MANAGEMENT INFORMATION SYSTEMS: BUSINESS DRIVEN mis

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CHAPTER

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 a 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

Information is everywhere. Information is a strategic asset. Without information, an organization simply could not operate. This chapter introduces students to several core business strategies that focus on using information to gain a competitive advantage, including:

* The core drivers of the information age
* Data, information, business intelligence, knowledge
* Systems thinking
* Competitive advantages
* Porter’s Five Forces model
* Porter’s three generic strategies
* Value chain analysis

Many of these concepts and strategies will be new to your students. Be sure to explain to your students that this chapter offers an introduction to these concepts and they will gain a solid understanding of the details of these concepts as they continue reading the text.

**SECTION 1.1 – BUSINESS DRIVEN MIS**

Competing in the Information Age

The Challenge of Department Companies and the MIS Solution

**SECTION 1.2 – BUSINESS STRATEGY**

Identifying Competitive Advantages

The Five Forces Model – Evaluating Industry Attractiveness

The Three Generic Strategies – Choosing a Business Focus

Value Chain Analysis – Executing Business Strategies

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| SECTION 1.1  BUSINESS DRIVEN MIS |

This chapter provides an overview of *Business* *Driven* *Information Systems (BDIS)* along with anticipated learning objectives for students. Explain to your students that the goal of this chapter is to get them excited about BDIS and all the different business and technology concepts they are going to learn. Let your students know that they are going to be introduced to many new concepts that they might be unfamiliar with; however; these concepts are discussed in detail throughout the text.

**LEARNING OUTCOMES**

**Learning Outcome 1.1: Describe the information age and the differences between data, information, business intelligence, and knowledge.**

We live in the information age, when infinite quantities of facts are widely available to anyone who can use a computer. The core drivers of the information age include data, information, business intelligence, and knowledge. Data are raw facts that describe the characteristics of an event or object. Information is data converted into a meaningful and useful context. Business intelligence (BI) is information collected from multiple sources such as suppliers, customers, competitors, partners, and industries that analyzes patterns, trends, and relationships for strategic decision making. Knowledge includes the skills, experience, and expertise, coupled with information and intelligence that creates a person’s intellectual resources. As you move from data to knowledge you include more and more variables for analysis resulting in better, more precise support for decision making and problem solving.

**Learning Outcome 1.2: Explain systems thinking and how management information systems enable business communications.**

A system is a collection of parts that link to achieve a common purpose. Systems thinking is a way of monitoring the entire system by viewing multiple inputs being processed or transformed to produce outputs while continuously gathering feedback on each part. Feedback is information that returns to its original transmitter (input, transform, or output) and modifies the transmitter’s actions. Feedback helps the system maintain stability. Management information systems (MIS) is a business function, like accounting and human resources, which moves information about people, products, and processes across the company to facilitate decision making and problem solving. MIS incorporates systems thinking to help companies operate cross-functionally. For example, to fulfill product orders, an MIS for sales moves a single customer order across all functional areas including sales, order fulfillment, shipping, billing, and finally customer service. Although different functional areas handle different parts of the sale, thanks to MIS, to the customer the sale is one continuous process.

**CLASSROOM OPENER**

**GREAT BUSINESS DECISIONS – Apple’s Decision to Develop the First Saleable Personal Computer (PC)**

Like all great computer companies, Apple began its life in a garage. In 1977, Steve Jobs and Steve Wozniak built the Apple 1, regarded by many as the first real personal computer. This founded the Apple Company and the invention of the Apple 2 and the Apple Macintosh. Apple’s key goal was to make computers accessible to ordinary people. Jobs and Wozniak captured an opportunity and changed the world through a combination of good fortune and technical and marketing brilliance.

Instead of writing commands in computer code, Apple owners invented a mouse to click on easily recognizable icons – for example, a trash can and file folders. Other companies were quick to copy Apple’s competitive advantage, including Microsoft.

The two founders eventually parted, with Wozniak leaving the company to become a teacher and Jobs continuing with the launch of the Apple Macintosh. Unfortunately, Macintosh captured only 20 percent of the desktop market, while Microsoft captured 80 percent of the desktop market with its MS-DOS operating system.

One newspaper described Jobs as a “corporate Huckleberry Finn” and said his early business exploits had already made him part of American folk history. John Sculley, former Pepsi chairman, removed Jobs from Apple in 1985. Sculley was removed from Apple in 1993. Eventually, after a 13-year exile, Jobs returned to Apple in 1998. The man who founded the company had come full circle and was now its only hope for survival.

Jobs’ return brought the creation of the iMac and Apple rediscovered its inventive originality. The iMac sold 278,000 units in the first six weeks and was described by *Fortune* as “one of the hottest computer launches ever.” The iMac and Jobs’ return contributed to doubling Apple’s share prices in less than a year.

**CLASSROOM OPENER**

**GREAT BUSINESS DECISIONS – Sam Walton’s Discounting of America**

Wal-Mart is one of the largest corporations in the United States. Wal-Mart does not produce a single item, the company uses strategic supply chain management to disrupt the retail industry. Wal-Mart’s generic strategy of low cost provider is paying-off big time. Any organization wanting to compete in the 21st century must study Wal-Mart and learn how to compete in new and different ways.

Samuel Moore Walton lived in the same neighborhood in Bentonville, Arkansas, for forty years. Walton was the sort of man that would rather borrow a newspaper than pay a quarter for a new one. He was also the sort of man that would invite a struggling young family out to lunch with his family every Sunday.

Sam Walton controlled over 20 percent of Wal-Mart’s stock, and Sam Walton appeared on Forbes 400 with a net worth of $2.8 billion in 1985 (the holdings are now worth $28 billion). Of all the inventions that helped Sam Walton achieve success and billionaire status, his greatest invention as a CEO was that he himself did not change. Sam managed his 40,000 employees as equal associates, and it was said that only his family meant more to him than his beloved associates. One manufacturer who worked for Sam for decades stated “One of Sam’s greatest contributions to Wal-Mart was his attitude toward experimentation. He constantly encouraged us to experiment on a small basis and if the idea worked, roll it out. If it failed, try something else. It was his attitude of keep trying, and don’t be afraid of failure that made us all so successful.”

Sam Walton succumbed to cancer in 1992, and the news was sent via satellite directly to the company’s 1,960 stores; when the announcement played at some stores, clerks started crying. The *New York Times* obituary estimated Sam’s fortune at the time of his death at $28 billion. However, this fortune didn’t mean as much to Sam Walton as the news that one of his beloved Wal-Mart associates, a cashier, had $262,000 in her retirement account after working for Wal-Mart for twenty-four years.

**CLASSROOM EXERCISE - Video**

**Father Guido Sarducci’s Five Minute University**

I love showing this video on the first day. I start off the class by explaining that we are going to cover hardware, software, telecommunications, and hit the lab to do some actual networking. I then explain that this video show how to take a hard drive apart and there will be a quick quiz after to see how much everyone learned from the video. Then I play the video: gets a number of laughs. <http://www.youtube.com/watch?v=kO8x8eoU3L4v> (If this link is down please Google Gather Guido Sarducci’s Five Minute University)

**CLASSROOM EXERCISE - Video**

**Steve Job’s Commencement Speech at Stanford University (**Best 40 minutes you could spend in your class!!)

Best way to start off your course! I simply love this speech and it helps to set the tone of the course from one of the greatest innovators in history! After watching the video ask the following questions:

* What was the greatest point Steve Jobs made that you can use for your future?
* What course/skill/class have you taken that will have the greatest impact on your future (similar to Steve Jobs Calligraphy Course)?
* How will learning about technology have a direct impact on your future career in business?

<http://www.youtube.com/watch?v=UF8uR6Z6KLc> (If this link is down please Google Steve Jobs Commencement Speech at Stanford)

**CLASSROOM EXERCISE**

**Student Expectations and The MIS Challenge**

Have each student list three things they know and three things they want to know about the content in the course. You can collect this and use as a baseline for teaching.

Ask your students to come up with a business that does not need technology to compete. Whatever the business I can demonstrate how technology can help them be more successful – for example a hot dog stand or a taxi cab.

By having a computer I can research what events are happening in the town and ensure my stand or cab is exactly where the event is occurring for optimum traffic. A lawn service company needs scheduling software to schedule work and maintenance on equipment, a website for advertising and connecting with customers, the Internet for weather forecasting so the company can quickly reschedule due to thunderstorms, email marketing campaigns, payroll processing, and of course Turbo Tax for small business. To date, my students have not yet won the MIS challenge.

**CLASSROOM EXERCISE**

**The World is Flat – Thomas Friedman**

This is the greatest video and Thomas Friedman is engaging and relevant. I show this video to every class I teach from freshman to the Executive MBA.

Friedman explains how technology has flattened the global business environment. The video is long and the first 10 minutes are a bit slow as he discusses the flatteners, but once students understand the flatteners Friedman discusses a number of global businesses including UPS, Southwest Airlines, and many more companies. This is simply the best video to drive home the importance of technology in business today.

Student questions:

* Do you agree or disagree with Friedman’s assessment that the world is flat? Be sure to justify your answer.
* What are the potential impacts of a flat world for a student performing a job search?
* What can students do to prepare themselves for competing in a flat world?

<http://video.mit.edu/watch/the-world-is-flat-30-9321/> (If this link is down please Google Thomas Friedman The World is Flat Video)

**CLASSROOM EXERCISE**

**Understanding the Relevance of Technology in Business**

This is a great exercise to begin the course. It clearly demonstrates why anyone involved in business must understand technology. It can be a real revelation for students who do not see the need for taking an IT course. This exercise is included briefly in the first paragraph of the text. Having your students perform this exercise on their own is so powerful that we recommend completing it in addition to reading the section in the text.

Bring in several copies of *BusinessWeek, Fortune, Fast Company,* or any popular business magazine. The magazines do not have to be current. Provide a marking tool such as a small set of Post-It Notes. Ask for a few volunteers and have the students review the magazine and stick a Post-It Note on each technology-related article, advertisement, etc. When the student has completed this task, the magazine will be covered in Post-it Notes, clearly demonstrating that technology is everywhere in business, even in the popular business magazines such as *BusinessWeek*.

Since this task can be time consuming, you can put in the Post-It Notes prior to class and simply show your students the completed magazine. You can have one student sit in the front of the class and begin the exercise, placing Post-It Notes on a copy of *BusinessWeek*. After they have completed several pages on their own, you can produce the same “completed” magazine with all of the Post-It Notes. This saves classroom time and still reinforces the point that technology is everywhere in business.

Be sure to reinforce that these are business magazines, not technology magazines. Yet they are completely filled with technology – which is clearly demonstrated by the Post-It Notes. How can any business student today possibly argue that they do not need to know or understand technology when faced with a magazine, such as *BusinessWeek*, that is filled with technology? Read a few of the articles or advertisements. Ask how many of your students are familiar with Siebel, Oracle, or PeopleSoft and can articulate what they can do for a company?

The goal of this course is to help your students understand the business side of technology. Being able to understand all of the technology articles in *BusinessWeek* is one of the benefits your students will receive upon completion of the course.

**CLASSROOM EXERCISE**

**TED!!**

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

This is the best site for videos. TED stands for **T**echnology, **E**ntertainment, **D**esign. It started out (in 1984) as a conference bringing together people from those three worlds. Since then its scope has become ever broader. The annual conference now brings together the world's most fascinating thinkers and doers, who are challenged to give the talk of their lives (in 18 minutes). This site makes the best talks and performances from TED available to the public, for free. More than 200 talks from our archive are now available, with more added each week. These videos are released under a Creative Commons license, so they can be freely shared and reposted.

I challenge my students to watch one TED video each week of the course and to report on great videos to fellow students. I create a TED Wiki in Blackboard and allow the students to share their findings!

**CLASSROOM EXERCISE**

**Reorganizing an Organization**

The AAA Management Company specializes in the management of rental properties and generates over $20 million in revenues each year and has over 2,000 employees throughout the United States, Canada, and Mexico. The company has just hired a new CEO, David Paul. David is planning to reorganize the company so that it operates more efficiently and effectively. Below is the new organizational structure that he plans to present to the board of directors on Monday. Break your students into groups and ask them to explain the advantages and disadvantages of such a reporting structure. Ask them to reorganize the reporting structure in the way they feel will be most beneficial to the operations of the company, being sure to give their justifications for the new structure. Student answers to this exercise will vary.

Analysts

Managers

CTO

CEO

CPO

CIO

CSO

Vice Presidents

**AAA Management’s New Organizational Structure**

CKO

**Part Two**

Will your proposed structure work for a video distribution company or will you need to revamp your structure?

**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.

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| SECTION 1.2  BUSINESS STRATEGY |

This section discusses how an organization can identify competitive advantages using tools such as Porter’s Five Forces, three generic strategies, and value chains. Gaining competitive advantages are critical for organizations. Organizations also must understand that competitive advantages are typically temporary since competitors are quick to copy competitive advantages. For example:

* United was the first airline to offer a competitive advantage with its frequent flyer mileage (this first-mover advantage was temporary)
* Sony had a competitive advantage with its portable stereo systems (this first-mover advantage was temporary)
* Microsoft had a competitive advantage with its unique Windows operating system
* Ask your students if Microsoft still has a competitive advantage with its Windows operating system
  + Ans: Perhaps – primarily due to its first-mover advantage since it is difficult to switch operating systems and users face interoperability issues if they are using different operating systems at the same organization.
  + How many students in your class are currently using Windows?
  + What are the competitors to Windows? Ans: Linux and Macintosh
  + Why are there only three primary competitors (Microsoft, Macintosh, and Linux) in this large operating system market?

**LEARNING OUTCOMES**

**Learning Outcome 1.3: Explain why competitive advantages are temporary.**

A competitive advantage is a feature of a product or service on which customers place a greater value than they do on similar offerings from competitors. Competitive advantages provide the same product or service either at a lower price or with additional value that can fetch premium prices. Unfortunately, competitive advantages are typically temporary, because competitors often quickly seek ways to duplicate them. In turn, organizations must develop a strategy based on a new competitive advantage. Ways that companies duplicate competitive advantages include acquiring the new technology, copying business processes, and hiring away employees.

**Learning Outcome 1.4: Identify the four key areas of a SWOT analysis**

A SWOT analysis evaluates an organization’s strengths, weaknesses, opportunities, and threats to identify significant influences that work for or against business strategies. Strengths and weaknesses originate inside an organization or internally. Opportunities and threats originate outside an organization or externally and cannot always be anticipated or controlled.

**Learning Outcome 1.5: Describe Porter’s Five Forces Model and explain each of the five forces.**

Porter’s Five Forces Model analyzes the competitive forces within the environment in which a company operates, to assess the potential for profitability in an industry.

* Buyer power is the ability of buyers to affect the price they must pay for an item.
* Supplier power is the suppliers’ ability to influence the prices they charge for supplies (including materials, labor, and services).
* Threat of substitute products or services is high when there are many alternatives to a product or service and low when there are few alternatives from which to choose
* Threat of new entrants is high when it is easy for new competitors to enter a market and low when there are significant entry barriers to entering a market
* Rivalry among existing competitors is high when competition is fierce in a market and low when competition is more complacent

**Learning Outcome 1.6: Compare Porter’s three generic strategies.**

Organizations typically follow one of Porter’s three generic strategies when entering a new market: (1) broad cost leadership, (2) broad differentiation, (3) focused strategy. Broad strategies reach a large market segment. Focused strategies target a niche market. Focused strategies concentrate on either cost leadership or differentiation.

**Learning Outcome 1.7: Demonstrate how a company can add value by using Porter’s value chain analysis.**

To identify competitive advantages, Michael Porter created value chain analysis, which views a firm as a series of business processes that each add value to the product or service. The goal of value chain analysis is to identify processes in which the firm can add value for the customer and create a competitive advantage for itself, with a cost advantage or product differentiation. The value chain groups a firm’s activities into two categories—primary value activities and support value activities. Primary value activities acquire raw materials and manufacture, deliver, market, sell, and provide after-sales services. Support value activities, along the top of the value chain in the figure, include firm infrastructure, human resource management, technology development, and procurement. Not surprisingly, these support the primary value activities.

**CLASSROOM OPENER**

**GREAT BUSINESS DECISIONS – Cyrus McCormick’s Reaper**

On a hot summer day in 1831, several dozen farmers and hired laborers gathered in a wheat field in Virginia to watch a horse-drawn wood-and-iron device mow down rows and rows of golden wheat. On this day, twenty-two-year-old Cyrus McCormick demonstrated the reaper that his father invented and changed history as the mechanization of farming began. Soon the process of industrialization began, which turned the nation’s economy into the world’s most productive workforce. As the historian William Hutchinson noted, “Of all the inventions during the first half of the nineteenth century which revolutionized agricultures, the reaper was probably the most important.”

Interestingly, the McCormicks were not the only individuals to build and develop a reaper. In fact, many other companies and individuals developed similar technology; however, Cyrus McCormick invented the business of making reapers and selling them to the farmers of America and foreign countries. His real genius was in the area of gaining and protecting patents for his technology. McCormick turned the reaper into a commercially viable product and introduced many new business practices including free trials, money-back guarantees, and installment payment plans.

**CLASSROOM OPENER**

**GREAT BUSINESS DECISIONS – Henry Luce Decides to Rank Companies in the Fortune 500**

Henry Luce founded *Time* magazine in 1923 and *Fortune* magazine in 1929. Luce decided to create a ranking of America’s top 500 companies, called The Fortune 500, which has served as the corporate benchmark for the twentieth century – as well as being a clever marketing tactic for the magazine. The Fortune 500 remains a powerful barometer of who’s up and down in the corporate world. It is also a brilliant marketing tool since every single time its name is mentioned, so is the name of the magazine. However, being ranked on the Fortune 500 does not guarantee that the organization will achieve future success, and its measures of current achievement can also be limited and a bit confusing.

*BusinessWeek* magazine created a similar ranking by introducing its biannual ranking of business schools. The issue routinely outsells all other issues of the magazine in the year.

**CLASSROOM EXERCISE**

**Porter Video on YouTube**

Great YouTube video with Michael Porter on The Five Competitive Forces that Shape Strategy.

http://www.youtube.com/watch?v=5R81uCoGby4

The article that Michael refers to in this video can be found online... http://harvardbusinessonline.hbsp.harvard.edu/hbsp/hbr/articles/article.jsp?\_requestid=190696&ml\_subscriber=true&ml\_action=get-article&ml\_issueid=BR0801&articleID=R0801E&pageNumber=1

**Michael Porter – The Five Forces that Shape Strategy (10 Mins)** http://www.youtube.com/watch?v=mYF2\_FBCvXw

**Michael Porter - Global Competitiveness Report 2007 (15 Mins)**

http://www.youtube.com/watch?v=kzn9-M2umFQ

**Michael Porter with Charlie Rose (2 Mins)**

http://www.youtube.com/watch?v=q8NZfbcNMrM

**Michael Porter: Long-term strategies in a down turn (13 Mins)**

http://www.youtube.com/watch?v=mwc073nNl3Q

**Institute for Strategy and Competitiveness**

Ask your students to visit Michael Porter’s Institute for Strategy and Competitiveness. There are numerous articles, videos, book excerpts, etc. for the students to dig into Porter. http://www.isc.hbs.edu/

**Strategy and the Internet**

Discuss Porter’s HBS article Strategy and the Internet by Michael Porter. http://hbswk.hbs.edu/item/2165.html

**CLASSROOM EXERCISE**

**Strategy and the Internet**

Ask your students to visit Michael Porter’s Institute for Strategy and Competitiveness. There are numerous articles, videos, book excerpts, etc. for the students to dig into Porter. <http://www.isc.hbs.edu/>

* **Strategy and the Internet**

Discuss Porter’s HBS article Strategy and the Internet by Michael Porter. <http://hbswk.hbs.edu/item/2165.html>

Have your students discuss the importance of technology on business strategy.

* + Since this article was written in 2001 ask your students the following:
  + What can be extrapolated to today's competitive environment?
  + What has become obsolete about the Internet and strategy?

**CLASSROOM EXERCISE**

**Analyzing Porter’s Five Forces**

Porter's Five Forces is an easy framework to understand and offers a quick way to analyze a market. Porter’s Five Forces was introduced in the text and you can review the below examples to ensure you have a solid understanding of each force. For this assignment, choose a product from the following list and perform a Porter’s Five Forces analysis. Feel free to use the below Porter’s Five Forces template for your assignment.

* Desktop Computer
* Address Book
* Walkman
* VHS Player
* Polaroid Camera
* Telephone
* Textbook

Be sure to add in examples of loyalty programs or switching costs you could implement to help retain your market share.

**Sample Analysis for Airline Industry**



**Sample Analysis for Milk**



**CLASSROOM EXERCISE**

**Debate Carr’s Does IT Matter**

**DOES IT MATTER DEBATE:** Ask your students to read both of the below articles and debate if IT matters.

* **Nicholas Carr - IT Doesn’t Matter** <http://www.nicholasgcarr.com/articles/matter.html> A great way to start off your course is to discuss Carr’s famous article: IT Doesn’t Matter – which can be read on his blog. <http://www.roughtype.com/archives/2007/01/it_doesnt_matte.php>
* **IT Does Matter** – by McFarlan and Nolan <http://hbswk.hbs.edu/item/3637.html> The rebuttal to Carr’s article.

Create a classroom debate by breaking your students into groups and have them create an argument for or against Nicholas Carr’ statement “IT Doesn’t Matter.”

**CORE MATERIAL**

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| CHAPTER ONE  CLOSING MATERIAL |

**OPENING CASE QUESTIONS**

**The Internet of Things**

1. **Knowledge: Explain the Internet of Things and list three IoT devices.**

Imagine your toothbrush telling you to visit your dentist because it senses a cavity. How would you react if your refrigerator placed an order at your local grocery store because your milk and eggs when about to expire? Over 20 years ago, a few professors at Massachusetts Institute of Technology (MIT) began describing the Internet of Things (IoT), which is a world where interconnected, Internet-enabled devices or “things” can collect and share data without human intervention. Another term for the Internet of Things is machine to machine (M2M), which allows devices to connect directly to other devices. With advanced technologies, devices are connecting in ways not previously thought possible, and researchers predict that more than 50 billion IoT devices will be communicating by 2020. Kevin Ashton, cofounder and executive director of the Auto-ID Center at MIT, first mentioned the Internet of Things in a presentation he made to Procter & Gamble. Here’s Ashton’s explanation of the Internet of Things:

1. **Comprehension: Explain why it is important for business managers to understand that data collection rates from IoT devices is increasing exponentially.**

If your students are wondering why they need to take this course then this case study should scare them into becoming a believer in the power of technology in business. Managers of the future are going to be tasked with analyzing terabytes of data right on their desk – something new to industry. With M2M data managers are going to have access to incredible amounts of business intelligence – if they know how to handle it.

1. **Application: Demonstrate how data from an IoT device can be transformed into information and business intelligence.**

We live in the information age, when infinite quantities of facts are widely available to anyone who can use a computer. The core drivers of the information age include data, information, business intelligence, and knowledge. Data are raw facts that describe the characteristics of an event or object. Information is data converted into a meaningful and useful context. Business intelligence (BI) is information collected from multiple sources such as suppliers, customers, competitors, partners, and industries that analyzes patterns, trends, and relationships for strategic decision making. Knowledge includes the skills, experience, and expertise, coupled with information and intelligence that creates a person’s intellectual resources. As you move from data to knowledge you include more and more variables for analysis resulting in better, more precise support for decision making and problem solving

1. **Analysis: Analyze the current security issues associated with IoT devices.**

Security is covered in detail in Chapter 4 but we want to get the students thinking about ethics and security in every chapter. Security issues with IoT devices are many including:

* Privacy – how can a device ensure the wrong user is not accessing the data?
* Privacy – tracking the devices can be done by anyone
* Hackers – Devices can be hacked just like any other technology
* Viruses – Devices can have viruses just like any other technology

1. **Synthesis: Propose a plan for how a start-up company can use IoT device data to make better business decisions.**

Students should be able to discuss how a company can use Porter’s Five Forces to analyze an industry to determine how attractive it would be to enter. Once determining if it would be profitable to enter a certain industry the company would need to determine which of Porter’s three generic strategies it should follow to ensure success. Once the company is up-and-running it can use Porter’s value chain analysis to examine and redefine its business processes to ensure it is operating as efficiently and effectively as possible.

IoT devices can be used in any of these areas to track data on correct functioning, usage, malfunctions, locations, patterns, and activity. All of these will provide tremendous insight into how the market is using the device and how the market views the device. Hopefully, these are in line with corporate strategy.

1. **Evaluate: Argue for or against the following statement: “The Internet of Things is just a passing fad and will be gone within a decade.”**

For this debate the important point is that your students can justify their point of view. Some students will agree and others will disagree. The important part of the debate is their justification of how they view IoT.

**REVIEW QUESTIONS**

1. **What is data and why is it important to a business?**

Data are raw facts that describe the characteristics of an event or object. Before the information age, managers manually collected and analyzed data, a time-consuming and complicated task without which they would have little insight into how to run their business.

1. **How can a manager turn data into information?**

Information is data converted into a meaningful and useful context. Having the right information at the right moment in time can be worth a fortune. Having the wrong information at the right moment; or the right information at the wrong moment can be disastrous.

1. **What is the relationship between data, information, business intelligence, and knowledge?**

Data is converted into information, business intelligence, and knowledge. Using data, information, business intelligence, and knowledge to make decisions and solve problems is the key to finding success in business. These core drivers of the information age are the building blocks of business systems.

1. **Why is it important for a company to operate cross-functionally?**

Each department performs its own activities. Although each department has its own focus and data, none can work independently if the company is to operate as a whole. It is easy to see how a business decision made by one department can affect other departments. Marketing needs to analyze production and sales data to come up with product promotions and advertising strategies. Production needs to understand sales forecasts to determine the company’s manufacturing needs. Sales needs to rely on information from operations to understand inventory, place orders, and forecast consumer demand. All departments need to understand the accounting and finance departments’ information for budgeting. For the firm to be successful, all departments must work together as a single unit sharing common information and not operate independently or in a silo.

1. **Why would a company want to have a CIO, CPO, and CSO?**

A chief information officer is responsible for (1) overseeing all uses of MIS and (2) ensuring that MIS strategically aligns with business goals and objectives. A chief privacy officer is responsible for ensuring the ethical and legal use of information within a company. A chief security officer is responsible for ensuring the security of business systems and developing strategies and safeguards against attacks by hackers and viruses. Companies need to ensure they have all of the appropriate executives to ensure they are meeting the goals and needs of the business.

1. **Explain MIS and the role it plays in a company and global business.**

Management information systems (MIS) is a business function, like accounting and human resources, which moves information about people, products, and processes across the company to facilitate decision making and problem solving. MIS incorporates systems thinking to help companies operate cross-functionally. For example, to fulfill product orders, an MIS for sales moves a single customer order across all functional areas including sales, order fulfillment, shipping, billing, and finally customer service.

Although different functional areas handle different parts of the sale, thanks to MIS, to the customer the sale is one continuous process. If one part of the company is experiencing problems, however, then, like the car without a steering wheel, the entire system fails. If order fulfillment packages the wrong product, it will not matter that shipping, billing, and customer service did their jobs right, since the customer will not be satisfied when he or she opens the package.

1. **Do you agree that MIS is essential for businesses operating in the information age? Why or why not?**

MIS can be an important enabler of business success and innovation. This is not to say that MIS equals business success and innovation, or that MIS represents business success and innovation. MIS is a tool that is most valuable when it leverages the talents of people who know how to use and manage it effectively. To perform the MIS function effectively, almost all companies, particularly large and medium-sized ones, have an internal MIS department, often called information technology (IT), information systems (IS), or management information systems (MIS). For the purpose of this text, we will refer to it as MIS.

1. **Why is it important for a business major to understand MIS?**

MIS systems drive organizations and all business students will be using MIS systems to perform their jobs. Without adequate knowledge of MIS business students will be unprepared to compete in the information age.

1. **What type of career are you planning to pursue? How will your specific career use data, information, business intelligence, and knowledge?**

Answers to this question will vary depending on the career path the student has chosen.

1. **Explain systems thinking and how it supports business operations.**

Systems thinking is a way of monitoring the entire system by viewing multiple inputs being processed or transformed to produce outputs while continuously gathering feedback on each part. Feedback is information that returns to its original transmitter (input, transform, or output) and modifies the transmitter’s actions. Feedback helps the system maintain stability. For example, a car’s system continuously monitors the fuel level and turns on a warning light if the gas level is too low. Systems thinking provides an end-to-end view of how operations work together to create a product or service. Business students who understand systems thinking are valuable resources because they can implement solutions that consider the entire process, not just a single component.

1. **What business strategies would you use if you were developing a competitive advantage for a company?**

Answers can include Porter’s five forces, Porter’s three generic strategies, or value chain analysis.

1. **Explain Porter’s Five Forces Model and the role it plays in decision making.**

Formally defined, Porter’s Five Forces Model analyzes the competitive forces within the environment in which a company operates to assess the potential for profitability in an industry. Its purpose is to combat these competitive forces by identifying opportunities, competitive advantages, and competitive intelligence. If the forces are strong, they increase competition; if the forces are weak, they decrease competition.

1. **How could a company use loyalty programs to influence buyer power? How could a company use switching costs to lock in customers and suppliers?**

Companies can also reduce buyer power with loyalty programs, which reward customers based on their spending. The airline industry is famous for its frequent-flyer programs, for instance. Because of the rewards travelers receive (free airline tickets, upgrades, or hotel stays), they are more likely to be loyal to or give most of their business to a single company. Keeping track of the activities and accounts of many thousands or millions of customers covered by loyalty programs is not practical without large-scale business systems, however. Loyalty programs are thus a good example of using MIS to reduce buyer power.

One way to reduce buyer power is by manipulating switching costs, costs that make customers reluctant to switch to another product or service. Switching costs include financial as well as intangible values. The cost of switching doctors, for instance, includes the powerful intangible components of having to build relationships with the new doctor and nurses, as well as transferring all your medical history. With MIS, however, patients can store their medical records on DVDs or thumb drives, allowing easy transferability. The Internet also lets patients review websites for physician referrals, which takes some of the fear out of trying someone new

1. **What are Porter’s three generic strategies and why would a company want to follow only one?**

Porter has identified three generic business strategies for entering a new market: (1) broad cost leadership, (2) broad differentiation, and (3) focused strategy. Broad strategies reach a large market segment, while focused strategies target a niche or unique market with either cost leadership or differentiation. Trying to be all things to all people is a recipe for disaster, since doing so makes it difficult to project a consistent image to the entire marketplace. For this reason, Porter suggests adopting only one of the three generic strategies.

1. **How can a company use Porter’s value chain analysis to measure customer satisfaction?**

To identify these competitive advantages, Michael Porter created value chain analysis , which views a firm as a series of business processes that each add value to the product or service. Value chain analysis is a useful tool for determining how to create the greatest possible value for customers. The goal of value chain analysis is to identify processes in which the firm can add value for the customer and create a competitive advantage for itself, with a cost advantage or product differentiation. The value chain groups a firm’s activities into two categories, primary value activities, and support value activities. When performing a value chain analysis, a firm could survey customers about the extent to which they believe each activity adds value to the product or service. This step generates responses the firm can measure to describe how each activity adds (or reduces) value. Then the competitive advantage decision for the firm is whether to (1) target high value-adding activities to further enhance their value, (2) target low value-adding activities to increase their value, or (3) perform some combination of the two.

**CLOSING CASE ONE QUESTIONS**

**THE WORLD IS FLAT: THOMAS FRIEDMAN**

**Additional Case Video**

The MIT website offers a video lecture by Thomas Friedman. Try showing the video to your students or assign it as homework. Friedman is an entertaining speaker and your students will enjoy his lecture.

<http://mitworld.mit.edu/video/266/>

1. **Knowledge: Define Globalization 1.0, 2.0, and 3.0 and provide a sample of the type of business data managers collected during each era.**

* Globalization 1.0 started when Christopher Columbus discovered the world is round and the world shrank from large to medium. For the next several hundred years, countries dominated by white men controlled business. Data examples would include all attributes associated with trade via shipping routes.
* Globalization 2.0 began around 1800, during the Industrial Revolution, when the world went from medium to small. In this era international companies dominated by white men controlled business. Data examples would include all attributes associated with trade via corporations.
* Globalization 3.0 began in early 2000, removing distance from the business equation, and the world has gone from small to tiny. In this era, people of all colors from the four corners of the world will dominate business. Farmers in remote villages in Nepal carry the iPhone to access the world’s knowledge at, say, Wikipedia or the stock market closing prices at Bloomberg. Data examples would include all attributes associated with trade via individual people.

1. **Comprehension: Explain Friedman’s flat world and the reasons why it is important for all businesses, small or large, to understand.**

If your students are wondering why they need to take this course then this case study should scare them into becoming a believer in the power of technology in business. I tell all of my students that my goal in life is to never see them on the top 10 worst business decisions of all time. If they pay attention in this course they might just avoid an embarrassing moment in business.

1. **Application: Demonstrate how students competing for jobs in a “flat world” can create competitive advantages to differentiate themselves in the marketplace.**

Learning about information technology and how they can use IT to gain a competitive advantage in their industry or for their organization is key. Most organizations operate through the use of technology and understanding how business and technology relate will help students achieve success.

* Negative: In a flat world it is far more difficult to get a job because competition is increasing at an incredible rate. There are 1 billion people online in 2006. It is anticipated that 4 billion people will be online by 2010. As the next 3 billion people come online over the next 4 years competition is going to dramatically increase.
* Positive: Students can now perform a global job search right from their apartment. Students in Chicago can accept jobs all over the world without ever leaving their apartment. They can even work remotely and continue to live in Chicago while working for a company based in Japan.

1. **Analysis: Analyze the current business environment and identify a new flattener not mentioned on Friedman’s list**.

The answer to this question will vary. A few include:

* Cheaper technology, such as the $100 laptop from MIT, allowing more people access to the Internet
* Video phones and collaboration tools allowing people to meet face-to-face even when they are in different parts of the world
* Technologies such as Voice-over-IP that offer a cheap alternative to traditional long-distance carriers

1. **Synthesis: Propose a plan for how a start-up company can use any of Porter’s strategies to combat competition in a global world.**

Students should be able to discuss how a company can use Porter’s Five Forces to analyze an industry to determine how attractive it would be to enter. Once determining if it would be profitable to enter a certain industry the company would need to determine which of Porter’s three generic strategies it should follow to ensure success. Once the company is up-and-running it can use Porter’s value chain analysis to examine and redefine its business processes to ensure it is operating as efficiently and effectively as possible.

1. **Evaluate: Argue for or against the following statement: “The world is not flat (in Friedman’s sense of the term) because many undeveloped countries are not connected electronically.”**

For this debate the important point is that your students can justify their point of view. Some students will agree with Friedman that technology has made the world flat. Others, will disagree with Friedman stating that there are still many people that do not have access to technology and for them the world is still round.

**CLOSING CASE TWO QUESTIONS**

**Crushing Candy**

1. **Do you agree or disagree that freemium business strategies can provide a company with a competitive advantage? Be sure to justify your answer?**

One of the main factors that brought Candy Crush into the top game was the fact that it was free – anyone could download and play the game for free. If Candy Crush had charged users from the beginning to play the game it might not have become one of the best chart toppers of all time. Freemium is a solid business strategy for any game that wants to get noticed!

1. **Why are data, information, business intelligence, and knowledge important to King.com? Give an example of each type in relation to a customer playing Candy Crush.**

Data are raw facts that describe the characteristics of an event or object. Before the information age, managers manually collected and analyzed data, a time-consuming and complicated task without which they would have little insight into how to run their business. Lacking data, managers often found themselves making business decisions about how many products to make, how much material to order, or how many employees to hire based on intuition or gut feelings. In the information age, successful managers compile, analyze, and comprehend massive amounts of data daily, which helps them make more successful business decisions.

Examples include:

Download date, customer name, device type, amount of time played, amount spent per transaction

Information is data converted into a meaningful and useful context. Having the right information at the right moment in time can be worth a fortune. Having the wrong information at the right moment; or the right information at the wrong moment can be disastrous. The truth about information is that its value is only as good as the people who use it. People using the same information can make different decisions depending on how they interpret or analyze the information. Thus information has value only insofar as the people using it do as well. Information would include:

* How many downloads did the average customer perform before playing?
* What day of the week are the most games downloaded?
* Which country had the greatest number of downloads?
* What was the average score per user depending on how long the customer had played?
* How many other games did the customers download?

Business intelligence (BI) is information collected from multiple sources such as suppliers, customers, competitors, partners, and industries that analyzes patterns, trends, and relationships for strategic decision making. BI manipulates multiple variables and in some cases even hundreds of variables including such items as interest rates, weather conditions, and even gas prices. For instance, BI can predict inventory requirements for a business for the week before the Super Bowl if, say, the home team is playing, average temperature is above 80 degrees, and the stock market is performing well. This is BI at its finest, incorporating all types of internal and external variables to anticipate business performance. BI would include:

* What impact does the stock market have on sales?
* What impact does the business quarter have sales?
* How does the release of competitor games such as Minecraft hurt sales?

Knowledge includes the skills, experience, and expertise, coupled with information and intelligence that creates a person’s intellectual resources. Knowledge workers are individuals valued for their ability to interpret and analyze information. Today’s workers are commonly referred to as knowledge workers and they use BI along with personal experience to make decisions based on both information and intuition, a valuable resource for any company. Examples of knowledge would include:

* Who is the best analyst to fix game issues concerning additional time purchases?
* Who is the best analyst to fix game issues for iPhone devices?
* Who is the best analyst to fix game issues for Android devices?
* Which resources are the main points of contact for accounting issues?

1. **Analyze King.com using Porter’s Five Force Model.**

King.com’s buyer power is high as there are thousands of games to choose from downloading. King.com supplier power is high as it is the sole creator of the product. King.com can use environmental scanning, or the acquisition and analysis of events and trends in the environment external to an organization, to analyze rivalry and competition. King.com can use environmental scanning to analyze everything from competitor strategies to understanding new and shifting market trends. Without watching its environment and understanding what its competitors are doing and where the market is headed, King.com will have a difficult time setting its strategic direction. Threat of new entrants is high as hundreds of new games are released daily.

1. **According to Porter’s three generic strategies, where does King.com’s Candy Crush reside?**

King.com is following a focused strategy.

1. **Why do freemium business strategies work well for virtual products and typically fail for physical products?**

IT does not cost the company any money to give away a virtual product as there are no associated manufacturing costs, shipping costs, inventory hold costs, etc. Once the product is created it is a good strategy to give the product away for free to build a customer base. Physical products have many associated costs and as soon as the company gives away the products they are losing money.

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**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. **FOCUSING ON FRIEDMAN**

**Project Purpose:** To understand the global business environment.

**Potential Solution:** There is a great overview of Friedman’s text at <http://www.thomaslfriedman.com/bookshelf/hot-flat-and-crowded>.

Hot, Flat, and Crowded: Why We Need a Green Revolution - And How it Can Renew America

Thomas L. Friedman's no. 1 bestseller The World Is Flat has helped millions of readers to see globalization in a new way. Now Friedman brings a fresh outlook to the crises of destabilizing climate change and rising competition for energy—both of which could poison our world if we do not act quickly and collectively. His argument speaks to all of us who are concerned about the state of America in the global future.

Friedman proposes that an ambitious national strategy—which he calls "Geo-Greenism"—is not only what we need to save the planet from overheating; it is what we need to make America healthier, richer, more innovative, more productive, and more secure.

As in The World Is Flat, he explains a new era—the Energy-Climate era—through an illuminating account of recent events. He shows how 9/11, Hurricane Katrina, and the flattening of the world by the Internet (which brought 3 billion new consumers onto the world stage) have combined to bring climate and energy issues to Main Street. But they have not gone very far down Main Street; the much-touted "green revolution" has hardly begun. With all that in mind, Friedman sets out the clean-technology breakthroughs we, and the world, will need; he shows that the ET (Energy Technology) revolution will be both transformative and disruptive; and he explains why America must lead this revolution—with the first Green President and a Green New Deal, spurred by the Greenest Generation.

Hot, Flat, and Crowded is classic Thomas L. Friedman—fearless, incisive, forward-looking, and rich in surprising common sense about the world we live in today.

1. **PURSUING PORTER**

**Project Purpose:** To see the amount of online information about famous business professionals.

**Potential Solution:** The following offer interviews and videos of Michael Porter.

<http://www.isc.hbs.edu/> Harvard Business School Institute for Strategy and Competitiveness

<http://www.youtube.com/watch?v=mYF2_FBCvXw> The Five Competitive Forces that Shape Strategy Video

<http://www.youtube.com/watch?v=y5I_cnpP99U> Michael Porter on Competitiveness Video

<http://www.youtube.com/watch?v=ibrxIP0H84M> Michael Porter on Strategy Video

The types of professionals your students might list include:

* Bill Gates
* Steve Jobs
* Seth Godin
* Malcolm Gladwell
* John Kotter
* Jim Collins
* Peter Drucker
* Clayton Christensen
* Jack Welch
* Stephen Covey
* Dale Carnegie

1. **RENTING MOVIES**

**Project Purpose:** To apply Porter’s Five Forces model to the Video Rental industry

**Potential Solution:** The following offers one potential solution:

* Buyer power is high as customers have many choices to rent movies including Netflix, Redbox, On-demand, and video rental stores. They can also choose to purchase movies at a number of different stores.
* Supplier power is high as there are only a few movie distributors who price movies accordingly.
* Competition is high and rivalry is fierce.
* Threat of new entrants is low as anyone can open a video store
* Threat of substitute products is high as new forms of online entertainment including Hulu offer substitutes to renting movies

After analyzing this market the majority of students will determine that the industry is highly competitive and risky to attempt to enter.

1. **WORKING FOR THE BEST**

**Project Purpose:** To understand the value of data.

**Potential Solution:** The 2010 list of top 100 companies to work for can be found at the following link. <http://money.cnn.com/magazines/fortune/bestcompanies/2010/> Data items could include:

* Perks
* Benefits
* Location
* Turnover
* Profitability
* Employee trust
* Layoff history

If the data analyzed by Fortune was inaccurate the listing would be inaccurate and readers and subscribers to Fortune would lose faith in the company and discontinuing reading the magazine. Students analyzing this list can gain insight into the types of companies they might want to work for upon graduation. Potential questions students can answer by analyzing this list include:

* Which industry has the greatest number of Fortune 100 top companies to work for?
* Which industry has the least number of Fortune 100 top companies to work for?
* What are the top five locations for Fortune 100 companies?
* What are the bottom five locations for Fortune 100 companies?
* What types of perks and benefits do top companies offer?
* How many of the Fortune 100 companies are currently hiring?

1. **MANIPULATING DATA TO FIND YOUR VERSION OF THE TRUTH**

**Project Purpose:** To demonstrate the value of MIS

**Potential Solution:** This is a great project to help your students understand the problems associated with interpreting data. Many students will be unfamiliar with data and how they are going to interact with corporate data, customer data, competitor data, market data, etc. Economists use all kinds of data including GDP, inflation, housing sales, taxes, exchange rates, currency, etc.

1. **STARTING YOUR OWN BUSINESS**

**Project Purpose:** To demonstrate the value of MIS

**Potential Solution:** Students who are unfamiliar with MIS might not realize its power. Many startups today focus on technology or use technology to create competitive advantages. This is another great project that will show your students how MIS impacts business and by understanding the power of MIS they could start their own business – what a great incentive to become an MIS major!

1. **INFORMATION ISSUES IN THE INFORMATION AGE**

**Project Purpose:** Understanding data, information, business intelligence, knowledge

**Potential Solution:**

* Student age, student birthdate, student address, student phone, student contact, student major, student classes, student loans, student social security number, student license plate, student work history, student loans

1. **COMPETITIVE ANALYSIS**

**Project Purpose:** To explain the value of data among markets

**Potential Solution:** Students need to be focusing on the many different business benefits derived from IT, which were presented in the chapter. Students’ answers can include SCM, CRM, ERP, ethics, security, competitive advantages, etc. The Porter’s Five Forces analysis should include justification for each force and the strategy can vary depending on the student’s vision of Cheryl’s future.

1. **THE COMPETITIVE LANDSCAPE FOR STUDENTS**

**Project Purpose:** Understanding how to evaluate markets

**Potential Solution:** Students should be looking at different market sources for data such as data.worldbank.org is an excellent site to find all kinds of global data. Students can look at local papers, local news centers, and even local data sources on Google.

1. **10 BEST THINGS YOU WILL SAY TO YOUR GRANDCHILDREN**

**Project Purpose:** Demonstrate how quickly MIS changes and the value of keeping current

**Potential Solution:** Your students may find different answer then the following depending on their familiarity with technology.

**1.** Refers to using Twitter

2. Refers to global warming and the loss of snow

3. Refers to Jeopardy and other game shows based on a person’s own memory

4. Refers to movie theaters before on-demand and Netflix downloads

5. Refers to social networking profiles

6. Refers to globalization

7. Refers to vitamins

8. Refers to cloud computing

9. Refers to iPhone updates

10. Refers to cloning animals

**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.

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| **AYK 1: CAPITALIZING ON YOUR CAREER** |

Managers need to be involved in information technology – any computer-based tool that people use to work with information and support the information and information-processing needs of an organization. This project discusses the importance of getting general business mangers involved in information technology.

Student answers to this project will vary depending on their area of expertise. This project is aimed at getting your students excited about information technology, even though they are not IT majors. By researching the IT implications for their majors, they will begin to realize how important IT will be in their future. The most important part of your students’ answers will be the justification for their analysis.

If your students are still determining their potential majors and areas of expertise you can break your students into groups and assign each group a different major or industry to research. Have your students present their findings to the entire class. This helps provide an overview of all areas and related IT influences.

**Potential majors:**

* Accounting – Oracle financials, payroll systems, QuickBooks
* Finance - Oracle financials, payroll systems, QuickBooks
* Management – HR systems that can pinpoint potential employee issues and risks
* Marketing – Blogs, eMarketing, RSS, podcasts, sales force automation
* IT/MIS – Design tools such as Irwin or Rational Rose or Rational RUP
* Statistics - SAS
* Operations – i2, supply chain systems, logistic systems

**Potential industries:**

* Telecommunications
* Health care
* Finance
* Education
* Strategy services
* Products
* Energy
* Fashion

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| **AYK 2: ACHIEVING ALIGNMENT** |

Most companies would like to be in the market-leading position of JetBlue, Harrah's, Dell, or Wal-Mart. Infor­mation technology has helped them secure their respec­tive spots in the marketplace. These companies have a relentless goal of keeping the cost of technology down by combining the best of IT and business leadership. Companies that master the art of finely tuned, cost-effective IT management will have a major advantage in business. Their success will force their competitors to also master the art or fail miserably. The future belongs to those who are perceptive enough to grasp the significance of IT and resourceful enough to synchronize business management and information management.

1. **How do companies prioritize the demands of various business units as they relate to IT?**
2. **Aligning IT and Business Objectives** - IT organizations have been using operational systems such as project management and resource management to streamline their overall process and “do things right”. However, they might still be working on a wrong set of priorities. Alignment between business and technology enables them to prioritize IT investments and work on “the right things.”
3. **Asset Rationalization** - Solutions that enable IT executives to plan asset rationalization initiatives and reduce their overall IT expenditure on infrastructure assets. Rationalization projects require IT organizations to identify the right opportunities for data center/server consolidation, vendor rationalization, infrastructure re-deployment and contract renegotiation, and then create optimal plans. With over 50% of the IT spent going towards infrastructure assets within most companies, smart rationalization enables IT executives to find the money to fund other strategic initiatives.
4. **Risk Reduction** - Solutions that enable information technology executives to reduce risk to their business operations from internal and external IT factors. The risk from internal factors is primarily attributed to poor planning and execution of projects and initiatives.
5. **What are some of the greatest IT challenges for the coming year?**

Answers will certainly vary here; however, most students should be able to identify many of the following:

1. **Security** – This is a very broad topic area, yet it is the most important in terms of IT challenges. Represented in this area are security issues, such as:

* Biometric Devices
* Crime
* Data Encryption Standards
* Department of Homeland Security
* Disaster Planning
* Encryption
* Hackers
* Risk Management
* Security Hardware
* Security Management
* Security Software
* Security Standards
* Security Systems
* Storage Management
* Systems Implementation
* Wireless

1. **More Mobile Service With Less Bandwidth** – This topic area has roots embedded in the security issues listed above. However, there is a challenge in developing and extending the infrastructure needed to support these types of services. Enterprise users planning to "mobilize" access to corporate applications must look beyond the mobile service providers to the application developers and the handset manufacturers for end-to-end solutions that support specific applications over a mobile telephone network.
2. **Business Intelligence** – Business Intelligence systems will grow from being a “cool” IT “buzzword” to a valuable function that will drive business. However, the challenge will be how to integrate, such as OLAP, data warehouses, data mining, with existing systems.
3. **What drives IT decisions?**

Responses will vary here; however, some students may wish to answer this from a historical perspective. Some typical answers should include:

1. Companies buy computers and invest in information technology because they believe those investments will improve their productivity. However, the impact of IT expenditures on a company's productivity is far less clear — and harder to quantify.
2. Companies have been able to measure IT expenses — from acquisitions to the maintenance of computer networks, security, and so on — without much ado. But they are now finding ways to measure the value of IT expenditures through productivity metrics, among other measures. Not surprisingly, this involves a change in how companies think about their IT investments and the impact these investments have on their bottom line.
3. IT investments are increasingly linked to a company's business goals. To look at productivity effectively involves understanding a company's business goals and what makes the company successful.
4. Solutions are mapped to support business objectives. The costs and benefits of the investment must then be quantified, along with the risk of implementation — the risk, in other words, that inadequate training, turf battles or other factors could compromise the productivity benefit.
5. **Who or what is the moving force behind IT decisions?**
6. Traditionally, the chief information officer (CIO) and the IT department have been responsible for making IT decisions. The reason was simple: they were the ones who knew the most about computers and computing technology. But merely acquiring (or building) the right technology is no longer sufficient. Companies must continue to examine each technology decision throughout its investment life cycle, thereby ensuring its proper implementation, its productive use, and its measurable results.
7. Many companies are subjecting the business cases for IT decisions to the same criteria they apply to other company decisions. The CIO now needs to justify that each decision (namely that of an investment) has the same potential return as, say, building a new factory.
8. The IT industry has been under pressure to keep up with the newest technologies, answering to many departments often without clear goals. The result: Technologies that did not make smart business sense were sometimes implemented at significant costs. The more rigorous, business-case approach, however, helps CIOs and executives align their IT decisions with business goals to ensure a productive result.
9. Peer recommendations and staff inputs can be considered important.
10. **What types of efficiency metrics and effectiveness metrics might these companies use to measure the impact of IT?**

Typical responses should include:

1. Speed
2. Throughput
3. Performance
4. Scalability
5. Web metrics
6. Net Present Value (NPV)
7. Return on Investment (ROI)
8. Total Cost of Ownership (TCO)
9. **How are financial metrics used to monitor and measure IT investments? What are some of the issues with using financial metrics to evaluate IT?**

* Net Present Value (NPV), Internal Rate of Return (IRR), Return on Investment (ROI), Payback Period (PB), and Total Cost of Ownership (TCO) are a few financial metrics.
* Chief financial officers will say it is hard to demonstrate lasting value from technology investments that promise to keep customers happy and loyal.
* Multiple metrics are required, previously mentioned, such as:
* Net present value (NPV) is the present value of the stream of net (operating) cash flows from a project minus the project’s net investment. NPV makes a comparison between the cost of an investment and the present value of uncertain future cash flows generated by the project.
* Internal rate of return (IRR) is the rate at which the NPV of an investment equals zero.
* Return on investment (ROI) indicates the earning power of a project and is measured by dividing the benefits of a project by the investment. ROI can be calculated in various ways. The most common method is Net Income as a percentage of Net Book Value (total assets minus intangible assets and liabilities).
* Payback period (PB) is the period of time required for the cumulative cash inflows from a project to equal the initial cash outlay. PB essentially determines the amount of time required for a project to pay for itself.
* Total cost of ownership (TCO)consists of the costs, direct and indirect, incurred throughout the life cycle of an asset, including acquisition, deployment, operation, support, and retirement. Essentially, TCO attempts to properly state the costs of an IT investment.

1. **What are some of the issues with using financial metrics to evaluate IT?**

Using financial metrics to evaluate IT does not always work. What is the financial value of a fire extinguisher? The extinguisher cost $30, but if it puts out a fire that could destroy the entire building or just the server room it could be worth millions to the company. Putting a financial metric on a firewall or computer is difficult. The computer cost $1,200 but might contain millions of dollars’ worth of information. Measuring the value of IT with financial metrics is a difficult job.

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| **AYK 3: MARKET DISSECTION** |

Organizations must formulate a strategy for entering new markets. An organization can follow Porter’s three generic strategies when entering a new market: (1) broad cost leadership, (2) broad differentiation, or (3) a focused strategy. Broad strategies reach a large market segment, while focused strategies target a niche market. A focused strategy concentrates on either cost leadership or differentiation. Trying to be all things to all people, however, is a recipe for disaster, since it is difficult to project a consistent image to the entire marketplace. Porter suggests that an organization is wise to adopt only one of the three generic strategies.

To illustrate the use of the three generic strategies, consider Figure AYK.1. The matrix shown demonstrates the relationships among strategies (cost leadership versus differentiation) and market segmentation (broad versus focused).

* Hyundai is following a broad cost leadership strategy. Hyundai offers low-cost vehicles, in each particular model stratification, that appeal to a large audience.
* Audi is pursuing a broad differentiation strategy with its Quattro models available at several price points. Audi’s differentiation is safety, and it prices its various Quattro models (higher than Hyundai) to reach a large, stratified audience.
* Kia has a more focused cost leadership strategy. Kia mainly offers low-cost vehicles in the lower levels of model stratification.

Hummer offers the most focused differentiation strategy of any in the industry (including Mercedes-Benz). Student solutions to this project will vary. The most important part of their answer is their justification for each product placement.

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| **AYK 4: FIXING THE POST OFFICE** |

This is an excellent project for helping students understand the competitive environment in package delivery and how technology is changing the world. Student answers to this question will vary, again the important part is to look at the justification for their answers. Below are a few examples you can share with your students to get them heading in the right direction.

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**Sample Analysis for Airline Industry**



**Sample Analysis for Milk**



**Template**



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| **AYK 5: THE IPAD** |

Analyzing the iPad using Porter’s value chain offers some great insight into how firms are recreating processes using iPads.

-Schools are using iPads in the classroom for all students to learn, study, and take examinations

-Numerous payment systems such as square use the iPad

-Restaurants are using iPads to take orders

-iPads are being used by contractors for bids and payments

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| **AYK 6: FLAT COMPETITION** |

Hopefully, everyone immediately recognizes the importance of this course as they watched the Friedman video. As you begin to compete in a Flat World you need all the technology skills and experience you can possibly find! I've never heard anyone say - "My career was right on track until I learned about technology - I sure wish I had never learned technology it ruined my career".

* Amazon is a book selling company - not a technology company.
* Netflix is a video rental business - not a technology company.
* eBay is a consumer trading business - not a technology company.

All of these businesses were started by BUSINESS people who understood the value of technology so well that they fundamentally changed the primary business processes of buying books, renting videos, and trading goods. Every BUSINESS person should understand technology, without it they won't be able to spot the competitive advantages that are just waiting for the next brilliant entrepreneur to discover.

There are huge strides in third world countries. We now have Internet carts that can drive around and provide remote villages in Neap and India and Africa with computers and access. Some argue that the world between the haves and the have-nots is widening because of technology - I personally believe it is closing. With a computer I can literally get a PHD from an online school no matter where I am located - a remote village in Antarctica.

Here is a question for your students. Is the world flat for everyone? When I view Friedman and try to think of a job that isn't flat I actually tend to come up with blue collar jobs. White collar jobs are easily outsourced - CPAs are doing our taxes in China, Legal work is done is Africa, Architecture work is done in India, Programming code is done is Ukraine, Doctors are reading our x-rays in India, etc. But can a nurse, garbage man, house painter, contractor, waitress, librarian, (service industry) jobs be outsourced? Don't get me wrong - I completely agree that the best thing you can invest in is your education - but in a flat world I no longer agree that it means your skill set won't be outsourced.

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| **AYK 7: FINDING YOUR COLLEGE START-UP** |

Once your students have a few great ideas ask them to apply the concepts used in this chapter to create a strategy document including Porter’s five forces, SWAT analysis, Porter’s three generic strategies, and Porter’s value chain analysis.

A firm must identify the business processes required to create its products or services. Of course, it will want to ensure the processes add value and create competitive advantages. To identify these competitive advantages, Michael Porter created value chain analysis, which views a firm as a series of business processes that each add value to the product or service. Value chain analysis is a useful tool for determining how to create the greatest possible value for customers. The goal of value chain analysis is to identify processes in which the firm can add value for the customer and create a competitive advantage for itself, with a cost advantage or product differentiation.

The value chain groups a firm’s activities into two categories, primary value activities, and support value activities. Primary value activities, shown at the bottom of the value chain, acquire raw materials and manufacture, deliver, market, sell, and provide after-sales services. As a group, discuss the following in relation to Starbucks:

* Inbound logistics: acquires raw materials and resources and distributes to manufacturing as required.
* Operations: transforms raw materials or inputs into goods and services.
* Outbound logistics: distributes goods and services to customers.
* Marketing and sales: promotes, prices, and sells products to customers.
* Service: Provides customer support after the sale of goods and services.

Support value activities, along the top of the value chain, include firm infrastructure, human resource management, technology development, and procurement. Not surprisingly, these support the primary value activities. As a group, discuss the following in relation to Starbucks:

* Firm infrastructure: includes the company format or departmental structures, environment, and systems.
* Human resource management: provides employee training, hiring, and compensation.
* Technology development: applies MIS to processes to add value.
* Procurement: purchases inputs such as raw materials, resources, equipment, and supplies.

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| **AYK 8: WHAT’S WRONG WITH THIS BATHROOM** |

Any company whose primary executives are not aligned with business goals and strategies runs the risk of losing investors and credibility. Hiring the right people and ensuring they act ethically is a key strategy for any business competing in the information age. With the power of the Internet any bad decision can be made public instantly. For this reason, ensuring your employees act ethically in all manners is far more important today than ever before.

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| **AYK 9: I LOVE TED!** |

There are so many amazing videos on Ted that your students will find a wealth of information on all sorts of interesting topics. Gaining knowledge and information on new technologies, new business strategies, different perspectives, global views, etc. is a great way to analyze any market for competitive advantages.