

# *: What should be taught in a Business Intelligence/Data-Driven DSS course?*

by Dan Power

On Tuesday, December 13, 2005, Michael Lane, Lecturer Information Systems Department, Faculty of Business, University of Southern Queensland, asked for information about a "Business Intelligence course and textbook" on the ISWORLD listserv. ISWORLD is an academic mailing list with about 3,000 subscribers from around the World.

The email responses to the listserv show the confusion about the term business intelligence. One colleague suggested some Artificial Intelligence books for the course and identified business intelligence as a part of a broader course on Intelligent Systems. This is similar to the perspective suggested by Vasant Dhar and Roger Stein in their 1997 book "Intelligent Decision Support Methods: The Science of Knowledge Work". The trade version of their book is titled "Seven Methods for Transforming Corporate Data Into Business Intelligence". Chapter 4 of Dhar and Stein is titled Data-Driven Decision Support and it covers data warehousing and OLAP. This chapter certainly influenced my thinking about types of DSS. Other chapters focus on neural networks, rule-based systems, case-based reasoning and machine learning. The book is dated, but still a good historical and conceptual reference.

Another colleague, Ghazi Alkhatib, replied and noted "We have to distinguish between AI and BI. Having a full course on BI may look infeasible, since the topic is still evolving at the conceptual level." Another colleague wrote "I guess the best place to find information about BI is the web site of Microstrategy ..."

In my opinion the best response came from Rob Meredith at Monash University in Australia. He wrote "Although a common misconception, I agree with Ghazi's differentiation of BI from intelligent systems - the term has quite a specific meaning in industry, encompassing technologies such as OLAP, EIS, Data Warehouses, DSS (with an emphasis on data-driven, rather than model-driven DSS, however), Analytic CRM and so on. In other words, reporting systems designed to

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support the everyday activities of managers." Rob continues "At Monash University, we have an undergraduate unit entitled Business Intelligence Systems (IMS3001), and a specialisation within a Masters degree with units on DSS (IMS5005), OLAP & Business Intelligence (IMS5004), Data Warehousing (IMS5026) and Customer Relationship Management (IMS5028)." He concludes "For the units I teach, I don't specify a required textbook, since most don't really have the coverage I want - instead I draw heavily on the DSS, management science and Judgement & Decision Making literature, data warehousing books such as those by Ralph Kimball, and various other resources."

The interest in Data-Driven DSS for performance monitoring and for finding business intelligence information is increasing. Perhaps it is time for a specialized elective on this topic in Information Technology/Systems programs. In general, I advocate a broad survey course in Decision Support Systems as an anchor for all managers and Information Systems specialists. In recent years, we have relied upon vendor training and on-the-job training to educate managers and IS folks about DSS and especially Data-Driven DSS. Such an informal approach leads to vendor "hype" and misconceptions about the what, how, and why of technology solutions. So what should be included in a more specialized course about "Building Data-Driven Decision Support Systems"?

Rather than start with a blank slate, we can look back to Hugh Watson, George Houdeshel and Rex Rainer's book from 1997 titled "Building Executive Information Systems and other Decision Support Applications". The book was published after the Executive Information Systems (EIS) "buzz" had given way to new "buzz words" like business intelligence. So what topics did Watson, Houdeshel and Rainer cover in their book?

Chapter 1 is "An Introduction to EIS". EIS is "a computerized system that provides executives easy access to internal and external information that is relevant to their critical success factors. (p. 3)" If we define executives broadly as all managers and senior staff, then EIS is intended to provide performance monitoring. The business intelligence people added "simple to use" report and query tools to the mix to let executives develop their own queries. The OLAP folks added drill-down and pivot tables. So we need to start with an

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overview of Data-Driven DSS/BI, what it is and what it is not.

Chapter 2 describes "An EIS Development Framework". The first section is a structural perspective that describes what motivates managers to develop EIS. This is still an important issue. Then the process of developing a computerized support system is explored: the proposal, the prototype, etc. The last section briefly focuses on the interface of a system.

Chapter 3 examines the targeted users -- "Understanding Executives, Their Work, and Information Needs". Given the nature of Data-Driven DSS this topic is still important. Chapter 4 discusses "Gaining Executive Commitment". A study by Watson and Glover (1989) found that 52 percent of EIS failures were "due in part to a lack of executive commitment". That finding probably still holds for current BI systems and Data-Driven DSS as well.

In the next chapter, Chapter 5, the focus is on "Assembling the EIS Staff". The staff for development and maintenance should differ. A project manager or DSS manager is still the key player in a successful project. Consultants, vendors and contract staff also play an important role in the development process that needs to be understood. Chapter 6 is "Determining the Need" and Chapter 7 follows with "Determining the Information Requirements". Once the need is established and the information requirements have been determined, then Watson, Houdeshel and Rainer move on to Hardware and Software requirements. This development process perspective can help students understand the major issues in building a Data-Driven DSS.

Chapter 9 briefly addresses "Structuring the Information". This topic is very important and would need to be expanded to deal with data modeling topics. Chapter 10 focuses on screen design. The graphical user interface is much easier to build with modern development tools, but it remains the most important single component. Even with "good" data, a Data-Driven DSS with a "poorly designed" interface will not be used. Chapter 11 returns to "Managing the Data". The chapter addresses data management, data sources and data integration, data ownership and security, and data warehouses.

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This chapter probably deserves two separate chapters today. Starting with Chapter 12 other important topics are included as chapters: soft information, overcoming political resistance, assessing benefits, keys to success, public sector issues, and future directions. The book ends with two case studies and a guide to software selection.

So what would I teach in a course on "Building Data-Driven DSS"? In a perfect world, I would teach an updated Watson, Houdeshel and Rainer! As always your comments and suggestions are welcomed.

## References

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