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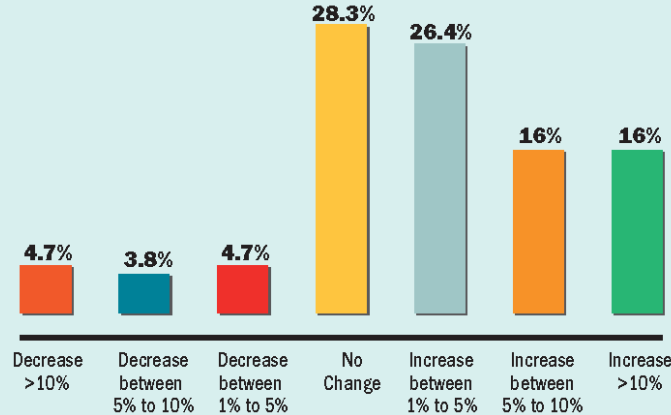
Retail Technology and Operational Excellence

Christopher Perrigo

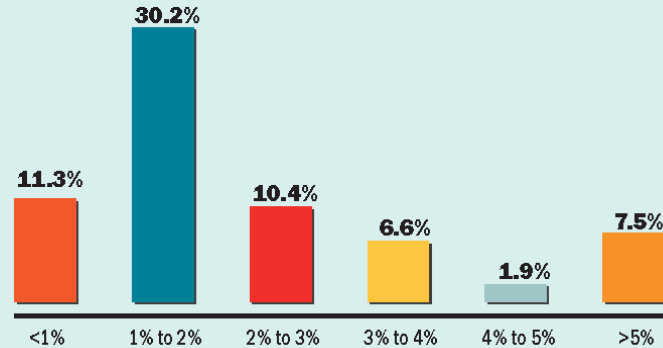
-
- **Lots of change**
 - **Many opportunities to spend money on technology – a potential black hole**
 - **Where to place the big bets?**

Retailers are spending more ...

CHANGE IN YEAR OVER YEAR IT BUDGET



IT BUDGETS AS A PERCENT OF TOTAL REVENUE



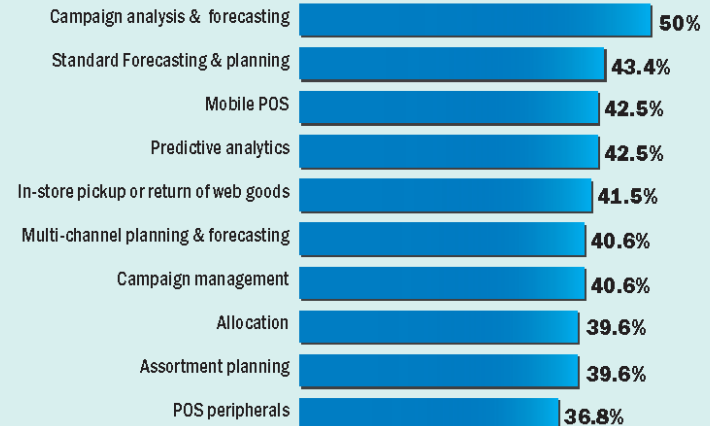
Source: Gartner / RIS 23rd Annual Retail Technology Study - Four Forces of Change – April 2013

... Driven by Mobile and Digital

MAJOR ACTION ITEMS OVER THE NEXT 18 MONTHS



TOP 10 TECHNOLOGIES FOR 2013



Source: Gartner / RIS 23rd Annual Retail Technology Study - Four Forces of Change – April 2013

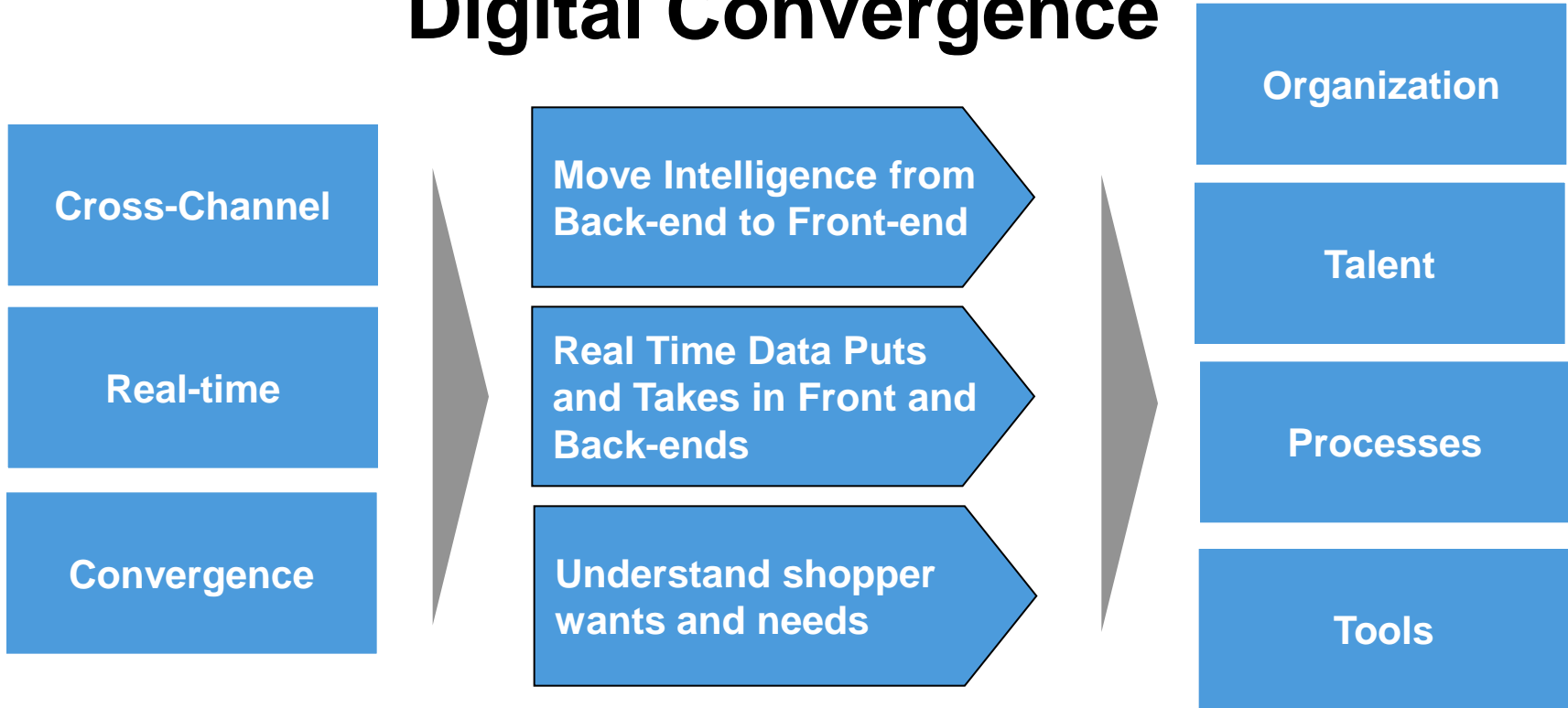
E-com remains hot *but* ROI is “in process”

A View of The e-Commerce and Engagement Landscape



Source: Luma Partners LLC

More fundamental challenge – Digital Convergence



Digital is not a “project” or a new team

Digital is pervasive and foundational

**Digital requires a re-think in
every part of the business and
technology portfolio**

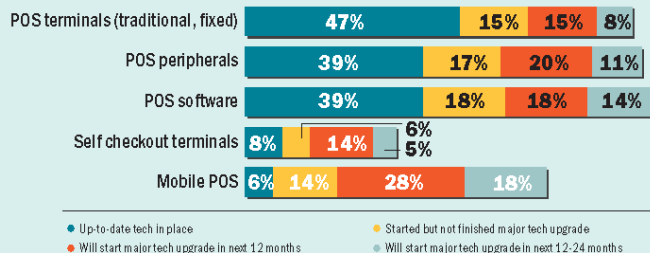


Point of Sale

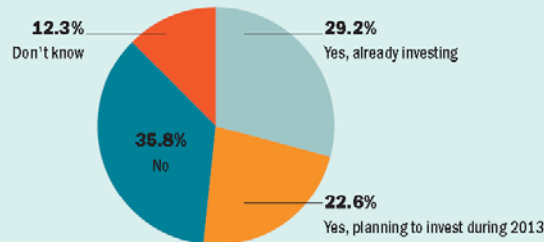


Mobile is emerging – Fixed gets an Upgrade

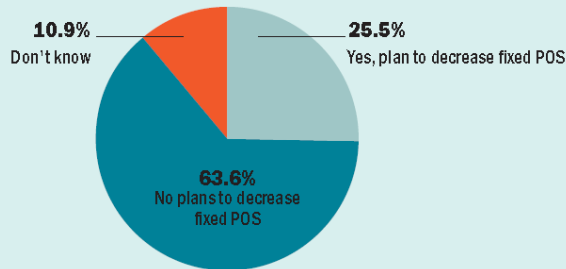
STATUS OF POS TECHNOLOGY



DOES YOUR ORGANIZATION PLAN TO INVEST IN MOBILE POINT OF SALE (POS) IN 2013?

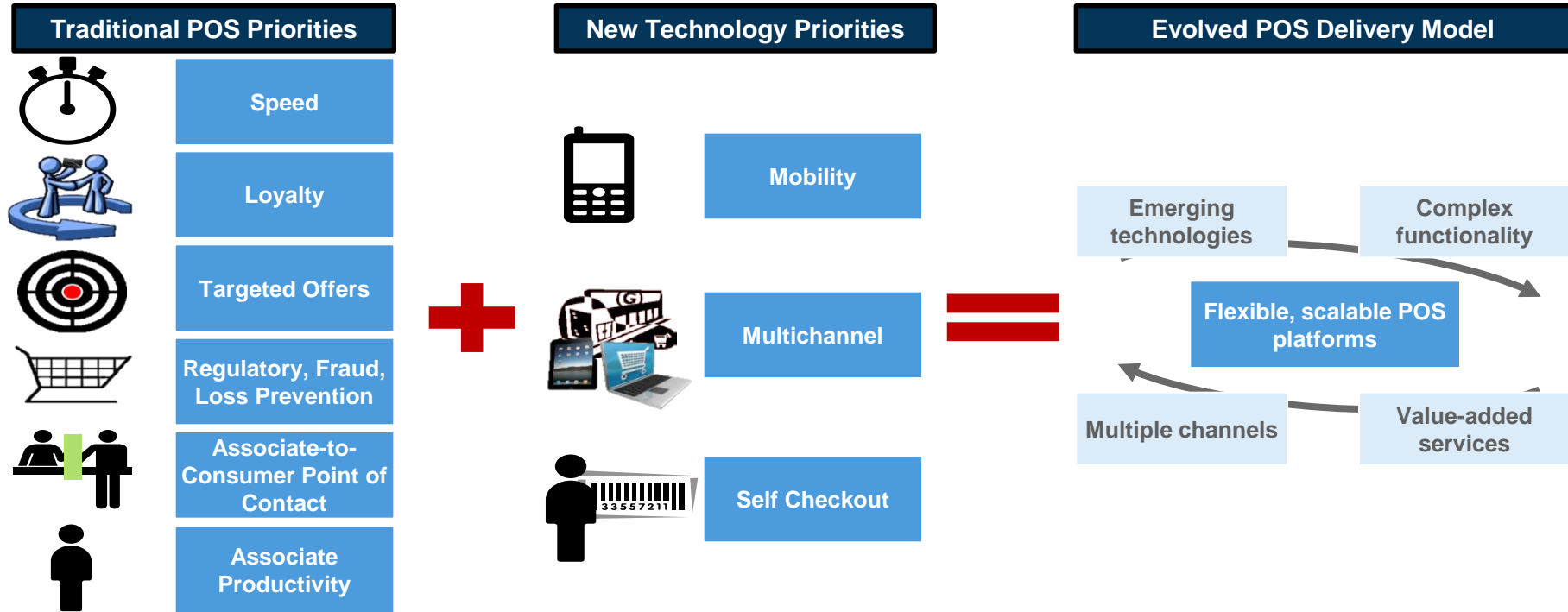


WILL YOUR ORGANIZATION DECREASE FIXED POS UNITS IN STORES DURING 2013 DUE TO MOBILE POS INVESTMENTS?



Source: Gartner / RIS 23rd Annual Retail Technology Study - Four Forces of Change – April 2013

POS continues to evolve



Source: Booz & Company analysis

Traditional priorities are still relevant

Traditional POS Priorities

Speed

- Getting customers through the check-out process as quickly and efficiently as possible remains a top priority for POS
- More than half of shoppers express extreme dissatisfaction when waiting in line at grocers and mass merchants, with nearly half indicating that they will abandon purchases due to long lines and slow check lanes

Loyalty

- The on-the-spot recognition and reward redemption that comes with a POS loyalty program provides immediate reinforcement and brings that particular card to the top of the wallet position that consumers reach for first

Targeted Offers

- POS increasingly is used to deliver personalized and relevant offerings in real time by accessing purchasing history

Regulatory, Fraud , Loss Prevention

- Fraud and loss prevention continues to be an important capability, and becomes even more critical with the use of mobile payments and self-scanning
- POS must ensure compliance to regulations and standards such as PCI

Associate-to- Consumer Contact

- POS is the only guaranteed person-to-person touch point throughout the entire in-store path to purchase
- POS can empower the associate with value-add information to improve customer experience – be it comparative pricing, product availability, and even customer-specific information

Associate Productivity

- Maximizing productivity of associates at POS continues to be a primary objective
- Given labor turnover in the store, POS must be easily trained and intuitive to use
- Exception handling must be a streamlined process to ensure productivity and customer satisfaction

Source: Booz & Company analysis; National Retailer Federation 'Bucking the System' Sept. 2012, "Beyond Line Busting" Nov. 2012; Aisle Buyer Mobile Shopping Survey Feb. 2012

New priorities are emerging and expected

New Technology Priorities

Mobility

- mPOS will allow associates to complete transactions away from a traditional register (“line busting”) and mitigate lengthy check-out lines; however, issues with bagging in-aisle can create a stumbling block
- mPOS can create new ways in which to interact with the customer (i.e. A consumer’s online shopping list can get updated based on what is scanned in-store)
- Smartphones will facilitate in-aisle product scanning while shopping, and new locations in the store can become check out areas
- Mobile wallets (e.g., MCX) will offer a new way to pay

Multichannel

- Consumers are accessing product/pricing information and are shopping across a variety of channels
- Pricing consistency/transparency is an important consideration given this behavior; POS associates must be as informed of online pricing and promotions as customers
- Inventory checking (across multiple channels) is another critical issue that a future POS system must handle
- Multichannel promotions should be able to be seamlessly redeemed at POS
- Returns of merchandise purchased online need to be handled by in-store POS
- Multiple new fulfillment options (e.g., buy online, pick up in store) must be handled by POS

Self Checkout

- Consumers strongly favor self-checkout options, citing speed of getting through the line as the top benefit
- NFC technology combined with mobile has the potential to allow for self-checkout anywhere in the store

However, many POS platforms are not ready

Inventory and Fulfillment

- Inventory lookup across chain, in DCs and online to satisfy customer needs
- Ship to customer from warehouse, store or vendor
- Ship-to-store or alternate store pick-up

Loyalty and Promotions

- Loyalty status visibility through all channels
- Targeted real time offers and coupons
- Cross-sell
- Up-sell
- Trade promotion optimization

Mobility

- Line Busting
- Mobile POS
- Self scan / checkout
- Mobile wallet, payment, and loyalty
- Personal shopping list

Global

- Multi-language
- Multi-tender
- Tax and Accounting
- Regulatory
- Location specific customer expectations and shopping patterns

E-Commerce

- Buy online from POS
- Return items purchased online
- Digital receipts
- Price transparency and consistency

New Services

- In-store services: copy and print, alterations, personal shopping
- Delivery and installation
- Service plans
- Cafeteria

Common Challenges

- Many POS systems are long time legacy packages which have been updated through customizations and bolt-ons over the years
- The resulting architecture and code base can be highly complex and fragile
 - An unruly mix of undocumented extensions with multiple point to point integrations
 - High cost to maintain and to add new functionality
 - Long lead times to make any changes
 - A small set of internal talent who truly understand the system
 - An inability to recruit new talent to understand and work on the “old” technology
- Additionally, retailers with multiple banners can have multiple POS systems that do not work well together and are difficult to manage holistically

Multiple strategies are being pursued

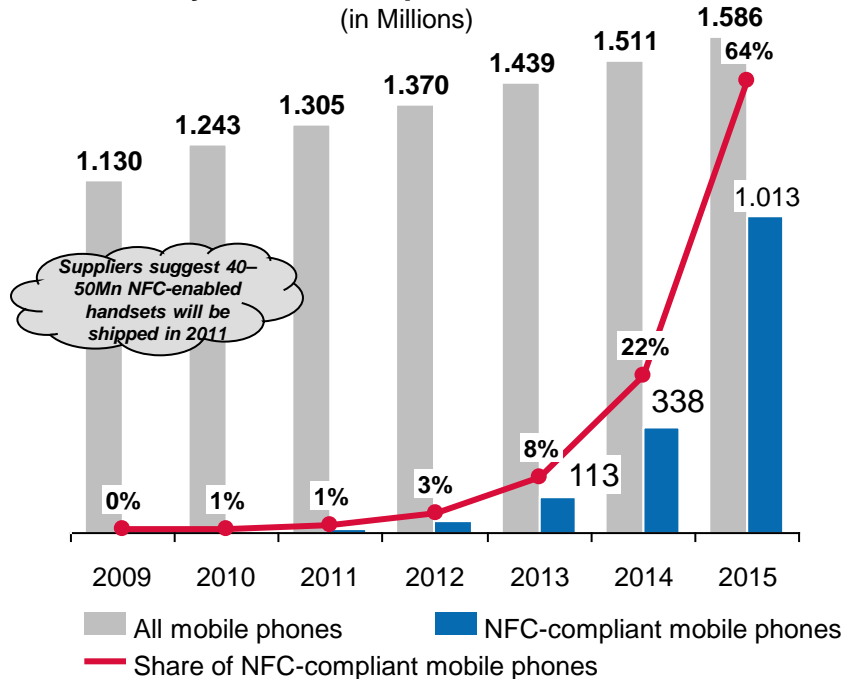
- Legacy custom applications are being replaced with packages and modern foundational technologies – Target, Retailx
- POS capability is being packaged within “Store ERP” including back room, labor management – Oracle, SAP
- New architectures (e.g., cloud based, centrally managed) are emerging – NCR
- Some traditional fixed POS is being replaced by mobile POS – Nordstroms, Home Depot
- Mobile wallet and payment approaches continue to gain tractions – MCX
- Retailers are experimenting with self service options – Wal-Mart Scan and Go



NFC is coming – we should be prepared

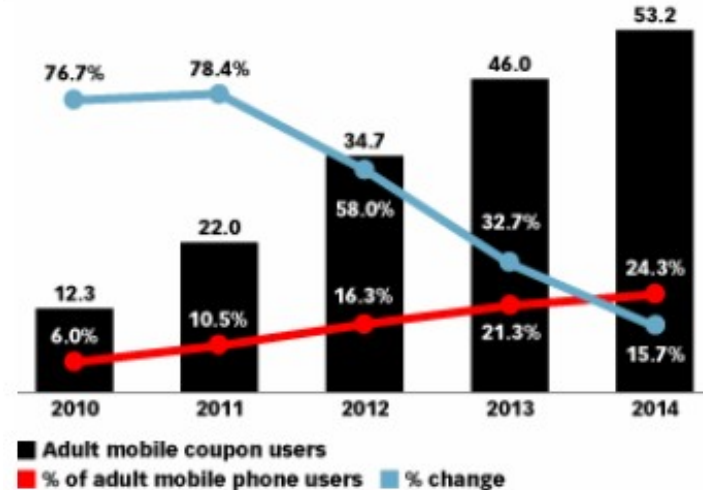
Delivery of NFC-Compliant Mobile Devices

(in Millions)



US Adult Mobile Coupon Users, 2010-2014

millions, % of adult mobile phone users and % change

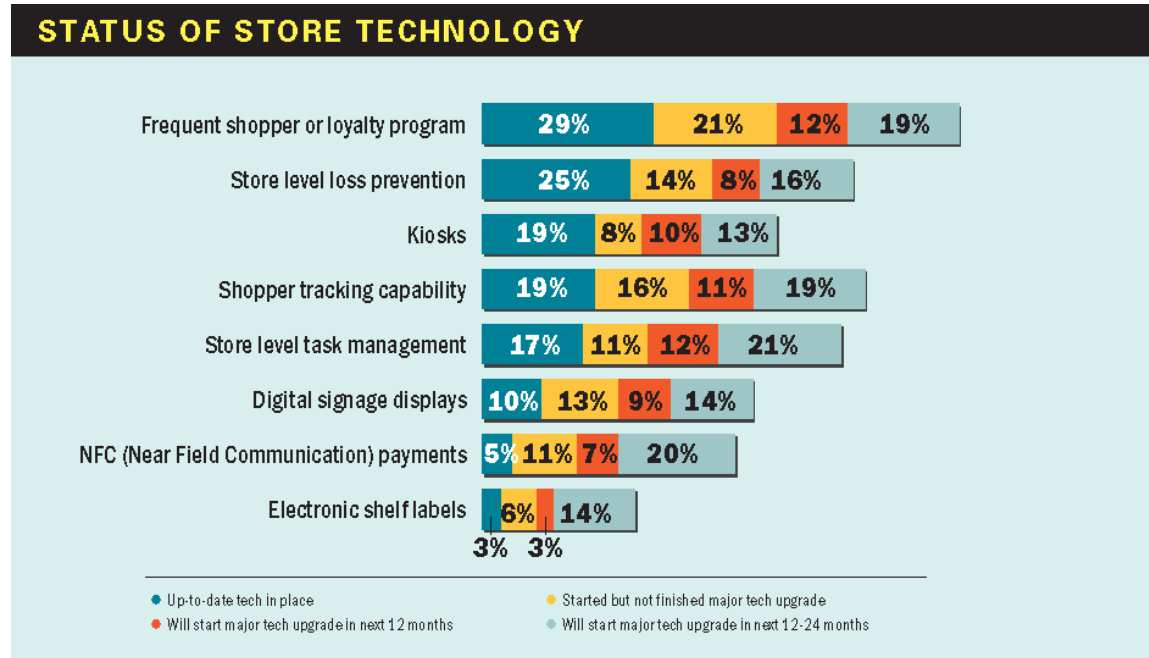


Note: ages 18+; used mobile phone in the past year to redeem coupon/code obtained from SMS, application, mobile internet or mobile barcode for online or offline shopping; includes group buying coupons purchased via mobile phone
Source: eMarketer, Dec 2012

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www.eMarketer.com

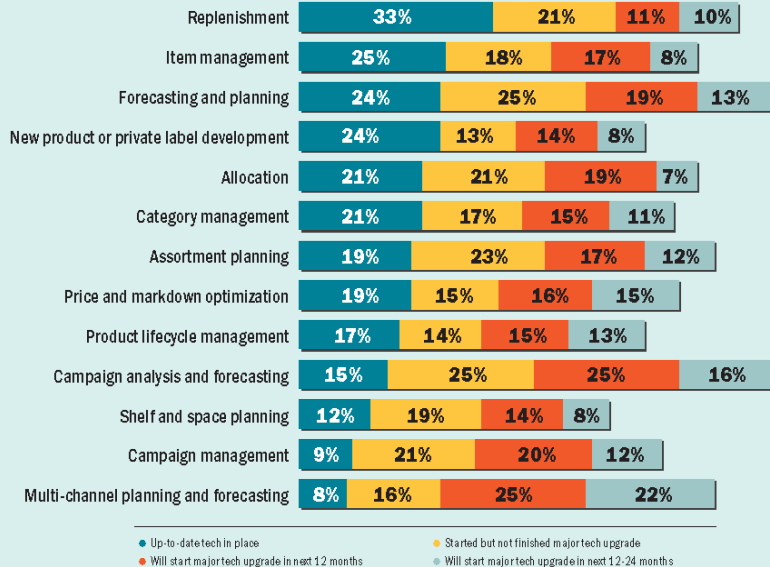
Loyalty, shopper tracking investments – who are we serving



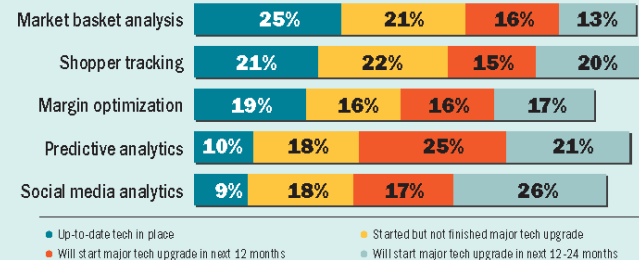
Source: Gartner / RIS 23rd Annual Retail Technology Study - Four Forces of Change – April 2013

Science of Merch and Marketing is a focus - Analytics

STATUS OF MERCHANDISE TECHNOLOGY



STATUS OF BI/ANALYTICS TECHNOLOGY



Source: Gartner / RIS 23rd Annual Retail Technology Study - Four Forces of Change – April 2013

-
- **90% of the world's data created in last 2 years**
 - **68% of retailers at a nascent stage of analytics maturity**
 - **5% of retailers have a Big Data strategy, 30% have executed a Big Data project, another 50% planning on doing their first project in Merchandising or Marketing**
 - ***30% of retailers will run out of data storage in the next two years***

Source: State Of The Industry Research Series: Big Data in Retail, EKN, Summer 2012

More Data is Available

Figure 5: Retailers' estimate of data growth (per year)

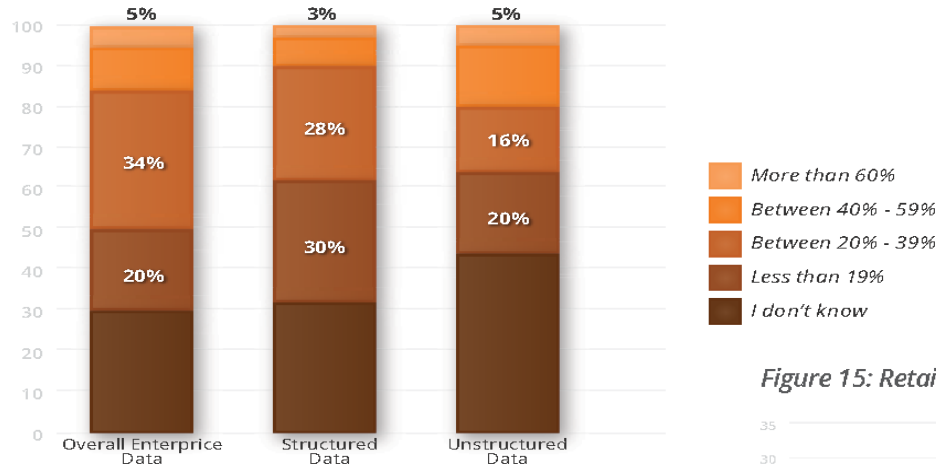
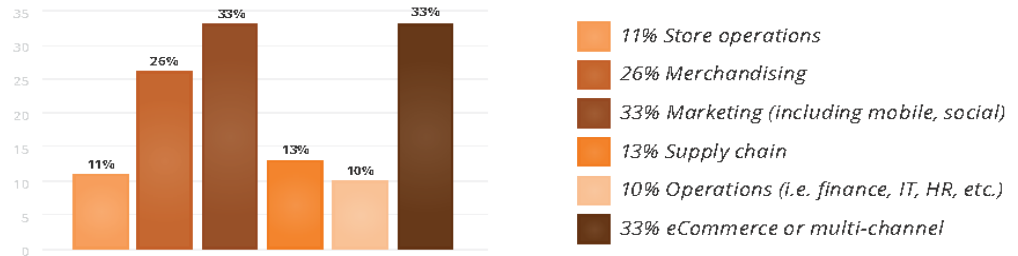


Figure 15: Retail functional areas experiencing the most data growth



Source: State Of The Industry Research Series: Big Data in Retail, EKN, Summer 2012

Retailers are spending on Analytics

Figure 16: Functional area of first planned Big Data project

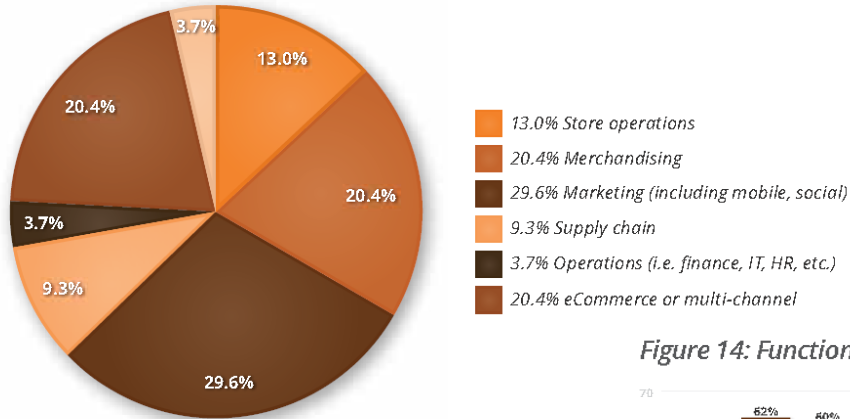
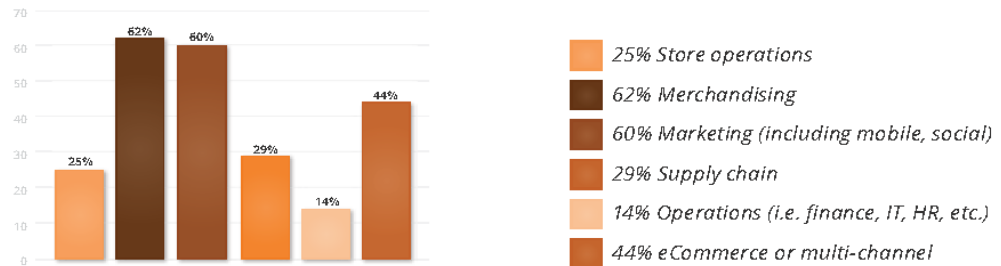
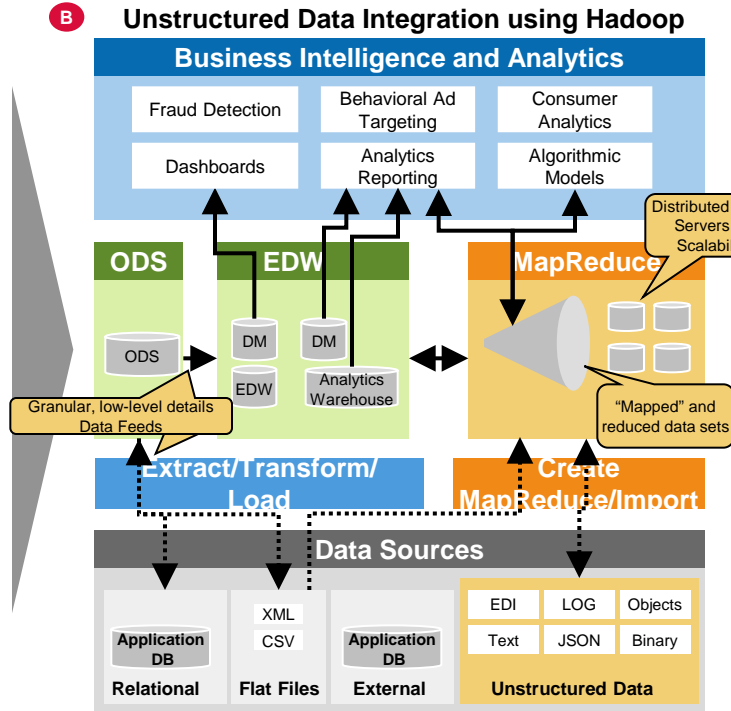
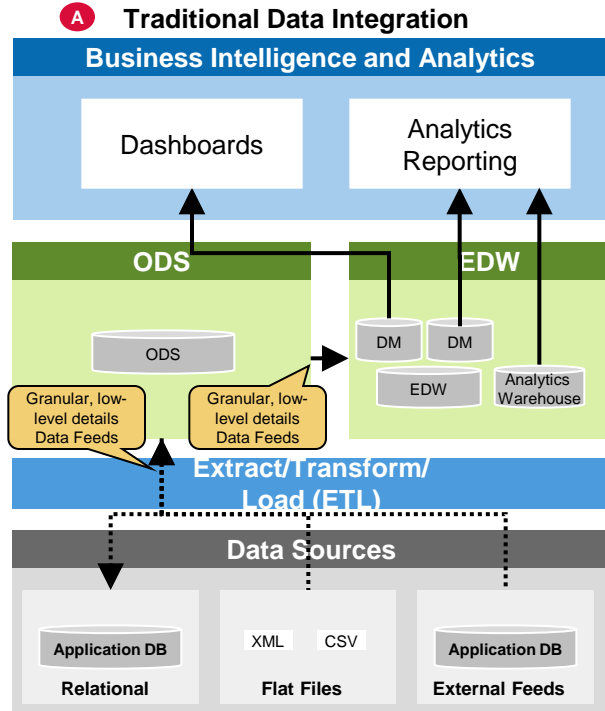


Figure 14: Functional areas that will benefit most from Big Data initiatives in retail



Source: State Of The Industry Research Series: Big Data in Retail, EKN, Summer 2012

Convergence Challenges on the Back End



Highlights

A Traditional technologies are optimized for processing structured data and presenting results for a narrow range of analytical applications. Substantial manipulations are required to process large volumes of unstructured data

B New distributed technologies such as MapReduce (developed by Google) and Hadoop (open source Apache platform) are created for the purpose of processing large volumes of unstructured data and importing the results for use of a broad range of analytical applications

Another Challenge ...

**What Are the Right Questions for A
Merchant To Ask?**

Price and Promo are a Differentiator

Pricing and Promotion Capabilities



- Price / Value Strategy
- Base Pricing and Elasticities
- Pricing and Margin Optimization
- Markdowns
- Comp Shop
- Price Perception
- Etc.

- Promotion Strategy and Coherence
- Promotion Evaluation and Optimization (e.g., War-gaming)
- Execution Effectiveness
- Post Event Analysis
- Etc.

- Clustering
- Dynamic Pricing
- Geo-Fencing and Couponing
- Planogram Optimization
- Etc.

However, we see gaps in Promo capabilities

Nascent Capability

- Product only
- Sales unit volume and profitability only
- One “flavor” of promo considered
- “What did we do last year during this week”?
- Targets are driven by buyer incentives
- Different processes, expertise and execution across buyer teams
- Limited tools to analyze events performance or compare offers from competing manufacturers
- Data in Excel on isolated desktops



Mature Capability

- Product AND enterprise considerations
- Focus is broadened to include assortment, basket size / profitability, traffic impact
- Promotions are evaluated within the context of a holistic promotions strategy, not just executing a calendar
- “What if” scenarios for modeling of promotions
- Promotions must address not only buyer targets, but also for whole store, whole enterprise targets
- Global process, tools and predictive analytical models
- A growing data library and knowledge base around promotions excellence

More insight is available from internal data

Key Retailer Data - Examples

POS Data

- Store-level point-of-sale data provides greater detail and precision regarding sales numbers (relative to syndicated data, which manufacturers typically rely on)
- In addition, this data provides the ability to disaggregate unit volume into key drivers, including number of transactions and units per transaction (i.e., basket size)

Store Traffic

- Store-level traffic data provides the ability to disaggregate volume data even further, breaking number of transactions into traffic and conversion

Loyalty Card Data

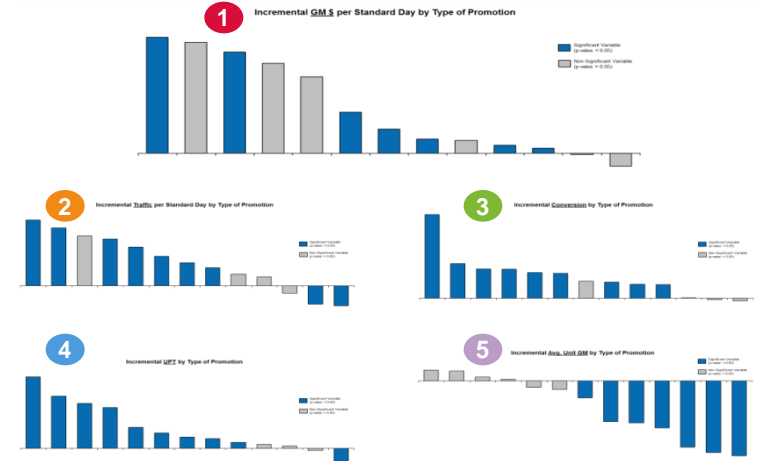
- Loyalty card data provides the ability to track data about consumers
- This data can be used to understand behaviors of different consumer segments and test hypotheses about the effectiveness of promotions for reaching specific segments

Example Analysis:

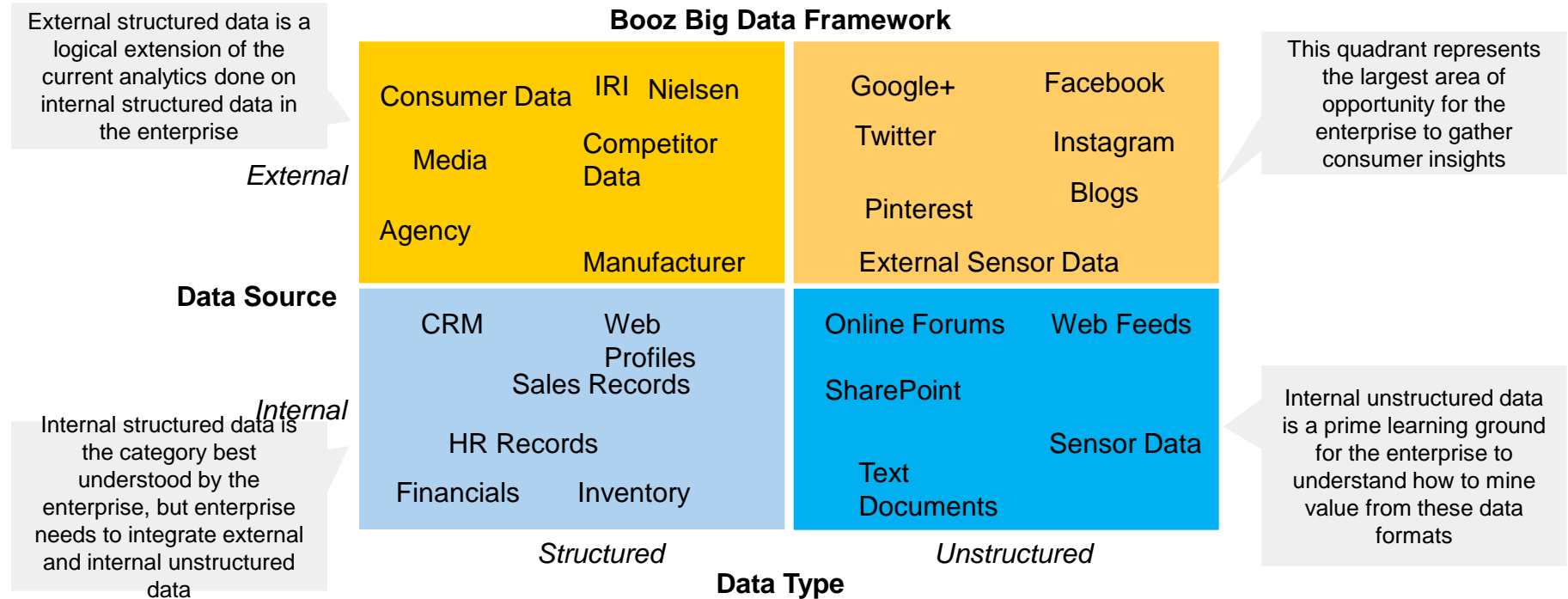
Impact of Promotions on Gross Margin Drivers

$$\begin{aligned}
 \text{Gross Margin} &= \text{\# of Units} \times \text{Avg. Unit Gross Margin} \\
 \text{Gross Margin} &= \text{\# of Transactions} \times \text{UPT} \times (\text{AUR} - \text{AUC}) \\
 \text{Gross Margin} &= \text{Traffic} \times \text{Conversion} \times \text{UPT} \times (\text{AUR} - \text{AUC})
 \end{aligned}$$

1 2 3 4 5



External data provides deeper, richer insight



Source: IDC's Digital Universe Study, sponsored by EMC, June 2011, Booz Analysis

Analytics must also be consumable

Promotional Lift for Each Key Lever
(expressed as % of incremental divided by base for each key lever)

**RETAIL CLIENT
EXAMPLE**

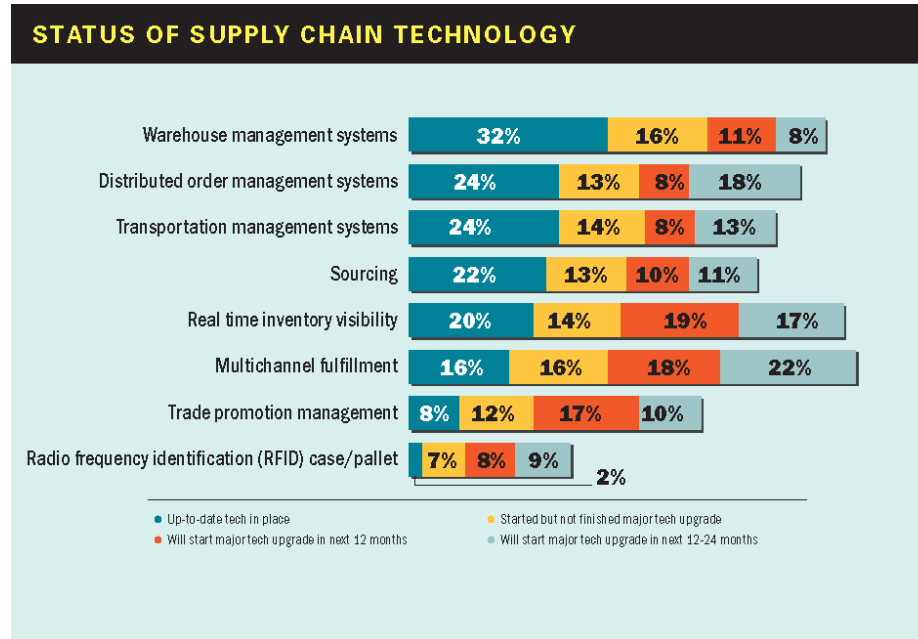
Event Type	Traffic	Conversion	UPT	Sales Units	Sales \$	Unit GM	GM \$	Brand Risk
Event Type M	7.8%	12.8%	26.7%	55.3%	30.5%	-24.9%	16.6%	Highest
Event Type N	3.1%	7.0%	12.5%	23.9%	10.7%	-14.7%	5.8%	Highest
Event Type O	10.3%	11.2%	9.2%	34.3%	12.2%	-23.1%	3.3%	High
Event Type J	6.1%	6.1%	5.7%	18.9%	4.8%	-14.1%	2.1%	High
Event Type K	-2.1%	-1.1%	2.3%	-3.7%	2.1%	3.5%	-0.3%	High
Event Type L	-5.4%	-0.4%	1.3%	-6.5%	-3.4%	1.4%	-5.2%	High
Event Type G	-4.9%	0.2%	6.7%	1.4%	6.7%	3.8%	5.3%	Low
Event Type F	4.8%	6.0%	3.5%	16.7%	12.8%	-5.9%	9.8%	Medium
Event Type B	2.3%	12.7%	24.3%	49.3%	56.4%	-2.9%	44.9%	Lowest
Event Type A	17.4%	15.1%	31.1%	75.9%	61.8%	-16.4%	47.0%	Medium
Event Type C	12.4%	36.5%	-8.1%	41.9%	43.8%	-2.2%	38.7%	Lowest
Event Type C	15.4%	10.9%	-1.4%	28.0%	31.3%	0.5%	28.6%	Lowest
Event Type D	13.2%	7.4%	42.5%	71.0%	47.0%	-26.1%	26.3%	Medium

□ - Confidence level is less than 95%

■ - Top 3

■ - Bottom 3

Supply chain investment in inventory visibility and multi-channel

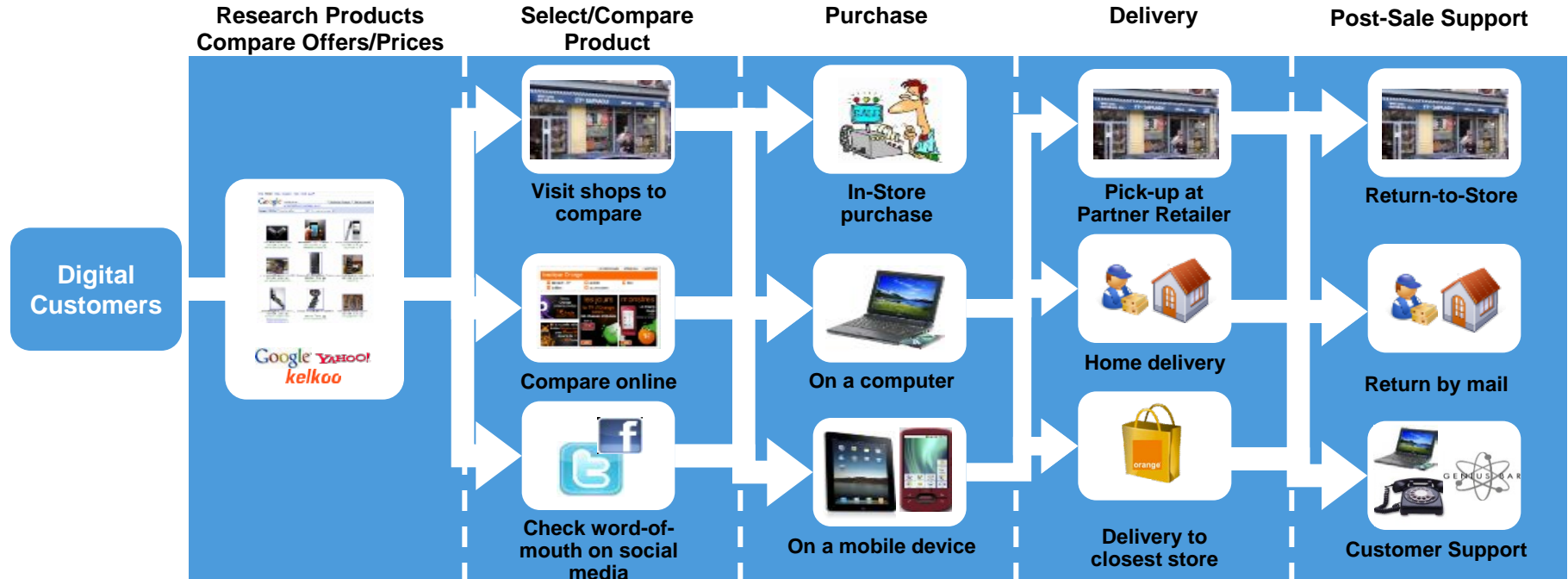


Source: Gartner / RIS 23rd Annual Retail Technology Study - Four Forces of Change – April 2013

Customers will find their best channel

Customer Buying Journey – Examples

EXAMPLE



Supply chain tech must address breaks ...

Virtuous Cycle of Customer Experience

Stages and Potential Breakdowns



Break Points of Customer Experience

- 1 Store shoppers don't have access to reviews and ratings, sales reps don't use product information that can be found online
- 1 Store does not offer online long-tail of assortment
- 2 No option to review in-store inventory online
- 2 Item out of stock in-store can't be ordered for home delivery from store
- 2 Inconsistent online and offline pricing
- 3 Channel specific promotions can cause buyer's remorse if discovered only after a purchase
- 4 No option to reserve and pick up in store and order from store for home delivery
- 5 Online returns cannot be returned to store or can only be returned to store

... and must offer multiple experiences

Traditional Retail

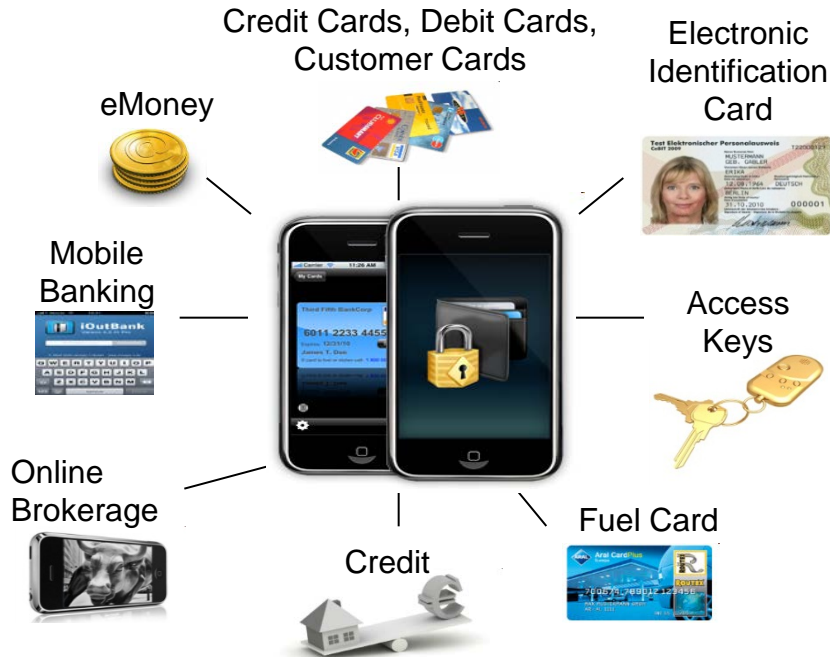
Online Retail

Customer Experience	Procurement	<ul style="list-style-type: none"> ▪ Retailers job is assortment selection to fill limited shelf space, cut long tail ▪ Items are procured and negotiated in bulk and will get sold through the channel 	<ul style="list-style-type: none"> ▪ 'Long tail' or virtually unlimited assortment is a key value proposition of online retail ▪ Slow moving (long tail) items may be procured in very small quantities
	Inventory Management	<ul style="list-style-type: none"> ▪ Inventory exists at up to three levels: DC, regional DC and store level ▪ Inventory value is mostly driven by stock levels by SKU 	<ul style="list-style-type: none"> ▪ Inventory only exists at one level of DCs ▪ Inventory value is mostly driven by scale of assortment
	Warehouse Operations	<ul style="list-style-type: none"> ▪ Lower number of orders, stable throughput ▪ Limited need for small order size pick/packing ▪ Fork lift and palettes to trucks 	<ul style="list-style-type: none"> ▪ High number of orders, high throughput growth ▪ Significant need for small order size pick/packing ▪ High degree of manual labor or smart automation (e.g. Kiva)
	Transport & Logistics	<ul style="list-style-type: none"> ▪ Often company owned fleet that delivers between DCs and to stores ▪ Logistics cost per item are low 	<ul style="list-style-type: none"> ▪ Freight carrier picks up large number of shipments from DC ▪ Logistics cost per item are high
	Post-Sale Support	<ul style="list-style-type: none"> ▪ Return to store can create reverse logistics complexity ▪ Return to store creates additional touch point to retain and upsell 	<ul style="list-style-type: none"> ▪ Return by mail (or store for some multichannel players) returns item faster to sellable inventory ▪ Often extensive service levels and generous policies

Some additional things to watch in the future

Mobile Device becomes the Center

Central Payment Mobile Device



Vision

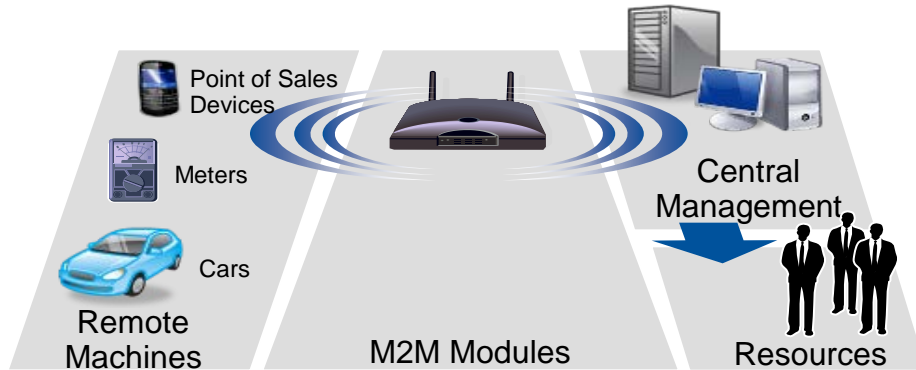
- „**Supersession of the wallet**“ through replacement of physical means of payment (cash, cards)
- Utilization of **one mobile device** for communication, entertainment, banking, transactions, etc.
- **Maintaining of diverse payment methods**, such as “cash”, VISA, AMEX, EC, etc. but execution through new technologies (e.g. app on mobile phone)
- **Independence from additional hardware infrastructure** (e.g. card reader, etc.)
- **Data security** even when mobile device gets lost (sensitive data is stored “remotely”, local information is encrypted)

“In 30 years, physical credit cards may no longer exist”
Mastercard Head of Division Product Innovations¹⁾

1) Joshua Peirez, FAZ, 18 March 2010
Source: Booz & Company

M2M - using sensors to talk to each other

Architecture Overview of Machine-to-Machine (M2M)



- M2M combines machine connectivity, communications, and information technology in an all-IP environment (Web 3.0)
- It allows connection & communication between remote parts of an enterprise: people, assets, infrastructure



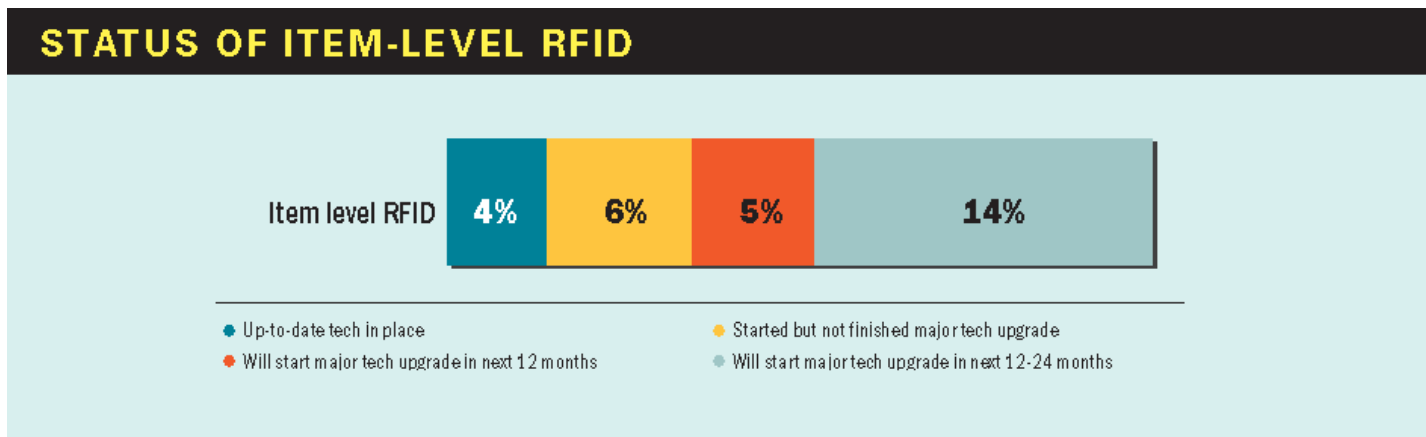
Customer Facing

Operator Facing

- Technology delivers 100 different flavors from single spout
- Touchscreen display for enhanced customer engagement
- Digital pricing enabling NFC, credit card & biometrics
- RFID tagged flavor cartridges report stock status to central controller
- Cellular based telemetry reports inventory stock, machine state of health, and customer preferences to back end systems

Source: GSM Mobile New Zealand, Booz & Company analysis

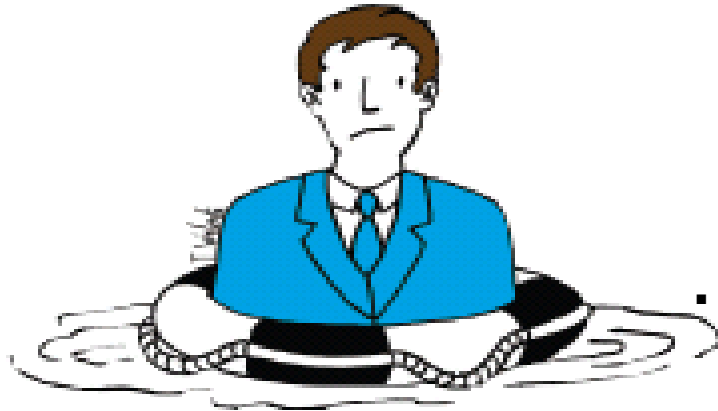
Item Level RFID stays Alive



Source: Gartner / RIS 23rd Annual Retail Technology Study - Four Forces of Change – April 2013

-
- **Lots of change**
 - **Many opportunities to spend money on technology – a potential black hole**
 - **Where to place the big bets?**

Why do companies pursue markets that look appealing ... but are unreachable?



- Our recent survey of 1800 senior executives identified **the problem**:
 - More than half of the respondents **don't** think that they have a winning strategy
 - 2 out of 3 companies admit that they don't have the capabilities needed to create value in the marketplace
 - Only 1 in 5 are fully confident they have a right to win
 - And, the vast majority agree that they're chasing far too many opportunities
- We see many companies struggling to grow despite heavy investment.
 - They grab hastily for what seems like the next answer to growth
 - They don't have a solid framework to decide which opportunities will lead to sustained success
 - They end up stretched thin

Note: Illustration from "The Coherence Premium," by Paul Leinwand and Cesare Mainardi, published in *Harvard Business Review* (June 2010)

Companies are not asking the right question

They ask “Where do we want to grow?”
and “What do we want to do?”

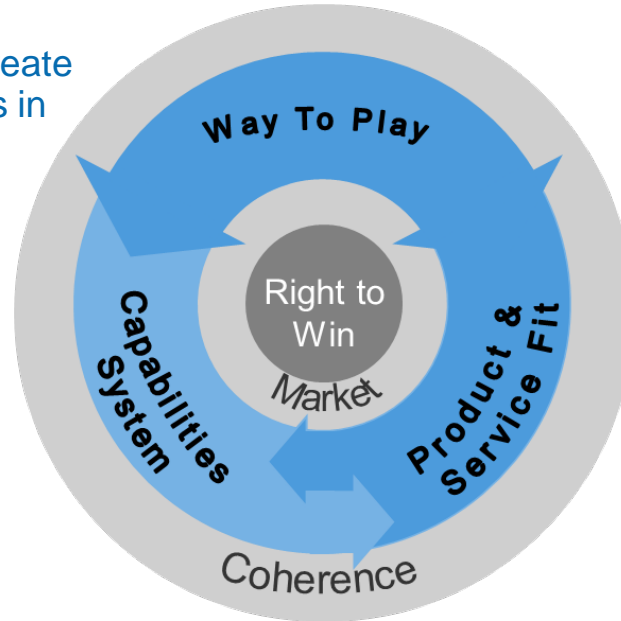
They should be asking: “*Who do we want to be?*”

In other words: “How should we be different to create value?”

Three strategic choices for coherence

→ How are we going to create value for our customers in this market?

→ What do we need to do well to deliver that value proposition?

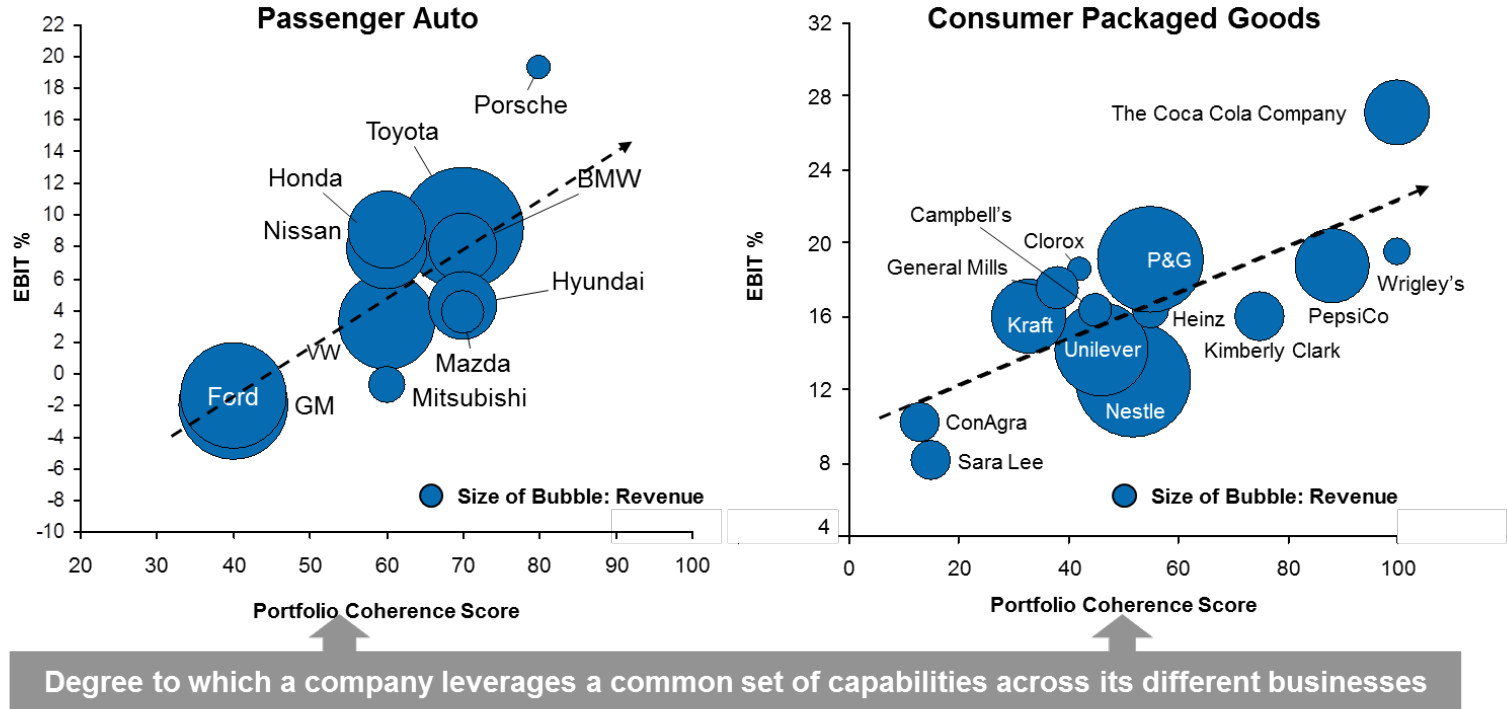


→ What are we going to sell in this market and to whom?

Winning companies align their strategic direction to the capabilities that make them unique. They make hard choices about differentiation and stick to them.

Coherence matters

Link between Coherence and Performance



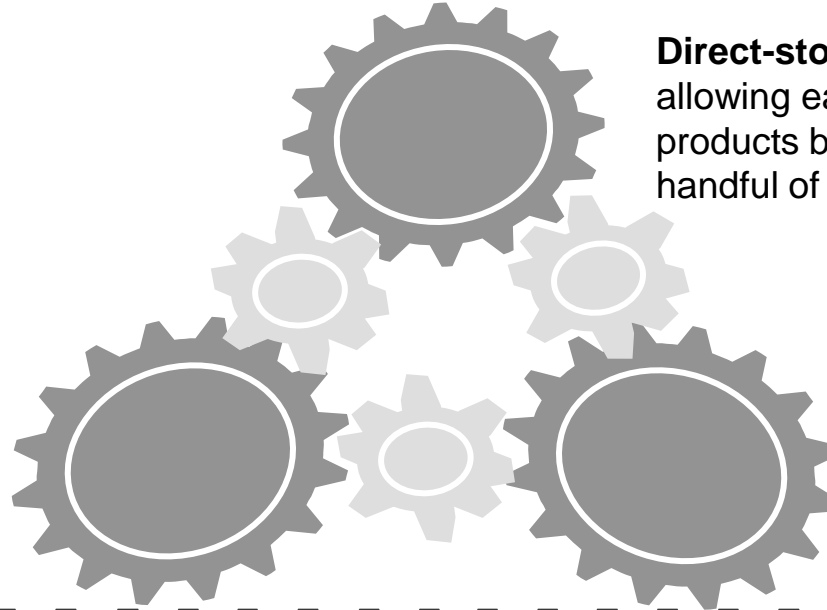
Sources: Booz & Company; Capital IQ; Bloomberg; Automotive analysis based on 2003-2007 financial data

Technology investment should focus on differentiating capabilities that are mutually reinforcing and integrated

Example: The Pepsi-Frito Lay Capabilities System



Continuous innovation of new products with store level response information going directly to R&D



Direct-store delivery (DSD) allowing easy testing of new products by introducing them in a handful of stores

Skillful global consumer marketing to rapidly build demand for initially successful products

Rapid innovation, distribution and marketing to stimulate and meet customer snacking needs

Closing Thoughts

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