

**Preparation Sheet for MI 703 Computer Information Systems
Session #2, January 24, 2007: IT as a Value Driver**

Session Overview

In this session we will discuss five characteristics that make IT *different* from other technologies, and how these differences relate to IT's unique ability to generate value for businesses and consumers.

We will begin with a lecture/discussion surrounding the first two readings. Then we will reinforce our understanding of the five distinctive characteristics of IT using Digital Photography as a case example.

We will not be discussing the assigned IT Tutorials (on the Internet and Enterprise systems) in class. This is for self study.

Required Readings and Study Questions

1. [Lecture Note: Five Distinctive IT Characteristics: Implications for Value Creation](#),

Fichman, 2007 (Coursepack and MyFiles)

- Digital representations of content are superior (in most ways) to physical/analog representations. Why? Can you think of any exceptions to this rule?
- The digitizing of content has important implications for content creation, distribution, pricing and intellectual property protection. What have the implications been for the music industry since the rise of MP3s?
- All technologies improve over time. But IT is different, because its price/performance has been improving *exponentially* over time (Moore's Law). What does that really mean? What are the implications?
- What are the key sources of network effects? Have you ever experienced any of the implications of network effects first hand (e.g., adopting a product that lost a standards war, getting locked-in to a product)?
- One effect of commoditization is to drive down the costs of the component being commoditized. What happens when a one part of a *complementary system* of components gets much cheaper?
- Why are IT-based products so often subject to high switching costs and lock-in? Have you ever been locked into an IT product you weren't happy with? Have you ever been forced to make a painful switch from one IT product to another?

2. [Rise of the Instant Company](#), *Business 2.0*, Malik, 2003 (MyFiles)

- **Note:** you only have to quickly **skim** this article
- What kinds of IT are becoming standardized and commoditized? What kinds aren't?
- According to the authors, does standardization increase or decrease the level of IT-related innovation? Explain.

3. **Wikipedia article on [Digital Photography](#)** (web)

- **Skim** up to and including “market impact”. You will use this as a general technical background reading to support a mini case discussion of Digital Photography.
- Please be prepared to address the following questions in class:
 - What technologies, products and services make up the *ecosystem* for Digital Photography?
 - What parts of the ecosystem are subject to Moore’s law? Which are subject to network effects? To commoditization? To switching costs and lock-in?
 - How do you see the Digital Photography ecosystem evolving in the future?

4. **IT Tutorials: HowStuffWorks:**

- **[How Bits And Bytes Work](#)** (You should understand what it means to have a binary numbering system, however you don't have to actually be able to do binary math.)
- **[How Microprocessors Work](#)** (Note: read up to the section "Microprocessor Instructions" and skim the rest)
- **[How Computer Memory Works](#)** (Note: Pay special attention to the Memory Hierarchy diagram)
 - **Viewing and Printing Hints:** When you click on the links above you are taken to the "printable version" of the online article. This has the whole article on one web page, and so it is convenient for printing. (I also prefer it for viewing.)
 - Before printing you are advised to set your top and bottom margins to at least .75 inches. Otherwise you may lose part of the top and bottom lines on each printed page. In Internet Explorer you do this by pulling down the **File** menu and then clicking on **Page Setup**.

Basic terminology to be familiar with after completing the tutorials: Bit, byte, ASCII code, kilobyte, megabyte, gigabyte, terabyte, data width (a.k.a. word size, bit width), bus, bus width, microprocessor, CPU, clock speed, megahertz, MIPS, transistor, register, cache, RAM, ROM, virtual memory