to integrate more mathematically optimized solutions to allow for dynamic routing of these smaller scale delivery vehicles.

Further, as more brick-and-mortar retailers add local same-day delivery options we have begun to see the implementation of novel picking technologies such as Alphabot, which operate in tandem with demand forecasting tools in order to both drive consumers to stores (reducing the number of failed delivery attempts) and to capitalize upon e-commerce enthusiasm.

All these solutions come together as part of a broader strategy of automated, efficient solutions that are beginning to be implemented across the industry in 2020. From automated vehicles and micro-mobility solutions, to smart delivery and the rise in click and collect, numerous models for a more cost and carbon efficient strategy are emerging across the last-mile in 2020.

Simplicity and convenience are always king. The reasoning from these first-principles; building on top of fundamental logistics and business model innovations and leveraging smart combinations of latest technologies will form the online retailer and logistical platform of the future.

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The challenges of last mile operations are only going to increase. As customers expectations change, brands must be willing to be flexible and respond quickly to the fluctuating requirements. The last mile will evolve over the coming years with more and more pressure being applied for sustainable, environmentally friendly practices. Whether this pressure comes from the end consumer or governmental legislation, it is the future and whilst it is encouraging to hear that companies are taking steps to limit emissions there is still much work to be done.

Recording and absorbing customer feedback will be a vital ingredient for retailers if they are going to start using the last mile as a competitive differentiator. New technology can only truly be effective if applied in the right way, for the right reason and with the growth of availability in digital products on the market, selecting the best for specific operations comes with an added level of complexity. The value it will bring to your operations and your customers is what will generate the best long term RoI. In the b2c eCommerce world, customer demands shift extremely fast and if you are late to change or miss the mark, restoring parity with the competition and regaining customers will be a difficult hill to climb.

As the most complex and potentially costly leg of the supply chain, the last mile is a very delicate balancing act and the potential for failure is high. The negative feedback from customer if operations do break down will be swift. What is abundantly clear, is that collaboration from all relevant players in the supply chain is crucial to deliver the best possible last mile experience for customers in real time. Being agile and creative with processes and partners, championing value driven technology investments and finding the right balance between customer service and cost management is key to prolonged success in tackling the challenges of the last mile.