CIS 450 - Exam 1 Review Suggestions

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• You are responsible for material covered in class sessions, homeworks, and assigned course reading; but, here's a quick overview of especially important material.

• You are permitted to bring into the exam a single piece of paper (8.5" by 11") on which you have **handwritten** whatever you wish on one or both sides. This paper must include your name, it must be handwritten by you, and it will **not** be returned.
  
  – Other than this piece of paper, the exam is closed-note, closed-book, and closed-computer.

**Business Information Systems: An Overview**

• See the Week 1, Lecture 2 slides posted on the course Moodle site

• What evidence does the Hackett Group study use to conclude that Information Technology (IT) matters?

• What are some of the advantages of digital systems for information management?

• What is a problem? What is a decision? How do these relate to information management?
  
  – You should be able to give an example of a problem within an organization and discuss how a computer-based information system might be used to help to deal with that problem.

• What are some of the activities that information systems are intended to support?

• Knowledge hierarchy, part 1: What is data? What is information? How do these levels of the knowledge hierarchy differ? Which is more useful within an organization, typically?
  
  – Knowledge is "added" to this hierarchy in the projected Week 3, Lecture 1 notes;

• In the context of Information Management, what is a process? How does a process relate to data and information?

• What are some of the factors that make information useful?

• What are some of the benefits of human-computer synergy?

• What are some of the pieces of an information system?

• What are some of the trends that have made information systems important in business?

• What are the 4 stages of processing?

• What are some of the types of information systems? What does each of these types of systems do?

• What are some of the careers related to Information Systems? What are some of the typical activities/responsibilities of people in these careers?
Intro to UML

- See the mandatory readings on UML from the public course web site;
  - also see the brief projected notes from Week 2, Lecture 2, and
  - the posted examples and descriptions related to your in-class presentations

- What is UML? Why was it created? What does it hope to allow?

- Remember: "... UML is a 'language' for specifying and not a method or procedure" (http://www.sparxsystems.com/uml-tutorial.html)

- What aspects of systems can be described using UML? What are some of the levels of abstraction that a system can be modeled at, using UML?

- Be familiar with the following kinds of UML diagrams (an * indicates a type of diagram you are expected to know about in more detail):
  - Structure diagrams (represent static application structure):
    - *Class diagram
    - *Object diagram
    - *Component diagram
    - Composite structure diagram
    - *Package diagram
    - *Deployment diagram
  - Behavior diagrams:
    - *Use Case Diagram
    - *Activity Diagram
    - *State Diagram
  - Interaction diagrams (all derived from the more-general behavioral diagrams):
    - *Sequence diagram
    - Communication diagram
    - Timing diagram
    - Interaction overview diagram
    - *Collaboration diagram

- I will not ask you to draw a UML diagram; I may ask you to identify the type of a UML diagram, or to describe what it is depicting; I may also ask about the purposes of different types of UML diagrams.

- What are two examples of free, Java-based UML editors? What are some of the diagram types they support?
Building a Knowledge Management Infrastructure

- See the Week 4, Lecture 1 slides posted on the course Moodle site
- adding Wisdom and Insight to the knowledge hierarchy; how do these "fit" in this hierarchy?
  - be able to discuss some of the potential distinctions between the now-5 levels discussed as being part of the knowledge hierarchy;
  - of the 5 levels in the knowledge hierarchy that we discussed, which are more data-oriented? which are more people-oriented?
- What is a Knowledge Management System (KMS) (basic definitions)?
- Note that a KMS isn’t limited to simply disseminating knowledge – it may also attempt to better manage it, enhance it;
- A KMS isn’t just a web site, nor just a database+application; it may include a variety of components to meet the above-discussed goals; (so, it may include web sites and/or database + applications and/or data warehouses/data marts and/or expert systems and/or machine learning systems and/or groupware and/or wikis and/or intranets and/or etc.)
  - (we also discussed a slightly-alternate view, that a KMS is one application used for knowledge management in a setting...that it is a part of a larger overall knowledge management strategy...)
    - in this paper (“Knowledge Management: An Evolutionary View”), what were the 4 types of KMS's discussed?
    - what is the major purpose of each of these 4 types?
- Be able to distinguish between:
  - Tacit knowledge
  - Explicit knowledge
  - be able to discuss/characterize tacit and explicit knowledge, as well; be able to give examples of each within a given scenario;
- Note that KM can apply in a wide range of scenarios (not just “a business”);
- The users of a KMS would depend on the setting for that KMS; and the views of the KMS may vary based on the category of user;
- What are some of the intangible knowledge assets of a setting?
- What are some knowledge management support systems?
- Note that knowledge does have a life cycle within a scenario – perhaps:
  - Knowledge created/acquired -> stored/organized -> distributed -> applied -> created/acquired -> etc…
  - ...and in the context of socio-cultural issues and technology;
  - another depiction: created/acquired -> stored/organized -> researched/retrieved -> revised/distributed -> created/acquired -> etc...
...and the the context of communication and collaboration;

What knowledge components might be useful in these different life-cycle stages?

- What are some of the dimensions of knowledge? (based on the idea that knowledge is multi-dimensional)
- What is the SECI model? Be able to discuss it, what it proposes;
  - what are the 4 modes of knowledge conversion in this model?
  - what are some of the benefits, disadvantages of this model?
- What is the Australia KM Framework? What is it? What is its purpose?
- What are the 4 phases of A. Tiwana's Knowledge Management Road Map?
  - What are the 5 parts discussed for the 2nd phase of this KM Road Map?

Knowledge Management Infrastructure Evaluation

- See the Week 4, Lecture 2 slides posted on the course Moodle site
- Considering, again, the 4 phases of A. Tiwana's KM Road Map:
  - what are the basic parts discussed for each of these 4 phases?
- With regard to analyzing the existing knowledge infrastructure,
  - what might be some of the typical existing knowledge in a setting?
  - what (at least potentially) does the Internet/Web provide?
  - with regard to current components already being used in a setting, how might these contribute to knowledge management in that setting?
- What are some ideas for how one might begin trying to align business and knowledge management strategy?
- What is meant by codification? by personalization? Why should these be balanced? For what kinds of settings is each more valuable?
- What are some of the requirements for knowledge transfer? What does knowledge integration promote?
- In the context of knowledge maps, what are 3 high-level classifications of knowledge that we discussed?
  - For a given setting, you should be able to give examples of knowledge at each of those levels;
- What are the 3 steps we discussed for creating a knowledge map?
- How might one "sell" the idea of knowledge management?
- What are some ideas for how one might assess one's KM strategy's focus?
- What are some critical success factors for a KM strategy?
Knowledge Management Platform

- See the Week 5, Lecture 1 and Week 5, Lecture 2 slides posted on the course Moodle site
- What are some aspects/possibilities for KM Architectures?
- What are some of the layers that we discussed as possible/potential layers for the building blocks of a KM Architecture?
- What is the major goal of the User Interface layer? What is typically used nowadays for this? (within what application is it often built?)
  - What are some of the desired attributes/requirements for this layer?
- What are some of the major goals of the Authorized Access Control layer?
- What kinds of components might be included in the Collaborative Filtering and Intelligence layer?
  - What are the purposes/goals of the different kinds of components that might be included in this layer?
- What kinds of components might be included in the Knowledge-Enabling Application layer? What is this layer's ultimate goal?
- What kinds of components might be included in the Transport layer? What does this layer seek to ensure?
- What is the focus and purpose of the components in the Middleware layer?
- What kinds of components might be included in the Physical Repositories layer? What does this layer represent?
- Consider the Interface Layer again;
  - what do we mean by packaging knowledge? what are some of the options?
  - what are some of the options and considerations in delivering knowledge?
- What is meant by knowledge object granularity? What might be the result if this is too "large"? too "small"?
- Consider searching, indexing, and retrieving: what are the 4 kinds of searching we discussed?
  - What is meant by metasearching? What does it assist in?
  - What is meant by hierarchical searching? How does the user proceed here?
  - What is meant by attribute searching? How does the user proceed here?
  - What is meant by content searching?
  - Which of these is least efficient?
- What are some of the attribute types we discussed with regard to attribute searching?
  - be familiar with the meaning of each attribute