

# E-commerce logistics: How the key market trends and technology solutions reshape the logistics market

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# Who we are



is the E-Business is Research Center of the Athens University of Economics and Business and belongs to the Department of Management Science and Technology. It was established in 1994.

5

Research groups

40+

Members

100+

Research and industry projects



Rethinking urban transportation through advanced tools and supply chain collaboration



Energy and carbon efficiency in the Supply Chain



Applying big data solutions to transform e-commerce logistics



Cognitive logistics operations through dynamic and ad-hoc collaborative networks



Ongoing collaboration on online grocery logistics and related challenges

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1. Key aspects fuelling the growing complexity of e-commerce logistics

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# Key aspects fuelling the growing complexity of e-commerce logistics



Growth of e-commerce



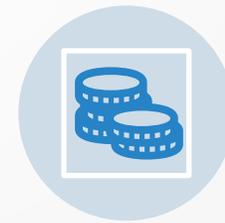
New set of consumer expectations



Growing competition



More fulfilment and delivery options

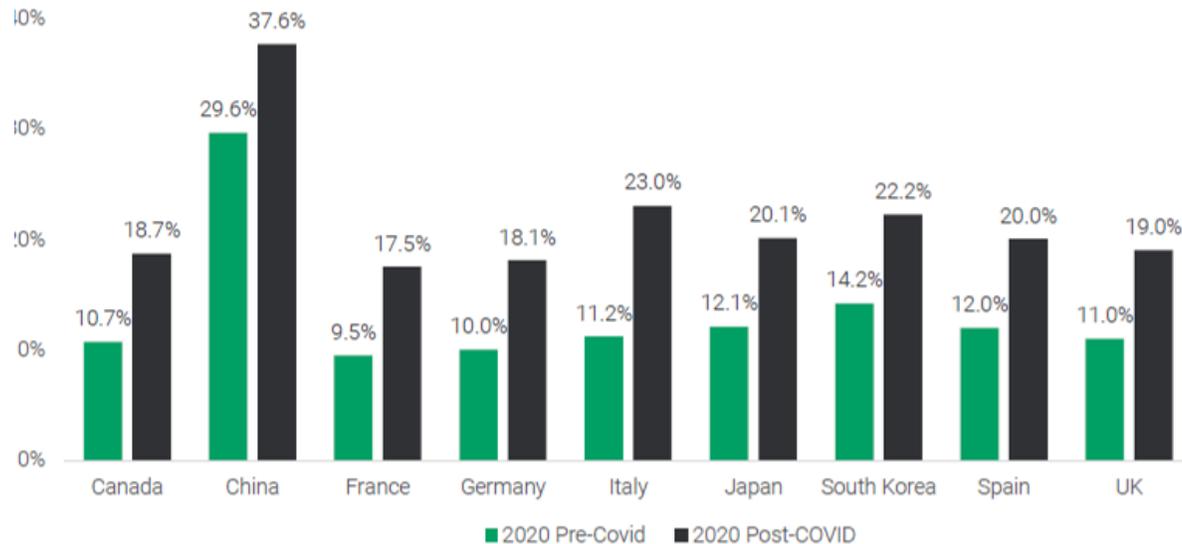


Economics are the challenge to solve

# The e-commerce growth was doubled in the Post-Covid era



Ecommerce Growth Rate Changes by Market



Carrefour

- Food ecommerce up 45% in Q1



COSTCO WHOLESALE

- March online sales up 48.3%

Sainsbury's

- Delivery and pickup slots up 50%
- Sales volume up ~100%



- March online sales up 100%
- Online sales through mid-April up 275%

WAITROSE & PARTNERS

- Average weight of online order up 30%
- Average basket size 49% larger



- March ecommerce sales up 109%
- April ecommerce sales up 374%



- Online sales up 250% YoY
- ~50% of online sales fulfilled curbside



ocado

- Retail sales up 40.4% in Q2 even amidst freezes on new customers

March survey of 1,000 US shoppers



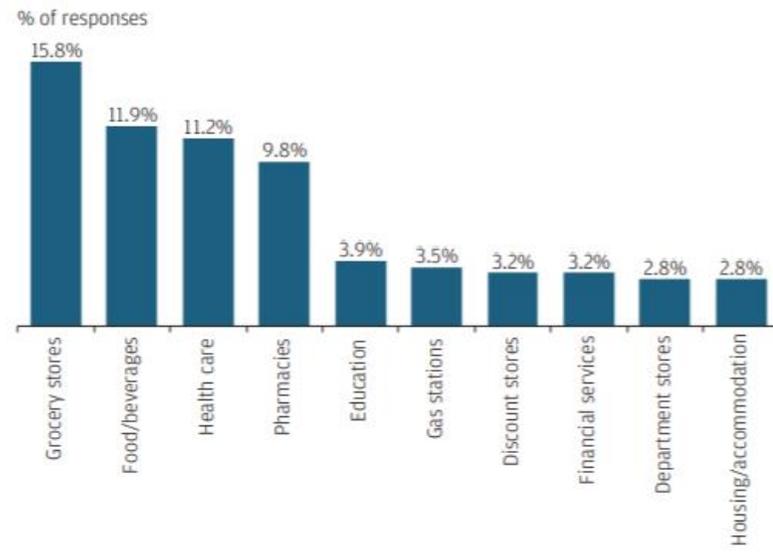
Recently purchased groceries online because of COVID-19, but not for the first time

\*Sales growth data sourced from respective company financial reporting. Does not refer to identical reporting periods.

# New market growth opportunities in specific product categories



**EXHIBIT 8: TOP 10 CATEGORIES WHERE RESPONDENTS WANT MORE E-COMMERCE ACCESS (RANKED BY % OF RESPONSES)**



Source: J.P. Morgan Multi-Asset Solutions, "J.P. Morgan global e-commerce survey of analysts and interns," June-July 2019; data as of July 2019.

**54%**

Growth in online furniture sales between 2018-2022

Source Rockbridge Associates

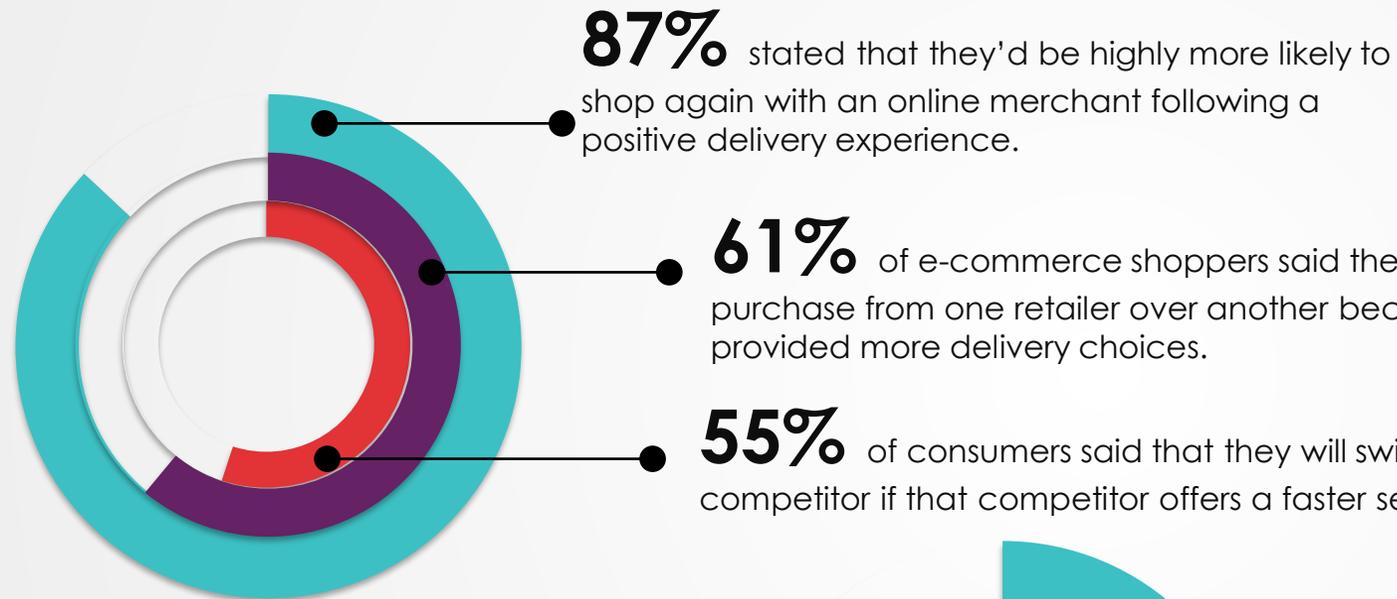
**51%**

Of shoppers want large appliance installation services

Source AlixPartners



# New set of consumer expectations turns logistics from cost source to a growth opportunity



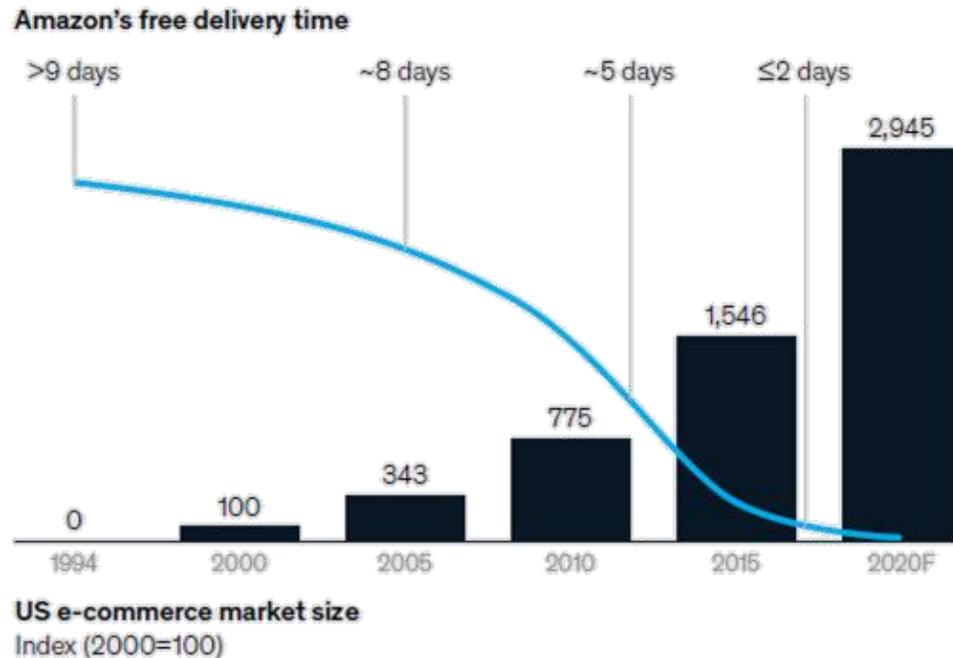
**61%** of e-commerce shoppers said they decided to purchase from one retailer over another because they provided more delivery choices.

**55%** of consumers said that they will switch to a competitor if that competitor offers a faster service.

Consumers who get groceries delivered **at least weekly** are more likely to prefer **delivery subscription plans**, to buy online and **pick up in store** or collect deliveries from **parcel lockers**.



# Same day delivery is the new the norm intensifying competition



For this reason, e-commerce super-giants Alibaba, JD.com, and Amazon are committed to pushing same-day delivery into the mass market now.

		Same-day delivery promise					
		2014	2015	2016	2017	2018	2019
China	Alibaba	●	●	●	●	●	●
	JD.com	●	●	●	●	●	●
Western Europe	Amazon		●	●	●	●	●
United States	Amazon	●	●	●	●	●	●

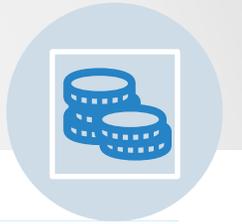
● Testing ● Scaling ● Market standard

# Key players employ varying fulfilment and delivery options

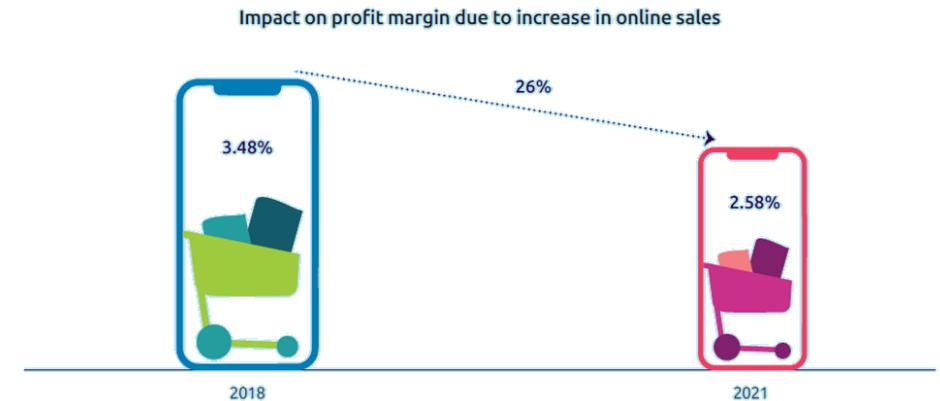
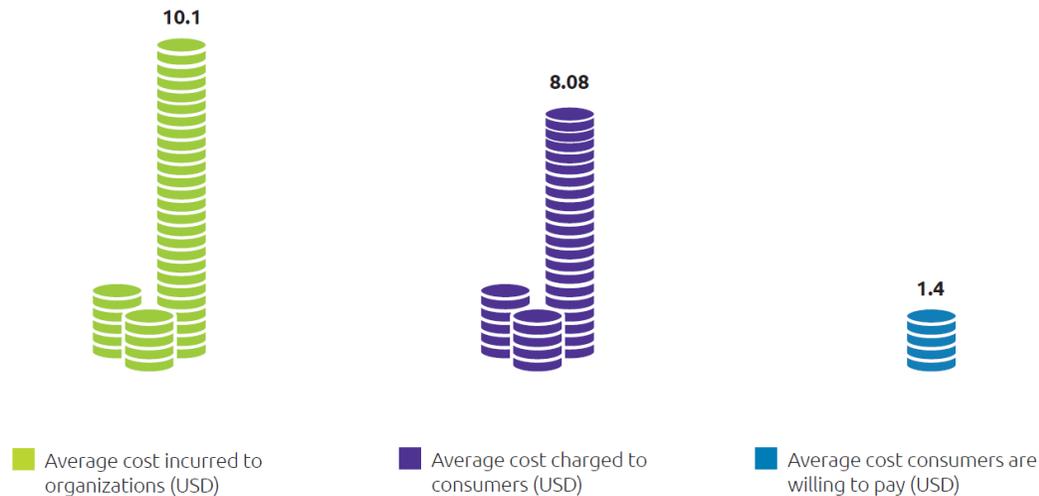


Fulfilment Model	Walmart	Alibaba	Amazon	JD.com	Costco	Carrefour	Kroger
Traditional store	✓	✓	amazon books WHOLE FOODS 365	✓	7FRESH FOOD MARKET	✓	ClickList Order Online...PICK UP at Store.
Click-and-collect	✓	✓	amazon go	✓	✓	✓	✓
Curbside click-and-collect	✓	✓	✓	WHOLE FOODS		Carrefour drive	✓
Drive click-and-collect	**		amazon fresh pickup	✓	7FRESH	✓	Kroger Ship instacart
Ship from store	✓	✓	✓	✓	✓	✓	✓
Pickup at third party location	✓	CAI N!AO	amazon locker Local Collect	Doddle.	instacart	Livraison express	Future ocado
National shipping	✓	✓	✓	✓	✓	✓	✓

# Only 10% of international retailers make a profit from the online channel



Retailers are absorbing part of the cost of last-mile delivery



Absorbing a part of the last-mile delivery cost can potentially hurt retailers' profitability by 26%

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# Innovative technologies cover the three key areas of e-commerce logistics operations

**Planning, forecasting  
and inventory  
management**



**Logistics and delivery**

**Warehouse and in-store backrooms  
automation**

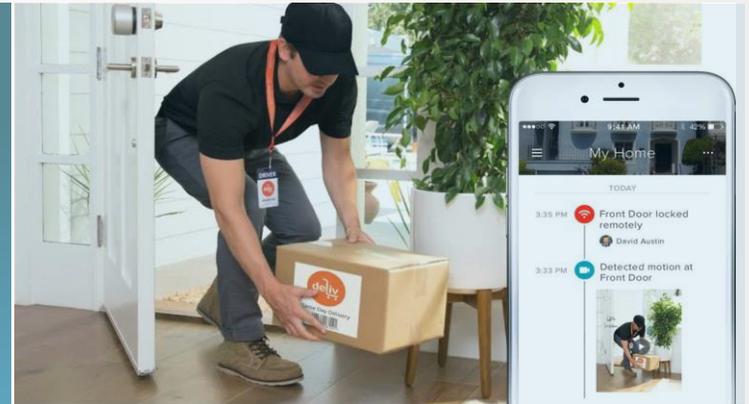
# Many of these solutions have already been implemented...

## In - car delivery



- GM and Volvo, and Honda offered delivery to a customer's car when it is parked at home or office
- Provided by Amazon and Migros

- Ocado built automated order fulfilment centres for Kroger in the US, Morrisons in the UK, Casino in France, Sobeys in Canada, and the ICA Group in Sweden
- The Alibaba store, "Hema," is designed as both a store and delivery center with overhead conveyor belts.



- Waitrose is the first retailer in Britain to offer this service
- The Dutch supermarket chain, Albert Heijn, a subsidiary of Ahold Delhaize, is also experimenting with this service
- Amazon offers the Amazon Hub Apartment Locker

## Warehouses automation

## In - home delivery

# ...in corporate and productive environment

## Autonomous vehicles



- DB Schenker has tested long cargo bikes that can carry two containers of packages
- UPS recently piloted e-bike delivery after deploying it in European cities.
- Amazon and DHL are also piloting e-bike delivery in New York.
- Velove, a Swedish company, offers an electric cargo bike for faster deliveries

Cargo bikes



- Ford, Walmart, and delivery service Postmates are collaborating to design a service for delivering groceries and other goods to Walmart customers using autonomous vehicles.



- UPS has ordered 10,000 Generation 2 Electric Vehicles
- Amazon has 100,000 custom electric delivery vans on order along with another 1,800 electric vans
- Picnic, a Dutch online supermarket, delivers orders in electric vans

Electric vehicles

... while others have been in trial phase

## Sleek electric cargo bikes



- A new delivery vehicle from a German startup called Ono looks like a tiny truck. But it's actually an electric bike, narrow enough to easily move through traffic and even fit in a bike lane when necessary.

- 7-Eleven was the first to successfully complete a Federal Aviation Administration approved drone delivery in July 2015
- Since then, several retailers – including Amazon – have piloted these.



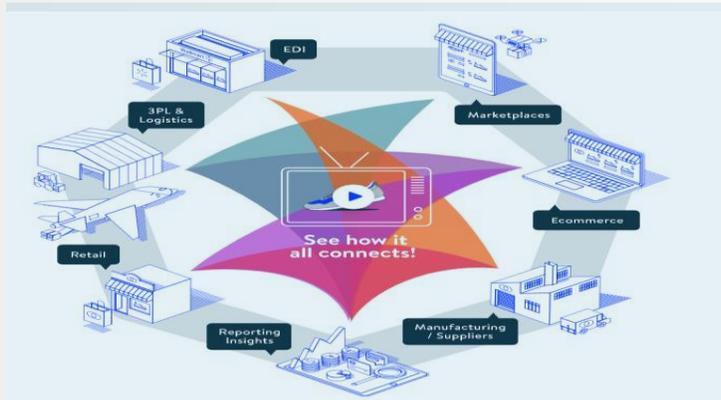
- Roxo lean into FedEx Freight Direct

Drones

Robots

... covering, however, a wide range of processes

## Inventory management and placement



- Zara uses Radio Frequency Identification (RFID) to track garments and reduce out of stocks.
- Walmart moved back room inventory onto the top shelves on the shop floors to improve real time visibility and reduce 'ghost inventory'.

- Amazon and P&G joined forces to sell products such as diapers directly from P&G's warehouses,
- Zalando and Adidas - one of adidas' distribution centers was linked up to Zalando's inventory system.
- YOOX NET-A-PORTER and Valentino



- Amazon has applied A.I to inventory management.
- Metro Mymarket has applied AI to stores replenishment.

Connected inventory

AI-enabled inventory and forecasting

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# 159 partnerships and acquisitions by key market players have been recorded in the period 2018-2020

#28

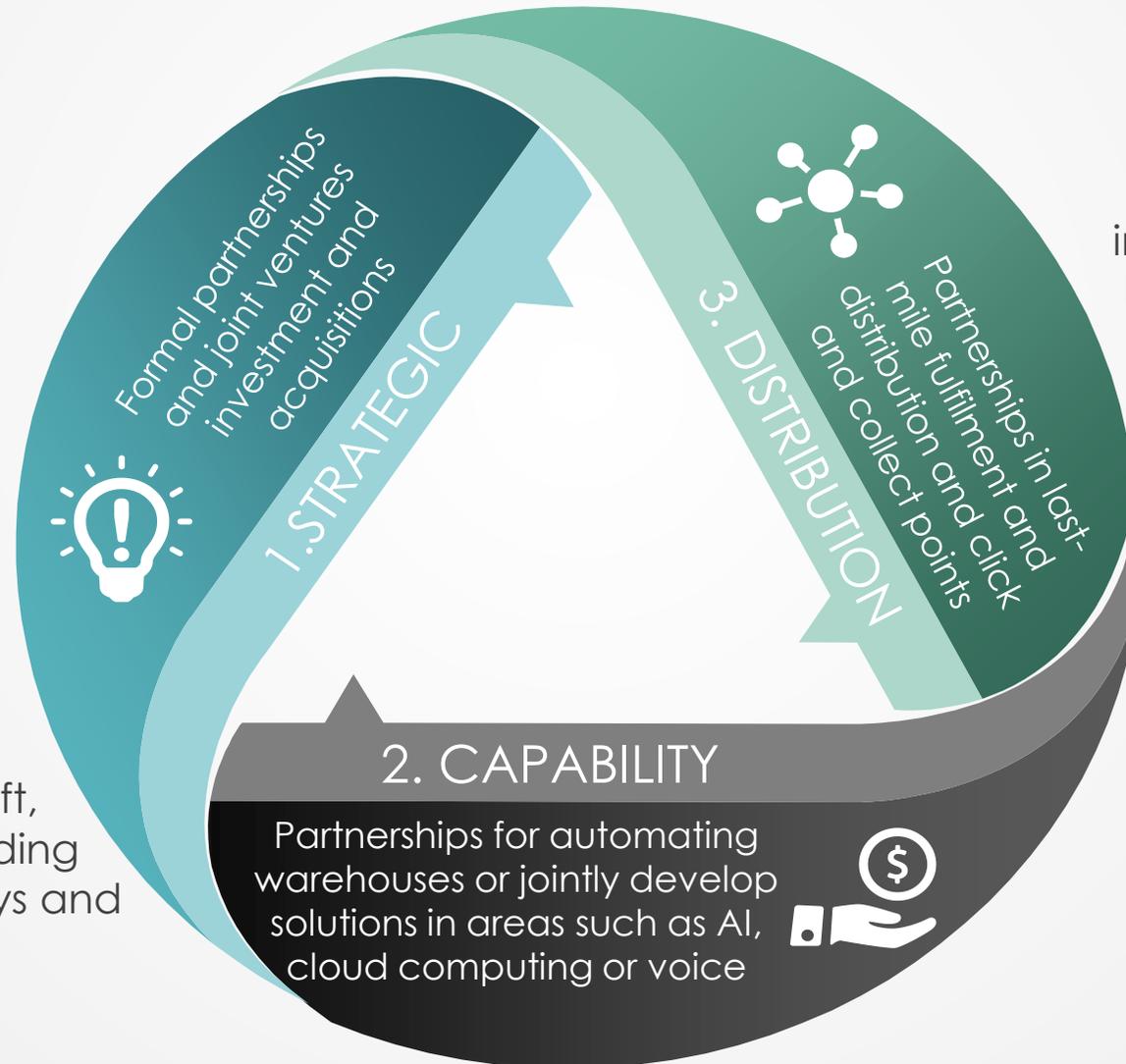
e.g. Kroger with Mirakl,  
Instacart with Costco

#93

e.g. Carrefour and Rappi,  
partnerships with digital  
intermediary platforms, such as  
Instacart, Glovo, Postmates or  
Uber Eats.

#38

e.g. Kroger and Microsoft,  
Ocado with retailers including  
Kroger, Casino, Coles, Sobeys and  
Morrisons



# Partnerships and acquisitions concern different strategic goals and capabilities

## Strategic

### Launching marketplaces

- Kroger with Mirakl
- Carrefour France - with Mirakl/ 52% SMEs

### Entrance to new markets

- Farfetch, Alibaba and Richemont in global luxury industry
- Instacart with Costco in prescription delivery
- Alibaba with hypermarket chain, Sun Art Retail Group Ltd
- Kühne + Nagel acquired Indonesian Wira Logistics

### Offering new services

- UPS with Stamps to offer discounted shipping rates
- UPS with ShopRunner to offer free two-day shipping and returns
- DB Schenker with Magento
- FedEx and BigCommerce to SMEs

### Promoting innovation

- DB Schenker with start-up accelerator Plug and Play
- Ahold Delhaize partnering to launch Artificial Intelligence for Retail Lab

## Capability

### Augmented reality

- Flipkart acquired Scapic
- Alibaba acquired Infinity AR

### Blockchain

Walmart and VeChain in China

### Shelf cameras

Walmart Canada with Focal Systems

### Voice – based shopping

Carrefour and Google

### In-vehicle applications

Audi and Alibaba

### Shipment visibility

Kuehne + Nagel and Zebraxx

### Warehouse automation

Kroger use Ocado technology

### Robotics

Ocado acquired Kindred Systems and Haddington Dynamics.

### Digital strategy

7-Eleven has entered strategic partnerships with Adobe and Microsoft  
Microsoft and FedEx

# ... as well as distribution capabilities and alternatives

## Distribution

Launching or expanding home delivery	Expanding the click and collect points network	Autonomous vehicles	Crowdsourced services	Electric Vehicles	Drones	Delivery Robots
<ul style="list-style-type: none"> <li>• Uber Eats and Carrefour in France and Belgium – delivery within 30 mins.</li> <li>• Glovo with Carrefour in Ngong And Rongai Towns, Kenya)</li> <li>• Morrisons with Amazon and customers</li> <li>• Ahold Delhaize acquired FreshDirect, a Grocery Delivery Service based in New York City.</li> <li>• 7-Eleven with delivery platforms Postmates, DoorDash and Google, Uber Eats, Instacart and Grubhub</li> <li>• Lidl with Buymie (on demand groceries) Ireland.</li> <li>• Aldi UK in collaboration with Deliveroo -30 mins grocery delivery to London</li> <li>• FedEx makes major foray into eCommerce by buying ShopRunner</li> <li>• DB Schenker's with uShip.</li> <li>• SEKO Logistics and Bringg</li> </ul>	<ul style="list-style-type: none"> <li>• Amazon Australia with Myer on Click &amp; Collect</li> <li>• Amazon with Next stores</li> <li>• Amazon's new Counter service with bookstore chain Giunti and the network of Fermopoint and SisalPay stores.</li> <li>• InPost (post lockers) partners with Lidl</li> <li>• DHL Group and Lidl announced that 500 DHL Packstations will be installed at Lidl stores nationwide this year.</li> <li>• Ahold Delhaize would expand its partnership with BP.</li> </ul>	<ul style="list-style-type: none"> <li>• Amazon acquired self-driving startup Zoox</li> <li>• Walmart Inc. with Cruise (affiliate of General Motors)</li> <li>• UPS with trucking platform TuSimple</li> </ul>	Walmart-Joyrun	UPS with ARRIVAL to buy 10,000 of its electric vehicles	<ul style="list-style-type: none"> <li>• UPS Flight Forward with CVS Health to UPS with wholesale pharmaceutical distributor AmerisourceBergen,</li> </ul>	Kroger and Nuro launched autonomous grocery delivery in Houston

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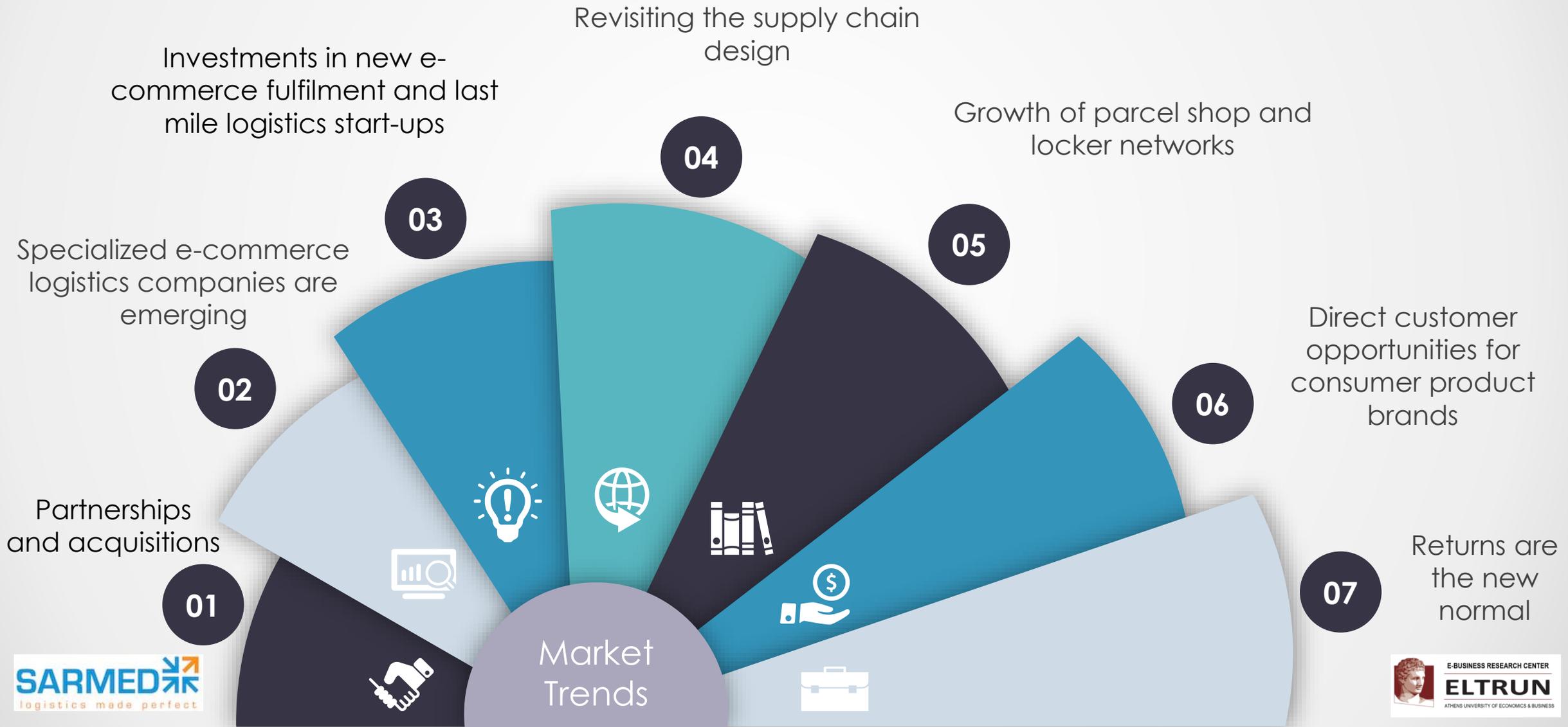
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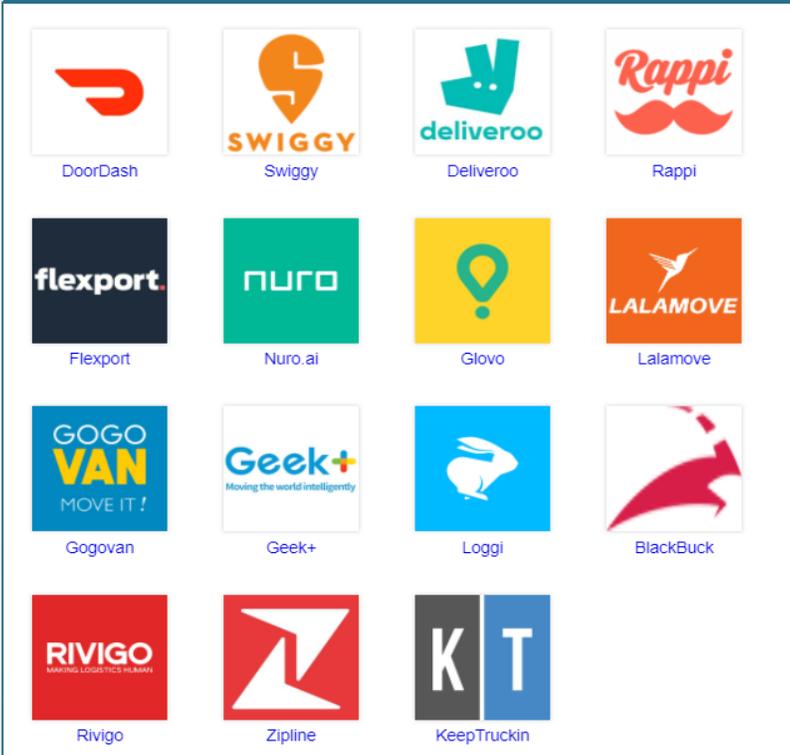
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# Seven key trends shape the e-commerce logistics market

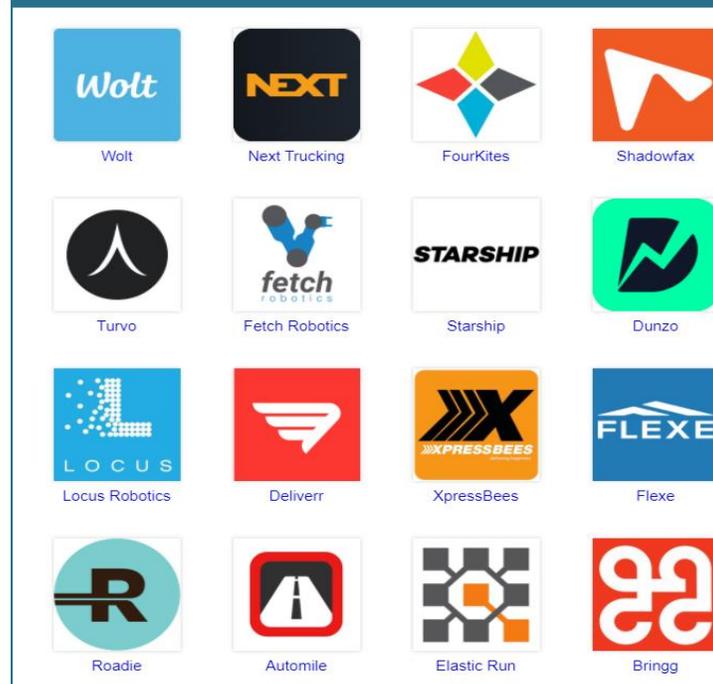


# Specialized last mile and e-commerce logistics companies are emerging

## UNICORNS

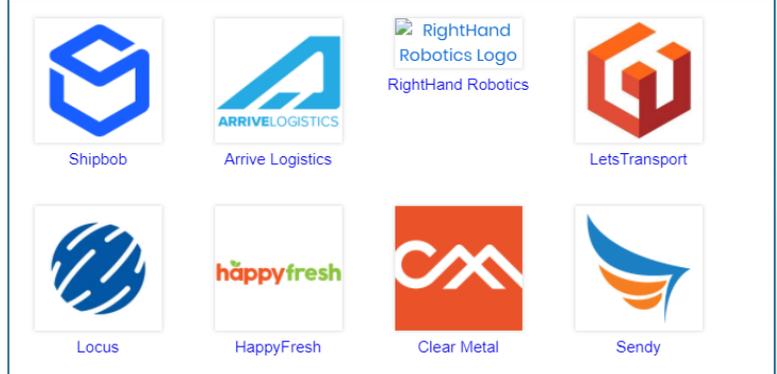


## SEMICORNS



- Online platform for food ordering and delivery
- On-demand delivery services
- E-Commerce logistics company
- Self-driving vehicles, drones, robots
- Tech-enabled fulfilment services to e-commerce businesses
- AI-based fleet management & vehicle tracking systems, AI-based delivery management software

## MINICORNS



# More than \$ 12 billion have been invested in start-up logistics companies since 2015

- Around USD 28 billion has been invested, almost all of which was raised in 2015 or later
- Most funding goes to startups working on last-mile and freight platforms i.e. Instacart, Manbang, and Flexport

Traditional industry	Market size USD billions, 2017	CAGR 2017-23	Challenged by startups in	Total funding USD billions, until 2019
CEP	319	8-9%	New last-mile delivery models	9.9
			New entrants in the parcel business	1.2
Transport	2,249	2-4%	Road freight marketplaces and solutions	6.0
			Air and ocean transportation	1.6
Storage and physical supply chain solutions	340	3-5%	Warehousing	3.3
			Traditional third-party or contract logistics services	1.4
			B2B e-commerce specialists	0.7
Tech	40	5-6%	Asset tracking	0.9
			Inventory/order management	0.5
			Intelligence providers	0.5
			Blockchain	0.2

New Data, HiveBox, Nuro, Delhivery, Ninja Van, Instacart, Xpressbees

Best Shippo, ShipBob

Note:

- New last-mile delivery models: Offer innovative last-mile delivery services to retailers and individuals by using crowdsourced delivery, drones, AVs, etc
- New entrants in the parcel business: Act as a traditional parcel business: include pickup, sorting, and delivery
- B2B e-commerce specialists: Provide a specific value-chain-focused solution to online retailers (e.g., return logistics, e-fulfillment, conversion optimization)

# Revisiting the supply chain design to include stores and micro-fulfilment centres

04

Retail stores becomes a strategic key asset



Adding micro-fulfilment centers (Mini-CFCs) can make last-mile delivery quicker and more cost-effective solution



- Using existing stores rather than new warehouses—could be the entry gate to same-day delivery for aspiring retailers.
- The Alibaba store, “Hema,” is designed as both a store and delivery center and consumers within three kilometers receive grocery orders in 30 minutes.

- Several leading grocers including Walmart, Ahold Delhaize, Amazon, Albertsons, Nordstrom and Woolworths, Carrefour have been partnering with technology start-ups (e.g. Alert Innovation, Takeoff Technologies, Food-X ) to explore mini-CFCs.
- Kroger revamps distribution plan to add Mini-CFCs and Ocado is also trialling its Ocado Zoom service in London using mini-CFCs.

# Fast growth of parcel shop and locker networks

05

- Since 2018 the total global number of locations has increased by 36%
- More than 1.2m parcel shop and locker locations worldwide (over 890,000 parcel shops and more than 350,000 locker locations)
- Two business models differ between operators:
  - Most (but not all) carrier-owned networks handle only their own volumes
  - Most independent networks are open to a range of carriers. In some cases they act as first tier supplier, working directly with retailers, while in other cases they act as a subcontractor to their carrier partners
- The key success factors of an independent are:
  - open / agnostic network, many locations, long hours, awareness
- 48 leading networks including
  - Hive Box with 150,000 lockers
  - DHL Pakstation with 3,500 locations.
  - Amazon's locker network locations in the US and the UK have increased by 50%.
  - Finland's Posti recently will significantly expand its parcel locker network so that, by 2022, there will be 4,000 Posti parcel lockers in Finland, meaning up to 85% of Finns will have a Posti parcel locker less than one kilometer from their home.
  - Other major operators are include Best, UPS Access Point, InPost, FedEx, Sposter/China Post, Hermes, DPD (La Poste) and GLS (Royal Mail).
- 13 locker manufacturers including KEBA, TZ and Zhilai

# Direct customer opportunities for consumer product brands

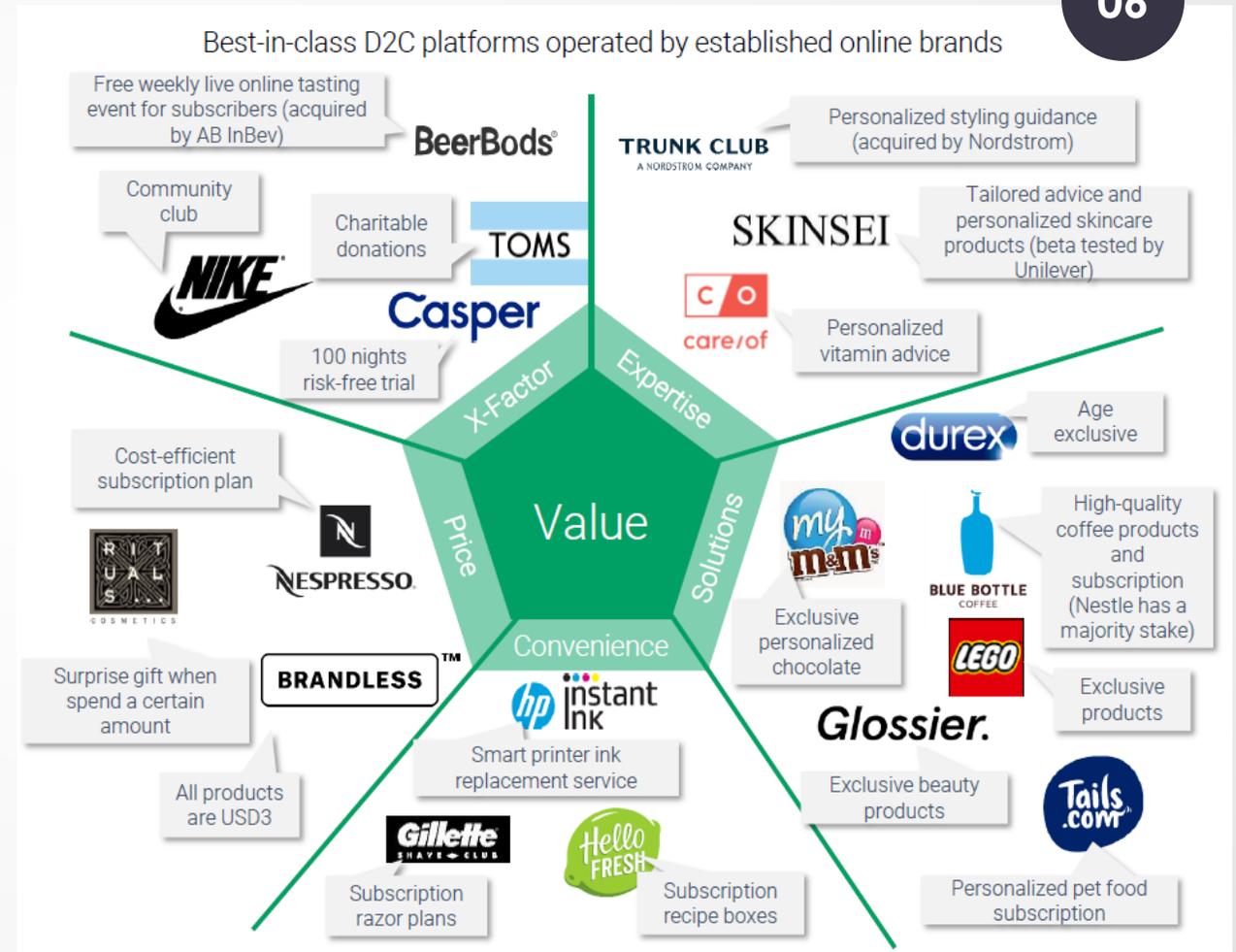
- **Product subscriptions models is the way forward.**

  - ✓ 46% of the consumers want to automate repeated purchases through product subscriptions
  - ✓ 96% of consumer product firms seeing subscription models as a means to provide more convenience and value to customers
- **Brand loyalty programs are a big attraction.**

  - ✓ with 59% of consumers selecting this as the reason they buy from brands
- **Many are already seeing the fruits of their efforts.**

  - ✓ 5% of Unilever's North America sales are online, with a growth rate of 50% and P&G and Shopee drove record sales on Show Me My Home initiative
- **Shared warehouses and logistics can be used for last-mile delivery**

  - ✓ 97% are considering joining forces with other consumer product firms

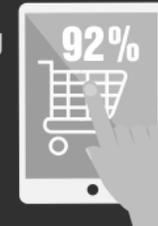


# Returns are the new normal reaching up to 30%

That sweater you don't like is a trillion-dollar problem for retailers.

At least **30%** of all products ordered online are returned as compared to **8.89%** in brick-and-mortar stores

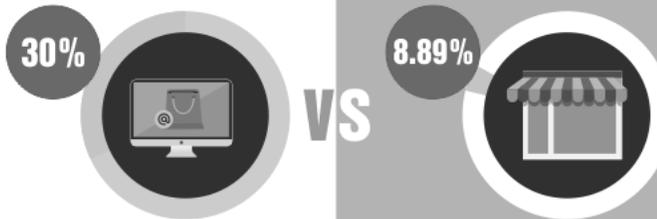
**92%** of consumers will buy something again if returns are easy whereas



**79%** of consumers want free return shipping



## Top reasons why consumers return products



Around **49%** of retailers offer free return shipping now



**67%** of shoppers check the returns page before making a purchase



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# The e-commerce logistics market includes "old" and "new" players

<b>Logistics /3PLs /Parcel delivery companies / Couriers</b> DHL, United Parcel Service, FedEx Corporation, Maersk Logistics, DB Schenker, Kuehne+Nagel Inc., NYK logistics., Union Pacific Corporation, and BNSF Railway Company, ARAMEX, XPO logistics	<b>Retailers and Marketplaces</b> Walmart, Alibaba, Carrefour, Amazon, Kroger JD, Lidl, 7-Eleven, Kaufland, Costco, Asda, Ocado	<b>Specialized e-commerce fulfilment companies</b> Byrd, Rakuten Super Logistics, ShipBob, ShipMonk, Red Stag Fulfillment, Fulfillify, eFulfillment Service, FedEx fulfilment, Fulfillment by Amazon, Deliverr
<b>On-demand logistics and delivery services providers</b> Glovo, parcel2go, Postmates, DoorDash Uber Eats, Grubhub, Instacart, Deliveroo, Swiggy, Zomato, Delhivery	<b>Brands with B2C channels</b> Unilever, Miele, Lego, P&G, J&J	<b>Parcel shop / locker networks</b> Postis, Keba, Collect+ delivery, InPost, Doodle
		<b>Technology providers for last mile delivery and warehouse automation</b> Starship Technologies, Nuro, Routific, Loginext, Ocado, TeleRetail, Parcelly, Onerail, Shippo , ShipHero, Bringg

# Thank you!

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