

ACS-1803

# Introduction to Information Systems

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## Social Impact of Information Systems

### Lecture Outline 13



# Principles and Learning Objectives

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- ▶ Analyze the ethical, social, and political issues that are raised by information systems
- ▶ Discuss the ethical concerns associated with information privacy, accuracy, property, and accessibility
- ▶ Define computer crime, and list several types of computer crime
- ▶ Understand the role of the IS function within an organization
- ▶ Describe the study and future of Applied Information Systems

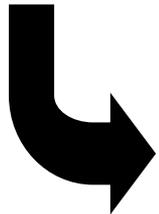
# Ethics and Crime

# Information Age Terms

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## **Computer Literacy**

Knowing how to use a computer to gather, store, organize, and otherwise process information. These are desirable and even required for many occupations today

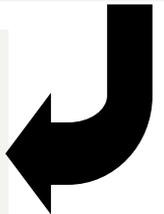


## **Digital Divide**

The gap developing in society between those that are computer literate and have access to computers and those that don't and how it will affect them

## **Computer Ethics**

The issues and standards of conduct as they pertain to the use of information systems including information privacy, accuracy, property, and accessibility



# Information Privacy and Issues

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**Information Privacy** concerns what information an individual must reveal to others in the course of gaining employment or shopping online

Privacy is the claim of individuals to be left alone, free from surveillance or interference from other individuals or organizations including the Government.

Claim to privacy is protected by the Canadian Charter of Rights and Freedoms

In 2000, in Canada, Personal Information Protection and Electronic Documents Act (PIPEDA)

However, privacy can be challenged by the Internet: cookies, spyware

# Information Property - PIPEDA

## ***Personal Information Protection and Electronic Documents Act (PIPEDA)***

The law gives individuals the right to

- know why an organization collects, uses or discloses their personal information;
- expect an organization to collect, use or disclose their personal information reasonably and appropriately, and not use the information for any purpose other than that to which they have consented;
- know who in the organization is responsible for protecting their personal information;
- expect an organization to protect their personal information by taking appropriate security measures;
- expect the personal information an organization holds about them to be accurate, complete and up-to-date;
- obtain access to their personal information and ask for corrections if necessary; and
- complain about how an organization handles their personal information if they feel their privacy rights have not been respected.

# Information Property - PIPEDA

## ***Personal Information Protection and Electronic Documents Act (PIPEDA)***

The law requires organizations to:

- obtain consent when they collect, use or disclose their personal information;
- supply an individual with a product or a service even if they refuse consent for the collection, use or disclosure of your personal information unless that information is essential to the transaction;
- collect information by fair and lawful means; and
- have personal information policies that are clear, understandable and readily available.

# Information Accuracy

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## **Information Accuracy**

Concerned with assuring the authenticity and fidelity of information, and identifying those responsible for information errors that harm people

## **Sources of information error**

Errors in computer output can come from two primary sources. These are:

- **Machine Errors** – errors in the computer program logic, communication and/or processing that receives, processes, stores, and presents information
- **Human Errors** – errors by the person(s) entering data or information into the computer system

# The Need for Ethical Behaviour

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## **Ethical Behaviour**

Illegal versus unethical behaviour is an information age concern. Though activities are not explicitly *illegal*, questions exist of whether they are unethical, such as:

- **Photograph manipulation/modification** – in this circumstance, the photograph no longer reflects absolute reality
- **Unauthorized use of computers** – at work or at school, “stealing time” for personal business or use
- **Information collection** – by companies compiling information to sell for profit

# Computer Crimes

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## **Computer Crime**

The act of using a computer to commit an illegal act. The broad definition of computer crime can include the following:

- **Targeting a computer while committing an offense** (e.g. gaining entry to a computer system in order to cause damage to the computer or the data it contains)
- **Using a computer to commit an offense**  
(e.g. stealing credit card numbers from a company database)
- **Using computers to support criminal activity**  
(e.g. drug dealer using computers to store records of illegal transactions)

# Computer Crime – Unauthorized Access

## Unauthorized Access

A person gaining entry to a computer system for which they have no authority to use such access

**THIS IS A COMPUTER  
CRIME!**



# Hacking and Cyber Vandalism

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- ▶ **Hacker** = individual who intends to gain unauthorized access to a computer
  - ▶ **Cracker** = hacker with criminal intent
  - ▶ Typically excited by thrill of breaking into corporate/govt sites
  - ▶ [Ransomware - Anatomy of an Attack](#)
- Definitions taken from: Perrin, Chad (2009). *Hacker Vs. Cracker*.  
<http://www.techrepublic.com/blog/security/hacker-vs-cracker/1400>
- ▶ **Cyber vandalism** = methods used to intentionally disrupt, deface, or destroy a site
- ▶ **White hats** = good hackers hired to help locate/fix security flaws by hacking into site externally
- ▶ **Black hats** = hackers who act with intention of causing harm
  - ▶ E.g., reveal confidential or proprietary information due to belief that the info should be free
- ▶ **Grey hats** = hackers who believe they are pursuing greater cause by breaking in and revealing system flaws
  - ▶ Reward: prestige of discovery of security flaws; recognition i.e. Anonymous

# This is NOT Ethical Hacking!



Individuals appearing in public as Anonymous, wearing Guy Fawkes masks.

A member holding an Anonymous flier at Occupy Wall Street, a protest that the group actively supported, September 17, 2011

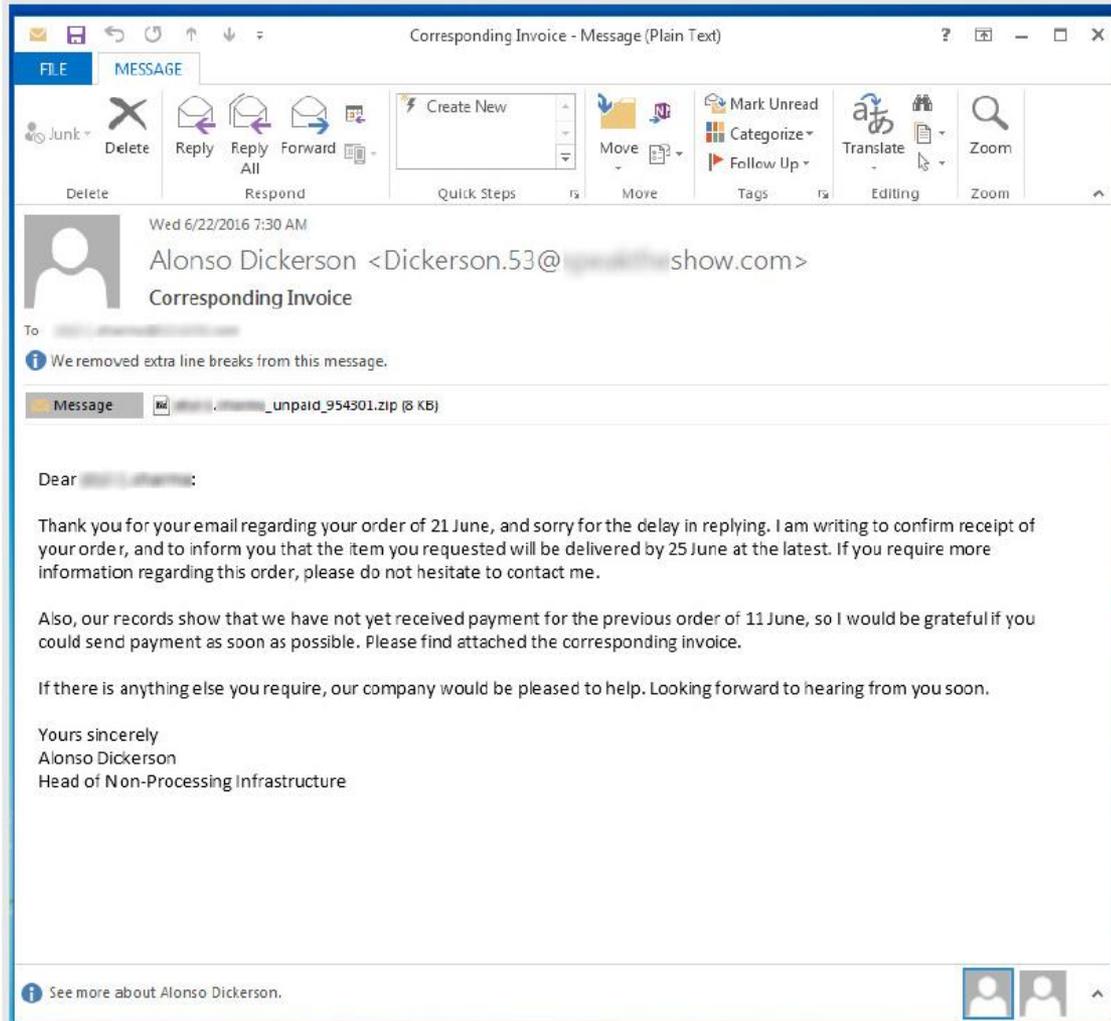


# Phishing

- ▶ Like “fishing” for information
- ▶ Deceptive online attempt by third party to get confidential information for financial gain
- ▶ No malware involved
- ▶ Uses straight forward misrepresentation and fraud
- ▶ Analogous to a con artist, who tricks people into voluntarily giving what is requested
- ▶ E.g., email scams, account verifications, quota exceeded
- ▶ Offers to give you something as long as you respond with certain information



# Example of Phishing



# Bill C-51

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- ▶ Bill C-51, also known as the Anti-terrorism Act, 2015, was designed to, “encourage and facilitate information sharing between Government of Canada institutions in order to protect Canada against activities that undermine the security of Canada.”
- ▶ The Conservative Party introduced the act in January 2015 after the Parliament Hill shooting October 2014. The government wants to allocate more power to police services and security institutions like the [Canadian Security Intelligence Service \(CSIS\)](#) to keep a closer eye on potentially dangerous terrorism situations and prevent future attacks.
- ▶ According to the act’s official summary, Bill C-51 would ensure safer transportation services for Canadians, allow law enforcement to step in and arrest, without question, a person they suspect is about to carry out a terrorist attack, and it would increase the protection of witnesses who come forward with information on a potential terrorist attack.
- ▶ Civil liberty groups and other critics have claimed the bill stretches the definition of security to potentially include peaceful protests, further restricts freedom of expression, and raises privacy concerns, since the act would allow federal institutions such as Health Canada and Revenue Canada to share private information with the RCMP. Critics have also expressed grave concerns that it fails to define terrorism clearly, and in attempting to remove all terrorist propaganda from the Internet will effectively try to censor freedom of expression on the Internet.
- ▶ [Bill C-51 received royal assent on June 18, 2015 amidst much controversy.](#)



# Maintaining Professionalism on Facebook

# Maintaining a Professional Image Utilizing Social Network (Facebook)

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- ▶ **Choose your “friends” wisely.**
  - ▶ Avoid “friending” individuals that may post inappropriate comments on your wall or send you inappropriate group requests.
  - ▶ Do not accept friend requests from anyone you do not know.
- ▶ **Post content with discernment.**
  - ▶ Any content posted on Facebook should be considered public information.
  - ▶ Only display on your profile or page what you would display on your desk (Sohn, 2007).
  - ▶ Think about your coworkers, supervisors, clients, or even the university president walking by.
- ▶ **Never use Facebook as an outlet for frustration.**
  - ▶ You never want to post content that you will regret later.

# Maintaining a Professional Image Utilizing Social Network (Facebook)

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- ▶ **Be cautious with the applications that you add to any professional Facebook page you create.**
  - ▶ If you create a Facebook group for your Extension program, be careful of the links that you share with group members.
  - ▶ These links should be relevant, timely, and of interest (professionally) to members of the group (Sohn, 2007).
- ▶ **If you create it, you have to update it.**
  - ▶ If you do not update it frequently, visitors to your Facebook page will lose interest in the page, and you will lose an opportunity to share with people the great things you are doing!

# Maintaining a Professional Image Utilizing Social Network (Facebook)

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- ▶ **Take advantage of Facebook as a networking tool.**
  - ▶ Remember that your professional Facebook page is a chance to network with other Extension professionals.
  - ▶ Search for other Facebook group pages for programs like yours to learn about what other states are doing and to share information.
- ▶ **Spend time learning about privacy settings.**
  - ▶ Privacy settings are essential to ensuring a positive Facebook experience.
  - ▶ Facebook has implemented many privacy settings, from controlling the privacy of each element of your page to creating lists that help you organize your friends.

# Maintaining a Professional Image Utilizing Social Network (Facebook)

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If you are going to have a professional Facebook page for yourself:

- ▶ **Keep the “Info” section to a minimum.**
  - ▶ Think about this section of your Facebook page as your resume—what you include in that, you can include in this section.
- ▶ **Err on the side of caution.**
  - ▶ Remember to exercise caution when posting photos to your page, especially if you are working with youth.
- ▶ **Be intentional.**
  - ▶ Have a reason for the comments you make. Again, would you be comfortable with your coworkers, clients, and supervisors reading what you have posted?

# The IS Function within an Organization

# Main Duties and Functions

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- ▶ Manage computer operations
  - ▶ Includes all current information systems
- ▶ Manage and carry out new system development
- ▶ Manage IS personnel
- ▶ Budget of the department
- ▶ Help organization to plan for strategic, tactical and operational systems
- ▶ Justify financial investment in information systems



# Typical Organizational Structure

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- ▶ Chief Information Officer
  
- ▶ Divisions:
  - ▶ 1. Operations
  - ▶ 2. Development
  - ▶ 3. End-User services





# Chief Information Officer (CIO)

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- ▶ Responsible for
  - ▶ Strategic IS planning
  - ▶ Ensuring that all IS plans, systems and operations support the organization's overall strategy
- ▶ May also be called the VP of Information Systems or Director of Information Services

# Operations and Development

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- ▶ **Operations Division:**
  - ▶ Computer facilities management
  - ▶ Management of running current info systems
  - ▶ Database administration
  - ▶ Telecommunications management
- ▶ **Development Division**
  - ▶ Has section of systems analysts, data analysts and programmers working on developing new systems
  - ▶ Has another section of personnel maintaining current systems

# MIS Steering Committee

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- ▶ Set policies and priorities for the IS Department (e.g., which systems to develop next)
- ▶ Approves budgets for major projects
- ▶ Usually composed of the CIO and other members of the organization's senior management (eg. Marketing and Finance VPs)



# User Support (End User Services Division)

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- ▶ Information Centre

- ▶ May help users develop their own smaller systems
- ▶ May train them in learning generic application software
- ▶ Operates Help Desk for user software problems

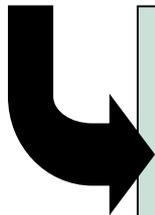


# Three Distinct Competencies of IS Professionals

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## Technical

- Knowledge of hardware, software, networking, and security
- Most IS professionals are not deep technical experts but can direct/manage others with the required technical skills

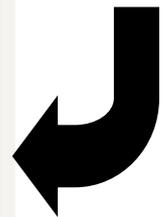


## Business

- Understand the nature of business including process, management, social, and communication domains
- Unique skills over those with only technical skills

## Systems

- Knowledge of approaches and methods, also possess critical thinking and problem solving skills necessary to build and integrate large information systems
- Unique skills over those with only technical skills



# Applied Computer Science

# Applied Computer Science Department

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- ▶ Implementing an “Information Systems” pattern, and also “Health Informatics” pattern
  - ▶ Less technically and programming oriented than traditional applied cs
  - ▶ Courses:
    - ▶ I805 Introduction to Programming
    - ▶ I809 **Website Design and Development**
    - ▶ I903 Programming Fundamentals
    - ▶ I803 Intro to Information Systems
    - ▶ 2814 **Applications of Database Systems**

# IS Pattern

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## ▶ More courses:

- ▶ 2909 Introduction to Internet Programming
- ▶ 2913 Software Requirements Analysis and Design
- ▶ 2916 Business Application Systems
- ▶ 3801 Principles in Information Systems
- ▶ 3816 User Interfaces in Information Systems
- ▶ 3811 Telecommunications
- ▶ 3907 eCommerce
- ▶ 3923 Technical Writing

# The End

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- ▶ Good Luck on Exams and in Future!!!

