

Global Technology Trends and Forecasts

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Retail Technology Forum 2012, Hermanus



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Planet Retail ...

- provides retailers, suppliers and investors with critical insights on the global retail industry that create competitive advantage
- offers macroeconomic data and analyses for 211 countries
- monitors more than 9,000 retail and restaurant operations
- delivers daily news, a weekly retail technology newsletter, reports, executive opinion briefings and webcasts

Continually updated by our global team of analysts

The screenshot displays the PlanetRetail website interface. At the top, there is a navigation bar with links for 'About Us', 'Media', 'Events', 'My Account', 'Help', and 'Logout'. A search bar is also present. Below the navigation bar, the main content area is divided into several sections:

- InsightDecks:** A prominent banner for 'InsightDecks' with the text 'Planet Retail's expert opinion on major strategic initiatives of the world's leading retailers'. It features logos for Target, REWE, TESCO, and others.
- DATA ANALYSIS:** A section with tabs for 'Analyse Data', 'Ready Rankings', and 'My Data'. It lists 'Top 100 Global Grocery Retailers', 'Top 250 Companies', 'European Grocery Channel Sales', and 'Top 10 Global Hypermarket & Superstore Operators'.
- NEWS & INSIGHT:** A section with an 'Edit' button, containing news items such as 'LVMH Sephora opens first Brazilian store', 'MCDONALD'S introduces new QR codes', 'SEARS Lands' End selects Dematic warehouse automation', 'SUPERVALU names new President and CEO', 'ARCADIA GROUP to open South African standalone stores', and 'CO-OPERATIVE GROUP agrees GBP950 million debt facility'.
- REPORTS:** A section with tabs for 'Recommended', 'Recently Viewed', and 'My Reports'. It features 'Target Insight Deck', 'CityTarget - Urban Concept Worth Watching', and 'Schwarz Group Insight Deck'.
- MY ACCOUNT:** A section for user management, showing 'Account Manager: Eliza Williams', contact information (0207 728 4970, eliza.williams@planetretail.net), and a 'Watch our training video' button.
- STAY CONNECTED:** A section with social media links for Facebook, Twitter, and LinkedIn, and a 'Join our retail group on Facebook' button.
- IMAGES:** A section with tabs for 'We Recommend' and 'Recently Viewed', displaying image galleries for 'Carrefour (650+ Images)', 'Ahold (290+ Images)', 'bol.com', and 'Ahold in USA (720+ Images)'.

Sample of Planet Retail Clients



Additional services on Retail Technology

Technology Table

By IT Vendor

Select which IT vendors you work with. For each selected IT Vendor, a technology they supply.

Select IT Vendor(s)

- Gicom
- Giesecke & Devrient
- Gilbarco Veeder-Root
- GK Software
- Global Crossing
- Global Expense
- Global Systems
- Globe Ranger
- Goldrun
- Goliath Solutions
- Shooting 928 of 928

Retail Technology Trend Reports

Retail Technology Trend Report

PlanetRetail
www.planetretail.net

Online Supplier Collaboration

Retail Technology Trend Report

PlanetRetail
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Empowering Employees

Next generation mobile devices boost instore services

Joachim Pinhammer
Senior Retail Technology Analyst

Fortnightly IT & SC Newsletter



Market Opportunity Assessments

1 Overview - Assessment of the Dutch retail market

Number of SKUs per sq m

Number of SKUs

Technology Roll-out Scale

Technology Innovativeness

Specific parameters on the market and the

Number of Checkouts

Table of Results

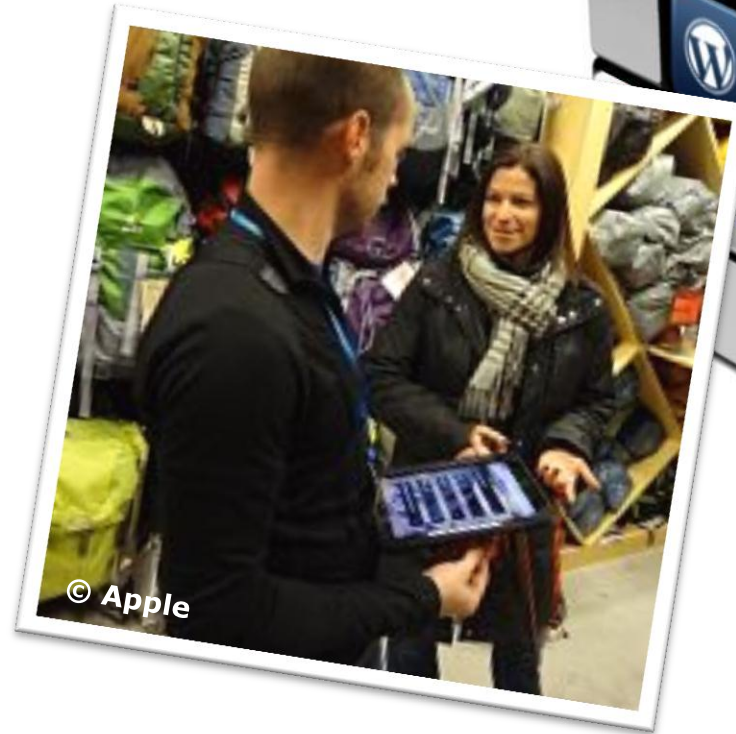
Step by Step: Number of checkouts

2011 F

Total No. of Rows: 2039

Total number of checkouts

Company	Country	2011 F
Walmart	United States	116,064
McDonald's	United States	76,470
Aeon	Japan	67,617
Edeka	Germany	66,785
Kroger	United States	64,532
Seven & 1	Japan	62,870



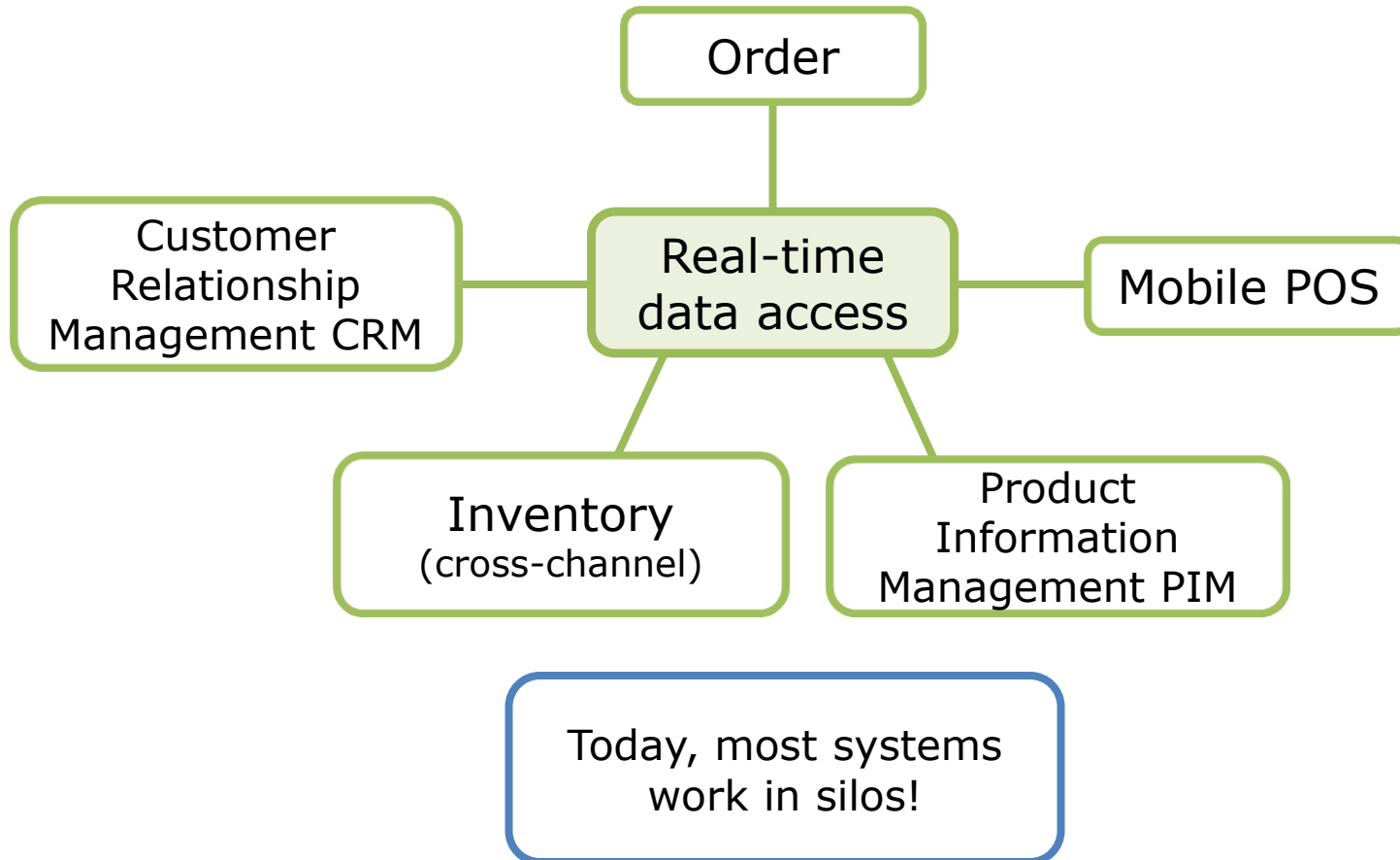
MyCommerce - the shopper in the driving seat

Total transparency on products, producers and prices is changing retailing as we know it completely



Real-time data access – A challenge for the CIO

Retailers need real-time access to operational data to enable a true multi-channel offering.



Case study: Ahold Albert Heijn and Stop&Shop

Ahold is one of the pioneers of mobile commerce, providing comprehensive customer services via smart phones.

- Scanning function
- Shopping list
- Personalized messages and promotions
- Weekly circular
- Product information
- Recipes with ingredients
- Store finder
- Available for iPhone and Android.



Albert Heijn first released its Appie shopping app in November 2010 and has been continuously updating its functionality based on customer feedback.

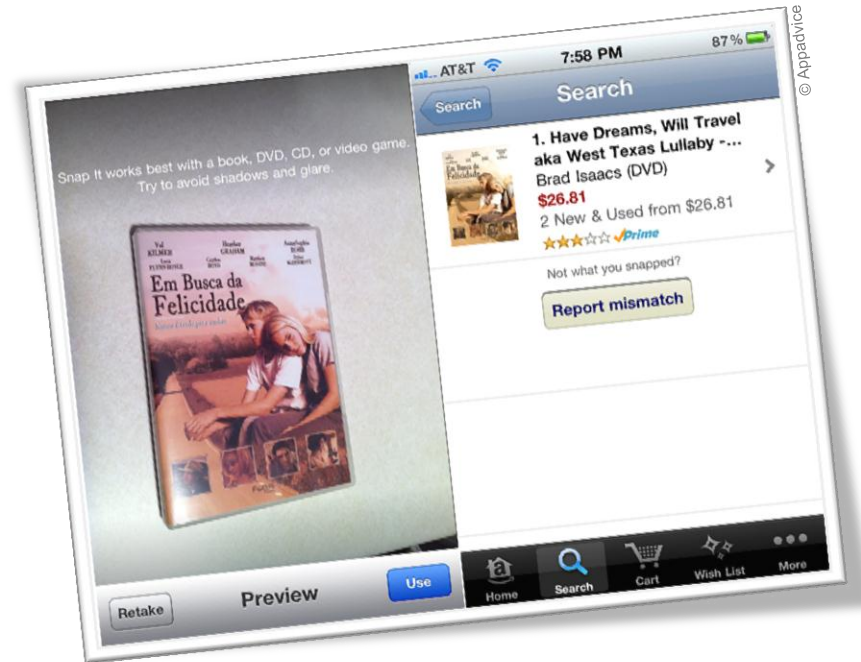


Long-time self-scanning pioneer Stop & Shop expanded the Scan IT! scheme to shoppers' mobiles.

Case study: Amazon

Amazon App addresses shoppers in stationary retail stores

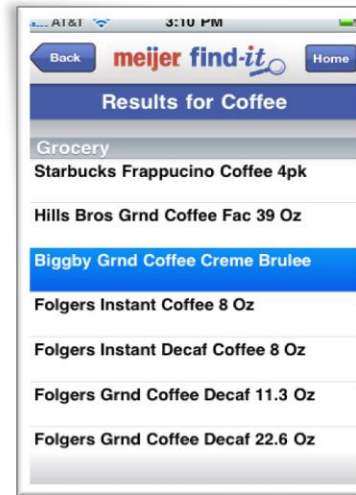
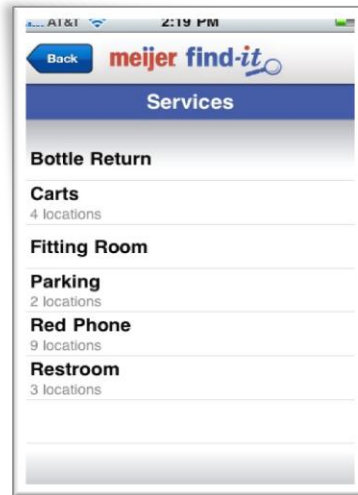
- **'Scan It'**: Search feature allows shoppers to make a quick scan of a product's barcode to compare its price with that of Amazon.com.
- **'Snap It'**: In autumn 2011, Amazon.com added the 'Snap It' functionality. It allows shoppers to take a photo of the product packaging to perform a search and order the product instantly.
- In Germany, Amazon's app includes both a barcode scanning feature as well as 'Amazon Memo'.
 - ▶ **Amazon Memo** creates a virtual list of things to remember from photographs taken.
 - ▶ Photos are sent to Amazon and stored both in the app and on the website.
 - ▶ If a similar-looking item is for sale at Amazon, shoppers receive price and product details via e-mail.



Case study: Meijer Find-it.

Shoppers navigate the store with a smartphone to find products and store services.

- Location of specific products, sales items and promotions.
- Location of services available in the store, such as customer service desk, restrooms, fitting rooms or bottle returns.
- Remember my parking spot.
- Location and contact information for all Meijer stores.



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Omni-Channel retailing

Planet Retail predicts that by 2015 Amazon will be among the Top 10 Global Retailers.

Global: Top 10 Retailer Banner Sales, 2010e-2015f (USD bn)

	Company	Banner Sales, 2010e
1	Walmart	446.5
2	Carrefour	148.7
3	Tesco	104.4
4	Metro Group	102.1
5	AEON	95.7
6	Seven & I	93.1
7	Kroger	86.1
8	Schwarz Group	85.3
9	Costco	79.3
10	Auchan	78.9
31	Amazon	37.7

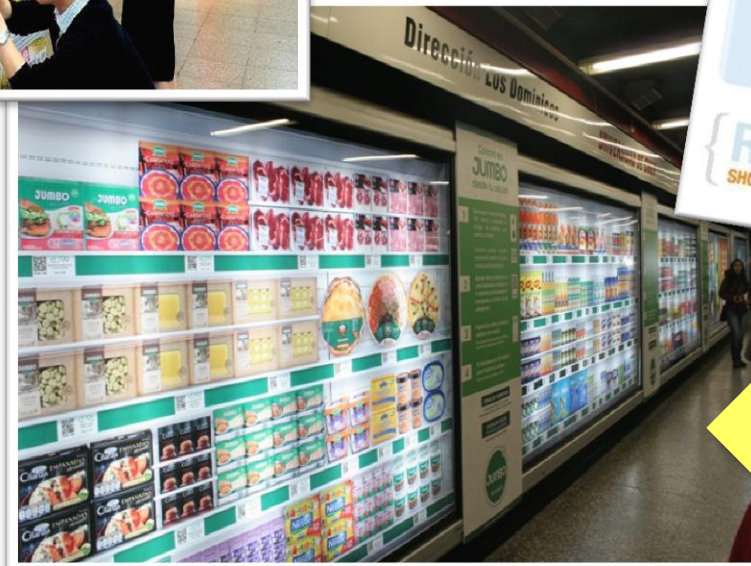
	Company	Banner Sales, 2015f
1	Walmart	625.8
2	Carrefour	177.4
3	Tesco	155.8
4	Schwarz Group	131.6
5	Metro Group	131.3
6	Amazon	126.9
7	AEON	123.1
8	Costco	112.9
9	Auchan	112.8
10	Seven & I	111.1

Note: e – estimate; f – forecast.
Source: Planet Retail

Bricks and mortar players are launching innovative new ways of enabling multi-channel shopping.



Tesco in South Korea caused a stir in 2011 by launching a QR code wall – enabling shoppers to add items to their online shopping basket simply by scanning the QR code. Orders can then be delivered that evening. Test locations included a subway in Seoul (above).



Other retailers quickly followed suit – including Ocado in the UK and Jumbo in Chile (left).

Sears and Kmart launched a virtual QR wall for toys in late 2011 in the US



Click & collect

Click & collect unburdens the retailer of expensive home delivery, while offering the full range of products.



"Auchan Drive is an essential element of the progression of our business in France."

Shoppers order online and pick up their orders outside of the hypermarket or at dedicated pick-up stations.

Xavier de Mézérac
CFO, Auchan

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The store in 2020

The Store 2020 – Planet Retail's Vision

Shopping starts at home
(...or wherever consumers fancy to do so)

- Shopping preparations via TV, PC, tablet or smartphone
- Scanning of empty packages
- Smart inventory management at home
- Experiences shared via social networks

Enabling Technologies:

- Online shop technology and apps
- CRM system
- Analytics and predictive technologies
- NFC / QR codes



The Store 2020 – Planet Retail's Vision

Customers identify themselves when entering the store. This enables the retailer to apply personalized marketing tools. Shoppers are rewarded with better service.

- Check-in via smartphone or kiosk
- Upload of shopping list
- Personalized offers
- Reminders & alerts

Enabling Technologies:

- Near Field Communication (NFC)
- CRM System
- Interactive Kiosks
- Tracking Systems



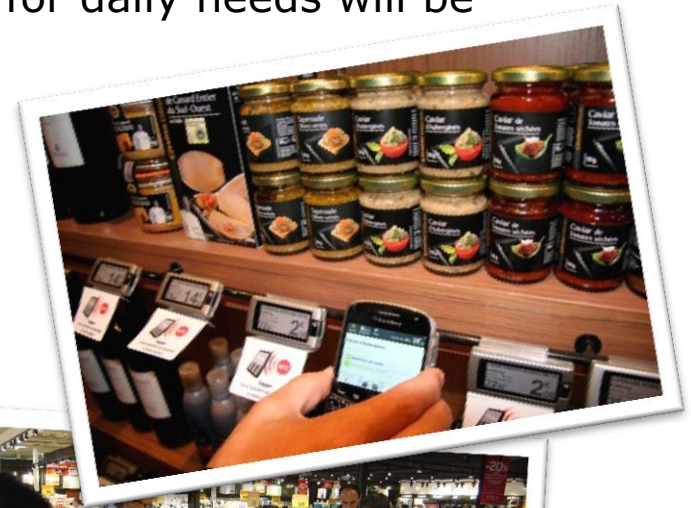
The Store 2020 – Planet Retail's Vision

Customers shop for fresh food, new products and impulse articles in an experience-oriented environment, while ambient and non-foods for daily needs will be automatically picked and packed.

- Friendly towards elderly and handicapped people
- Interactive and personalized shopping experience
- Supportive employees empowered by technology

Enabling Technologies:

- Wi-Fi and mobile networks
- NFC / RFID for non-food
- ESLs and digital signage
- Interactive kiosks
- Tracking systems and indoor navigation
- Self-checkout and cash recycling
- Warehouse automation



Retailing 2020 – What's on top of the CIO's to-do list

- Do your homework first
 - ▶ Master data management, 100% scanning, supply chain transparency,
- Enable real-time data access across all channels
- Create dedicated apps for different mobile devices:
 - ▶ For employees: inventory, customer service, task management, KPIs
 - ▶ For shoppers: scanning, product information, promotions, coupons, indoor navigation, payment
- Leverage optimization technologies: space, price, promotions and assortment
- Deploy analytics and predictive technologies to tap big data
- Enhance instore technologies
 - ▶ To enable new forms of consumer interaction
 - ▶ To better compete with online players



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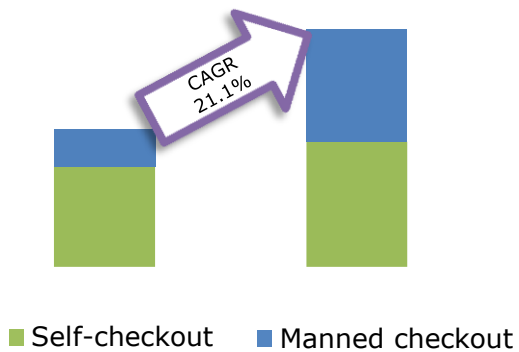
The checkout of the future

Worldwide deployment of self-checkout systems.

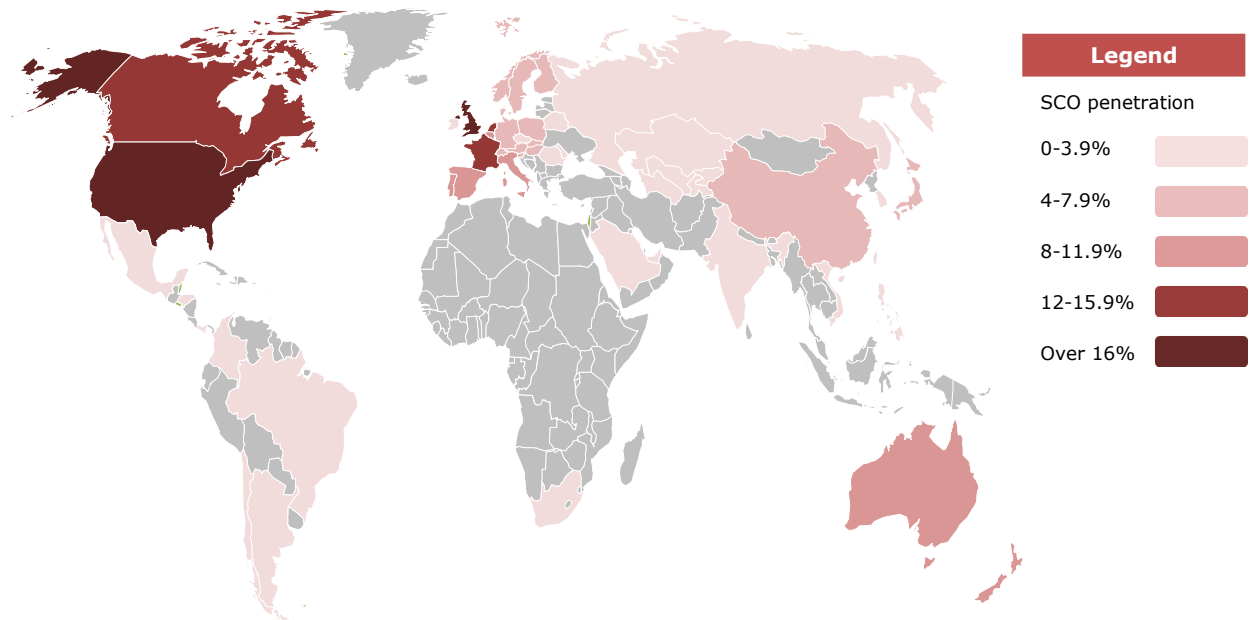
Global annual growth of self-checkouts is around 21%.

Global: Installed Base Self-Checkout Systems in Grocery Retail, 2010-2015f

2010	2015f
124,003	322,373



Global: Self-Checkout Penetration, 2015f (%)



Scenario 1

Fully automated scanners could replace self-scanning.



In March 2010, Kroger in the US became the world's first retailer to deploy fully-automated tunnel scanners at the checkout.

The Kroger Marketplace store in Hebron, Kentucky, was the first to deploy the 'Advantage Checkouts'.

Scenario 2

Retailers are separating scanning from payment.



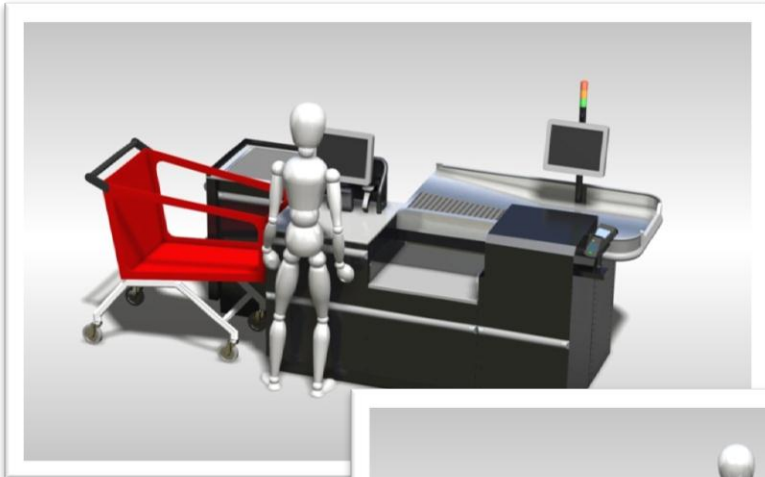
Schwarz Group Kaufland is testing self-service payment terminals from Wincor Nixdorf in Marl, Germany.



Metro Group is testing self payment terminals with IBM and Gisecke & Devrient at its hypermarket operation Real in Germany.

Scenario 3

Retailers are installing convertible checkouts.



Checkouts can be easily converted from manned to self-service operation.

Scenario 4

Retailers experiment with mobile checkouts.



Douglas has started to deploy mobile checkouts with iPod's, payment docking stations from **Verifone**.

© Verifone

Scenario 5 Self-scanning and payment with smartphones

Self-scanning with the iPhone at Metro Group's Real Future Store in Tönisvorst.

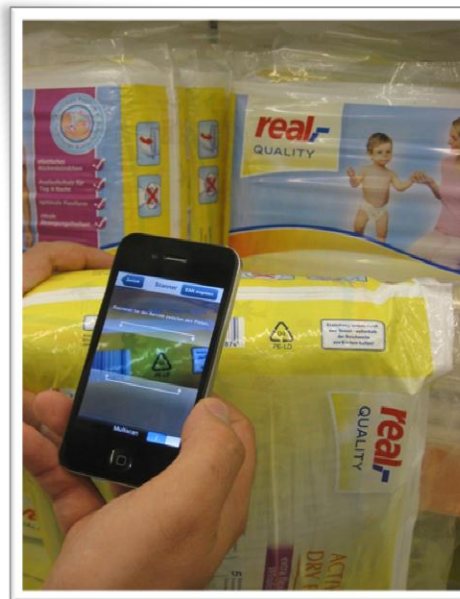


Step 1



To start a shopping trip, customers scan the barcode on the trolley. The iPhone then connects with Real's merchandising system.

Step 2



Red Laser's technology makes self-scanning with an iPhone easy. Once the barcode has been placed inside the square in the middle of the screen, it will recognise the product.

Step 3



A barcode displayed on the phone at the end of the shopping trip initialises the payment process at the Pecuron machine.

US giants try to set standards for mobile payment.



MCX

- Walmart, Target, Best Buy, CVS, Publix, Lowe's, Seven & I's 7-Eleven and other large US retailers jointly develop a mobile-payments network.
- The venture is set to offer up a mobile-commerce app that will provide payments and deals.
- Shoppers are able to make purchases in a store by tapping the phone against a reader placed by the cash register.
- No launch date is published yet.



Google Wallet

- NFC-powered solution launched in September 2011.
- Payment via credit and debit card accounts.



ISIS

- NFC-enabled mobile wallet to be launched in autumn 2012.
- Joint venture between AT&T Mobility, T-Mobile USA and Verizon Wireless.



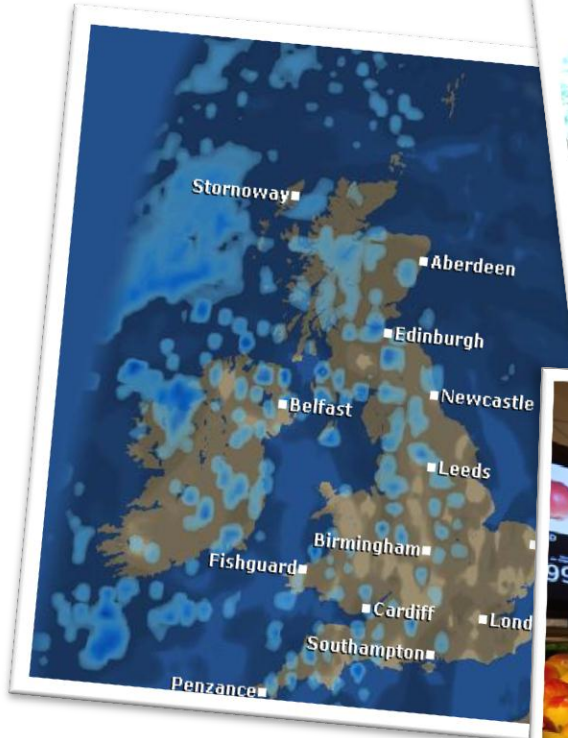
Alternative payment solutions do not require NFC at all

eBay's PayPal brings online payment scheme to bricks and mortar stores.

- Home Depot first to pilot in January 2012 - rolls out to all stores in March 2012.
- Shoppers enter phone number and PIN at terminal or use special PayPal card.
- Benefit for retailers: Lower transaction fees as for credit or debit cards.
- Roll out to more retailers in May 2012, including Abercrombie & Fitch, Barnes & Noble, Foot Locker, JC Penney, Office Depot, Toys 'R' Us.
- UK customers at Aurora Fashion stores (Coast, Oasis, Warehouse and Karen Millen) able to use PayPal as well since May 2012.
 - ▶ Different solution for Europe with QR code and PIN.



6



20.04.2009'dan itibaren...

Vakumlu Kungul Sıcak Dağhan 2,95 ₺	2,50 ₺	Sıcak Kremalı Çiğ Köfte 1,75 ₺	1,65 ₺
Vakumlu Parıltı Sıcak Dağhan 1,60 ₺	1,50 ₺	Parıltı Çiğ Köfte 1,75 ₺	1,65 ₺
Mangal Gücük 6,25 ₺	5,95 ₺	Acı Biber / Fırınca 1,75 ₺	1,65 ₺
Değer Peynir Dost 17,75 ₺	16,95 ₺	Mayonez 3,95 ₺	3,75 ₺
Yarım Yağlı Süz Dost 1,09 ₺	0,99 ₺	Min. Gıda İçecek Ürünleri Karşılığı 2,70 ₺	2,50 ₺
Dil Peyniri Aknaz 3,35 ₺	3,25 ₺	Kakaolu Tatlı İçecek Miksiçik 2,90 ₺	2,85 ₺
Eski Kâğıt Aknaz 7,40 ₺	6,65 ₺	Ultra Karamlı Hiyekül Peft Scarlett 1,30 ₺	1,20 ₺
Kakaolu Fındık Kreması Peripelta 2,95 ₺	2,85 ₺	Ultra Karamlı Hiyekül Peft Scarlett 1,25 ₺	1,15 ₺
Susamlı Bisküvi Süsse 1,35 ₺	1,25 ₺	Değer Paketli Kağıt Bisküvi 2,25 ₺	2,15 ₺
Petibör Bisküvi Süsse 1,30 ₺	1,25 ₺	Famak Çiğdem 0,55 ₺	0,50 ₺
Kırmızı Mercimek Saban 3,50 ₺	3,25 ₺	Sarı Yaşlı Temizleyici Alet 1,65 ₺	1,50 ₺
Makarna Grubu Cardella 0,75 ₺	0,69 ₺		
Biber Salçası / Acı-Tatlı 3,75 ₺	3,65 ₺		

BİM



The need for optimisation

How can retailers raise profitability **without** selling more items?



Inventory optimisation

- Replenishment automation based on forecasting software - the retail technology success story for more than a decade:
 - ▶ Increased sales and improved shopper satisfaction;
 - ▶ Reduced waste, fixed capital and stock-keeping costs;
 - ▶ However, often limited to ambient range and processed chilled food;
- Inventory optimisation for produce and instore produced food are on retailers' agendas now.

Retailers are saying:
"Our out-of-stocks rate decreased from 3.5 to 1% with 10-15% less inventory and 40% less workload with orders."



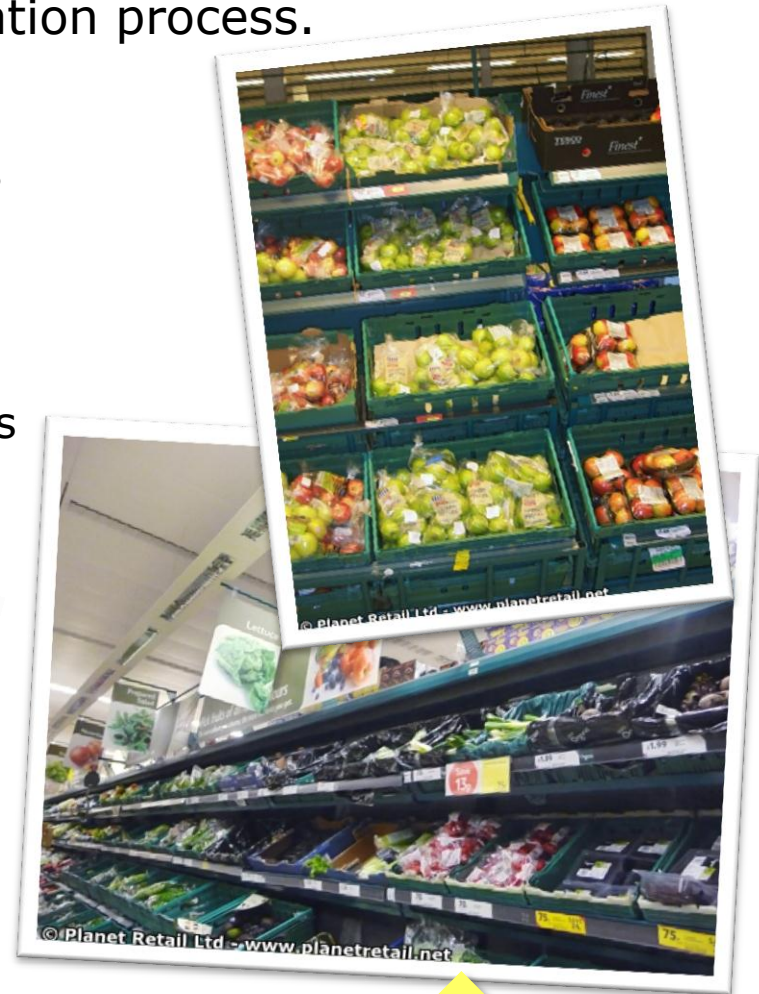
Rewe supermarket in Germany.

Case study: Tesco uses **video analytics** to further calibrate the algorithms of its replenishment automation process.

- In around 15 to 20 stores, Tesco installed cameras which continuously take pictures of shelves in the fruit & vegetable department.
- Combined with POS data, these snapshots help Tesco to get a better picture of inventory levels and further optimise forecasting algorithms.



While content of the pictures is captured automatically, analysis of the correlation between POS data and information gathered by the cameras is done by Tesco's staff.



Tesco Hypermarket New Malden, Surrey, UK

Planet Retail's global top 10 technology providers to watch for price optimization

Note: Not ranked; does not include pure promotion optimisers.

The logo for Predictix, featuring the word "Predictix" in a red, sans-serif font.The logo for Accenture, featuring the word "accenture" in a black, sans-serif font with a greater-than sign (>) above the 'u'. Below it is the tagline "High performance. Delivered." in a smaller, italicized font.The logo for Teradata, featuring the word "TERADATA" in a large, orange, sans-serif font. Below it is the tagline "Raising Intelligence" in a smaller, blue, italicized font.The logo for Revionics, featuring the word "REVISIONICS" in a blue, sans-serif font. Below it is the tagline "REVENUE BIONICS" in a smaller, green, sans-serif font.The logo for SAS, featuring a blue stylized 'S' icon followed by the word "sas" in a black, sans-serif font.The logo for KSS Retail, featuring a stylized 'K' icon followed by the text "KSS Retail" in a blue, sans-serif font. Below it is the tagline "a dunnhumby company" in a smaller, black, sans-serif font.The logo for Oracle, featuring the word "ORACLE" in a red, sans-serif font.The logo for SAP Khimetrics, featuring the SAP logo (a blue square with a white 'S') followed by the word "Khimetrics" in a blue, sans-serif font.The logo for IBM DemandTec, featuring the IBM logo (a blue and white striped rectangle) followed by the word "DemandTec" in a black, sans-serif font.The logo for Retailix, featuring the word "Retailix" in a black, sans-serif font with a red swoosh underline.

7



Warehouse Automation

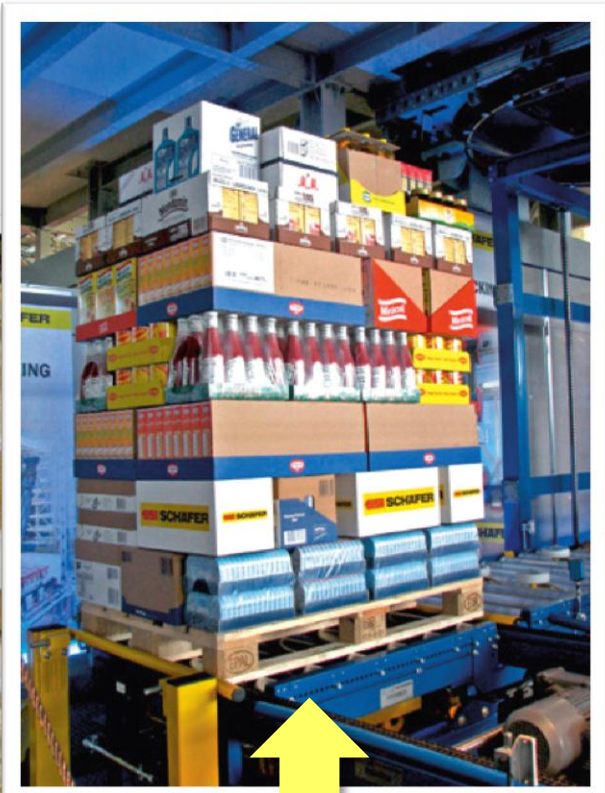
Optimisation begins in the warehouse

There are good reasons to invest into warehouse automation technology:

- Reduction of labour costs
- Ergonomics
- Reduction of transport costs
- Less shrinkage due to improved visibility of supply chain



Manually packed pallet.



Pallet packed with warehouse automation technology.

Source: SSI Schäfer

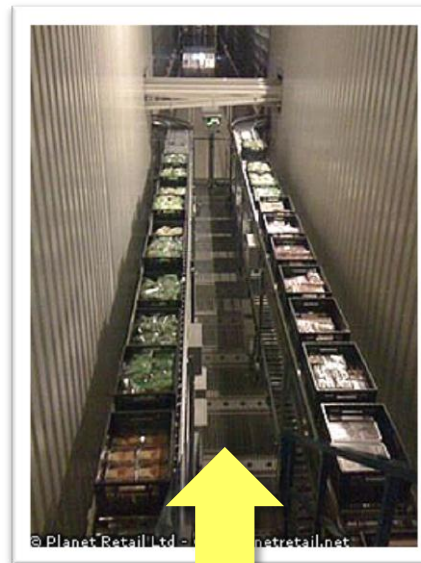
RFID speeds up fresh food logistics.



- Delhaize tracks transport boxes for fresh items with RFID between its Zellik DC, stores and the Euro Pool System service centre.
 - ▶ Continuous localisation due to scanning at various places within the supply chain.
 - ▶ Handling of boxes is facilitated by Witron's Dynamic Picking System (DPS).
- ➡ Due to the new process, all fresh products are ready for sale on the stores' shelves within a maximum of 12 hours.

Delhaize's reason for investment:

- Increased focus on fresh food
- Trend towards smaller outlets



Some 70% of Delhaize's fresh food store deliveries are automatically handled by Witron's technology.



Delhaize developed its new reusable crates for fresh food in co-operation with Euro Pool System.

Many retailers have started to fully automate their DCs.

- Kroger was the first grocery retailer in the world to fully automate a warehouse in 2003.
- Spanish grocer Mercadona deploys warehouse automation technology in several facilities, also for fresh products.
- In 2012, Lidl is now the world's first discounter to fully automate a depot.

SUPERVALU



Kroger has already automated several DCs with technology from Witron

Lidl deploys the case picking system from SSI Schäfer.



MERCADONA
SUPERMERCADOS DE CONFIANZA

Sobey's
INC.

E EDEKA



The world's first self-replenishing shelf in a store

- In August 2010, the self-replenishing shelf from warehouse automation specialist Witron made its debut in the E-Center in Weiden, Bavaria.
 - ▶ In a hidden aisle behind the shelf, a replenishment shuttle moves horizontally and vertically to carry out replenishment.
 - ▶ The shelf is connected to the store merchandise system.
 - ▶ Stock levels are taken with the help of scanners; employees are automatically alerted to re-stock the replenishment shuttle.



The shelf is 10 metres long.



The shuttle and the shelf are divided by blinds which go up when items are replenished from behind.



A horizontally and vertically moving shuttle carries out the replenishment.

8



Retail Technology Under Pressure



Easy to use touchscreen kiosk hardware for about USD800 per unit: Apple's iPad with housing from Councepad as entertainment kiosk terminal at McDonald's new concept restaurants in Milton Keynes (UK) and Grabenstätt (Germany)



Bouncepad-mounted iPad with at Douglas, Berlin, Germany. Runs nail care app, developed by the retailer.

- Tesco decided in September 2010 to implement 1519L touch monitors from Tyco Electronics Elo Touchsystems at its store checkouts and petrol stations in the UK and Ireland.
- Tesco operates the touchscreens with its existing POS software from Retailix.
- Initial order covered units to be supplied in 2010.



Tesco in London, United Kingdom, Tesco Metro

Software-independent Scales

Retailers invest into scales that run with any software.

- Swiss **Migros** is one of the first retailers in the world that manages to run scales from different vendors under its own POS software.
- In June 2009, **Rewe Group** presented plans to bring forward an open scales systems which is based on standards of ARTS and Service-Oriented Architecture (SOA).





"In some ways, we are competing with technology providers. **We want them to bring us cost-effective, superior technology and business solutions.** If they do, we use it. **If they don't, we do our own.**

I am not saying we do not want to do business with them. We love to and, generally speaking, I don't want to be in the manufacturing business. However, **if I can save USD500 per unit** when deploying 10,000 devices across the company, that is significant."

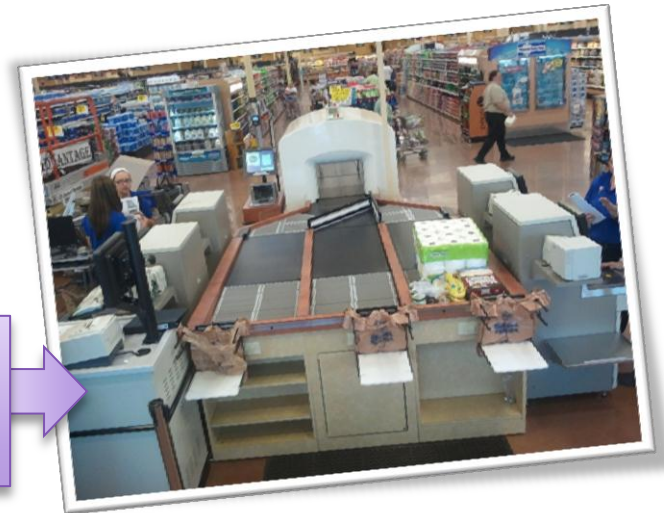


Kroger's CIO Chris Hjelm, in a Planet Retail Interview



Kroger is trialling an in-house-developed self-scanning device called PAL (Personal Assistant and Liaison) in a store in Cold Springs, Kentucky.

Kroger was the world's first retailer testing automated checkouts - in-house-developed.



PlanetRetail

www.planetretail.net

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