

CHAPTER TWO

DECISIONS AND PROCESS: VALUE-DRIVEN BUSINESS

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 e-Business world. Organizations today can no longer use a “cook book” approach to decision making. This chapter focuses on technology and the development of business processes that make decisions, solve problems, and find new innovative opportunities including:

- Transaction Processing Systems
- Decision support systems
- Metrics for measuring decisions success
- Executive information systems
- Artificial intelligence (AI)
- Business process improvement
- Business process reengineering
- Business process modelling
- Business process management

SECTION 2.1 - DECISION MAKING AND INFORMATION SYSTEMS

- Making Business Decisions
- Measuring Decision Success
- Types of Information
- Enhancing Decision Making with MIS
- Artificial Intelligence

SECTION 2.2 - BUSINESS PROCESSES

- Evaluating Business Processes
- Business Process Modelling
- Business Process Modelling Examples
- Business Process Improvement
- Business Process Re-engineering
- The Future: Business Process Management

LEARNING OUTCOMES

2.1 Explain how organizations use transaction processing systems (TPS), decision support systems (DSS), and executive information systems (EIS) to make decisions and how each can be used to help make unstructured, semi-structured, and structured decisions..

- Transaction processing system (TPS) - 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. TPSs lead to structured decisions because there are established processes to make decisions.

- Decision support system (DSS) – models information to support managers and business professionals during the decision-making process. DSSs support medium term decisions or semi-structured decisions because there are some established processes as to how these decisions are made.
- Executive information system (EIS) – a specialized DSS that supports senior level executives within the organization. As EIS systems support strategic decisions they make unstructured decisions because there are no existing procedures or rules to making long-term decisions.

2.2 Explain the difference between transactional data and analytical information, and between online transaction processing (OLTP) and online analytical processing (OLAP).

OLTP is the capturing of transaction and event data using information systems to (1) process the data according to defined business rules, (2) store the data, and (3) update existing data to reflect the new data entered. During OLTP, the organization must capture every detail of transactions and events. Transactional information from an OLTP 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. Examples of transactional information include withdrawing cash from an ATM or making an airline reservation.

OLAP is the analysis of summarized or aggregated information sourced from transaction processing systems data, and sometimes external information from outside industry sources, to create business intelligence in support of analytical and strategic (non-operational) decision making. Analytical information from an OLAP encompasses all organizational information, and its primary purpose is to support the performing of managerial analysis tasks. Examples of analytical information include trends, sales, and product statistics.

2.3 Describe what Artificial Intelligence is and the five types of artificial intelligence systems used by organizations today.

AI simulates human intelligence such as the ability to reason and learn. AI systems can learn or understand from experience, make sense of ambiguous or contradictory information, and even use reasoning to solve problems and make decisions effectively.

The four most common categories of AI include:

1. Expert systems – computerized advisory programs that imitate the reasoning processes of experts in solving difficult problems
2. Neural Networks – attempt to emulate the way the human brain works
3. Genetic algorithm - system that mimics the evolutionary, survival-of-the-fittest process to generate increasingly better solutions to a problem
4. Intelligent agents – special-purposed 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

2.4 Describe how the five types of AI systems differ from TPS, DSS and EIS.

AI systems offer a different approach to helping organizations make better decisions than traditional TPS, DSS, and EIS. AI systems, by their definition, are intelligent systems designed to provide answers to problems and determine the best decision to make. This is in contrast to the

TPS, DSS, and EIS class of systems discussed earlier where the purpose of those systems is to support end-users in their decision-making, as opposed to making decisions for them. With TPS, DSS, and EIS, data and information are provided to the user and it is up to the user to interpret that data and information and make a decision. With AI, these systems render the decision to be made and provide it to the user.

2.5 Describe the importance of business process improvement, business process reengineering, business process modelling, and business process management to an organization and how information systems can help in these areas.

Each of the areas are different and lend themselves different to a business but each is important in allowing an organization to define and create business processes. Together they act to allow organizations to develop effective and efficient business processes

- Business process improvement attempts to understand and measure the current process and make performance improvements accordingly.
- Business process reengineering (BPR) is the analysis and redesign of workflow within and between enterprises. BPR relies on a different school of thought than business process improvement.
- Business process modelling is the activity of creating a detailed flow-chart or process map of a work process showing its inputs, tasks, and activities, in a structured sequence.
- Business process management (BPM) integrates all of an organization's business process to make individual processes more efficient.

Information systems not only contain the information that helps organizations understand and measure business processes but are also used in carrying out many business processes.

If your students are unfamiliar with business processes have them review plug-in T12 – Business Processes for a detailed look at common business processes, business process modeling, continuous improvement, and business process reengineering.

SECTION 2.1 DECISION MAKING AND INFORMATION 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.

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 **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 similarly learn and evolve.

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

Artificial intelligence research start-up Vicarious announced 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 (3 mins) - <http://www.youtube.com/watch?v=2STTNYNF4lk>

NAO Next Generation (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_iyengar_on_the_art_of_choosing.html

CLASSROOM VIDEO

Take a Walk or a Drive – Virtually!

Streetside 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 map a tour if I was planning to visit one of these cities. There is an excellent video on the website that demonstrates the amazing capabilities of Streetside at <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 make 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 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	Email and instant messaging
Room temperature	Students' attendance
Lighting and electronic capabilities of the classroom	Students' preparation
Technology available in the classroom	Students' arrival time
Length of class	Quizzes and exams (frequency, length)

CORE MATERIAL

The core chapter material is covered in detail in the PowerPoint slides. Slides contain 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.

OPENING CASE QUESTIONS

Information Systems are Central at Grocery Gateway

1. What information systems are used at Grocery Gateway to help them make decisions? Would you classify these systems as TPS, DSS, or EIS?

- The web site acts as a TPS as it supports customer transactions.
- Logistic Management System is a mostly a DSS with some aspects of an EIS incorporated into it as analyzing some of its data can lead to strategic decisions.

2. How do these systems support operational-, managerial- or strategic-level decisions?

TPS collect operational data that allows the organization to fulfill daily operations such as the web site which collects customer orders which in turn cause Grocery Gateway to need to make decisions about products, deliveries, etc. The logistics management system also fulfill some operational decisions as it allows for decisions around deliveries, routes, and other operational issues involved with deliveries. It also allows for decisions around become more efficient in routing and deliveries from analyzing the data and in turn can lead to strategic level decisions around deliveries and even web site strategies and changes.

3. What steps could the company take to leverage the transactional data that is collected by the information systems outlined in the case to help make managerial and strategic decisions for the company?

The company can start to use different types of analysis on the data to help them make analytical and strategic decisions for the company. The types of analysis include:

Sensitivity Analysis
What-if Analysis
Goal Seek Analysis

These analyses can then be tied to digital dashboards for more instantaneous access to the analysis and give Grocery Gateway information on items like the market pulse, customer service and cost drivers.

4. Identify a few key metrics a Grocery Gateway executive might want to monitor on a digital dashboard. How can these metrics be used to improve organizational decision making?

Grocery Gateways customers are generally busy people with not enough time on their hands want an easier and quicker way of doing their chores. Also, people who are physically challenged and find shopping difficult, or those who do not own a car can find this service beneficial. Some key metrics might be:

- Best-selling product
- Worst selling product
- Date of highest sales per month
- Date of worst sales per month
- Correlation between product sales
- Distance to nearest grocery outlet

- Sales by region
- Sales by season
- Time to delivery of goods

Students will have answers that vary for the second part of the question but ideally they should be able to relate each of the metrics they come up with to operational aspects of the company.

SECTION 2.2 BUSINESS PROCESSES

This section provides an overview of business processes and how they are developed or made more effective through business process improvement, business process reengineering, business process modelling, business process management, and finally gives some business process modelling examples.

CLASSROOM OPENER

GREAT BUSINESS DECISIONS – Richard Sears Decides to Sell Products through a Catalogue

Sears Roebuck changed the shape of an entire industry by being lucky enough to discover a huge untapped market that lay waiting to be discovered. In the 1880s about 65 percent of the population (58 million) lived in the rural areas. Richard Sears lived in North Redwood, Minnesota, where he was an agent at the Minneapolis and St. Louis railway station. Sears began trading products such as lumber, coal, and watches, when the trains would pass through. Sears moved to Chicago in 1893 and partnered with Alvah C. Roebuck, and the Sears & Roebuck Company was born. The company first published a 32-page catalogue selling watches and jewellery. By 1895 the catalogue was 532 pages long and included everything from fishing tackle to glassware. In 1893 sales reached \$400,000 and by 1895 sales topped \$750,000.

Sears invented many new marketing campaigns and concepts that are still in use today, including a series of rewards (or loyalty programs) for customers who passed copies of the catalogue on to friends and relatives. Sears was one of the first companies to recognize the importance of building strong customer relationships. Sears' loyalty program gave each customer 24 copies of the catalogue to distribute, and the customer would generate points each time an order was placed from one of the catalogues by a new customer. The Sears catalogue became a marketing classic. It brought the world to the isolated farms and was a feast for the new consumers. The entire world was available through the Sears catalogue, and it could be delivered to the remotest of doorsteps.

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 22nd 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 Re-engineering 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

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.

The University of Iowa's National Advanced Driving Simulator was used to study the effects of driving distractions. One subject, 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. According to John D. Lee, professor of mechanical and industrial engineering at the university, "People don't always understand the degree of distraction they may be exposing themselves to."

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 complete article and answer the following:

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

How many of your students 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 business uses for this type of technology that includes a DSS or EIS. Ask your students to discuss AI and what other types of inventions they might build that could benefit business.

CLASSROOM EXERCISE

Defense Advanced Research Projects Agency (DARPA) Grand Challenge

Ask your students 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/NewsEvents/Releases/2012/04/10.aspx>

1. 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.

2. 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.

3. 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 by businesses and might include making deliveries, transporting goods and services, and taking employees to and from the airport. The uses are limitless.

4. 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.

CLASSROOM RESOURCES

BPM Resources

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-Mbr31f2dg>

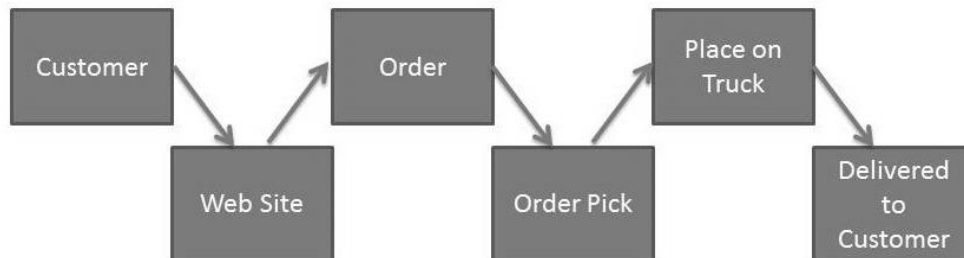
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OPENING CASE QUESTIONS

Information Systems are Central at Grocery Gateway

5. **What does Grocery Gateway's customer order process look like?**



6. **Describe how Grocery Gateway's customer Web site supports Grocery Gateway's business processes.**

The web site allows customer to access its products 24 hours a day, 7 days a week in a simple way. Besides supporting online merchandising, single item picking, home delivery operations, and customer service it also allows them to use the web site to retain customers.

7. **Describe how Descartes' fleet management software improved Grocery Gateway's logistics business processes.**

Some business improvements experienced by Grocery Gateway include reduced delivery time by 14 percent, and increasing the stops per hour for delivery trucks by 12.4 percent. They have also improved the ordering processes and delivery mechanisms, and gained a solid and repeating customer base.

8. How does the business process affect the customer experience? The company's bottom line?

There are numerous benefits Grocery Gateway could offer its members including additional discounts for frequent shopping, menu planning, foods tailored to specific dietary needs only available to Grocery Gateway members, a Grocery Gateway calendar featuring Grocery Gateway coupons and only available for sale to Grocery Gateway members, and even recipes and online cooking tips for different kinds of foods.

9. What other kinds of information systems could be used by Grocery Gateway to improve its business processes?

Answers will vary and could include a number of different kinds of information systems. Some suggestions include:

- Customer Relationship Management Systems
- Supplier Relationship Management Systems
- Employee Relationship Management Systems

10. Comment on the need for integration between the various types of information systems at Grocery Gateway. What benefits from integration do you see for the company's various business processes? What challenges do you think will exist in facilitating such integration?

There needs to be a great deal of integration of the systems as not only do the products that customers are ordering need to be available for delivery, the time windows that customers request deliveries in must be integrated not only into the delivery schedule but also the routing. The benefits are many and Grocery Gateway is already seeing some of these benefits such as the optimization of delivery routes which result in better customer satisfaction and cost savings. The 14% improve in on-time delivery and the 12.4% increase in yearly paid stops per paid hours, are a metrics that show these benefits. The challenges are also great and start with the need to bring employees together to develop the "As-Is" model and the "To-Be" plans so that the integration is possible in the first place. The other major challenge is that the project of integrating business processes is very large.

APPLY YOUR KNOWLEDGE PROJECTS

Try one of the following Apply Your Knowledge projects to engage students and reinforce chapter material and concepts

Project	Project Type	Focus Area	Skill Set
Measuring Efficiency and Effectiveness	Business	Performance Measurement	Efficiency and Effectiveness Metrics
Discovering Reengineering Opportunities	Business	Business Processes	Business Process Improvement and Reengineering
Dashboard Design	Business	EIS	Digital Dashboard
Modelling a Business Process	Business	Business Processes	Business Process Modelling
Revamping Business Processes	Business	Business Processes	Business Process Modelling
Revamping Accounts	Business	Business Processes	Business Process Management

CHAPTER TWO CLOSING MATERIAL

CLOSING CASE ONE

Information Systems are Critical for Take-Off in Canada's Airline Industry

1. What advantages are there for an airline to use a revenue management system?

Revenue management systems are used to maximize revenue generated on every flight by forecasting the demand for a flight at various fare levels based on historical demand. Without a revenue management system airlines could not optimize the flights because, given that airlines like Air Canada carry over 20 million passengers each year, it is not possible to do forecasting by hand.

2. Are revenue management systems a competitive advantage or simply a new necessity for doing business in the airline industry today?

Airlines such as Air Canada, WestJet, Air Ontario and Air Toronto know that it is necessary to use information technology to plan and schedule their flights. Because so many airlines have invested very heavily in this type of technology, it is no longer a competitive advantage to a business, but simply a necessity for the airline industry today. However, innovative uses of the technology, such as loyalty programs for frequent flyers, may allow an airline to gain a competitive advantage over the other airlines.

3. What type of decisions could a revenue management system be used to help make?

An airline's revenue management system can be used to support decisions being made because it will provide information on the preferences of customers for timing and destination of flights, the time between booking and the flight, and other buying patterns.

4. Is a revenue management system a TPS, DSS, or an EIS?

A revenue management system is all of these systems since it not part of the collection of transactional data but more importantly it is a DDS and EIS that help airline make critical decisions like those mentioned in the previous question.

5. Would the revenue management system described in the case contain transactional data or analytical information?

Airlines can use their innovative IT systems to gain valuable business intelligence into their customer information. They conceived and rolled out hugely successful frequent flyer programs, which increased the likelihood that frequent business travelers, their most profitable customers, would fly with them instead of with a competitor. Frequent flyer programs require sophisticated computer system to properly account for and manage the flight activity of millions of customers. Ultimately, frequent flyer programs became an entry barrier for the industry because all airline companies felt they could not compete for the best customers without having their own frequent flyer systems.

6. What types of metrics would an airline executive want to see in a digital dashboard displaying revenue information?

Airline executives could use throughput and speed efficiency metrics to baseline and benchmark its gate and boarding applications. They could also use usability and customer satisfaction effectiveness metrics to determine the satisfaction in its gate and boarding applications. The dashboard could also contain information on market pulse, customer service, and cost drivers. It should also allow for sensitivity analysis, what-if analysis, and goal-seeking analysis.

7. How could AI enhance the use of an airline's revenue management system for decision support?

Students can answer this question in a number of ways but the key item is that the answer deals with adding reasoning to the management systems. Examples may include automatic decisions on passenger loads to the customer web site.

CLOSING CASE TWO

Leveraging the Power and Avoiding the Pitfalls of BPM

1. How can BPM help improve global outsourcing? Records management? Supply Chain Management?

BPM can help improve global outsourcing by helping in making decisions about which jobs to outsource and which jobs to keep local. With records management it can help by linking records management to the business process so that records are created at the start of the process, maintained in the state they need to be in during each stage process and disposed of at the end of the process. With supply chains it can be used to more tightly integrate all the process and application need to create and maintain a tightly integrated supply chain.

2. What other business activities are excellent candidates for BPM?

Other business processes that are excellent candidates are:

- Project scope estimation
- Business case sign-off
- Project sponsorship identification
- Project stakeholder management
- Document and design "As-Is" business models
- And the list goes on

3. Which of the five pitfalls do you think is the most important? Why?

Answers will vary here but make sure the student justifies their choice in the answer they give.

4. Which of the five pitfalls do you think is the most common pitfall that organizations face when undergoing BPM? Why?

Again answers will vary here depending on their experience but again make sure the answer is justified with the why part of the answer.

5. What is the advantage of treating BPM as a project, as opposed to some other type of business activity?

The advantage of treating BPM as a project rather than another type of business activity is that if one looks at the five common pitfalls an organization faces when undergoing BPM are

commonly found in project and thus there has been the development of the project management approach to help prevent some of these pitfalls. Thus, using a project management approach and treating BPM as project rather than another type of business activity may alleviate some of the pitfalls.

CLOSING CASE THREE

Actionly: Online Brand Management

1. 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 semi-structured 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. 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. 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. 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. 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 recommendations |
| - Number of Tweets | - Number of sales |
| - Number of posts | - Number of customers |
| - Number of friends | |

MAKING BUSINESS DECISIONS

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. Be sure to focus on their justification or support for their specific answers when grading your students' answers. A good way to grade these questions is to compare your student's answers against each other.

1. MAKING DECISIONS

Project Purpose: To understand benefits and risks of decision making

Potential Solution: The biggest benefit of a good decision is the ability to provide a solid solution to a business problem. The biggest risk of a bad decision is increased cost, wasted time, and a failed business. Student's reports should highlight how information technology can enable them to make better decisions.

2. DSS AND EIS

Project Purpose: To understand the value gained by using decision-support tools.

Potential Solution: 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.

3. FINDING INFORMATION ON DECISION SUPPORT SYSTEMS

Project Purpose: Finding additional information on DSSs.

Potential Solution: 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.

4. ARTIFICIAL INTELLIGENCE Versus TPS, DSS, and EIS

Project Purpose: Help students distinguish between artificial intelligence and the typical systems found in businesses.

Potential Solution: Student answers to this question will vary depending on which resources they used to research this topic and the specific artificial intelligence systems they examined. Presentations should focus on what artificial intelligence can potentially deliver to businesses that now is often being delivered by human intervention supported by TPS, DSS, and EIS. Additionally, the presentations should examine any limitations on the types of decisions that can be made with each of the systems. More complete presentation will also look at other factors that can impact adoption such as cost, ease of use, training needs, etc.

CHAPTER 2 EXTERNAL RESOURCES

Use these resources 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

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 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

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/us/platforms/analytics/business-intelligence>