Four Categories of Business Information

• Voice
• Data
• Image
• Video
Digital Information

- Bit and Outcomes
- 2 bits - 4 outcomes
- 4 bits - 16 outcomes
- 8 bits/byte - 256 outcomes
- 16 bits - 65,536 outcomes
- 32 bits - 4.3B 4,294,967,296
Voice

• Telephone is main application - so far
• 3,400 Hz bandwidth (4K) - produces moderate quality
• Hi-Fi needs about 15,000 Hz (human ear range)
• CD’s 20,000 Hz for each channel
Data

• Can be represented by symbols, for example
digits 0 through 9 (base 10) or
• binary bits (base 2)
• Can use the telephone network (currently analog based) & a modem to send data to/from computers or terminals
Image

- Pictures, charts, drawings
- Facsimile, computer-aided design (CAD,
- publishing, medical imaging
- More pixels --> better quality
  - lossy compression gives 10:1 to 20:1
  - lossless produces 5:1 compression
Video

• A sequence of images
• Very high bandwidth requirements, ~45Mbps/full motion uncompressed 1Mbps for compressed video
• HDTV Color - gigabit per second with compression
• For video 20:1 to 100:1 compression can be used