

## : *What type of DSS is a Revenue Management application?*

On March 05, 2004, Tommy Wiratama posted the following at DSSResources.COM:

Dear Dr. Power,

I'm looking into existing revenue management technologies, especially concentrating on IDeaS by IBM. According to your book DSS is divided into five main categories. I'm struggling to determine into which category or combination of categories this program would fall under. Also I wanted to know what tools does such a program need in order to operate. Thank you very much for your time.

Sincerely,

Tommy

My response to Tommy was "I'm not familiar with the IDeaS software. Please describe it for us. Revenue management applications are generally data-driven DSS ... but the application may include a model-driven, budgeting DSS subsystem." I didn't hear back from Tommy and I got curious so I used Google to gather more information on IDeaS and revenue management systems (RMS). My knowledge is still limited (I want some "test drives"), but I know much more now than I did on March 5, 2004 about RMS.

Well, Tommy, my current assessment is that some revenue management applications are model-driven DSS and some are decision automation systems and not DSS at all. IDeaS (Integrated Decisions & Systems, Inc.) was founded in 1989 by Dr. Ravi Mehrotra and some colleagues. IDeaS is a privately held venture financed company (cf., <http://ideas.com>). The company initially developed revenue optimization and yield management software for the Airline Industry and began marketing a solution for the hospitality industry in 1996. The company claims it markets "automated decision execution technology" and that "IDeaS technology is fundamentally differentiated as true 'decision' technology, combining analytics with scientific decision modeling." Those phrases indicate to me IDeaS may not be a DSS at all. DSS keep a human decision maker in the loop. If pricing is "automated" and the computer software makes the decision rather than a pricer or a manager, then the software is better classified as a decision automation system.

What is the claimed benefit of revenue and yield management in hotels? According to Mehrotra (1999) "As a result of the yield management system, it is anticipated that there will be a reduction in the number of turn downs multi-night stays. And the proper overbooking of rooms leads to a decrease in the amount of empty rooms on sold-out nights." Yield management DSS have been important in the Airline Industry for 20 years.

In 1999, Joan Marsan had a review of Revenue Management Systems in Hotels Magazine. Joan noted "In the earliest days of hotel revenue management systems (RMSs), forecasting and optimization focused on overall demand. If seasonal demand was predicted to be high, lower rate categories were closed. If demand forecasts were grim, lower rate categories opened. ... In the hotel market, advanced RMSs that handle multiple properties with many room options can determine the cross-price elasticity of demand when room options are opened and closed." Technology advances have enabled software companies to develop products to support and even make revenue management decisions. Joan notes "The greatest enabler of RMS advancements has been the improvement of interfaces between property management (PMS) and central reservation systems (CRS)." RMS decision support subsystems or automated decision systems can now use "live" data

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for forecasting and optimization calculations.

What is revenue management? According to the [optims.com](http://optims.com) website "Based on real-time demand forecasting by market micro-segment and an optimization model, Yield Management (also known as 'Revenue Management' or 'Real-time pricing') is an economic technique to calculate the best pricing policy for optimizing profits generated by the sale of a product or service, based on real-time modeling and forecasting of demand behavior per market micro-segment." All RMS are not the same.

In addition to IDeaS, other RMS vendors include:

Manugistics Demand and Revenue Management (DRM) solutions,

<http://www.manugistics.com>

Optims S.A. <http://optims.com>

OPUS2 TopLine PROPHET yield management and forecasting solutions,

<http://www.opus2.com>

Check Ask Dan! What type of DSS is X?

How does one know what type of DSS is being used in a specific situation? Why is it important to be able to differentiate or discriminate among types of DSS? Differentiating the type of DSS IS IMPORTANT because it helps us communicate and understand!

### *Reference*

Power, D., "What are the characteristics of a Decision Support System?" DSS News, Vol. 4, No. 7, March 30, 2003.

*The above response is based upon Power, D., What type of DSS is X? or What type of DSS is a revenue management application? DSS News, Vol. 5, No. 7, March 28, 2004.*

Author: Daniel Power

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