CIS-481: Introduction to Information Security

In-Class Exercise #1

Names of team members:

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Logistics

A. Get together with other students on your assigned team
B. Discuss and complete the assignment together. Don't just assign different problems to each teammate as that defeats the purpose of team-based learning.
C. Choose a scribe to prepare a final document to submit via Blackboard for grading, changing the file name to denote the number of your assigned team.

Problem 1

The CIA triad presents three essential characteristics of information that must be protected. However, most agree that these three characteristics are not the only ones that need to be protected. Other characteristics include authenticity, accuracy, possession, timeliness and utility. If you were tasked with creating an information security *rectangle*, instead presenting FOUR characteristics of information, which would you choose and why? *(8 points)*

Accuracy, confidentiality, integrity, possession.

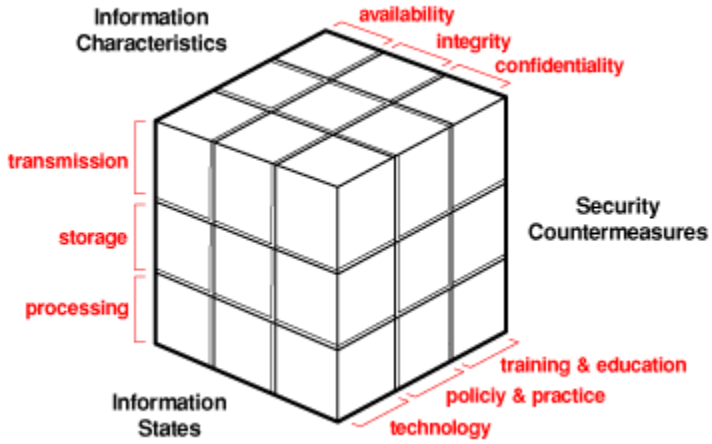
Information needs to be accurate in order to back up business processes and allow the data to be used to make informed decisions.

Confidentiality is important as it allows only authorized individuals to access the data they need, reducing vulnerabilities.

Integrity is important as information needs to be complete. Incomplete information can not be relied upon and can not be used to back up business processes.

Possession is important as it allows access to the data required. Safeguarding possession is key as breaches of possession can lead to breaches of confidentiality.

Problem 2
In 1991, John McCumber proposed a model for Information Security that uses a 3-D cube, as below. Describe the three dimensions of the McCumber cube. *(9 points)*



Information characteristics are the basic aspects of data that must be maintained by security counter measures.

Security countermeasures are policies and rules that maintain the characteristics of the date while the data is in any of its different forms.

Information states are how the data looks at any given point in time. Each form of data, be it in transmission, storage, or being processed, must have its own rules for maintaining its original characteristics and policies and security countermeasures.

Problem 3
How can the practice of information security be described as both an art and a science? How does security as a social science influence its practice? *(8 points)*

Information security can be described as an art because every system is different. The process of creating new solutions and patches for unique systems can be described as creative.

Information security can be described as a science because systems work off standards that are the same across most systems and methodical application of these standards can be used to patch and fix vulnerabilities.

Studying how people operate from high level executives to the most low-level employee can help to form policies, systems and rules to maintain information security despite the varied actions of a large body of people.