Business plus Intelligence plus Technology equals Business Intelligence

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Not new

“Probably at no time in the last decade has the actual knowledge of consumer buying habits been as vital to successful and profitable retailing as it is today.”

New York Times,

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New York Times, May 1, 1931

From Ewen, 1996.

OR/MS HISTORY

- 1950s to early 1970s
  - Tremendous Growth
- Numerous internal OR/MS staffs

HOWEVER

IMPLEMENTATION PROBLEMS

- Individuals felt threatened
- Neither Top nor Middle Management had the educational background
- Lack of understanding of the results
- Black box syndrome
- Selling OR/MS methods

A MAJOR DISCONNECT

"Most managers would rather live with a problem they can't solve than use a solution they don't understand."

(F. Bradshaw)

Today—The Confluence

During the past two decades the decision-making process and the manager's role in it have dramatically changed.

- A major cause of this change has been computer technology. Most organizations today face a significant data explosion problem. Automated data collection tools and mature database technology lead to tremendous amounts of data stored in enterprise resource planning systems, databases, data warehouses and other information repositories.

They are drowning in data, but starving for knowledge!!

Today—The Confluence

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- As the information infrastructure continues to mature, organizations now have the opportunity to make themselves dramatically more intelligent through "knowledge intensive" decision support methods, in particular, data mining and management science techniques.

Decision Maker's Role—Philosophical Change

HISTORICALLY:
disengaged from the decision process. All they wanted was to see/hear what the solution was. They did not care how you got the solution. No longer is the manager interested in the "black box" solution and finding only one optimal solution.

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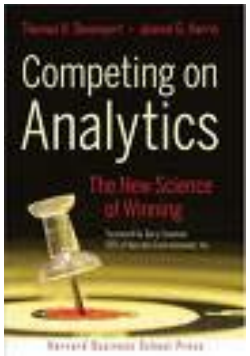
want to be actively involved in decision-making process and they are also now addressing more complex problems, i.e., problems that are more ill-structured, more fuzzy, including qualitative factors.

Computer Technology and Software

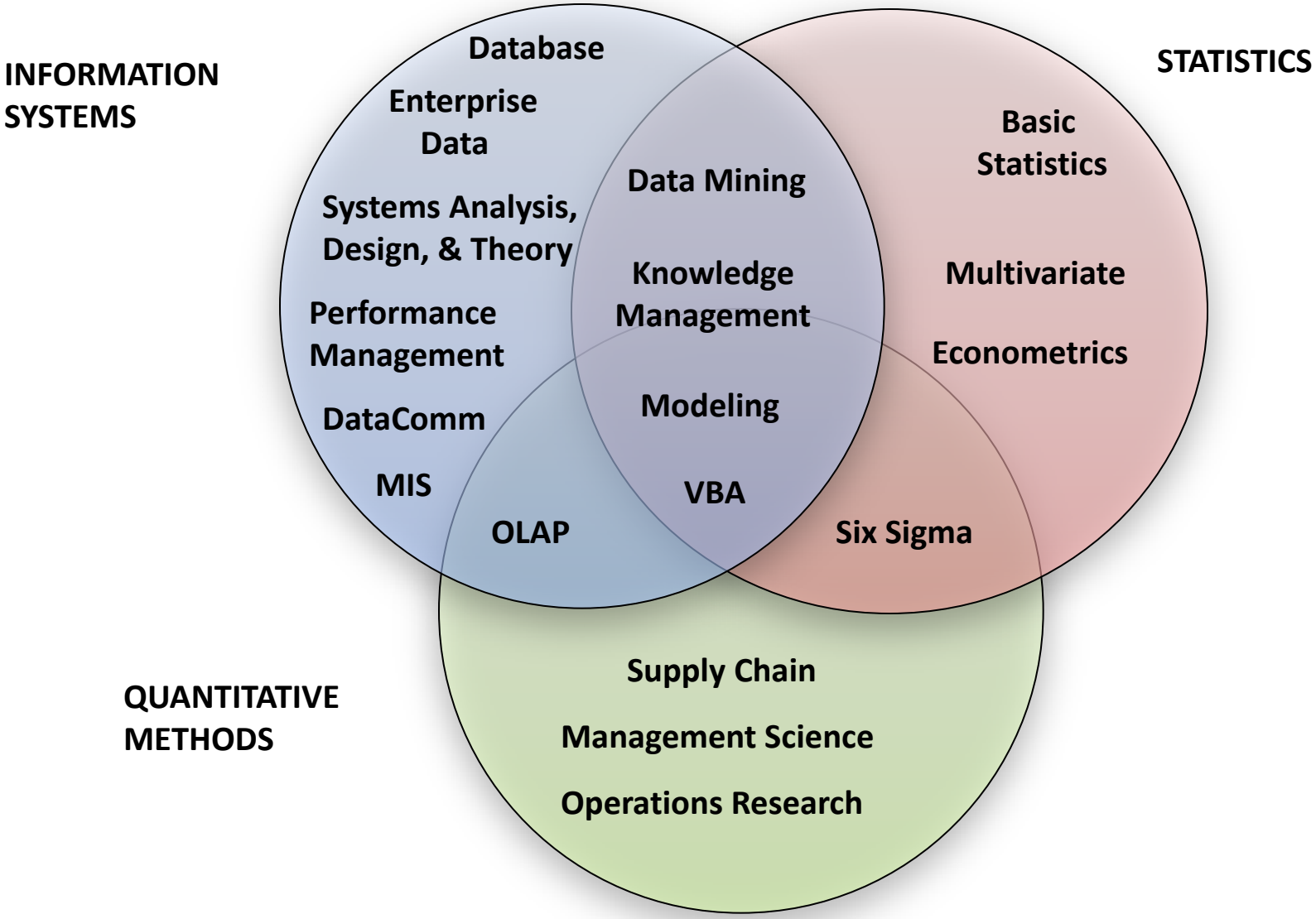
What use to take years or months can now be done in days or hours!!

Competing on Analytics (Davenport & Harris)



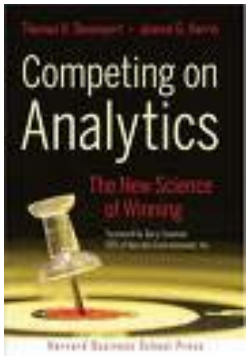
- Analytics are the extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and fact-based management to drive decisions and actions.
- Analytics is a subset of business intelligence; a set of technologies and processes that use data to understand and analyze business performance.

Business Intelligence/Business Analytics



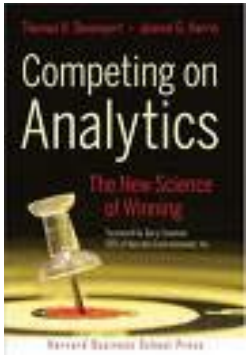
Why Compete on Analytics?

- Many previous bases for competition are no longer available
  - Unique geographical advantage does not matter in global competition
  - Protective regulation is largely gone
  - Proprietary technologies are rapidly copied
  - Breakthrough innovation in products and services seems increasingly difficult to achieve

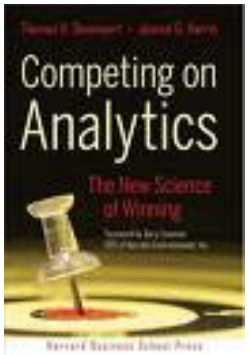


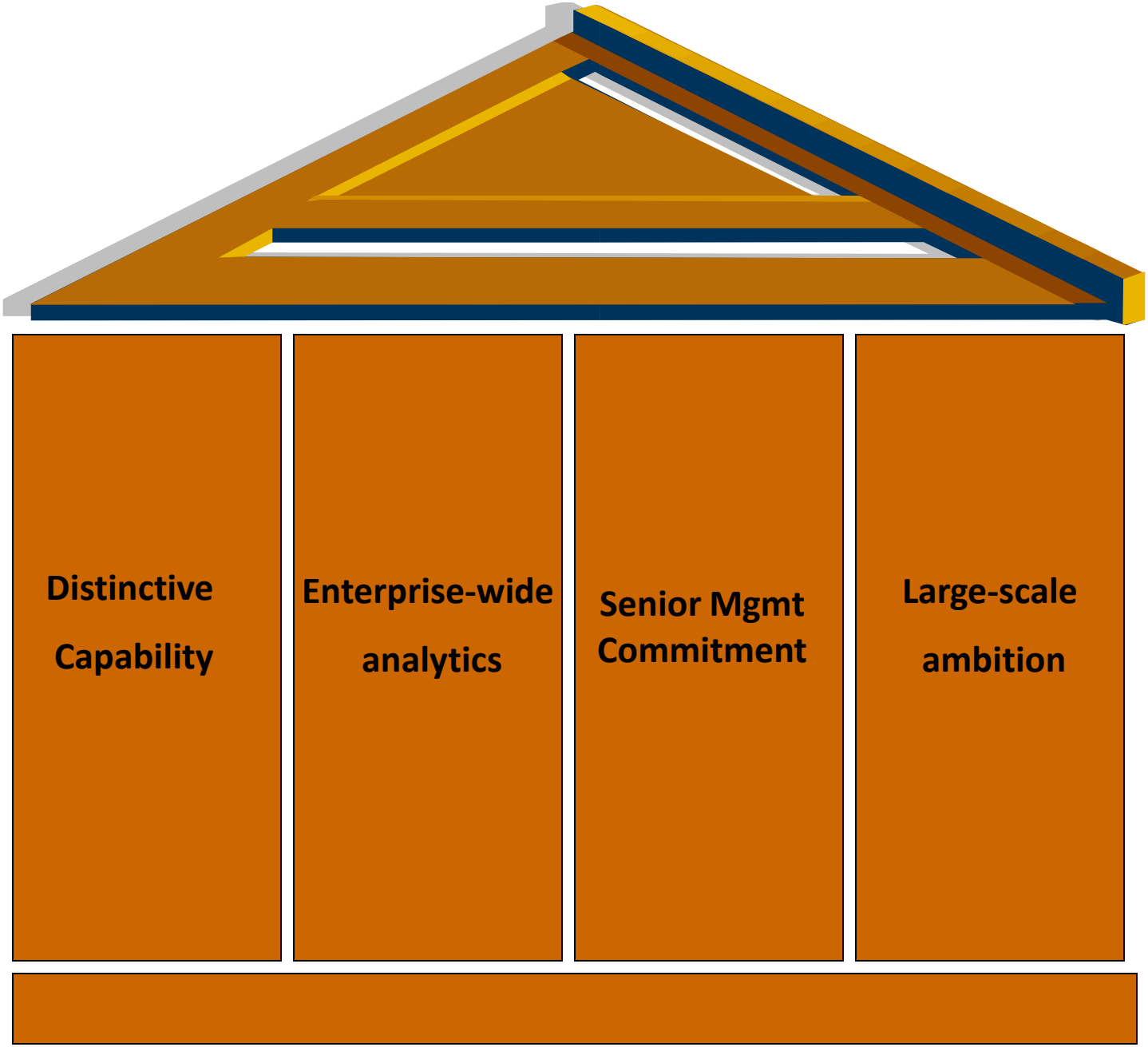
Why Compete on Analytics?

- What is left as a basis for competition?
  - Execute business practices with maximum efficiency and effectiveness and make the smartest business decisions as possible
- Analytics themselves don't constitute a strategy, but using them to optimize a distinctive business capability constitutes a strategy.

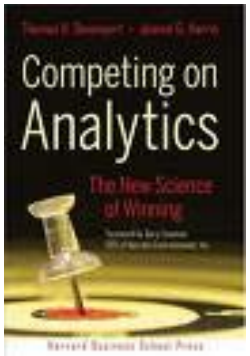


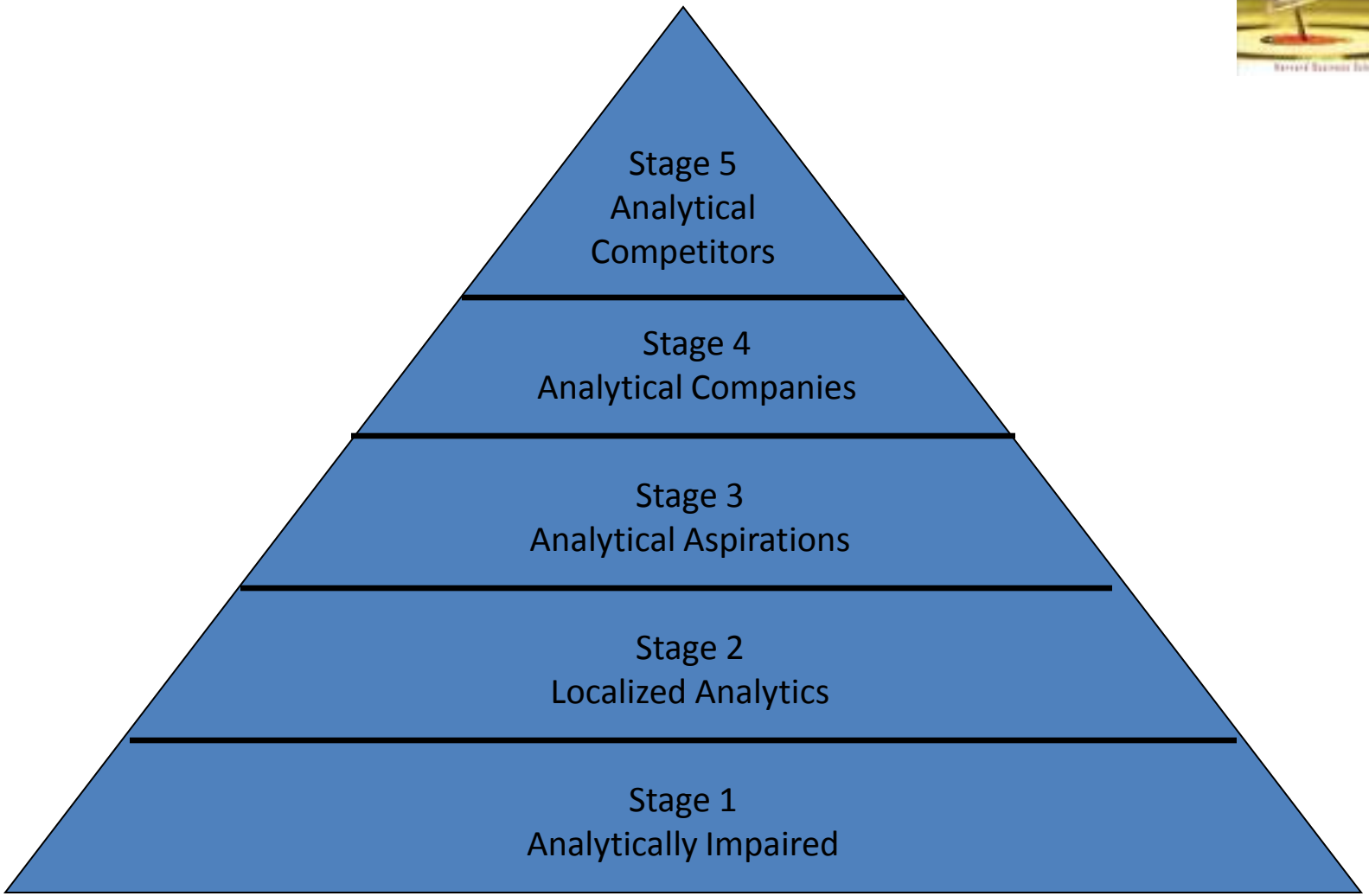
4 Pillars of Analytical Competition





Five Stages of Analytical Competition





WHAT ABOUT OR/MS??

OR/MS RENAISSANCE

- Coming out of the closet--

Optimization is no longer a bad word

SURVIVAL

The role of OR/MS must also evolve along with the new computer technology and the corresponding changes in decision makers' expectations.

(Geoffrion 1983, Kitchener 1986)

Math, Engineering, Computer Science and other Science Departments

A MAJOR DISCONNECT

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Premise

Computers, the data they collect, and the results of OR/MS Techniques are

TOOLS for Decision-makers

i.e.,

- The knowledge gain from these tools will lead to better decision-making
- These tools **DO NOT** make the decision

You have to know the Business

Business Schools

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(Dobb 2004a and 2004b).

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A primary reason for our students poor problem-solving skills is that students do not know where and when to use the tools and techniques

(Powell 2001, Grossman 2002).

Business Schools--techniques

In the classroom, the mathematics of the tools and techniques are emphasized and not enough time is spent on the skills necessary to analyze a problem situation.

As an analogy, we teach our students how to use the hammer, drill, saw and so on. But, they don't know anything about how to be a carpenter--given their tools and a stack of lumber and other materials they have no idea where to start to build a house.

Business Schools--Modeling

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We need our students, not only business students, but all students, to learn the craft of modeling skills so what they can become master carpenters.

Saint Joseph's University (SJU)

- Saint Joseph's is home to 4,200 full-time undergraduates and 3,100 graduate, part-time and doctoral candidates.
- Erivan K. Haub School of Business—
  - AACSB Accredited
  - Largest U.S. Jesuit Business School
- Dept. of Decision & System Sciences—
  - 8 years old
  - Undergraduate: Provides Major and Minor in ***Business Intelligence***
  - Graduate: on-campus and online MSBI

SJU Saint Joseph's University
Erivan K. Haub School of Business

Dept. of Decision & System Sciences

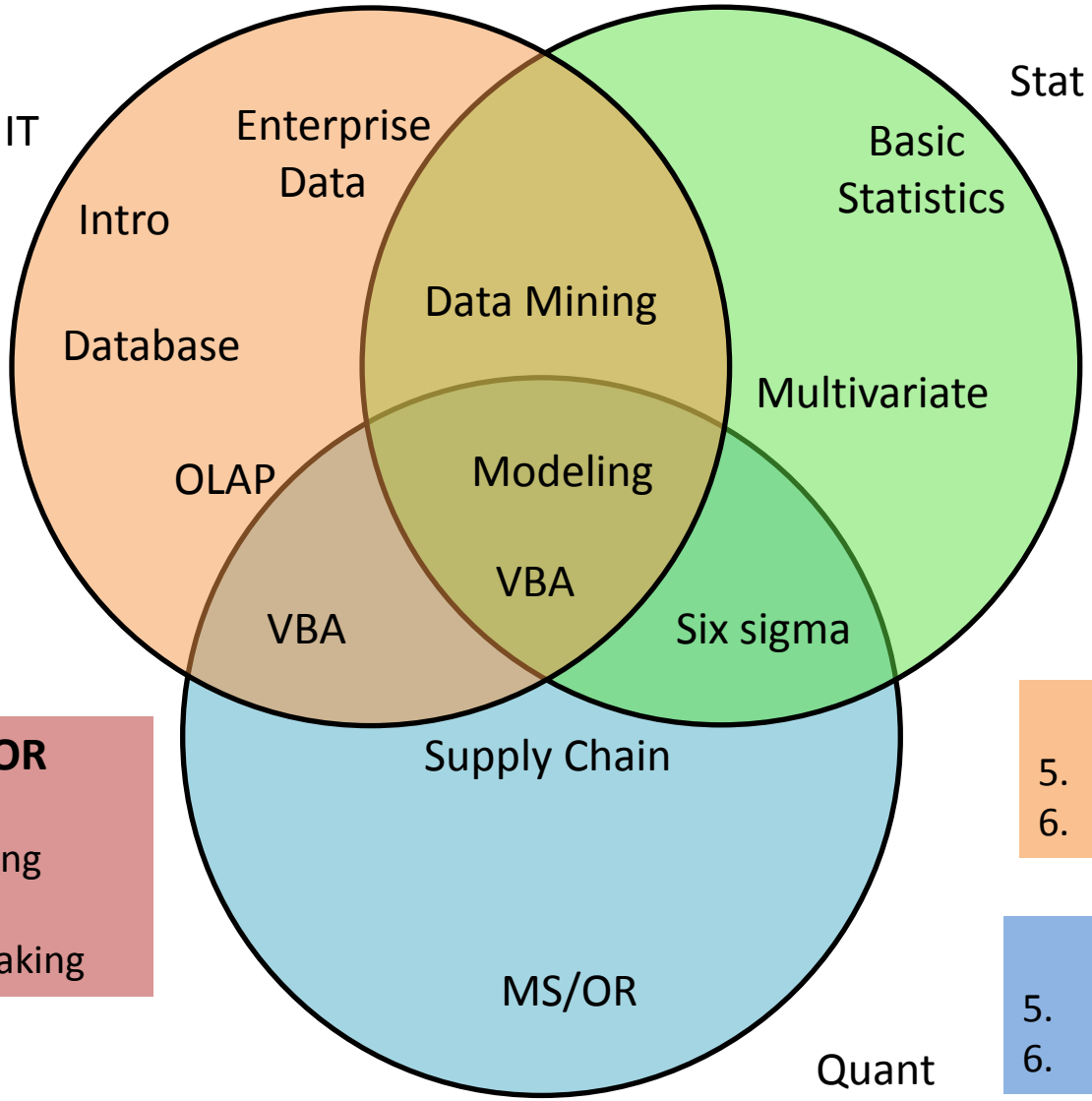
- Provides Major and Minor in ***Business Intelligence***

- **Trains students to**:
  - Transform data into actionable knowledge
  - Become an effective problem solver
  - Integrate technology with application
- **Research areas**:
  - Statistical Analysis & Applications
  - Optimization & Quantitative Modeling
  - Forecasting & Predictive Modeling
  - Supply Chain Management
  - Econometric Modeling & Applications
  - Data Mining & Knowledge Management

SJU Saint Joseph's University
Erivan K. Haub School of Business

Undergraduate

Business Analytics Business Intelligence



MAJOR/MINOR

1. Database
2. VBA; VB; modeling
3. Enterprise Data
4. Adv. Decision Making

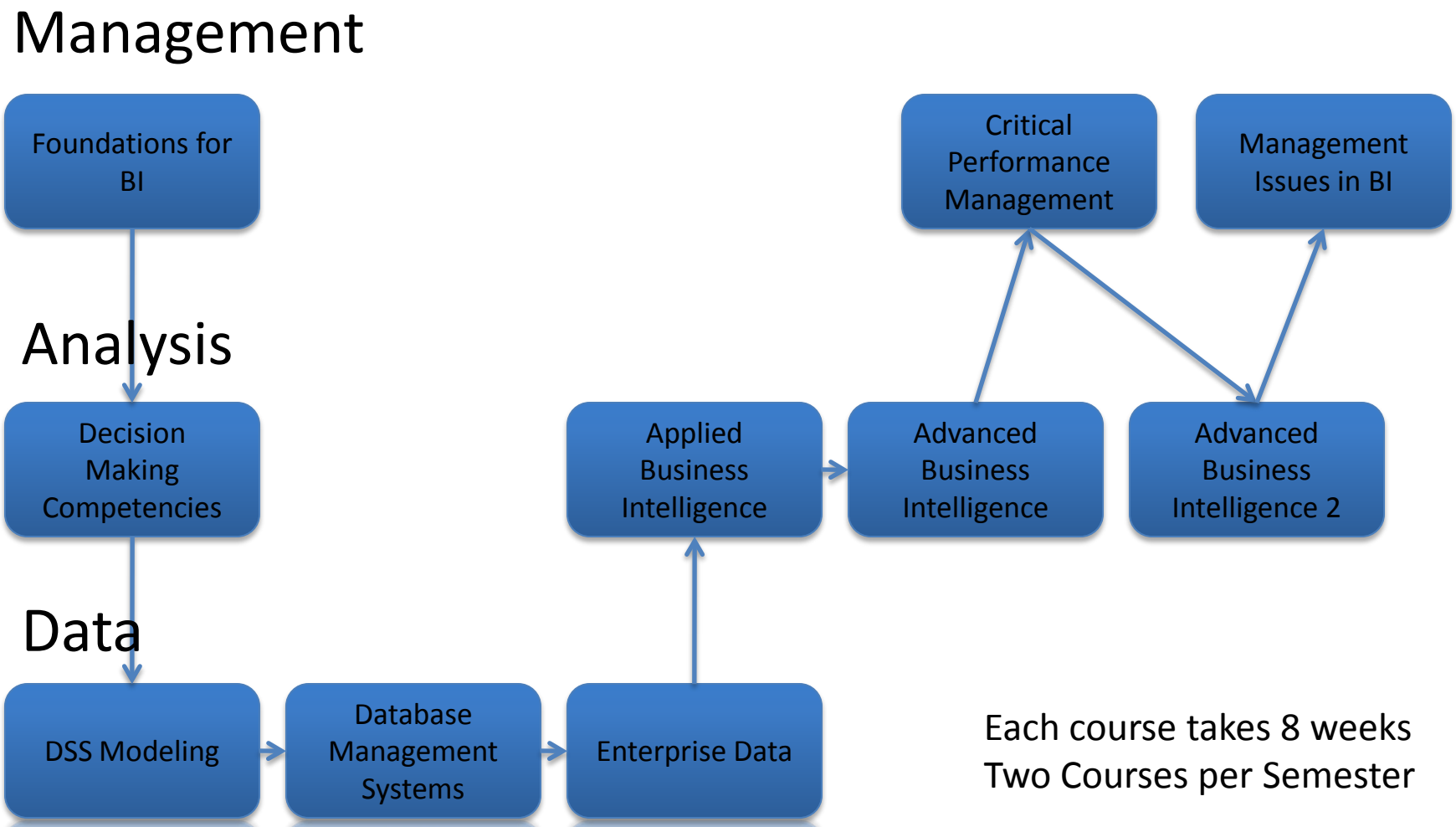
IT Track

5. System Theory
6. IT Capstone

Stat/Quant Track

5. Supply Chain/6 sigma
6. Stat/Quant Capstone

MSBI Course Flow
(on campus and online)



Each course takes 8 weeks
Two Courses per Semester

Management Courses

Course	Concepts		Tools
DSS-4415 Foundations for Business Intelligence	•Value Chain •Supply Chain Management •CRM •Business Process Analysis and Design	•Six Sigma •IT Concepts •TPS, MIS and EIS	•JMP
DSS-5565 Critical Performance Management	•Scoreboards •Dashboards •Key Performance Indicators	•Business Strategy Review	•Xcelcius •Prism •MicroCharts •PerformancePoint
DSS-5585 Management Issues in Business Intelligence	•Management/Technical Interface •BI and Heuristics •Continuous Improvement •Ethics and BI	•Fraud and Security •Knowledge Management •Emerging Technologies	

Analysis Courses

Course	Concepts		Tools
DSS-4715 Developing Decision Making Competencies	•Management Science •Operations Research •Statistics •Pivot Tables	•Forecasting •Linear Programming •PERT/CPM	•Excel •JMP
DSS-5545 Applied Business Intelligence	•Business Process Design •Process Improvement •Simulation	•Process Flows •Queuing •Simulation •Benchmarking	•Extend LT •JMP
DSS-5555 Advanced BI	•Multivariate Statistics •Clustering	•Factor Analysis •Data Mining •Decision Trees •OLAP	•Enterprise Miner •Tableau •JMP
DSS-5575 Advanced BI 2	•Advanced Data Mining •Predictive Analytics	•Visualization •Project	•Enterprise Miner •SAS

Data (Development)

Course	Concepts		Tools
DSS-5515 Decision Support System Modeling	•Excel VBA Programming •Model Design		•Excel VBA
DSS-5525 Database Management Systems	•Relational Data Models •E-R Modeling •SQL	•Advanced SQL •PL/SQL •Reverse Engineering	•ORACLE
DSS-5535 Enterprise Data	•ERP Systems •Data Warehouse Design	•Extraction, Transformation and Loading (ETL) •OLAP	•ORACLE •Access (VBA)

We are currently preparing students for jobs and technologies that don’t yet exist… in order to solve problems we don’t even know are problems yet.

We can’t solve problems by using the same kind of thinking we used when we created them

--Albert Einstein

EXCEL

“operates under what could be called the "95/5" rule: 95 percent of Excel users use a mere 5 percent of the program's features.”

Paul McFedries

Future

In 5-10 years:

- Most Business programs will not be using Excel
- They will be using..

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Excel will be like a calculator is today