# Deriving Key Insights from Blue Martini Business Intelligence

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**Debenhams**

**BLUE MARTINI**

Elevating the Customer Experience™

# Agenda

- **Debenhams and MEC**

- **Web site, DSSGen, and Bots**

- **Easy insights – out of the box reports**

- **Harder insights – what you could write**

- **Actions at Debenhams and MEC**

- **BIG ROI project**

- **Q&A**

# Debenhams

- **Debenhams plc, "Britain's favourite department store"**
  - **UK's fashion retail leader for more than 200 years**
  - **Runs approximately 100 department stores in the UK and Ireland**
  - **Offering brand-name women's, men's and children's apparel as well as high-end housewares and cosmetics**
  - **Debenhams also offers the award winning 'Queen's Award for Enterprise - April 2001' bridal registry service**

- **Debenhams online profile**
  - **Over 500,000 customers**
  - **About £18 million in total sales in the last year**
  - **Wedding list purchases account for about half of sales**

- **Clickstreams**
  - **About 2M page views / week**
  - **About 6,000 new customers per week**

# MEC

- **MEC – Mountain Equipment Co-op**

- **Canada's leading supplier of quality outdoor gear and clothing**

- **MEC has**

  - **1.8 million members**

  - **Sales over $160 million**

  - **Seven physical retail stores**

- **As a co-op, MEC supports the community in several ways.**

  - **One of them is gearswap, an area of the site for selling used gear, where MEC makes no money**

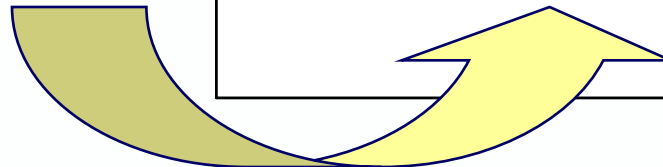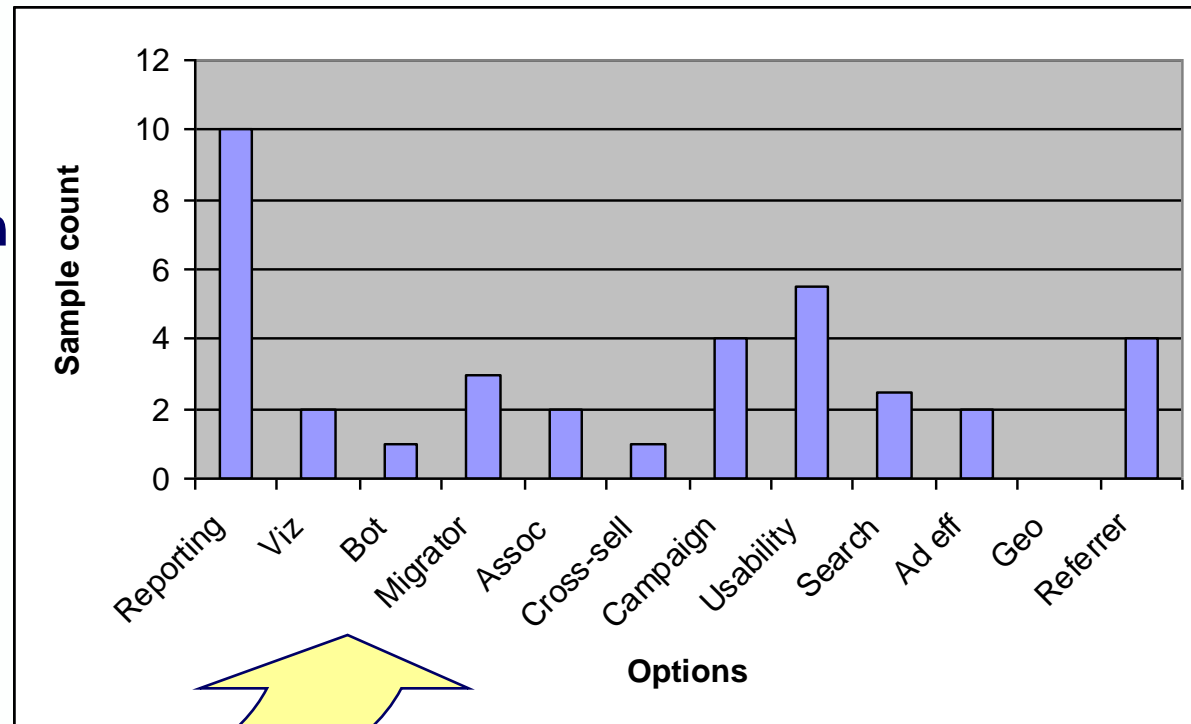  - **Products link to information promoting environmental responsibility**

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# Survey

**We asked early participants what they wanted to hear in this webinar**

## Observation:

- **Everyone wants to learn how to start fires**

- **Few are thinking about fire safety**

- **What you don't know can hurt you - bots**

# Bot Detection (Fire Safety)

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- **Bots are automated programs, sometimes called crawlers/robots**
  **Examples: search engines, shopping bots, performance monitors**

- **Significant traffic may be generated by bots**

- **Can you guess what percentage of sessions are generated by bots at MEC and Debenhams?**

  **23% at MEC**

  **40% at Debenhams**

- **Without bot removal, your metrics will be inaccurate**

- **Blue Martini has good heuristics, but look at the bot report and make sure your performance monitors are recognized**

# Website Checklist

- **Collect clickstreams at 100%**
  - **You can't improve what you don't measure**

- **Turn ReverseDNS on to get host names, not IPs (note, this is off by default)**

- **Setup home page redirect correctly so that you do not lose referrers (avoid client-side redirects)**

- **When customizing site, don't lose business events (search, checkout, etc)**

- **Do not run reports against web site DB, unless they are small.  That's why there is the DSS DB**

- **More details in "Business Intelligence - Getting Started Guide" on http://developer.bluemartini.com**

# Real Time Reporting Against Store

- **Sometimes executing a small query against live DB makes sense.**

- **For example, on the www.bluemartini.com site, we provide our salespeople with a live query JSP that shows visitors from any domain to help sales activites. Example report below.**

- **For you, this could be useful for customer support, for example**

- **Session ID:** 3586444
- **Visitor ID:** 1365480
- **Host Name:** cmb2-nip1.atg.com
- **Request Count:** 12
- **User Agent:** Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.0)
- **Referrer:** http://biz.yahoo.com/prnews/020730/sftu028_1.html
- **Session Start Date:** 2002-08-13 07:54:48
- **Session End Date:** 2002-08-13 08:06:51

**IE6 user
Running Win 2000**

**Came from our
press release on
Yahoo**

| Sequence | Template | Time (min:sec) |
|---|---|---|
| 1 | index.jsp | 2:07 |
| 2 | news/press_release_content.jsp | 1:21 |
| 3 | news/index.jsp | 5:59 |
| 4 | news/index.jsp | 0:08 |
| 5 | news/articles_list.jsp | 0:53 |
| 6 | redirect/external.jsp (http://comment.cio.com/crm/050702.html) | 1:11 |
| 7 | news/index.jsp | 0:09 |
| 8 | company/company_browse.jsp | 0:13 |

# Setting Session Timeout

- **Set your session timeout to an hour**

- **Note the impact session timeout has on the percent of people who will lose their shopping cart (or see annoying message)**

**Watch for an upcoming article on developer.bluemartini.com around this recommendation**
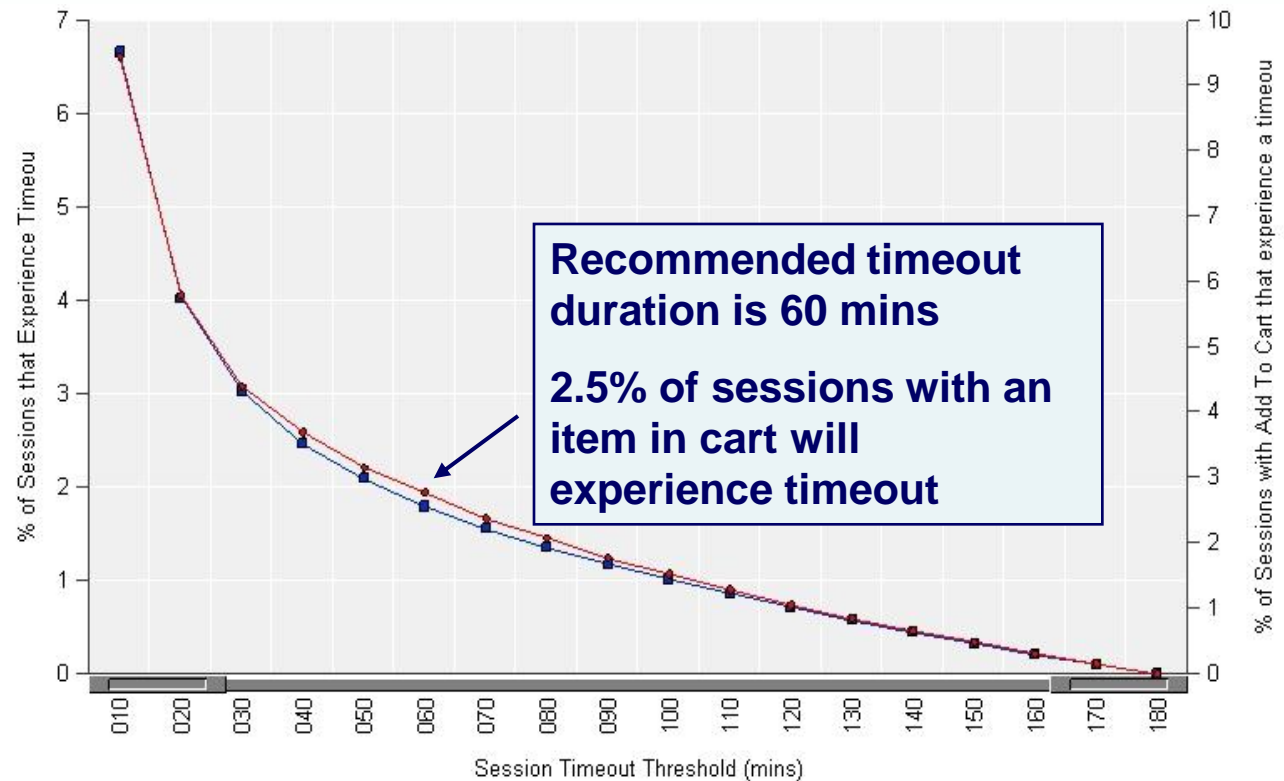


**Recommended timeout duration is 60 mins**

**2.5% of sessions with an item in cart will experience timeout**

| Left axis | Right axis |
|---|---|
| ■ % of Sessions that Experience Timeout | ◆ % of Sessions with Add To Cart that experience a timeout |

# DSSGen

- **Reports should run against a data warehouse (DSS)**

- **DSSGen builds the data warehouse from the store/click/main DBs**

- **Normally, such an ETL (Extract/Transform/Load) process takes months to develop, but with Blue Martini you get 95% of it out of the box**

- **The other 5% are:**
  - **Adding your custom tables**
  - **Marking performance monitors/bots**
  - **Changing things due to web site customizations**

- **Common mistakes**
  - **Inappropriate hardware – Build and Reporting need strong hardware**
  - **Bad database setup (Oracle must be tuned)**
  - **Running DSSGen without –parallel flag**
  - **Running all reports every DSSGen run instead of daily, weekly, monthly options**

# Reports

- **Blue Martini provides two ways to build reports**
  - **Crystal Reports**
    - **Industry standard**
    - **Easy to layout reports**
    - **Limited capability to transform data (e.g., can't sort by percentages requiring multiple passes)**
  - **Blue Martini Reports**
    - **Use transformation chains**
    - **Can integrate multiple investigations into unified report**
    - **Generic reports easy, custom reports require JSP coding**
    - **Visualizations are interactive**

# Dataviz Webstart

- **Every graph has a "dataviz" icon**

- **Example: the standard dashboard**



**Web Visits and Web Sales for Jun 22, 2000 to Jun 28, 2000** — Approximated due to clickstream sampling
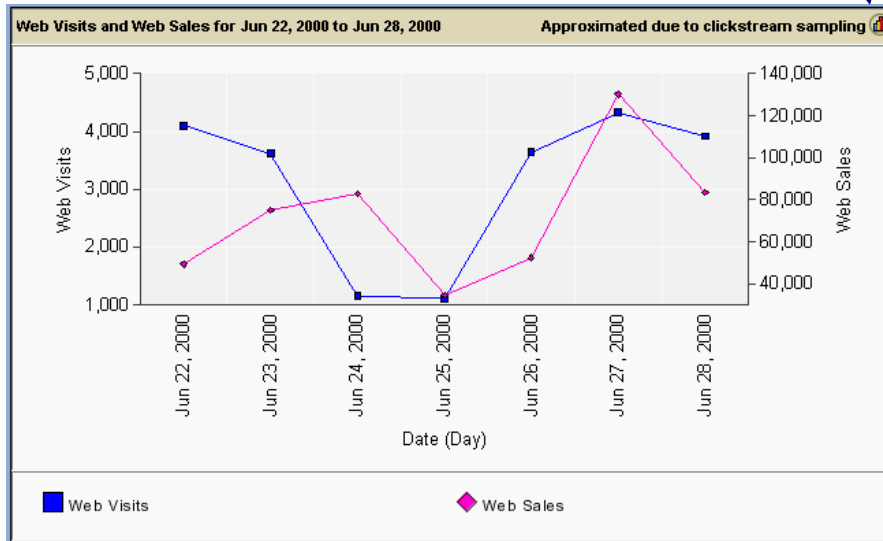
**Demo**

- **View->Scatterplot**

- **Right click Settings, X: Day of week Y: hour of day, size: heatmap, color -> web visits**
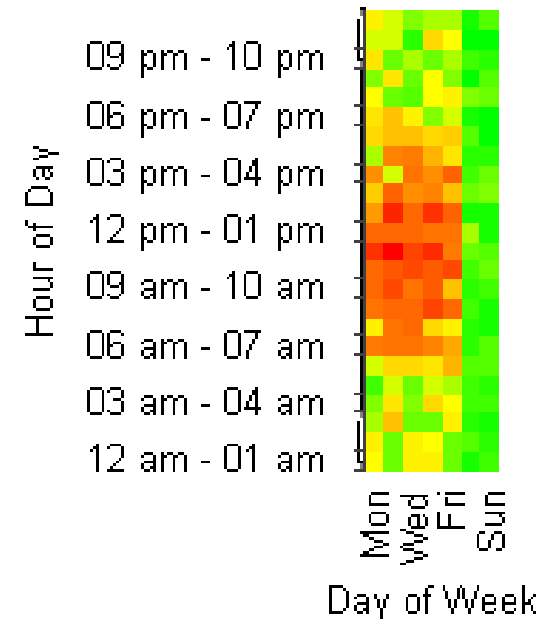
# Easy Insights – Out of the Box Reports

- **With the Analysis Center, you get an extensive set of reports for web analytics and sales analysis**

- **Here are some examples from Debenhams and MEC**

# Search Effectiveness at MEC

- **Customers that search are worth two times as much as customers that do not search**

- **Failed searches hurt sales**

**Visit**

**10%**   **90%**

**Search**
**(64% successful)**

Avg sale per visit: 2.2X

**No Search**

Avg sale per visit: $X

**70%**   **30%**

**Last Search Succeeded**

Avg sale per visit: 2.8X

**Last Search Failed**

Avg sale per visit: 0.9X
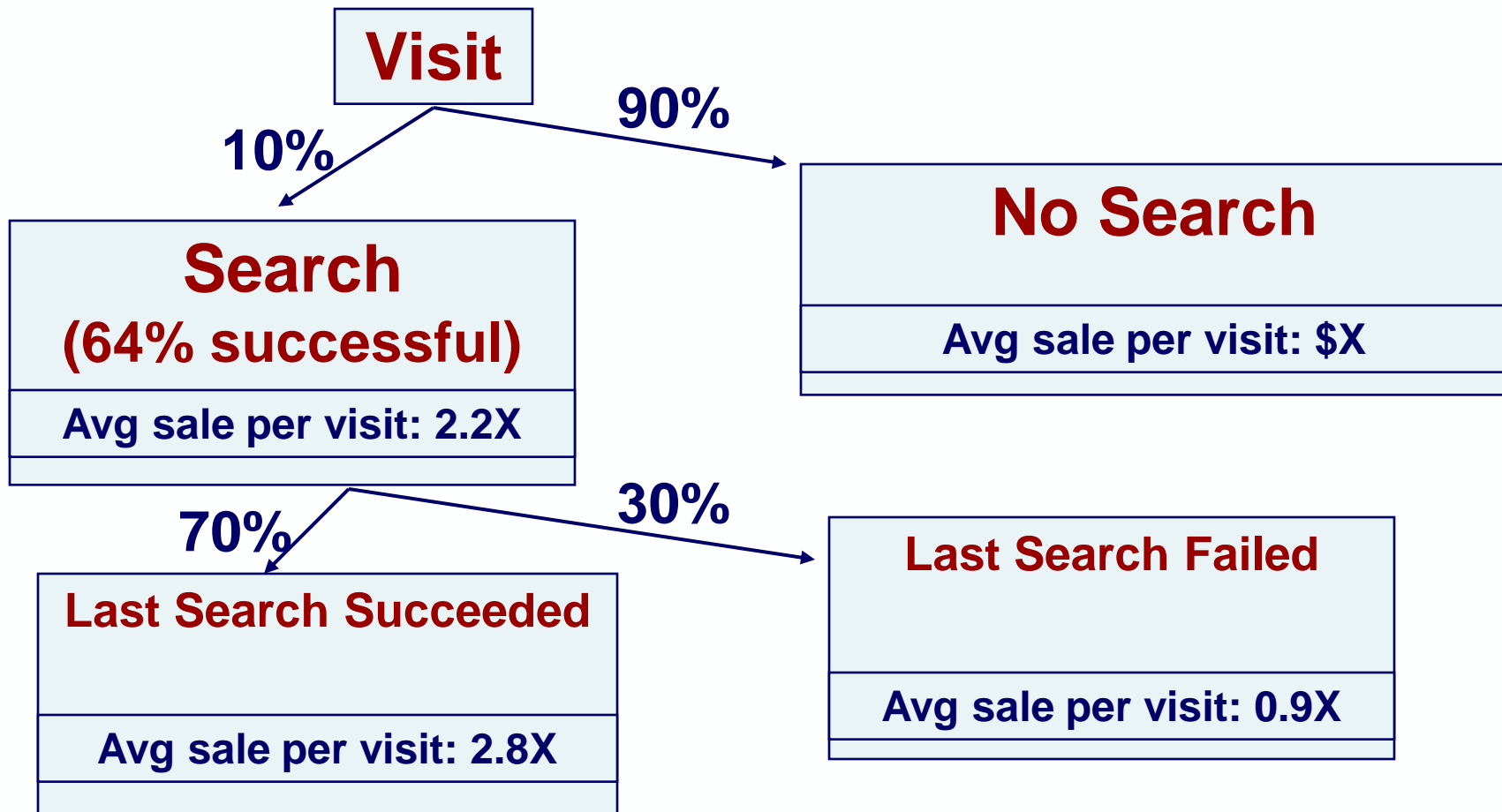
# Top Searches

- **Top searched keywords (percent of searches)**
    - **Empty search string (3.9%) returns over 160 results**
    - **GPS (1.2%)**
    - **sunglasses (0.8%)**
    - **watches (0.6%)**
    - **nalgene (0.5%)**
    - **ecological footprint (0.5%)**

> *Recommendation:*
>
> **- Do not allow empty search**
>
> **- Create custom pages for often searched keywords**

- **Top failed keywords in the product category (percent of failed searches)**
    - **gift certificate(s) (0.98%) (already implemented since study)**
    - **arc'teryx (0.44%)**
    - **bear spray (0.44%)**
    - **pedometer (0.37%)**
    - **stroller(s) (0.36%)**
    - **north face (0.33%)**
    - **(gift) registry (0.21%)**

> *Recommendation:*
>
> **- Parse search string to remove special characters**
>
> **- Build extensive thesaurus**
>
> **- Consider carrying products**

# Referrers at Debenhams

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- **Top Referrers**
  - **Google**
    - **5.8% of all visits are referred by google**
    - **Visit to purchase conversion 1.6%**
    - **Average purchase per visit = 1.8X**
  - **MSN (including search and shopping)**
    - **11% of all visits are referred by MSN**
    - **Visit to purchase conversion 0.7%**
    - **Average purchase per visit = X**
  - **AOL search**
    - **0.62% of all visits are referred by AOL Search**
    - **Visit to purchase conversion 2.6%**
    - **Average purchase per visit = 4.8X**

> *Recommendation*
>
> **Define an ad strategy based on ROI**
>
> **Emphasize AOL**

# Micro-Conversion Rate at Debenhams

- Understand abandonment and conversions

- Not just visitor to purchaser, but also the micro-conversions

- Shopping Cart Abandonment 62% =55% + 45% * 17%

- Abandonment varies from about 25%-80% across sites

- Excellent opportunity to identify problematic steps in processes and improve

- Also a good way to identify abandoned products, send targeted e-mails if those products are on sale



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**2.0%**

Visitor → Registered Visitor → Purchasing Visitor

**7.7%**  **25%**

Visit → Purchase Visit

**2.3%**

Add To Cart → Initiate Checkout → Purchase

**6%**  **45%**  **83%**

**17%**

**55%**

Abandon Cart

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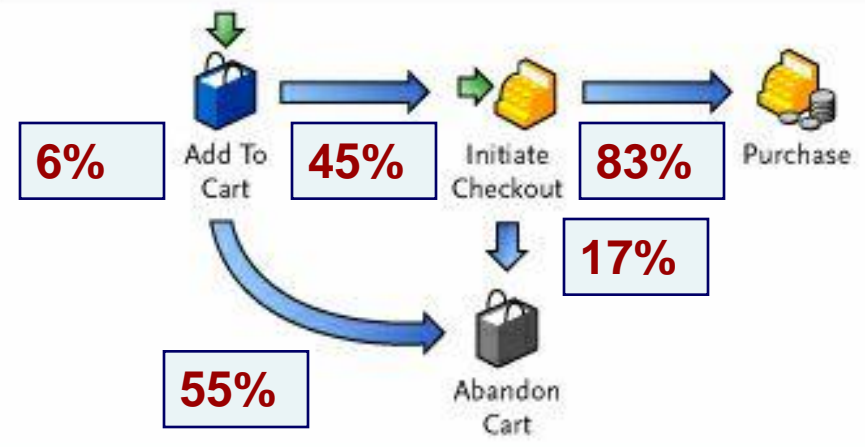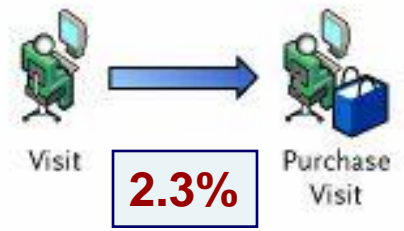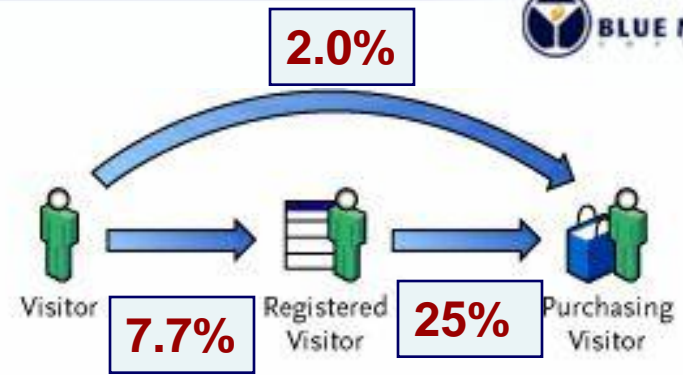
# Acxiom

- **BMS supports ADN – Acxiom Data Network**

- **Seamless integration: get username/password
  Note: Acxiom recently changed their interface, so you will need a patch**

- **Comprehensive collection of US consumer and telephone data available via the internet**

  - **Multi-sourced database**

  - **Demographic, socioeconomic, and lifestyle information.**

  - **Information on most U.S. households**

  - **Contributors' files refreshed a minimum of 3-12 times per year.**

  - **Data sources include:** **County Real Estate Property Records, U.S. Telephone Directories, Public Information, Motor Vehicle Registrations, Census Directories, Credit Grantors, Public Records and Consumer Data, Driver's Licenses, Voter Registrations, Product Registration Questionnaires, Catalogers, Magazines, Specialty Retailers, Packaged Goods Manufacturers, Accounts Receivable Files, Warranty Cards**

# Example - Income

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- **Graph showing incomes for a company that targets high-end customers based on POS purchases**

- **Income of their customers in blue**

- **The US population in red**
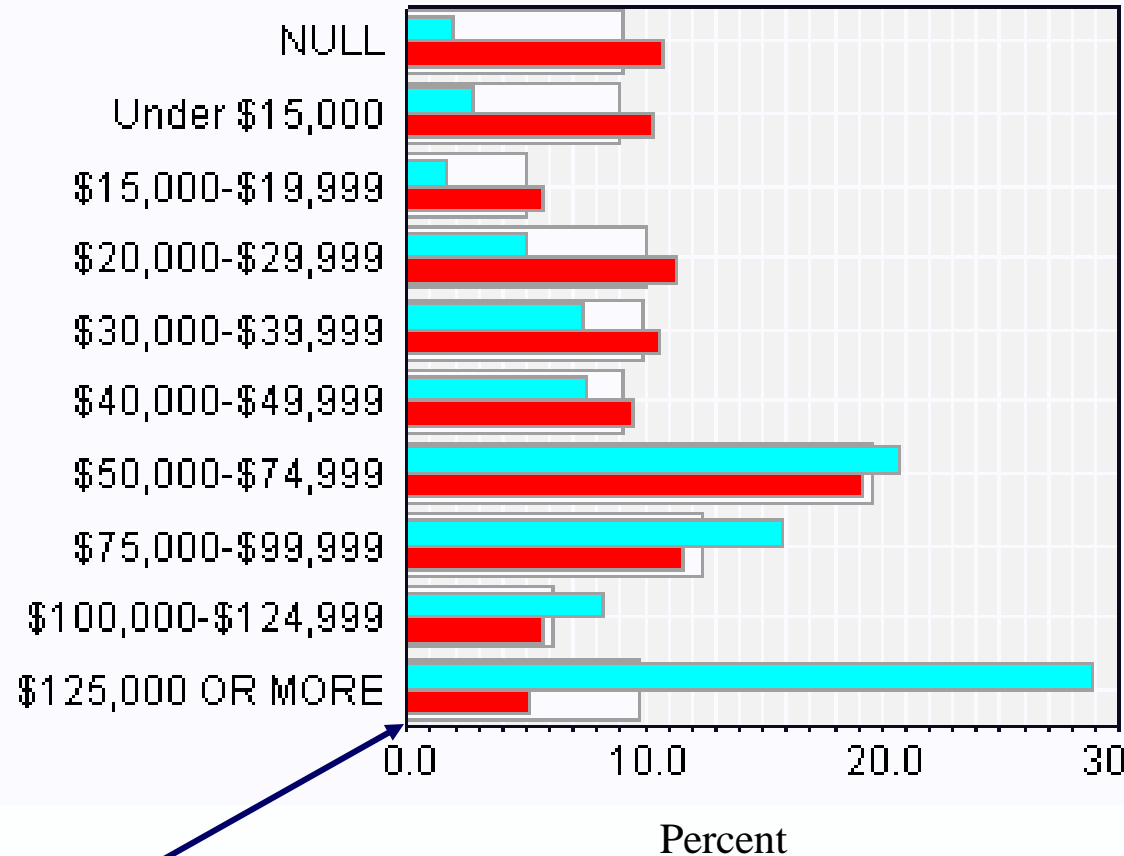


**Note highest bracket (30% vs. 5% for US)**

# Product Affinities

- **Which products sell well together**

- **Together these form a model which can be used as a *Product Recommender***

**Note: this does not ship by default as an AC report, but as an example investigation**

# Product Affinities at MEC

| Product | | Association | | Lift | Confidence | Website Recommended Products | | |
|---|---|---|---|---|---|---|---|---|
| Orbit Sleeping Pad | | Orbit Stuff Sack | | 222 | 37% | Cygnet Sleeping Bag | Aladdin 2 Backpack | Primus Stove |
| Bambini Tights Children's | | Bambini Crewneck Sweater Children's | | 195 | 52% | Yeti Crew Neck Pullover Children's | | Beneficial T's Organic Long Sleeve T-Shirt Kids' |
| Silk Crew Women's | | Silk Long Johns Women's | | 304 | 73% | Micro Check Vee Sweater | Volant Pants | Composite Jacket |
| Cascade Entrant Overmitts | | Polartec 300 Double Mitts | | 51 | 48% | Volant Pants | Windstopper Alpine Hat | Tremblant 575 Vest Women's |

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- Minimum support for the associations is 80 customers
- Confidence: 37% of people who purchased Orbit Sleeping Pad also purchased Orbit Stuff Sack
- Lift: People who purchased Orbit Sleeping Pad were 222 times more likely to purchase the Orbit Stuff Sack compared to the general population

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# Product Affinities at Debenhams

| Product | Association | Lift | Confidence | Website Recommended Products |
|---|---|---|---|---|
| **Fully Reversible Mats** | **Egyptian Cotton Towels** | 456 | 41% | J Jasper Towels |
| **White Cotton T-Shirt Bra** | **Plunge T-Shirt Bra** | 246 | 25% | Black embroidered underwired bra |

**Confidence 1.4%**

**Confidence 1%**

- Minimum support for the associations is 50 customers

- Confidence: 41% of people who purchased Fully Reversible Mats also purchased Egyptian Cotton Towels

- Lift: People who purchased Fully Reversible Mats were 456 times more likely to purchase the Egyptian Cotton Towels compared to the general population

# Identifying Top Products - Debenhams

## It's hard to update top products manually

### Website recommended products for Homeware - Bedroom

**CUSTOMER**FAVOURITES

**DEBENHAMS**

**Bombay Quilt Cover**

Units: 10.1X
Revenue: 7.3Y

ROCHA.JOHN ROCHA

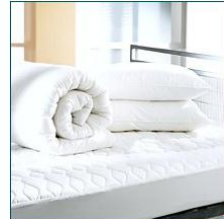**Border Quilt Cover**

Units: 5X
Revenue: 6.4Y

J JASPER CONRAN HOME

**Quilt Cover** Oxford edge border

Units: X
Revenue: Y

**DEBENHAMS**

**Polycotton Mattress Cover Set**

Units: 1.7X
Revenue: 0.8Y

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### Top Homeware – Bedroom products for the last year

**DEBENHAMS**

**Bombay Quilt Cover**

✔ listed

Units: 10.1X
Revenue: 7.3Y

**DEBENHAMS**

**Elephant Parade Quilt Cover**

✗ not listed

Units: 10X
Revenue: 8.2Y

**DEBENHAMS**

**Opulent Check Quilt Cover**

✗ not listed

Units: 9.7X
Revenue: 6.1Y

**DEBENHAMS**

**Elephant Parade Throw**

✗ not listed

Units: 8.7X
Revenue: 2.6Y

# Campaign Analysis - Debenhams

**BLUE MARTINI**

- **Analyze the effectiveness of campaigns**

> *Recommendation:*
> **Send targeted emails**

| Campaign | Emails Sent | Opens | Click-throughs | Orders |
|---|---|---|---|---|
| **Campaign 1** | **100%** (4.8p/email) | **22%** (22.3p/email) | **9.3%** (52p/email) | **0.07%** |
| **Campaign 2** | **100%** (0.5p/email) | **11%** (4.8p/email) | **3%** (17.9p/email) | **0.01%** |
| **Campaign 3** | **100%** (0.8p/email) | **22%** (3.6p/email) | **5.3%** (15.3p/email) | **0.01%** |

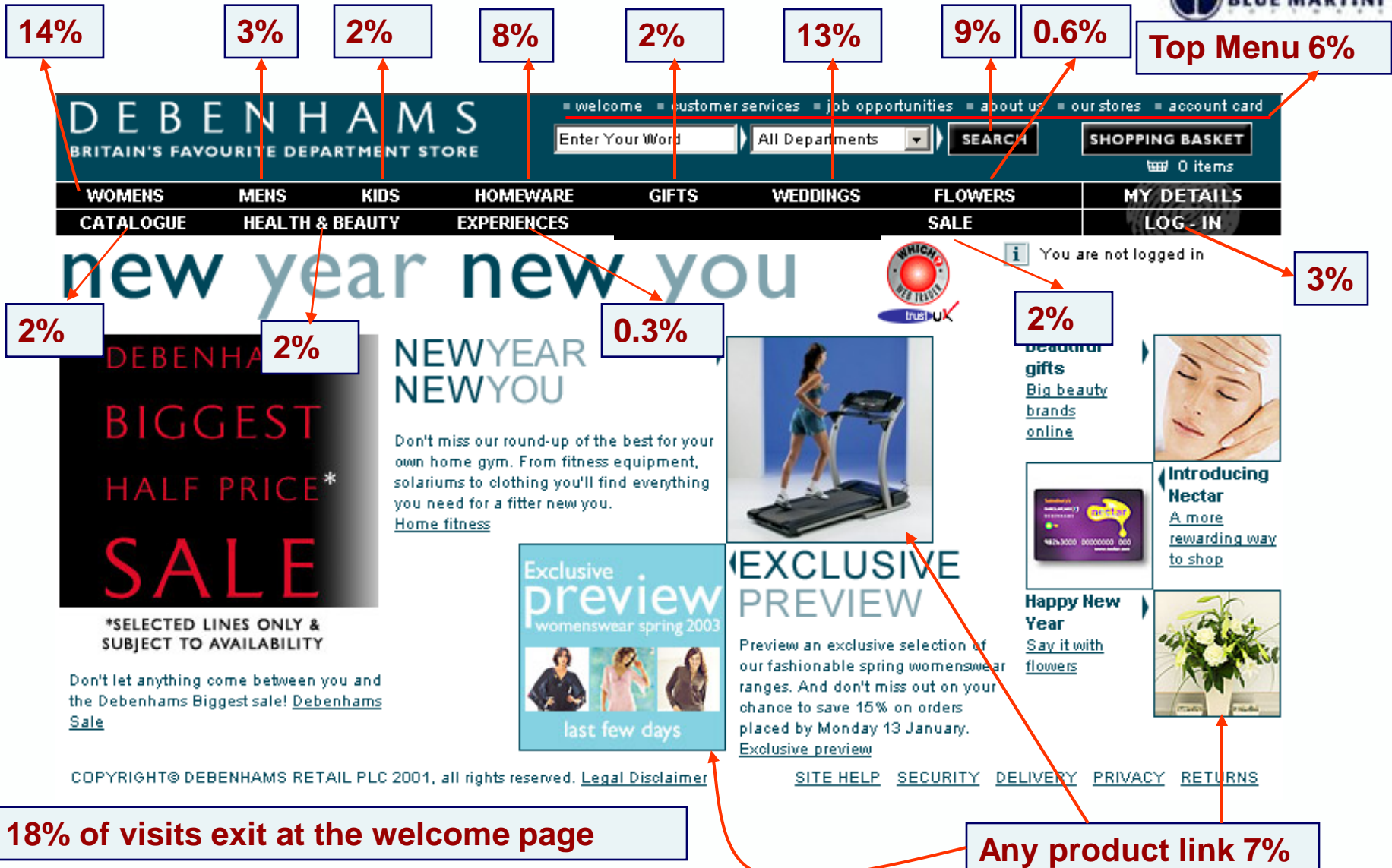> *Click-through rates are high - good*

# Campaign and Ad "Tricks"

- **To track clickthrough from external ads**
  - **Use jump pages (e.g., www.foo.com/ad2.jsp) or**
  - **Add unused extra parameter to URL**
    - **http://www.bluemartini.com/bi&biwebinar=3**
    - **The biwebinar=3 will be ignored, but you can then see how many sessions have biwebinar=3 in the first request**

- **Examples**
  - **Use with Google adwords**
  - **Use with rented lists, which you can't mail using Blue Martini's campaign management / RM**

# Page Effectiveness Report
## Percentage of visits clicking on different links



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14% | 3% | 2% | 8% | 2% | 13% | 9% | 0.6% | **Top Menu 6%**

**D E B E N H A M S**
BRITAIN'S FAVOURITE DEPARTMENT STORE

welcome | customer services | job opportunities | about us | our stores | account card

Enter Your Word | All Departments | SEARCH | SHOPPING BASKET | 0 items

WOMENS | MENS | KIDS | HOMEWARE | GIFTS | WEDDINGS | FLOWERS | MY DETAILS
CATALOGUE | HEALTH & BEAUTY | EXPERIENCES | SALE | LOG - IN

WHICH? WEB TRADER trust UK

i You are not logged in

3%

2% | 2% | 0.3% | 2%

new year new you

DEBENHA

BIGGEST

HALF PRICE*

SALE

*SELECTED LINES ONLY &
SUBJECT TO AVAILABILITY

Don't let anything come between you and
the Debenhams Biggest sale! Debenhams
Sale

NEWYEAR
NEWYOU

Don't miss our round-up of the best for your
own home gym. From fitness equipment,
solariums to clothing you'll find everything
you need for a fitter new you.
Home fitness

Exclusive
preview
womenswear spring 2003

last few days

EXCLUSIVE
PREVIEW

Preview an exclusive selection of
our fashionable spring womenswear
ranges. And don't miss out on your
chance to save 15% on orders
placed by Monday 13 January.
Exclusive preview

beautiful
gifts
Big beauty
brands
online

Introducing
Nectar
A more
rewarding way
to shop

Happy New
Year
Say it with
flowers

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SITE HELP | SECURITY | DELIVERY | PRIVACY | RETURNS

**18% of visits exit at the welcome page**

**Any product link 7%**

# Top Links followed from the Welcome Page:
## Revenue per session associated with visits



**5X**

**Top Menu 0.2X**

**1.4X** **2.3X** **X** **2.3X** **1.3X** **4.2X** **1.4X**

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**10X**

**10.2X** **1.2X** **1.7X** **3.3X**

**Note how effective physical catalog item #s are**

**Product Links 2.1X**

# "Harder" Insights

- **Blue Martini collects a lot of data for which there are no out-of-the-box reports yet**

- **Some will be in future releases**

- **Some need to be written depending on your attributes, hierarchy, etc**

- **Some answer specific questions you have**

- **BMAS has developed many such reports**

# Top Searches On Search Engines / Internet Portals

**BLUE MARTINI**

- **Which keywords do people type on popular search engines/internet portals to get to our site?**

- **The 'Referrer' recorded as part of the Blue Martini clickstream data contains these keywords**

- **For example**

  - Google Search:
    http://www.google.com/search?hl=en&ie=ISO-8859-1&**q=jasper+conran** &btnG=Google+Search

  - AOL Search:
    http://aolsearch.aol.co.uk/web.adp?query=department%20stores%20uk

- **Extract the keywords, substitute HTML escape characters with their ASCII equivalents (such as 'space' for '%20')**

- **Determine the top searched keywords**

# Top Searched Keywords (Debenhams)

**BLUE MARTINI**

- **Variations of Debenhams are by far the most frequent**
  - **DEBENHAMS**
  - **debenhams.com**
  - **debenhams;direct**
  - **debenhams department store**

*Recommendation*

**Monitor top searched keywords to identify interesting trends**

- **Other interesting search keywords**

| Google | MSN Search | AOL Search |
|---|---|---|
| Burberry | Faith shoes | burberry |
| Calvin Klein Crave | Nike | carvela |
| Cravela / Cravela Shoes | Wedding invitations | Mother of the bride |
| Jane Packer / Suede Boots | Luggage | Skiwear |
| | Swimwear | Jane Packer |
| | | BRIDESMAIDS |

# Site Usability

- **Form errors logged on 5.0 and later**
  - **Any form that is filled and has an error caught by the Blue Martini architecture generates a Form Error event**
  - **MINE_EVENT table in the DSS database has these**
  - **BMAS has written initial reports to analyze typical form errors and help website designers improve the form design**
  - **For example, on MEC there were thousands of errors on the member application page and address change page**
    - **Many errors for fields that cannot be empty**
    - **Many mismatches between postal code and region**

# Usability – Form Errors



This was the Bluefly home page

Looking at form errors, we saw thousands of errors every day on this page

Any guesses?

Approved by Bluefly

# Improved Home Page



**This is the new Bluefly home page**

- **Search box added**

- **E-mail box clearly marked as email**

Approved by Bluefly

# Building The Customer Signature

- **Building a customer signature is a significant effort, but well worth the effort**

- **A signature summarizes customer or visitor behavior across hundreds of attributes, many which are specific to the site**

- **Once a signature is built, it can be used to answer many questions.**

- **The mining algorithms will pick the most important attributes for each question**

- **Example attributes computed:**

    - **Total Visits and Sales**

    - **Revenue by Product Family**

    - **Revenue by Month**

    - **Customer State and Country**

    - **Recency, Frequency, Monetary**

    - **Latitude/Longitude from the Customer's Postal Code**
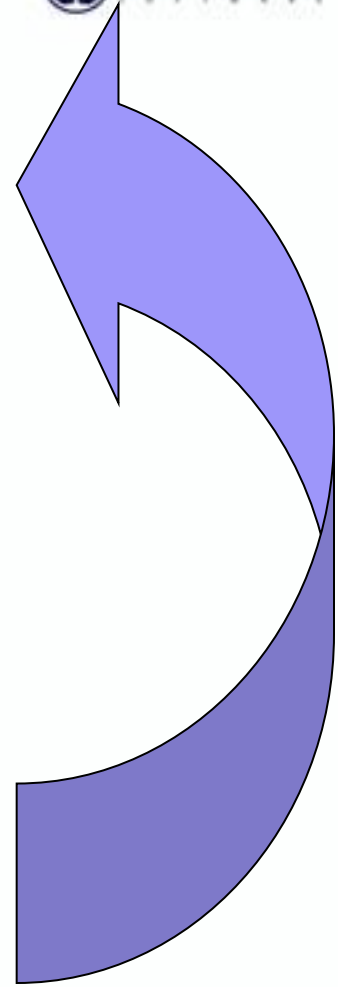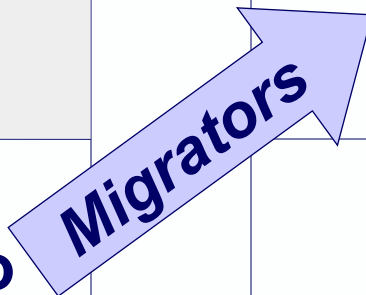
# Migration Study - MEC

- **Customers who migrated from low spenders in one 6 month period to high spenders in the following 6 month period**

**Oct 2001 – Mar 2002**

| Spent over $200 |
| --- |
| Spent $1 to $200 |

**Apr 2002 – Sep 2002**

| Spent over $200 (5.5%) |
| --- |
| Spent under $200 (94.5%) |

*Migrators*

# Key Characteristics of *Migrators* at MEC

- **During October 2001 – March 2002 (Initial 6 months)**

  - **Purchased at least $70 of merchandise**

  - **Purchased at least twice**

  - **Largest single order was at least $40**

  - **Used free shipping, not express shipping**

  - **Live over 60 aerial kilometers from an MEC retail store**

  - **Bought from these product families, such as socks, t-shirts, and accessories**

  - **Customers who purchased shoulder bags and child carries were LESS LIKELY to migrate**

> *Recommendation:*
> **Score light spending customers based on their likelihood of migrating and market to high scorers.**

# RFM Analysis

- **RFM – Recency, Frequency, Monetary (described in appendix). Insights from Debenhams**

  - **Anonymous purchasers have lower average order amount**

  - **Customers who have opted out [of e-mail] tend to have higher average order amount**

  - **People in the age range 30-40 and 40-50 spend more on average**

# Customer Locations Relative to Retail Stores

**Heavy purchasing areas away from retail stores can suggest new retail store locations**

**No stores in several hot areas: MEC is building a store in Montreal right now.**

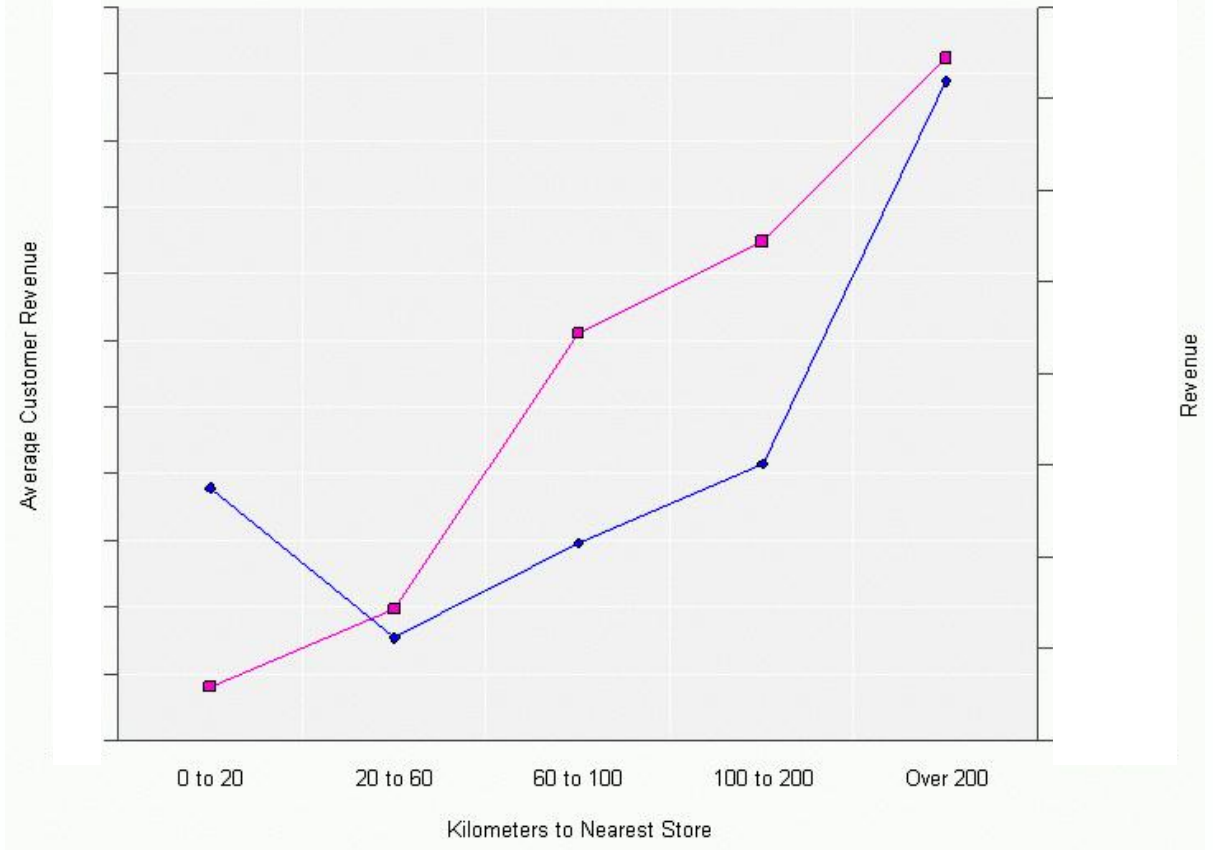**Map of Canada with store locations.**
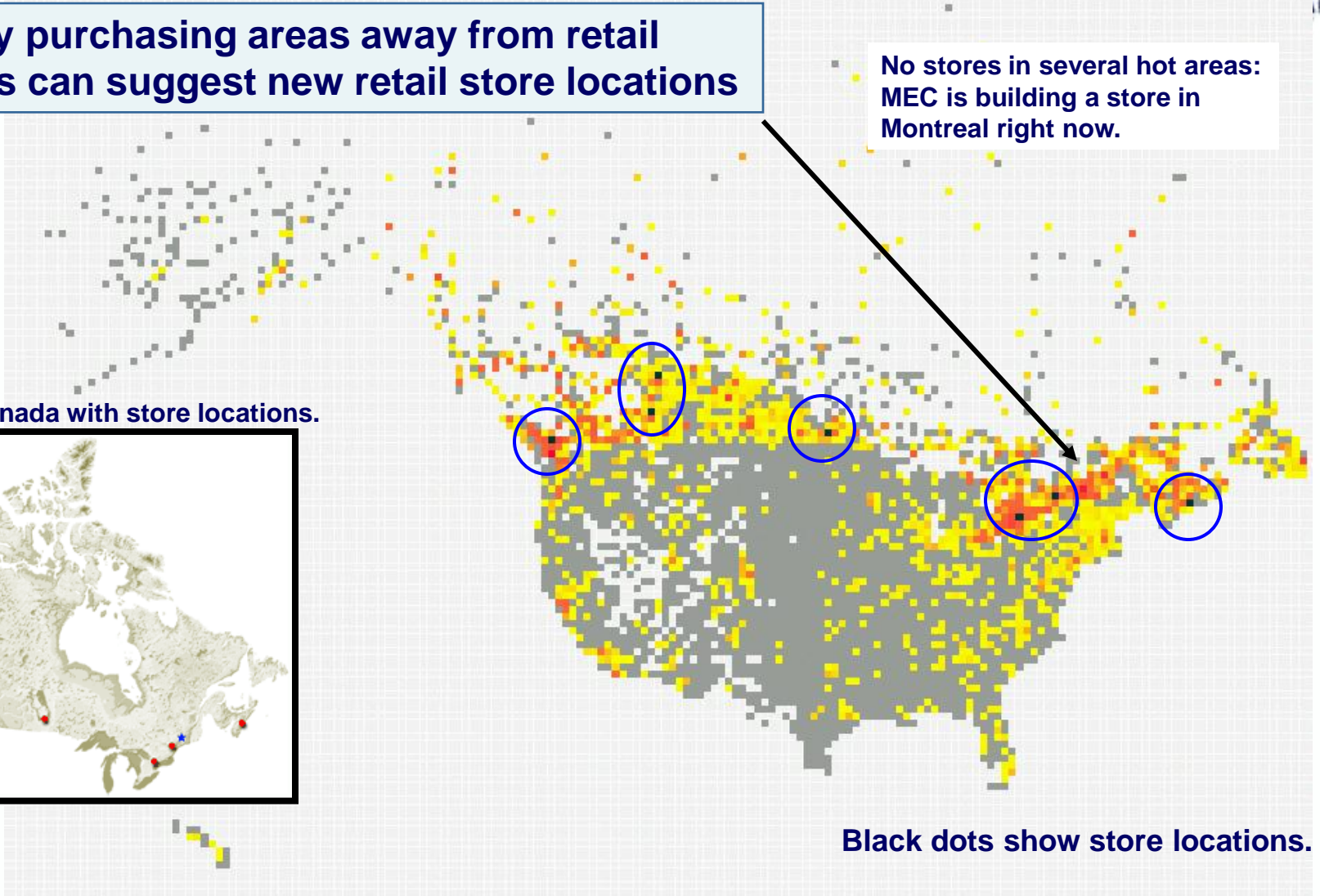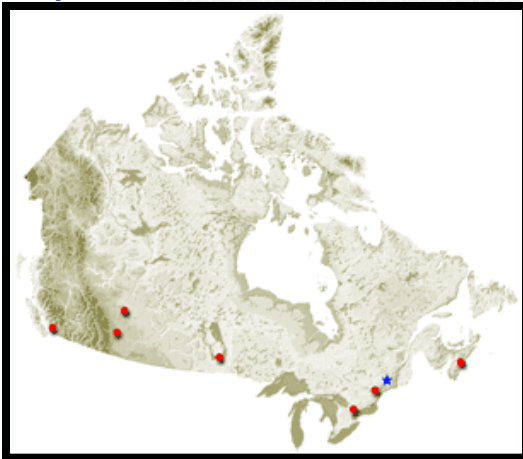
**Black dots show store locations.**

# Distance From Nearest Store (MEC)

- **People farther away from retail stores**

  – **spend more on average**

  – **Account for most of the revenues**
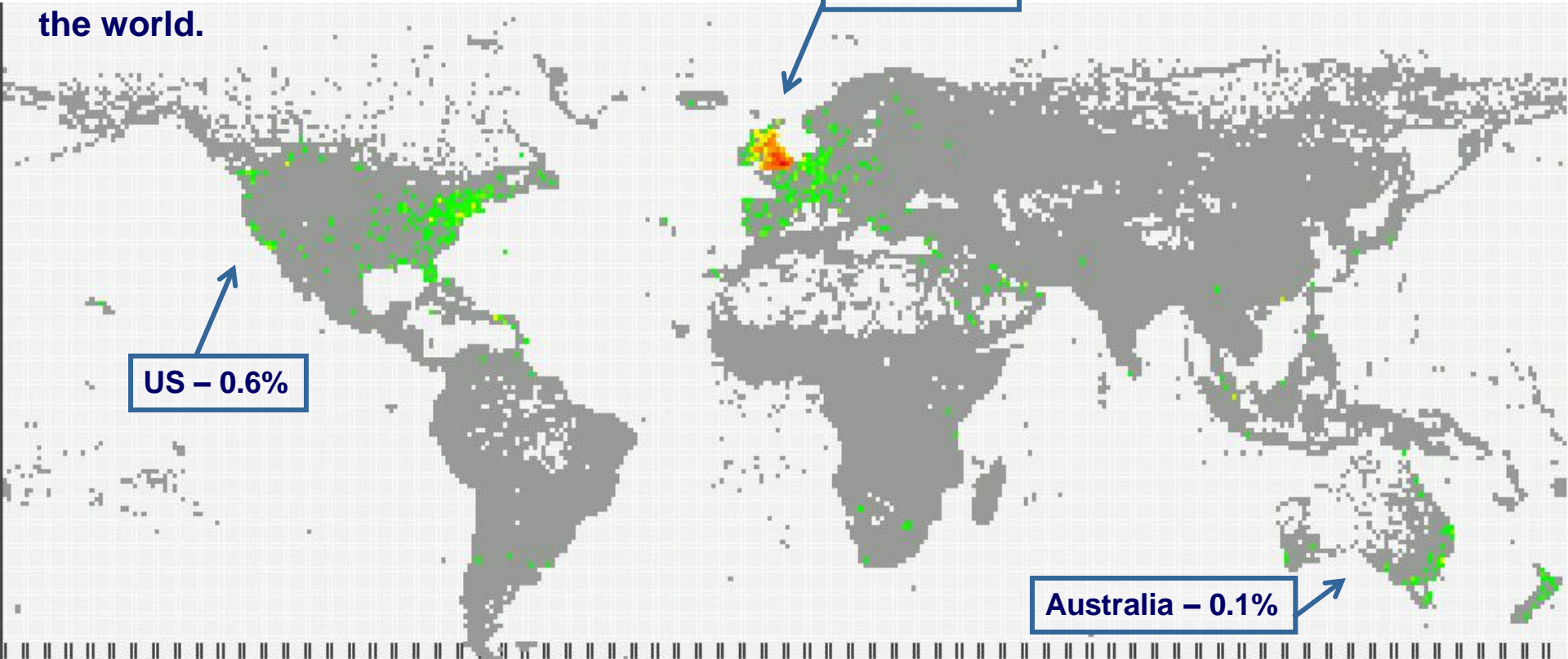
# World Wide Revenue Detail

**Although Debenhams online site only ships in the UK, we see some revenue from the rest of the world.**

BLUE MARTINI

UK – 98.8%

US – 0.6%

Australia – 0.1%

Low        Medium                                                                    High

**NOTE: About 50% of the non-UK orders are wedding list purchases**

# Other Results at MEC (See Appendix)

BLUE MARTINI

- **Free shipping changed to flat-fee (C$6 flat charge)**

  – **Orders - down 9.5%**

  – **Total sales - up 6.5%**

- **Gear Swap (buy/sell used gear)**

  – **Visit-to-Purchase very low: 0.34% vs. 2.1% for non gear-swap**

  – **However, these visitors converted to purchasing customers (over multiple visits) at a rate 62% higher than visitors who never visited gear swap!**

- **Visits where an FYI page (For-Your-Information) page was viewed had a Visit-to-Purchase conversion of 7.1%**

# Other Results at Debenhams (See Appendix)

- **People who got the timeout page for a high percentage of their sessions are less likely to migrate (to heavy spenders)**

- **Revenue due to wedding list item purchases is clearly affected by summer weather**
    - **Weddings are more common in the summer in the UK**
    - **In June/July, 65% of revenues were generated through the wedding list**

- **A page-tagging-based service provider was used, but was about 30% inaccurate due to people hitting links before page download was complete**

# MEC Actions Resulting From Analysis

- **Done**

  - **Implemented links to on-line shop from Gear Swap (appendix has before and after pictures)**

  - **Implemented gift certificates and increased their visibility on the site (#1 failed search)**

  - **Used the content page view information to inform our IA redesign**

- **Planned**

  - **Refine internal measures by removing bot, internal and production host visits**

  - **Design and implement controlled experiments to help guide our content planning process in particular**

  - **Product Recommender (as budget permits)**

# Debenhams Actions

- **Note: Debenhams analysis delivered recently, so there was less time to take action**

- **Done**
  - **Increased session timeout**

- **Planned**
  - **Some failed searches were for products available at stores but not online. Will import all brands and offer a store locator for brands not available online**

  - **Looking to enable 'save basket' functionality**

# BIG ROI Project

- **The Business Intelligence Group (BIG) Guarantees Return On Investment in 6 months or You Don't Pay**

- **Process**
  - **Client provides us with a backup of databases**
  - **BI group analyzes data and makes recommendations**
  - **BI group provides the JSP changes using a test/control group methodology**
    - **Half the people will see the "old" site (control group)**
    - **Half the people will see our recommendations (test groups)**
  - **Client approves the changes, QAs, deploys**
  - **Client provides us with a second backup for assessment**
  - **Client pays 20% of the revenue delta between the test and control groups, extrapolated to the next 6 months, assuming it would be implemented for everyone**

# The ROI

- **Assuming your profit margin is about 20%, this project has a 6-month ROI**

- **With a test/control group methodology, the delta revenue is clear:**
  - **Seasons, ads, campaigns will affect both the test group and the control group in the same way**
  - **Once the experiment is done, you can end the experiment and stop the control group (old site)**

- **Example:**
  - **Measurement time: 2 weeks**
  - **Revenue for control group is $200,000**
  - **Revenue for test group is $205,000**
  - **Expected revenue if implemented for everyone: $410,000**
  - **You pay: 26 weeks / 2 weeks * ($410,000-$400,000) * 20% =  $26,000**

# Qualifications

- **Must run 4.1.4 or later, preferably 5.0 or 5.5**

- **Must have clickstream collection on at 100%**

- **Must commit to timeline**
  - **Must be able to generate backup of DBs and send to Blue Martini**
  - **Commit to implement changes in 3 weeks from the time code is provided by BMAS**
    - **We will not recommend significant site changes**
    - **We will provide the code to implement changes**

# Examples and Commitments

- **Potential recommendations:**
  - **Improvements to usability**
  - **Improvements to search**
  - **Product recommender for cross sells, top products**
  - **Identification and reduction of abandonment**

- **Commitments by Blue Martini**
  - **We will fix code that the BI group provided for this agreement, free of charge, to help deployment**
  - **This SOW (Statement Of Work) will be governed by your existing contract with Blue Martini. (Easy contractual agreement.)**

# Additional Resources

- **Business Intelligence - Getting Started Guide on http://developer.bluemartini.com**

- **Data Mining Tutorial on http://www.bluemartini.com/bi**

- **MEC case study at http://www.bluemartini.com/bi**

- **Debenhams case study at http://www.bluemartini.com/bi**

- **Appendix has more examples**

**For questions and a copy of these slides, send e-mail to bi-sales@bluemartini.com**

# Q&A

- **Questions and Answers**

- **Type your questions into the Q&A (upper-left)**

# Appendix

- **Here are additional slides with some interesting insights**

# RFM Analysis (Debenhams)

- **Recency, Frequency, and Monetary calculations are used extensively in retail for customer segmentation**

- **Implemented the Arthur-Hughes RFM Cube**
  - **R, F, and M scores are binned into 5 equal sized bins**
  - **Each dimension is labeled 1 (best) – 5 (worst)**

- **Interactive visualization using Filter Charts**

- **Look at charts instead of cell-tables**

# Complete RFM



**RFM Heat Map - Monetary Average**

**RFM Heatmap - Number of Customers**

**Majority of customers have purchased once**

**More frequent customers have higher average order amount**

## Recommendation

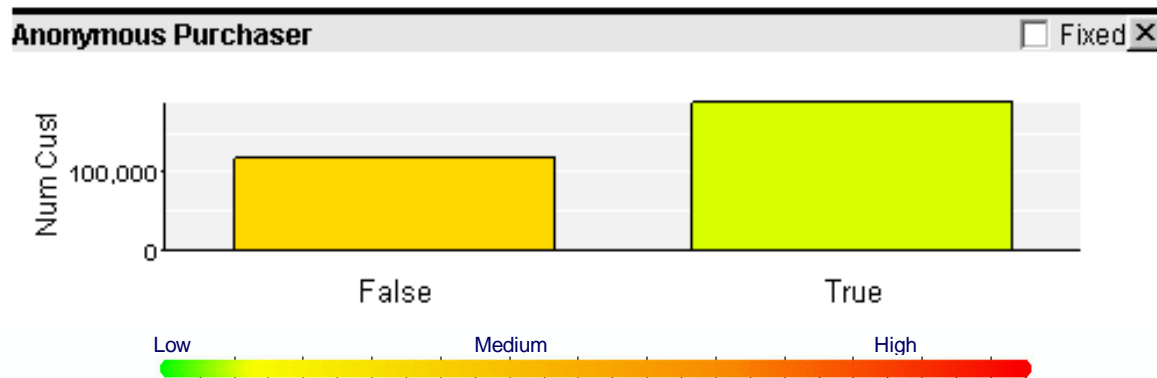**Targeted marketing campaigns to convert people to repeat purchasers, assuming they did not opt-out of e-mails**

# Interacting with the RFM visualization

**BLUE MARTINI**

- ● **Explore sub-segments with filter charts**



Average Order Amount mapped to color
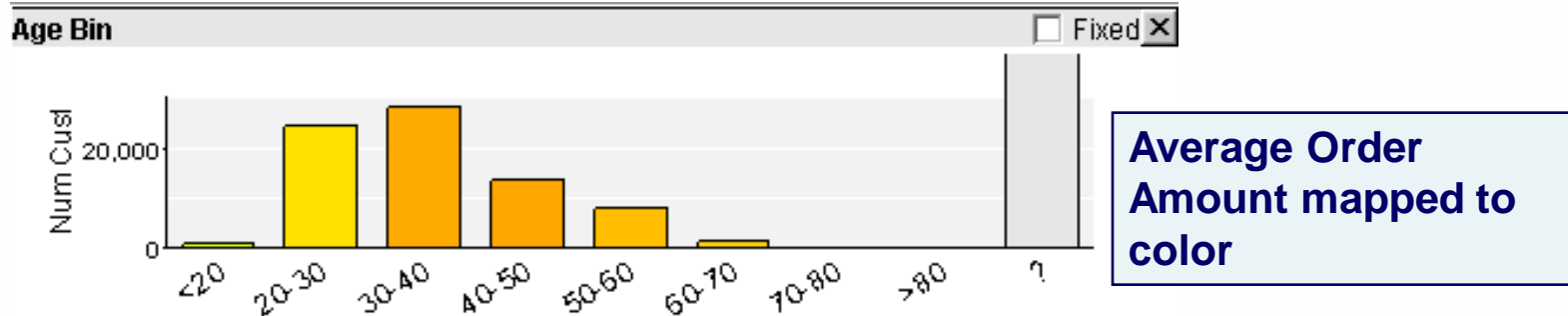
- ● **People in the age range 30-40 and 40-50 spend more on average**
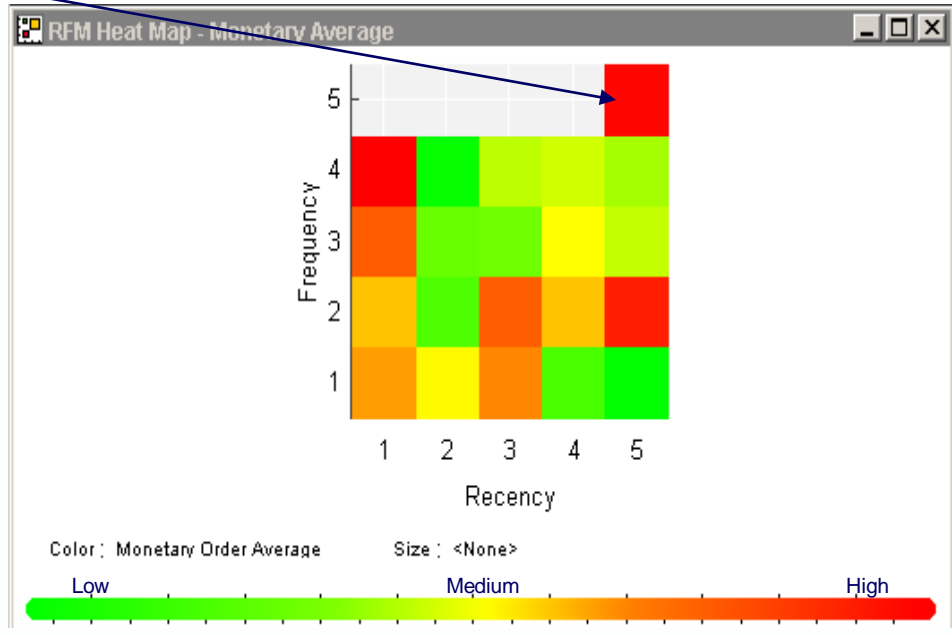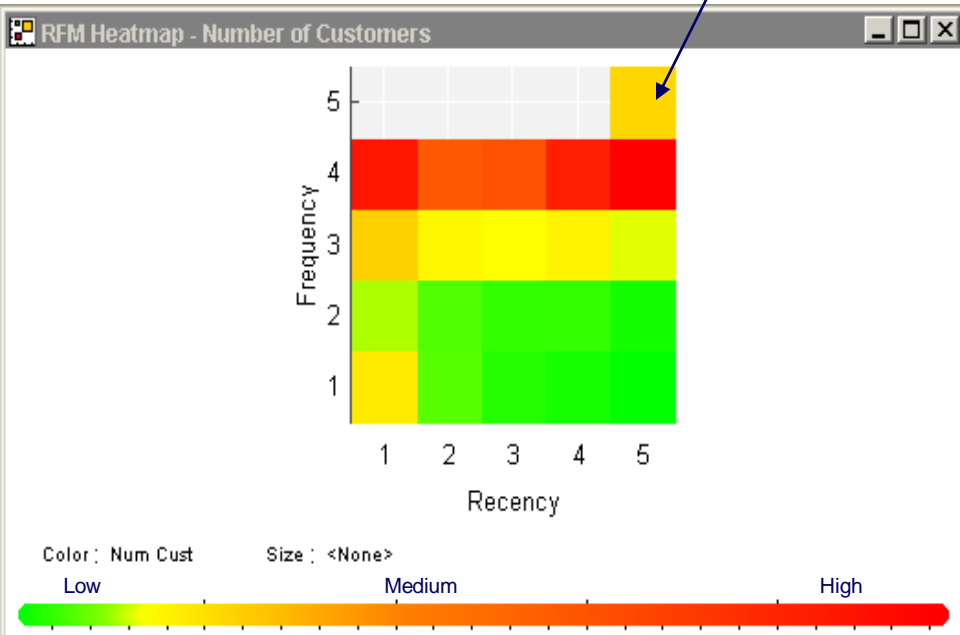


- ● **Anonymous purchasers have lower average order amount**

# RFM for Debenhams Card Owners

**Debenhams card owners
Large group (> 1000)
High average order amount
Purchased once (F = 5)
Not purchased recently (R=5)**

*Recommendation*

**Send targeted email
campaign since these are
Debenham's customers.
Try to "awaken" them!**



RFM Heatmap - Number of Customers

Frequency / Recency

Color : Num Cust    Size : <None>
Low    Medium    High



RFM Heat Map - Monetary Average

Frequency / Recency

Color : Monetary Order Average    Size : <None>
Low    Medium    High

# Customers who have Opted Out

- **Customers who have opted out tend to have higher average order amount**
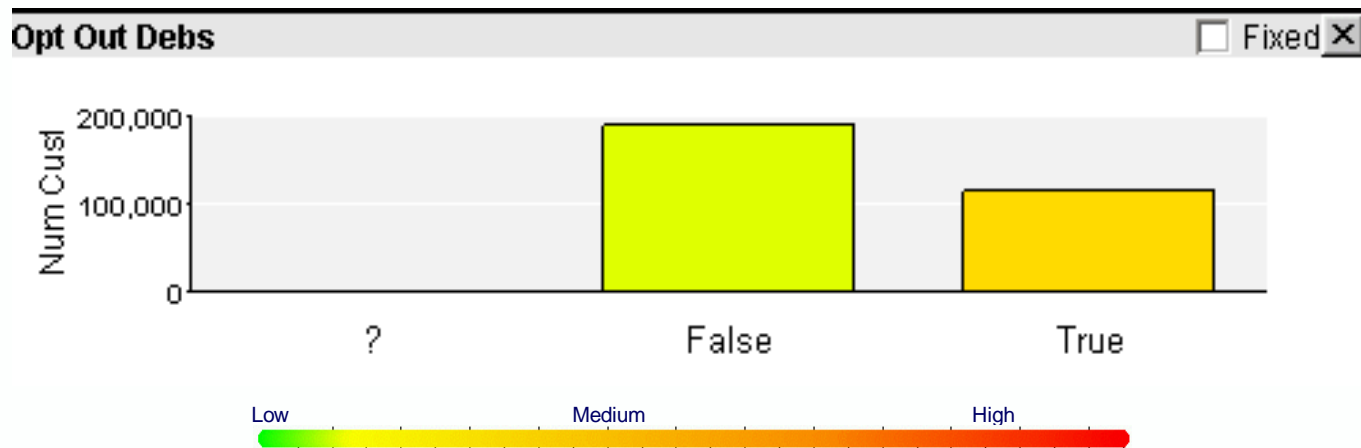


**Recommendation**

**Send targeted emails to prevent email fatigue**

**Recommendation**

**Log changes to opt out settings and track unsubscribes to identify email fatigue**
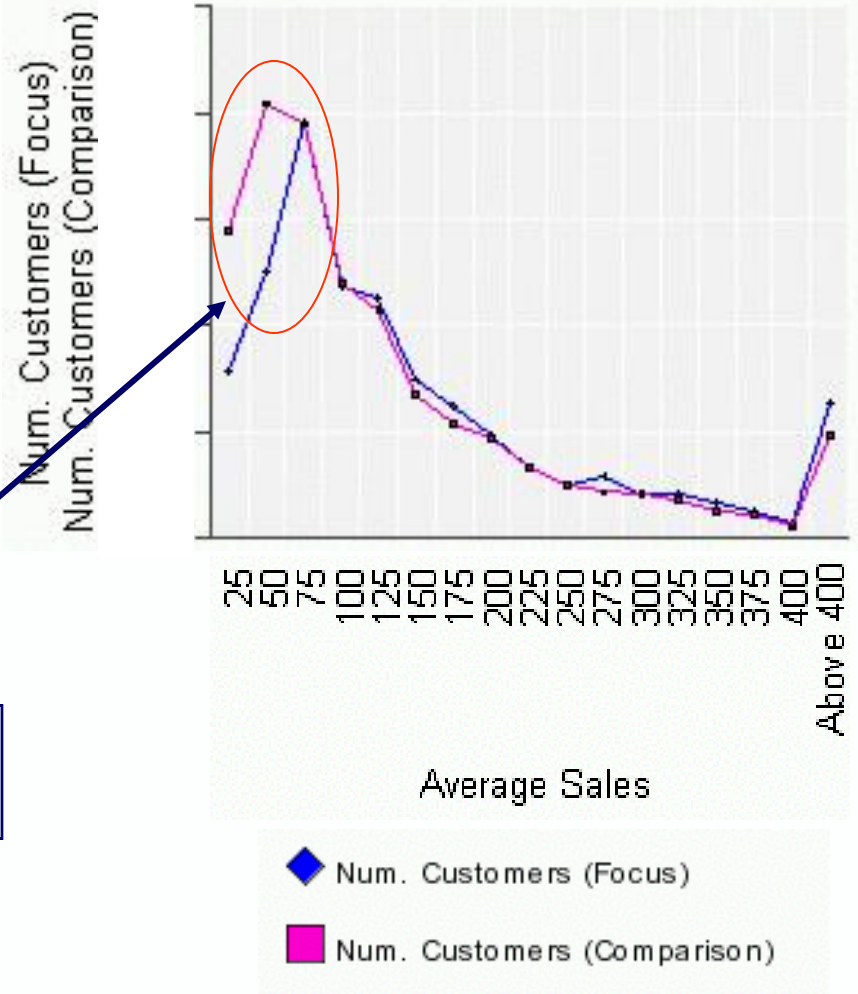
# Free Shipping Offer (MEC)

- **Free shipping stopped on Aug 14, 2002**

- **A flat $6 Canadian Dollars shipping charge introduced**

- **Express shipping at higher charge continues**

- **Observations**

  - **Total sales -** ↑ **up 6.5%**

  - **Revenue (excluding shipping and tax) -** ↑ **up 2.8%**

  - **Orders -** ↓ **down 9.5%**

  - **Average Sales per Order –** ↑ **up 18%**

# Free Shipping Offer (Cont.)

BLUE MARTINI

- **The distribution shows fewer orders from low spenders (probably a good thing)**

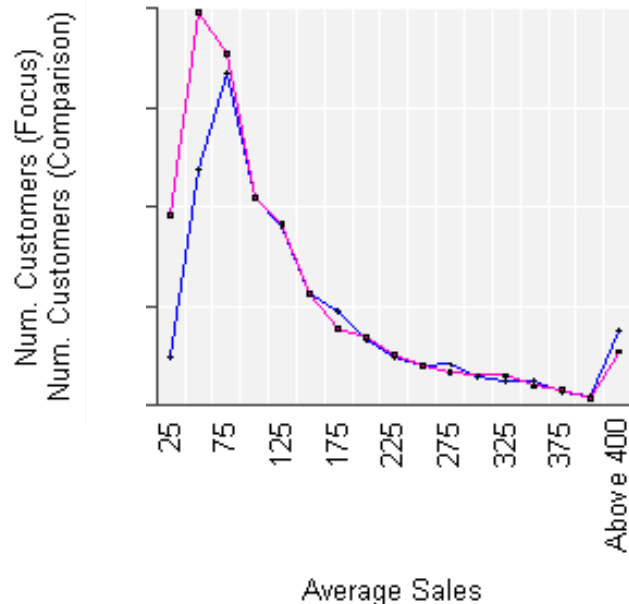- **No impact on rest of buyers**

**Fewer low spenders (<= $50)**

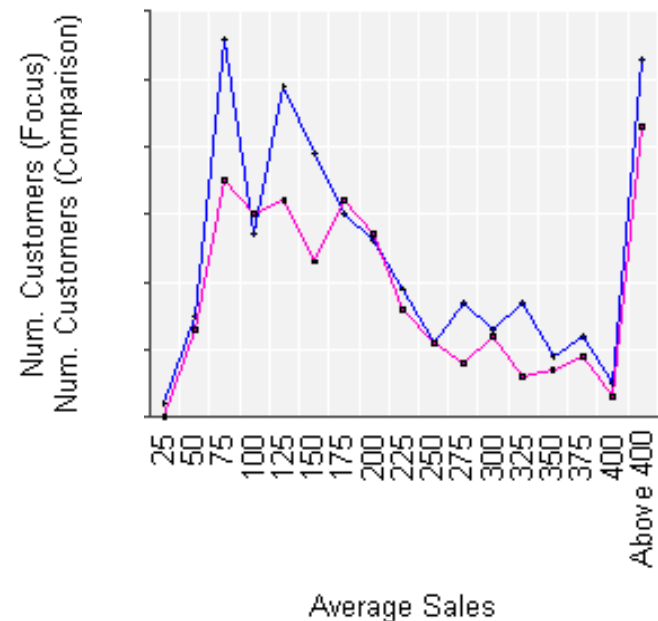# Free Shipping Offer (Cont.)

- **Breakdown of orders by shipping method**

- **More people used express shipping, probably because the delta to ship express wasn't as large (from C$6 instead of from C$0)**

### Free/Standard Shipping



Average Sales

◆ Num. Customers (Focus)

■ Num. Customers (Comparison)

### Express Shipping



Average Sales

◆ Num. Customers (Focus)

■ Num. Customers (Comparison)

# Gear Swap Pages (Cont.)

**Recommendation:**
**Link back to MEC Shopping from Gear Swap**



**Shop MEC Cycling**

# Gear Swap Pages (Cont.)

**MOUNTAIN EQUIPMENT CO-OP**

Search >

Home   Shop   MEC Community   Help   Login

**View Shopping Cart**
0 items in your cart.

MEC Community: Outdoor Gear Swap > Cycling

## Outdoor Gear Swap

Men's Clothing
Women's Clothing
Packs
Tents
Sleeping Bags
Camping Gear (General)
Climbing

**Cycling**

Paddling
Snowsports
Kids
Footwear (General)
Miscellaneous Gear
Travel & Trip Partners

## GEAR SWAP - Cycling

Looking for a used bike to take on your next outdoor adventure? MEC's OutdoorGearSwap.com is the place to buy, sell, and trade used bikes and other cycling gear.

add new posting >

**Hide Details**

229 Items Found Show  [20 ▾]  Items  Pages:  1 2 3 4 5 6 7 8 9 10 11 12 ▶

Showing 1-20 of 229 items:  **New Filter**

**Sort Listing By:**  Title | Region | Type | Price | Date

| Kona Lavadome | BC | For Sale | 550.00 OBO cad |

**Description:** 15" green, great bike, like new. Perfect for petite lady or teen wanting to get into mountain biking. Rock Shocks front suspension, Shimano LX components, new brake pads, 1 1/2 inch travel on front tire.

**Date:** Feb 10
**Name:** Nicky
**Contact Info:**
604-904-9456
**Email:**
toybrink@hotmail.com

| 2002 TIME ATAC CARBON PEDALS | ON | For Sale | 150 cad |

### Shop mec.ca for Cycling Gear

Men's Cycling Clothing
Women's Cycling Clothing
Cycling Footwear
Hydration
Packs, Bags & Panniers
Helmets
Tires, Tubes & Pumps
Bike Parts
Tools
Computers, Lights & Locks
Racks, Fenders & Trailers
Bells, Mirrors & Reflectors
Glasses, Gloves & Masks
Car Racks
Cycling Books

← **Done**
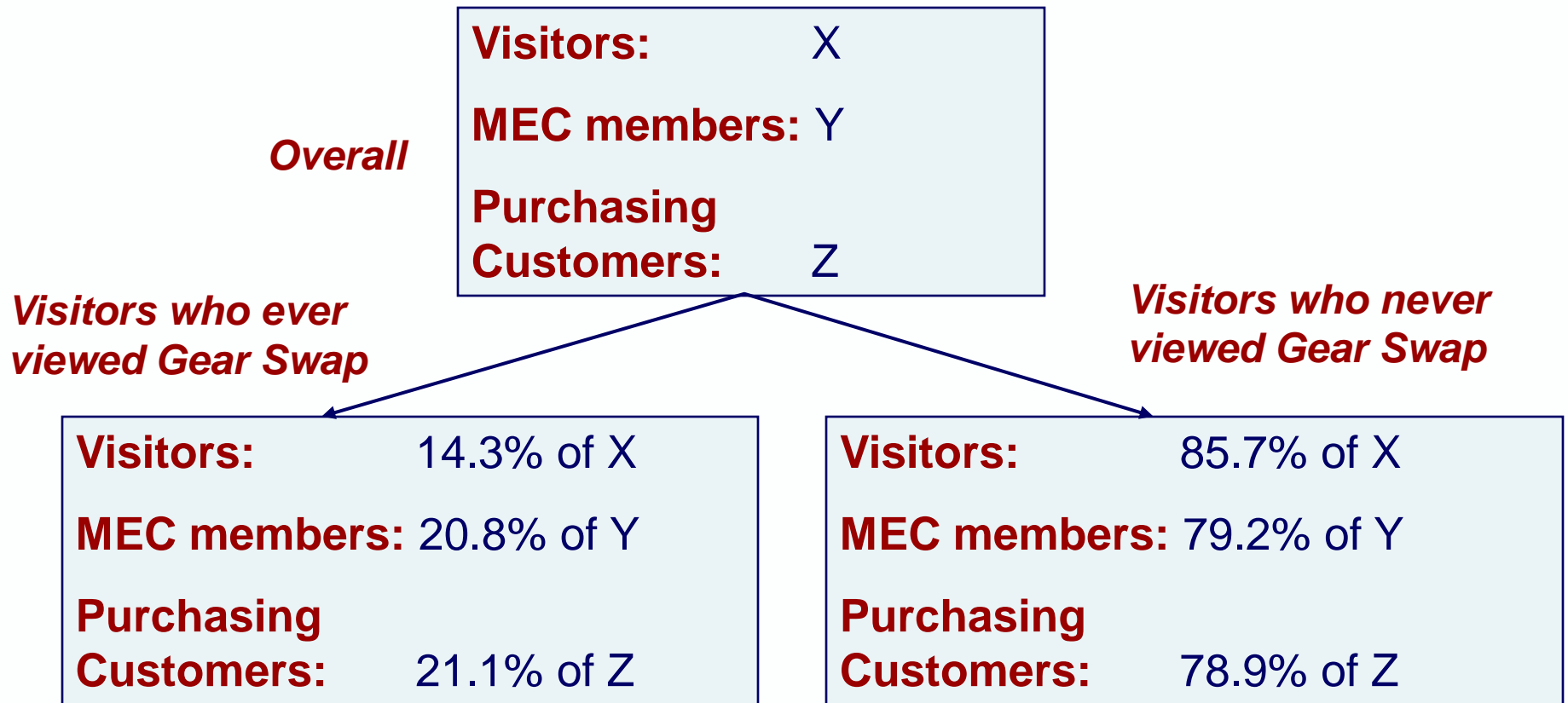
61

# Definitions for Gear Swap Analysis

- **A visitor is defined as someone who is registered (MEC member) or is identified by a cookie**
  - **Note that in the Blue Martini system a registered user will have all of his/her cookies combined into a single visitor ID**

- **Comparing visitors who viewed gear swap with those who did not**
  - **Several non-bot sessions have 1 request that just visited the MEC homepage (Main/home.jsp)**
  - **To get to the Gear Swap section you have to click at least twice**
  - **To make a fair comparison we have excluded all 1 request sessions that just visited the MEC homepage (Main/home.jsp) from the following analysis**

# Distribution of Gear Swap Visitors

- **Visitors who viewed Gear Swap pages had a 62% higher visitor to purchaser conversion ratio as compared to those who did not view Gear Swap**

*Overall*

> **Visitors:** X
>
> **MEC members:** Y
>
> **Purchasing Customers:** Z

*Visitors who ever viewed Gear Swap*

> **Visitors:** 14.3% of X
>
> **MEC members:** 20.8% of Y
>
> **Purchasing Customers:** 21.1% of Z

*Visitors who never viewed Gear Swap*

> **Visitors:** 85.7% of X
>
> **MEC members:** 79.2% of Y
>
> **Purchasing Customers:** 78.9% of Z

# Distribution of Orders (the real ROI)

**BLUE MARTINI**

*Overall*

**Orders:** X

**Average Basket Value:** $Y

*Visitors who ever viewed Gear Swap*

*Visitors who never viewed Gear Swap*

**Orders:** X

**Average Basket Value:** 1.05 * Y

**Orders:** 3,875 (78.3%)

**Average Basket Value:** 0.98*Y

# Distribution of Visits

- **Although, Gear Swap visitors have lower visit-to-purchase conversion than non Gear Swap visitors, they visit more often and their overall visitor-to-purchase conversion is higher**

*Overall*

| Visits: | $X$ |
|---------|-----|

*Visitors who ever viewed Gear Swap*

*Visitors who never viewed Gear Swap*

| Visits: | 24.8% of $X$ |
|---------|--------------|
| **Visit to Purchase Conversion:** | 1.94% |

| Visits: | 75.2% of $X$ |
|---------|--------------|
| **Visit to Purchase Conversion:** | 2.3% |
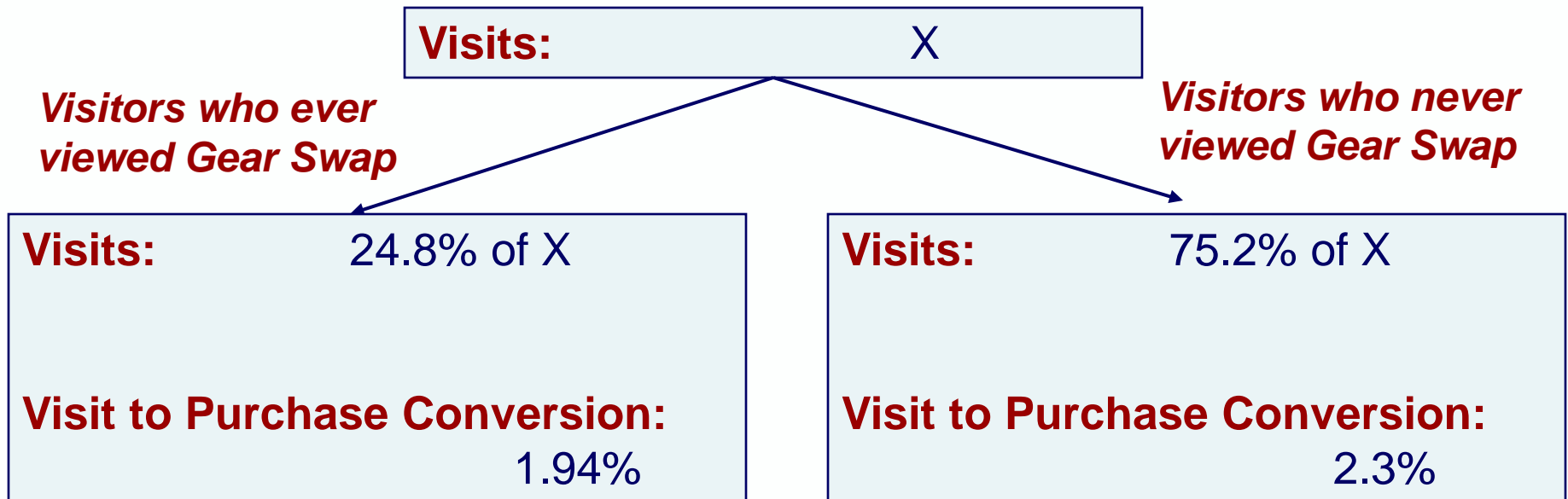
# Effectiveness of FYI Pages

**BLUE MARTINI**

- **People viewing FYIs are more likely to purchase**

**Viewed FYI**

Visits: 6.2% of all

Purchases: 23% of all

Visit-to-Purchase: 7.1%

Avg. Sales per Visit: 6.1X

**Did Not View FYI**

Visits: 93.8% of all

Purchases: 77% of all

Visit-to-Purchase: 1.2%

Avg. Sales per Visit: $X

*Recommendation*:
Controlled experiment to study the effect of FYIs

# FYIs (Cont.)

- **Setting up controlled experiments to study the cause-effect relationship of FYI**

  - **Select a handful of products (say 6) for introducing FYIs**

  - **Randomly show the new FYIs to 50% of the visitors viewing these products and don't show the FYIs to the other 50% of the visitors**

  - **At the end of the trial period (say 2-3 weeks) measure the visit-to-purchase conversion of the two groups**

  - **Determine if there is a significant difference in the visit-to-purchase conversion of the two groups**

# Debenhams Migrators: Timeout

Some attributes are more useful when combined with other attributes

For each visitor we computed the number of sessions which went to the page timeout.jsp

This was binned as shown on the X axis of the chart

The height shows the number of visitors in each bin and color shows the percentage of those visitors who migrated

Just looking at this variable alone it is difficult to tell what the pattern is
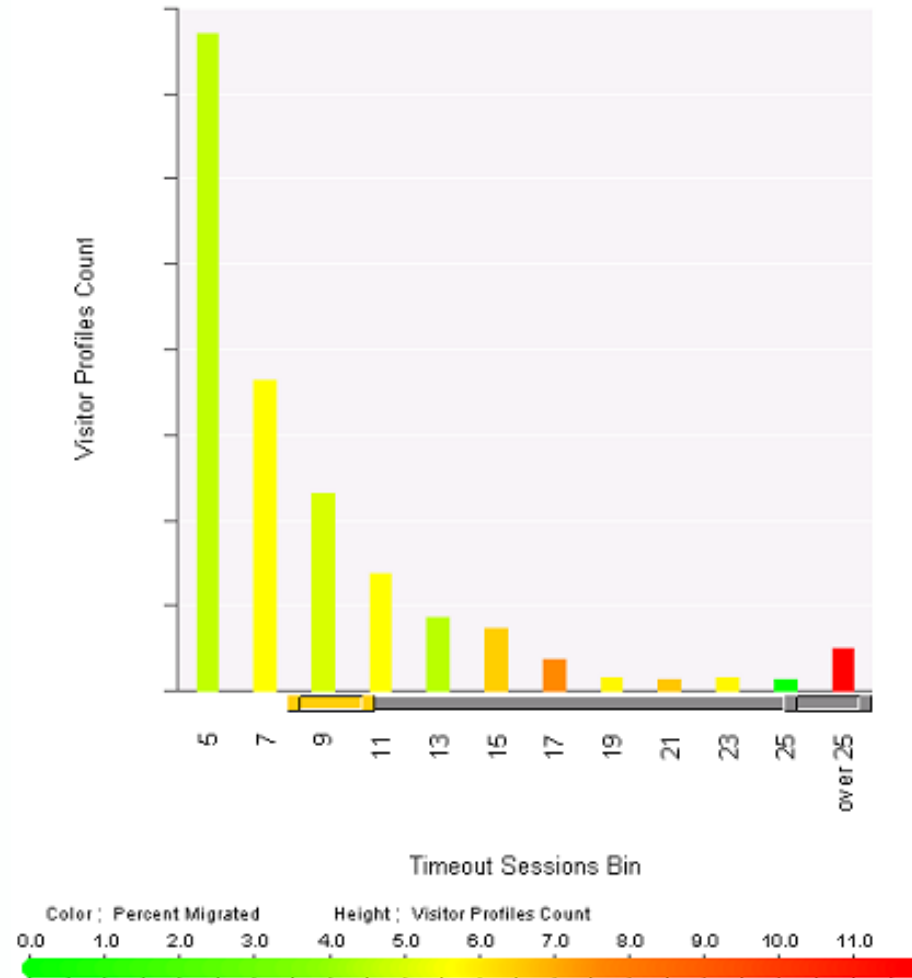
# Migrators: Timeout

**By combining the number of timeout sessions with the total number of sessions for each visitor a pattern emerges**

**In this heatmap the X axis shows the total number of sessions, the Y axis shows the number of timeout sessions, and color shows the percentage of migrators at each pair of values**

**The green along the diagonal shows that people who got the timeout page for a high percentage of their sessions are less likely to migrate**
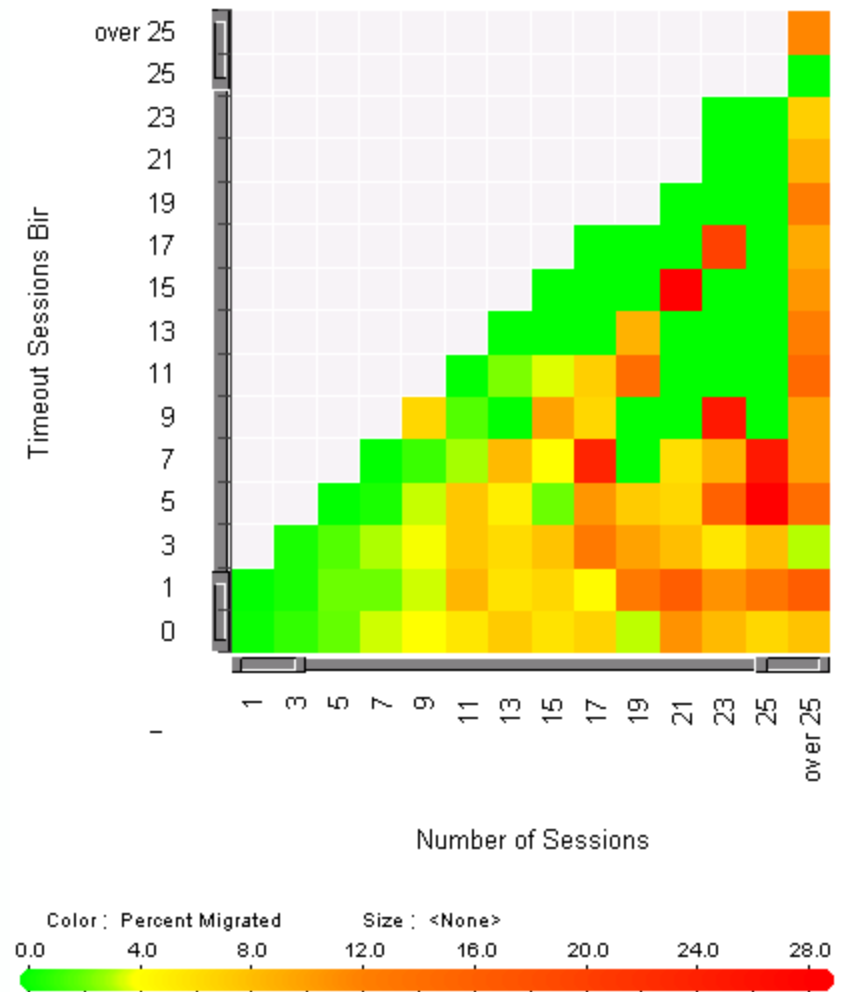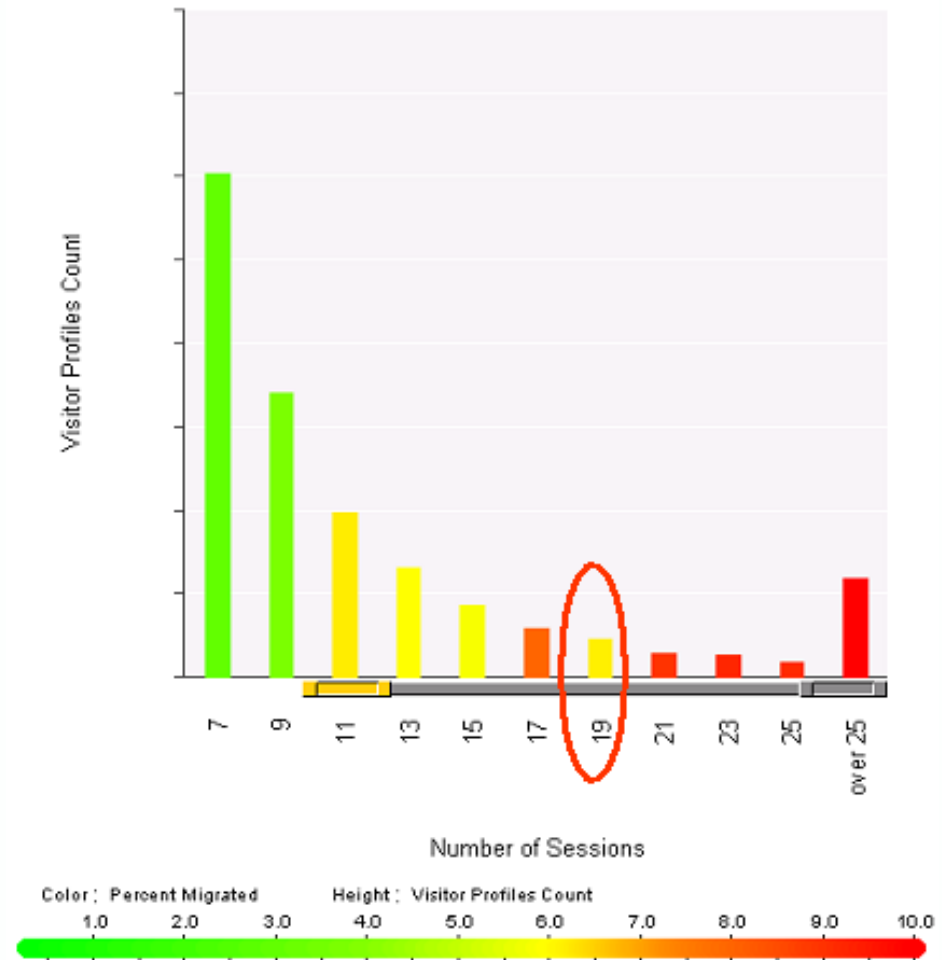
# Migrators: Timeout

The number of sessions a visitor has is a good indicator of whether or not they will migrate

However there are some inconsistencies that are apparent.  For example, why does the percent of visitors who migrate drop at 19 sessions?
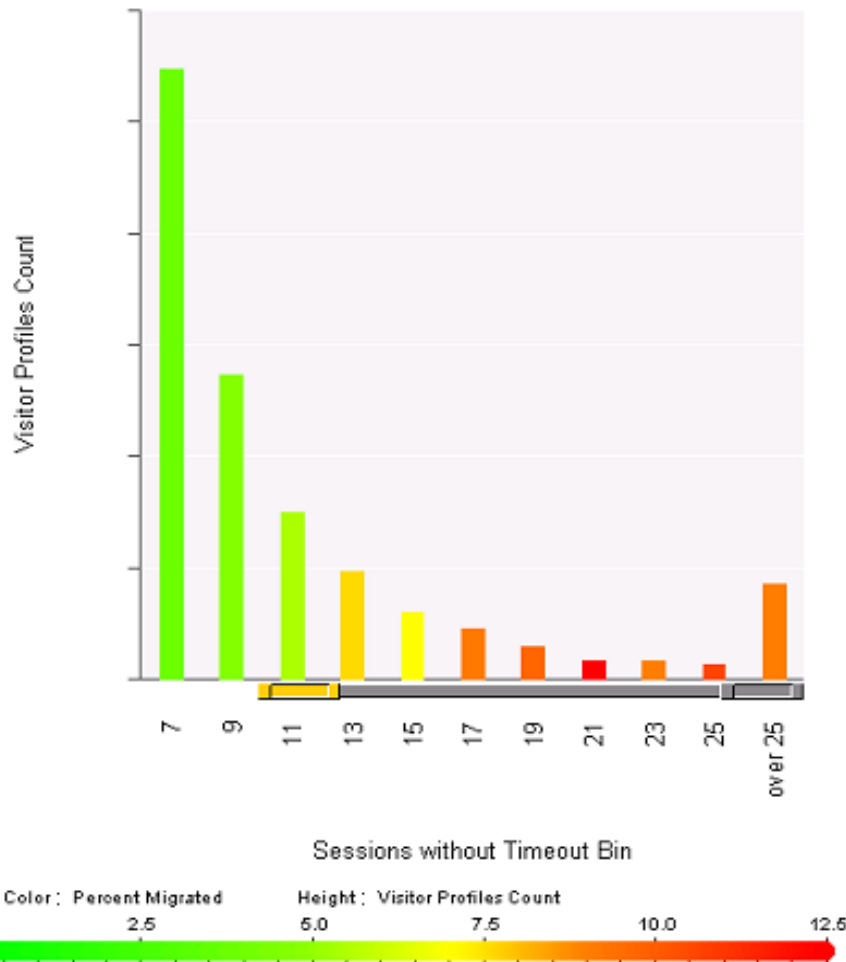
We can construct new attributes based on the relationship we saw between the number of timeouts and the number of sessions

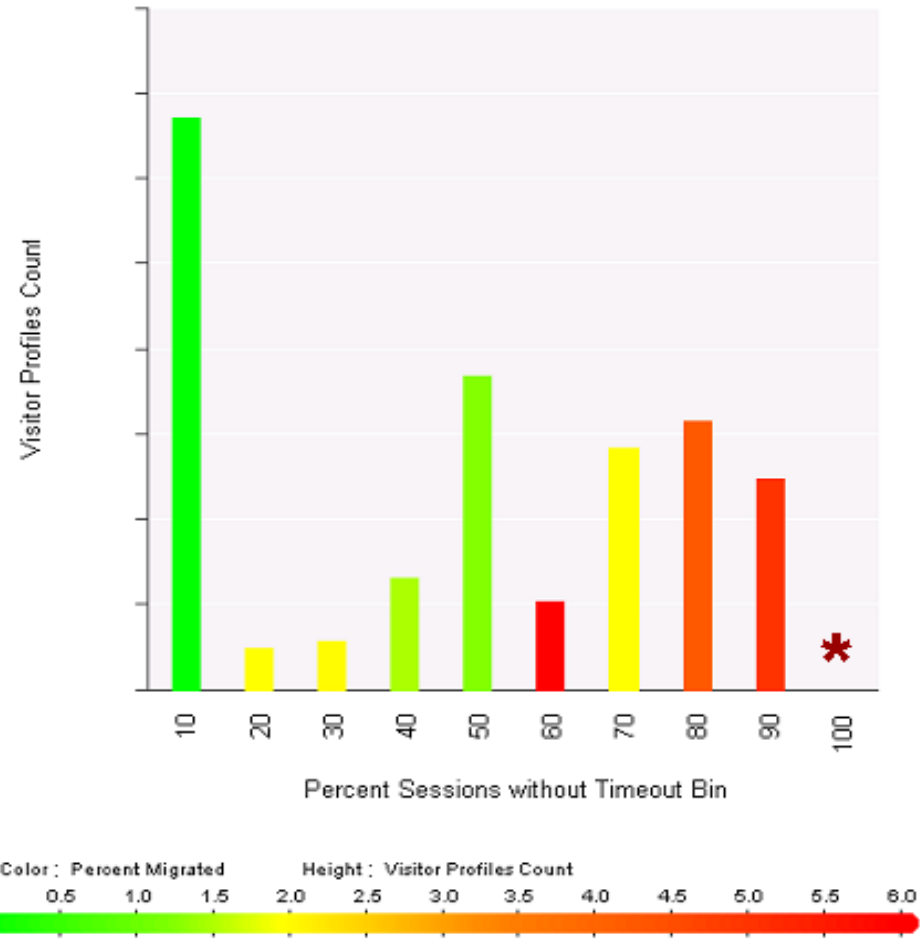Two more attributes can be created:

• **Number of sessions that did not time out**
• **Percentage of sessions that did not time out**

# Migrators: Timeout



**Number of sessions without timeout is a good predictor of migration**

**Percentage of sessions without timeout is also a good indicator of migration**

**\* 68,000 visitors with no timeout sessions have been filtered out**

# Distribution of Wedding Purchases over Time

**Revenue due to wedding list item purchases clearly affected by summer weather, when weddings are more common in the UK**
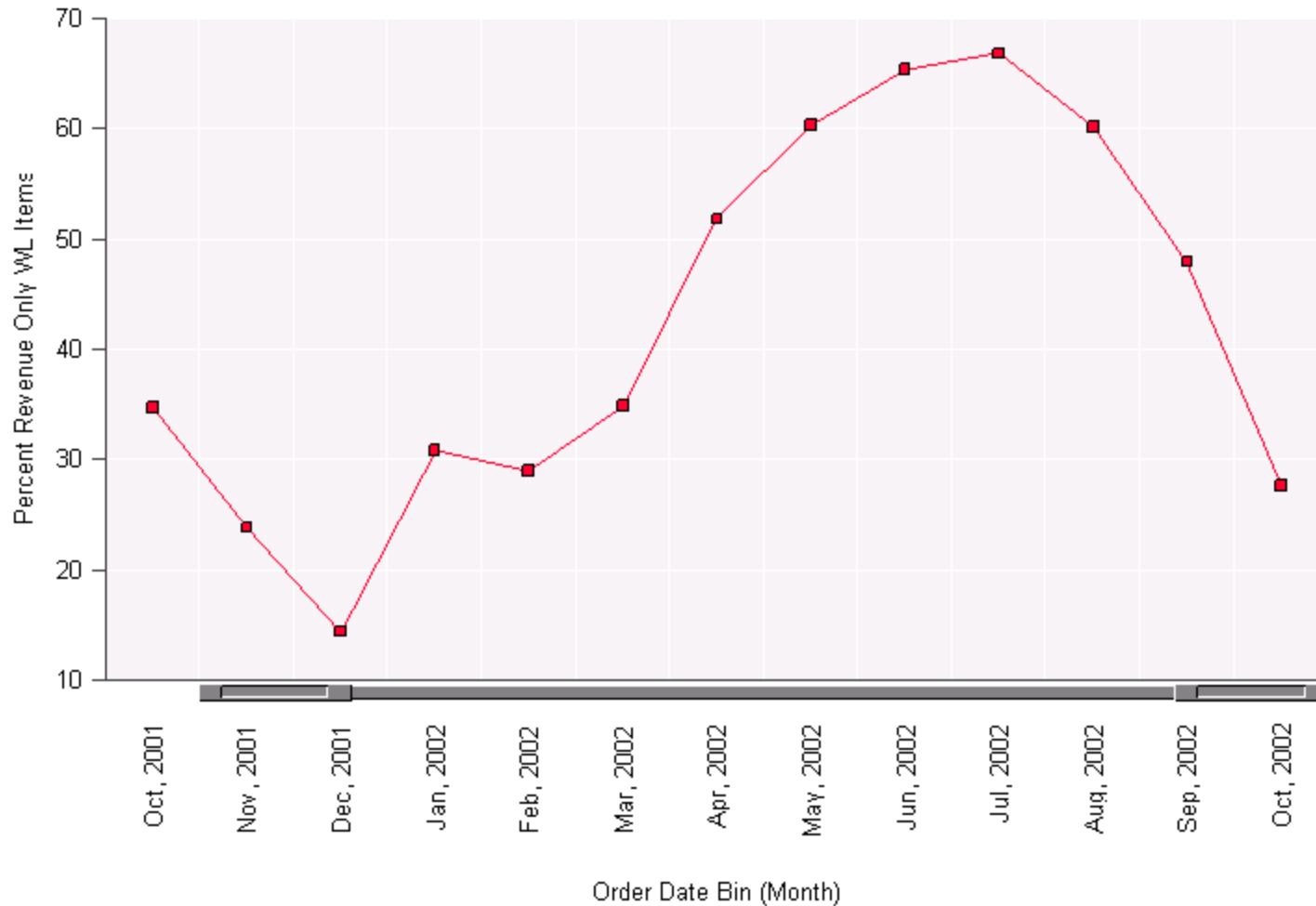
# Hidden Page Requests

- ## Page Tagging

  - Debenhams used a third-party ASP that uses page tagging to track users

  - Tag generation implemented using a separate JSP

  - This causes two requests to be executed

    - Generates higher server load

    - Hurts user experience

- ## Many users are clicking on links before the complete page downloads

  - Page Tag jsp is never executed

  - Statistics are inaccurate: 34% of non-bot sessions did not execute the page tagging jsp