gameViz™

A New Paradigm in Gaming Analytics

EASY-TO-USE SOFTWARE WITH POWERFUL SUPER GRAPHICS

3

GET NEW ACTIONABLE INSIGHTS INTO YOUR GAMING BUSINESS

4

INTERACTIVE & DIRECT ACCESS TO YOUR DATA

2

CASINO

$35,246.40

1

Your Company Database

by
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Super Graphics™ to Enable the Adaptive Enterprise.
www.bis2.net

bis²

- **Understand the profitability of tens of thousands of customer segments;**

- **See the ROI on marketing spend across these segments;**

- **Understand all of the data and simultaneously see the exceptions, all in just one picture;**

- **In as little as one minute to comprehend.**

0. Top left: Reactivate these patrons.
   Patrons who visited often last year but less this year.

1. Top right: Maintain these patrons.
   Patrons who visited often last year and visited the same this year.

2. Bottom left: Cultivate these patrons.
   Patrons who visited less often last year and visited the same this year.

3. Bottom right: Nurture these patrons.
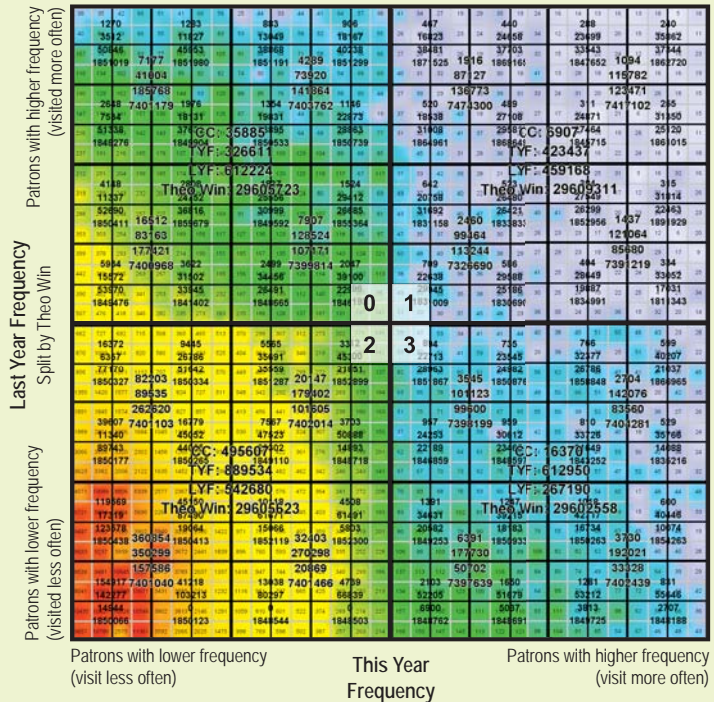   Patrons who visited less often last year and visited more this year.

Figure 1 - More or Less Frequency Quartal Super Graphic (numbers are illustrative only).

CONTENTS

Introduction to gameViz™

Today's business environment drives an unprecedented need to understand, analyze, and action the ever-increasing mountains of patron and operational data. This, coupled with the need to make decisions faster, and within a more complex environment, is resulting in casino operators demanding better tools for business analytics.

In response, BIS² has created Super Graphics, which represents the next generation of advanced data visualization tools for strategic, operational, and analytical users of gaming data.

The BIS² Super Graphics (contained within gameViz) enables users to understand and action their gaming data in a new way. Users can see a multitude of data points simultaneously to understand patterns, identify meaningful relationships, and gain new insights which were not previously possible.

gameViz is a powerful, easy-to-use, gaming industry data visualization solution that allows casino operators to directly query their data, and enable them to see what they need to do.

Join the growing BIS² User Community and leverage a new paradigm in visual analytics—**gameViz.**

The Power of Super Graphics Comes to Gaming

Designed to improve casino revenue and profit performance, gameViz can be applied to most areas of your gaming business and consists of four key modules:

1. **Revenue & Customer Analytics (aimViz) –** get new insights as to the most profitable customers and those which can be 'tapped' for additional revenue and profit.
2. **Property Yield Management (propertyViz) –** maximize revenue and yield across the divisions and across properties. Easily see customers who play at one property, when and how much they play at other properties.
3. **Gaming Floor Optimization (floorViz™) –** see customer segment preferences on the floor, which areas of the floor and machines are working and which ones are not. Identify which groups of machines particular customers like to play, and when (market basket analysis).
4. **Advanced Gaming Floor Analytics (slotViz™) –** see which downloadable games/combinations are most popular, when and where. Easily assess the ROI and improvement opportunities with networked games and community gaming.

This paper focuses on how the first two modules of gameViz, namely, Revenue and Customer Analytics (aimViz) and Property Yield Management (propertyViz) are changing the world of gaming analytics for casino operators. Unlike traditional reporting tools, gameViz enables users to be inquisitive about their data, see a multitude of data points simultaneously to identify patterns and meaningful relationships, and gain new insights which were not previously possible.

Revenue & Customer Analytics (aimViz)

The power of the Quartal Super Graphic allows a casino operator to see his/her customers essentially in one single picture (Figure 1, *previous page*). The Quartal Super Graphic allows thousands of related data points (actual win, theo win, profit, frequency, recency, etc.) to be visually depicted, allowing a casino operator to quickly uncover improvement opportunities—nuggets and gems—in their data, which would otherwise not be obvious.

Figure 1 shows customers' last year frequency (y-axis) against this year's frequency (x-axis). Of particular interest are those 7,177 customers (the top left of quadrant 0) who visited the casino frequently last year but have not visited the casino as frequently this year. Identifying these customers enables the Casino's Marketing Team to run a targeted campaign to 'reactivate' these customers to higher frequency levels (see Business Value Example in Figure 2).

A critical step in customer analytics is segmenting customers into similar groups (based on Average Daily Theo (ADT), or Actual Win (AW), or other revenue or profitability measure) and then determining appropriate marketing initiatives for each segment. This is one area where the power of the Quartal Super Graphic can be extended further to generate new and deeper customer insights.

The Quartal Super Graphic in Figure 3 *(next page)* shows recency against frequency. Of particular interest are those patrons in quadrant 0 who have high frequency but have not been in recently. Typically, this might mean that these patrons are 'overdue' for their next trip. The important question that follows from this is; would understanding the next predicted visit date for these patrons provide a better ability to target those who are 'overdue' on their predicted trip? Similarly, would understanding the next predicted visit date provide a better ability to target those patrons who could be incentivized to come in earlier than predicted?

The Quartal algorithm (which is used to create the Quartal Super Graphic) ranks customers by two variables (x, y). In Figure 3 we saw that this could be recency (x) and frequency (y). However, users can change the variables shown on the Quartal Super Graphic. This ability to change what is displayed on the x and y axis of the Quartal picture makes the Quartal Super Graphic a powerful and intuitive customer segmentation, selection and analytical tool.[1]

aimViz draws together into one methodology, four powerful techniques—Super Graphics, Advanced Clustering techniques, Predictive Analysis and Business Value Questions (Figure 4, *next page*).

[1] Each quadrant of the Quartal can be sub-divided into successively smaller quarters, and so on, such that each successive quartering distributes the third variable (i.e., theo win in Figure 3) evenly across the quartal segments.

Business Value Example

The Quartal Super Graphic in Figure 1 shows Last Year Customer Frequency against This Year Customer Frequency.

Of particular interest in Figure 1 are those 7,177 customers (shown in the blow-up on the right) who visited the casino frequently last year but have not visited the casino frequently this year. Identifying these customers enables the Casino's Marketing Team to run a targeted campaign to these customers.

On average, these customers visited the casino five times more last year compared to this year. At an average theo win of $33 per trip, if we can get one in four customers to resume their previous frequency with an appropriate marketing campaign, this equates to $296,000 of additional revenue (5 additional visits times $33 theo win per trip times 7,177 customers times 0.25).

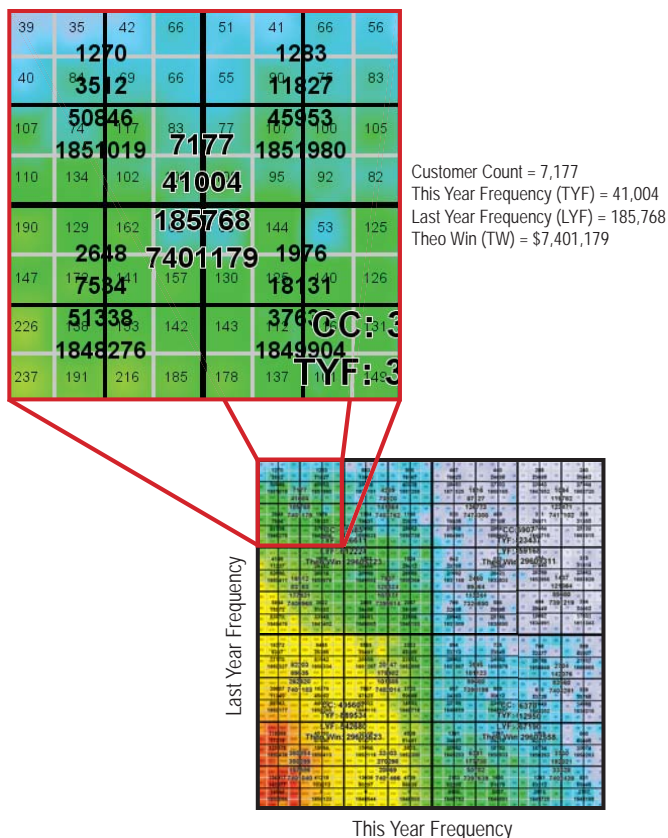Applying the same analysis to all of quadrant 0 customers, would result in additional revenue of $574,000.

Customer Count = 7,177
This Year Frequency (TYF) = 41,004
Last Year Frequency (LYF) = 185,768
Theo Win (TW) = $7,401,179

Figure 2 - Business Value Example Using the Quartal Super Graphic (numbers are illustrative only).

Figure 3 - Recency Frequency Quartal Super Graphic (numbers are illustrative only).
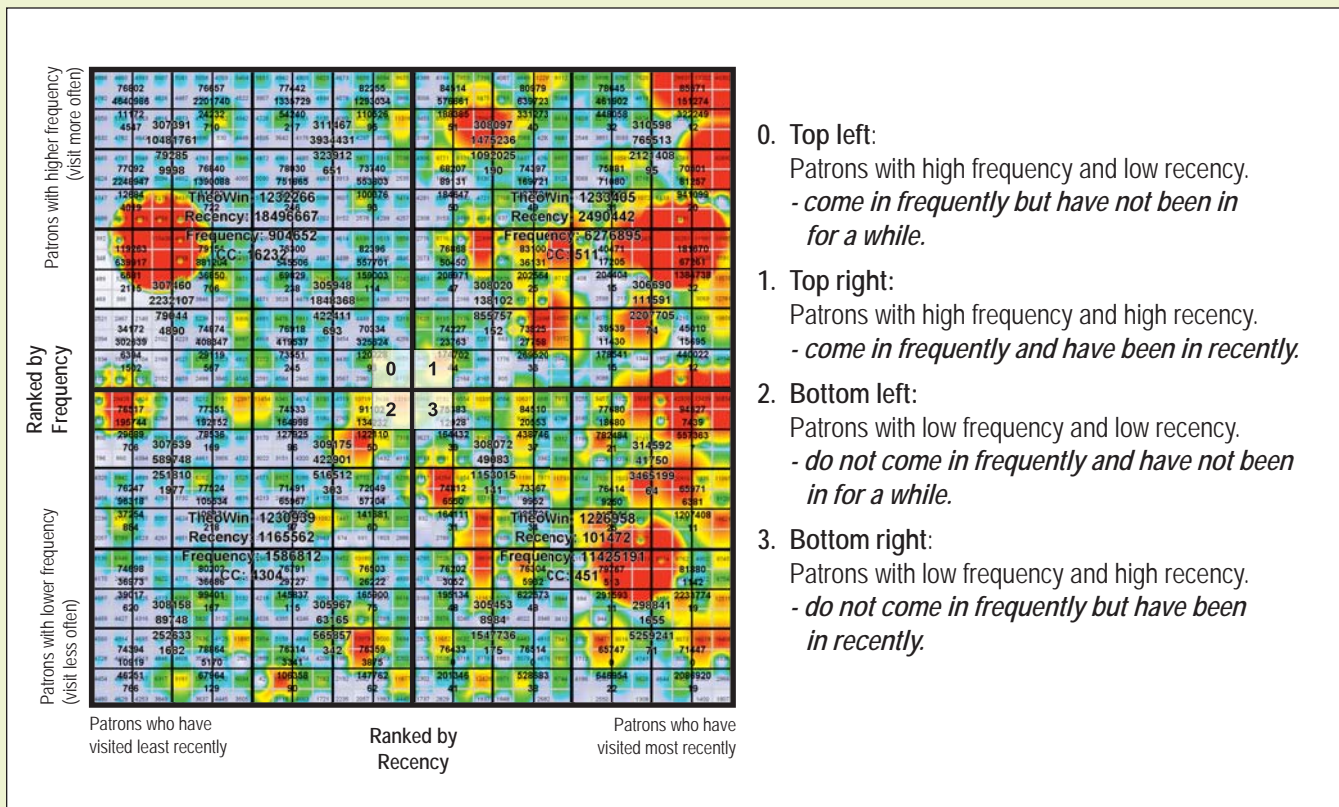
0. Top left:
   Patrons with high frequency and low recency.
   - *come in frequently but have not been in for a while.*

1. Top right:
   Patrons with high frequency and high recency.
   - *come in frequently and have been in recently.*

2. Bottom left:
   Patrons with low frequency and low recency.
   - *do not come in frequently and have not been in for a while.*

3. Bottom right:
   Patrons with low frequency and high recency.
   - *do not come in frequently but have been in recently.*

Figure 4 - The Four Components of aimViz.

aimViz draws together into one methodology, four powerful techniques—Super Graphics, Advanced Clustering techniques, Predictive Analysis and Business Value Questions.

aimViz consists of the layering of these techniques (Figure 5). The first layer (Data) is Advanced Clustering Techniques™ and Demand Modelling. The Advanced Clustering Techniques prepare the operational data by reducing the dimensions (i.e., collapsing attributes (columns) that are highly correlated), clustering customers with high similarities, and identifying clusters that contribute little additional information.

The Demand Modelling component is used to create customer behavioral models (predictive analysis) for the clusters and patrons (i.e., next predicted visit date (due back), past due, likely to attrit, trip value and lifetime value).

The second layer (Visualization) is the Super Graphics that display all patrons, or just the clusters, using one of the visual designs, such as the Quartal, Temporal, Spatial, or Pivotal. The user can visualize the whole to the part, and visualize the forecasts.

Using the right technique is essential to any effective customer segmentation analysis. The aimViz solution includes Advanced Clustering Techniques™ and provides a robust method for creating meaningful customer segments.

In addition, casino marketers can if they wish, use their own customer segmentation and selection tools to map selected customers to the Quartal Super Graphic to better understand the characteristics of the selected customer groups.

Once meaningful clusters are identified, they can be mapped and compared with other Quartal Super Graphics to show differences in behavior (Figure 6, *next page*).

The customer segments can also be mapped to either, or both, the Spatial Super Graphic™ (an outside geographic-based visualization) and the Inspatial Super Graphic (an inside casino floor-based visualization), to identify locational (i.e. geographic) differences in the customer segments and their patterns of play (Figure 7, *next page*). Each of these Super Graphics provides new insights on improving customer revenue and profitability.

With aimViz, get new insights as to the most profitable customers and those which can be 'tapped' for addtional revenue and profit.
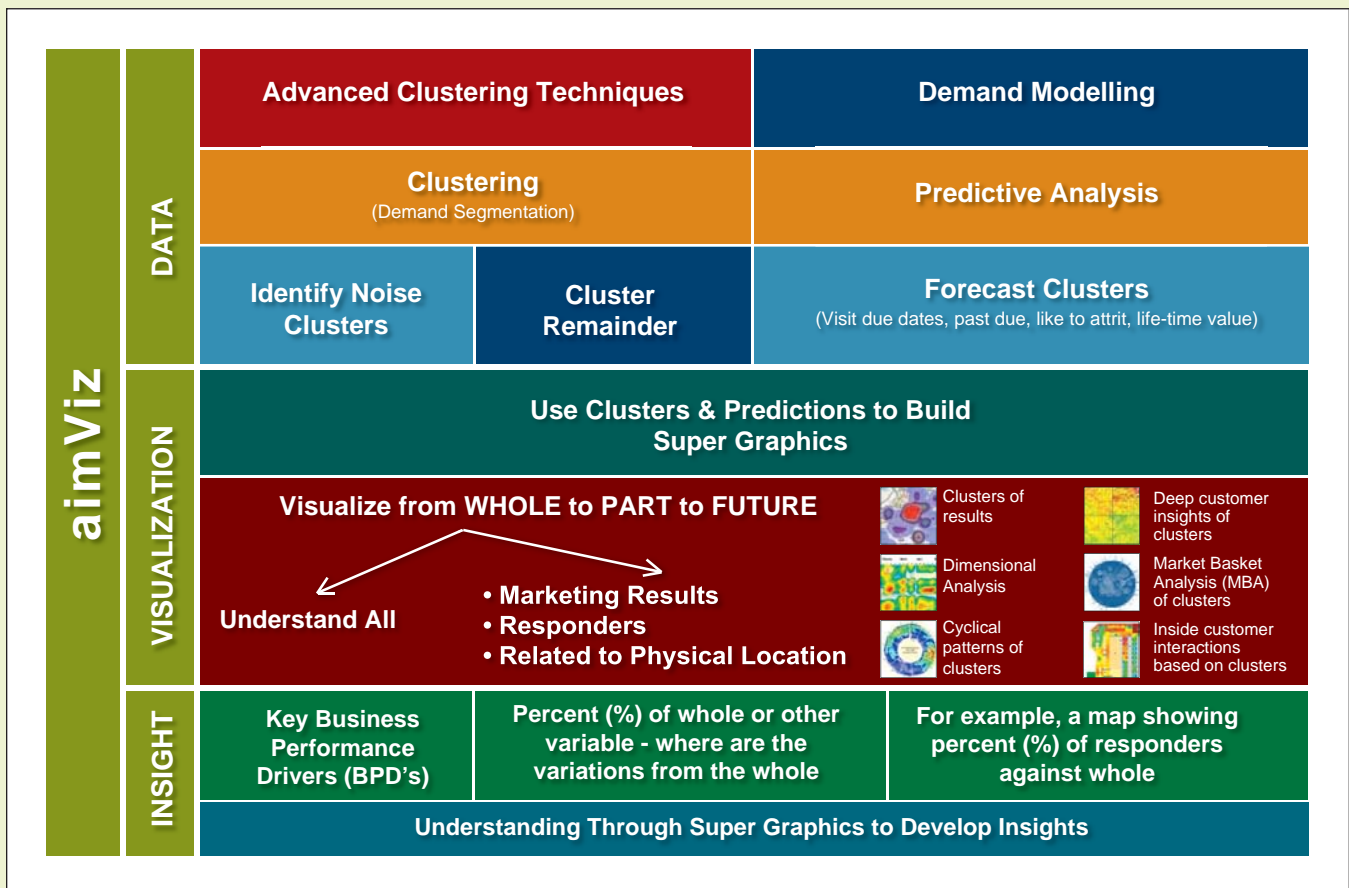

Figure 5 - Advanced Intelligence Methodology™ (aimViz).

Differences in customer behavior (RFM: recency, frequency and monetary value)—by customer segment—can easily be seen when the customer segments are displayed in the Quartal Super Graphic.

The ability to change what is displayed on the x and y axis of the Quartal picture makes the Quartal Super Graphic a powerful and intuitive customer segmentation, selection, and analytical tool.
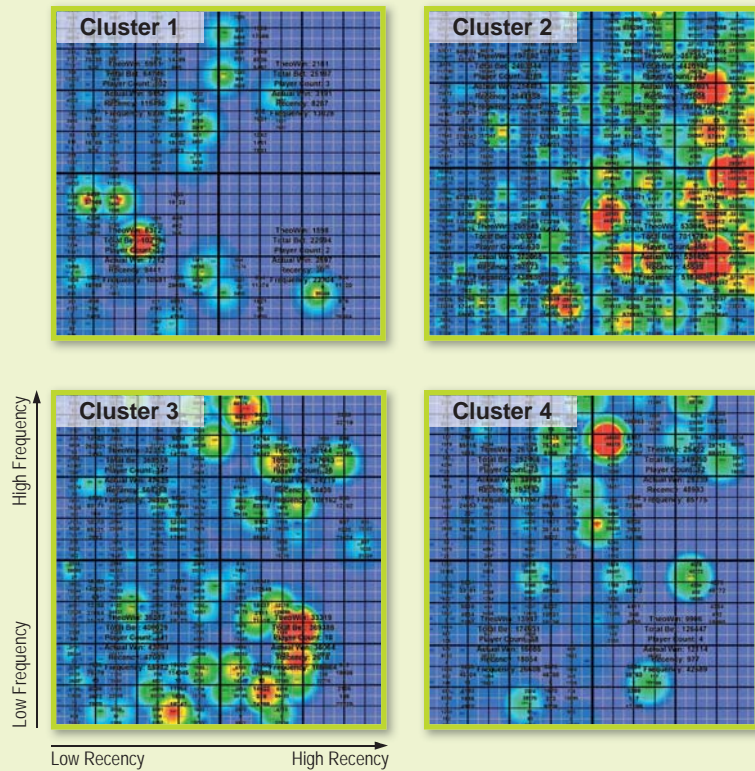

Figure 6 - Differences in Behavior of Customer Segments - Quartal Super Graphic.

Spatial Super Graphics can also be used to visualize each cluster, to see more clearly customer insights by location – both in terms of where the customers come from, and where they play in the casino.

The gameViz Spatial Super Graphics are displayed on top of Google™ Maps, which are world-wide industry-leading maps.
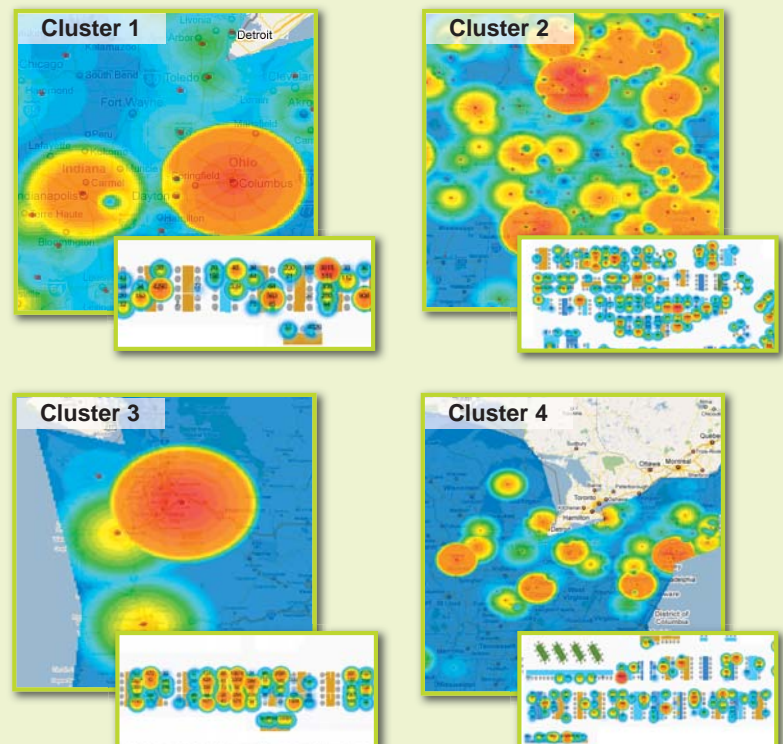

Figure 7 - Differences in Location by Customer Segment - Spatial Super Graphic and Inspatial (slot floor) Super Graphic.

The third layer of Figure 5 (Insight) is Business Value Questions that result in delivering real value to the casino.

The Business Value Questions form the true foundation of aimViz. As any gaming operator wants to know, how will answering these questions help me in my business?

Hence, Super Graphics are geared towards answering relevant Business Value Questions and providing the relevant gaming business insights.

Figure 8 sets out example Gaming Business Value Questions. Two of these questions—frequency versus ADT and actual win versus theo win—are expanded on in Figures 9 and 10, respectively *(next page)*.

Only by applying these sorts of Business Value Questions to the Super Graphics can real (and actionable) gaming business insights be generated.

Super Graphics

are geared towards answering

relevant Business Value Questions

and providing the relevant

gaming business insights.

BUSINESS VALUE QUESTIONS

EXAMPLE QUESTIONS:

- Would understanding where customers come from, and their play (actual or theo), enable better targeting of customer campaigns?
- Would understanding the frequency of customers last year versus this year enable better targeting for customer campaigns?
- Would knowing customers with low (high) actual win compared to a high (low) theo win result in different promotions being offered to them?
- Would understanding the next predicted customer 'visit date' provide a better ability to target those customers who are 'overdue' on their predicted trip, or who could be incentivized to come in earlier than predicted?
- Would understanding the frequency of customers by ADT (average daily theo) provide for improved marketing program effectiveness for campaigns based on ADT?
- Would knowing customers with a higher (lower) ADT but the same or lower (higher) Average Monthly Theo (AMT) be valuable in improving marketing offers? Are we over/under-incenting these customers?
- Would knowing those customers who are behind 'target' (goal vs. actual) be valuable for determining which incentives should be offered to whom?
- Would comprehending in just a few minutes the ROI on marketing spend (over or under-investing) across thousands of customer segments, help measure marketing success?
- Would identifying increasing and decreasing customer segments enable you to better target areas of the business that are growing or need attention?
- Would knowing customers with low (high) actual profit % compared to theo profit % result in different incentives being offered to them?
- Would understanding the frequency/recency of customer segments provide a more informed basis for 'just in time and just enough' offers (the exact number of offers required to get someone to respond)?
- Would knowing which customers receiving free play/bonus play offers are spending 'real' money in the casino help optimize free play/bonus play offers?

SUPER GRAPHICS

Spatial

Temporal

Pivotal

Quartal

Inspatial

Compositional

BUSINESS INSIGHTS

☑ **Strategic Insights**

☑ **Operational /Product Insights**

☑ **Customer Insights**

☑ **Revenue Insights**

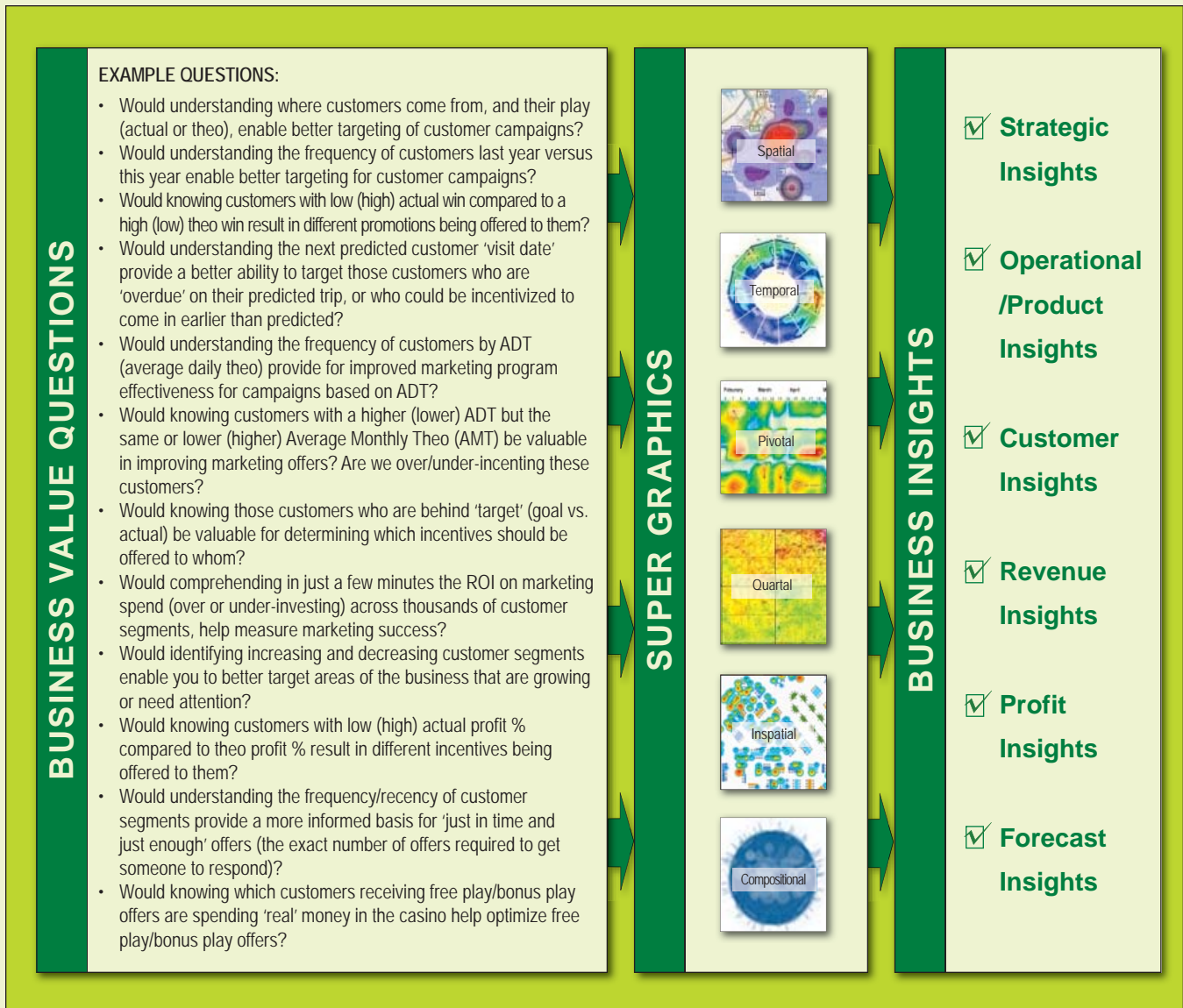☑ **Profit Insights**

☑ **Forecast Insights**

Figure 8 - Example Business Value Questions Applied to Super Graphics.

Would understanding the frequency of patrons by ADT (average daily theo) provide for improved marketing program effectiveness for campaigns based on ADT?

For campaigns based on ADT, those patrons in quadrants 0 and 1 have a higher frequency (than those patrons in quadrants 2 and 3), and accordingly are worth 'more' to the casino. Can marketing effectiveness be improved by providing different incentives to quadrant 0 and 1 patrons?

Customers with the same ADT but different frequencies might receive the same incentive under an ADT based incentive program. Are we losing the business of certain customers; do we need to put some customers on a trigger program?

What differences in patterns do we see if we map our customer segments to this Quartal? How does this impact planned campaigns?
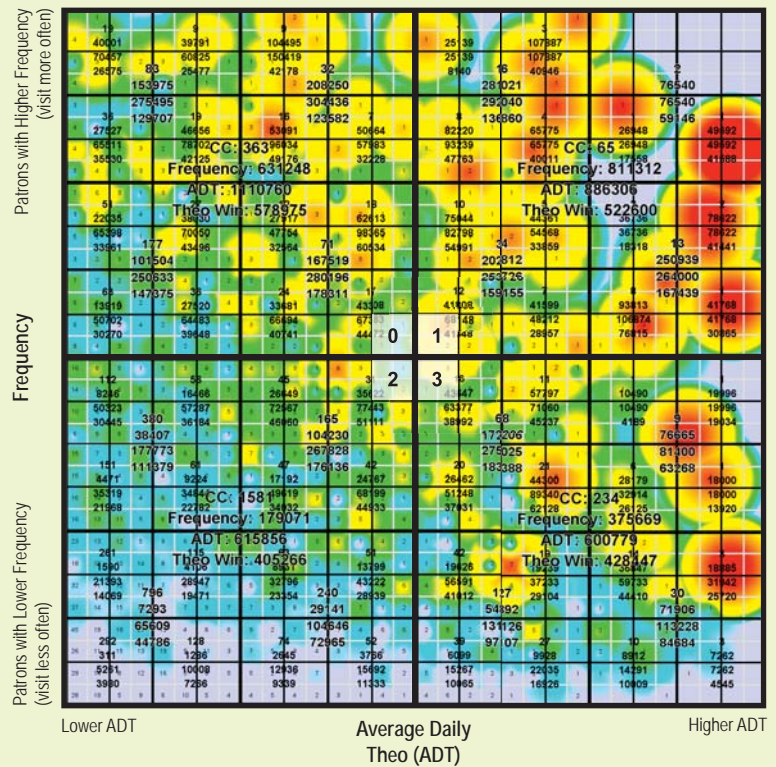
Figure 9 – ADT Analysis Quartal Super Graphic.

Would knowing patrons with a low actual win compared to a high theo win (quadrant 3) result in different promotions being offered to them?

If we use only theo win and ignore luck, we will end up mailing better offers to the lucky customers and ignoring the unlucky customers. In reality, we should do the opposite.

In this instance, when customers are unlucky (i.e. their AW is more than their TW), this could trigger a reward.
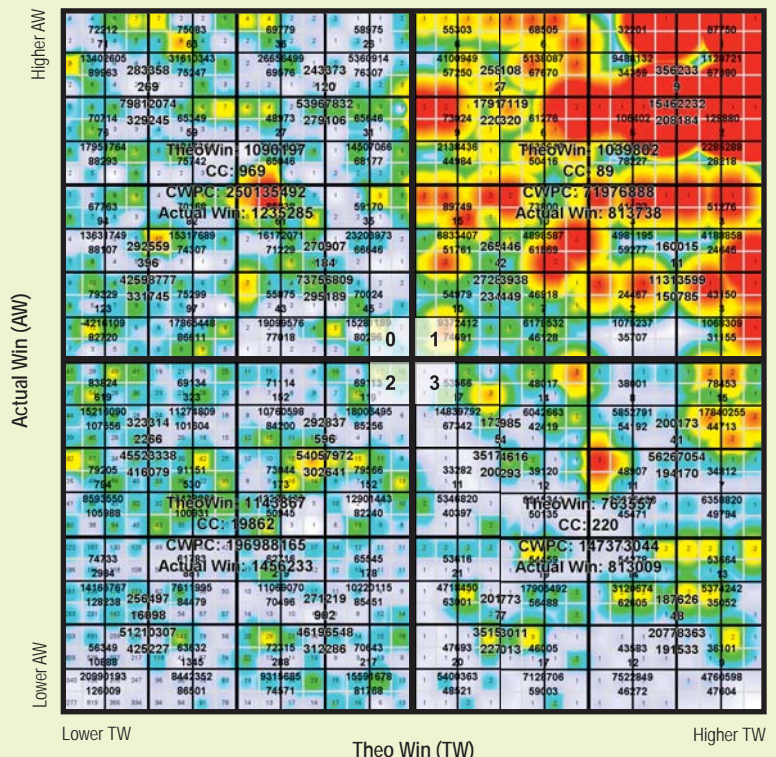
Figure 10 – Actual Win -Theo Win Quartal Super Graphic.

Property Yield Management (propertyViz)

A key consideration for casino operators is not just the gaming floor, but the performance of the whole property, and how customers interact with different areas of the property. The goal is to maximize yield across the entire property, and for multi-property operators, to maximize yield across all properties.

More and more casino operators consider hotel and F&B as profit centers whereas traditionally, these operations were cost centers for the purposes of supporting gaming floor activities. This changing approach has resulted in refocusing of efforts and marketing initiatives in non-gaming areas of a property. However, there is a need to ensure that patron dollars are optimized across the property to avoid revenue cannibalization.

The Pivotal Super Graphic (Figure 11) is a particularly useful style of Super Graphic for visually showing property performance and rapidly gaining insights in terms of:

- **Divisional Performance –** Show the performance of divisions compared to other divisions (slots, tables, hotel, F&B, other), compare divisions over time, see and understand the impact of various campaigns on and across all divisions.

- **Multi-property Performance –** Show the relative performance of properties within the group (Property 1, Property 2, Property 3, etc.), compare the properties over time, see and understand the effectiveness of multi-property promotions.

- **Cross-property Performance –** Understand which players play at other properties, when and how often.

A particular strength of the Pivotal Super Graphic is that it allows managers from different divisions or different properties to have a common understanding of the issues and opportunities facing them and their colleagues. The visual format allows insights to be easily identified, understood and discussed. Managers can quickly comprehend and communicate key insights to other managers and staff. Simply, the Super Graphics provide an informed way of making improvement opportunities quickly.

The following table sets out Business Value Questions which can be answered using propertyViz (Table 1):

Business Value Questions

1. Would it be valuable to know the impact of promotions across the different areas of the property?
2. Would it be valuable to know how different customer segments interact with the different areas of the property?
3. Would it be valuable to know which non-play incentives are having the most impact on play, when and where on the floor?
4. Would it be valuable to know patrons who play at one property and which other group properties they play at and when?
5. Would it be valuable to know the property-wide value of key customer segments as a basis for targeted marketing campaigns?

Table 1 – Example Business Value Questions for Property Yield Management (propertyViz).

Key Points Summary

- gameViz is a suite of Super Graphics and Business Performance Drivers specifically designed and developed for the gaming industry—to improve performance where it matters most—the bottom line.

- Whilst the gameViz Super Graphics can be applied to most gaming business areas, this paper demonstrates how Super Graphics are applied to:

  (a) Revenue & Customer Analytics (aimViz) – get new insights as to the most profitable customers and those which can be 'tapped' for additional revenue and profit, and

  (b) Property Yield Management (propertyViz) - maximize revenue and yield across the divisions and across properties. Easily see customers who play at one property, when and how often they play at other properties.

- The range of gameViz Super Graphics: Spatial (geographic), Temporal (time-based), Pivotal (cross-tabulations), Quartal (quadrant based analysis), and Inspatial (casino floor maps) provide an essential arsenal to gaming operators to obtain real insights to a multitude of gaming Business Value Questions.

- Traditional BI tools simply lack the necessary power to handle the ever-growing volumes of gaming patron and slot machine data and the changing dynamics of the gaming floor. Gaming operators must now seek out the new paradigm-Super Graphics.

Divisional Performance

Show the performance of divisions compared to other divisions, compare divisions over time, see and understand the impact of various campaigns on and across all divisions:
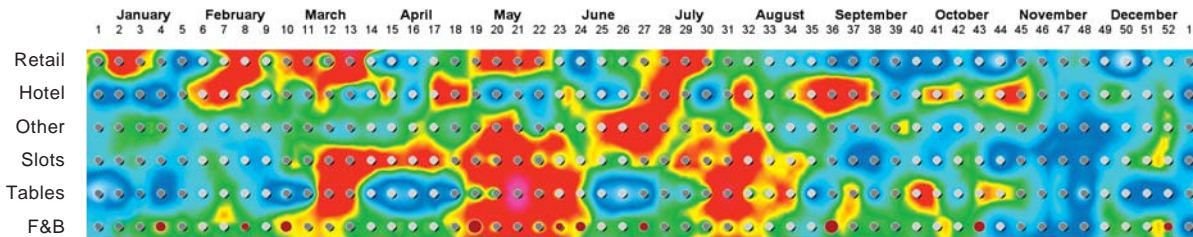
Multi-property Performance

Show the relative performance of properties within the group (property 1, property 2, property 3, etc).
Compare the properties over time, see and understand the effectiveness of multi-property promotions:
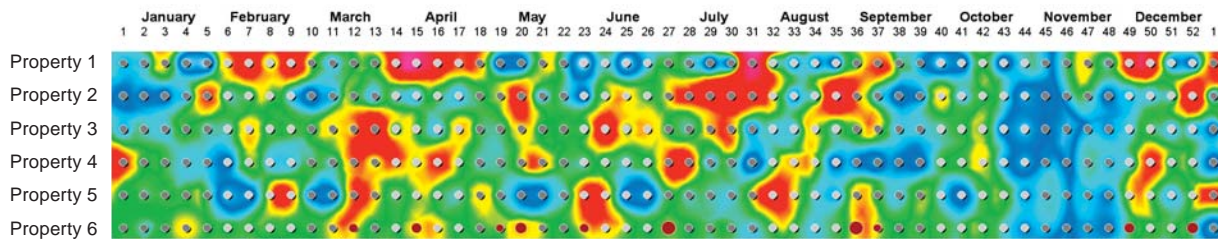
Cross-property Performance

Understand which players play at other properties, when and how often:
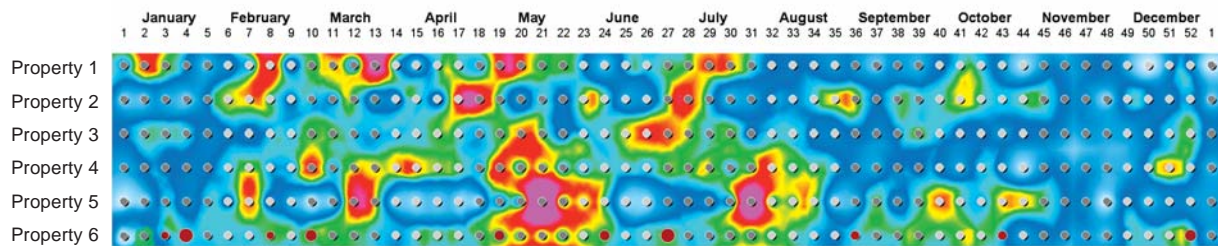
Figure 11 - The Pivotal Super Graphic within propertyViz.

More About gameViz

gameViz is a powerful, easy-to-use, industry-specific data visualization solution that allows casino operators to directly query their data, and enable them to see what they need to do.
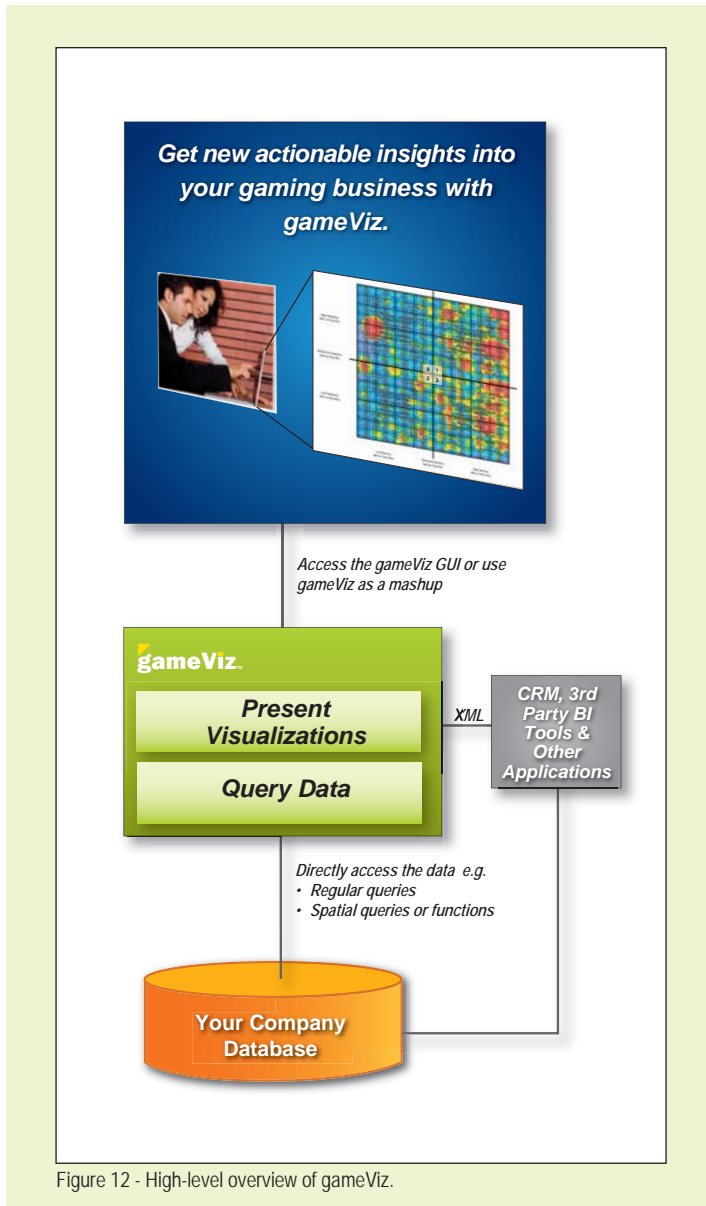
Figure 12 - High-level overview of gameViz.

TOP 10 REASONS TO CHOOSE gameViz

1. **Unique visual presentation methods** - allows users to comprehend a multitude of data simultaneously in a natural and easy-to-use way. Also enables users to capture their business in one single picture and then look at relevant detail where appropriate.

2. **Extensive and expanding visual library** - extensive and expanding library of Super Graphics that have built-in data visualization expertise to enable users to create and use meaningful Super Graphics.

3. **Framework for powerful industry solutions** - as a generic tool, gameViz provides a strategic and operational intelligence framework for powerful and value-based industry solutions.

4. **Easy-to-use powerful technology** - simple, easy-to-use graphical interface that allows users to directly act on the data within the context of the advanced data visualization.

5. **Unique underlying algorithms** - unique and patent pending algorithms that translate data and business performance drivers into easy to understand and useful visualizations.

6. **Utilizes industry databases** - enables an organization to get more value from its existing investment in its industry data warehouse. gameViz interrogates the database directly without the need to create a separate database or cubes.

7. **Rich Internet Application (RIA)** - web-based enterprise software that is deployable with only a URL.

8. **State-of-the-art technology** - allows enterprises to use the gameViz client side Adobe® Flash® application or the enterprise's own mashup with the gameViz server side application.

9. **Service Oriented Architecture (SOA)** - built using J2EE technology with USEful™ and RESTful interfaces and deployed on IBM WebSphere® Application Services or JBoss EAP.

10. **Leverages your existing investment in BI tools** - gameViz has been designed to work with most other major BI tools. gameViz provides the big picture whilst other BI tools can provide more detail. You can export cluster groups into your BI tools for in-depth analysis.