



Pantas and Ting

Sutardja Center
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Berkeley Engineering



Retail Analytics

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Retail Analytics & 4 Cases

- Retail Analytics is a subset of Business Analytics focused on the problems and opportunities of retail.
- Business analytics (BA) refers to the skills, technologies, practices for continuous iterative exploration and investigation of past business performance to gain insight and drive business planning. Business analytics focuses on developing new insights and understanding of business performance based on data and statistical methods.

(taken from https://en.wikipedia.org/wiki/Business_analytics)



Topic Introductions

Analysis

Case Studies

\$0-\$100 Startup
\$10K - SMB
\$100K - MM Enterprise
\$1MM - Large Enterprise

Retail analytics market is estimated to grow from USD 2.2 Billion in 2015 to USD 5.1 Billion by 2020

- Markets and Markets market report
<http://www.marketsandmarkets.com/PressReleases/retail-analytics.asp>

Descriptive	Diagnostics	Predictive	Prescriptive
What happened?	Why did it happen?	What will happen?	How can I make it happen?
<ul style="list-style-type: none"> Standard reports Ad hoc reports OLAP analysis 	<ul style="list-style-type: none"> Drill-down analysis Data discovery 	Predictive modeling	Real-time automated predictive analysis

Source <http://tickto.com/customer-focused-marketing-strategy-with-retail-analytics/>



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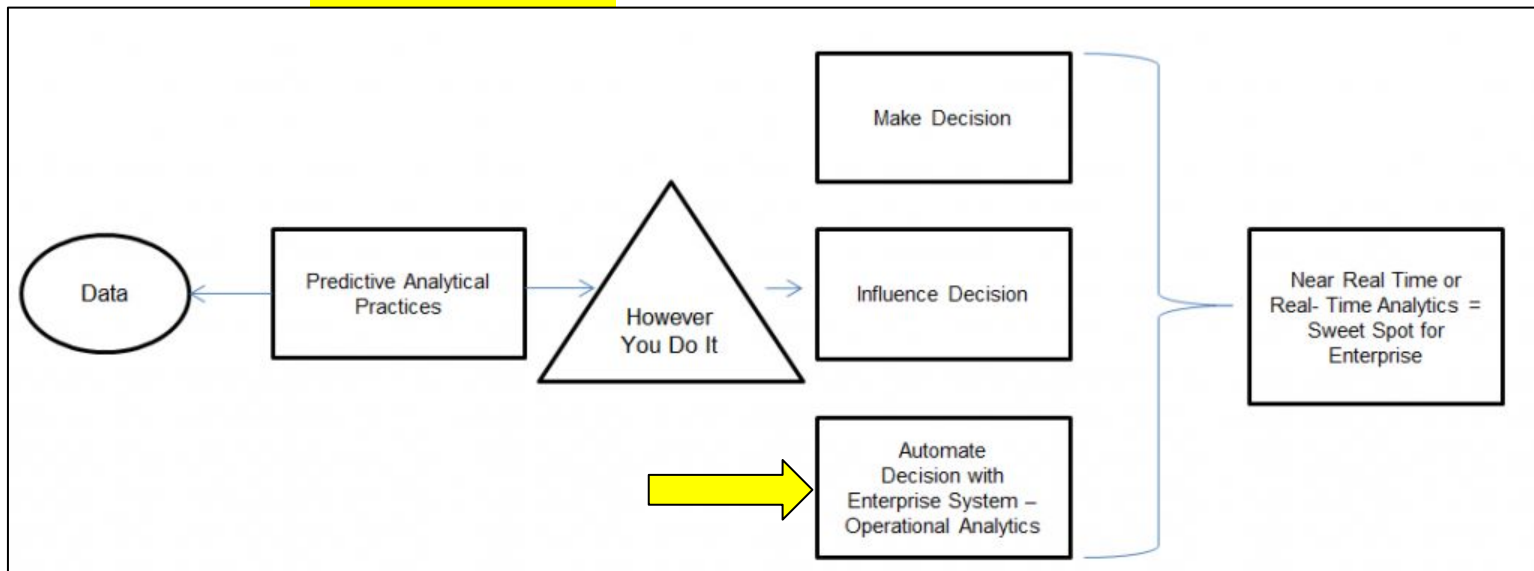
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Competitive Advantages of Analytics

- Provide insight into areas that would otherwise be hard or uneconomic to acquire
 - Macro: Data-driven cause effect identification
 - Micro: Enables iterative insight testing for root correlation, A/B analysis
 - **Better Decisions: Driven by data science, not tactical, reactionary or rear-view**
- Provide finer grained information
 - Automation supports more analysis which can economically yield data previously hard to get. For example, subcategory net margin or net margin per store.
- Fungible ability to connect new, unfamiliar data sources such as Facebook, Twitter
- Provide timely, **actionable feedback** on success of strategy changes



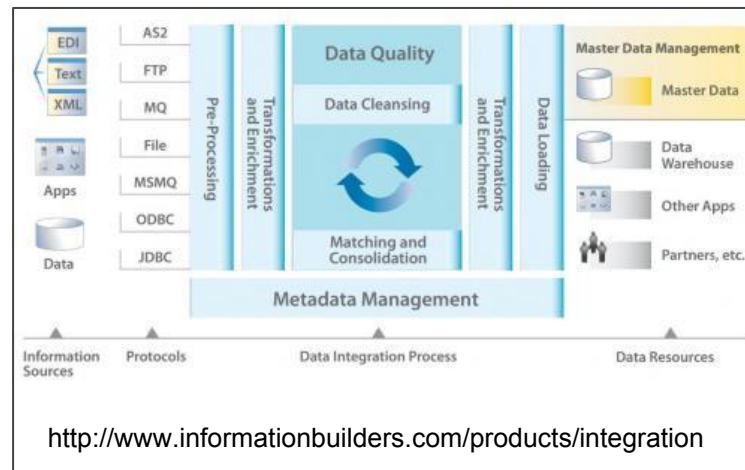
Retail Analytics Rely on Data -- *and turn data into information*

Where to Get it from

- POS systems
- Loyalty programs
- Credit Card data
- Inventory Management systems
- Customer web browsing
- External data packages
- Social media

Examples of Formats

- Excel
- CSV
- SQL
- Oracle
- OData



Trending Themes in Marketplace

- Data Governance
- Centralized vs distributed data/analysis
- As a platform - capabilities or extensions from third parties
- Machine learning - emerging
- White label/Embedded



Superpowers of Retail Analytics

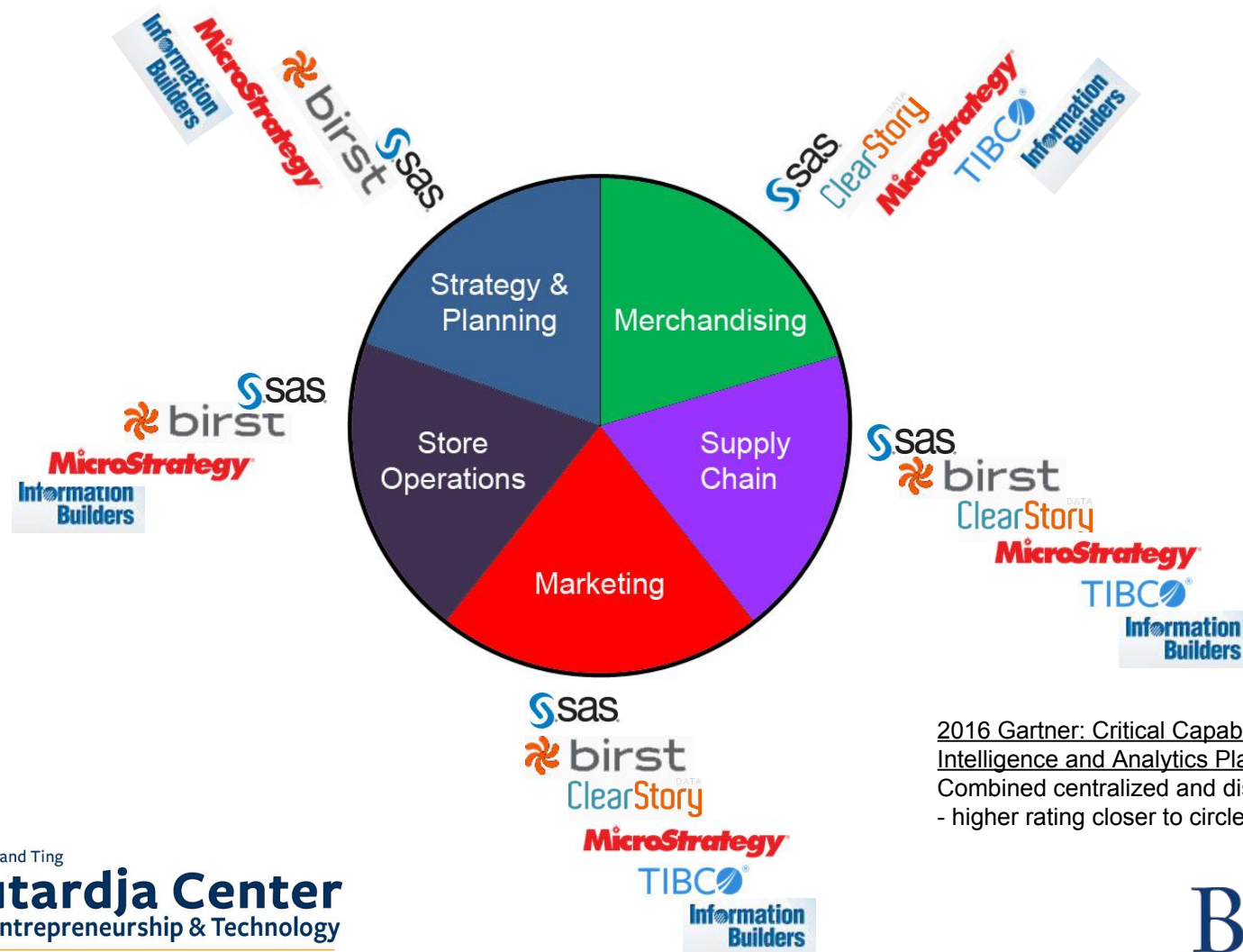
- ***Analytics for Supply Chain:*** NetSuite supplies Philz with a scalable platform for end-to-end business process efficiency, **scaling the business 400% over 4 years**
- ***Targeting Customers:*** Kroger, gets a 40% redemption rate from its analytically-targeted coupons, compared to an industry average of 2%, and believes the promotions have **increased overall sales by 5%**
- ***Analytics for profit increase:*** CVS, which uses analytics to target coupons at the point of sale, **views its analytical capability as a nine-figure profit center.**
- ***Analytics reduces operating cost:*** Hudson's Bay corp. in Canada traced a 2-to-1 return to its database management and analytical efforts, and **broke up a \$26 million fraud ring with one analytical application.**
- ***Targeting customers with adjacent products, etc:*** Overstock.com used an analytics-based gift recommendation system on its website, and **customers who used it bought 2.5 times those who didn't.**

Category Examples



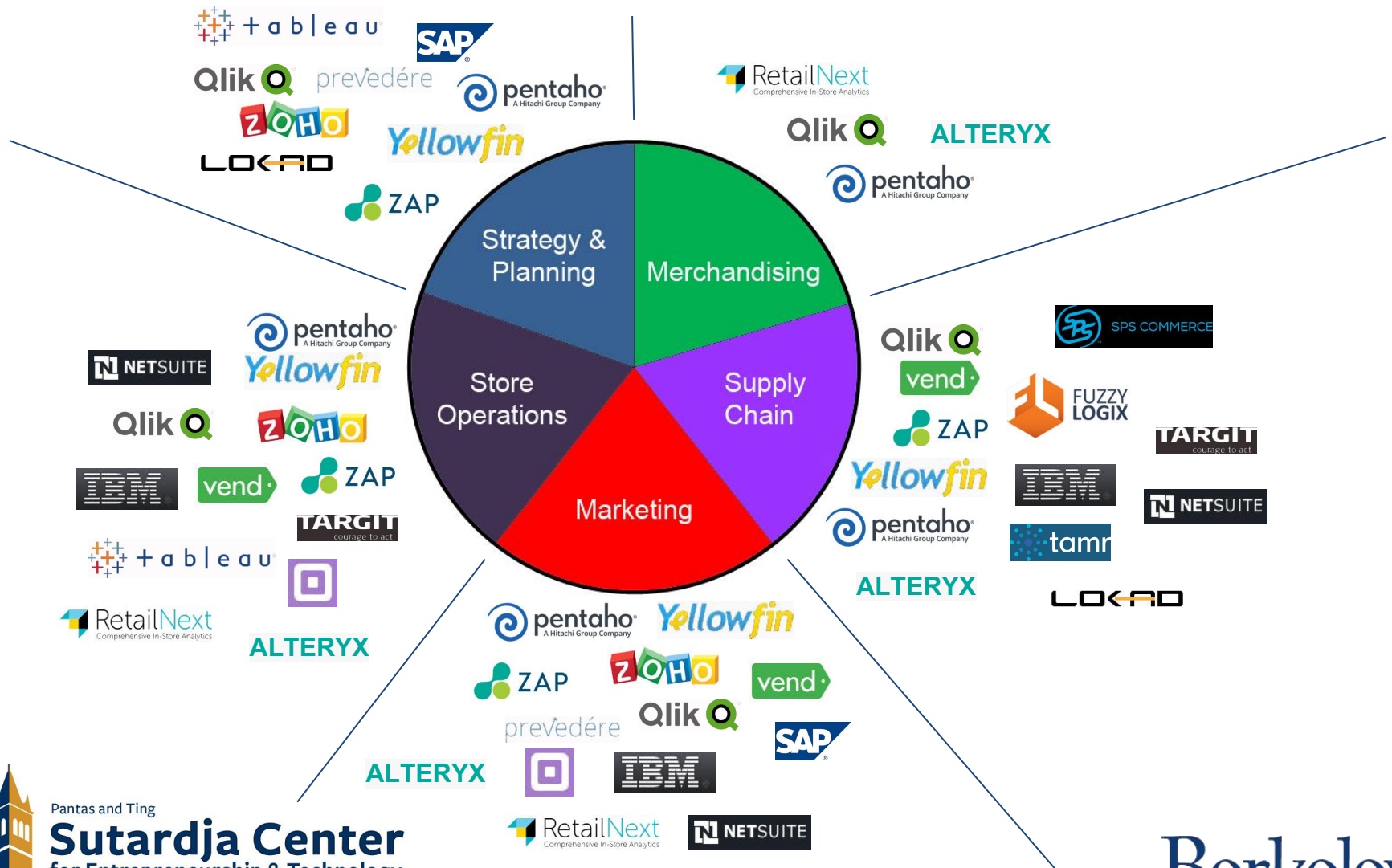
The current landscape

Top vendors in each segment



2016 Gartner: Critical Capabilities for Business Intelligence and Analytics Platforms
Combined centralized and distributed analytics scores
- higher rating closer to circle

The Current Landscape - Everyone Else Analyzed



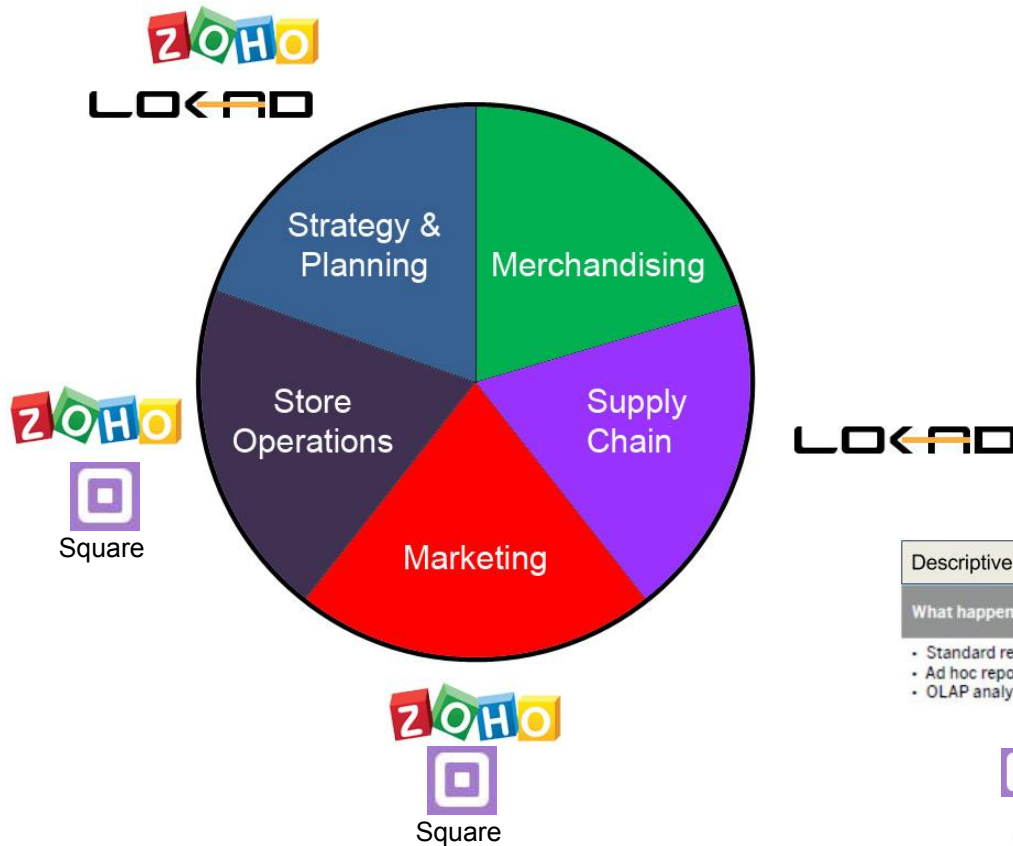
Retail Market Personas

Three Customer Budget Levels

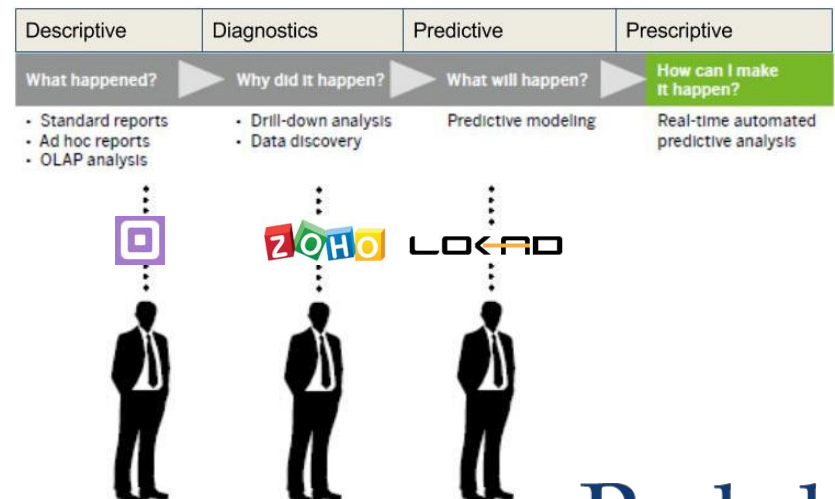
- \$1MM rev. = Annual Budget: \$10K
 - \$10MM rev. = Annual Budget: \$100K
 - \$100MM rev. = Annual Budget \$1MM
-
- Plus a surprise: as low as “free”

Focus on retail enterprises outside of Tech

Freemium

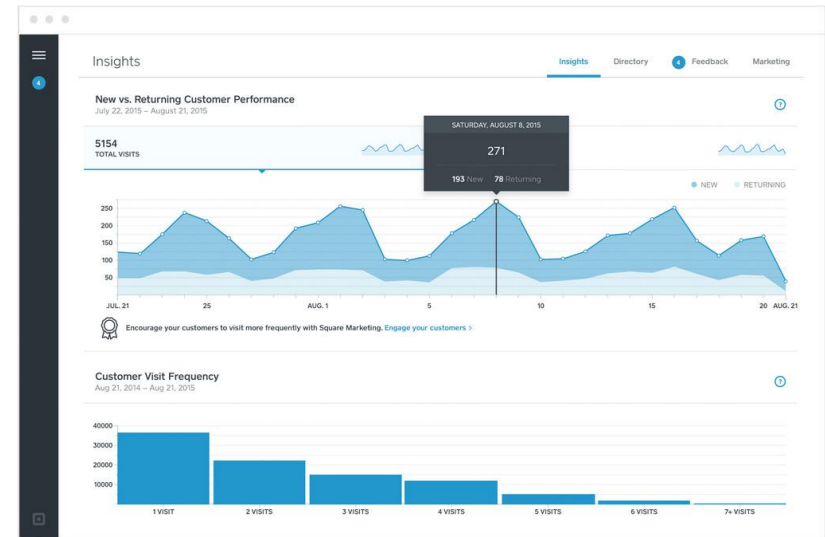
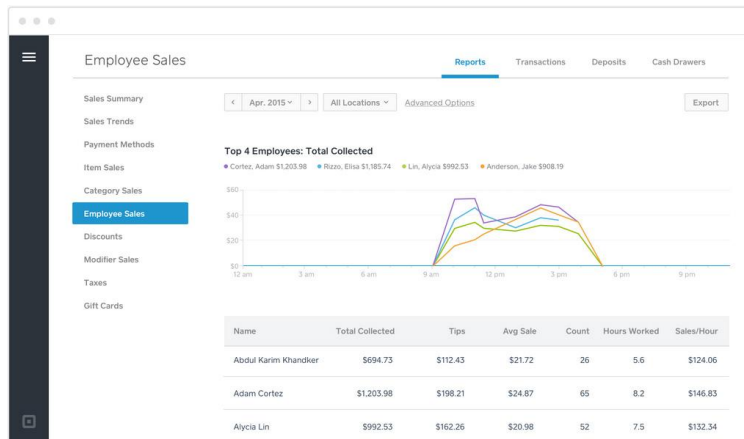


- Lokad
 - Cost: Free up to revenue of \$450K, \$150/mo up to \$1.5M
- Square
 - Cost: Dashboard free with square account, customer loyalty - free to \$15/mo with Square account
- Zoho Reports
 - Cost: free for 2 users (up to \$495/mo depending on plan)



Freemium - Square

Store Ops Analytics



Customer Loyalty

Integrated offering requires Square POS

Overview of Lokad

Probabilistic forecasts

Reorder quantities

Ordering constraints

Inventory performance

Data import and export

Script everything

Automation

Integrations

Experts as a Service

Freemium - Lokad

“Know exactly when to reorder and how much to reorder. We provide an end-to-end solution that accounts for every demand pattern and every constraint.”

EXPRESS	BASIC	PROFESSIONAL	ENTERPRISE
Free does not expire	\$150 per month 20% off for yearly payments	\$450 per month 20% off for yearly payments	\$1350 per month 20% off for yearly payments
Sign-up	Try for free	Try for free	Try for free
Up to \$450,000 revenue*	Up to \$1.5M revenue*	Up to \$4.5M revenue*	Up to \$15M revenue*



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\$10K



- Qlik
 - Product: QlikView and Qlik Sense
 - From supply chain optimization to predictive modeling
 - Scales up from free offering to services depended on by companies like Lush Cosmetics, Ted Baker and Cabela's

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Qlik Q



Qlik - Supply Chain

Markdown (Store & Product)

Slice by Product / Region

Location

Region

Store Type

Date

Month/Year

Product Category

Product Name

Ambient Naan Breads

Back Bacon

Bacon Joints

Bacon Pieces

Bagels

Baguettes & French Stick

Boxed Meals

Bread

Burger Rolls

Chilled Indian Curries

Chilled Naan Breads

Chilled Rice

Chilled starters

Chinese sachet sauce

Chinese Speciality

Chow Mein

Clabatta

Coated & Corn Fed Chicken

Coated & seasoned

Coated Drumsticks

Coated pieces

Coated Wings & Thighs

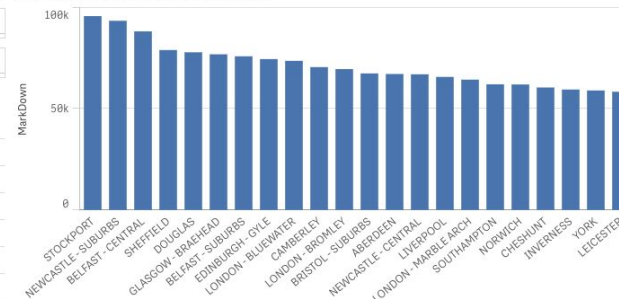
Desserts

Dried

Actual Turnover
56.58M^{95.1%}
Sales % of Full Retail Value

Total MarkDown
2.91M^{4.9%}
Mark Down Percentage

Which Store has the largest markdown?



Details of Markdown...

Format

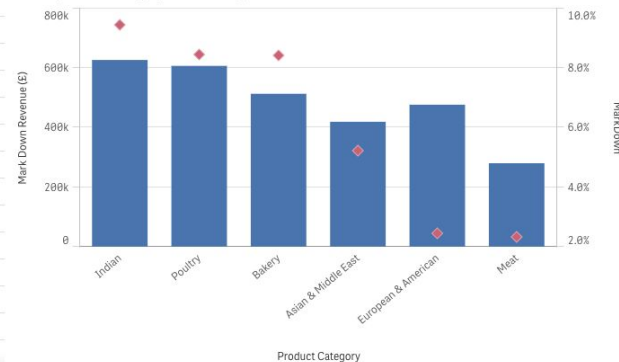
LocationName

Month/Year

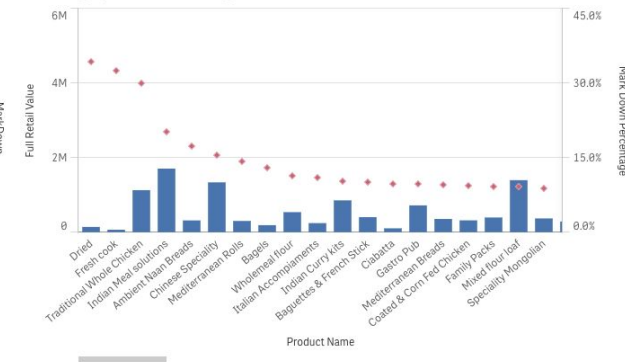
Measures

	Total MarkDown	Mark Down Percentage
City Centres	£1,176,074	5.03%
Large out of town	£1,453,994	4.78%
Large Town	£48,419	4.83%
Suburb/commuter	£190,782	4.96%
Urban	£45,716	5.22%

Which product category has the largest markdown?



Which single product has the largest markdown?



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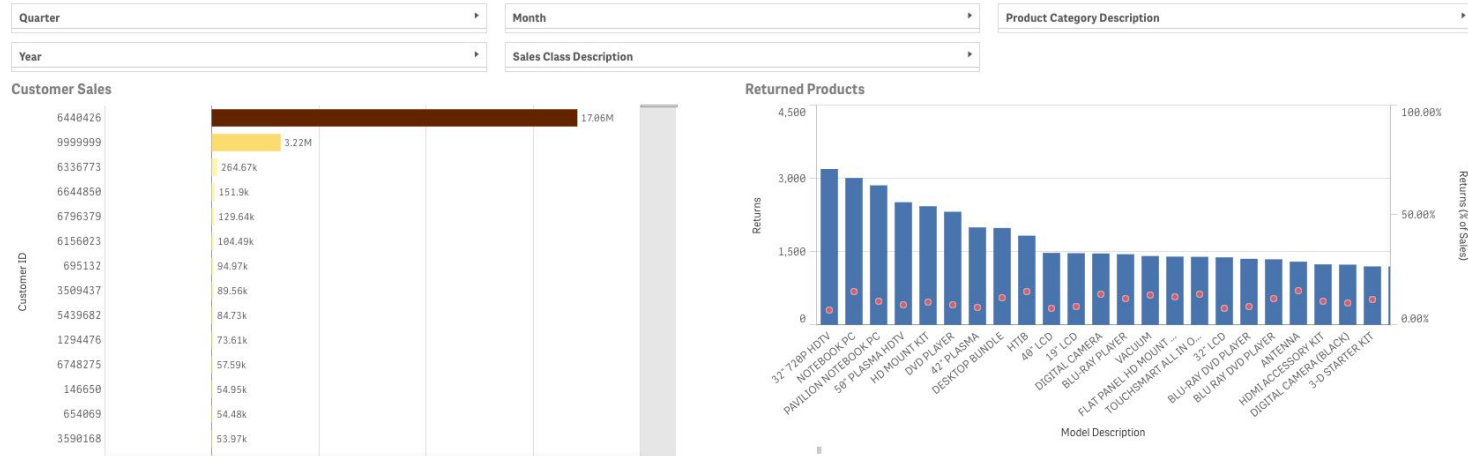
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Qlik - Merchandising

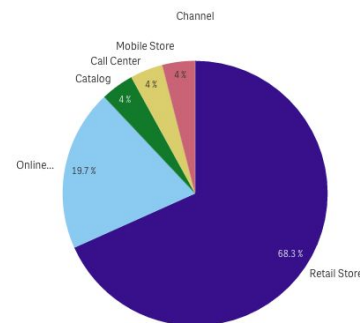
Customers



Sales by Customer

Customer ID	Sales	Margin
Totals	\$690,284,066	\$81,040,786
2883194	\$6,042	(\$18,731)
6286273	\$6,700	(\$11,125)
6628501	\$47,010	(\$10,897)
6159103	\$6,937	(\$9,997)
4850445	\$2,074	(\$9,124)
6669927	\$18,037	(\$8,604)
2922301	\$8,787	(\$8,403)
4212275	\$3,589	(\$8,237)
941226	\$7,530	(\$8,018)
2706246	\$3,939	(\$7,597)
741223	\$8,433	(\$7,575)
6429018	\$3,968	(\$6,965)

Sales by Channel



Products

Sales Class Descr...	Measures		
Product Category...	Sales	Quantity	Margin
ACCESSORIES	\$949,816	6,355	\$225,374
BEDDING	\$43,786,562	428,643	\$13,489,005
FURNITURE	\$56,305,114	504,577	\$17,140,189
HARD GOODS	\$15,627,257	42,629	\$1,927,966
HOME ELECTRONICS	\$379,619,013	1,678,620	\$27,779,003
HOME OFFICE	\$99,871,188	415,707	\$6,640,492
MAJOR APPLIANCES	\$94,329,732	477,605	\$13,880,239
MISC. NON-INVENTORY	\$1,068	6	\$590

\$100K - Alteryx



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\$100K: Alteryx - What Do You Get?

Marketing Analytics:

Deepen customer insight; Optimize multi-channel performance; Improve marketing effectiveness;
Enhance social media presence

Merchandising Analytics:

Accurate Demand Forecasting; Hyper-local Assortment Planning; Improving Space Allocation;
Promotional Planning

Supply Chain:

Accurately Forecast Demand; Manage Inventory; Optimize Distribution Network; Improve Supplier
Performance

Retail Operation:

Improve Site Selection; Optimize Labor Scheduling; Manage Store Performance

\$1M: SAS



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\$1M: SAS - What Do You Get?

Marketing

Gain in-depth customer insight.

Merchandising

Create accurate merchandise plans that optimize every item across all stores and channels.

Operations

Discover new – and sustainable – ways to improve efficiency and effectiveness

Supply chain

Get the right products to the right locations in the right quantities – and at the right time.

Finance

Improve all aspects of your organization's financial health.

Pricing

Regular price optimization, promotion optimization, markdown optimization

Conclusions and Learnings

- Retail Analytics emerging as requirement
- High Industry Fragmentation
- Incumbents established in some categories
- > 75% of Ecosystem is SaaS/Cloud package
- Very High Lock-in opportunity
- Predictive guidance is the end-game