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Predictive Analytics for Digital Channels

Tuesday 9th September 2014

London, Southbank

www.sv-europe.com

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What do we mean by ‘Predictive Analytics’?

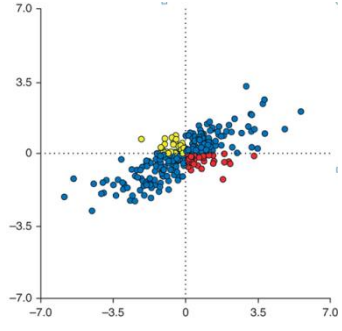
Predictive analytics encompasses a variety of techniques from statistics and data mining that analyze current and historical data to make predictions about future events

IBM

Analysis of structured and unstructured information with mining, predictive modeling, and 'what-if' scenario analysis.

What do we mean by 'Predictive Analytics'?

- It's different from Business Intelligence or MI reporting
- Actually, it's not *always* about prediction
- However, Predictive Analytics *does* creates important new data
- These data take the form of estimates, probabilities, forecasts, recommendations, propensity scores, classifications or likelihood values
- Which in turn can be incorporated into key operational and/or insight systems



Types of Predictive Modelling…

- **Classification / Propensity**
  - Who is most likely to respond / convert based on historical response data and the array of behavioural data we have about them?
- **Clustering**
  - How can I divide my prospects/ client base into meaningful and usable groups as a framework for marketing planning / customer insight?
- **Association & Sequence**
  - What is the optimal sequence & frequency of events and interventions that lead to a response / purchase / cancellation?
- **Time Series**
  - What will site traffic / online revenue be next day / week / month?

Core Applications in (Digital) Marketing

attract

Acquire customers:

- Understand who your best customers are
- Connect with them in the right ways
- Take the best action maximize what you sell to them

grow

Grow customers:

- Understand the best mix of things needed by your customers and channels
- Maximize the revenue received from your customers and channels
- Take the best action every time to interact

retain

Retain customers:

- Understand what makes your customers leave and what makes them stay
- Keep your best customers happy
- Take action to prevent them from leaving

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Typical Analytical Applications

- Segmentation
  - Customer Behaviour
  - Life Time Value
  - Loyalty
- Predictive Modelling
  - Campaign Response
  - Cross-Sell/Up-Sell
  - Customer Acquisition
  - Retention Scoring
  - Satisfaction Modelling
  - Real Time Recommendations
- Other Applications
  - Basket Analysis
  - Sequence Modelling
  - Sentiment Analysis

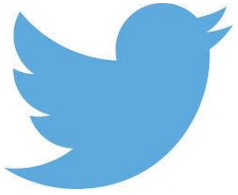
Why is this important to organizations?

- Acquiring customers is expensive
  - Not unusual to cost **6 times** as much as retaining them
  - Understanding who is *most likely* to convert is very cost effective
- **80%** of a company's profits come from **20%** of its customers
  - Need to understand these customers needs
  - How they behave and what keeps them happy
- Increasing customer retention rates by **5%** increases profits by **25% to 95%.**
  - Study by Bain & Company, working with Earl Sasser of Harvard Business School
  - http://hbr.org/1990/09/zero-defections-quality-comes-to-services/ar/1
- Customer Lifecycle Economic is amplified for e-businesses (B2B & B2C)
  - http://hbr.org/2000/07/e-loyalty-your-secret-weapon-on-the-web/ar/1
  - by Frederick F. Reichheld and Phil Schefter

Push Marketing vs. Pull Marketing

- **Push Digital Marketing:**
  - The marketer sends a message without the recipient actively seeking the content...
  - Display advertising on websites and news blogs.
  - Email, text messaging can also be classed as push digital marketing when the recipient has not actively sought the marketing message.
- **Pull Digital Marketing:**
  - The consumer actively seeks the marketing content, often via web searches or...
  - Opening an email (subscribed), text message, web feed, websites, blogs and streaming media (audio and video) are examples of pull digital marketing.
  - In each of these, users have to navigate to a location to view the content.

Proactive vs. Dynamic Deployment

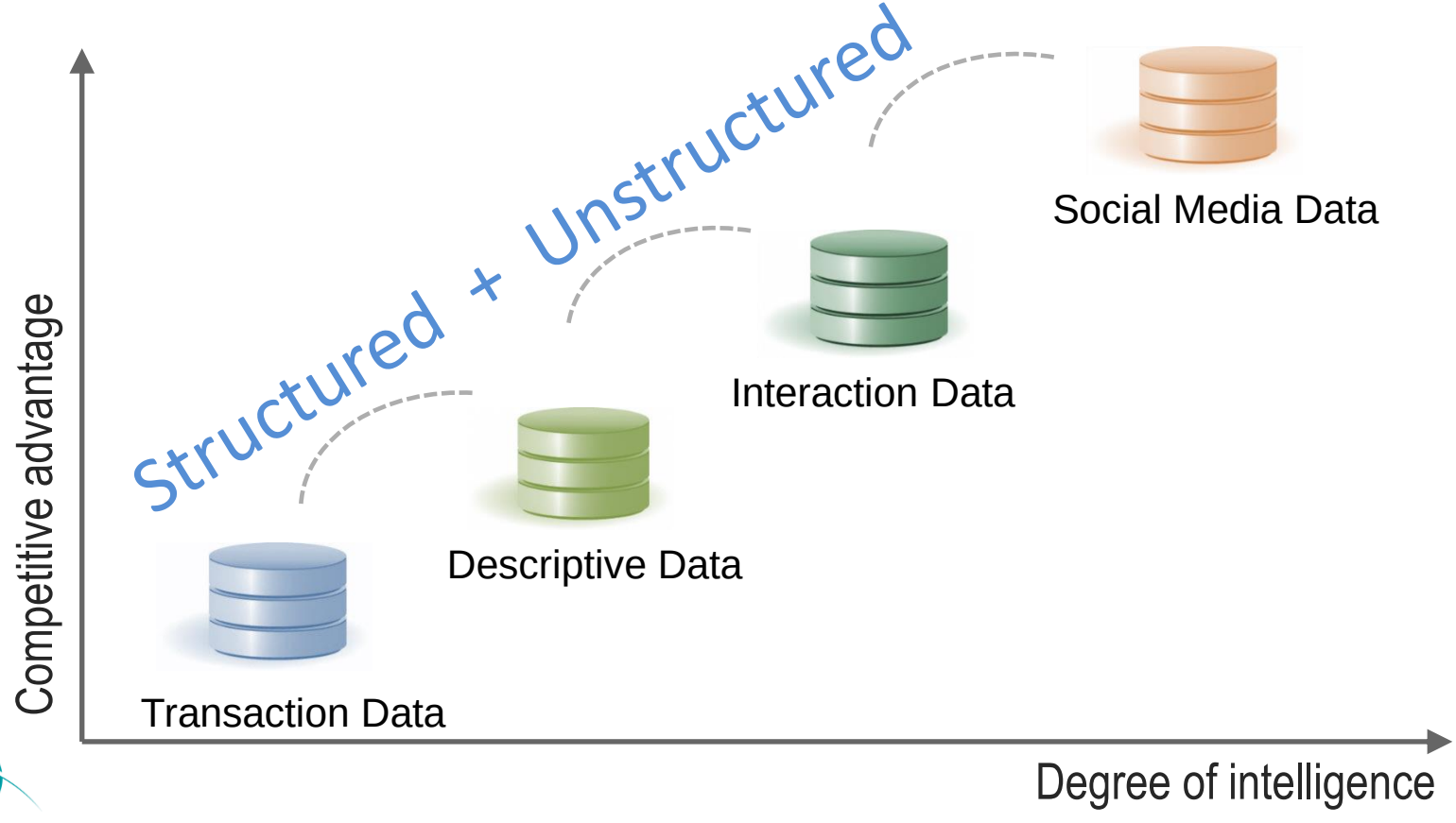


- **Proactive (push)**
  - Integrated with existing campaigns
  - Can set the decision agenda
  - Can be planned in advance
  - Less costly and simpler than dynamic but also *less timely & accurate*
- **Dynamic (pull)**
  - Offers based on *new data* in real time
  - Opportunity to gather new, important information
  - Opportunity to revise offer/action – e.g. retain, cross-sell
  - Outcome can be captured immediately
  - Requires greater investment than proactive approaches

Even when the application isn't a predictive model…

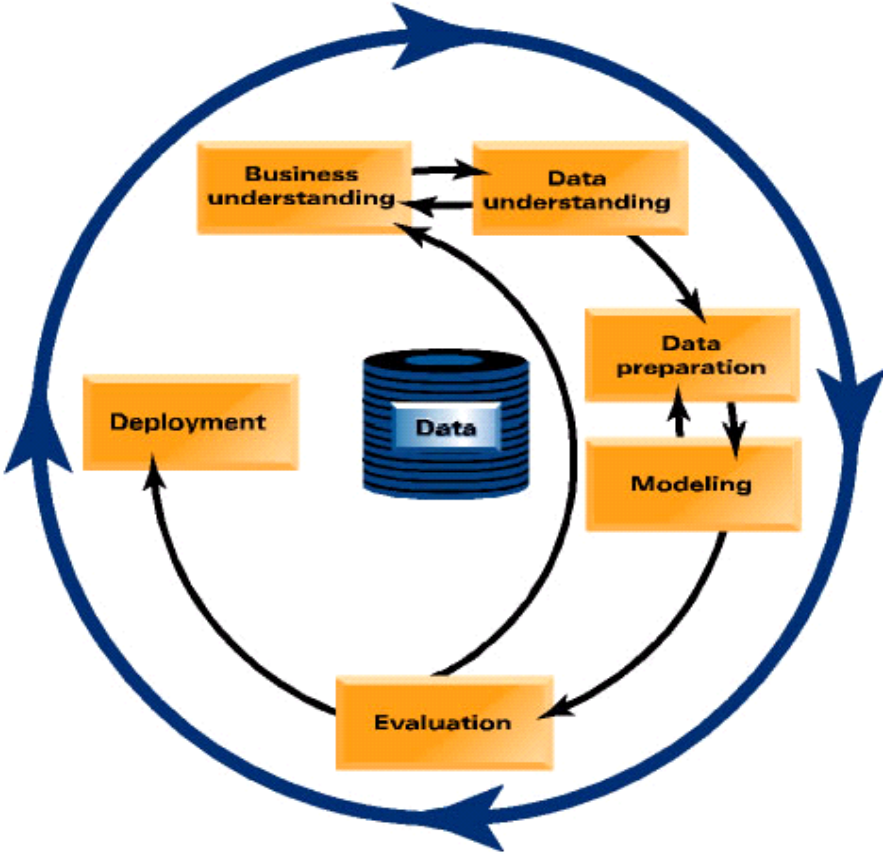
- We can still use historical data to better understand our customers
- Find strong correlators or drivers of behaviour
- Carry out text mining and analyse changing sentiment
- Develop a segmentation strategy that is *data-driven*
- Go beyond recency, frequency monetary to incorporate
  - Who – Demographics
  - What – Product/Service Categories
  - Interactions – Website, Social Media, Call Centre, Payment methods
  - History – Tenure, Customer Journey,

By exploiting a wide data landscape



By utilising a powerful, proven methodology

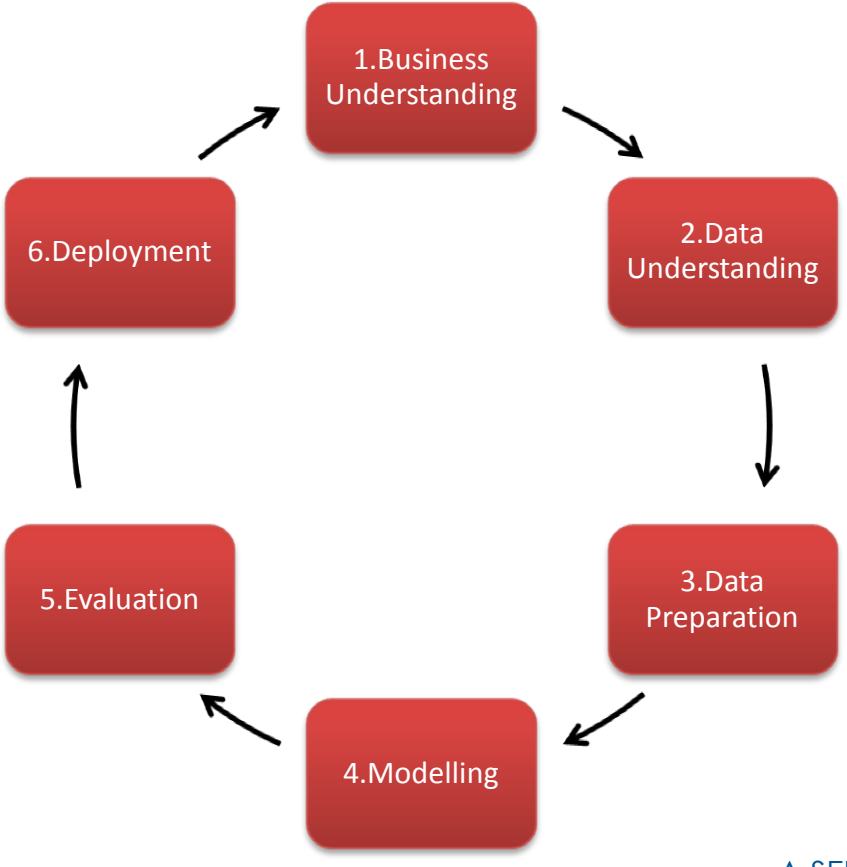
- CRISP-DM: Cross-Industry Standard Process for Data Mining
- Each application can be developed and progressed through a series of key phases
- www.CRISP-DM.eu



Some objectives and actions from predictions

- Deliver differentiated content
  - Personalisation
  - Recommendations
- Change sites more fundamentally
  - Change information architecture
  - Provide multiple journeys
  - Build/re-build
- Have more informed communications with advertisers
  - Enumerate customer value
- Stop fraudulent activity
- Optimise the whole thing (multichannel)
  - The CRM process
  - The Job Seeker process
  - The customer service process
- Predict Next Best Action (NBA) by channel by device
  - Which campaign/offer and which channel/device

The CRISP-DM process



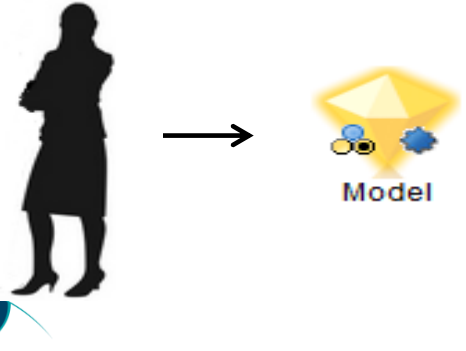
At the heart of Predictive Analytics is the model

- Predictive Analytics uses historical data from many people/incidents
- Age, Gender, Average Spend, Product Category, Region, Tenure etc.
- With known outcomes/results
- Responded, upgraded, defaulted, recommended, cancelled, donated, failed, renewed etc.
- To build a reusable model

=

At the heart of Predictive Analytics is the model

- We can take new data from individuals or incidents…
- Age, gender, average spend, sentiment, tenure, time since last visit
- Using a model based on the same information…
- Generate probability values, likelihood scores and estimates
- In other words…..predictions



Predicted Lifetime Value = £938

32% CHANCE OF CANCELLATION

0.13 probability of defaulting

Estimated NPS = 6

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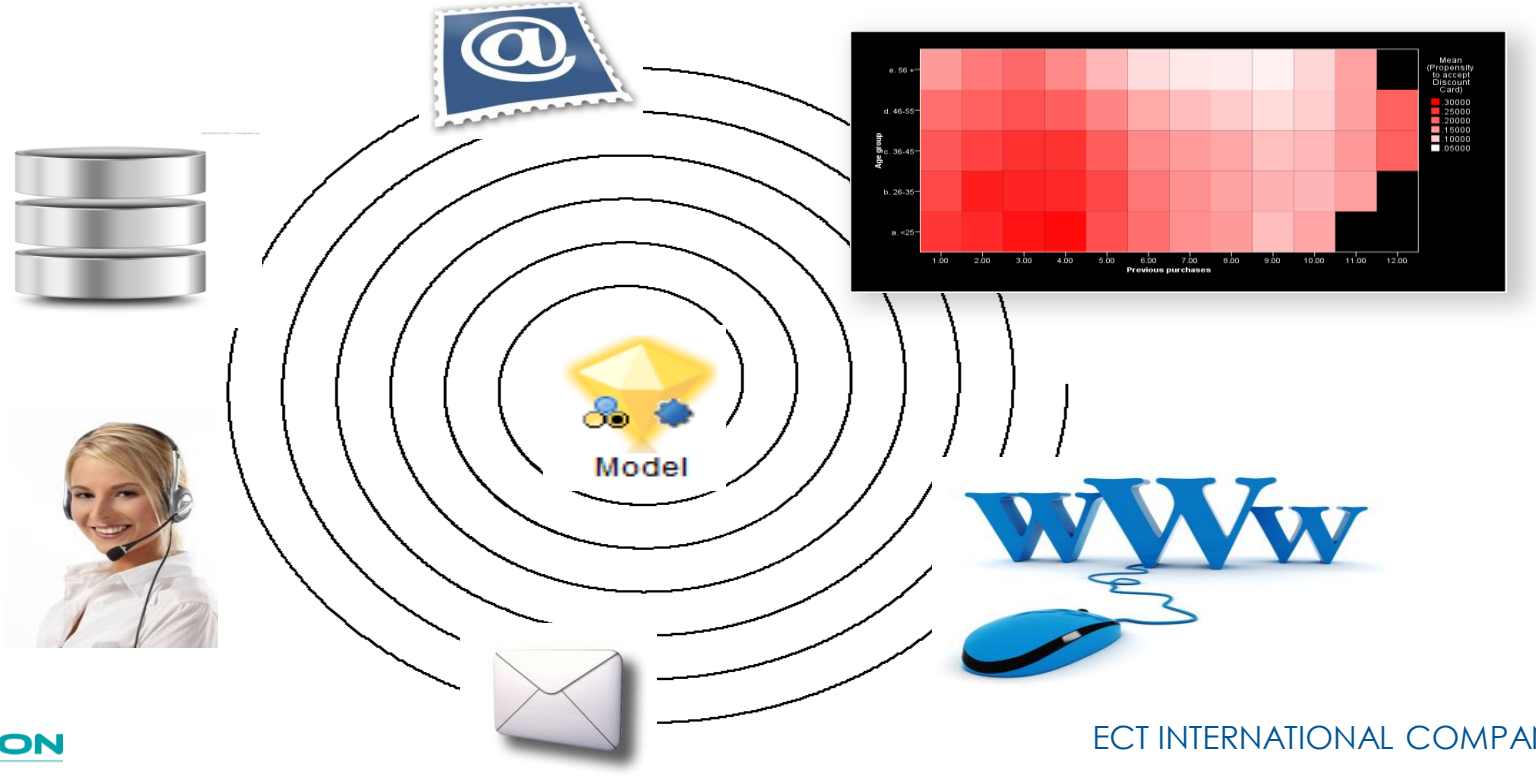
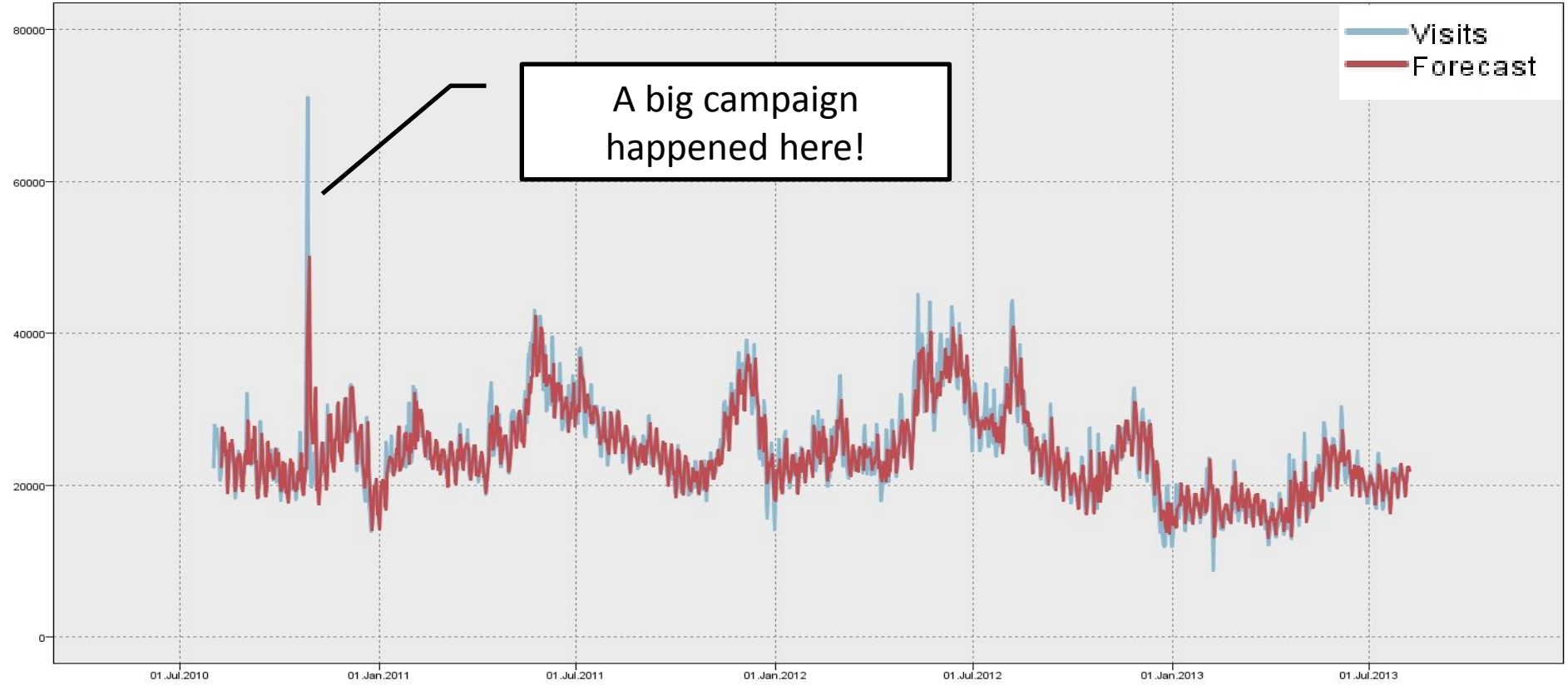
At the heart of Predictive Analytics is the model

- We can then deploy the predictions through multiple channels to make better decisions



Forecasting Visits



Predicting Applications (Classification)

- A job site wants to:
  - Understand better what is driving applications
  - Predict the likelihood that a visitor/member will become an applicant
  - Tune marketing effort to drive more applications

Where is "Segmentation"?

Data mining

Discovering previously undetected patterns and relationships in data

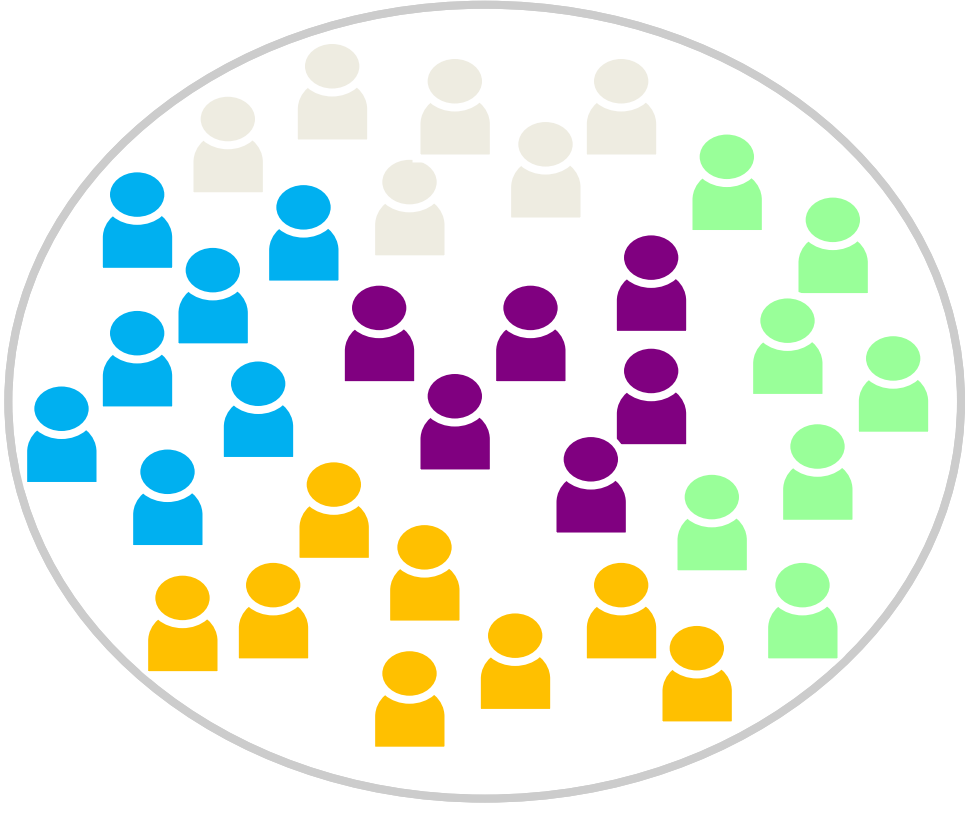
Here we find segments without an outcome in mind
Segments used more **strategically**

Predictive analytics

Applying historical patterns to predict future outcomes

Here we find segments with an outcome in mind (e.g. subscriber renewal)
Segments used more **tactically**

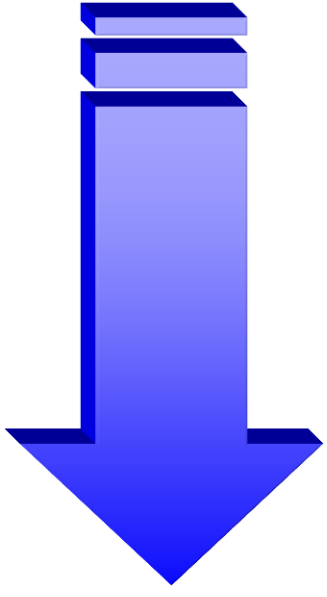
Creating meaningful segments



- Descriptive
  - –Gender, age etc
  - –Lifestyle
- Behavioural
  - –Browsing
  - –Purchasing
  - –Responding
  - –Converting
- Interaction
- Attitudinal
  - –Brand empathy
  - –Satisfaction

Segmentation strategies

Deterministic



Rules

Hierarchies

Filters

Discovery based

Associations

Patterns

Correlations

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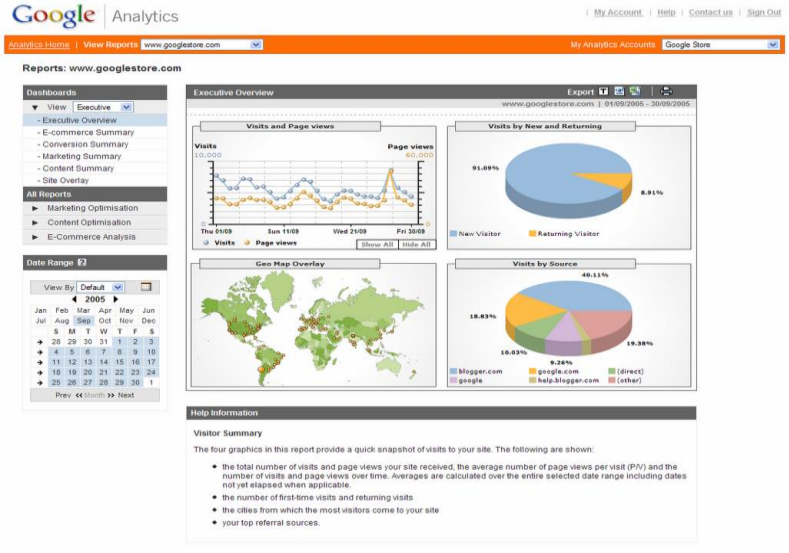
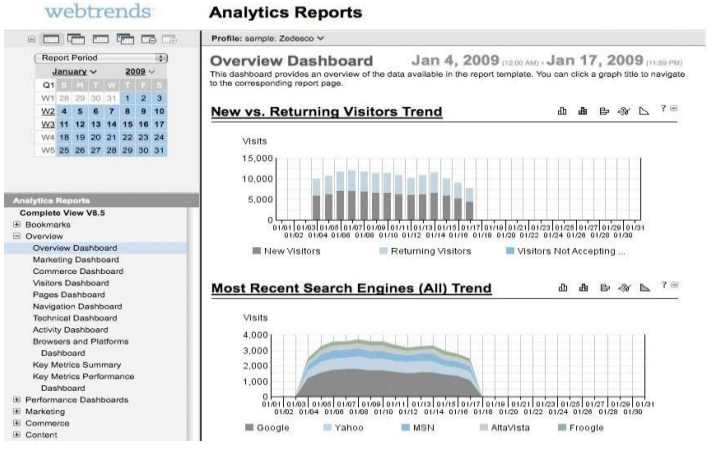
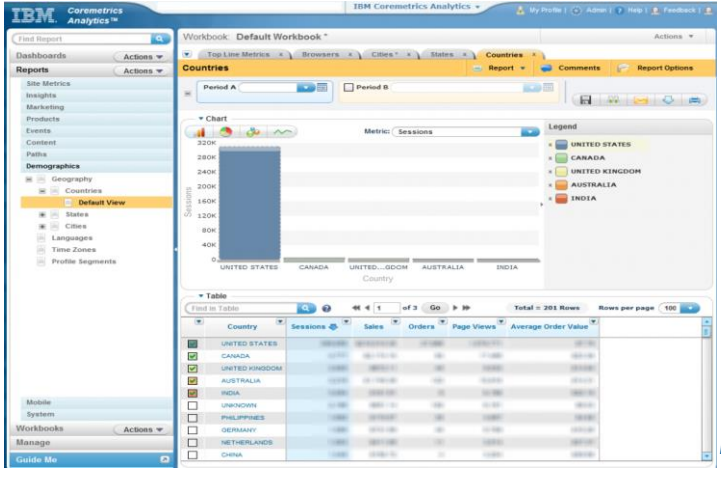
Doesn't "Web Analytics" do this?







Adobe Analytics
Part of the Adobe Marketing Cloud

Adobe SiteCatalyst
Actionable web analytics

Adobe Discover
Reveal visitor insights

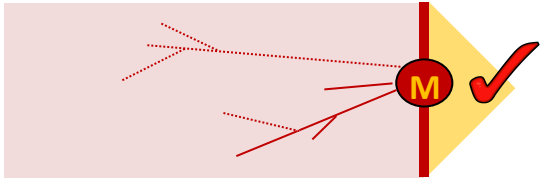
Adobe TagManager
Fast tag deployment

Adobe Insight
Rapid business decisions

MPANY

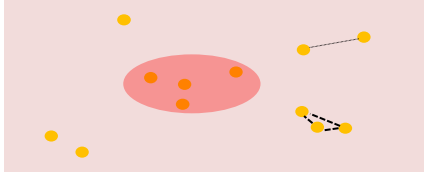
The Predictive Advantage

Predictive Models
- Leverage current and historical data
- Make robust predictions on current and future cases
- Provide “actionable insight” to drive better decisions



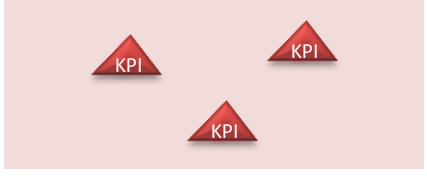
“NOW”

Predictive Analytics:
- Algorithms automatically discover significant patterns
- “Learn” from historical data – create *predictive models*



“NOW”

Traditional BI and Web Analytics:
- Insight, metrics, etc. up to this point in time
- User initiative to explore data

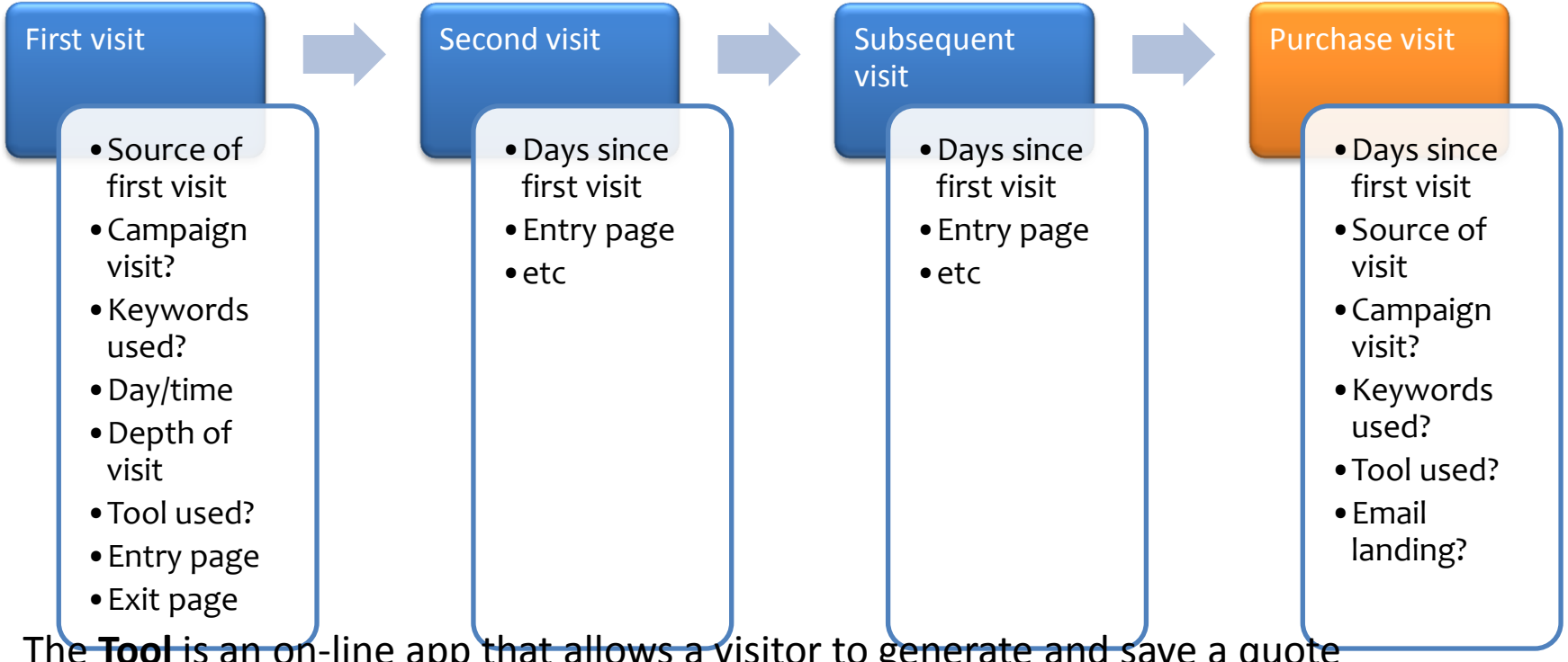


“NOW”

Summary

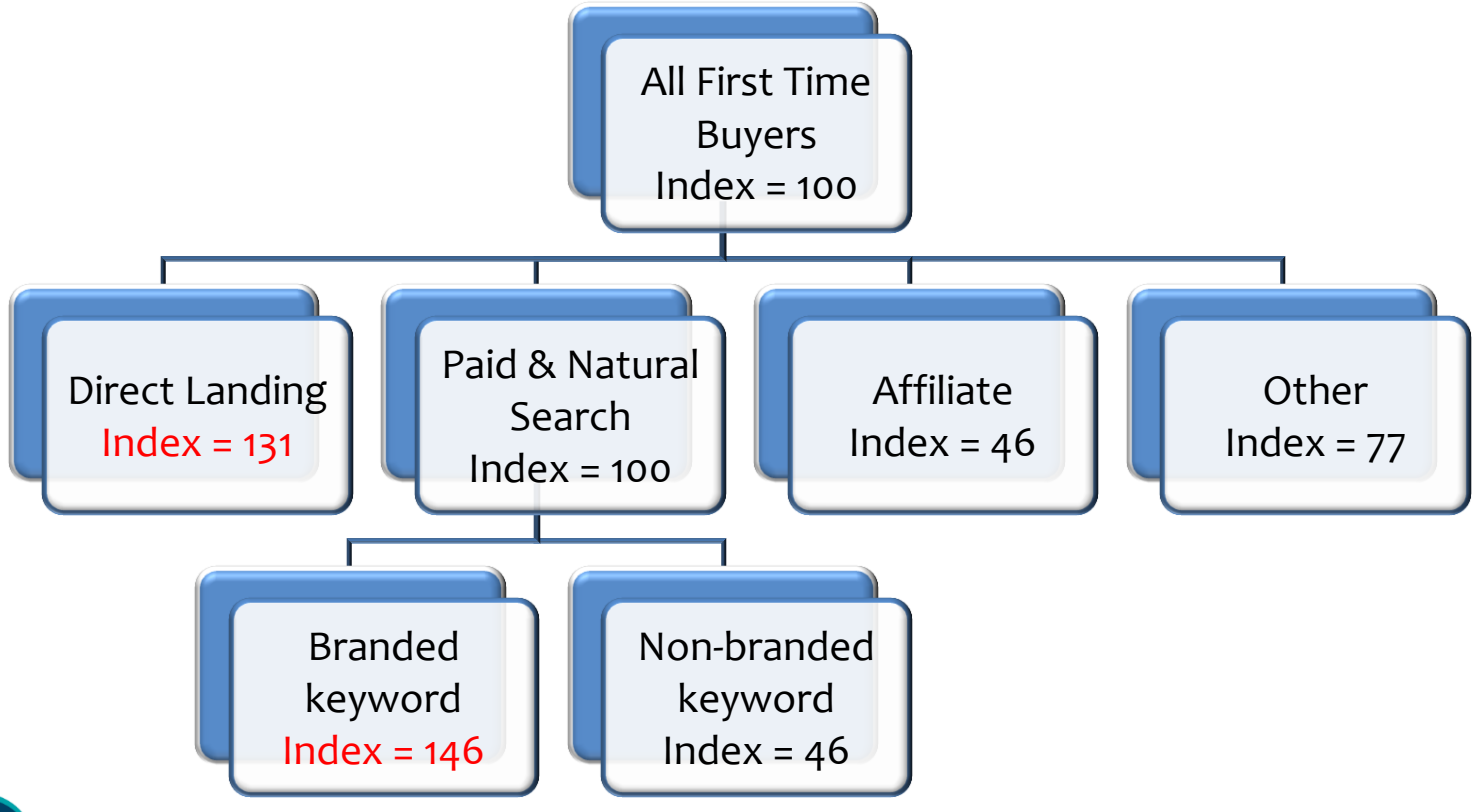
- The Digital potential is based on the implicit collection of data in digital platforms
- The challenge is often marshalling the data for analysis
  - Effort to insight
- Once models are built there is the potential for real-time deployment
  - Often presents technical challenges
  - Platforms exist to help overcome these challenges
    - E.g. IBM/SPSS Collaboration & Deployment Services
- But as always it starts with recognising the potential of prediction from a commercial perspective

Tracking visitor behaviour over multiple visits



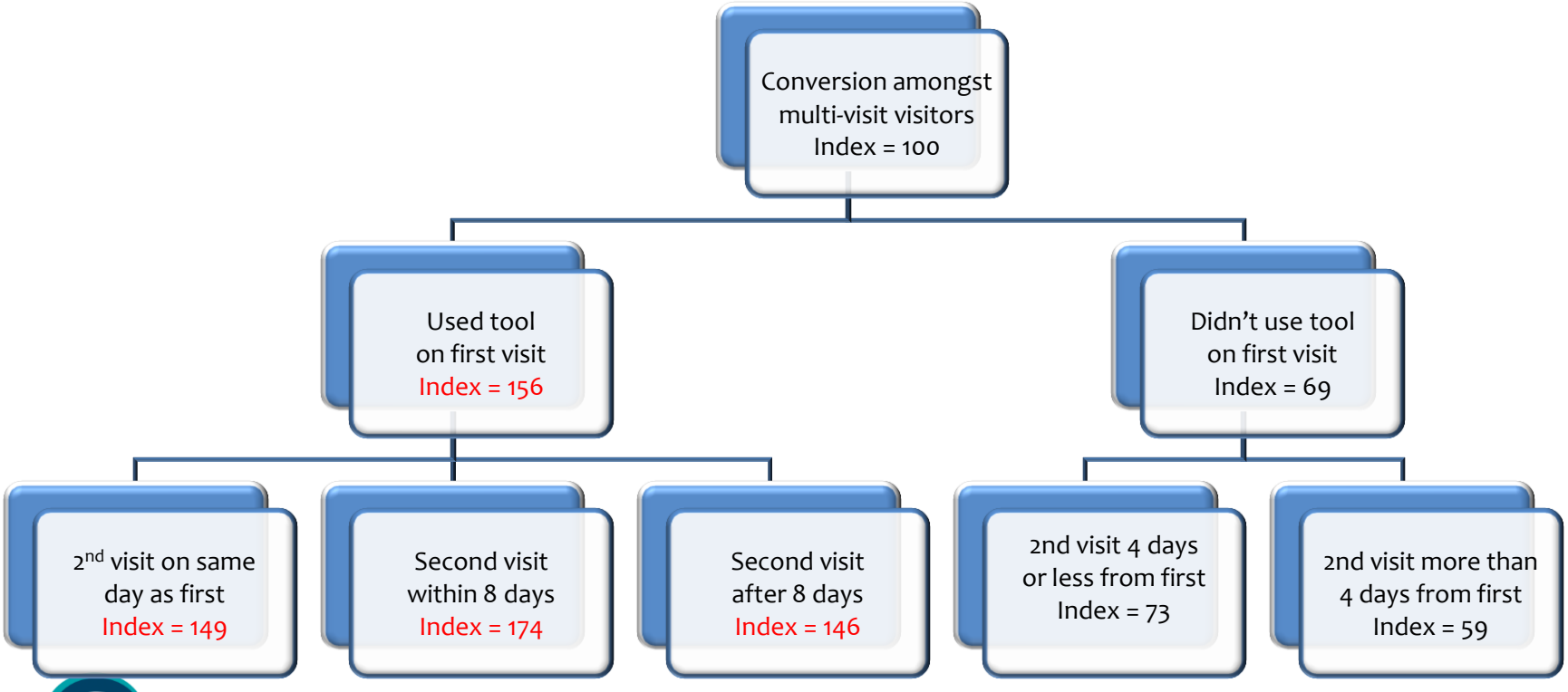
The **Tool** is an on-line app that allows a visitor to generate and save a quote between visits

Key drivers of First Visit Buyers



If a first time visitor arrives on a **Branded keyword** s/he is **46%** more likely to purchase than the average

What are the main factors influencing purchases over multiple visits?



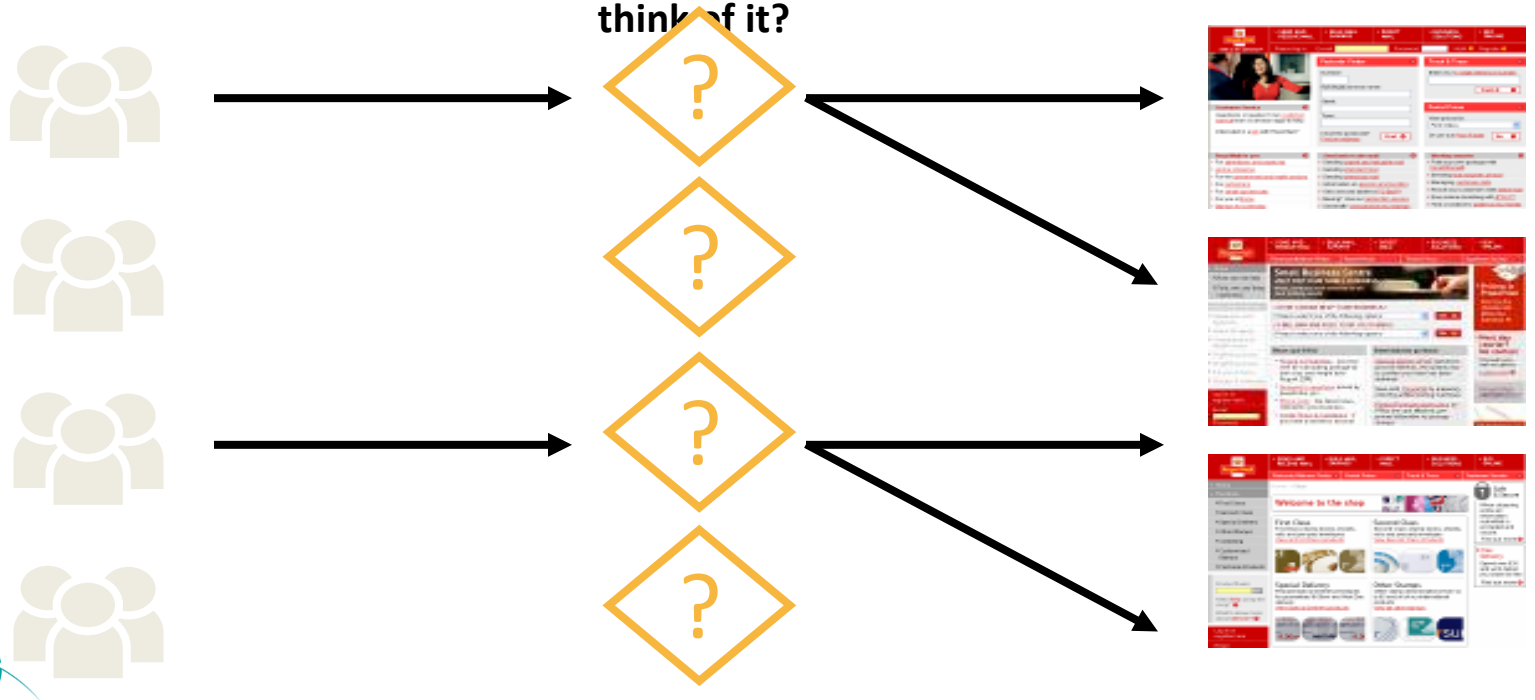
If a visitor uses the **Tool on the first visit** and **returns within 8 days they** are **<u>74%</u>** more likely to convert than the average

A framework…

Who visits the site?

Why do they visit the site and what do they think of it?

What do they do on the site?



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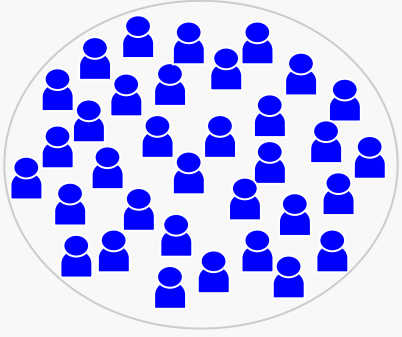
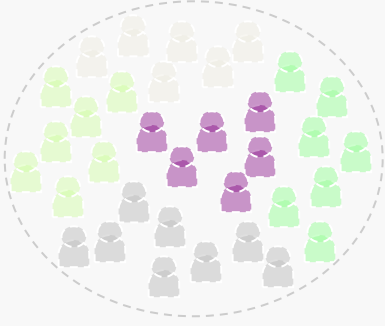
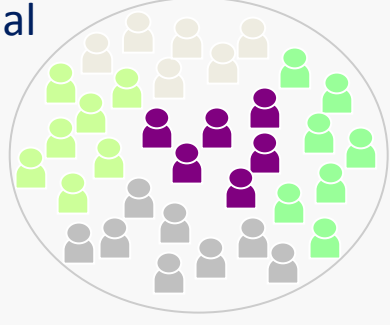
Developing the visitor segments



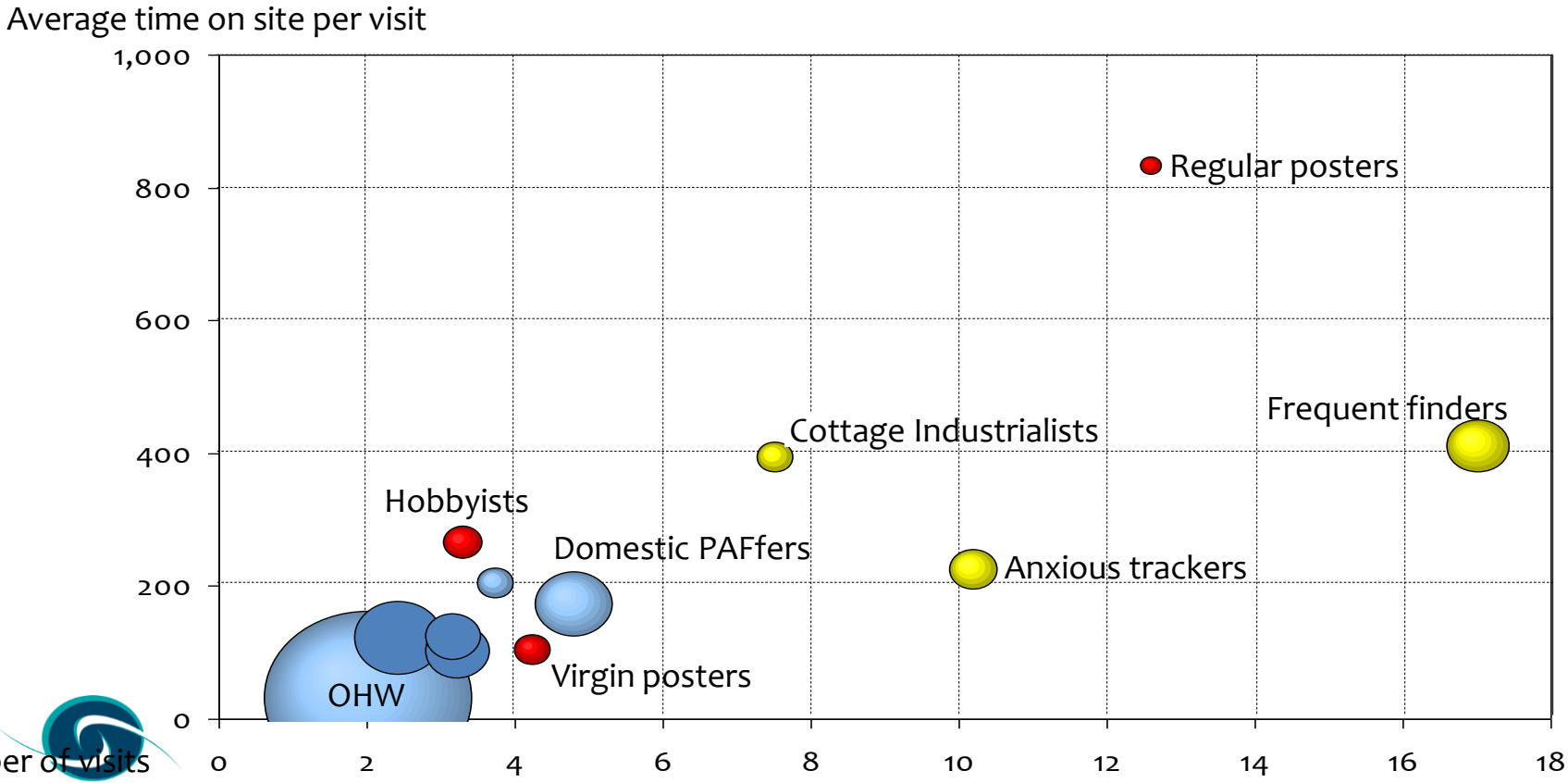
Behavioural segmentation based on content consumption



Segments profiled using other behavioural data and also additional survey and/or customer data



Different segments have different styles of engagement…



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Size of bubble reflects size of segment

Happy Trackers (6%)

Happy Trackers mainly use the site for Track and Trace and little else

In terms of profile they tend to have a stronger business slant and be slightly older than on average

They are not heavy users of the site and their visits are relatively light and narrow – all they do is use Track and Trace

However they are happy with what they do, they rate the site functionality the best out of all the segments

Happy Trackers– 6%, Occasional information

Top content	Top searches	Top campaigns
• Track & trace • Redirections • Customer services • Delivery services	• Redirections • Recorded delivery • Redelivery	• Redelivery • XMAS • Smartstamp

Other behaviours

- 9th highest number of visits
- 4th most buyers; redirections

• Key demographics & attitudes

- Older
- More business than personal
- Satisfaction above par
  - Highest site rating
- Stated reasons for visit: Track & Trace

Price Finders (10%)

Price Finders are primarily concerned about finding our information on things like airmail services and prices as well as other delivery services and costs

Quite often their visit has something to do with an online auction activity but they are possibly new to the game as this segment generally haven't visited the site very often and a large proportion of them are new to the site

Cottage Industrialists

Cottage Industrialists are frequent users of the site and they mainly come looking for information on postal prices, delivery services, parcel information and the like.

Half of this segment are involved in some type of online auction related activity and over the course of their lifetime they tend to look at the broadest amount of content on the site. Quite often they will be using the search function to do this

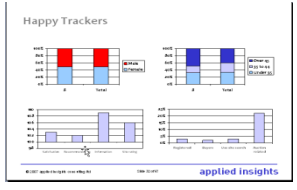
They are reasonably happy with the customer experience on the site and are more likely than on average to recommend the site to others

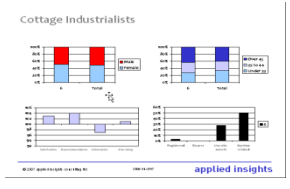
The framework…in action

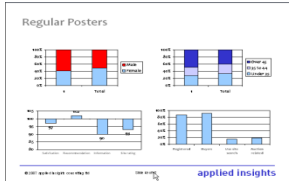
Who visits the site?

Why do they visit the site and what do they think of it?

What do they do on the site?







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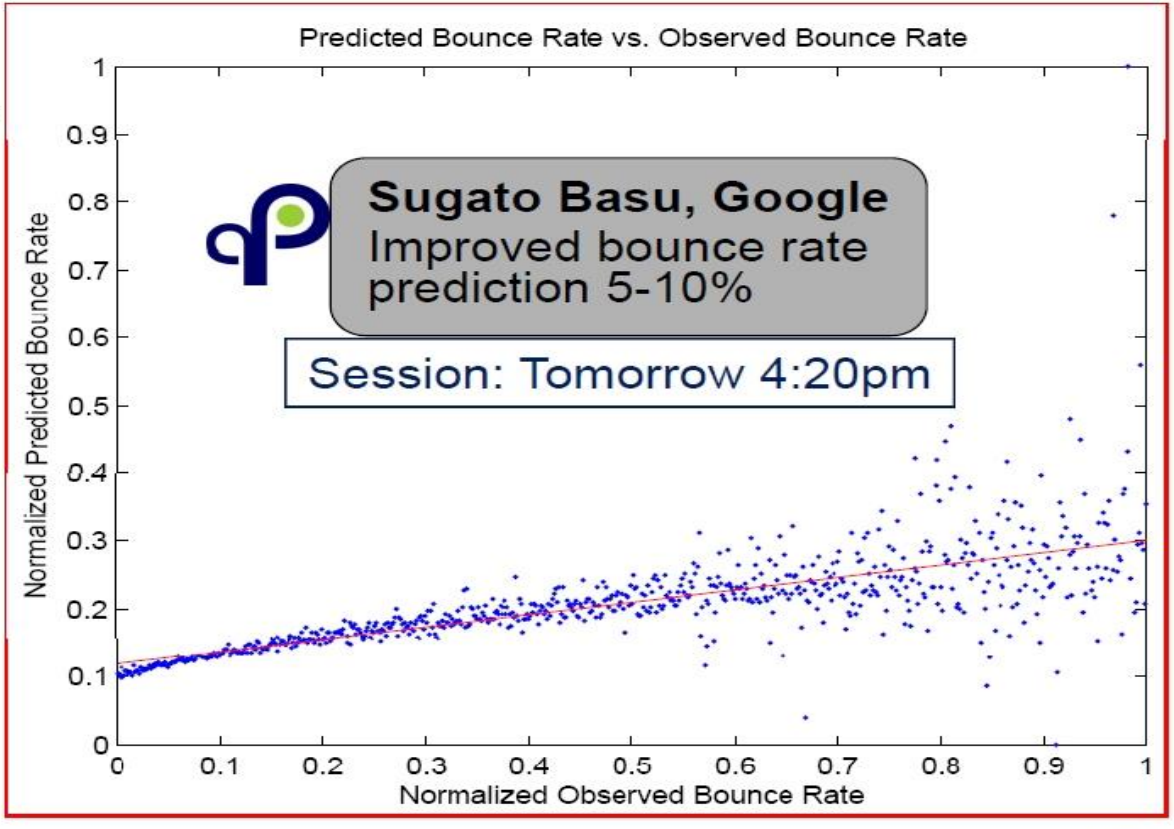
Improve Paid Search Ads

Predict ad bounce rate, based on:

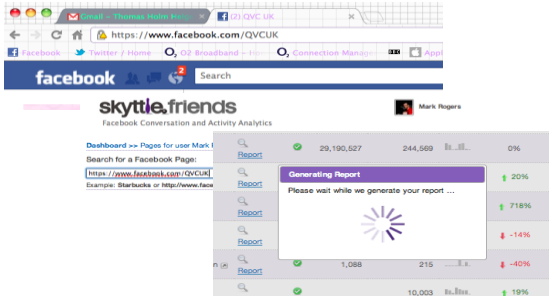
- Ad text
- Landing page

For more:
www.bayardo.org/ps/kdd2009.pdf



On-line TV channel – Customer Sentiment from Social Media

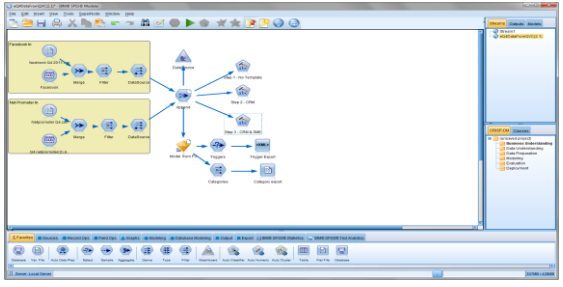
Data Harvesting



Market Sentinel:
Locate the Facebook url & add the page
Scheduled, automated capture

With Meta data:
post description
parent ID (group if post, post if comment)
post/comment ID
posted time, likes, message body

Sentiment Extraction / Customer Insight



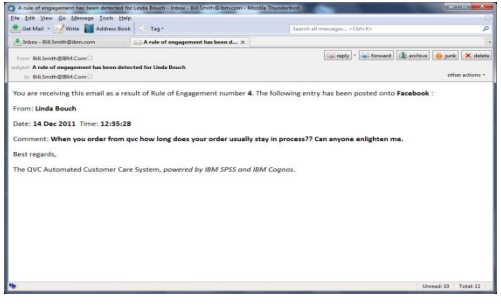
IBM SPSS Modeler:
Picks up the captured data as a file, from a database

Runs comprehensive, automated analysis:
Data cleaning & manipulation
Merging of data from multiple sources
Creates categorised data
Identifies triggers based on RoE

Allows for continuous imporvement

Executive Reporting

Intervention Triggers



IBM SPSS Cognos:
Integrated, dynamic dashboard
Event triggers (email, CRM etc.)

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Advice to get started

- **Build Internal Credibility:** *Think* about where you would get *biggest impact* for the *least effort*.
- Consider adopting a proven methodology e.g. CRISP-DM (www.CRISP-DM.eu)
- Consider the full data landscape
- Consider the sorts of roles involved /impacted
- Consider integration with other business insight systems (e.g. MI/BI)
- How will you know its worked? Focus on measuring the benefit – e.g. response rate lift, increased cross-sell, revenue/profit impact
- Don't get hung up on modelling techniques - focus on *Business Understanding* and *Deployment*

Working with Smart Vision Europe Ltd

- As a premier partner we sell the IBM SPSS suite of software to you directly
  - We're agile, responsive and generally easier to deal with
- As experts in SPSS / Analytics / Predictive Analytics we will
  - deliver classroom training courses
  - offer side by side training support
  - offer "skills transfer" consulting
  - run booster and refresher sessions to get more from your SPSS licences
  - Give no strings attached advice
- We are a support providing partner so you can source your technical support directly from us (identical costs to IBM)
  - We offer telephone support with real people as well as web tickets / email queries
  - We offer "how to" support to help you get moving on your project quickly

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