Part 1

Why MIS?

Experiencing MIS

Fifth Canadian Edition

Chapter 1

The Importance of MIS

The Future Starts Now?

- How many students know where they are headed?
  - Accounting
  - Administration
  - Finance
  - Human Resources
  - Marketing
  - Management
  - …… Something else …

- How many students think they will only have one 'career' or job type the rest of their lives

What Do Employers Want?

- Self starter, don't wait to be told what to do

- Team worker
  - Develop ideas and kick them around with others
  - Ask questions
  - Ability to communicate and participate

- Pull more than your own weight

As a future employer,
what skills would you look for?

- a Business Student
    or Science (Technology) Student

  - could a Business Student work well with technology?

  - could a Tech Student make business decisions?

Q1-1: What Is an Information System?

- A system is a group of components that interact to achieve some purpose

- An **information system (IS)** is a group of components that interact to produce information

- Five fundamental components of computer-based information systems are:
  1. Hardware
  2. Software
  3. Data
  4. Procedures
  5. People

Figure 1-1
Five Components of an Information System

Hardware	Software	Data	Procedures	People

Q1-2: What Is MIS?

- **Management Information Systems (MIS)** comprise the development and use of information systems that help organizations achieve their goals and objectives

- Key elements:
  - Development and use
  - Information systems
  - Goals and objectives

Development and Use of Information Systems

- You need to:
  - Take an *active role* in order to ensure that system will meet your needs
  - Learn how to *acquire* information systems, by Asking critical questions:
    - "Where did the information come from?"
    - "What new info or opportunities are enabled"
    - "How was the system constructed"
    - "What role did users play in development"
  - Learn how to *use* information systems
    - Security, backup, recovery

Achieving Business Goals and Objectives

- MIS aids businesses in achieving objectives
  - Organizations themselves don't do anything
  - People within an organization or business who: sell, buy, design, produce, finance, market, account, and manage

- MIS empowers users to reach goals
  - Exist to assist business people
  - Need to be developed for right reason

Acquire Information Systems for a *Reason*

- What will a system do for you?

- What is the purpose?

- What will using it enable us to do?

- What goal can be accomplished through its use?

- Will it aid in reaching our objectives?

Social Media: Changing the Relationship Between Customers and Business

- Social media connect people, and when people get connected they talk, share, and let friends know what they think about the world

- **Social networking** was often ignored by companies at first – they do not make positive cash flows.

- Companies learned, however, that "bad press" (and "good press" can now be shared to millions of people within seconds.

- Now, organizations are creating strategies that incorporate social networking tools.

Q1-3: How Does an IS Differ from IT? (1 of 3)

- **Information system (IS)** is a system of hardware, software, data, procedures, and people that produces information

- **Information technology (IT)** represents raw technology, components of IS
  - Hardware
  - Software
  - Data components

Q1-3: How Does an IS Differ from IT? (2 of 3)

- IT refers to:
  – Methods
  – Inventions
  – Standards
  – Products

Q1-3: How Does an IS Differ from IT?

- IT alone will not help an organization achieve goals

- IT must be embedded into an IS to help accomplish objectives
  - Technology must be combined with people and procedure components
  - IS will make IT useful
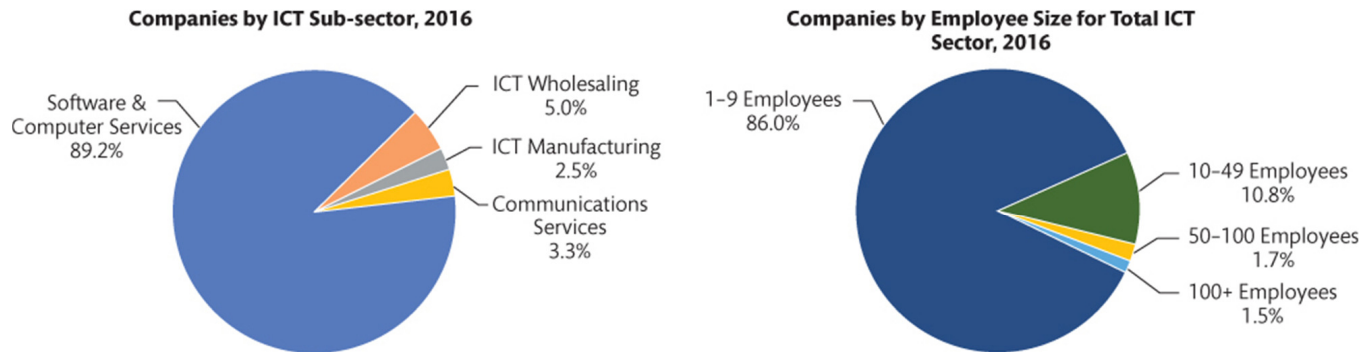
Real Difference Between IS and IT

- IS includes people

- <u>Including people</u> in the system impacts how you design and implement systems

- Successful business people take advantage of crucial differences between IT and IS to improve their systems

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Q1-4: How Important Are Information Systems to Our Economy?

- Industry Canada categorizes sectors and collects data about them.

- **Information and Communications Technology** (ICT) **sector** is the most closely related to use of IS in Canada.

- sector provides products, services that other industries rely on

- Includes companies involved in software, computer services, cable, program distributors, telecommunications, manufacturing, wholesaling

Figure 1-2
Canada's ICT Sector, 2015

Companies by ICT Sub-sector, 2016

- Software & Computer Services 89.2%
- ICT Wholesaling 5.0%
- ICT Manufacturing 2.5%
- Communications Services 3.3%

Companies by Employee Size for Total ICT Sector, 2016

- 1–9 Employees 86.0%
- 10–49 Employees 10.8%
- 50–100 Employees 1.7%
- 100+ Employees 1.5%

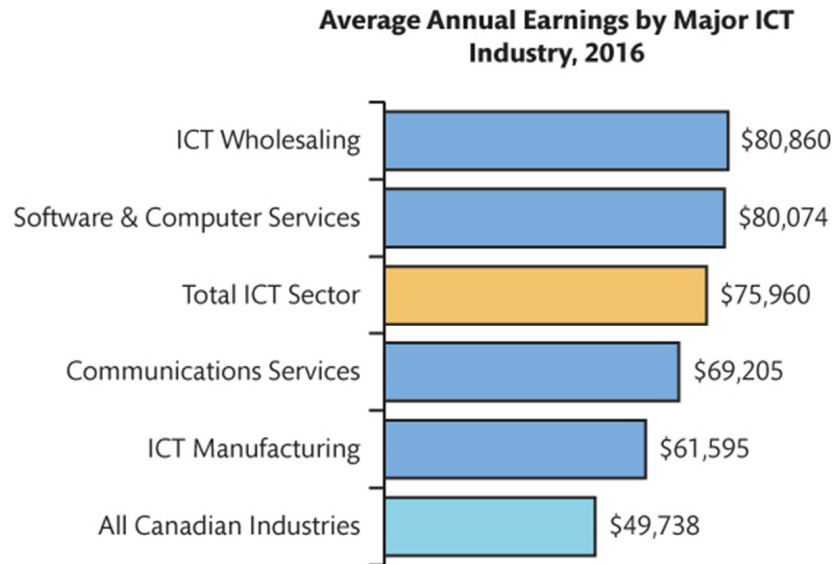Copyright © 2019 Pearson Canada Inc.

Source: Reproduced with the permission of the Minister of Industry, 2017. https://www.ic.gc.ca/eic/site/ict-tic.nsf/eng/h_it07229.html

What Do the Numbers Mean?

- 32,000 ICT sector companies in Canada, 2015
  - More than 90% had fewer than 100 employees!
  - Only 115 had more than 500 employees.
- In 2015, the ICT sector added $71.3 billion to the Canadian GDP
- This adds up to jobs
  - 2015: 584,850 people employed in ICT sector
  - Most growth in software and computer-services
  - Manufacturing is relatively flat
  - Service is expected to continue to grow

Figure 1-3
Average Annual Earnings by Major ICT Industry, 2015

Average Annual Earnings by Major ICT Industry, 2016

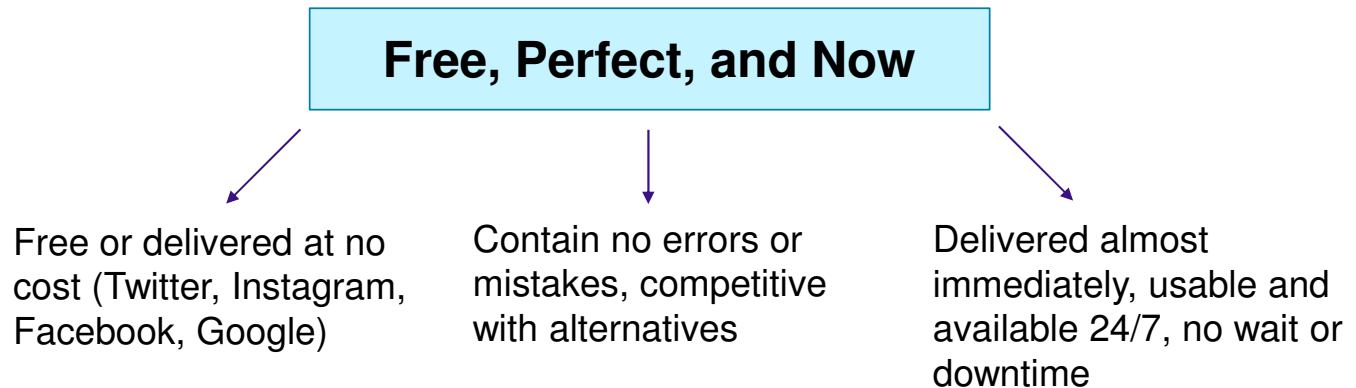| Industry	Earnings
ICT Wholesaling	$80,860
Software & Computer Services	$80,074
Total ICT Sector	$75,960
Communications Services	$69,205
ICT Manufacturing	$61,595
All Canadian Industries	$49,738

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Source: Reproduced with the permission of the Minister of Industry, 2017 https://www.ic.gc.ca/eic/site/ict-tic.nsf/vwapj/ICT_Sector_Profile_2015-EN.pdf/$file/ICT_Sector_Profile_2015-EN.pdf

Q1-5: How Do Successful Business Professionals Use IS? (1 of 2)

- Consumers are accustomed to yearly advances in
  - devices (smaller, more powerful)
  - services (faster, more reliable)
  - costs that are either lower or services greater for same cost

Free, Perfect, and Now

Free or delivered at no cost (Twitter, Instagram, Facebook, Google)

Contain no errors or mistakes, competitive with alternatives

Delivered almost immediately, usable and available 24/7, no wait or downtime

Q1-5: How Do Successful Business Professionals Use IS? (2 of 2)

- Today, every business professional uses numerous information systems

- Some of basic information systems are:
  - Email
  - Accessing webpages
  - Using word processors and spreadsheets
  - Creating presentations
  - Instant messaging and location-based services on smart phones

Beyond the Basics

- To be effective in today's economy, you need **more** than the basics

- Business professionals need to expand their knowledge to include the following:
  - Use of mobile devices and applications
  - Use of project-management software – Microsoft Project, OpenProject
  - Business graphics – MS Visio, SmartDraw
  - Collaborative systems such as Google Docs

Gaining a Competitive Advantage

Five key transformative technologies will be in demand:

- Virtual and augmented reality
- 5G mobile
- 3D printing
- Blockchain
- Artificial intelligence

Source: "The Next Talent Wave: Navigating the Digital Shift – Outlook 2021," The Information and Communications Technology Council (ICTC) of Canada 2017.

Gaining a Competitive Advantage (2 of 2)

- **Communication** and **business skills** are paramount

- For business majors, adding technical knowledge will increase ability to work across spectrum of industries

- Five occupations predicted to have above-average growth rates:
  - Computer and information systems managers
  - Computer engineers (except software engineers, designers)
  - Database analysts, administrators
  - Computer programmers and interactive media developers
  - Graphic arts technicians

Q1-6: What Is the Shape of Things to Come?

- **Moore's Law** noted that the density of circuits on an integrated chip was doubling approximately every two years or so

- This prediction has been generally accurate for almost five decades

- Moore's Law is one of the few predictions in area of IT that has really stood the test of time

- The cost of computers has declined over the past 50 years, the same amount of money can buy increased computer capacity

Network Effects and Lock-In

- The value that is received from using certain technologies increases significantly as the number of users increases.

- The more, the merrier.

- Examples:
  - Fax machines: couldn't have sold just one
  - Social networks: need others to join

- Once established, network effects can lock-in users and make it harder for them to switch technologies

General Shrinking of Device Size

- Recall Moore's Law

- Devices stay on us at all times

- Adoption of location-based technology

Business of IT and IS

- How will the changes in IT and IS affect the way we live and work?

- Hal Varian, chief economist at Google, suggested that:
  - Business is changing because of advances in IS and IT
  - Mobility devices will change what it means to go to work
  - Work will come to you, wherever you are, and you will deal with it at any time and in any place
  - Ability to handle (find, process, understand, communicate) data is going to be important skill for decades to come

Google Knows Best (1 of 2)

- Millions of people worldwide daily log in to Gmail

- Supported entirely by advertising

- When email is sent or received, a fresh column of ads appear on the right-hand side of the screen

- **Google scans email**, understand its content, and provide contextual advertising.

- This distinguishes Google from other email providers – only Google tries to understand what you are writing ("content extraction")

Google Knows Best (2 of 2)

- When you visit a google site, your IP address is recorded and all your searches are tracked, and can be done across its various products

- Creates complex profiles

- "Gmail has broken a fundamental trust" (Marc Rotenberg, Electronic Privacy Information Centre)

Google Knows Best ?

- *Do people who use free email systems understand the implications of the tradeoffs that they have made? (Hint: Do you?)*

- *Is email different from postal or telephone services? Is it more like a postcard, where privacy should not be assumed?*

- *"How complete a profile can Google assemble of a typical user? (Hint: what Google services—Calendar, Google Maps, etc.—do you use?).*

- *What are your privacy rights and expectations while using the Internet?*

ICTS Jobs 2.0 Report

- Within the next decade:
  - Unlimited storage will be almost free
  - Analytical software will reveal hidden information
  - The real and virtual world will collide as wide-area networks (WANs) become cheap, reliable, and widely available
  - These technology trends will enable deep, powerful, performance-enhancing innovations that will be felt in almost every industry

  - Source: David Ticoll, "ICTS Jobs 2.0", ICTC of Canada.

What Is This Course About? (1 of 2)

- Much more than Excel, Access

- Focus on learning how to use tools to accomplish organizational goals

- MIS = development and use of IS that help organizations achieve goals and objectives
  – To understand MIS, you need to understand business and technology, and relate the two

What Is This Course About?

- Chapters 2, 3: relationship of business processes and information system

- Chapters 4-6: hardware, software, content, databases, network and communications tech

- Chapters 7-9: how technology can be used to gain competitive advantage

- Chapters 10-12: how IT departments work, IT architecture, IS ethics, green IT, privacy, and security