

# DECISIONS AND PROCESSES: VALUE DRIVEN BUSINESS



This guide provides a number of classroom activities, videos, and debates to accompany Business Driven Information Systems Fourth Edition. A few course suggestions:

- Create one or two test questions based on the classroom activity to help reward students who attend lectures.
- Many professors have found that assigning an activity and then lecturing on the material helps students gain a deeper understanding of the core MIS concepts as they have already struggled with applying the material to a real-world situation.
- Asking a small group of students to explain their answer to the activity to the entire class after completion ensures students come to class prepared. I select a different group each activity to explain their answer and they do not want to look unprepared in front of their fellow classmates. It is a powerful motivator to get my students reading prior to class. After the activity and student's presentations then I lecture – keeps my students engaged and helps to achieve a higher level of learning outcomes as they are constantly tasked with applying the concepts during class.
- Create an Ask the Professor Discussion board that runs the entire course where students can ask course and content related questions. I typically promise to respond within 24 hours and I always encourage my students to check the discussion board before sending an email. Many times if one student asks questions so do other students.
- **\*\*Three Before Me Rule!** This is something I have found that saves a great deal of time answering email. I state the Three Before Me rule in my syllabus. Before a student comes to me with a question they must provide three sources they used to answer the question themselves. This significantly cuts down on emails as many times students can find the answer to their questions but it seems easier just to email the professor. Sources can include the syllabus, the Ask The Professor Q&A Discussion Board, classmates, the textbook, etc. If I ask the student for the three sources and they do not have them I dock participation points. Works great on significantly cutting down my emails and helps to prepare my students for the real world!
- The core chapter material is covered in detail in the PowerPoint slides. Each slide contains detailed teaching notes including exercises, class activities, questions, and examples. Please review the PowerPoint slides for detailed notes on how to teach and enhance the core chapter material.

Enjoy your course and best of luck!

Paige Baltzan

Decision making and problem solving encompass large-scale, opportunity-oriented, strategically focused solutions. Students today must possess decision-making and problem-solving abilities to compete in the ebusiness world. Organizations today can no longer use a “cook book” approach to decision making. This chapter focuses on technology to help make decisions, solve problems, and find new innovative opportunities including:

- Transaction processing system
- Decision support systems
- Executive information systems
- Artificial intelligence (AI)
- Business process modeling
- Business process management
- Business process improvement
- Business process reengineering

### **SECTION 2.1 – DECISION SUPPORT SYSTEMS**

- Making Business Decisions
- Metrics: Measuring Success
- Support: Enhancing Decision Making with MIS
- The Future: Artificial Intelligence

### **SECTION 2.2 – BUSINESS PROCESSES**

- Evaluating Business Processes
- Metrics: Measuring Performance
- Support: Enhancing Business Processes with MIS
- The Future: Business Process Management

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## SECTION 2.1

# DECISION SUPPORT SYSTEMS

What is the value of information? The answer to this important question varies depending on how the information is used. Two people looking at the exact same pieces of information could extract completely different value from the information depending on the tools they are using to look at the information. This chapter discusses technologies that people can use to help make decisions and solve problems.

### LEARNING OUTCOMES

**Learning Outcome 2.1: Explain the importance of decision making for managers at each of the three primary organization levels along with the associated decision characteristics.**

Decision-making skills are essential for all business professionals, at every company level, who make decisions that run the business. At the operational level, employees develop, control, and maintain core business activities required to run the day-to-day operations. Operational decisions are considered structured decisions, which arise in situations where established processes offer potential solutions. Structured decisions are made frequently and are almost repetitive in nature; they affect short-term business strategies.

At the managerial level, employees are continuously evaluating company operations to hone the firm's abilities to identify, adapt to, and leverage change. Managerial decisions cover short- and medium-range plans, schedules, and budgets along with policies, procedures, and business objectives for the firm. These types of decisions are considered semistructured decisions; they occur in situations in which a few established processes help to evaluate potential solutions, but not enough to lead to a definite recommended decision.

At the strategic level, managers develop overall business strategies, goals, and objectives as part of the company's strategic plan. They also monitor the strategic performance of the organization and its overall direction in the political, economic, and competitive business environment. Strategic decisions are highly unstructured decisions, occurring in situations in which no procedures or rules exist to guide decision makers toward the correct choice. They are infrequent, extremely important, and typically related to long-term business strategy.

**Learning Outcome 2.2: Define critical success factors (CSFs) and key performance indicators (KPIs), and explain how managers use them to measure the success of MIS projects.**

Metrics are measurements that evaluate results to determine whether a project is meeting its goals. Two core metrics are critical success factors and key performance indicators. CSFs are the crucial steps companies perform to achieve their goals and objectives and implement their strategies and include creating high-quality products, retaining competitive advantages, and reducing product costs. KPIs are the quantifiable metrics a company uses to evaluate progress toward critical success factors. KPIs are far more specific than CSFs; examples include turnover rates of employees, percentage of help-desk calls answered in the first minute, and number of products returned.

It is important to understand the relationship between critical success factors and key performance indicators. CSFs are elements crucial for a business strategy's success. KPIs measure the progress of CSFs with quantifiable measurements, and one CSF can have several KPIs. Of course, both categories will vary by company and industry. Imagine improved graduation rates as a CSF for a college.

**Learning Outcome 2.3: Classify the different operational support systems, managerial support systems, and strategic support systems, and explain how managers can use these systems to make decisions and gain competitive advantages.**

Being able to sort, calculate, analyze, and slice-and-dice information is critical to an organization's success.

Without knowing what is occurring throughout the organization there is no way that managers and executives can make solid decisions to support the business. The different operational, managerial, and strategic support systems include:

- Operational: A transaction processing system (TPS) is the basic business system that serves the operational level (analysts) in an organization. The most common example of a TPS is an operational accounting system such as a payroll system or an order-entry system.
- Managerial: A decision support system (DSS) models information to support managers and business professionals during the decision-making process.
- Strategic: An executive information system (EIS) is a specialized DSS that supports senior level executives within the organization.

**Learning Outcome 2.4: Describe artificial intelligence and identify its five main types.**

Artificial intelligence (AI) simulates human thinking and behavior, such as the ability to reason and learn. The five most common categories of AI are:

1. Expert systems—computerized advisory programs that imitate the reasoning processes of experts in solving difficult problems.
2. Neural networks—attempts to emulate the way the human brain works.
3. Genetic algorithm—a system that mimics the evolutionary, survival-of-the-fittest process to generate increasingly better solutions to a problem.
4. Intelligent agents—a special-purpose knowledge-based information system that accomplishes specific tasks on behalf of its users.
5. Virtual reality—a computer-simulated environment that can be a simulation of the real world or an imaginary world.

**CLASSROOM OPENER**

**GREAT BUSINESS DECISIONS – Walt Disney Decides to Call His Mouse Cartoon Character Mickey, not Mortimer**

Sunday, November 18, 1928, is a historic moment in time since it is the day that the premier of *Steamboat Willie* debuted, a cinematic epic of seven minutes in length. This was the first cartoon that synchronized sound and action.

Like all great inventions, Mickey Mouse began his life in a garage. After going bankrupt with the failure of his Laugh O Gram Company, Walt Disney decided to rent a camera, assemble an animation stand, and set up a studio in his uncle's garage. At the age of 21, Walt and his older brother Roy launched the Disney Company in 1923. The company had a rocky start. Its first film, *Alice*, hardly made enough money to keep the company in business. His second film, *Oswald the Rabbit*, was released in 1927 with small fanfare. Then Disney's luck changed and in 1928 he released his seven minute film about a small mouse named Mickey. Disney never looked back.

The truth is Mickey Mouse began life as Mortimer Mouse. Walt Disney's wife, Lilly, did not like the name and suggested Mickey instead. Walt Disney has often been heard to say, "I hope we never lose sight of one fact – that this was all started by a mouse."

Would Mortimer have been as successful as Mickey? Would Mortimer have been more successful than Mickey? How could Walt Disney have used technology to help support his all-important decision to name his primary character? There are many new technologies helping to drive decision support systems, however it is important to note that some decisions, such as the name of a mouse, are made by the most complex decision support system available - the human brain.

## CLASSROOM EXERCISE

### Second Life: Succeeding in Virtual Times

Second Life is a new venue for collaboration, training, distance learning, new media studies and marketing. Hold a virtual meeting with your sales managers located in Europe and Asia. You can present the new sales initiatives and discuss them with your team real-time.

<http://www.secondlife.com/>

The best way to kick start this discussion is to have your students interact with SecondLife. Ask your students to create an Avatar in SecondLife or create one yourself and show the class. If you have a large lecture you can build an avatar and fly around SecondLife during your lecture to your students.

#### Classroom Exercise

I show my students a quick demo of Second Life and then break them into groups and ask them to create a strategy for a new virtual business for Second Life. They have great ideas including:

- Private Detective
- Retailer
- Sales Force Team
- Music distributor
- Architect
- Tutor
- Coffee Shop
- Hair Dresser
- Avatar Repairman

## CLASSROOM EXERCISE

### Building Artificial Intelligence

The idea of robots and artificial intelligence is something that has captured people's attention for years. From the robots in Star Wars to the surreal computer world in the Matrix, everyone seems to be fascinated with the idea of robots.

Break your students into groups and challenge them to build a robot. The robot can perform any function or activity they choose. The robot must contain a digital dashboard and enable decision support capabilities for its owner. Have the students draw a prototype of their robot and present their robot to the class. Have your entire class vote on which robot they would invest in if they were a venture capital firm.

## CLASSROOM EXERCISE

### Great Example of DSS

The Analyst™ is a diagnostic tool, now accessible online, that fills the gap between what you need and what busy, human doctors can offer. With less and less time to address a patient's individual needs and yet more and more research and other information to digest, incorrect and incomplete diagnoses are frequently made. On this site they have a great diagram that compares The Analyst to a Doctor.

<http://www.diagnose-me.com/?page=dizz&qclid=C1bdzaP785ECFQwcawodfCXpxA>

## CLASSROOM EXERCISE

### Hod Lipson Demonstrates Cool Little Robots

Hod Lipson demonstrates a few of his cool little robots, which have the ability to learn, understand themselves and even self-replicate. At the root of this uncanny demo is a deep inquiry into the nature of how humans and living beings learn and evolve, and how we might harness these processes to make things that learn and evolve.

Hod Lipson works at the intersection of engineering and biology, studying robots and the way they "behave" and evolve. His work has exciting implications for design and manufacturing -- and serves as a window to understand our own behavior and evolution.

<http://www.ted.com/index.php/talks/view/id/165>

## CLASSROOM EXERCISE

### Building AI – Facebook Founders Fund AI Start-Up

The idea of robots and artificial intelligence is something that has captured people's attention for years. From the robots in Star Wars to the surreal computer world in the Matrix, everyone seems to be fascinated with the idea of robots.

Artificial intelligence research start-up Vicarious announced today that it has received a \$15 million Series A round led by Good Ventures. The funding values the company at more than \$100 million.

<http://www.inc.com/john-mcdermott/facebook-founders-fund-artificial-intelligence-start-up.html>

Break your students into groups and challenge them to build a robot to compete for a \$15 million grant from Facebook. The robot can perform any function or activity they choose. The robot must contain a digital dashboard and enable decision support capabilities for its owner. Have the students draw a prototype of their robot and present their robot to the class. Have your entire class vote on which robot they would invest in if they were a venture capital firm.

\*\*\*Best Videos for Class – show them in order to see the advances in technology!

- Nao Robot Example (2008 - 3 mins)
- <http://www.youtube.com/watch?v=2STTNYNF4Ik>
  
- NAO Next Generation (2011 – 3 mins)
- <http://www.youtube.com/watch?v=nNbj2G3GmAo&feature=related>
  
- NAO Robots – All The Single Ladies Dance (Students will LOVE this!!)
- <http://www.youtube.com/watch?v=vqEFC8Eb6i4&feature=related>

## CLASSROOM VIDEO

## Something to Get Their Attention

Sheena Lyengar did her thesis work on “how people make decisions.” Great Ted.com to show your students.  
[http://www.ted.com/talks/sheena\\_lyengar\\_on\\_the\\_art\\_of\\_choosing.html](http://www.ted.com/talks/sheena_lyengar_on_the_art_of_choosing.html)

## CLASSROOM VIDEO

### Take a Walk or a Drive – Virtually!

This is an interesting website where you can view yourself walking or driving down streets in different cities. I use this as a decision support tool to use to map a tour if I was planning a trip to one of these cities. There is an excellent video on the website that demonstrates the amazing capabilities of Streetside.

<http://www.microsoft.com/maps/en-GB/streetside.aspx>

- How can you use Streetside to improve business decisions?
- How can you use Streetside to uncover business intelligence?
- How can you use Streetside to develop a new business idea?
- How can you use Streetside to revamp a business process

## CLASSROOM EXERCISE

### DSS Everywhere!

- Break your students into groups and ask them to compare sensitivity analysis, what-if analysis, and goal-seeking analysis and to provide a business example of when they would use each type?
  - Sensitivity analysis – studies the impact on a single change in a current model. For example – if we continually change the amount of inventory we carry, how low can our inventories go before issues start occurring in other parts of the supply chain? This would require changing the inventory level and watching the model to see “how sensitive” it is to inventory levels.
  - What-if analysis – determines the impact of change on an assumption or an input. For example – if the economic condition improves, how will it affect our sales?
  - Goal-seeking analysis – solves for a desired goal. For example – we want to improve revenues by 30 percent, how much does sales have to increase and costs have to decrease to meet this goal?
- Can you name a few different situations when you would use consolidation, drill-down, and slice-and-dice?
  - Consolidation would occur when grouping multiple store sales together to get a total for the company
  - Drill-down would occur when digging into the numbers on the balance sheet or income statement, such as revenues broken down into individual product revenues for each store during different dates and times
  - Slice-and-dice would occur when users begin looking at information with different dimensions, similar to the cubes of information

## CLASSROOM EXERCISE

### Measuring Efficiency and Effectiveness

Break your students into groups and ask them to create a plan to measure the efficiency and effectiveness of this course and recommendations on how they would improve the course to make it more efficient and more effective. Student answers to this exercise will vary. They will need to determine ways to benchmark current efficiency and effectiveness and ways to continuously monitor and measure against the benchmarks to determine if the course is becoming more or less efficient and effective (class quizzes and exams are the most obvious benchmarks). Ask

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your students to present their plan and recommendations to the entire class. Be sure students' plans and recommendations address the following:

- Design of the classroom
- Room temperature
- Lighting and electronic capabilities of the classroom
- Technology available in the classroom
- Length of class
- Email and instant messaging
- Students' attendance
- Students' preparation
- Students' arrival time
- Quizzes and exams (frequency, length, grades)

## CORE MATERIAL

The core chapter material is covered in detail in the PowerPoint slides. Each slide contains detailed teaching notes including exercises, class activities, questions, and examples. Please review the PowerPoint slides for detailed notes on how to teach and enhance the core chapter material.

## VIDEO MATERIALS TO ACCOMPANY APPLY YOUR KNOWLEDGE BOXED ELEMENTS

Use these videos to jump-start a case discussion and get your students thinking about how they are going to apply the concepts they are learning in real-business and real-world situations.

## BUSINESS DRIVEN DISCUSSION – DRIVING DECISIONS

### TEN WORST DRIVES EVER CAUGHT ON Video

Great way to kick off a discussion on how decisions impact business. People have accidents. That's not what this post is about. People also do stupid, reckless things. But we're not focusing on that now either. This is about people that obviously lack the requisite skills to operate a motor vehicle – who were also unfortunate enough to have the evidence caught on film.

<http://onemansblog.com/2007/02/07/10-worst-drivers-ever-caught-on-video/>

## BUSINESS DRIVEN MIS – STREAMLINING YOUR EMAIL

### IBM Business Processes – Video

[http://www-01.ibm.com/software/plm/learnmore/resources/end-to-end\\_plm\\_business\\_process\\_video.html](http://www-01.ibm.com/software/plm/learnmore/resources/end-to-end_plm_business_process_video.html)

### Business Process Outsourcing Accenture - Video

<http://www.accenture.com/us-en/Pages/success-bpo-learning-telstra-video-summary.aspx>

### Oracle Business Process Management - Video

<http://www.oracle.com/us/technologies/bpm/index.html>

## BUSINESS DRIVEN ETHICS AND SECURITY – THE CRIMINAL IN THE CUBE NEXT DOOR

## **CERIAS Security Seminar Video - Detecting Insider Theft of Trade Secrets-Video**

Trusted insiders who misuse their privileges to gather and steal sensitive information represent a potent threat to businesses. Applying access controls to protect sensitive information can reduce the threat but has significant limitations. Even if access controls are set properly, they don't protect against rogue employees who legitimately need to access sensitive information. Since 2002, researchers at MITRE have investigated methods for detecting insiders who misuse their legitimate access to steal information. A three-year, internally funded research effort developed and evaluated a research prototype of a system called Elicit (Exploit Latent Information to Counter Insider Threats) to help analysts identify insider threats. Work on Elicit prompted a team of engineers and social scientists to experimentally explore how malicious insiders use information differently from a benign baseline group. This talk presents results from the research prototype evaluation, discusses preliminary results from the double-blind study of malicious insiders, and offers some essential aspects for detecting insider threats gleaned from these efforts.

[http://www.cerias.purdue.edu/news\\_and\\_events/events/calendar/cerias\\_event.php?uid=qqr5s116vs9mpnnd40qodn33d8%40google.com&utm\\_source=feedburner&utm\\_medium=feed&utm\\_campaign=Feed%3A+CeriasSecuritySeminarPodcast+%28CERIAS+Security+Seminar+Podcast%29](http://www.cerias.purdue.edu/news_and_events/events/calendar/cerias_event.php?uid=qqr5s116vs9mpnnd40qodn33d8%40google.com&utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+CeriasSecuritySeminarPodcast+%28CERIAS+Security+Seminar+Podcast%29)

(You can download the video from this site)

## **BUSINESS DRIVEN GLOBALIZATION – IYOGI HELP DESK SUPPORT**

### **iYogi Customer Review Videos**

Our Customers Know Best

Learn more about experiences with iYogi, by browsing thousands of reviews from customers around the world.

<http://www.iyogi.net/customerreviews/>

## **BUSINESS DRIVEN INNOVATION – BUILDING ROBOTS**

### **Robot Violinist - Video**

<http://www.youtube.com/watch?v=EzjkBwZtxp4>

### **Robot Emotions**

The emotional robotScience correspondent Alok Jha visits the University of Hertfordshire to meet an android developed to show emotions

<http://www.guardian.co.uk/technology/video/2010/aug/09/emotional-robot-university-hertfordshire>

### **Robot Babies**

The State Department readies new Internet freedom policies, the FAA may lift the ban on cell phones during air travel, and Japanese researchers are working on robot babies.

[http://news.cnet.com/1606-2\\_3-50100306.html](http://news.cnet.com/1606-2_3-50100306.html)

## **BUSINESS DRIVEN DEBATE – EDUCATION PROCESSES**

### **Father Guido Sarducci's Five Minute University**

This is a great video to get your students engaged in educational processes.

<http://www.youtube.com/watch?v=kO8x8eoU3L4>

## **BUSINESS DRIVEN START-UP – DIGITAL DASHBOARD FOR TRACKING JUNK**

## How To Setup A Digital Dashboard in Microsoft Excel

<http://www.youtube.com/watch?v=V9GMCS-WjyI>

## Business Dashboards

<http://www.microstrategy.com/dashboards/>

## Ford Reinvents the Car with a New Digital Dashboard

[http://www.metacafe.com/watch/3989728/ces\\_2010\\_ford\\_reinvents\\_the\\_car\\_with\\_digital\\_dashboard\\_tekzilla\\_daily\\_tip/](http://www.metacafe.com/watch/3989728/ces_2010_ford_reinvents_the_car_with_digital_dashboard_tekzilla_daily_tip/)

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## **SECTION 2.2**

# **BUSINESS PROCESSES**

### **LEARNING OUTCOMES**

**Learning Outcome 2.5: Explain the value of business processes for a company, and differentiate between customer-facing and business-facing process.**

A business process is a standardized set of activities that accomplish a specific task, such as processing a customer's order. Business processes transform a set of inputs into a set of outputs (goods or services) for another person or process by using people and tools. Without processes, organizations would not be able to complete activities. Customer-facing processes result in a product or service that is received by an organization's external customer. Business-facing processes are invisible to the external customer but essential to the effective management of the business.

**Learning Outcome 2.6: Demonstrate the value of business process modeling, and compare As-Is and To-Be models.**

Business process modeling (or mapping) is the activity of creating a detailed flowchart or process map of a work process showing its inputs, tasks, and activities, in a structured sequence. A business process model is a graphic description of a process, showing the sequence of process tasks, which is developed for a specific purpose and from a selected viewpoint.

Business process modeling usually begins with a functional process representation of what the process problem is, or an As-Is process model. As-Is process models represent the current state of the operation that has been mapped, without any specific improvements or changes to existing processes. The next step is to build a To-Be process model that displays how the process problem will be solved or implemented. To-Be process models show the results of applying change improvement opportunities to the current (As-Is) process model. This approach ensures that the process is fully and clearly understood before the details of a process solution are decided upon.

**Learning Outcome 2.7: Differentiate between business process improvements, streamlining, and reengineering.**

Business process improvement attempts to understand and measure the current process and make performance improvements accordingly. Streamlining improves business process efficiencies by simplifying or eliminating unnecessary steps. Bottlenecks occur when resources reach full capacity and cannot handle any additional demands; they limit throughput and impede operations. Streamlining removes bottlenecks, an important step if the efficiency and capacity of a business process are being increased. Business process reengineering (BPR) is the analysis and redesign of workflow within and between enterprises and occurs at the systems level or companywide level and the end-to-end view of a process.

**Learning Outcome 2.8: Describe business process management and its value to an organization.**

Business process management (BPM) systems focus on evaluating and improving processes that include both person-to-person workflow and system-to-system communications. BPM systems include advanced features such as enhanced process modeling, simulation, execution, and monitoring, providing a high level of flexibility while reducing costs.

## CLASSROOM OPENER

### Cable Ready

A current cable subscriber calls up to change the date for activating the service at a new address from Feb. 22 to March 1. The subscriber is successful and hangs up the phone happy. However, on February 22<sup>nd</sup> the cable at the current home is disconnected and the customer is no longer happy. The customer service representative forgot to change the date of the disconnection and only changed the date of the activation.

Practically speaking, these two events will almost always be linked - and the system probably should have prompted the customer service representative to ask if they were. The point: In focusing on business process, it is important to facilitate real-world tasks that are, by nature, "integrated."

## CLASSROOM EXERCISE

### Examining And Reengineering A College Business Process

Ask your students to discuss issues they have encountered around the college due to an inefficient or ineffective process. Choose one of the processes, break your students into groups, and ask them to reengineer the process. How would they change it to make it more effective or more efficient? Would they add a new technology device to help with the process such as a scanner, PDA, or RFID? Be sure to have them diagram the As-Is process and the To-Be process. Have them present their reengineered processes to the class.

## CLASSROOM EXERCISE

### Reengineering a Process

There is nothing more frustrated than a broken process. Ask your students to break into groups and discuss examples of broken processes that are currently causing them pain. The process can be a university process, mail-order process, Internet-order process, return merchandise process, etc. Ask your students to agree on one of the broken processes and to reengineer the process. Students should diagram the "As-Is" process and then diagram their "To-Be" process. Bring in a large roll of brown package wrapping paper and masking tape. Give each group two large pieces of the paper and ask them to tape the paper to the wall. These make for great "As-Is" and "To-Be" process maps.

## CLASSROOM EXERCISE

### Videos on BPM

Microsoft's business and industry offers a surprisingly good introduction to people driving business success through business process.

<http://msdn.microsoft.com/en-us/library/aa559473.aspx>

Funny video to kick-off your process modeling lecture.

<http://www.youtube.com/watch?v=S-Mbr31f2dq>

## CLASSROOM EXERCISE

### How's My Driving – Just Ask My Car?

Using gadgets while you're driving can be a very bad thing, but an expert on automotive distractions says using a gadget that watches you while you're driving can be a very good thing. More than 40,000 people die every year in motor vehicle crashes, and research indicates that failures of attention - including distractions or drowsiness - probably played a role in most of those crashes.

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Meiji Zhang tries to use a cell phone while she's behind the wheel in a driving simulator that's designed to work like a Chevy Malibu. The University of Iowa's National Advanced Driving Simulator was used to study the effects of driving distractions.

In one case he studied, a driver looked away from the road for 6 seconds to tap out a text message on her phone, slipped out of her lane and came to attention only when the tires hit the curb. "When she actually saw the video from the perspective of the camera, she was shocked to learn that she almost hit a telephone pole at 40 miles per hour," Lee said.

Ask your students to read the article and answer the following:

<http://www.msnbc.msn.com/id/30254458/>

How many of your student's text, dial cell phones, etc. while driving?  
Would this type of technology benefit your student drivers?

Break your students into groups and ask them to create a product that could help drivers pay greater attention to driving and less attention to gadgets.

## CLASSROOM EXERCISE

### Honda Develops Brain Interface for Robot Control

The research wing of Honda Motor has co-developed a brain machine interface (BMI) system that allows a person to control a robot through thought alone.

Ask your students to read the following article

<http://www.networkworld.com/news/2009/033109-honda-develops-brain-interface-for.html>

Break your students into groups and have them develop two businesses uses for this type of technology that includes a DSS or EIS

Ask your students to discuss AI and what other types of inventions could they build that could benefit business

## CLASSROOM EXERCISE

### Defense Advanced Research Projects Agency (DARPA) Grand Challenge

Ask your student to review the DARPA website to become familiar with the competition.

[http://www.darpa.mil/Our\\_Work/TTO/Programs/DARPA\\_Robotics\\_Challenge.aspx](http://www.darpa.mil/Our_Work/TTO/Programs/DARPA_Robotics_Challenge.aspx)

<http://www.darpa.mil/NewsEvents/Releases/2012/04/10.aspx>

- **How is the DoD using AI to improve its operations and save lives?**

The DARPA Grand Challenge was designed to leverage American ingenuity to develop autonomous vehicle technologies that can be used by the military. Using AI driven vehicles the DOD will be able to send vehicles into dangerous situations without endangering any soldiers.

- **Why would the DoD use an event, such as the DARPA Grand Challenge, to further technological innovation?**

By offering a generous prize, along with notoriety the DOD is able to get many of the greatest minds in the country working on creating autonomous vehicles. It is a win-win. The DOD receives the technology and the winning team receives a prize and notoriety.

- **Describe how autonomous vehicles could be used by organizations around the world to improve business efficiency and effectiveness.**

There are numerous ways that autonomous vehicles could be used around by businesses from making deliveries, transporting goods and services to taking employees to and from the airport. The uses are limitless.

- **The Ansari X is another technological innovation competition focusing on spacecraft. To win the \$10 million Ansari X Prize, a private spacecraft had to be the first to carry the weight equivalent of three people to an altitude of 62.14 miles twice within two weeks. SpaceShipOne, a privately built spacecraft, won the \$10 million Ansari X Prize on October 4, 2004. Describe the potential business impacts of the Ansari X competition.**

Space travel is the next exciting frontier. Business impacts could range from vacation trips to the moon to picking up space materials for the production of goods and services. The competition could also inspire other types of competition such as underwater houses and personal flying machines.

### **DARPA Videos**

The DARPA challenge is an excellent topic when discussing AI. Here is the latest article on this year's DARPA challenge.

- Robots And Their Masters Ready For DARPA 'War Zone' Race  
<http://www.informationweek.com/showArticle.jhtml;jsessionid=THMMTXP1BKGDIQSNDLRCKH0CJUNN2JVN?articleID=193401499&queryText=aug+14>
- DARPA Grand Challenge Stanford Winning Team  
[http://reviews.cnet.com/4660-11443\\_7-6358785.html?tag=vid.1](http://reviews.cnet.com/4660-11443_7-6358785.html?tag=vid.1)
- DARPA Challenge - 2005 Overview  
[http://reviews.cnet.com/4660-11443\\_7-6353439.html?tag=vid.2](http://reviews.cnet.com/4660-11443_7-6353439.html?tag=vid.2)
- Special Features: Inside the DARPA Challenge  
[http://reviews.cnet.com/4660-11443\\_7-6358769.html?tag=vid.3](http://reviews.cnet.com/4660-11443_7-6358769.html?tag=vid.3)

## **CORE MATERIAL**

The core chapter material is covered in detail in the PowerPoint slides. Each slide contains detailed teaching notes including exercises, class activities, questions, and examples. Please review the PowerPoint slides for detailed notes on how to teach and enhance the core chapter material.

# CHAPTER TWO

## CLOSING MATERIAL

### OPENING CASE QUESTIONS ACTIONLY

- 1. Knowledge:** Define the three primary types of decision-making systems, and explain how a customer of Actionly might use them to find business intelligence.
  - a. Decision-making skills are essential for all business professionals, at every company level, who make decisions that run the business. At the operational level, employees develop, control, and maintain core business activities required to run the day-to-day operations. Operational decisions are considered structured decisions, which arise in situations where established processes offer potential solutions. Structured decisions are made frequently and are almost repetitive in nature; they affect short-term business strategies.
  - b. At the managerial level, employees are continuously evaluating company operations to hone the firm's abilities to identify, adapt to, and leverage change. Managerial decisions cover short- and medium-range plans, schedules, and budgets along with policies, procedures, and business objectives for the firm. These types of decisions are considered semistructured decisions; they occur in situations in which a few established processes help to evaluate potential solutions, but not enough to lead to a definite recommended decision.
  - c. At the strategic level, managers develop overall business strategies, goals, and objectives as part of the company's strategic plan. They also monitor the strategic performance of the organization and its overall direction in the political, economic, and competitive business environment. Strategic decisions are highly unstructured decisions, occurring in situations in which no procedures or rules exist to guide decision makers toward the correct choice. They are infrequent, extremely important, and typically related to long-term business strategy.
- 2. Comprehension:** Describe the difference between transactional and analytical information, and determine which types Actionly uses to create a customer's digital dashboard.

Transactional information encompasses all of the information contained within a single business process or unit of work, and its primary purpose is to support the performing of daily operational tasks. Analytical information encompasses all organizational information, and its primary purpose is to support the performing of managerial analysis tasks. Actionly is using transactional information to make analytical decisions. The transactional information includes customer's names, brands purchased, thoughts, friends, social status, and other types of social networking data. The analytical decisions that are made from this information include determining product success to service success.
- 3. Application:** Illustrate the business process model used by a customer of Actionly following Twitter tweets. Student answers to this question will vary. Be sure they included the following in their business process model
  - Gather data
  - Identify followers
  - Identify Tweets – posting, time, content

- Correlate Tweets to action including purchases, services, or returns
4. **Analysis:** Explain business process reengineering and how Actionly used it to create its unique business model.  
Business process improvement attempts to understand and measure the current process and make performance improvements accordingly. Streamlining improves business process efficiencies by simplifying or eliminating unnecessary steps. Bottlenecks occur when resources reach full capacity and cannot handle any additional demands; they limit throughput and impede operations. Streamlining removes bottlenecks, an important step if the efficiency and capacity of a business process are being increased. Business process reengineering (BPR) is the analysis and redesign of workflow within and between enterprises and occurs at the systems level or companywide level and the end-to-end view of a process.
  5. **Synthesis:** Formulate different metrics Actionly uses to measure the success of a customer's marketing campaign.  
Analyzing data is at the core of Actionly's business model and without metrics the company would not have function. Potential metrics include:
    - Number of followers
    - Number of Tweets
    - Number of posts
    - Number of friends
    - Number of recommendations
    - Number of sales
    - Number of customers
  6. **Evaluation:** Argue for or against the following statement: Actionly invades customer privacy by taking data from different websites such as Twitter and Flickr without the consent of the customer that posed the information.  
Student answer to this question will vary. This statement makes for a great classroom debate!

## CLOSING CASE QUESTION POLITICAL MICRO-TARGETING

1. **Knowledge:** Define the three primary types of decision-making systems, and explain how Obama's campaign team used them to win votes.
  - a. Decision-making skills are essential for all business professionals, at every company level, who make decisions that run the business. At the operational level, employees develop, control, and maintain core business activities required to run the day-to-day operations. Operational decisions are considered structured decisions, which arise in situations where established processes offer potential solutions. Structured decisions are made frequently and are almost repetitive in nature; they affect short-term business strategies.
  - b. At the managerial level, employees are continuously evaluating company operations to hone the firm's abilities to identify, adapt to, and leverage change. Managerial decisions cover short- and medium-range plans, schedules, and budgets along with policies, procedures, and business objectives for the firm. These types of decisions are considered semistructured decisions; they occur in situations in which a few established processes help to evaluate potential solutions, but not enough to lead to a

definite recommended decision.

- c. At the strategic level, managers develop overall business strategies, goals, and objectives as part of the company's strategic plan. They also monitor the strategic performance of the organization and its overall direction in the political, economic, and competitive business environment. Strategic decisions are highly unstructured decisions, occurring in situations in which no procedures or rules exist to guide decision makers toward the correct choice. They are infrequent, extremely important, and typically related to long-term business strategy.

2. **Comprehension:** Describe the difference between transactional and analytical information, and determine which types Spotlight Analysis used to identify its 10 tribes.

Transactional information encompasses all of the information contained within a single business process or unit of work, and its primary purpose is to support the performing of daily operational tasks. Analytical information encompasses all organizational information, and its primary purpose is to support the performing of managerial analysis tasks. Spotlight is using transactional information to make analytical decisions. The transactional information includes individual's names, neighborhood details, family sizes, and spending patterns to categorize every American of voting age—175 million of us—into 10 "values" tribes. The analytical decisions that are made from this information include determining swing voters and important areas for Obama to campaign.

3. **Application:** Illustrate the business process model used to identify the 10 tribes.

Student answers to this question will vary. Be sure they included the following in their business process model

- Gather data – neighborhood details, family sizes, spending patterns
- Identify persons of voting age – 175 million people
- Identify common mindsets – God, community, responsibility, opportunity
- Identify Barn Raisers – 14 million
- Target with political campaign

4. **Analysis:** Explain business process reengineering and how Obama's team used it to develop political micro-targeting.

Business process improvement attempts to understand and measure the current process and make performance improvements accordingly. Streamlining improves business process efficiencies by simplifying or eliminating unnecessary steps. Bottlenecks occur when resources reach full capacity and cannot handle any additional demands; they limit throughput and impede operations. Streamlining removes bottlenecks, an important step if the efficiency and capacity of a business process are being increased. Business process reengineering (BPR) is the analysis and redesign of workflow within and between enterprises and occurs at the systems level or companywide level and the end-to-end view of a process. Obama's team analyzed the current voting data and strategically organized it into 10 "values" or tribes. By specifically identifying potential swing voter's Obama's team knew exactly who to target with their campaign.

5. **Synthesis:** Formulate different metrics the Obama team used to measure the success of political micro-targeting.

Analyzing data was at the core of the Obama campaign and without metrics the campaign would not have been able to tell if they were on track or not. Potential metrics include:

- Number of democratic voters targeted to vote democratic
- Number of republican voters targeted to vote republican
- Number of democratic voters targeted as undecided

- Number of republican voters targeted as undecided
- Percentage of voters for Obama
- Percentage of voters against Obama

6. **Evaluation:** Argue for or against the following statement: Political micro-targeting signals the dehumanization of politics.

Student answer to this question will vary. Some of the students will feel that by specifically targeting swing voters the Presidential candidate is “fixing” the vote. Some will also feel that so much data on American citizens is a violation of privacy. This statement makes for a great classroom debate!

## CLOSING CASE TWO

### Succeeding in SecondLife

1. **How could financial companies use neural networks in Second Life to help their businesses?**

A neural network, also called an artificial neural network, is a category of AI that attempts to emulate the way the human brain works. The types of decisions for which neural networks are most useful are those that involve pattern or image recognition because a neural network can learn from the information it processes.

Neural networks analyze large quantities of information to establish patterns and characteristics in situations where the logic or rules are unknown. The finance industry is a veteran in neural network technology and has been relying on various forms of it for over two decades. The industry uses neural networks to review loan applications and create patterns or profiles of applications that fall into two categories: approved or denied. One neural network has become the standard for detecting credit card fraud. Since 1992, this technology has slashed fraud by 70 percent for U.S. Bancorp. Now, even small credit unions are required to use the software in order to qualify for debit-card insurance from Credit Union National Association.

Additional examples of neural networks include:

- Citibank uses neural networks to find opportunities in financial markets. By carefully examining historical stock market data with neural network software, Citibank financial managers learn of interesting coincidences or small anomalies (called market inefficiencies). For example, it could be that whenever IBM stock goes up, so does Unisys stock. Or it might be that a U.S. Treasury note is selling for 1 cent less in Japan than it is in the United States. These snippets of information can make a big difference to Citibank’s bottom line in a very competitive financial market.
- In Westminster, California, a community of 87,000 people, police use neural network software to fight crime. With crime reports as input, the system detects and maps local crime patterns. Police say that with this system they can better predict crime trends, improve patrol assignments, and develop better crime prevention programs.
- Fingerhut, the mail-order company based in Minnesota, has 6 million people on its customer list. To determine which customers were and were not likely to order from its catalog, Fingerhut recently switched to neural network software. The company finds that the new software is more effective and expects to generate millions of dollars by fine-tuning its mailing lists.
- Fraud detection widely uses neural networks. Visa, MasterCard, and many other credit card companies use a neural network to spot peculiarities in individual accounts. MasterCard estimates neural networks save it \$50 million annually.
- Many insurance companies (Cigna, AIG, Travelers, Liberty Mutual, Hartford) along with state compensation funds and other carriers use neural network software to identify fraud. The system searches for patterns in billing charges, laboratory tests, and frequency of office visits. A claim for which the diagnosis was a sprained ankle but included an electrocardiogram would be flagged for the account manager.

- FleetBoston Financial Corporation uses a neural network to watch transactions with customers. The neural network can detect patterns that may indicate a customer's growing dissatisfaction with the company. The neural network looks for signs like decreases in the number of transactions or in the account balance of one of FleetBoston's high-value customers.

Neural networks' many features include:

- Learning and adjusting to new circumstances on their own.
- Lending themselves to massive parallel processing.
- Functioning without complete or well-structured information.

## 2. How could a company such as Nike use decision support systems on Second Life to help its business?

A decision support system (DSS) models information to support managers and business professionals during the decision-making process. Three quantitative models are typically used by DSSs: (1) sensitivity analysis, (2) what-if analysis, and (3) goal-seeking analysis. Nike could use any of these three types of models to help its business. By asking questions to Second Life customers it could run these models to help it make business decisions.

- Sensitivity analysis is the study of the impact that changes in one (or more) parts of the model have on other parts of the model. Users change the value of one variable repeatedly and observe the resulting changes in other variables.
- What-if analysis checks the impact of a change in an assumption on the proposed solution. For example, "What will happen to the supply chain if a hurricane in South Carolina reduces holding inventory from 30 percent to 10 percent?" Users repeat this analysis until they understand all the effects of various situations.
- Goal-seeking analysis finds the inputs necessary to achieve a goal such as a desired level of output. Instead of observing how changes in a variable affect other variables as in what-if analysis, goal-seeking analysis sets a target value (a goal) for a variable and then repeatedly changes other variables until the target value is achieved. For example, "How many customers are required to purchase our new product line to increase gross profits to \$5 million?"

## 3. How could an apparel company use Second Life to build a digital dashboard to monitor virtual operations?

A common feature of an executive information system is a digital dashboard. Digital dashboards integrate information from multiple components and tailor the information to individual preferences. Digital dashboards commonly use indicators to help executives quickly identify the status of key information or critical success factors. A company could build a digital dashboard on Second Life to monitor a virtual store. It could track and monitor everything that it could track in a real store including:

- Number of customers
- Types of customers
- Time spent in store
- Number of items avatar looked at in the store
- Number of interactions with store avatars
- Number of items purchased
- Revenue per sale

## 4. How could a company use Second life to revamp its customer service process?

By gaining feedback on the product or service from Second Life. Many companies are using Second Life to pilot virtual products. In the American Apparel store you can view clothes that are at the real store and

organize how the store works best for customers, without the cost of surveys, store visits, store changes, and inventory changes. By operating in a virtual world you can change the virtual inventory in minutes and determine customer interaction instantaneously. With a virtual world you will not experience any of the problems we have in the real world with travel. A trip to Japan, China, or Australia can cost a company thousands and thousands of dollars in airfare, hotels, taxis, food, etc. Not to mention employee time. By visiting customers in Second Life you can have a one-on-one or group conversation with people from all over the globe without leaving your office. Second Life will help flatten the world and make everyone next door neighbors (just as Freidman discussed in *The World is Flat*).

##### 5. How could a company use Second Life to revamp its order entry process?

Forming relationships with customers, partners, and employees in a virtual world is different than relationships in the real world. Operating in a virtual world has many similarities and differences from operating in the real world. In a virtual world you will be operating with many different types of customers who look different from real customers. Here is an excellent article on How Second Life Changes Customer Service [http://www.businessweek.com/globalbiz/content/apr2007/qb20070410\\_481047.htm?campaign\\_id=rss\\_tech](http://www.businessweek.com/globalbiz/content/apr2007/qb20070410_481047.htm?campaign_id=rss_tech)

#### ***The virtual world could become the first point of contact between companies and customers and could transform the whole experience***

Web 2.0 is still the hottest buzzword in tech circles, with every big brand worth its salt rushing to open a headquarters in Second Life or build its own MySpace page. But beyond showing off some fancy programming, a handful of companies are already looking at the latest wave of technologies to explore whether user-generated content could be the next frontier in customer service.

Since it began hosting the likes of Adidas, Dell, Reuters and Toyota, Second Life has become technology's equivalent of India or China - everyone needs an office and a strategy involving it to keep their shareholders happy. But beyond opening a shiny new building in the virtual world, what can such companies do with their remote real estate?

Rather than a simple showcase, some believe Second Life could one day become a first point of contact for customers.

Like many other big brands, PA Consulting has its own offices in Second Life and has learnt that simply having an office to answer customer queries is not enough. Real people, albeit behind avatars, must be staffing the offices - in the same way having a website is not enough if there isn't a call centre to back it up when a would-be customer wants to speak to a human being. In future, the consultants believe call centers could one day ask customers to follow up a phone call with them by moving the query into a virtual world. And hanging around in Second Life is more fun than being stuck on hold. As Claus Nehmzow, member of PA Consulting's management team points out: "The waiting period can be so much more entertaining than with an IVR system".

Instead of being placed in a queue to enjoy hold 'muzak' when contacting a call centre, virtual world visitors could make more profitable use of their time - talking to other inhabitants, viewing videos, reading information in the environment for example. As well as keeping visitors entertained, exploring virtual world customer service can have advantages for the company themselves. By using avatars, for example, a whole new customer services workforce can be opened up - those who need to work from home or mothers with young children for example, can be brought back into the virtual workforce. It can also remove some of the issues with customers being prejudiced against call centre workers who have certain accents.

However, currently Second Life and its imitators remain relatively niche in usage terms and have their own technology boundaries - not all consumers, particularly the older community, have the tech savvy or indeed the hardware necessary to make use of virtual worlds. It may yet be some time before these cyber worlds come into their own - yet other web 2.0 technologies may offer another route for companies to make conversations with their customers easier.

Clive Longbottom, of analyst house Quocirca, believes the relatively low penetration rates and end user technical constraints will keep virtual worlds as a relatively niche customer service tool: "It's a new environment, there's a lot of interest... but it's not growing rapidly, it's not a major area."

He added that more established web 2.0 favorites such as YouTube might be able to play a better part in resolving customer queries. Examples might be electronics vendors posting a software demo or a video of how to set up a tricky audio system.

Some companies have already cottoned on to the potential of user-generated content and have begun milking users for their expertise in problem solving - Sony is one, having recently got users to help solve glitches after the recent launch of the PS3. Sony has built customer self-service forums using Transversal software to allow the PS3-puzzled to query each other.

Andy Barker, director of customer services for Sony UK, told silicon.com the hardware maker will be relying on PS3 fans to help each other out, although the forums will have some Sony brains on hand too.

We can't know how every single device works with the PS3 but users could have some experience of it. If someone suggested they put the PS3 in a slow cooker, we'd step in and moderate that. There will also be classic moderating if someone posts an offensive comment or a dodgy link."

Sony recently opened its own virtual world, Sony@home, and is looking into the possibility of exploiting it for customer service purposes, perhaps using it to one day give users graphical walkthroughs if they need customer support. Barker said: "It's a question of seeing if people like it and if it's something they use but that's looking a bit further in the future."

Meanwhile, others are exploring how user-generated content from mobile phones can be used for customer service purposes.

In Accenture's US labs, some researchers are already working on how customers and companies can make each other's lives easier by means of the humble cameraphone. The consultants have already explored how snap-happy citizens can use their phones to take photos of minor crimes such as fly-tipping or graffiti and MMS them to the police.

Andy Fano, global director of research, Accenture Technology Labs, told silicon.com the system has to-date just been piloted in the US. He added: "We came from the position that it would only be a matter of time until people captured an event on their phones, and wanted to send it to the police, who wouldn't be able to receive it."

Insurance companies could also make use of the feature-stuffed mobile - after a disaster, homeowners could take pictures of their homes as primary assessment of damage and help insurance agents and emergency services determine who needs help first. With the addition of image recognition tech, the capacities of mobiles could be extended. Consumers could take pictures of a broken car part, for instance, and text it to the manufacturer to request a replacement. However, with a brave new world of new media customer services, call centers will need an overhaul. Fano said: "By necessity, it will take more people to interpret all of this but given the potential mass of media coming in, we have to find a scalable way to approach this."

## 6. How could a company use Second Life to reinvent relationships with customers, partners, and employees?

Second Life can help cement customer, partner, and employee relationships by improving organizational business processes and making them more intelligent. This is achieved by understanding customer behavior and preferences, partner behavior and preference, and employee behavior and preferences, then realigning product and service offerings and related communications to make sure they are synchronized with customer needs and preferences. If you do not know and understand your customers, partners, and employees then they might not be working with you for long!

### **New World of Opportunity: Ask your students why Second Life Grid is monumental to businesses such as IBM who just started the first Grid.**

The Second Life Grid™ platform enables your organization to create a public or private space using the leading 3D online virtual world technology behind Second Life™. Discover how your organization can create its own space for communication, collaboration and community engagement:

- Hold in-person meetings without leaving the office, using real-time 3D collaboration
- Construct product simulations enabling customers from all over the world to test out new designs and concepts
- Conduct employee training
- Meet with global partners at your virtual headquarters
- Receive product feedback from clients
- As a non-profit, engage and raise funds
- Build community around your brand
- <http://secondlifegrid.net/>

## CRITICAL BUSINESS THINKING

**Instructor Note:** There are few right or wrong answers in the business world. There are really only efficient and inefficient, and effective and ineffective business decisions. If there were always right answers businesses would never fail. These questions were created to challenge your students to apply the materials they have learned to real business situations. For this reason, the authors cannot provide you with one version of a correct answer. When grading your students' answers, be sure to focus on their justification or support for their specific answers. A good way to grade these questions is to compare your student's answers against each other.

### 1. MODELING A BUSINESS PROCESS

**Project Purpose:** To revamp a process

**Potential Solution:** Student answers to this question will vary depending on the process they have chosen to fix. Review the chapter for an example of an improved burger ordering process. Students can choose any process from reorganizing a sock drawer, making coffee, to revamping the way gas is purchased for an automobile.

### 2. REVAMPING ACCOUNTS

**Project Purpose:** To revamp an accounting department using BPM.

**Potential Solution:** A key advantage of technology is its ability to improve business processes. Working faster and smarter has become a necessity for companies. Initial emphasis was given to areas such as production, accounting, procurement, and logistics. The next big areas to discover technology's value in business process were sales and marketing automation, customer relationship management, and supplier relationship management. Some of these processes involve several departments of the company and some

are the result of real-time interaction of the company with its suppliers, customers, and other business partners. The latest area to discover the power of technology in automating and reengineering business process is business process management. Business process management (BPM) integrates all of an organization's business process to make individual processes more efficient. BPM can be used to solve a single glitch or to create one unifying system to consolidate a myriad of processes.

Many organizations are unhappy with their current mix of software applications and dealing with business processes that are subject to constant change. These organizations are turning to BPM systems that can flexibly automate their processes and glue their enterprise applications together. BPM technologies effectively track and orchestrate the business process. BPM can automate tasks involving information from multiple systems, with rules to define the sequence in which the tasks are performed as well as responsibilities, conditions, and other aspects of the process. BPM not only allows a business process to be executed more efficiently, but it also provides the tools to measure performance and identify opportunities for improvement - as well as to easily make changes in processes to act upon those opportunities such as:

- Bringing processes, people, and information together
- Identifying the business processes is relatively easy. Breaking down the barriers between business areas and finding owners for the processes are difficult
- Managing business processes within the enterprise and outside the enterprise with suppliers, business partners, and customers
- Looking at automation horizontally instead of vertically

### 3. What Type of System Would You Use?

**Project Purpose:** To differentiate between the different types of systems

**Potential Solution:**

- You need to analyze daily sales transactions for each region. (TPS)
- You need to analyze staffing requirements for each plant. (MIS)
- You need to determine which customers are at risk of defaulting on their bills. (Transaction Processing System)
- You need to analyze your competition including prices, discounts, goods, and services. (MIS)
- You need to analyze critical success factors and key performance indicators for status on operations. (EIS)
- You need to produce a graphical display of patterns and complex relationships for large amounts of data. (EIS)

### 4. Unstructured Communications

**Project Purpose:** To identify challenges associated with email as a communication tool

**Potential Solution:** Using email as a primary communication tool has several disadvantages such as issues tracking who received the email, who read the email, and who forwarded the email. If an employee's email is over its limit they will be unable to receive the email. A spam filter could accidentally delete the email before the employee had a chance to read the important information. There are numerous issues when communicating with email. Your students can diagram how a professor could communicate with their class using email. Then ask your students to reengineer the process using alternative, and better, forms of communication.

### 5. iGoogle Digital Dashboard

**Project Purpose:** To practice using a digital dashboard.

**Potential Solution:** iGoogle is a fantastic website and your students will gain a tremendous amount of value from configuring their own personal digital dashboards. Ask your students to create an iGoogle digital dashboard in a team and present their dashboard to the class.

## 6. Bot Shopping

**Project Purpose:** To use a shopping bot.

**Potential Solution:** Student answers to this question will vary depending on the product they were considering purchasing. You can assign all of your students the same product such as an iPhone or iPad to generate consistent answers to this question.

## 7. Networking Neural

**Project Purpose:** To understand neural networks.

**Potential Solution:** A neural network, also called an artificial neural network, is a category of AI that attempts to emulate the way the human brain works. Neural networks analyze large quantities of information to establish patterns and characteristics in situations where the logic or rules are unknown. Neural networks' many features include:

- Learning and adjusting to new circumstances on their own.
- Lending themselves to massive parallel processing.
- Functioning without complete or well-structured information.
- Coping with huge volumes of information with many dependent variables.

Analyzing nonlinear relationships in information (they have been called fancy regression analysis systems).

The finance industry is a veteran in the use of neural network technology and has been relying on various forms for over two decades. It uses neural networks to review loan applications and create patterns or profiles of applications that fall into two categories—approved or denied.

## 8. Driving Your Business

**Project Purpose:** To understand how MIS supports a business

**Potential Solution:** Student answer will vary depending on the type of business they choose to study.

**If you want to generate consistent answers then provide your students with a business type such as:**

- Extreme sports store
- Grocery store
- Clothing store
- Online movie or music provider
- Custom t-shirts
- Electronic devices

## APPLY YOUR KNOWLEDGE BUSINESS PROJECTS

**Instructor Note:** There are few right or wrong answers in the business world. There are really only efficient and inefficient, and effective and ineffective business decisions. If there were always right answers businesses would never fail. These questions were created to challenge your students to apply the materials they have learned to real business situations. For this reason, the authors cannot provide you with one version of a correct answer. When grading your students' answers, be sure to focus on their justification or support for their specific answers. A good way to grade these questions is to compare your student's answers against each other.

## AYK I: Making Business Decisions

Porter's strategies outlined in Chapter 1 suggest entering markets with a competitive advantage in either overall cost leadership, differentiation, or focus. To achieve these results, managers must be able to make decisions and forecast future business needs and requirements. The most important and most challenging question confronting managers today is how to lay the foundation for tomorrow's success while competing to win in today's business environment. A company will not have a future if it is not cultivating strategies for tomorrow. The goal of this

section is to expand on Porter's Five Forces Model, three generic strategies, and value chain analysis to demonstrate how managers can learn the concepts and practices of business decision making to add value. It will also highlight how companies heading into the 21st century are taking advantage of advanced MIS capable of generating significant competitive advantages across the value chain. As we discussed in Chapter 1, decision making is one of the most important and challenging aspects of management. Decisions range from routine choices, such as how many items to order or how many people to hire, to unexpected ones such as what to do if a key employee suddenly quits or needed materials do not arrive. Today, with massive volumes of information available, managers are challenged to make highly complex decisions—some involving far more information than the human brain can comprehend—in increasingly shorter time frames.

### **AYK II: DSS and EIS**

Dr. Rosen can use DSS systems to model all of the organizational information to support or reject his purchase decision. Dr. Rosen can use sensitivity analysis to study of the impact that changes in buying the new business will have on his current business. He can use what-if analysis to understand how economic conditions, professional reputation, and other competitors might affect his business in the future. He can use goal-seeking analysis to determine how much revenues will have to increase to offset the cost of the purchase.

### **AYK III: Finding Information on Decision Support Systems**

Student answers to this question will vary depending on which systems they research on the Internet. In general, their presentation should focus on how a DSS can help grow a small to medium sized business. Be sure your students answer what types of DSS systems are available for a small business, how they can be used in a small business, and the cost associated with the different DSS systems.

### **AYK IV: Discovering Reengineering Opportunities**

This assignment will change depending on how each school performs tuition payments and registering for classes. Just ensure each student presents As Is and To Be process diagrams clearly demonstrating how the new process will increase efficiency and effectiveness in the process. Broken, redundant, and antiquated processes can cause tremendous business inefficiencies. Your students should be able to easily identify which processes in your class registration system are broken, redundant, and antiquated since they are intimately familiar with this system. Since all colleges use different class registration systems the answer to this question will vary. The important part is to ensure they are identifying the issues along with suggestions for new ways to improve the process and fix the broken, redundant, and antiquated processes.

### **AYK V: Dashboard Design**

The importance of this activity is to get your students thinking about each category and its importance to the company. Each category should be displayed with metrics to measure the indicator such as Green, Yellow, and Red status indicators or percentages or levels. This is the critical part of the activity - displaying how the dashboard is going to measure each indicator. For example:

- Customers: satisfaction levels (red, green, yellow), number of customers, number of lost customers, number of new customers, order level per customers
- Marketing: campaign success, coupon success, new product launch success
- Sales: total sales, sales per quarter, sales comparatives, competitor sales comparatives, sales quota levels, sales representatives, sales per customer, sales per region
- Customer service: satisfaction, average time to resolve issues, metrics on call center, metrics on customer service representatives

- Billing: average collection period, outstanding bills, time to generate bills, customers in arrears
- Accounting: Total assets, total liabilities, net income
- Finance: ROI, ROA, IRR, NPV
- Logistics: Time for delivery, cost per delivery, lost orders due to failure to deliver, supplier metrics
- Human resources: Average days absent, average days sick, average days vacation, turnover

A common feature of an executive information system is a digital dashboard. Digital dashboards integrate information from multiple components and tailor the information to individual preferences. Digital dashboards commonly use indicators to help executives quickly identify the status of key information or critical success factors. Digital dashboards, whether basic or comprehensive, deliver results quickly. As digital dashboards become easier to use, more executives can perform their own analysis without inundating IT personnel with questions and requests for reports. According to an independent study by Nucleus Research, there is a direct correlation between use of digital dashboards and companies' return on investment (ROI).



