



Fabbrica Futuro

Idee e strumenti per l'impresa manifatturiera di domani

8 Giugno 2016

Savoia Hotel Regency - Bologna

La tecnologia RFID a supporto di nuove strategie multicanale nel retail omnichannel supply chains



Antonio Rizzi, Prof., Ph.D.

Full Professor,
Industrial Logistics and Supply Chain Management

Founder and Head, RFID Lab
Int. journal RF tech.: R&A EIC
Global RF Lab Alliance Network, Past President

Department of Industrial Engineering
University of Parma
ITALY

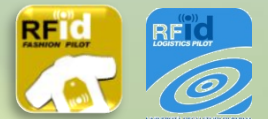
Charter member of:



Powered by:



Scientific coordinator of:



RFID Lab

www.rfidlab.unipr.it

**Research centre
mission**

**how to create value through RFID and EPC Network
deployments**

Research fields

**RFID and EPC network Implementation, BPR, business
value and ROI, BI & data analysis**

Business processes

**Operations, Industrial Logistics and supply chain
management**

Industries

**Food, FMCG, Fashion & Apparel, Pharmaceutical and
Healthcare, public administrations**



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strategie multicanale nel retail
omnichannel supply chains**



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Technology Transfer

Alliance partner



Technology partners



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RFID Lab – Board of Advisors

FMCG - Members



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FASHION - Members

AEFFE

UNITED COLORS
OF BENETTON.

DB
Apparel
A



Diffusione Tessile
Capi firmati, smarchiati, scontati

MAX&Co.



DOLCE & GABBANA
INDUSTRIA S.P.A.



GUCCI

F
FENDI



PINKO

TRUSSARDI

Gruppo
ZUCCHI
biancheria per la casa, hometextiles



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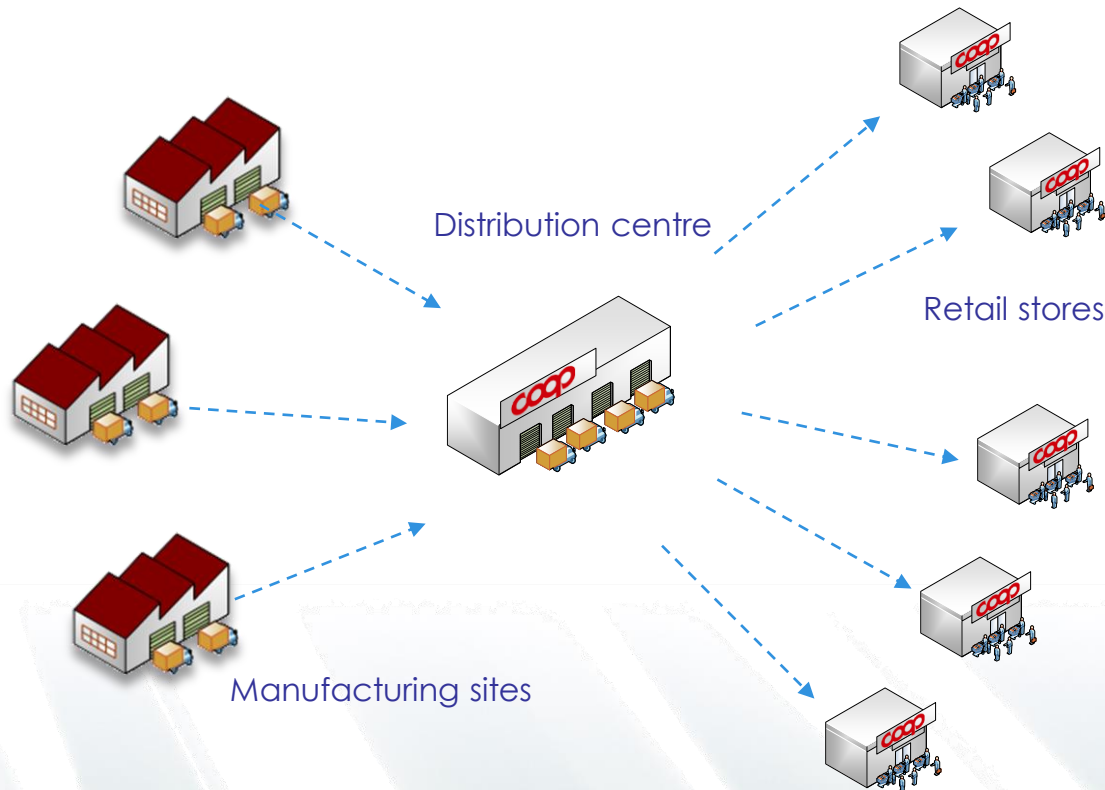


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Omnichannel supply chains

Traditional brick & mortar supply chain



Every store serves customers in a limited area

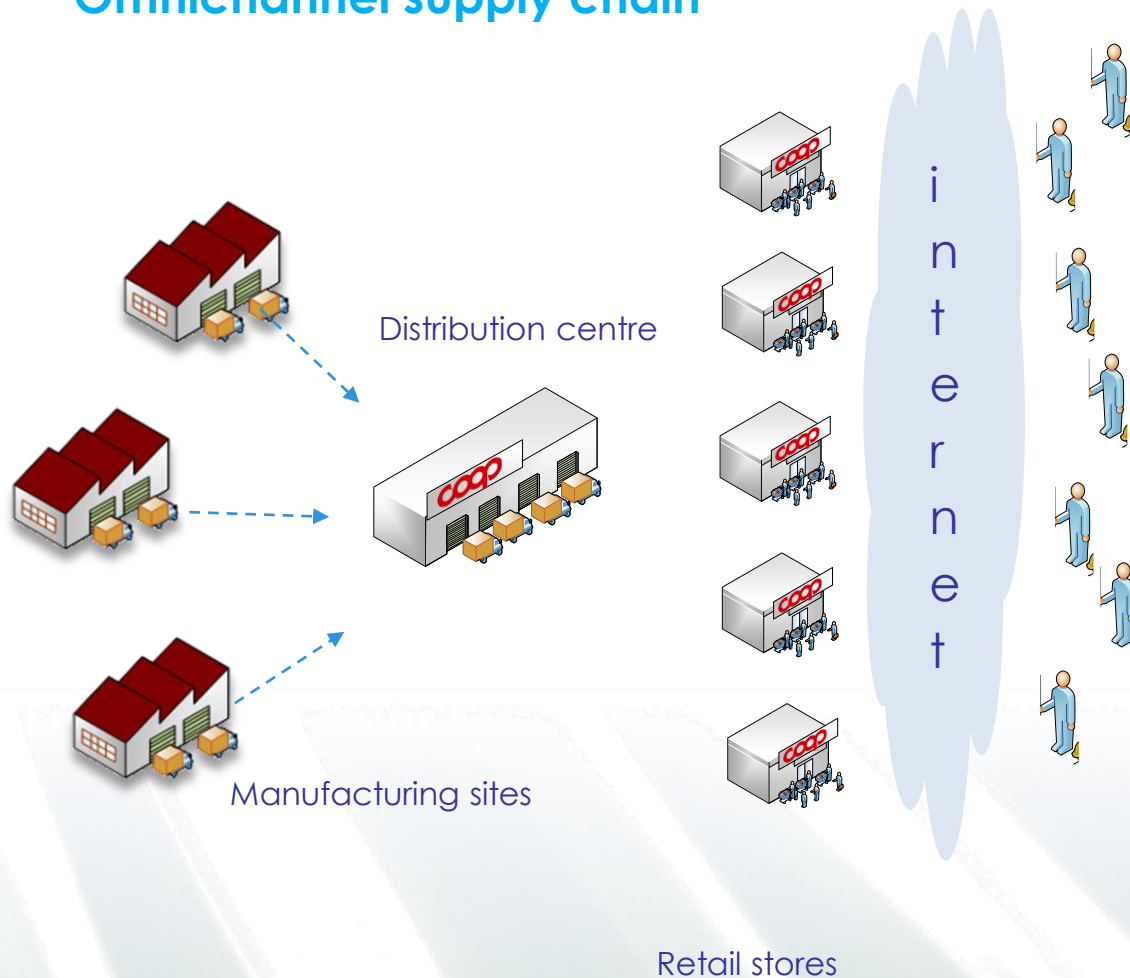
- Duplication of stores
- Duplication of stocks
- Local OOS



«...We spent the last 150 years building warehouses we called them stores...»
Peter Sachse - Chief Store officer
- Macy's

Omnichannel supply chains

Omnichannel supply chain



The internet enables every store to serve every customer (on site vs shipping)

- Same number of stores
- Massive reduction in safety stocks

On the train during her Friday afternoon commute, Abby leafs through a catalog and finds the perfect sweater to go with the pants she's wearing to a party tonight. She immediately uses her smartphone to visit the store's mobile website to see if the location nearest her home has the sweater. Abby access inventory and find that her size is available in stock. She purchases the sweater and arranges to pick it up at the store on her way home. Her purchase is waiting for her when she arrives. The sweater is a perfect fit, and the outfit is a hit.

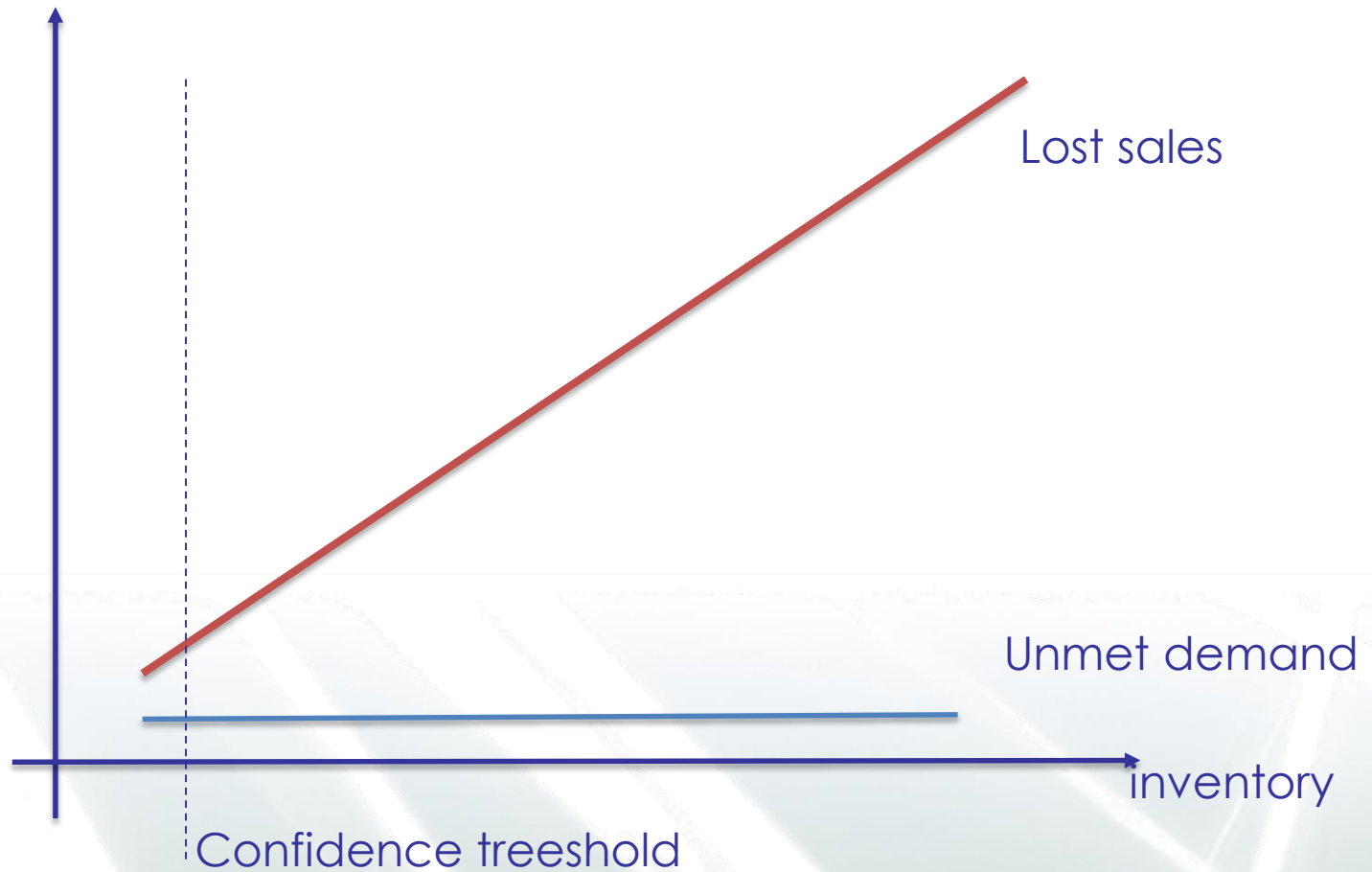
Omnichannel supply chains

balancing lost sales and customer satisfaction



Omnichannel supply chains

Inventory accuracy is the key!



What is inventory accuracy (IA)?

Definition

- Inventory accuracy measures how many SKUs (style/colour/size) have the same inventory in legacy systems (Perpetual Inventory) and on the floor (On Hand)

$$-IA: = \frac{n^{\circ}SKUs|PI=OH}{n^{\circ}SKUs} \quad [\%]$$

$$-II = 1 - IA$$

What is inventory accuracy (IA)?

Definition

–Sometimes neglected, inventory accuracy in retail can be in the range of 80% (20% inaccurate) with drops to 50%

Hardgrave, B., 2009, "ITEM-LEVEL RFID FOR APPAREL FOOTWEAR: THE JCPENNEY RFID INITIATIVE", University of Arkansas White Paper

Waller, M.A., Nachtmann, H., and Hunter, J., 2006, "Measuring the Impact of Inaccurate Inventory Information on a Retail Outlet," The International Journal of Logistics Management, 17 (3), 355-376



Root causes of inaccuracy

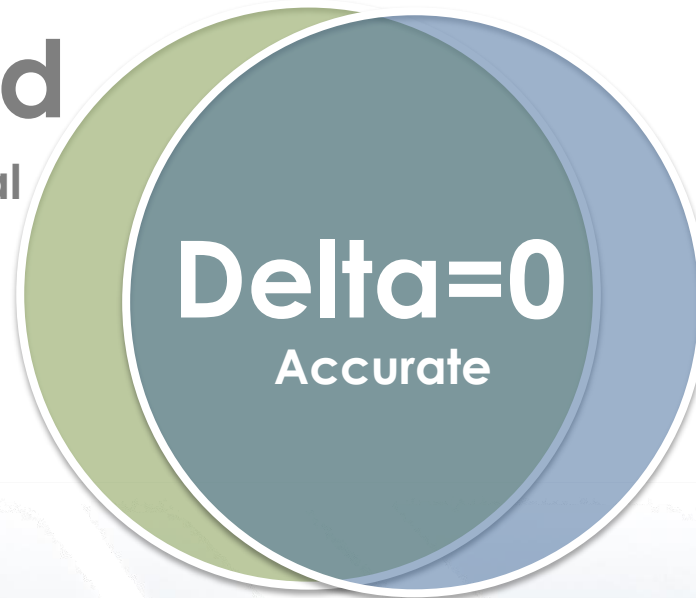
- ✓ **Mishipments from DC**
- ✓ **Theft**
- ✓ **Checkout errors**
- ✓ **Incorrect manual adjustments**
- ✓ **Damaged/spoiled**

Two types of inaccuracy

understated

Legacy system < Actual

- ✓ Unnecessary reorder
- ✓ Transportation and Holding costs
- ✓ Opportunity costs

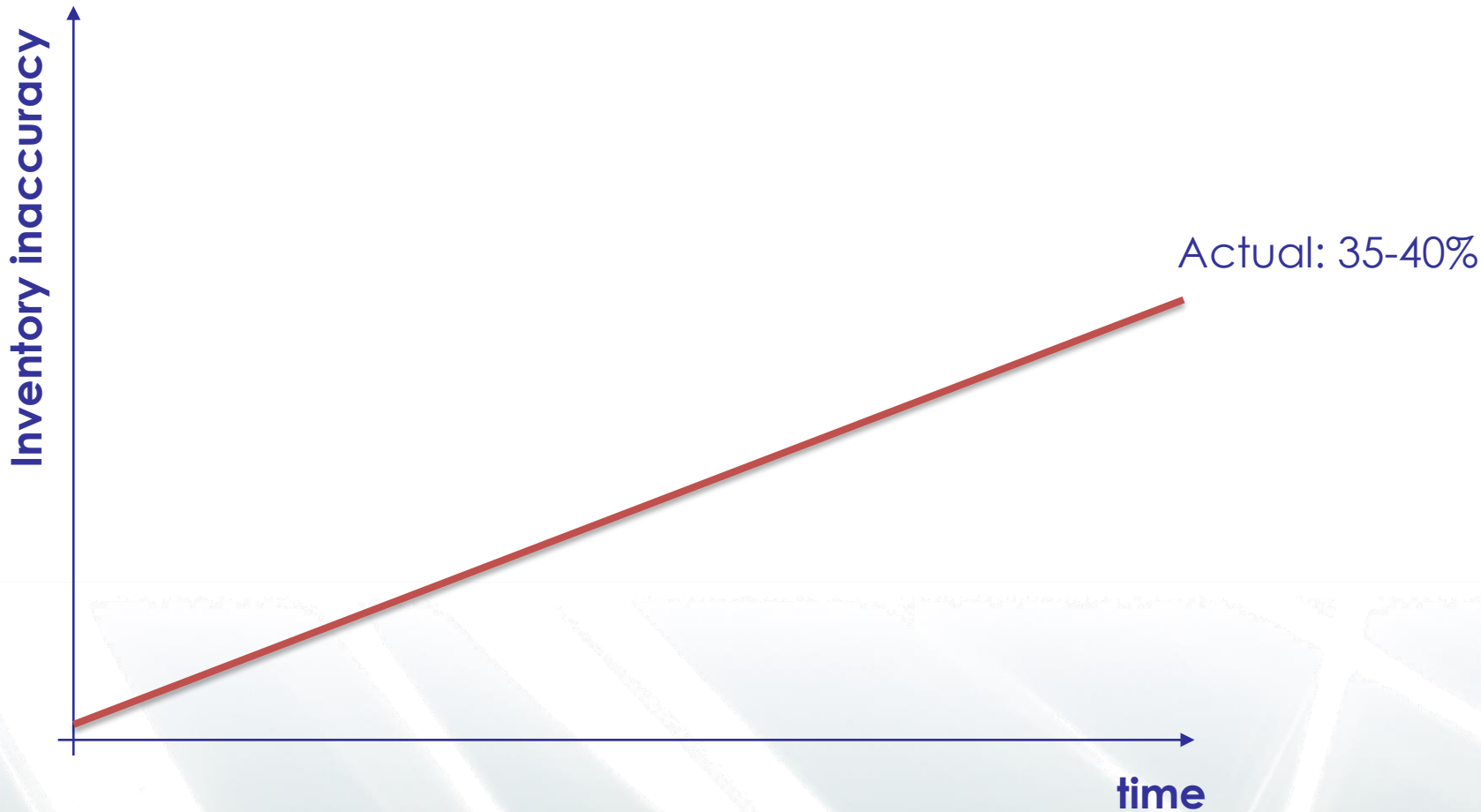


overstated

Legacy system > Actual

- ✓ «Frozen» out of stocks
- ✓ lost sales

Inaccuracy diverges...



RFID is the key to improve IA

Root cause of I.I.	Overstated? PI>OH	Understated? PI<OH	Can RFID help to solve the problem?
Mishipments from DC	Yes	Yes	Yes RFID receiving
Theft	Yes	No	Yes RFID EAS RFID Inventory counts
Checkout errors	Yes	Yes	Yes RFID checkout
Incorrect manual adjustments	Yes	Yes	Yes RFID inventoy counts + system update
Damaged	Yes	No	Partial RFID inventoy counts + system update

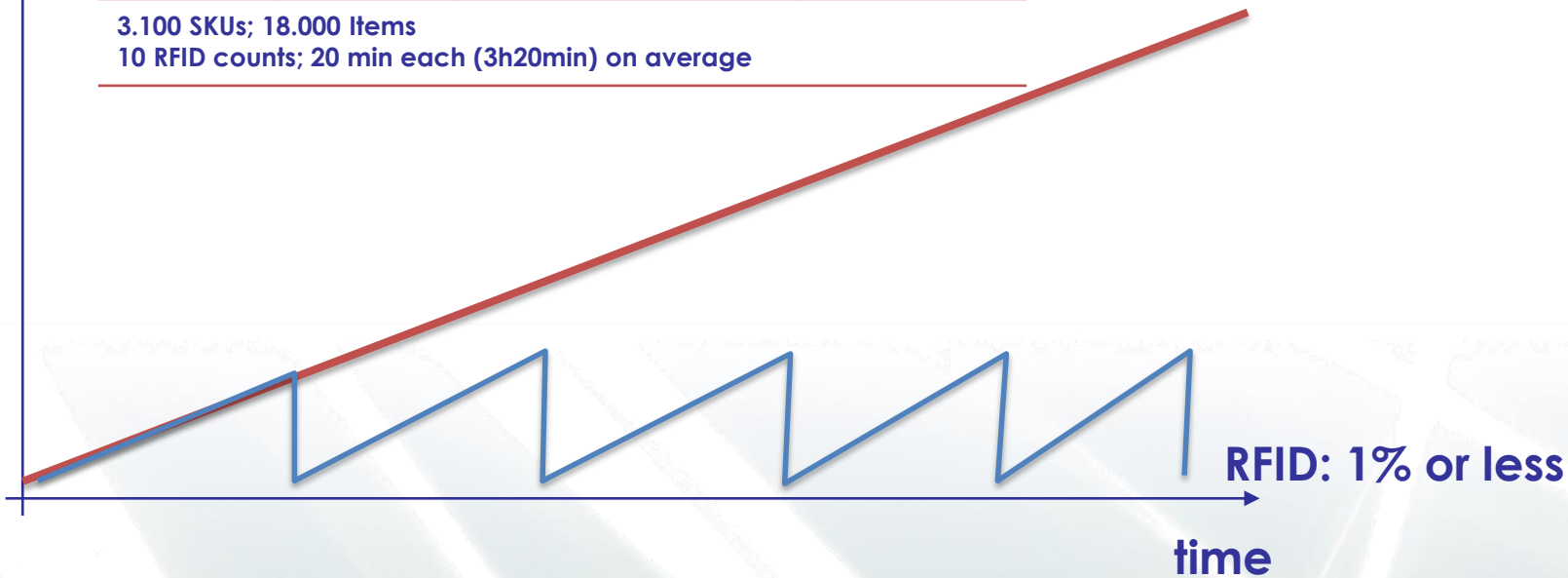
RFID is the key to improve IA

Inventory inaccuracy

	Accurate PI=OH	Overstated PI>OH	OOS PI<>0;OH=0	Understated PI<OH
Time 0	90,87%	7,25%	1,14%	1,88%
1 week later	89,61%	8,26%	1,27%	2,13%
1 month later	76,06%	10,76%	1,76%	13,18%

3.100 SKUs; 18.000 Items
10 RFID counts; 20 min each (3h20min) on average

Actual: 35-40%

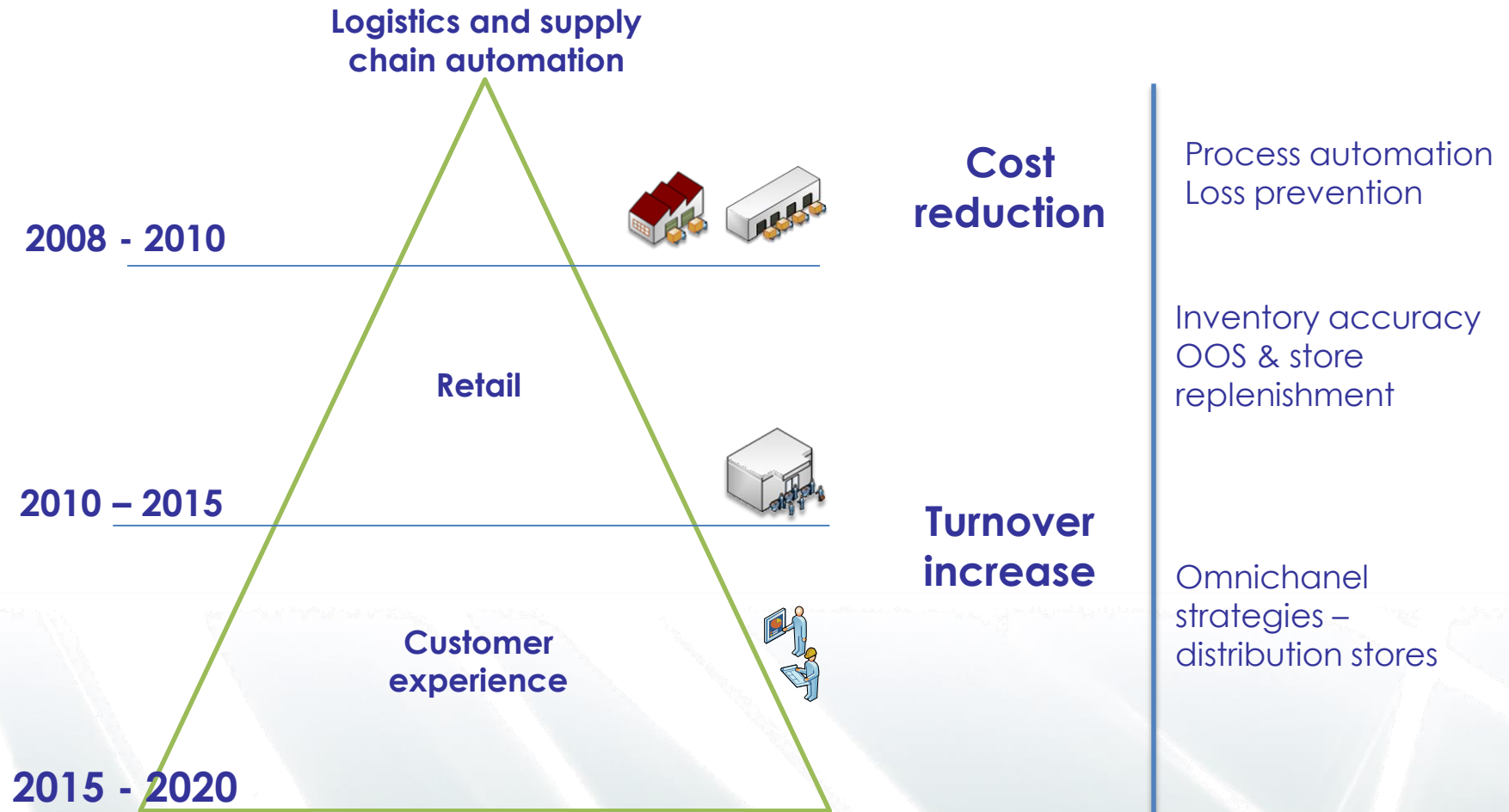


Omnichannel supply chains

Lessons learned

- Omnichannel it's not RFID, is a new model of supply chain strategy
- RFID is an enabling technology, like the internet
 - RFID provides the visibility and accuracy on stocks
 - In omnichannel retail you can not afford to break a promise
 - RFID makes it possible to handle items on an item level basis
 - From the very moment an item is sold on the internet it has to be withdrawn from retail
- The technology is a prerequisite, you need to work on it with skilled SC partners, IT and retail teams
 - SCM and processes are the keys

10 years of RFID projects





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**Internet of Things e scenari innovativi di implementazione:
la tecnologia RFID nel retail: da
strumento di riduzione dei costi
a leva per lo sviluppo del business**



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Full Professor,
Industrial Logistics and Supply Chain Management

Department of Industrial Engineering
University of Parma
ITALY

E Antonio.rizzi@unipr.it

T 320 4370745

Charter member of:



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