Bidding Time Zones

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As search continues to grow, so too does the need to find the additional competitive advantage. Historically, reporting capabilities in search have been largely limited to daily totals as the lowest time increment in data analysis. The difficulty with analysis based on daily totals, is that the day of week is only one factor in determining the buying behavior of a specific demographic audience. Online buying behavior is much more complex than this, and thus, the data must be sliced more precisely in order to unearth the true buying behavior of our various audiences. While studies have shown general impression and conversion rate trends throughout the average 24 hour day, further in-depth analysis has exposed significant intra-day and intra-week fluctuations in revenue, ROI, Conversion Rate, AOV and CPO. Once mapped, we will fully see the performance landscape of three online retailers over the 168 hour week, which will pinpoint the precise crucial bidding time zones for each retailer.

The benefits of such performance landscape detail are clear when devising a comprehensive bid management strategy. Tactically, however, this presents a problem for the search engine marketer. As the performance landscape is broken into many smaller pieces, so increases the need for more precise and frequent bid changes. In order to realize the additional returns, we will need to rely on automated bid management tools to effectively execute a strategy which conforms tightly to the actual performance landscape.

This study contains 5 sections:

1. **Identify intra-day patterns.** We will show revenue and ROI variances of three online retailers in different verticals for the average 24 hour day. This will allow us to separate the high impact hours of the day versus the low impact hours of the day and treat them accordingly.

2. **Identify intra-week patterns.** We will further breakdown this data by examining each weekday with respect to its' own intra-day revenue, ROI, Conversion Rate, AOV and CPO fluctuations for each retailer.

3. **Identify intra-week pattern changes from season to season.** We will build on the intra-week data by comparing the conversion opportunities of Q2 2005 versus Q4 2005 and observing the fluctuations and shifts of intra-week behavior from one to the other.

4. **Identify intra-week pattern changes from various keyword types.** We will see if intra-week patterns remain constant when comparing one type of keyword to another.

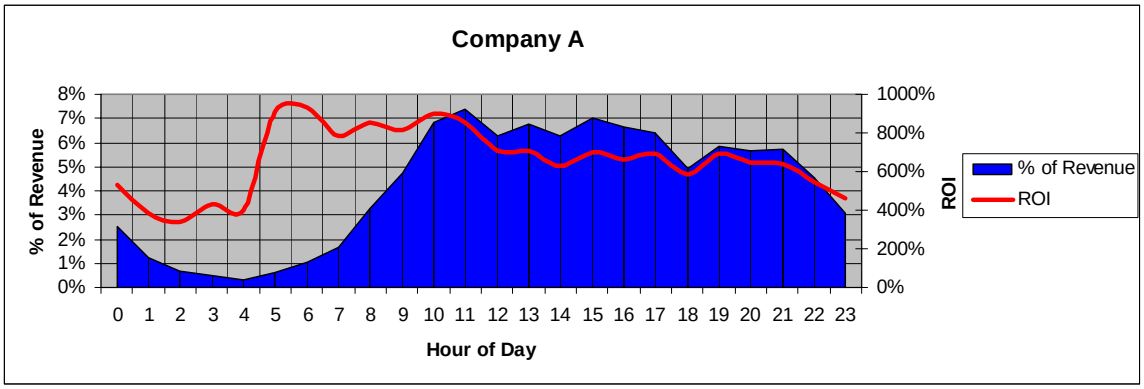
5. **Conclusion**

The findings in this study are based upon data accumulated from the traffic driven by Google for 3 medium to large businesses in Q2 and Q4 of 2005. Each company included is a retailer tracking exact revenues and conversions at a keyword level. The hours and times were all recorded as Eastern Standard Times. The ROI, Conversion Rate, AOV and Cost per Order figures are based solely on direct conversions. Direct conversions are defined as transactions which occurred in the same user session as the initial visit. This study does not include deferred conversions; defined by an instance where the initial visit occurs in a separate and previous browser session than that of the transaction. While deferred conversions constitute a significant portion of revenue for many retailers, they do represent an alternate behavioral pattern worthy of a separate forthcoming study.

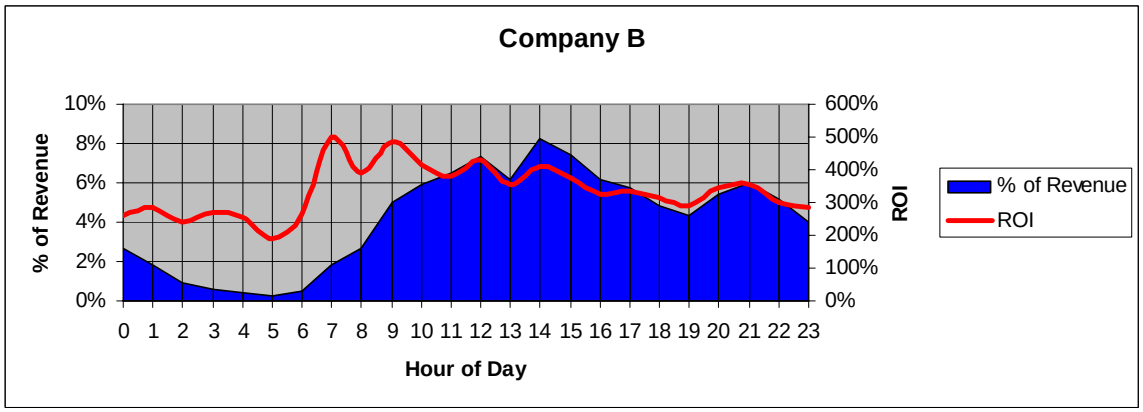
Intra-Day Patterns

For each retailer, revenue totals generally fall in line with the expected hourly impression fluctuations. In the waking hours, 95% of revenue is driven, which we will define as the "high impact" hours. The 6 hours between 2am EST and 8am EST, drive an average of 5% of revenue, which we will define as "low impact" hours. The low impact hours, in each case, have drastically changing ROIs. In contrast, the high impact hours seem to show less deviation in ROI. Due to greatly varying behaviors of these timeframes, it is necessary to look at them separately, with special focus on the "high impact" hours.

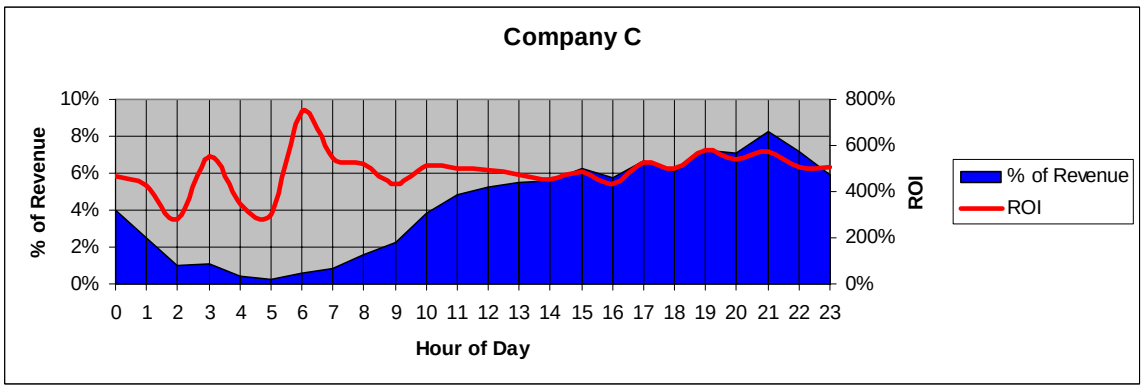
Graph 1 Company A



Graph 2 Company B

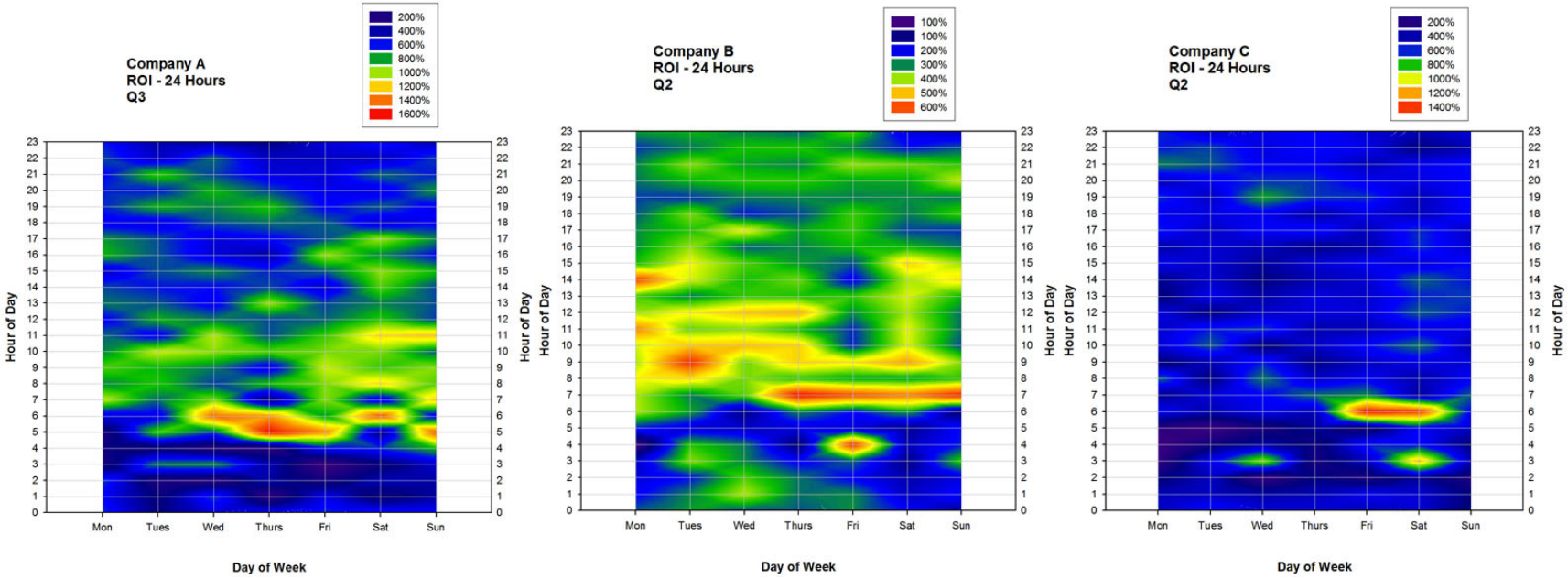


Graph 3 Company C



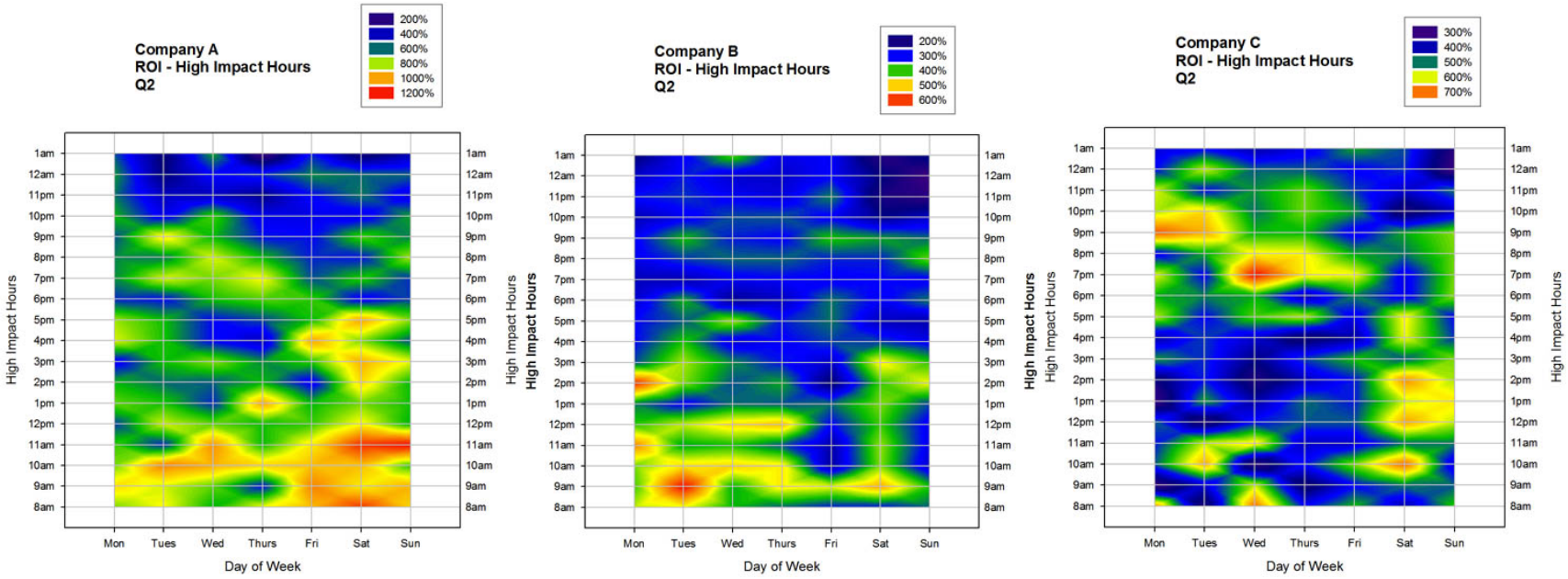
Intra-Week Patterns

Similar to fluctuations in intra-day ROI trends, variations also exist from weekday to weekday as indicated by the charts below. Company A, for example, sees higher ROI in the middle of the week in the early morning hours as indicated by the red coloration. However, they see higher ROIs in the late mornings of the weekends as indicated by the larger yellow areas on the right. The chart for Company B tells a different story. The large yellow mass on the left of this chart indicates higher ROIs towards the late mornings of the beginning of the week. Company C tells yet another story. It seems to maintain ROIs in the 400% to 600% range throughout the week with a handful of spikes in the early morning and late evenings.

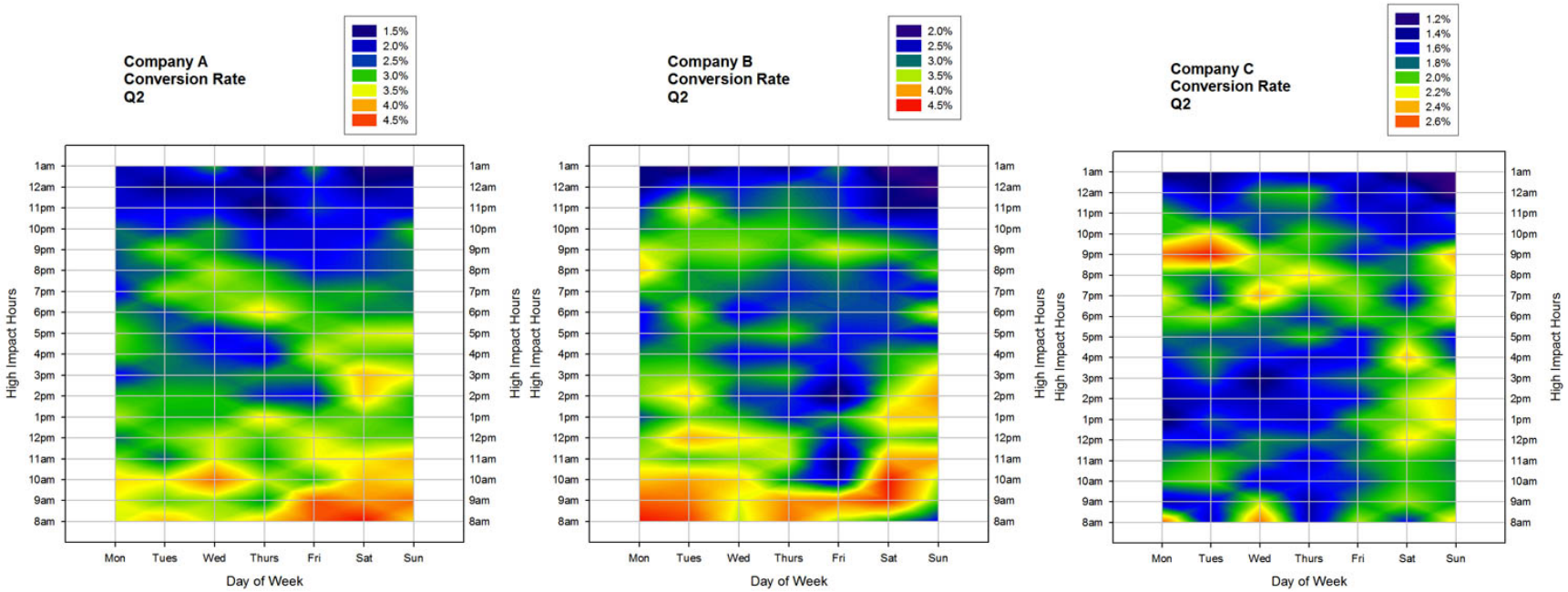


While the ROI representations above are accurate, the charts are a bit misleading. As seen above in the intra-day analysis, the hours between 2am EST and 8am EST drive less revenue and therefore, carry much less weight due to the low volume of visitors and revenue in this period. The highest periods of ROI exist in this low impact timeframe, which increases the scale of the charts, resulting in a seemingly flat "high impact" period. By removing the low impact hours from the data, we get a better since of the ROI fluctuations within the high impact hours, as seen below. These charts tell a more accurate story, which will help us define the most important bidding time zones and subsequently, develop more effective day-parting rules.

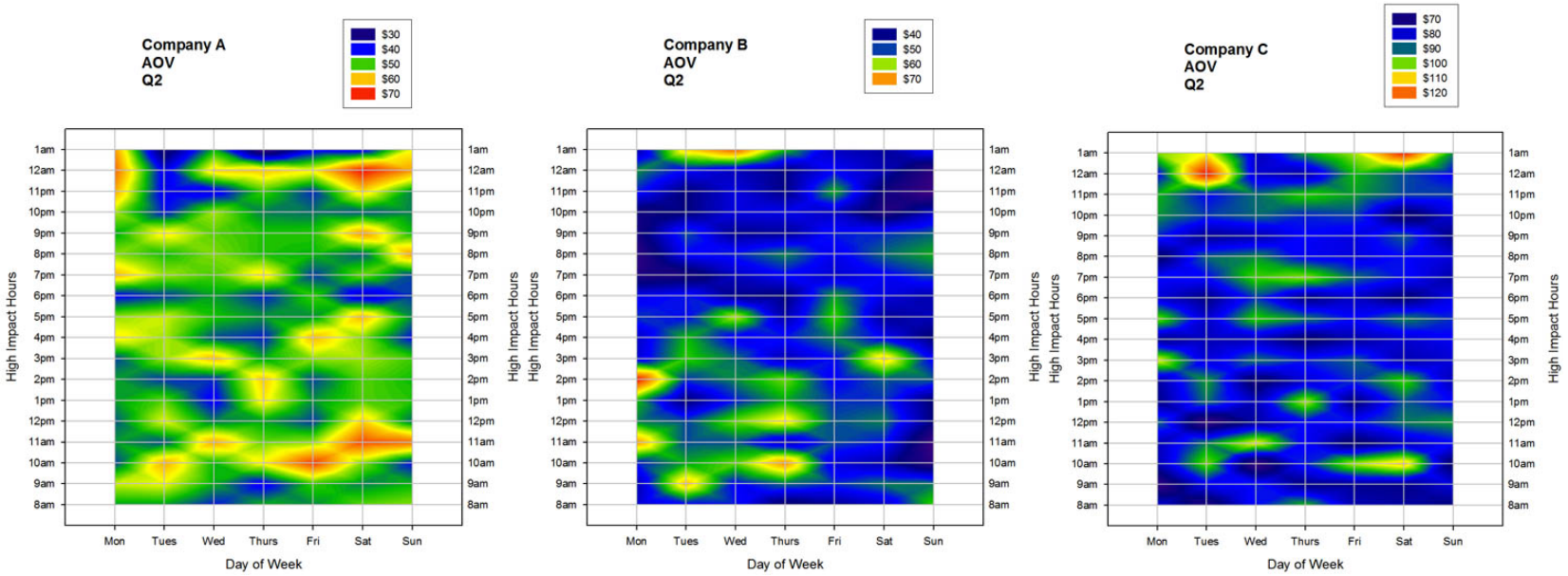
Now that we are confident in the weighting of these hours of ROI, we can safely identify the time zones in which we should invest our search marketing budget. Company A's audience clearly appears to have a tendency for purchasing online from Thursday to Sunday from 8am till noon. In this case, Company A would want to set aggressive bid rules for these parts of the day and week. Company B would see their best return by investing their budget into the hours of 8am to 3pm, Monday through Thursday. Interestingly, Company C's active buying time occurs in the late evening hours of 6pm to 10pm, Monday through Thursday with additional pockets of high ROI scattered through the weekend days.



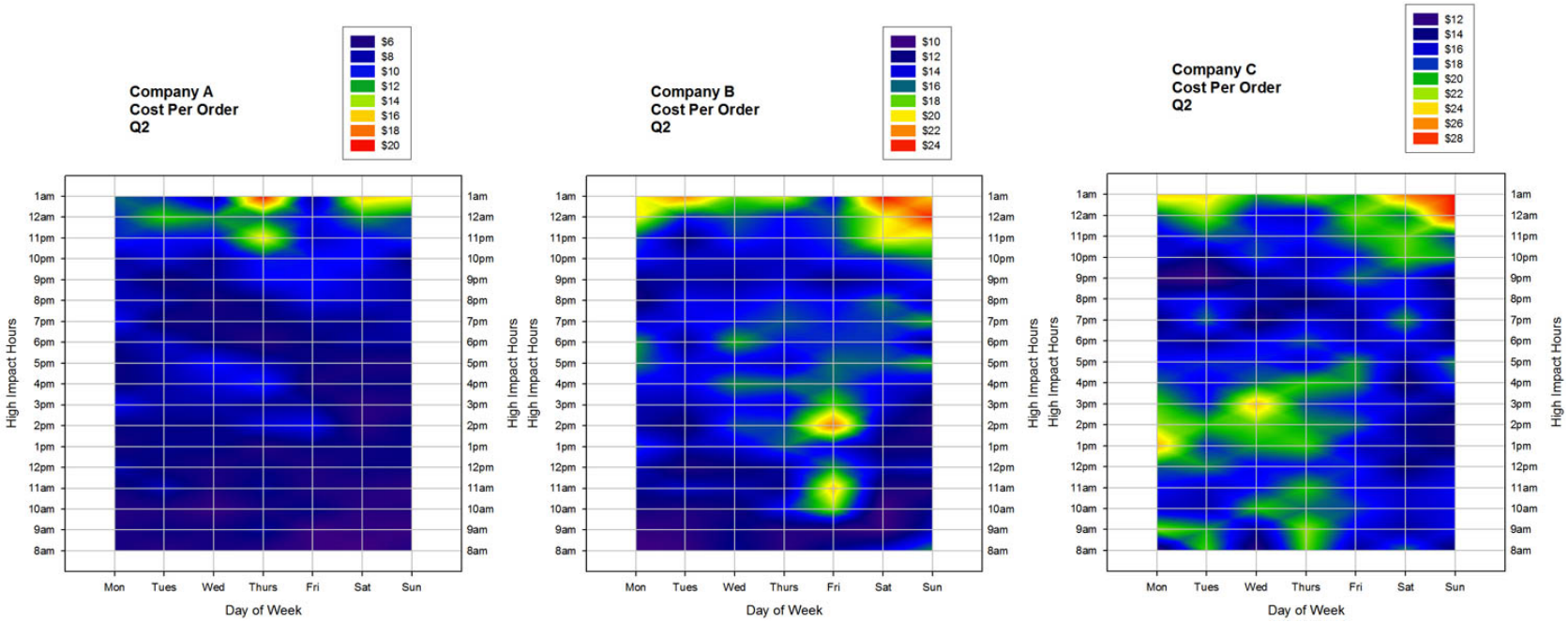
ROI is important as a performance indicator; however, other metrics such as Conversion Rate, AOV and CPO are at times crucial indicators. In the example of Conversion Rate below, we eliminate cost as a variable and view the raw percentage of visitors who purchased. They roughly mirror the ROI charts on the previous page.



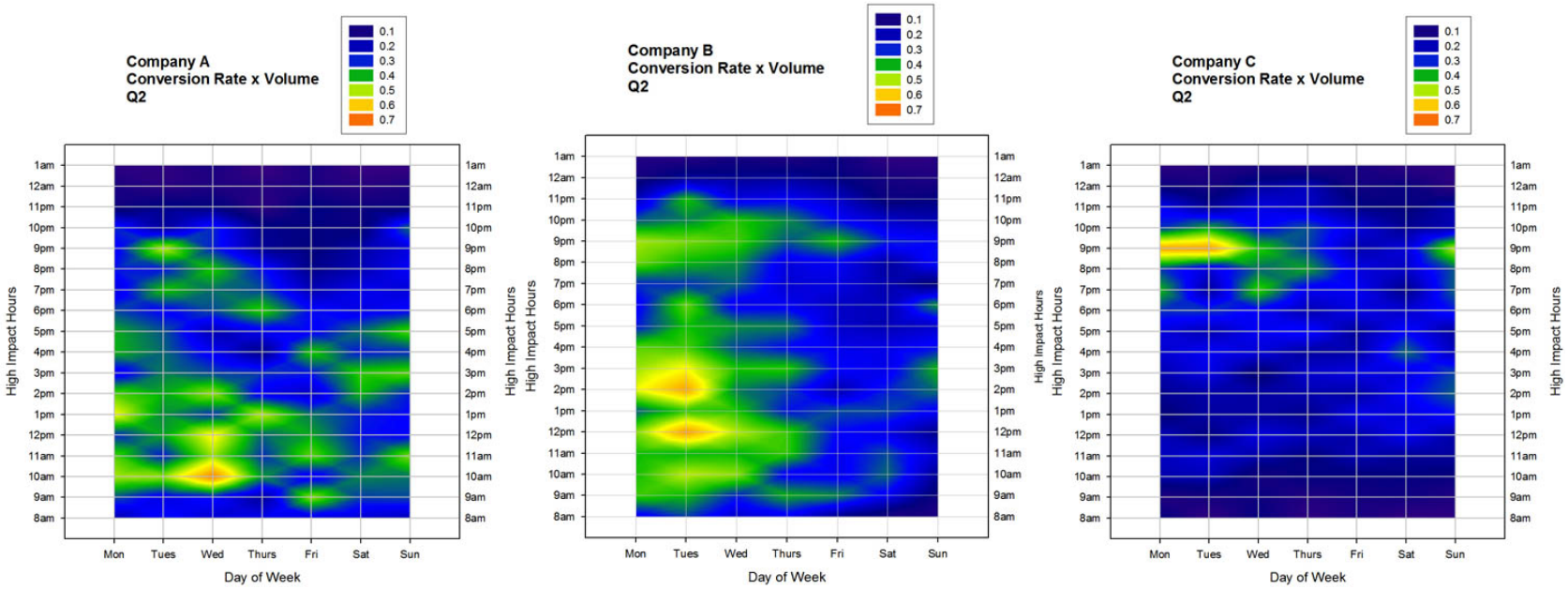
Intra-week Average Order Value trends show flatter activity than ROI or Conversion Rate. The charts below generally show less fragmentation with the exception of a few peaks and valleys. Each company does, however, share a small spike in AOV in the late night hours. Company A does show a rise in AOV in the late morning hours at the end of the week, which corresponds to the timing of their peak ROI and Conversion Rate.



Similar to AOV, Cost Per Order shows less dramatic fluctuations. While there also seems to be a spike in Cost Per Order in the late evening hours, these hours also have the lowest impact of our "high impact" hours.

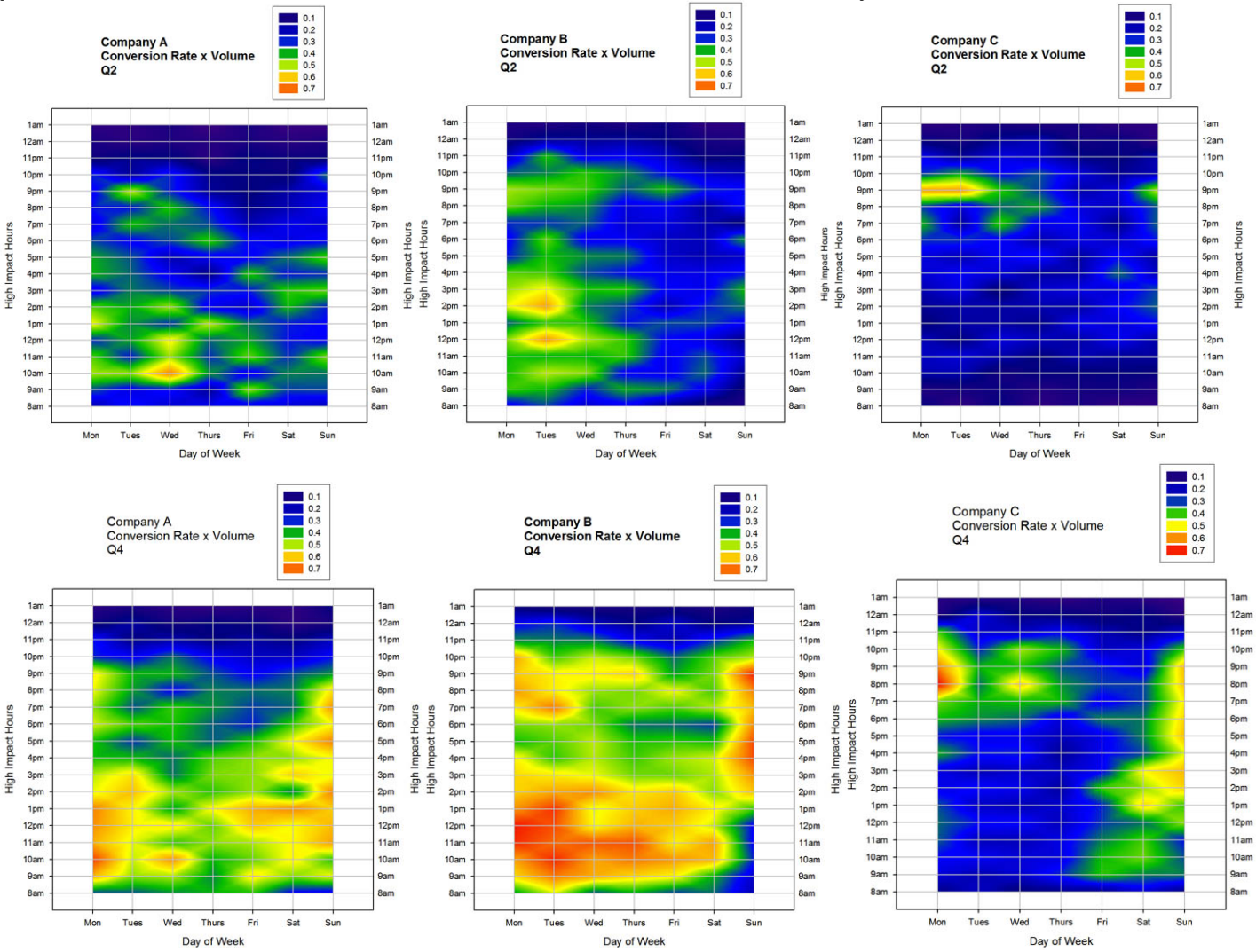


While the Conversion Rate charts identify the parts of the week when users are most likely to buy, the statistic alone does not indicate when **most** users are **most** likely to buy. Similar to the high impact hour versus low impact hour dilemma, we must consider fluctuation of conversion volume in combination with conversion rate patterns. In order to get a true sense of peak purchasing activity of their online users, we blend the conversion rate and conversion volume for each of our three retailers. The charts below indicate the truer business opportunity these retailers have throughout the week.



Intra-Week Pattern Changes from Season to Season

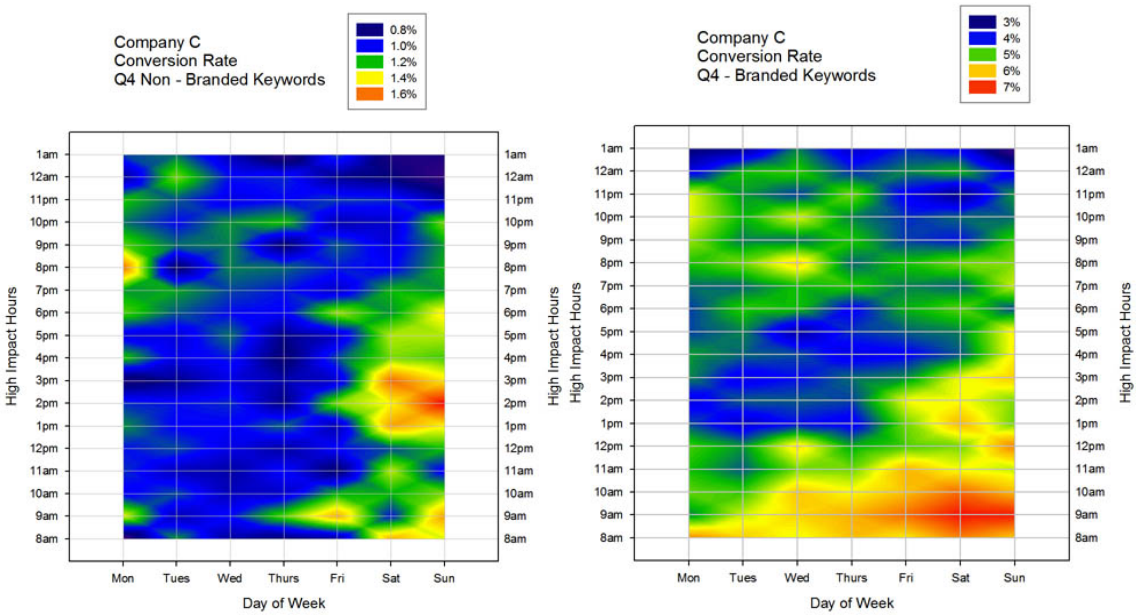
While the charts above represent the business opportunities in Q2, the charts on this page represent the seasonal shifts and fluctuations in opportunity by juxtaposing Q2, on top, against Q4, on the bottom. Given the higher purchasing volume in Q4, increased conversion volume clearly drives the larger masses of yellow and red on the bottom charts. We see slight variances, however, in peak opportunity times, with most notable increases on weekend afternoons of Q4.



Intra-Week Pattern Changes from Various Keyword Types

The performance of a search campaign can vary greatly simply based on keyword selection, or types of keywords chosen to be included in the campaign. With this in mind, we need to examine the performance across various kinds of keywords in order to eliminate this major variable in our analysis of the search buying behavior of our business' demographics. As branded keywords versus non-branded keywords are often the most distinguishable buckets in relation to performance, we will compare their respective intra-week patterns. This same comparative analysis could easily be done on other keyword types such as tail terms versus generic terms, or groups of thematically related terms.

Below are two charts based on data from Company C, that show the intra-week patterns of their non-branded keywords versus their branded keywords in Q4 of 2005. While the branded keywords tend to convert at a higher rate and are more dispersed throughout the week, they continue to share peak times of late evenings early in the week and weekend afternoons. Branded keywords do, however, differ slightly with a heavier concentration of activity in the early morning weekends.



Conclusion

By dissecting the performance of the CPC programs into 168 hours of the week, we have identified distinct bidding time zones which, if capitalized on, can work to the advantage of these retailers and improve the efficiency of their search programs. On a larger scale, it is important to also realize that this analysis is based on Q2 and Q4. This same analysis on Q1 or Q3 may see variances in these patterns, in which case bidding time zones would change, and day-parting rules would need to be adjusted. Conversely, on a smaller scale, each of the months which constitute this three month aggregate data, may perform slightly off from one another. Whether we map performance over the 168 hour week, the 720 hour month, or the 8,760 hour year, there exists significant opportunity to improve the returns of CPC programs by identifying the optimal bidding time zones and using automated bid management systems to execute.