

Omni-channel Distribution Strategies

Eva Ponce, PhD

Executive Director, MITx MicroMasters in Supply Chain Management
Research Associate, MIT CTL



Dr. Eva Ponce



Executive Director Research Associate

MIT Center for Transportation & Logistics

- 15+ years of experience:
 - Teaching and researching supply chain management
 - Quantitative modeling
- Current Research focus:
 - Omni-channel distribution strategies
 - Reverse logistics and Closed-Loop Supply Chains
- MITx MicroMasters in SCM:
 - Oversees 5 online courses
 - 170,000 students
 - 180 countries



Eva Ponce • eponce@mit.edu



Outline

- How technology is changing the way we do things...
- Omni-channel challenges
 - End-to-end solutions
 - Disruptive solutions
- Source of complexities
- Lessons learned
- Final questions



Eva Ponce • eponce@mit.edu



How technology is changing the way we...

Book accommodation



- Hotel Service
- Founded in 2008
- 20 Bn
- 34,000 cities
- 191 countries

Online sharing model, no real-estate owned

Take a taxi



- Taxi Service
- Founded 2009
- 50Bn



- Taxi Service
- Founded 2012
- 5.5Bn

Online transportation networks, sharing model, no vehicles owned



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



How technology is changing the way we...

Educate the world

MITx | MicroMasters™
in Supply Chain Management

+175,000 learners
+180 countries

Eva Ponce © 2016 MIT CTL
Do not quote without author authorization

What is massive?
• 100?
• 1,000?
• 10,000?
• 100,000?

Local cohorts?

Self-paced?

Open registration?

Start/end dates?

College credits?

Badges?

Role of the instructor?

Learning community?

Scripted assessments and feedback?

Real-time interaction?

Affordable?

Free of charge?

Open content?

X
FOCUS ON SCALABILITY

C
FOCUS ON COMMUNITY AND CONNECTIONS

M O O C
MASSIVE OPEN ONLINE COURSE

Source: Mathieu Plourde (Mathplourde on Flickr)

Eva Ponce • eponce@mit.edu

How technology is changing the way we...

Buy



Online marketplace
Founded 1994
107Bn

Largest American online marketplace



Online marketplace
Founded 1999
15.7Bn

Largest Chinese online marketplace

And pick the orders up



Online marketplace
Founded 2007
1.5Bn

Largest Indian online marketplace



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



How technology is changing the way...

...you do business



Challenges & Opportunities

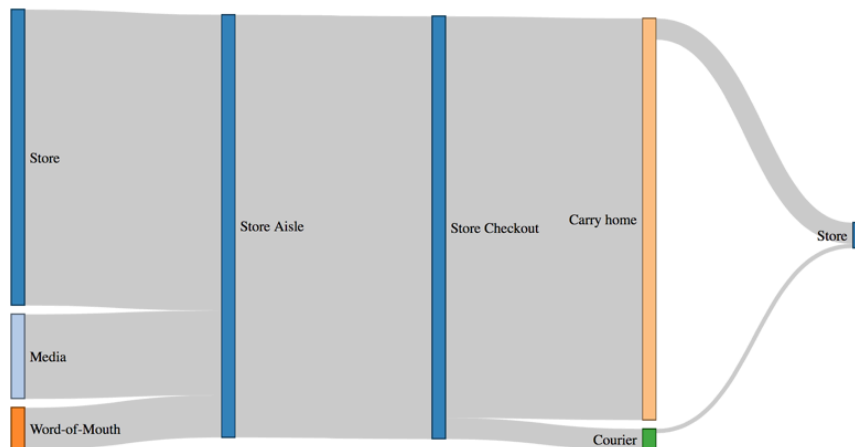
Omni-channel



Eva Ponce • eponce@mit.edu




The traditional retail buying process



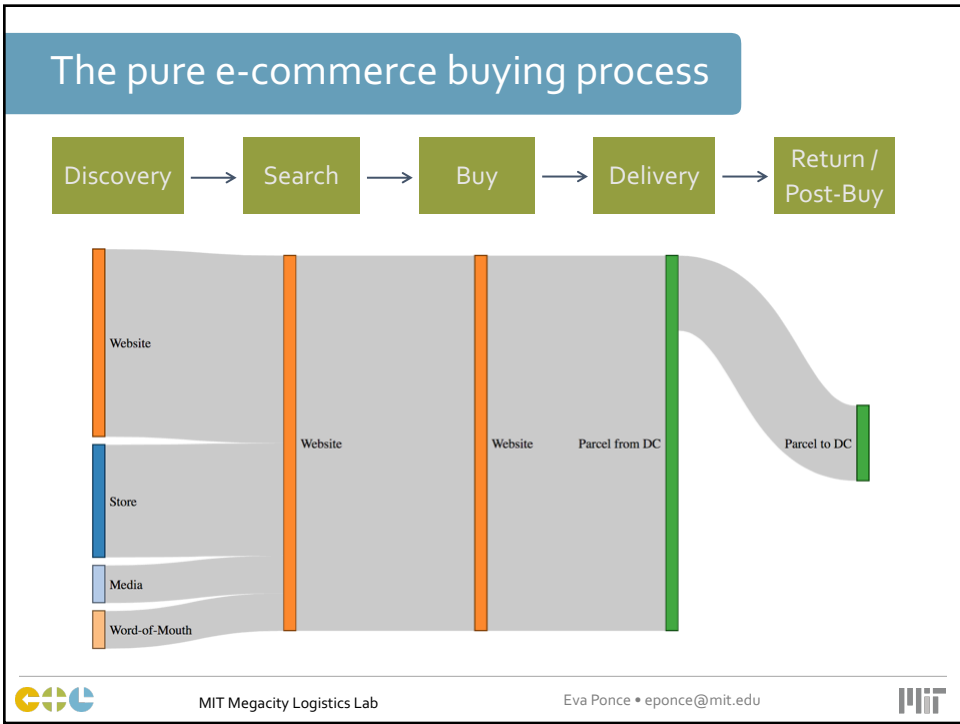
Eva Ponce • eponce@mit.edu



In 1995, "pure plays" started...

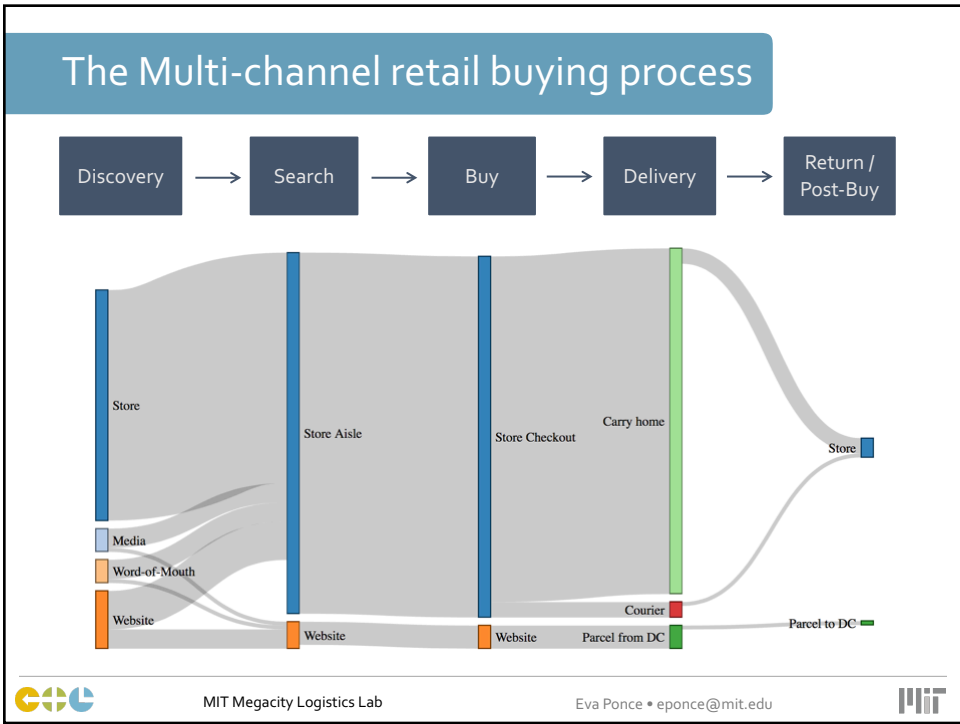


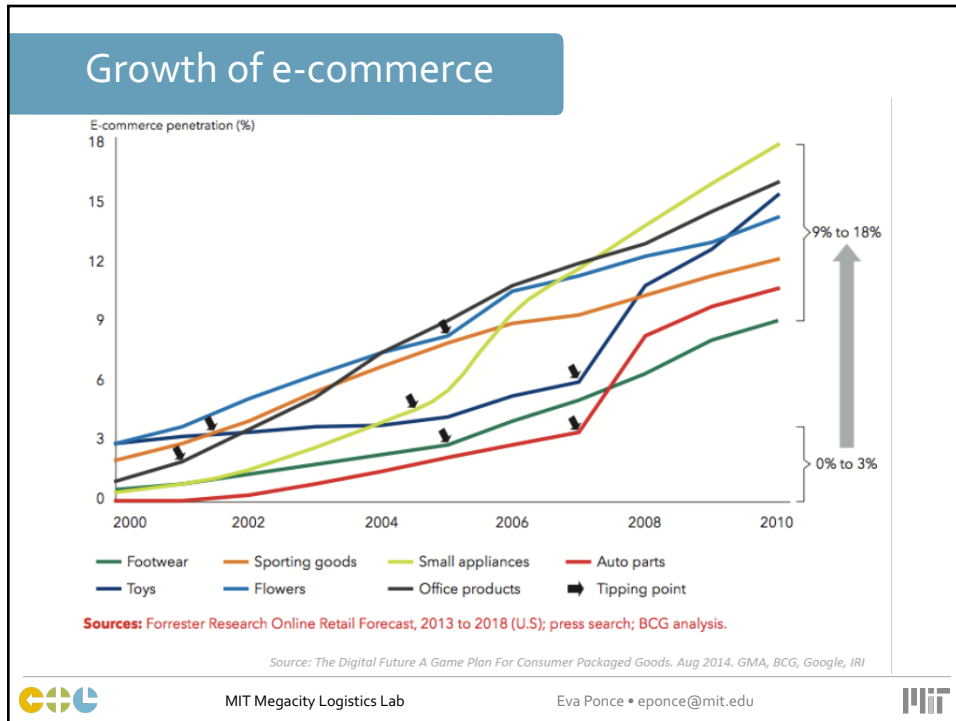
The image shows the logos for Amazon and eBay. The Amazon logo is on the left, featuring the word "amazon" in white lowercase letters with a curved orange arrow underneath. The eBay logo is on the right, with the letters "e", "b", "a", "y" in red, blue, yellow, and green respectively, and the letter "a" in blue.



In 2000, multichannel...

The image displays three logos: Dell (a circular logo with the word 'DELL' in white on a black background), Marks & Spencer (the text 'MARKS & SPENCER' in a serif font), and Sears (the word 'sears' in a lowercase, blue, sans-serif font).





What happen 10 years ago?

MIT

Growth of mobile devices

- Apple announce the first i-phone in Jan 07, 2007
- Since then, 50% of the world's population have smartphones
- 1.75 billion people with smartphones
- Around 40% of the world population has an Internet connection today

Discover / search / buy from:

- Home
- Work
- T (bus) stop
- Park
- Store
- Etc.



"Webrooming"

"Showrooming"



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



Showroom

Look at the product in-store
then buy online

BONOBOS

SIGN IN 



Bonobos Guideshops

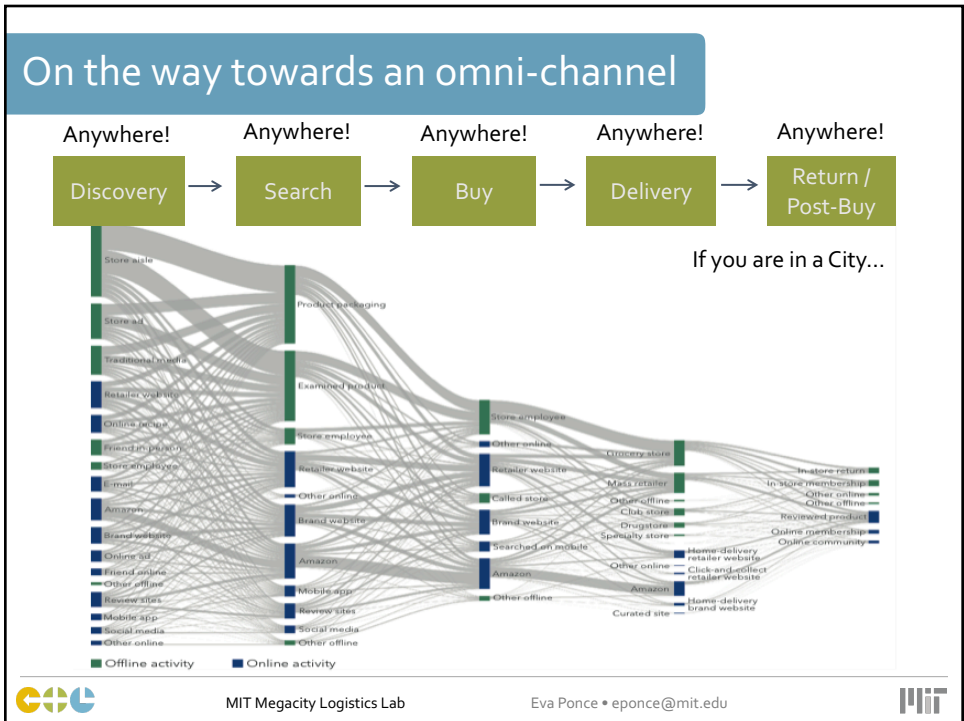
Try it on before you buy at one of our Guideshops. No crowds. One-on-one service.
Exactly what you want, delivered right to your door.

FIND THE NEAREST GUIDESHOP



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization





INDITEX, ZARA and ZARA online

INDITEX

- 6,683 stores
- 88 countries
- 18.1B revenue

ZARA

- Founded 1974
- 64% of INDITEX total sales
- Spain:
 - 1,896 INDITEX brand stores
 - 330 Zara stores

ZARA Online

- 2010
- 27 markets
- 3% of INDITEX total sales



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



How is Zara addressing the online orders?

Stores in Madrid:

- 21 Zara stores
- Downtown and malls

Shipping method

- Home delivery
 - Express: in 24-48 hours (working days). \$9.95
 - Standard: in 2-4 working days. \$4.95
 - Free orders over \$50
- Pickup In-store
 - In 3-5 working days. Free



Inventory visibility

- Item identification (alarms)
- Own app to register and identify items
- Visibility from the supplier to the store
- From the store, they have access via mobile device to the real time inventory in store, and in other stores



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization

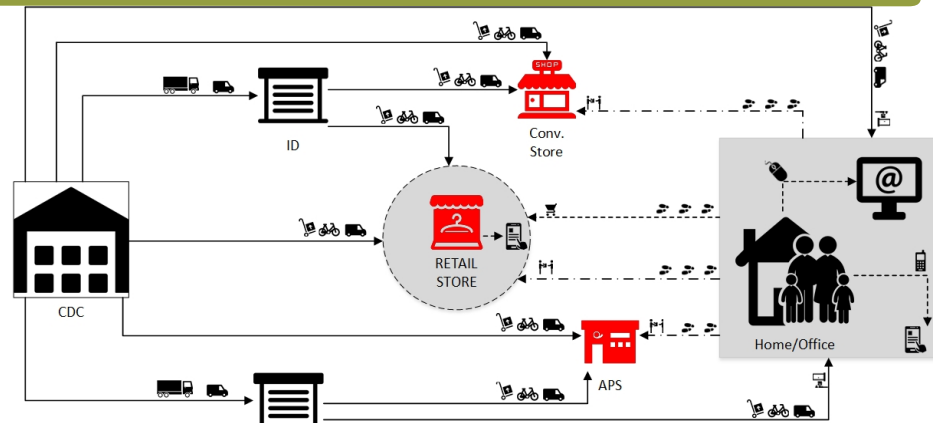


Where should the order meet the customer?

Challenge #1



Different pickup options in an omni-channel strategy



CDC: City Distribution Center
 ID: Intermediate Depot
 POD: Point of Deliveries
 CPs: Collection Points

Material flow from CDC to POD
 Customer shopping options
 Customer pickup options
 Purchase location
 CPs



Eva Ponce © 2016 MIT CTL
 Do not quote without author authorization

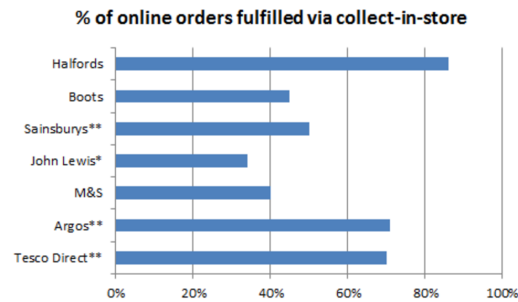


John Lewis: Click & Collect

First introduced click & collect:

- In 2008
- Covers 300 stores
- 25% of online orders

John Lewis
in store | online | mobile



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



















New ways of unattended delivery and customer pick-up are emerging

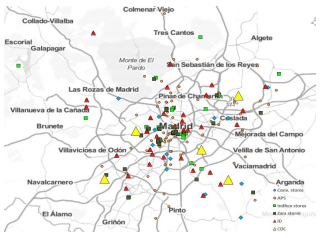


Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



A quantitative model to design omni-channel distribution strategies


 RETAIL STORE ^{N4}	 CONV. STORE ^{N3}	 APS ^{N2}	 HOME ^{N1}	network configuration a network configuration b network configuration c network configuration d
 RETAIL STORE ^{N3}	 CONV. STORE ^{N2}	 APS	 HOME ^{N1}	
 RETAIL STORE ^{N2}	 CONV. STORE	 APS	 HOME ^{N1}	
 RETAIL STORE	 CONV. STORE	 APS	 HOME ^{N1}	




Fast-fashion retail industry

Results

- Reduce the cost of network operation by some 50%.
- 33% more cargo-bikes for last-mile deliveries





Eva Ponce • eponce@mit.edu



Where to prepare the order?

Challenge #2

Most common choices



Distribution
Center



Fulfillment
Center



Store

- Key issues included tradeoffs in:
 - distance versus scale of efficiency,
 - packaging for retail versus shipping, and
 - the difference between fulfillment for wholesale versus for consumers (picking cases versus picking “eaches”).



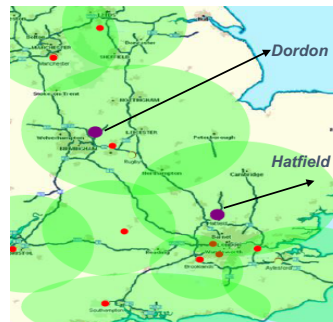
Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



Ocado

Online supermarket

- Founded 2000
- 20,000 SKUs
- Sales: 892.9 M€
- Revenue: \$1,400 million
- 4% supermarket share in the UK



Distribution Network

- 2 DC in Hatfield and Dordon
- 80% direct replenishment
- 20% from DC in Waitrose
- High level of automatization
- 10 cross docking centers (for deliveries that are more than 120 km from DC)



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization

Tesco.com

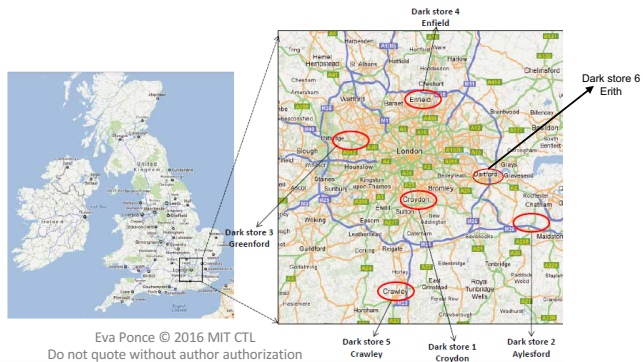
Online channel

- Since 2000
- > 30,000 SKUs
- Sales: 2,806 M€
- Revenue: 6.6 M€
- 48 % online share (Halliwell, 2013)



Distribution Network

- > 300 stores
- Click & collect
- 6 dark stores



How to deliver?

Challenge #3



Amazon and crowdsourcing

- Transportation options
 - Carriers (UPS, FedEx, etc.)
 - Crowdsourcing
 - Own fleet

Crowdsourced logistics systems

Long-Haul delivery	Short-Haul delivery	Last-Mile delivery
   	 	    



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



Package-delivery drones, dream or reality?



Credits: photo Brian Snyder, Reuters. WSJ, Sept. 29, 2016

- Years away from Federal approval
- Maybe in 2020?
- Maybe for transporting medicines in Papua New Guinea, Malawi, and other places...
- Not for last-mile deliveries in Manhattan!



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



End-to-end synchronization

Challenge #4



Marks & Spencer



- Started in 2011 offering a multichannel experience
- Challenge:
 - Offer customer access to their massive inventory!
 - Via mobile technology

- Solution:
 - Usablenet platform
 - Support back-end functionality
 - Virtual basket

Macys

- Omni-channel experience:
- <https://www.youtube.com/watch?v=L62N0XOsmgU>



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



Wall-Mart

- Online shoppers have different expectations for customer service
 - More flexible distribution systems are needed
 - Less inventory
 - A better understanding of inventory level and replenishment policies... that combine requirements from both the store and the online business
- Big push into the online grocery business
 - Buy online: website and mob app
 - Pickup at nearby stores
- Better manage:
 - Backend operations
 - Frontend customer service systems

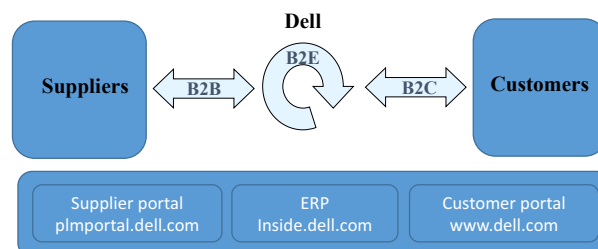


Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



Dell

- A good example of end-to-end supply chain synchronization
- Connecting end users
- Integrating the enterprise
- Gain competitive advantage eliminating the intermediate link



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



Sources of complexity for manufacturers

- Multiple sales channels
- Different order cycle times
 - Traditional retailers
 - E-commerce
- # SKUs
- Full truckload vs. less than truckload
- Pallet vs. units

- Match supply and actual demand!



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



Managing the commercial returns

Challenge #5



Many returns

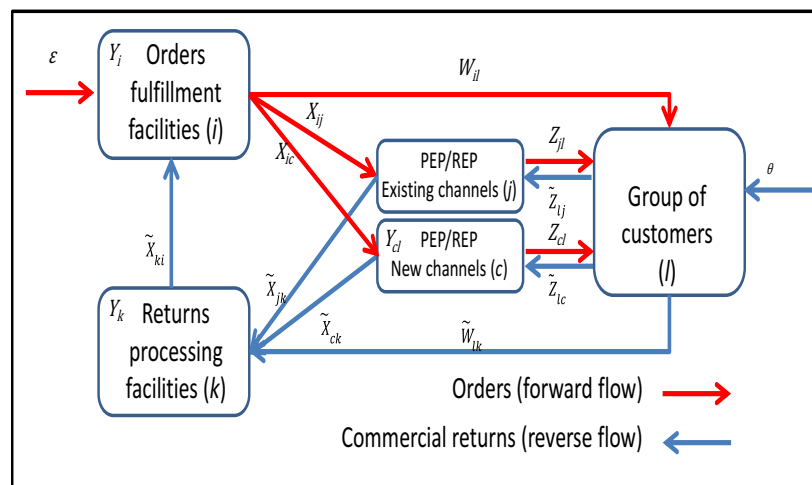
- Commercial returns
 - In Europe, return rates can be 35% to 40%
 - Multiple modes of return in omni-channel:
 - home pick-up
 - in-store return
 - parcel service
 - postal service, and
 - even crowdsourced services.
- Expectations of instant returns
- Returns as opportunities for new sales



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



Closing the loop...



- Integrating forward and reverse flows
- Commercial returns increase with e-commerce (e.g. 30% in fast-fashion retail industry)



Eva Ponce • eponce@mit.edu



Lessons learned

- We need to understand customer operations!
 - What do your consumers want?
 - Retailers are learning from online data
 - Should the manufacturer learn from the store, but also from online data?
- Succeeding amidst the chaos!
 - Disrupt or be disrupted
- End-to-end SC solutions
 - Match supply and actual demand
 - Inventory visibility (across the channels)
- Pay attention to technological trends that affects deliveries and distribution strategies: drones, autonomous vehicles, augmented reality, etc.



Eva Ponce © 2016 MIT CTL
Do not quote without author authorization



Thank you

Eva Ponce | eponce@mit.edu

