

Lecture 2: IS Perspectives and Information Technology Trends

**SIT400: MANAGEMENT
INFORMATION SYSTEMS**

January 2022

Pete Kimemiah

Objectives

- Understand the advantages of a contemporary view of information systems
- To examine current and future IT trends

Terminologies

- **Competitive Advantage:** a condition or circumstance that puts a company in a favorable or superior business position.

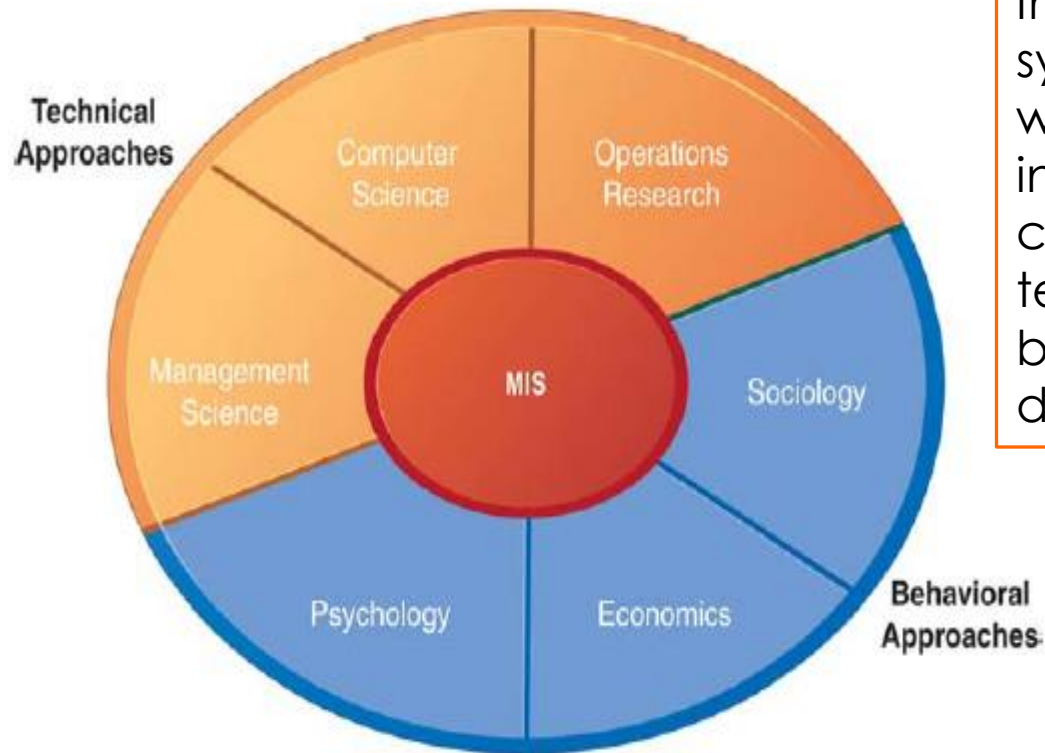
Contents

- Contemporary Approaches to Information Systems
- IT Infrastructure and Emerging Technologies

IS as Sociotechnical Systems

- Information systems are sociotechnical systems.
- Composed of machines, devices, and "hard" physical technology
- require substantial social, organizational, and intellectual investments to make them work
- Problems with information systems—and their solutions
 - Rarely all technical
 - Behavioral
 - Require multidisciplinary approach

IS as Sociotechnical Systems



Information systems deals with issues and insights contributed from technical and behavioral disciplines

IS as Sociotechnical Systems

- ◉ **Technical View**

- ◉ emphasizes on mathematically and, normative models
- ◉ physical technology and formal capabilities of these systems

- ◉ **Behavioural View**

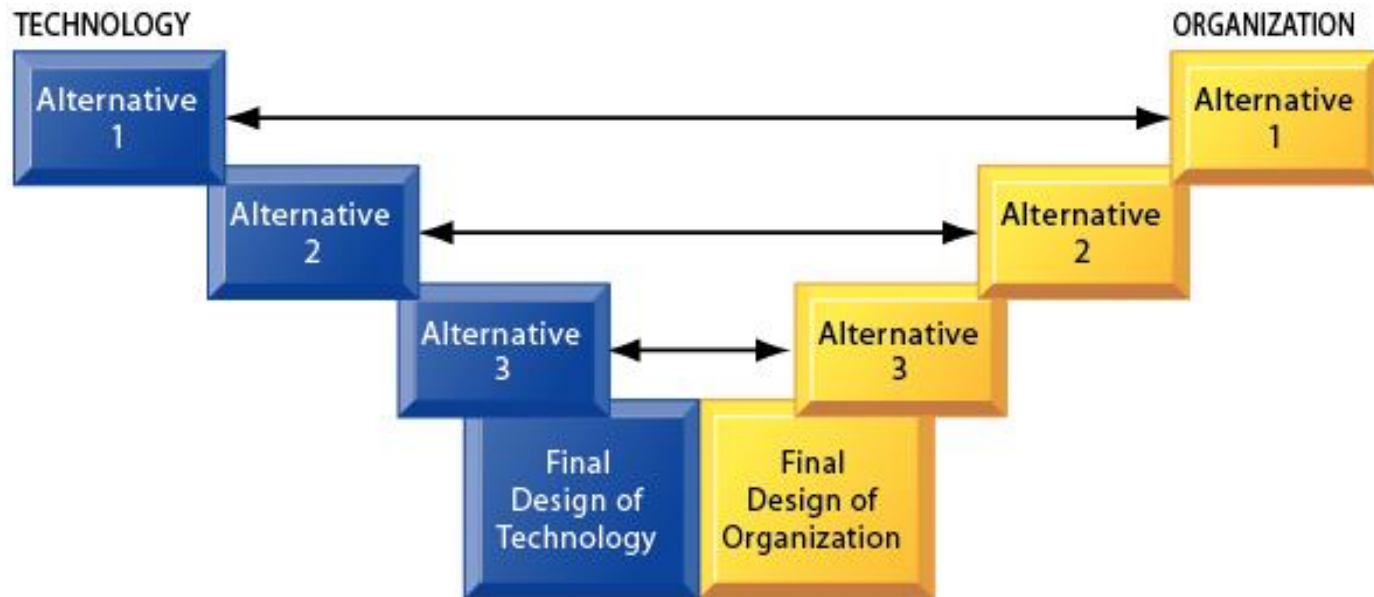
- ◉ non-technical solutions
- ◉ concentrating on
 - ◉ changes in attitudes
 - ◉ management
 - ◉ organizational policy
 - ◉ behavior

Sociotechnical Perspective or View

- ◉ optimal organizational performance by jointly optimizing both the social and technical systems used in production.
- ◉ helps to avoid a purely technological approach to information systems

IS as Sociotechnical Systems

- How much of the organization do you change?
- How much of the technology do you change?
- **RESULT: Alignment Between the two.**





IT Infrastructure and Emerging Technologies

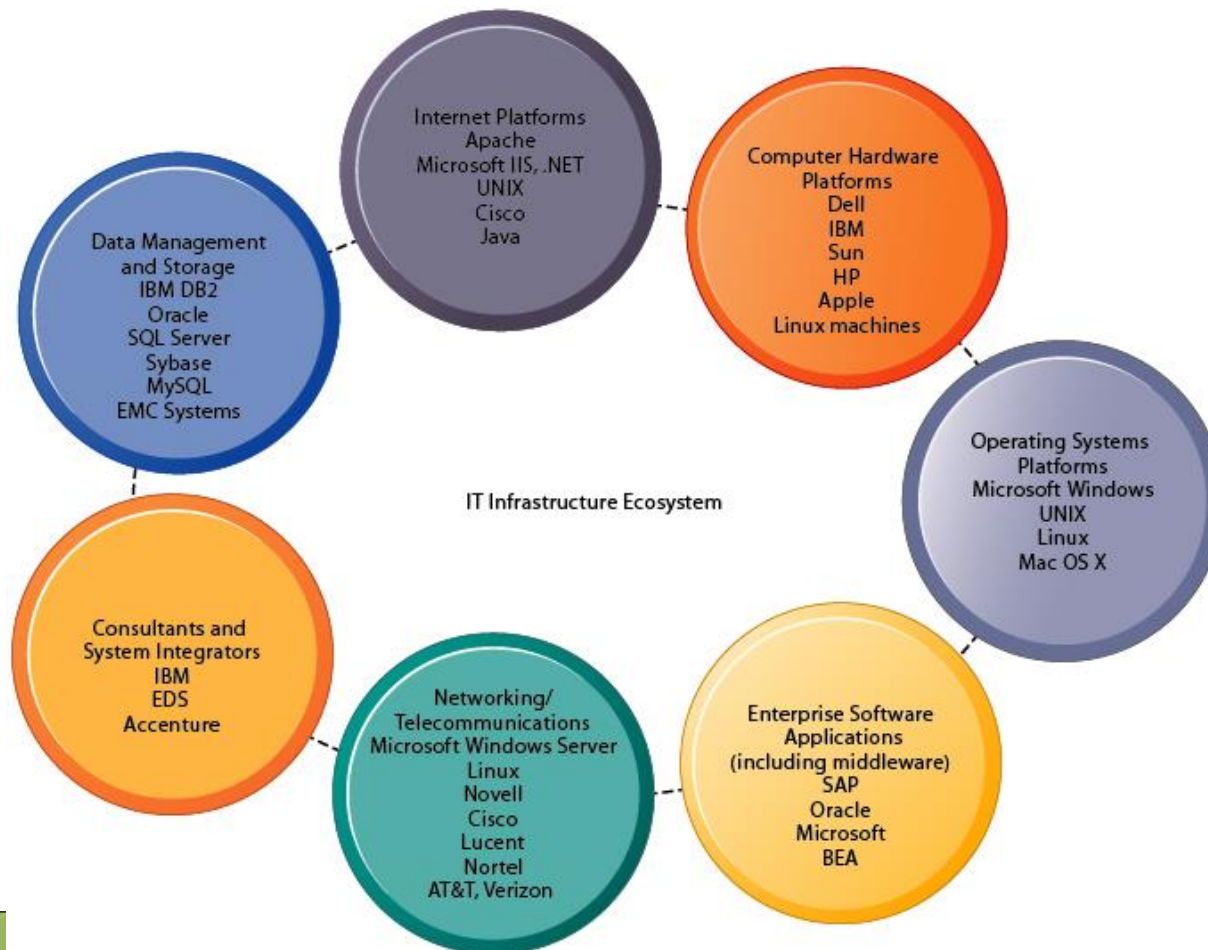
IT Infrastructure (technology or Service)

- IT infrastructure can be seen as technology or as service clusters.
- A service-based definition focuses on the services provided by the hardware and software such as:
 - computing platforms, telecommunications, physical facilities management
 - application software, data management
 - IT management, standards, educations, R&D.
- A service platform perspective highlights the business value provided by IT infrastructure.

IT Trends

- Moors Law, Cost and Performance. (3nm)
<https://www.visualcapitalist.com/visualizing-moores-law-in-action-1971-2019/>
- Lower storage cost, Faster – HDD, SSD
- Cheaper, Faster Bandwidth
- Mobile Phone proliferation – Android and AppleOS
- Cloud Services (SaaS, IaaS , PaaS)
- Hardware Virtualization
- Data Science – Analytics
- Social Media
- Machine Learning and Artificial Intelligence Internet Of Things
- New Network Standards
- Distributed Ledger Computing (Blockchain , Cryptocurrency, Smart –Things)
- Energy cost and environmental impact

Seven Major (7) IT Infrastructure ecosystem



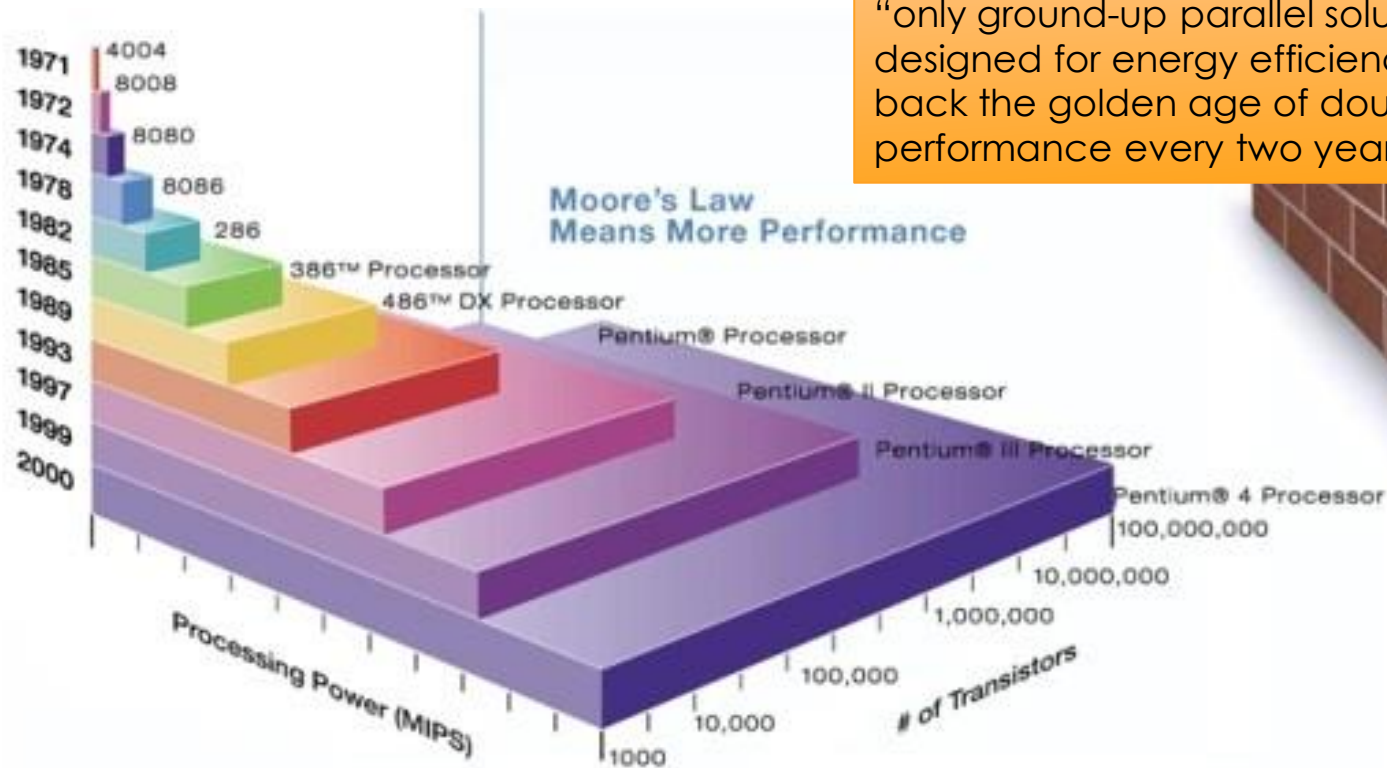
Software Platform Trends and Emerging Technologies

- **Smart spaces:** Can be referred to by a variety of names, including “smart cities,” “digital workspaces,” “smart venues” and “ambient intelligence.”
- **Homomorphic encryption:** cryptographic method that returns an encrypted result to the data owner. Essentially, this enables third parties to process encrypted data while having no knowledge about the data or the results.
- **Generative AI:** Smart spaces can be referred to by a variety of names, including “smart cities,” “digital workspaces,” “smart venues” and “ambient intelligence.”
- **Graph technologies:** These are data management and analytics techniques enabling the exploration of relationships between entities like organizations, people or transactions.

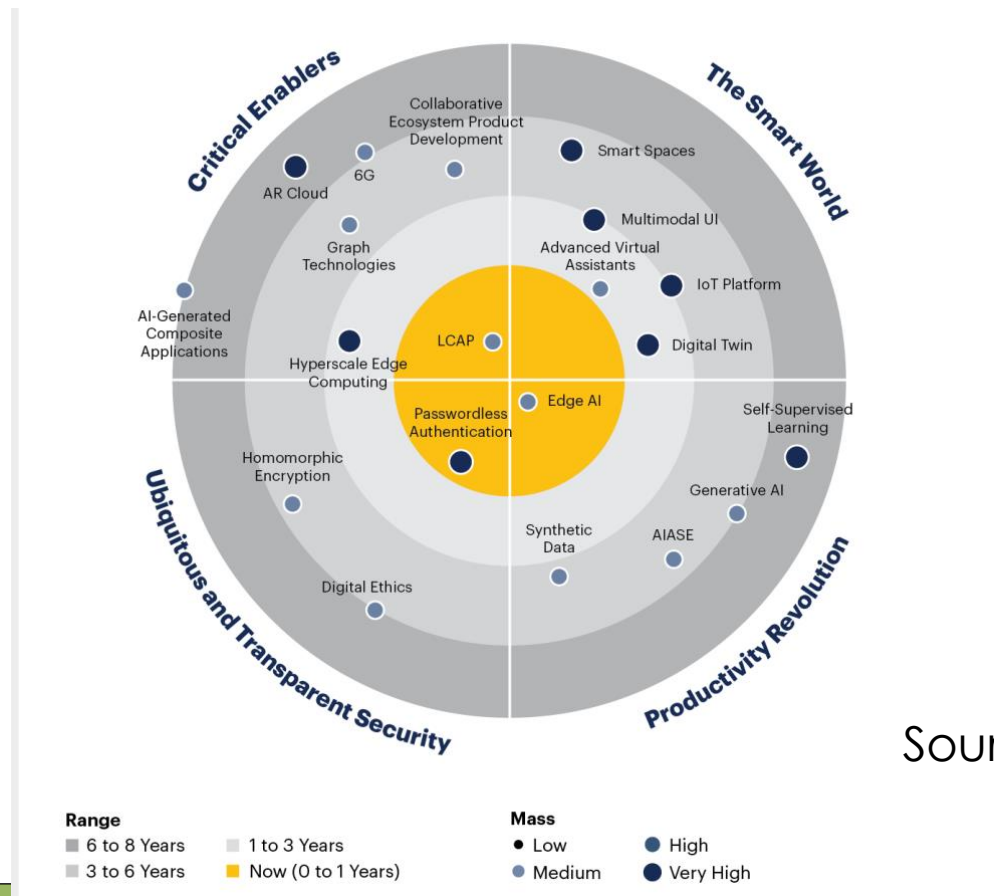
Source: Gartner.com 2021

Moors Law!

(Prof) Bill Dally VP NVIDIA in 2010 said "... **dual, quad- and hex-core solutions are inefficient and...trying to build an airplane by putting wings on a train,**" ...
"only ground-up parallel solutions designed for energy efficiency will bring back the golden age of doubling performance every two years"

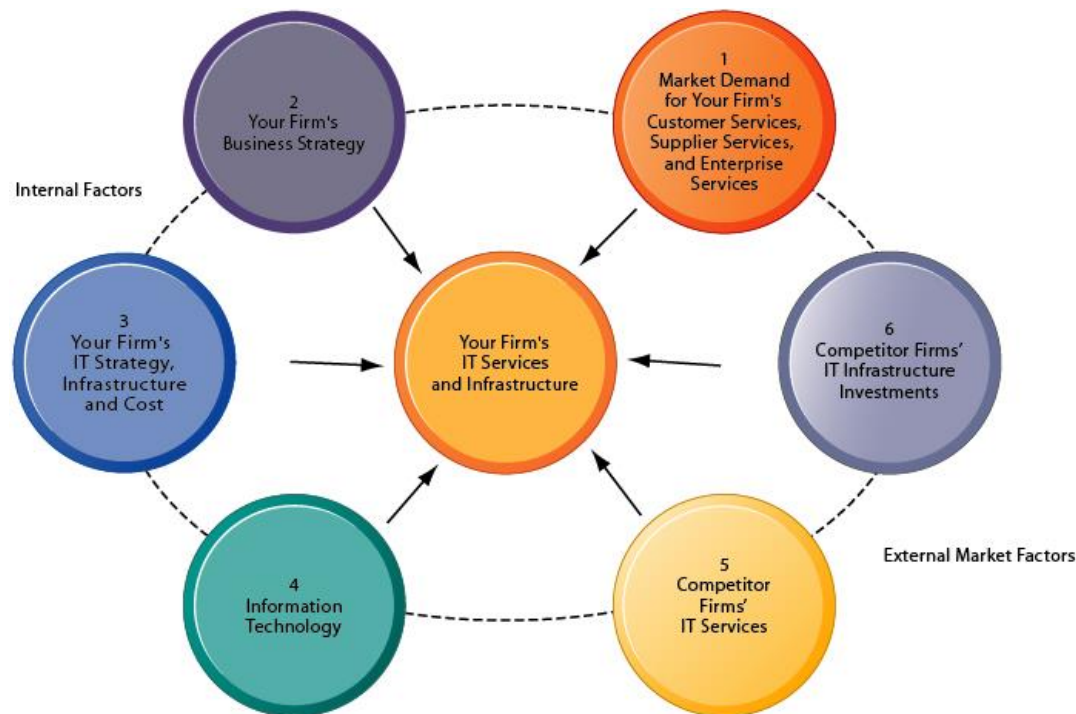


Software Platform Trends and Emerging Technologies



Source: Gartner.com 2021

Management Issues



- Dealing with scalability and infrastructure change
- Management and governance
- Making wise infrastructure investments

Summary

- We have examined the sociotechnical approach for viewing IS.
- Examined IT Infrastructure and Emerging Issues.

References

- 5 Impactful Emerging Technologies for 2022.
<https://www.gartner.com/en/articles/5-impactful-technologies-from-the-gartner-emerging-technologies-and-trends-impact-radar-for-2022> (accessed Jan. 27, 2022).