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## Conference Review

# Staying ahead of the curve: Using revenue management to help survive an economic downturn

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## Laurie Garrow

is an Assistant Professor of Civil and Environmental Engineering at Georgia Tech. Her research interests include travel behaviour modelling and development of advanced discrete choice models. She currently serves as Vice Chair of the Aviation Applications Group of INFORMS and Co-Chair of the AGIFORS Scheduling and Strategic Planning Group. Before joining the faculty, she worked for 5 years in the research and development revenue management group for United Airlines and for 1 year in customer science at Mercer Management Consulting.

## Mark Ferguson

is the Steven A. Denning Professor of Technology and Management in the College of Management and is the coordinator for the Pricing and Revenue Management Initiative at Georgia Tech. He served as Co-Chair of the conference featured in this article. He serves as a board member for the Pricing and Revenue Management subdivision of INFORMS and has consulted with a number of companies on price optimization. Two of his papers have won best paper awards at the national Production and Operations Management conferences and his research has been supported by the National Science Foundation. Before joining the faculty, he worked for 5 years as an engineer and inventory manager at IBM.

**Correspondence:** Laurie Garrow, Georgia Institute of Technology, School of Civil and Environmental Engineering, 790 Atlantic Drive, Atlanta, Georgia 30322-0355, USA

**ABSTRACT** On 11–12 November 2008, the Fourth Annual Revenue Management and Price Optimisation Conference was held at the Georgia Institute of Technology. The conference explored different business strategies that a wide cross-section of companies are using to manage the current economic downturn. Several common messages emerged from the discussions including: the increased importance of revenue management forecasts and monitoring activity; the increased need for open dialog among revenue managers with their sales and marketing colleagues and the critical role of targeted discounts to help avoid prices from spiralling downward. This paper summarises key discussions that emerged from the conference and highlights the experiences of three companies portrayed in keynote addresses given by Mark Shafer, Senior Vice President of Revenue and Profit Management at Disney; Dave Roberts, Senior Vice President of Global Revenue Management at Marriott and Brad Thompson, Chief Pricing Leader at GE Corporate.

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## INTRODUCTION

The Fourth Annual Conference on revenue management and price optimisation, co-hosted by Revenue Analytics and the Price and Revenue Management Focused Research Programme at the Georgia Institute of Technology,

was held at Georgia Tech on 10–11 November 2008. The theme of this year's conference, 'Staying Ahead of the Curve', explored different business strategies that firms are using to manage the current economic downturn and investigated the role that revenue management

and pricing systems play in achieving these strategies. Several common practices emerged from the conference discussions. Importantly, many firms are employing very different business strategies for this economic downturn than in the previous one, and are relying more heavily on revenue management forecasts, performance reporting and auditing tools, and value-based pricing strategies customised to different market segments. Multiple factors are contributing to this shift in thinking among business leaders including the increased adoption of revenue management and pricing systems throughout many US industries, the increased penetration of the internet that has led to pricing transparency for both consumers and competitors, and a business environment in which margins are now much smaller than several years ago.

This paper summarises key discussions from the conference. First, the experiences of the three firms portrayed in the keynote addresses are summarised. The keynote addresses were given by Mark Shafer, Senior Vice President of Revenue and Profit Management at Disney; Dave Roberts, Senior Vice President of Global Revenue Management at Marriott and Brad Thompson, Chief Pricing Leader at GE Corporate. Next, additional strategies for managing price and demand during an economic downturn mentioned by panel and breakout speakers from a wide cross-section of industries are summarised. The names, titles and companies of all presenters, panelists and moderators are included in alphabetical order in the references and the conference agenda is included in the appendix.

## KEYNOTE ADDRESSES

### **Disney's extension of science-based data analytics**

Mark Shafer, Senior Vice President of Revenue and Profit Management at Disney, presented the first keynote address, which focused on how the Walt Disney Company has evolved in

how it has applied the science of revenue management over the last few years. Although Shafer's talk was not explicitly focused on strategies that Disney is using to get through the current economic downturn, many of the 'best practices' he emphasised would be echoed by other speakers in the context of surviving an economic downturn.

Disney, like several other companies, has expanded the classic definition of revenue management. Specifically, Disney defines revenue management as 'a discipline of applying science and analytics to the relentless pursuit of increased long-term profitability through better business decisions' (Shafer, 2008). By developing a general framework for identifying revenue management opportunities – as well as the appropriate approach that should be used to leverage these opportunities – Shafer states that 'not only have we been able to find huge opportunities of applying revenue management across different lines of business, we've also found huge opportunities of applying it across the Disney Company' (Shafer, 2008). Further, Disney has found that the fundamental science of revenue management can be applied across different industries and areas, for example the same fundamental revenue management model is used at Walt Disney World, Disneyland and Disneyland Paris, albeit the underlying calibration of demand drivers differs. Importantly, Disney's success in applying revenue management across different areas of the company has been due in large part to the support of senior management. Most notably, a senior executive from the resort area sponsored five revenue management personnel to talk to individuals in other parts of the company, such as ESPN. This approach (providing skilled personnel at no cost to the business units) was instrumental in increasing the adoption of revenue management throughout the company.

Disney identifies opportunities to apply revenue management by classifying a business area according to five dimensions related to demand (instantaneous versus advance purchase), inventory (fixed or variable), pricing



(fixed or dynamic), segments (homogeneous or heterogeneous) and transactions (high or low). After identifying potential value streams according to these characteristics, Disney then applies appropriate methods to support measurement and reporting, forecasting and optimisation.

Conceptually, the goals of measurement and reporting are to quantify the effects of pricing on demand and to understand whether there are any complementary or cannibalistic effects on other products because of these price changes. For example, if the price of Cinderella's dress increases, what is the impact on tiara sales (a complementary product) or Snow White's dress (a cannibalistic product if the price of this is not simultaneously raised)? However, determining price elasticity is often a challenging problem, as the 'noise' introduced by non-price demand drivers (for example, customer mix, traffic, weather and so on) typically have a larger impact on demand than price. In order to isolate the impact of price, Disney employs 'normalisation' strategies. These strategies are similar in spirit to design-of-experiment methods in which one demand driver is changed although holding all other factors constant in order to measure and remove the 'noise' associated with this non-price demand driver.

When evaluating revenue management opportunities, Disney also considers how it wants to approach uncertainty in demand forecasts for situations in which spoilage and opportunity costs differ. A 'Code 5' forecast implies that 50 per cent of the time, actual demand will fall ahead of the available inventory, although 50 per cent of the time actual demand will fall behind the available inventory. Similarly, a 'Code 7' implies that 70 per cent (30 per cent) of the time, actual demand will fall ahead of (behind) the available inventory. Codes represent where the business wants to fall in the demand distribution. For example, in the case of DVD purchases (which are a high impulse item with very low spoilage costs), a Code 7 (or higher) would be appropriate to ensure suffi-

cient inventory, although in the case of a sporting or theatrical event, a Code 3 (or lower) would be appropriate to ensure few individuals are denied admission to the event. Some readers may recognise this practice as an application of Littlewood's rule (in RM) and the newsvendor model (in inventory management).

Within optimisation, Disney has also applied origin – destination revenue management concepts to better understand the effects of bundling and product placement. Although optimisation requires the highest level of sophistication and investment in computational resources, Shafer notes that it is not necessary for every business unit to reach this level of sophistication in order to support better business decisions. That is, as units move from experience-based to more sophisticated forecast-based decisions (that range from simple deterministic means based on historical averages, to distributions based on historical measures of location and spread, to event-triggered real time information), the odds of making better business decisions increases.

### **Leveraging revenue management through an economic cycle: The Marriott story**

Dave Roberts, Senior Vice President of Global Revenue Management at Marriott, presented the second keynote address and outlined Marriott's top revenue management priorities for managing through an economic downturn. These include helping hotels make better RM decisions and helping other disciplines achieve success.

To help hotels make better decisions, Marriott is focused on designing targeted marketing campaigns and discounts for specific segments. They do so because different segments have different drivers that can be used to drive share. For example, frequent business travellers who are in the top tier of Marriott's loyalty programme are not motivated by discounted leisure offers (as the majority use

points to pay for their vacations), but are motivated by point bonuses. In this environment, Marriott emphasises that it is critically important for hotels to maintain their price position and to think through the consequences of competitor responses to price reductions (for example, will competitors notice the price change and will they care)?

Maintaining price is particularly important for higher-priced segments. For example, the Ritz Carlton brand is currently suffering more than the other brands, as many of their guests are from the financial sector. Further, as Roberts notes, there is often a 'stigma' associated with staying at a Ritz Carlton, as seen by the fact that in the current environment where the spending habits of financial companies receiving financial assistance from the government, news reporters have been camping out in the lobby at one hotel property and asking guest where they worked. Thus, even if companies can afford to stay at a Ritz Carlton property, many are choosing not to. However, the Ritz Carlton properties have not lowered their prices, as they are conscious of long-term reference pricing effects, that is, customers who pay \$150 per night this year would be unwilling to pay \$600 per night next year when the economy recovers.

Roberts also notes the critical role of internal audits in times of economic downturns. Marriott uses monthly audits to identify pricing mistakes early as 'pricing mistakes cost you much more in a downturn than in an upturn' (Roberts, 2008).

To effectively manage through an economic downturn, Marriott is also focusing on building stronger collaborations among its revenue management, sales and marketing departments. That is, instead of simply having the revenue management group frequently say 'no' to group opportunities (which often fluctuate less in economic cycles than does demand from individual travellers), the revenue management group is being encouraged to more actively work with the sales team to find viable options, for example, saying 'yes if' a group is willing to

move to a different (and less busy week), move to a smaller meeting space and so on. This is in contrast to Marriott's approach during the last economic downturn of 11 September 2001, which was to accept the majority of groups (often at a low price) even for far out future dates, which hampered their long-term ability to generate their full potential in revenue, profit, and market share growth after the economy improved in the years 2004–2007. This time, Marriott's priority is on making sure their demand forecasts are accurate so they can be used to support better business decisions related to group sales.

### **Driving pricing improvement: GE's strategy for communicating a simple process to spur action**

Brad Thompson, Chief Pricing Leader at GE Corporate, was the final keynote speaker. Similar to the approach noted by Disney, GE helps its diverse business units focus on making better pricing decisions based on their current level of sophistication. For example, a business unit that has a low level of pricing awareness is encouraged to calculate their break-even elasticity for their products to generate an awareness of how overall profit is influenced by both price and demand. These business units are also encouraged to add automated metrics, diagnostics and exemption process to gain a clearer understanding of their customers' needs and a clearer understanding of how non-price demand drivers influence profit (so that the true effect of price changes can be determined). Given an understanding of these different demand drivers and how they vary by customer segments, business units are then encouraged to conduct a price/value analysis and set prices according to the value of the product relative to the competition. Automated collection of competitive intelligence is often added at this stage of the process. The most sophisticated business units are encouraged to apply optimisation tools for developing optimal pricing structures. These and similar optimisation processes often consider competitor strategies



and industry dynamics and use experiments to learn how the market responds to price changes. Finally, given the ability to calculate the 'optimal price', this information is incorporated into sales support tools to align incentives across the different divisions. For example, sales compensation could be designed to have a pricing component. Real-time calculations of 'how much additional' compensation the sales representative could earn by encouraging a potential customer to buy a more expensive product (or the same product at a higher margin) can also be added directly to the sales tools so they are visible during the sale transaction.

### **Summary of themes from keynote addresses**

Several common themes emerged in the keynote speakers that were echoed by other panelists. The most frequently mentioned business strategy was the use of value-based pricing and segmentation. As Brian Dicker, Vice President of AVIS notes, as profit margins have become smaller, it is now 'becoming more important to have proper segmentation and (identify those segments) where it is the least damaging to lower price' (Dicker, 2008). Dick Braun, Vice President of Parker Hannifin Corporation, also notes the importance of pricing different value streams appropriately and not offering wide-spread promotions on list prices (Braun, 2008). The opinion is echoed by Karen Cardwell, Senior Revenue Manager of Keystone Lodging and Golf, who notes that in order to avoid a spiralling down in prices during this economic downturn, her organisation is focused on long-term profitability, maintaining product value, and avoiding the pricing mistakes they made after 11 September 2008 (such as discounting all products by 50 per cent). Jim Rozell, Revenue Optimisation Leader of Carlson Hotels, also notes that 'prices will not spiral down if you make the right value proposition' (Rozell, 2008). For example, instead of lowering a \$149 room rate, hotels will add-in extras 'at no cost' such as breakfast or parking. When the

customer checks out, he or she will remember the \$149 rate as the long-term reference price, not the fact that breakfast or parking was included. Rozell also notes that the hotels 'have to be very careful' about offering discounts, as the advent of travel blogs makes it much easier for customers to learn that they offered these discounts, and thus harder to attract new customers to their properties.

Interestingly, a slightly distinct customer segmentation strategy was noted by Donald Davidoff, Group Vice President of Strategic Systems at Archstone, an apartment rental company that primarily serves urban areas. As Davidoff notes, in times of economic downturns, they will lower apartment prices to attract a different customer base (those that typically stay in suburban apartments). At the time of renewal, if the economic situation has improved, they will raise rents by as much as 12–18 per cent, which results in the pre-downturn customer mix (customers who are willing to pay more for an urban location).

In addition to using value pricing and segmentation strategies, several panelists noted increased attention on holding business leaders and their units accountable for pricing decisions. For example, Dick Braun of Parker Hannifin notes that he 'expects leadership' among the business unit leaders and that they 'need to be personally responsible for managing (the pricing) process' (Braun, 2008). Braun is currently trying to move pricing decision authority to a handful of general managers that oversee the sales force; this has the benefit in that a sales representative who wants to request exemptions or pricing discounts will have to directly ask his or her boss, thereby increasing accountability. Greg Preur, the Director of Pricing at Cooper Industries, also emphasised the importance of senior management support for pricing decisions. He has weekly meetings with his counterparts in marketing, sales and finance where major pricing decisions are often heavily debated. At the end of the meeting however, the senior management teams present a united front on whatever decisions were

made. This helps avoid infighting between the company's functional areas and divisions.

## CONCLUSIONS

This paper summarised key business strategies that different companies are using to manage through the current economic downturn. In contrast to the last economic downturn after 11 September 2008, many businesses are using revenue management and pricing approaches to better understand non-price demand drivers and design targeted discount offers that offer value to specific customer segments. The use of performance monitoring and internal audits was also mentioned by several speakers as a useful way to catch costly pricing mistakes early (as well as encouraging accountability for pricing decisions). Greater collaboration among the revenue management, sales and marketing teams was also noted as being important – both in terms of designing targeted offers as well as in creating a unified position across divisions with respect to maintaining current pricing policies.

## ACKNOWLEDGEMENT

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support the Pricing and Revenue Management Initiative at Georgia Tech.

For information about this conference and future conferences, please contact the authors or visit the conference website at <http://revenuemanagementconference.com>. Additional information about the Pricing and Revenue Management Initiative at Georgia Tech, which was funded by a grant by the Georgia Tech Focused Research program and initiated these conferences, can be found at [http://mgt.gatech.edu/fac\\_research/centers\\_initiatives/pricing.html](http://mgt.gatech.edu/fac_research/centers_initiatives/pricing.html).

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The following lists individuals who participated in the conference who are not included in the reference. The list includes moderators, workshop leaders and participants in three parallel sessions that were not recorded owing to technical difficulties.

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- Bhandari, R. (2008) Senior Vice President of Revenue Strategy and Systems, Trump Entertainment Resorts. Panelist in customer centric pricing.
- Breen, J. (2008) Senior Pricing Manager, Coca-Cola Enterprises. Panelist in evolving software solutions into corporate capabilities.
- Cross, D. (2008) President, Revenue Analytics. Workshop instructor for analytically driven pricing strategies.
- Cross, R. (2008) Conference Co-chair. Chairman and CEO of Revenue Analytics. Welcoming address, chair of customer



- centric pricing panel, and workshop instructor for principles for revenue management and pricing success.
- Cross, Z. (2008) Vice President, Revenue Management Strategy, Revenue Analytics. Workshop instructor for analytically driven pricing strategies.
- Easdale, J. (2008) Corporate Director of Revenue Management, Gaylord Hotels and Resort. Panelist in bulk sales and negotiated deals.
- Ferguson, M. (2008) Conference Co-chair. Associate Professor, Georgia Institute of Technology, College of Management. Opening remarks, moderator for bulk sales and negotiated deal panel, and workshop instructor for introduction to the science of revenue management and price analytics.
- Garrow, L. (2008) Assistant Professor, Georgia Institute of Technology, School of Civil Engineering. Workshop instructor for discrete choice modeling.
- Higbie, J. (2008) Senior Vice President and Chief Scientist, Revenue Analytics. Workshop instructor for implementing pricing and optimization algorithms.
- Hornby, S. (2008) Senior Director, Total Yield Systems. Marriott International. Panelist in evolving software solutions into corporate capabilities and workshop instructor for bulk pricing and negotiated deals.
- Hubbard, K. (2008) Manager, Pricing Analytics, The Home Depot. Breakout speaker.
- Iliescu, D. (2008) Operations research consultant, Revenue Analytics. Workshop instructor for implementing pricing and optimization algorithms.
- Marone, M. (2008) Strategic Pricing Manager, GE Energy. Panelist in evolving software solutions into corporate capabilities.
- Morello, G. (2008) Manager, Cargo Revenue Management, American Airlines. Panelist in customer centric pricing.
- Morrison, J. (2008) Manager, Operations Research, Marriott International. Workshop instructor for bulk pricing and negotiated deals.
- Rudel, M. (2008) Marketing Director, Revenue Management, UPS. Moderator for evolving software solutions into corporate capabilities.
- Sorensen, E. (2008) Vice President of Pricing and Yield Management, Avis Budget Group. Panelist in customer centric pricing.
- Stucke, G. (2008) Manager, Global and National Agreement, Siemens Energy and Automation. Panelist in bulk sales and negotiated deals.

## APPENDIX: CONFERENCE AGENDA

11 November 2008

<i>Time (hours)</i>	<i>Event</i>
0730–0830	Registration and breakfast
0830–0840	Introduction – Mark Ferguson (Georgia Tech)
0840–0900	Welcome – Bob Cross (Revenue Analytics)
0900–0945	Keynote – Mark Shafer (Disney)
0945–1030	Keynote – Dave Roberts (Marriott)
1030–1100	Break
1100–1215	Panel A: Driving revenue growth in a slowing economy for B2C customers – Moderator Donald Davidoff (Archstone) Panel B: Evolving software solutions into corporate capabilities – Moderator Mark Rudel (UPS)
1215–1330	Lunch
1330–1415	Breakout A: What's your game plan – Kristen Hubbard (Home Depot) Breakout B: Tactical price management in a zero growth environment – Dick Braun (Parker Hannifin)
1415–1530	Panel C: Customer centric pricing and revenue management – Moderator Bob Cross (Revenue Analytics) Panel D: Bulk sales and negotiated deals – Moderator Mark Ferguson (Georgia Tech)
1530–1600	Break
1600–1645	Keynote – Brad Thompson (GE)
1645–1700	Closing remarks – Mark Ferguson (Georgia Tech) and Bob Cross (Revenue Analytics)
1700–1830	Cocktail reception



12 November 2008

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<i>Time (hours)</i>	<i>Event</i>
0800–0900	Registration and breakfast
0900–noon	Workshop A: Principles for revenue management and price optimization success – Instructor Bob Cross (Revenue Analytics) Workshop B: Is bigger really better? Bulk pricing and negotiated deals. Instructors Sharon Hornby and Julia Morrison (Marriott International) Workshop C: Implementing pricing and optimization algorithms. Instructors Jon Higbie and Dan Iliescu (Revenue Analytics)
Noon–1330	Lunch
1330–1630	Workshop D: Introduction to the science of revenue management and price analytics – Instructor Mark Ferguson (Georgia Tech) Workshop E: Analytically driven pricing strategies – Instructors Dax Cross and Zach Cross (Revenue Analytics) Workshop F: Discrete choice modeling – Instructor Laurie Garrow (Georgia Tech)

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