

Databases and Executive Decisions

High Tech to Mass Tech

High-tech products typically begin as luxuries for the elite. Over time, they become available to the masses. Sometimes they grow so common that they are no longer considered "high tech." Through history, books, automobiles, and computers were all considered rare & expensive initially. But eventually, they became available to everybody. High tech becomes mass tech.

Mass Tech = Better

I believe that mass technology products tend to be better. Why? Because by the time a product gets mass produced, prototype bugs have been worked out. Can you imagine driving a circa 1900 automobile on a modern expressway? Today's cars cost less (adjusted for inflation) and they perform better.

Mass Tech = Risk

The flip side: Better technology makes it easier for us to do things, but it does not make it easier for us to know what we are doing! Model T car accidents were rare because there were fewer cars to crash into. But as more cars hit the road we found the need for traffic laws.

In recent years, databases have become mass tech. Anybody can fire up Microsoft Access and build a database today. But we need to follow a few rules if we want to build successfully.

Database Design Rules

In the book *Database Design for Mere Mortals*, author Michael J. Hernandez outlines sound rules for those who want to embark upon the database design path. It's always easier to start a project properly in the beginning than to learn by trial and error. The book is written for bright people with little or no database experi-

ence. The examples are clear and sample code is provided on the companion CD.

Big Pitfall: Data Corruption

Data corruption errors are most damaging. Reason: The database appears to be functioning "correctly," but internal design flaws make the results unreliable. Can you imagine managing your checkbook with a system like that? Hernandez describes steps you can take to avoid data corruption before it occurs.



Another Pitfall: Spreadsheet Designs

One rule recommended by Hernandez: Avoid creating your database like a spreadsheet. A smart person with no database experience will almost always treat a new database project like a spreadsheet. Yes, this is intuitive and it may work initially. But you create several problems this way, including redundant data.

Handling Redundant Data

Say you're creating a customer database where each of your customers is a company with several employees. You speak with a different employee depending on the purpose of the conversation (accounts

payable, marketing, implementation, etc.) and you need to store information on each of these employees within the database.

Over time your customer outgrows its office space and they decide to move. If you are tracking customers with a spreadsheet database, you will need to change the address for each and every employee on the spreadsheet. However, with a proper relational database design, you make the address change only once, and every employee gets updated with that single change.

Data Mining

A solid database design will enable you to get a better handle on key information. The result: better business decisions.

The right reports can enable a good manager to spot hidden trends and take advantage of them. Hidden trends are like gold. The process of finding hidden trends is called data mining.

Successful data mining can mean better customer service and increased revenue for your business. One data mining example comes from a Midwest-based convenience store and a mystery involving diapers and beer.

Diapers and Beer

A few months after installing a new data mining system, a convenience store chain noticed a trend. Stacks of purchase receipts showed that diapers and beer were being purchased together. The statistical correlation was high: A buyer of beer was very likely to buy diapers on the same visit, and vice versa. What was the explanation?

Further analysis (somebody visited the cash registers and watched the customers!) revealed that the mystery buyers were young fathers buying diapers on the way home from work. The beer was an impulse purchase.

From High Tech to Mass Tech

High-tech products are introduced as luxuries for the elite.
Eventually, they are made available to the masses.

Valued Item	Before	Driver of Change	After
Books	Hand-copied books meant limited availability.	printing press	The printing press made reading available to the masses.
Automobiles	Early cars were hand-made and only wealthy people could own them.	assembly line production and interchangeable parts	Mass produced cars are affordable by many, and they offer more features than old hand-made cars.
Mutual Funds	Before computers, a mutual fund manager could only handle a few clients at a time. The first mutual funds were only offered to wealthy investors.	computers	Automating the management of mutual funds enabled fund managers to serve a much larger pool of investors.
Computers	Early computers were very expensive and could only be operated by technicians in white lab coats.	microprocessors and mass-produced software	Advances in hardware and software design have led to smaller, inexpensive computers for the masses (such as laptops and PDAs).
Databases	The first computer databases were created and managed by highly trained software engineers.	PC and web-based database engines	Today, anybody can create a database with a desktop or web-based database engine. The big challenge: avoiding problems like data corruption before they damage your business.

Armed with the data and the analysis, the convenience store displayed beer next to the diapers and increased their sales of both!

Next Step

We see the advantages of having a sound database design. We see the revenue that can be generated through data mining. What's next?

First, we must develop a clear definition of the business problem we're trying to solve.

Clear Definition

For example, several years ago Wisdom was asked to design a database for a credit reporting company. Our first question: "What are the attributes of a credit report, and which attributes are important enough to track?" Other questions: Who needs access to the data? What informa-

tion is sensitive enough to be considered confidential? Which users should be barred from confidential information?

Note that none of these questions involve technology. There are no questions about Access or Oracle or any of the other database packages on the market. All questions focus on the needs of the business. Tech only comes into play after we have a clear business vision.

Power in Your Hands

As databases have moved from high-tech to mass tech, more power has fallen in the hands of business people. The trend will continue, and we will see better databases, better decisions, better businesses, and satisfied customers.

Suggested Reading

Database Design for Mere Mortals by Michael J. Hernandez. Even if you never

intend to write a database yourself, this book will give you enough background to communicate effectively with your technical team.

About the Author

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