

# Innovation in The World of Technology

Hwa-Nien Yu

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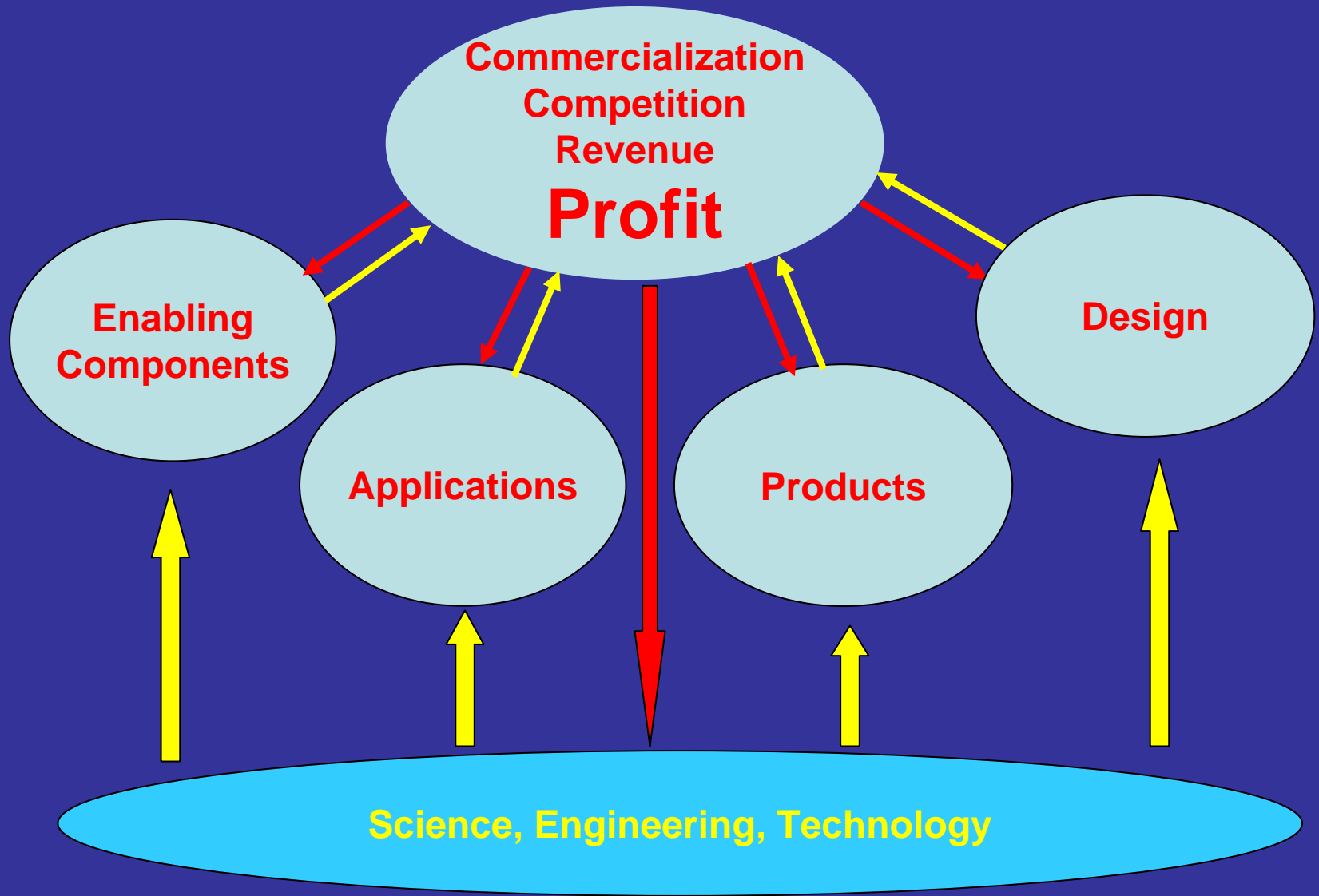
# Recent Technology Innovation Drive

- Why is there a recent push for innovation?
- Where does Technology innovation come from?
- What have we learned from IT Development?
- Are we panicking because CMOS technology is almost at the end of its life?
- Are we worried about where to go from here on in technology innovation?

# Innovation

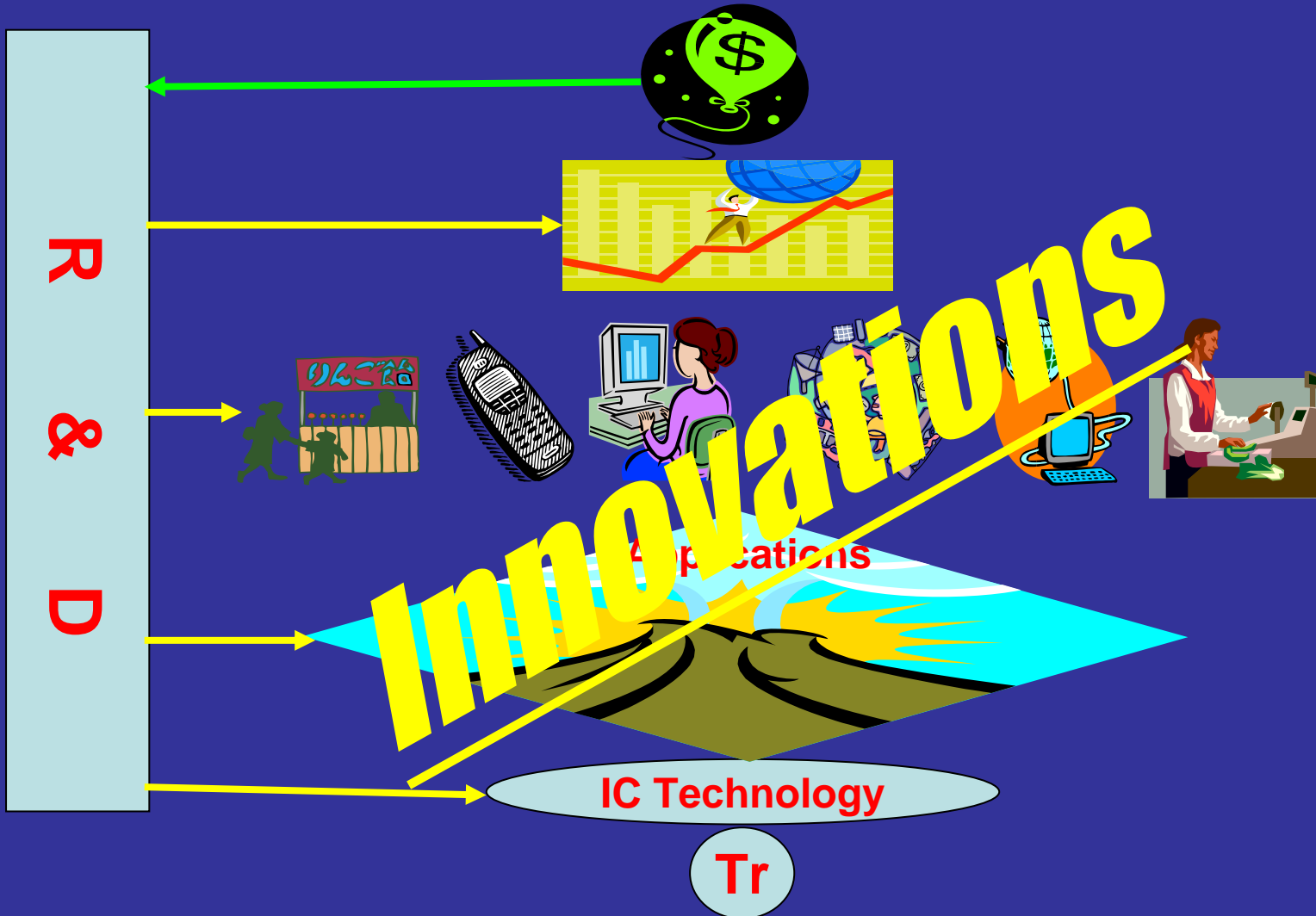
- Innovation is the successful introduction of something new and involves creativity
- Innovation is not a discipline, it's more like a process or mindset
- Innovation has no boundary. It's everywhere
- It's global, multidisciplinary, and wide open
- To survive and thrive in their endeavor, everybody including common workers and leaders which include CEOs, business leaders, officials, academic researchers and community leaders are all put their minds into innovation
- What we learned from technology innovation can be transposed to innovation in general

# What's Driving Technology R&D



# IT Thrives on Innovations

Tr – IC – Applications – Commercialization - Business – Revenues - Profit



# Technology Innovations

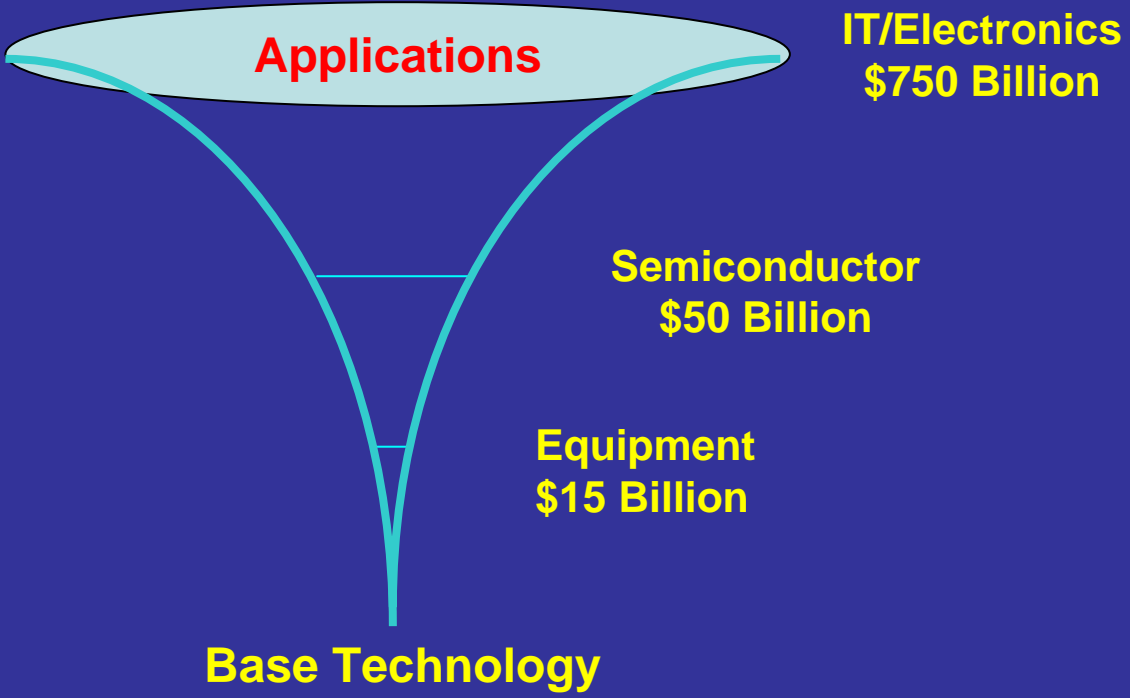
- Scientific innovations are the backbone of technology
- But It's not necessarily the driver of technology innovations

# Some Characteristics of Innovations in the Practical Technology World

- Knowledge Base
- Fundamental and Advanced Domain Knowledge
- Good Science, Engineering, Technology, Business Base
- Goal and Technology Focus
- Well Supported R&D Environment
- Vision and Experienced Guidance, Broad Perspectives, and Young Talents
- Business Driven
- Competition Driven

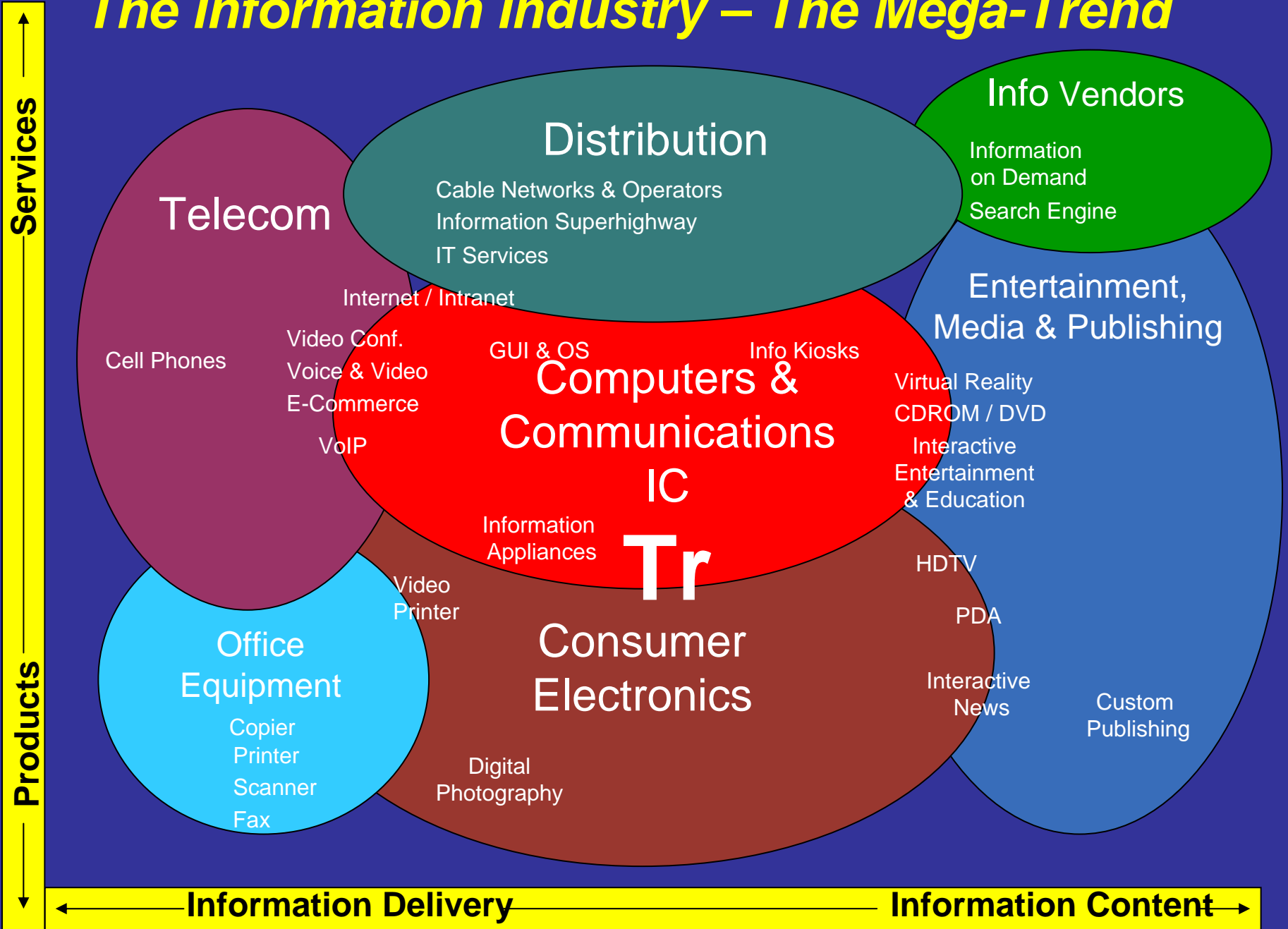
# World IT/Electronics Food Chain

1989





# The Information Industry – The Mega-Trend



# Why are there so much focus on IT Innovations?

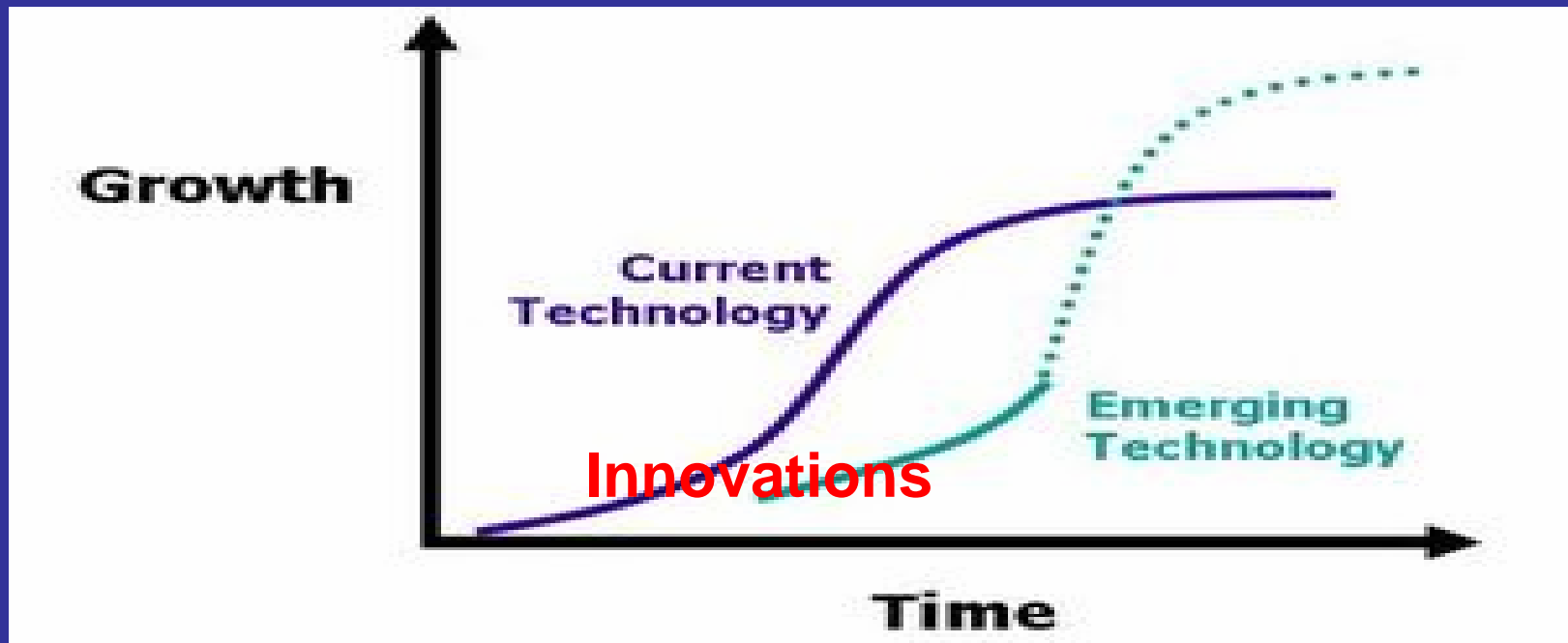
- Cater to Human Needs
- Cater to Consumer Needs
- Attractive to Business
- Quick Market Adaptability
- Industrial Adaptability (All Sizes)
- Broad Based Revenue and Profit
- Transforms and Impacts Society for the better
- Fast Economy Expansion

# Essential Attributes of IT

- Basic human curiosity in seeking new information
- Information becomes knowledge which empowers everything
- IT is transforming our life (forever)
  - The way we see, hear, smell, feel, touch, etc.
- IT transforms business
- IT drives business, profits, economy rapidly

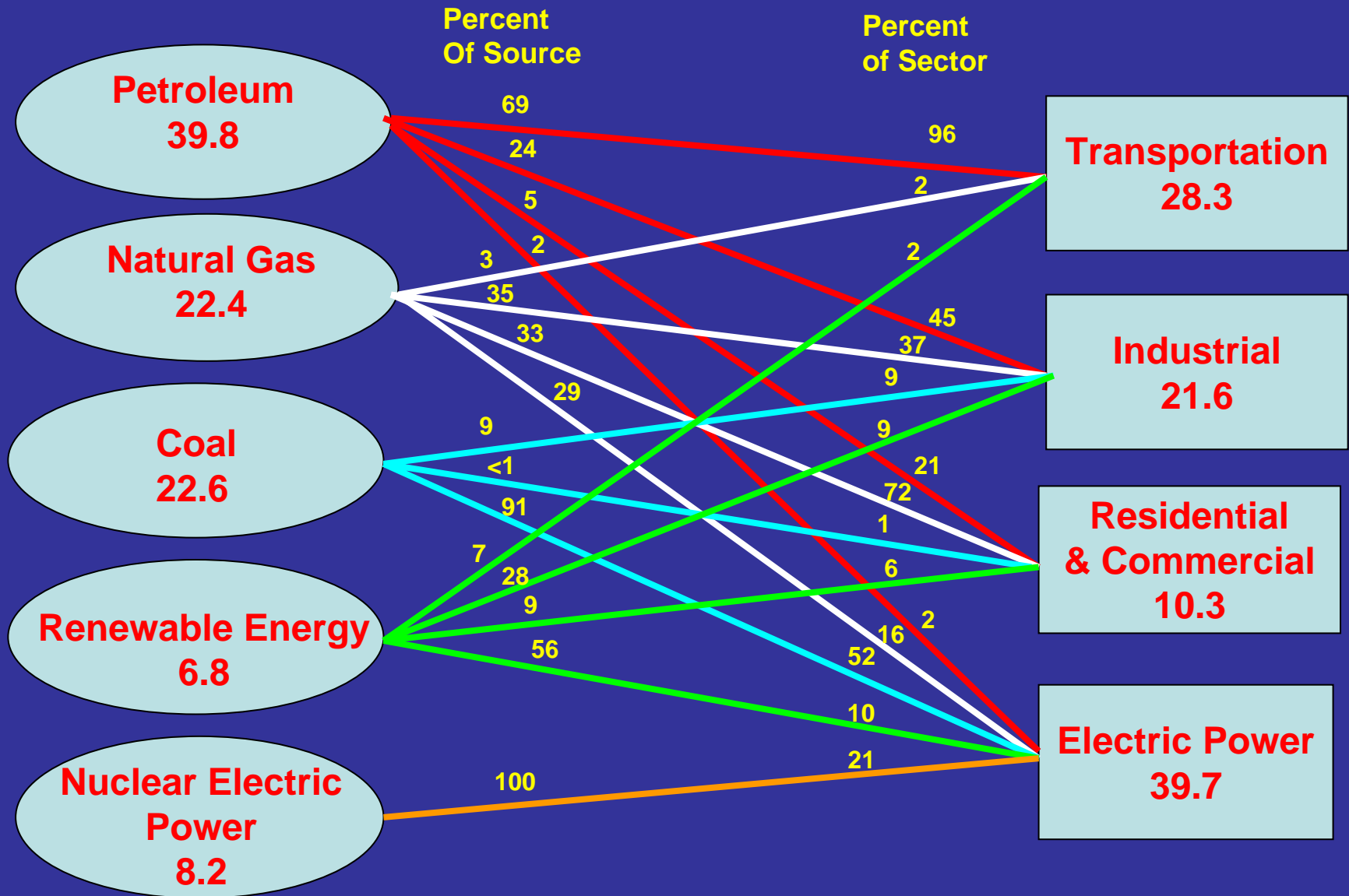
# Technology Innovations

- In rapidly expanding technology innovation arena, business revenue/profit is the prime driver
- IT will continue to drive Innovations, particularly in applications and is here to stay
- Leaders started to worry about their future endeavor: Technology, Business, Economy, etc.



- CEO are constantly on the look out for new technology base and focus for technology innovations in new areas for future expansions
- Where there is market driven revenue/profit opportunities, technology Innovation flourishes
- Any other mega technology trends in sight for future Innovations ?

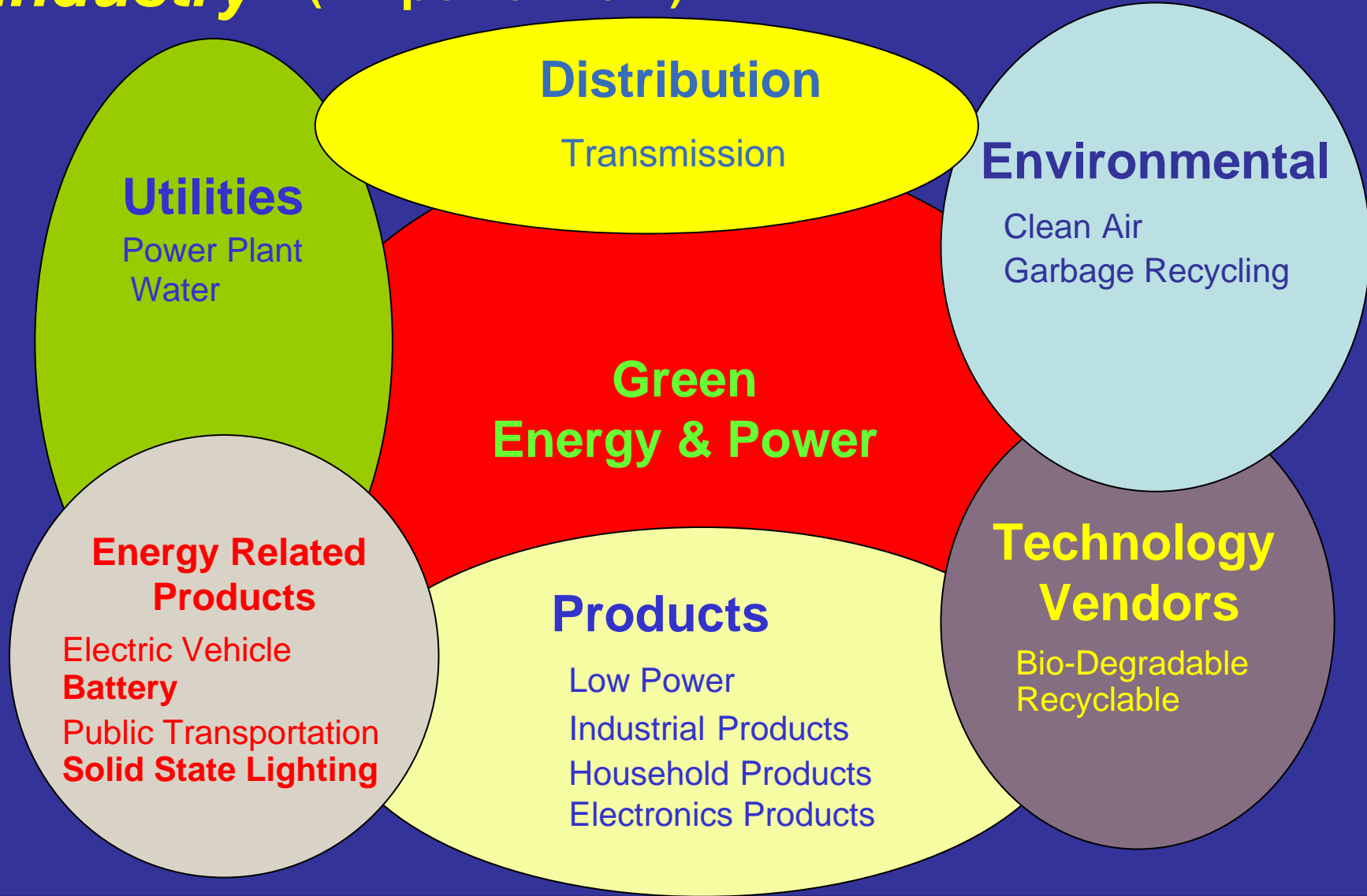
# U.S. Primary Energy Consumption by Source and Sector, 2006 (Quadrillion BTU)



Source: US Dept of Energy

# Energy & Environmental Technology Industry (Empowerment)

Services  
Products



Technology Delivery Technology Content

# Potential Technology Focuses for Innovations

- Service
- Software
- Renewable Green Energy or Power
- Low Power Consumptive Products
- Healthcare
- Nanotechnology
- Bio-XXX
- -----



# Conclusions

- Chances of finding a mega-technology “spark”, such as transistor, is slim
- It’s important to have a clear goal or focus in Technology for Innovation
- Where there is a prospect of large revenues and profits on a broad base, technology innovations will flourish
- Don’t expect old experts to innovate
  - Curse of Knowledge Phenomenon
- Technology innovations will continue un-abated