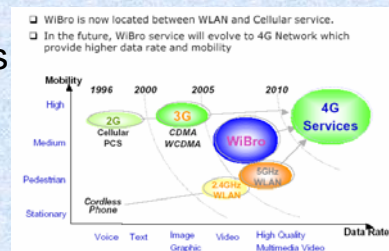# Wireless Future
Trends and Challenges

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Wireless Technology

- Cellular Radio – 3/3.5/3.9G
- Wi-Fi IEEE 802.11a/b/g/n
- Wi-Max 802.16d/e
- Wi-Bro – Korean Wireless Broadband
- 4G – WWRF
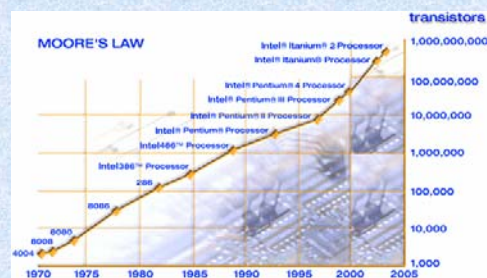- Wireless Sensor Networks
- 60 GHz LANs

Wireless Services and Applications

- Voice, text – 2G
- Image graphic, web access – 3G
- Video, VoIP, wireless office – Wi-Fi
- DMB, cellular backhaul, location – WiMax
- HD video, seamless connectivity – 4G
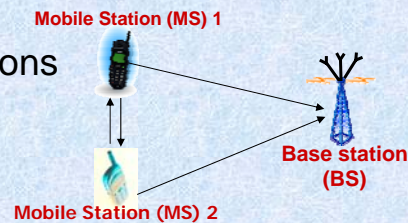- Enviromental monitoring, smart homes – WSN
- Fast data downloading – 60GHz LANs

Circuit Technology

- DSP
- FPGA
- CMOS
- Nano-technology
- 45nm silicon – 2006
- Nano-tube chips – beyond 2015

Research in Wireless

- Cooperative communications
- Cognitive radio
- Interference control
- Network coding
- Meshed networks
- Low power signal processing and VLSI design
- Interoperability of various services
- Development of 4G standard/s

Mobile Station (MS) 1

Mobile Station (MS) 2

Base station (BS)

Markets for Infrastructure and Services

- 3G deployed in developed countries
- Wi-Fi in hot-spot networks
- Wi-Max in Asia and developing countries
- Killer Applications
- 2G - messages
- 3G music downloading
- 4G – VoIP ?

3G BTS Revenue Percentage of Total, World Market: 2002 to 2007
(Source: Allied Business Intelligence, Inc)