Blue Martini Business Intelligence Delivers Unparalleled Insight into User Behavior at the Debenhams Web Site

" Debenhams were looking to increase the revenue generated by our E-Commerce site by 100% year on year. The other key metrics were to increase the numbers of registered customers by offering an enhanced customer experience, increased daily transactions and average basket size. With Blue Martini, these metrics have also been achieved and we continue to exceed the benchmarks that we set at the beginning of the project."

- Bill Maginn, Internet Controller, Debenhams, plc

DEBENHAMS
BRITAIN'S FAVOURITE DEPARTMENT STORE

DEBENHAMS: COMPANY BACKGROUND

Debenhams plc, "Britain's favourite department store," has been the UK's fashion retail leader for more than 200 years. The retailer runs approximately 100 department stores on High Streets throughout the UK and Ireland and recently began expansion into the Middle East and East Asia. Debenhams offers brand-name apparel, high-end house wares, cosmetics, and an immensely popular wedding list (bridal registry) service. Early adopters of the online channel, Debenhams launched its first informational and transactional Web site in the late 1990s. Debenhams then launched a new Web site powered by Blue Martini Software Intelligent Selling Systems in 2001, which made it substantially easier for business users to manage the site themselves. Additionally, the new site offered Debenhams critical benefits, including scalable and robust online transaction capabilities, centralized marketing and merchandising features, and powerful customer interaction tools.

THE DEBENHAMS-BLUE MARTINI BUSINESS INTELLIGENCE PROJECT

In late 2002, Debenhams requested a detailed analysis of its Blue Martini–powered Web site from the Blue Martini Analytic Services (BMAS) team. Debenhams provided BMAS access to its Web site databases, including clickstreams, transactions, content, product catalog, and customer information. Blue Martini leveraged its own Business Intelligence suite to perform the analysis. Using this powerful analytic application with extensive reporting and visualization capabilities, Blue Martini Analytic Services provided Debenhams a detailed perspective of its Web site performance and customer behavior as well as concrete recommendations on ways to boost online sales and improve the customer browsing experience. The broad areas of analysis included:

- Micro-conversion analysis, detailing how customers convert from visitors to buyers
- RFM (Recency, Frequency, Monetary) analysis, indicating key user characteristics
- Campaign analysis, highlighting e-mail opens, clickthrough rates, and associated revenues
- Analysis of top-selling products and market basket, providing recommendations for successful product associations

Key Insights

- Visits that included a search generated **1.5 times** as much revenue as visits that did not

- Some e-mail campaigns generated **4.8 pence** per e-mail and **52 pence** per clickthrough

- Shopping cart abandonment rate of **62%** prompted a revision of session timeout duration

- Product associations can help merchandisers make better **cross-sell** recommendations and react faster to new trends.

- Recency, Frequency, Monetary **(RFM)** analysis revealed segments that should be targeted

- **53%** of orders were driven from the wedding list (wedding registry)

- The **catalogue** link, which allows visitors to type an item number from a print catalog, generated more revenue than the **women's** link, which attracted seven times more visits

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- Referrer analysis, showing referred traffic from search engines and the return on banner ads
- Path analysis and site real estate utilization, showing the effectiveness of different links on the home page
- Site usability and site performance evaluation as well as informative site data analysis
- Geographical data analysis, including distribution of customers by region and per capita spending by city

This case study highlights some of the key findings of the Web site analysis.

FROM ANONYMOUS VISITOR TO PURCHASER

Debenhams wanted to learn about their customers' behavior and preferences. The Blue Martini Business Intelligence suite features a performance dashboard that provides a snapshot view of the Key Performance Indicators (KPIs) of the site. Included in this automated summary are key metrics such as:

- Average sales per customer
- Page views per visit
- Time spent per visit
- Percent of new visitors
- Shopping cart abandonment rate

These essential performance metrics that once took Debenhams weeks to calculate are now available with a single click.

Beyond the KPIs, the Blue Martini Business Intelligence suite provides detailed analysis on each step of a retailer's customer conversion process. With the ability to analyze the micro-conversion process, Debenhams can understand their customers better, profile them in more detail, and anticipate their behavior more accurately. The following chart identifies the micro-conversion points, including the shopping cart abandonment rate before checkout and during checkout, visitor to registered visitor conversion, and visitor to purchasing visitor conversion that are available in an out-of-the-box report supplied by Blue Martini. With proper understanding of why customers fail to buy at the final step before checkout, Debenhams can improve the site design. Knowing what products people added to their shopping cart but did not purchase opens up the opportunity for targeted communications, such as e-mails for those who opted to receive e-mails, should these items go on sale.
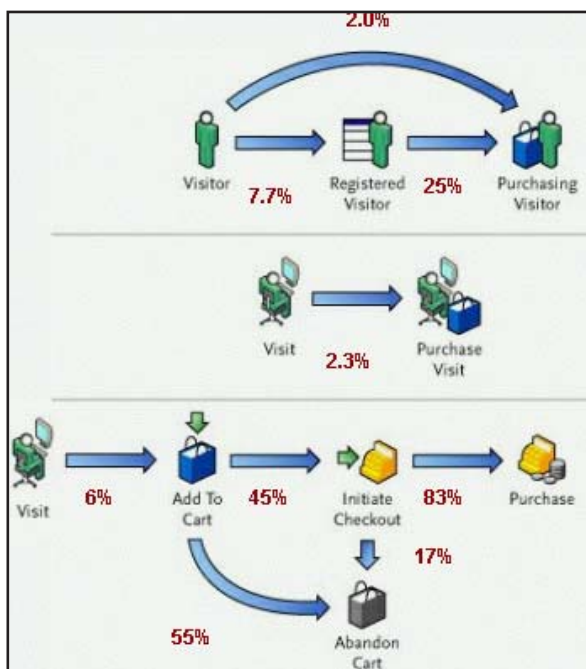

Figure: The micro-conversion rate chart summarizes the customer conversion process.

Key Insights (cont)

- Search analysis revealed interest in products not available online, leading Debenhams to **direct visitors** to the nearest store where those products are available

- Referrer report shows significantly **high revenues** associated with visits referred to by **AOL**

- Product associations can help merchandisers make better **cross-sell** recommendations and react faster to new trends.

- Bot/crawler visits accounted for **40% of sessions** to the site, skewing many metrics unless removed.

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Studies consistently show that the design of a Web page's real estate has direct impact on user behavior. However, businesses have been slow to use what they know about customer clickstreams to modify Web design. An important reason for this is the lack of tangible, quantifiable evidence that one site feature performs better than another.

With Blue Martini Business Intelligence, Debenhams was able to see exactly where and how often their customers clicked on the home page. Further, by linking clickstream data with order information, Blue Martini calculated the average revenue per session attributed to each link on the welcome page as shown in the figure below. Equipped with this detailed analysis, Debenhams has initiated a comprehensive review of the design of its home page. Several interesting questions are being raised about the layout of the home page. Should all the links in the top menu be of the same look and feel? The 'Weddings' and 'Womens' links are the most frequently clicked ones. High usage does not translate to high revenue as is evident by the 'Catalogue' link below. How should such links be emphasized? Some of the promotion links are virtually ignored. Should these promotions be taken down faster? Or should these promotions be de-emphasized?
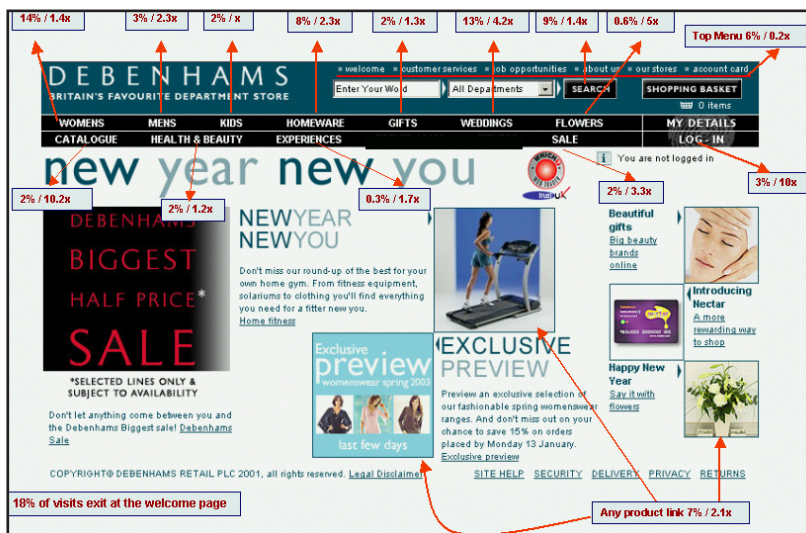

Figure: Analyzing the effectiveness of the links on the homepage in terms of percentage of visits that clicked on each link and the revenue per session attributed to the link relative to the 'Kids' link.

H O W   M U C H ,   H O W   O F T E N ,   H O W   L O N G   A G O :   M A K I N G   **R F M**   R E P O R T I N G   S I M P L E

RFM (recency, frequency, monetary) analysis determines quantitatively which customers are the best ones by examining how recently a customer has purchased (recency), how often they purchase (frequency), and how much the customer spends (monetary). Marketers use RFM analysis extensively as the workhorse to drive customer segmentation, and these calculations help to understand specific customer characteristics, assess the impact of various marketing initiatives (e.g., store-issued credit cards), and ultimately measure how customers do (or do not) transform into better customers.

Blue Martini Business Intelligence includes capabilities that enabled BMAS to generate the Arthur Hughes RFM analyses for Debenhams quickly—and then transform them into more innovative, in-depth analyses. The Business Intelligence suite also provides state-of-the-art reporting and visualization tools that enabled Blue Martini analysts to present the information in simplified visual form that let both Debenhams analysts and business users easily grasp the complete RFM picture. Most importantly, the Business Intelligence suite also allows applying real-time filters that allow analysts to modify RFM calculations with a mouse-click, resulting in an interactive analytic process that is used to analyze interesting sub-segments of the population.

DEBENHAMS
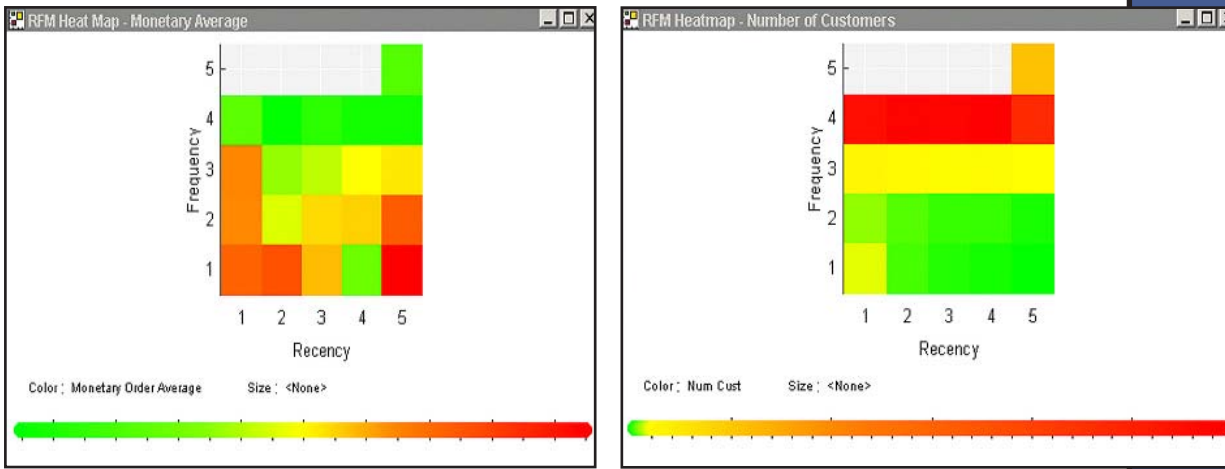
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Figure: Visual depiction of the different RFM segments in the Debenhams customer base.

The above RFM chart depicts an Arthur Hughes RFM analysis of the Debenhams customer base. Recency and Frequency are divided into 5 bins, with Bin 1 representing the top 20% of each variable, respectively, Bin 2 representing the next 20%, and so on. Both charts show the relationship between Recency and Frequency with each square (representing one Recency and one Frequency value) representing a sub-segment. The color of each square indicates the average monetary spending for the left graph and the number of customers on the right graph (green=low, yellow=medium, and red=high). Marketers are interested in identifying sub-segments that have a high average monetary spending and also a large number of customers in them.

The graph below represents RFM for Debenhams card holders. We note, for example, that the average order amount is significant for recency=5, frequency=5 (upper-right square) of the left graph, while the segment size is of intermediate size based on the color of the square in the right graph. Blue Martini recommended that Debenhams target this group with relevant promotions to encourage spending.
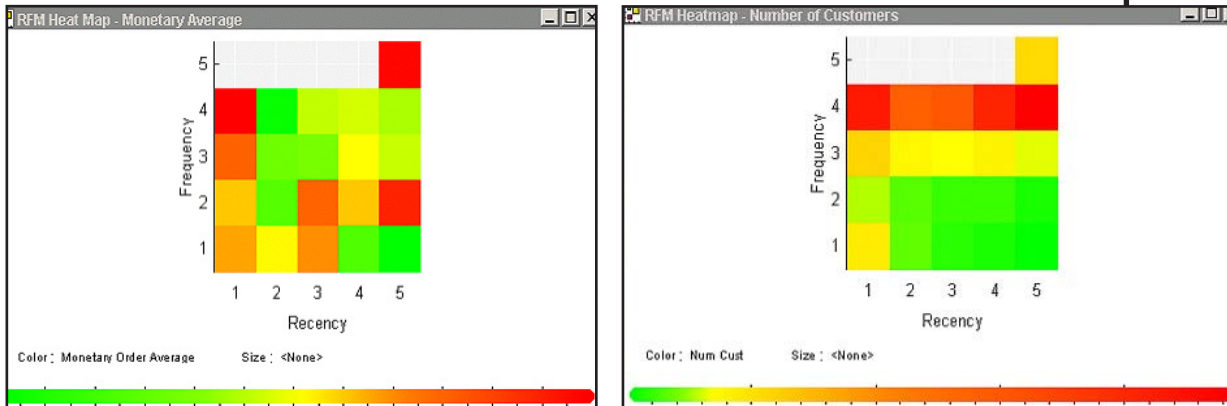

Figure: RFM scores for the sub-segment of Debenhams cardholders.

STANDING OUT FROM THE CROWD: ASSESSING HOW A COMPANY CONNECTS TO CUSTOMERS

Evaluating how well your company talks to customers has been made significantly easier with the advent of the Web. Instead of taking weeks to receive survey responses or see promotion-driven sales activity, retailers can see an almost immediate response to their online promotions and campaigns. The Blue Martini analysis found that Debenhams was successful at online e-mail campaigns. Now Debenhams can target ways to capitalize on this success and increase the total sales generated by email promotions.

Blue Martini analysis has also consistently shown that a key feature that affects revenues is search. From extensive research on Web sites of companies across different industries, Blue Martini has proven that successful searches convert more visitors into purchasing customers. A visit with a search is worth 50 to 100% more to a company than a visit without a search.

As depicted in the figure below, 27% of all Debenhams site visits included a product search. Furthermore, searches were successful 71% of the time and resulted in an average order amount per customer that was more than one and a half times the amount of an order for which no search is performed. Also when the last search performed in a Debenhams browsing session was successful, the customer is likely to spend about 15% above the average order amount than if the last search failed (i.e., returned no results).
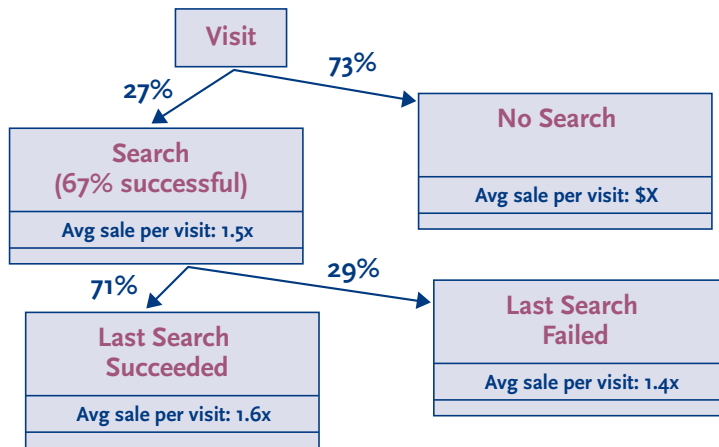

Figure: Analyzing the effectiveness of online search.

The search analysis presentation also included detailed information about failed searches on the Debenhams site. For example, "bridesmaid's dresses"—surely a prominent element of the popular Wedding List section—failed when entered as a search term. "Evening wear," perhaps entered as an alternative after one failed search, also failed. Most telling was the consistent failure of customer searches for product lines only sold in the physical stores. Blue Martini recommended that all products sold at Debenhams be available for searching online, even if they are not available for sale at the online store. Debenhams is currently implementing this recommendation.

MAKING THE BEST OF A GREAT SITUATION: IDENTIFYING SUCCESSFUL ADVERTISING DEALS

Google, MSN, AOL…just about every company has a cost-per-click (CPC) deal in place with one or more of these Internet portals and Debenhams is no exception. With Blue Martini Business Intelligence, not only is Debenhams able to determine the success of its online advertising initiatives, but is also better prepared to respond to online advertising challenges.

With Blue Martini reporting capabilities, Debenhams can perform comparative analyses of CPC deals including:

• Referral percentages

• Visit to purchase conversion rates

• Average referral purchase amount

With access to these reporting features, Debenhams can more quickly and responsively assess how to capitalize on successful portal deals or effectively deal with under performing ones. Most importantly, the advertising analysis can be done in near real time, allowing retailers such as Debenhams to consider next steps almost as soon as a campaign is launched.

At the time of the analysis, Debenhams was pleased to find that its AOL portal deal was highly profitable. While only 0.62% of all visits came through AOL, the conversion rate of 2.6% easily outranked the other portals. More importantly, the average purchase by an AOL member was more than twice and almost three times the purchase amount of the two other closest-competing portal deals. In addition to the referrer performance metrics, Blue Martini also provided Debenhams with a detailed list of search keywords that people used at these major Internet portals to get to Debenhams, enabling the retailer to plan out strategies for paid ads based on keywords.

THE PERFECT MATCH: EVALUATING THE EFFECTIVENESS OF ONLINE CROSS SELLING

Retailers rely on teams of marketers to recommend cross-sell and up-sell products. These days with rapidly changing purchasing trends and inventory lists stretching into thousands of products, it is not always feasible for marketers to keep the cross-sell and up-sell lists up to date. An automatic product recommender model based on association rules can be used effectively to complement the recommendations provided by the marketing experts.

Figure: Product affinities based on purchase patterns at Debenhams can help marketers make cross-sell recommendations.

The association algorithm in the Blue Martini Business Intelligence suite identified over 200 significant product associations. For example, the Debenhams Web site data shows that 41% of all people (confidence) who bought fully-reversible bath mats bought Egyptian cotton towels and that a customer who bought a bath mat was 456 times more likely (lift) to buy an Egyptian cotton towel than a random visitor. Yet the site recommends another towel set—with only 1.4% of all people who purchased the fully reversible bath mats selecting this option. Similarly, the data indicates that 25% of the purchasers of the white T-shirt bra bought the plunge T-shirt bra and were 246 times more likely than average to do so. Again the site's suggestion did not perform as well—only 1% of the white bra purchasers opted for the black underwire bra. Blue Martini recommended that Debenhams share these associations with merchandisers and implement an automated product recommender.

UNDERSTANDING THE GEOGRAPHICAL DISTRIBUTION OF CUSTOMERS

On the whole, the Debenhams online profile indicates a successful e-business channel. The site has over two million page views per week and grows by over 6,000 new customers per week. Not surprisingly, UK customers generate most of Debenhams' revenue with major urban areas such as London, Manchester, Bristol, and Glasgow emerging as major revenue sources. And, even though Debenhams only fulfills delivery requests within the UK, there are a measurable number of customers from the US and Australia. The customers from outside the UK are indicators of the on-going success of online wedding list—which accounts for over half of non-UK sales.

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Customer geographic distribution was just one element of basic Web site data analyzed using Blue Martini Business Intelligence. Further analysis of revenue sources revealed that the highest total revenue areas were near Debenhams stores. Yet surprisingly the highest average online order amounts came from areas with no nearby Debenhams stores—indicating that the site was successful in bringing the Debenhams brand of products and services to an otherwise unreachable market segment.

FINDING AND ENCOURAGING CUSTOMER MIGRATION

Migrators—a customer sub-segment now recognized as a key target for most retailers—played a role in the Debenhams site analysis. Migrators represent a group of customers who begin their relationship with a retailer with low-cost purchase total, but significantly increase their spending over time.

Blue Martini was able to identify a migrator segment within Debenhams customer base. The migrator group purchased under £75 over a six-month period and increased spending to over £75 in the following six months. To better understand the behavior of these customers as well as how to incent more customers to migrate up to high spending levels, Blue Martini performed a detailed characterization of this migrator segment.

A powerful methodology in the studies of customer segmentation and customer behavior is the development of a comprehensive customer signature. The Blue Martini Business Intelligence suite enables users to construct rich customer signatures comprised of hundreds of attributes by combining different sources of information such as purchase history, browsing behavior, and demographic information. In the case of Debenhams, over 300 attributes were used to create customer profiles. Analysis found that migrators, based on their first six months as customers, were likely to:

- Purchase more than once
- Not purchase wedding list items
- Browse the Women's section of the site 2 or more times
- Search five or more times
- Use the Express purchasing feature
- Maintain an average session time of 3 to 10 minutes

MOVING FORWARD WITH BLUE MARTINI BUSINESS INTELLIGENCE

The Blue Martini analysis offered Debenhams an overview of many fundamental Web site performance indicators and critical customer profiling tools. Yet the Blue Martini Business Intelligence suite was able to provide this information, ranging from basic to complex, in a fraction of the time usually required for these types of analyses. More importantly, the visual format of the reports makes the information immediately comprehensible to the business user and analyst alike. Additionally, further manipulation of the standard reports is simple to perform and can result in even more specific analytic results using the same data with minimal additional time.

Key elements of site performance reporting

Bot detection and filtration
40% of the traffic at Debemhams was due to automated bots, spiders, or crawlers

150+ distinct bots (each with multiple sessions) were identified

After filtering out bots, the average session was 30% longer in duration

Site Statistic Collection
The Page Tagging method for collecting site statistics implemented at Debenhams through an independent ASP service reported inaccurate results. In 34% of the visits the visitor clicked on a link before the tagging request could be executed thereby preventing the request from being logged.

The Blue Martini clickstream collection is performed at the application server level and therefore, avoids the above problem.

Session Timeout Threshold
Sessions were set to timeout after 10 minutes of inactivity to minimize the load on system resources. However, 6.6% of all visits got a session timeout message as a result. Moreover, 9.5% of users who had active shopping carts lost their carts because of the timeout.

As a direct result of this analysis, Debenhams has increased the session timeout threshold.

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Blue Martini made several recommendations to Debenhams that go beyond the standard operation of the Web site. The key recommendations included:

SITE MANAGEMENT
- Timeouts
  - Increase timeout and do not show the time out page. This has already been implemented.
  - Contact users who have not opted-out of e-mail when previously abandoned items go on sale.
  - Automatically save cart on timeout

- Searches
  - Monitor top search keywords to identify interesting trends
  - Carry searched products online or at least allow visitors to find these items and point them at a physical store. This is being implemented with a store locator.
  - Keep thesaurus up to date

CAMPAIGN MANAGEMENT
- Define an ad strategy based on ROI
- Emphasize the AOL portal
- Create marketing campaigns to convert people to repeat purchasers

CUSTOMER MANAGEMENT
- Send targeted email campaign to Debenhams card customers
- Score light spending customers based on their likelihood of migrating and market to high scorers.
- Score high spending customers based on their likelihood of reduced spending and offer retention incentives.
- Log changes to opt out settings and track "unsubscribe" to identify email fatigue

PRODUCT MANAGEMENT
- Investigate months with lower revenue for certain brand
- Implement the Blue Martini Product Recommender based on Association Rules

The Blue Martini Business Intelligence project has enabled the Debenhams team to get a comprehensive overview of its website operations. Several recommendations made by the Blue Martini team have already been implemented while strategies are being formulated to implement the other recommendations. Debenhams anticipates having an operational analysis center in house in the very near future to guide the management in making well–informed decisions that would help increase online revenues and have a positive impact on customer shopping experience.

"We always knew the value of clickstream but we never had the opportunity to conduct the analysis. The ability to engage BMAS and use their expertise to quickly discover key learning's from the wealth of data that had been collected, has been an potent lesson in the value of not only the data, but also the services that BMAS offer."

- Bill Maginn, Internet Controller, Debenhams, plc

Visit http://www.bluemartini.com/bi or send e-mail to bi-sales@bluemartini.com to learn more about Blue Martini Business Intelligence.

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