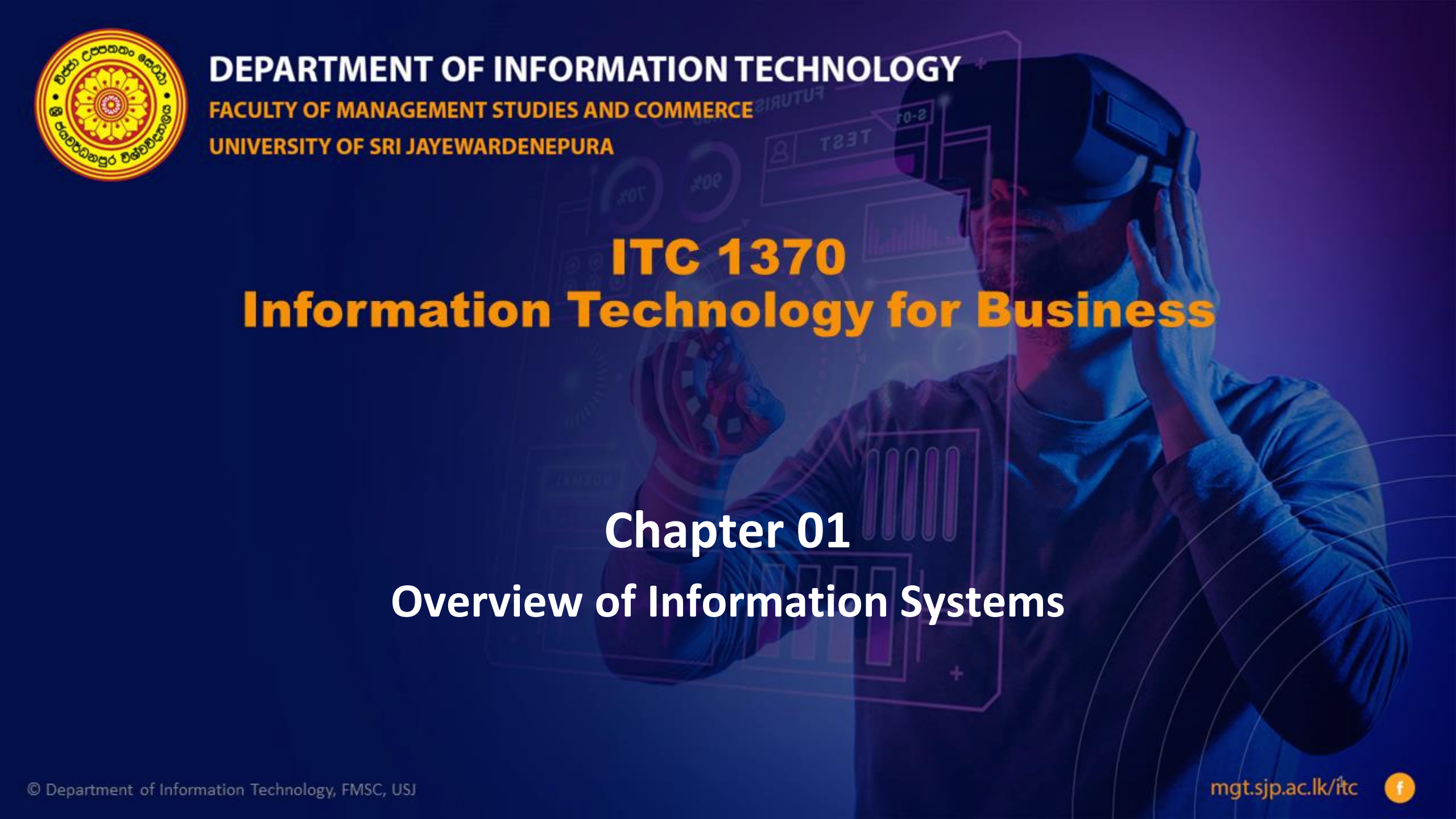


DEPARTMENT OF INFORMATION TECHNOLOGY
FACULTY OF MANAGEMENT STUDIES AND COMMERCE
UNIVERSITY OF SRI JAYEWARDENEPURA

ITC 1370
Information Technology for Business

Chapter 01
Overview of Information Systems

Learning Objectives

Upon successful completion of this chapter, you will be able to:

- Define what an information system is by identifying its major components
- Describe the basic history of information systems
- Explain several ways Information Technology is integrated into our personal lives and corporate world
- Describe the use of Information Systems to competitive advantage

How does information technology transform our lives?

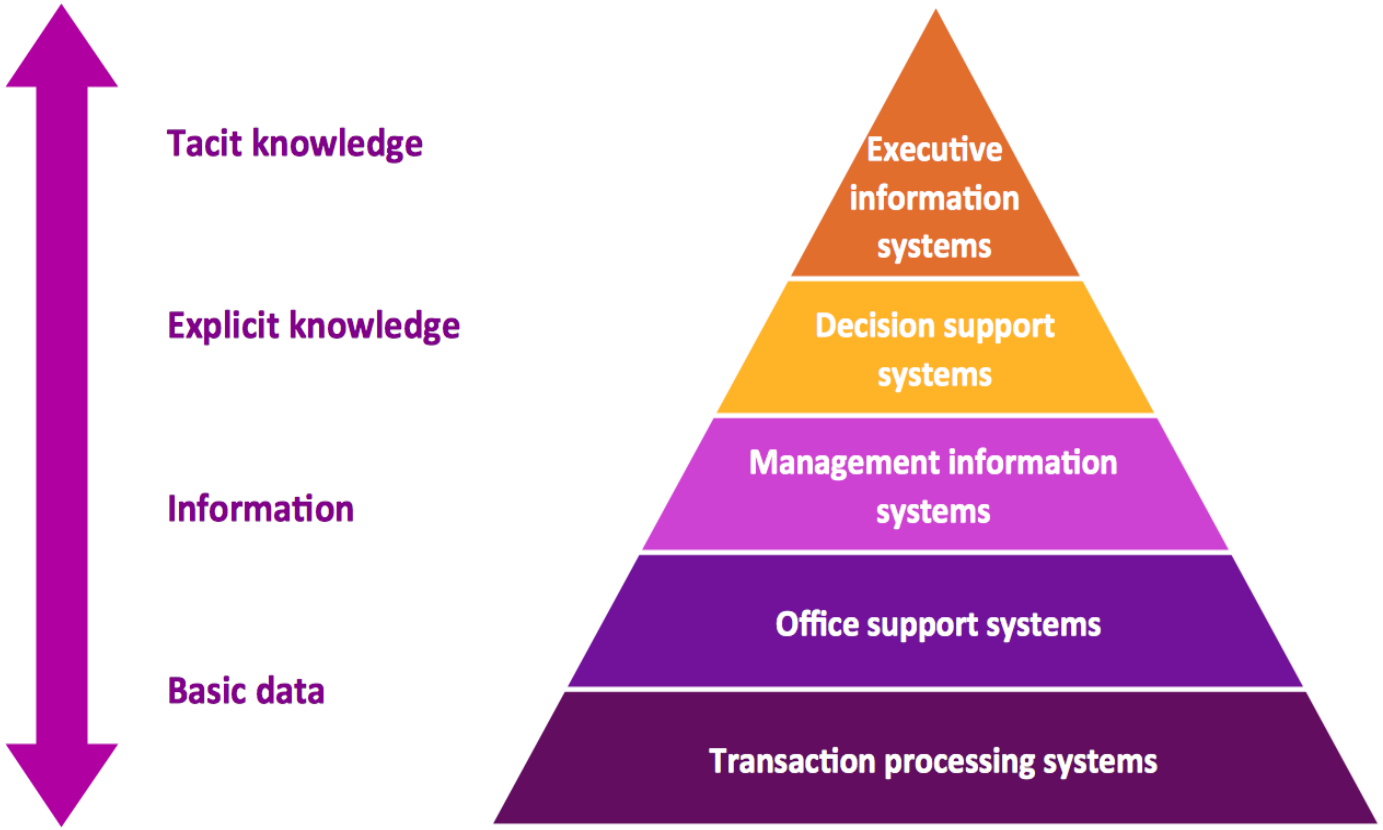
- Information technology appears almost everywhere in today's world and most people need to use a computer or a computerized device frequently on the job, at home, at school or while on the go.

Defining an Information System

- “An information system (IS) can be defined technically as a set of interrelated components that collect, process, store, and distribute information to support decision making and control in an organization”

(Laudon and Laudon, 2016)

Types of Information Systems used according to the levels of management within an organization



Defining Information Technology

- In general, information technology includes any expertise (scientific knowledge) that helps create, modify, store, manage, or communicate information.

(Reynolds, 2010)

Information Systems vs. Information Technology

IS	IT
IS refers to the management of an entire set of information and it includes the technology components, people and processes as well	IT is a subset of IS and it refers specifically to the technological components (Eg: hardware, software, database, networks etc.) that are used in the information systems
IS refers to how information is managed and used to meet an objective.	IT is about the study, design, modification, storage and communication of information.
IS acts as the bridge between technology and the user	IT focuses on helping users manage and use data and information to make sense of a system

Components of Information Systems

- Information systems can be viewed as having five major components.

Hardware | Software | Data | People | Processes

Technology Related

Hardware

- Tangible, physical portion of an information system – the part you can touch.
- Computers, keyboards, disk drives, and flash drives are all examples of information systems hardware.

Software

- A set of instructions that tell the hardware what to do.
- Software is not tangible – it cannot be touched.
- Programmers create software by typing a series of instructions telling the hardware what to do.
- Two main categories of software are: -
  - System software (Operating systems and utility programmes - Eg: Microsoft Windows, Ubuntu Linux, Antivirus software, File compression tools, Disk wipe tools)
  - Application software (Eg: Microsoft word, WordPad, Microsoft Excel, Apple Numbers)

Data

- Collection of facts (eg: your address - street, city, postal code or your phone number)
- Like software, data is also intangible.
- Pieces of unrelated data are not very useful.
- But aggregated, indexed, and organized together into a database, data can become a powerful tool for businesses.
- Organizations collect all kinds of data and use it to make decisions which can then be analyzed as to their effectiveness.

People

- From the front-line user support staff, to systems analysts, to developers, all the way up to the chief information officer (CIO), the people involved with information systems are an essential element.

Process

- A process is a series of steps undertaken to achieve a desired outcome or goal.
- Information systems are becoming more integrated with organizational processes, bringing greater productivity and better control to those processes.
- The ultimate goal is to improve processes both internally and externally, enhancing interfaces with suppliers and customers.

Networking Communication

- In today's hyper-connected world, it is an extremely rare computer that does not connect to another device or to a network.
- Technically, the networking communication component is made up of hardware and software, but it is such a core feature of today's information systems that it has become its own category.

The evolution of Information Systems

1950 - 1969 Mainframes

- Manufacturing Resource Planning Systems

1970 - 1980

- First microcomputer (PC)
- Windows operating system

Mid 1980s to early 1990s

- Client Server
- Networking
- ERP

Mid 1990s to early 2000s

- World Wide Web

Post early 2000s

- Web 3.0 now
- Mobile Computing
- Cloud Computing

The evolution of Information Systems Cont…

The Mainframe Era

- From the late 1950s through the 1960s, computers were seen as a way to more efficiently do calculations.
- The first computers were room-sized with several machines linked together.
- Primarily use to organize and store large volumes of information.
- In late 1960s, Manufacturing Resources Planning (MRP) systems were introduced.
- It gave companies the ability to manage the manufacturing process, making it more efficient.
- Dominant manufacturer of Mainframe computers : IBM

The evolution of Information Systems Cont…

The PC Revolution

- In 1975, the first microcomputer was introduced.
- Small businesses finally had affordable computing that could provide them with needed information systems.
- Most of the early PCs were standalone machines, not connected to a network.
- Manufacturers of PCs : Apple, IBM

The evolution of Information Systems Cont…

Client Server

- Allowed users to log in to the Local Area Network (LAN) from their PC (the “client”) by connecting to a central computer called a “server.”
- These networks of computers were becoming so powerful and seen as tools to collaborate within an organization.
- During this era, Enterprise Resource Planning (ERP) systems were developed and run on the client-server architecture.

The evolution of Information Systems Cont…

The Internet, World wide web and E-commerce

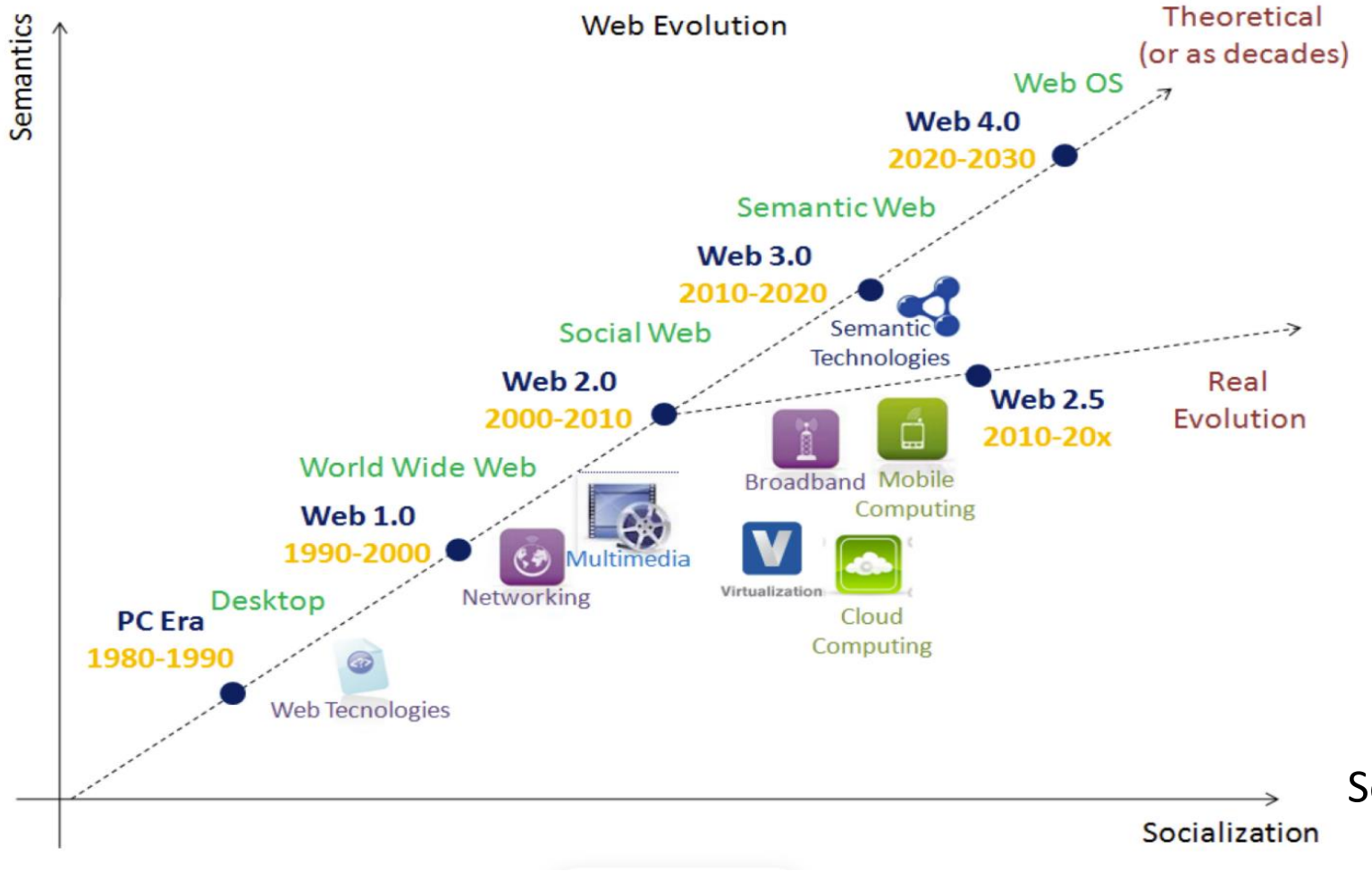
- Users of the internet were required to type commands (today we refer to this as “command line”) to communicate and transfer files.
- Introduction of the World wide web drove the use of the Internet as a way of sharing information about businesses.
- In 1994, e-commerce platform such as Amazon, eBay were introduced.

The evolution of Information Systems Cont…

Web 2.0

- New type of interactive website, where you did not have to know how to create a web page or do any programming in order to put information online, became known as Web 2.0.

Evolution of the Web



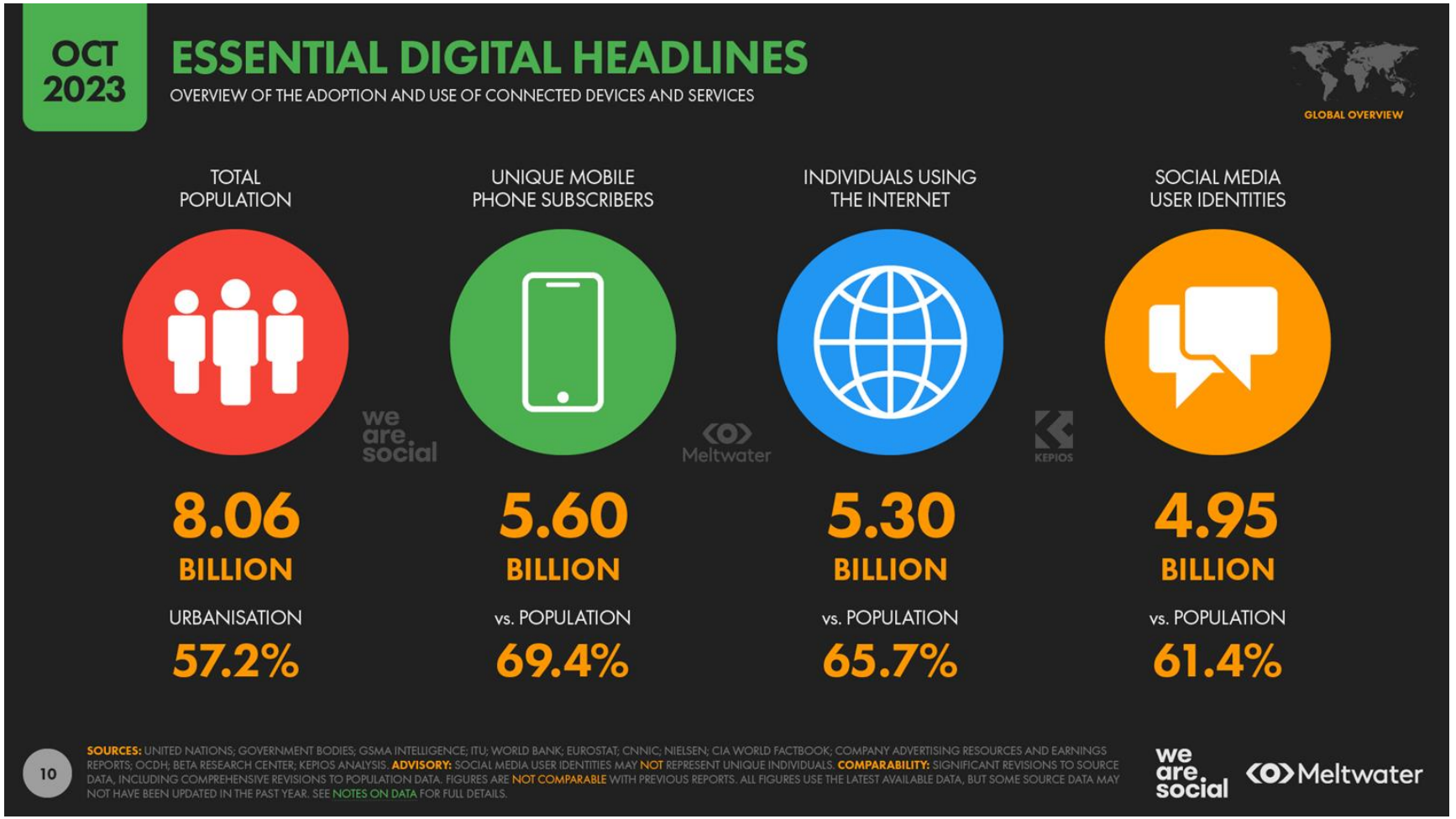
Source: medium. com

The evolution of Information Systems Cont…

Post PC era

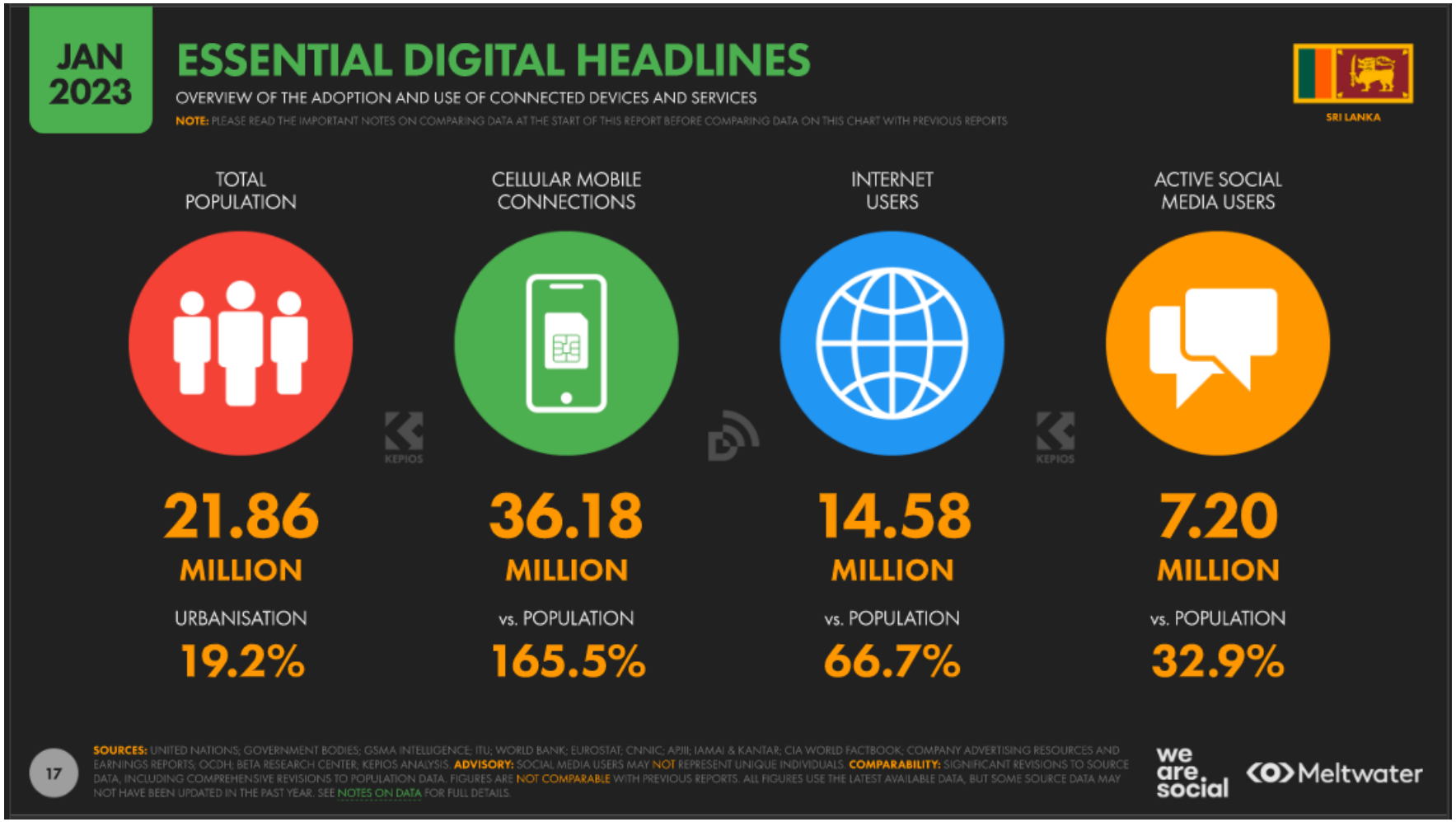
- Cloud computing provides users with mobile access to data and applications, making the PC more of a part of the communications channel rather than a repository of programs and information.

Adoption and use of connected devices and services - Worldwide



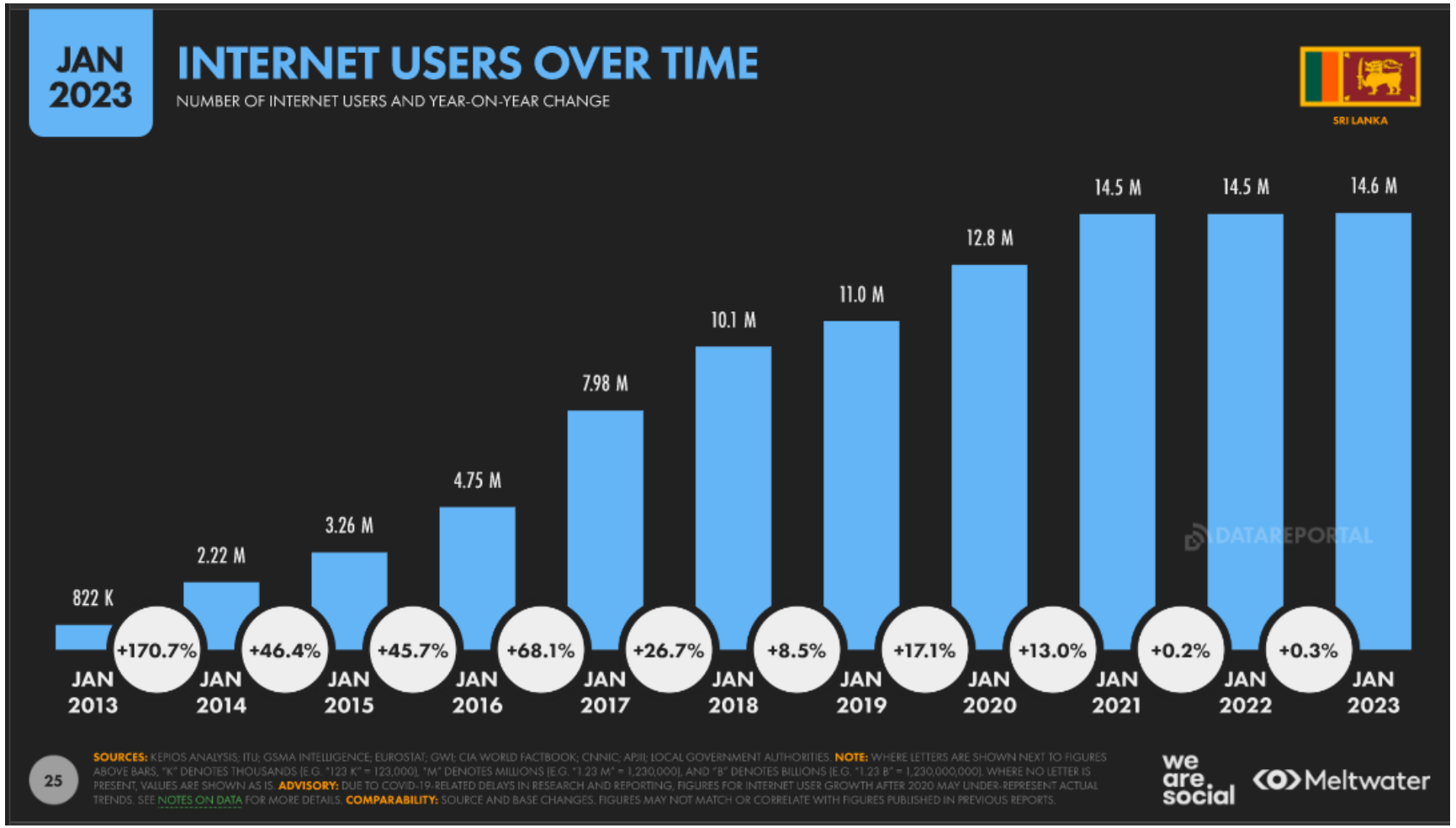
Source: https://datareportal.com/

Adoption and use of connected devices and services - Sri Lanka



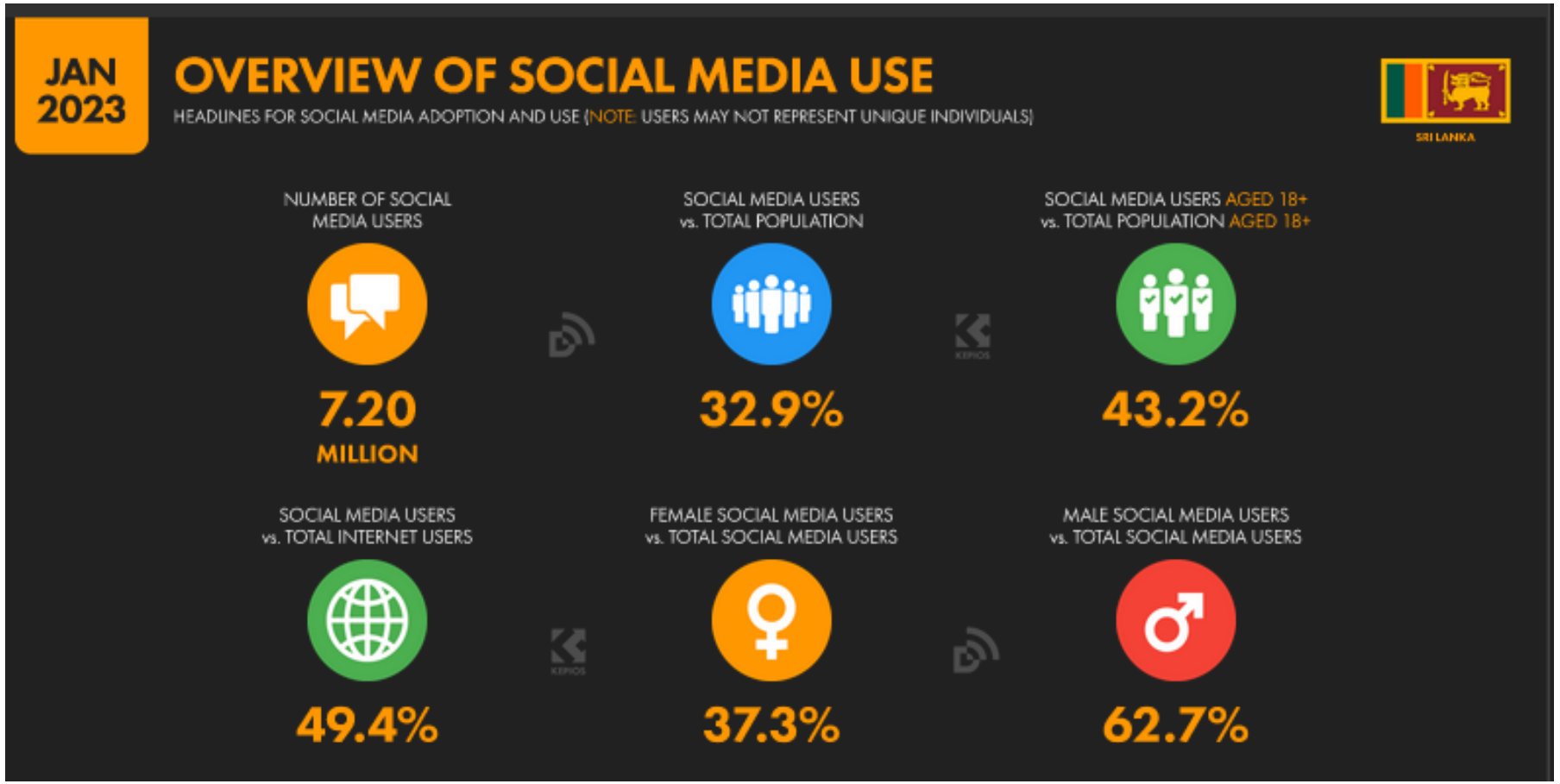
Source: https://datareportal.com/

Number of internet users - Sri Lanka



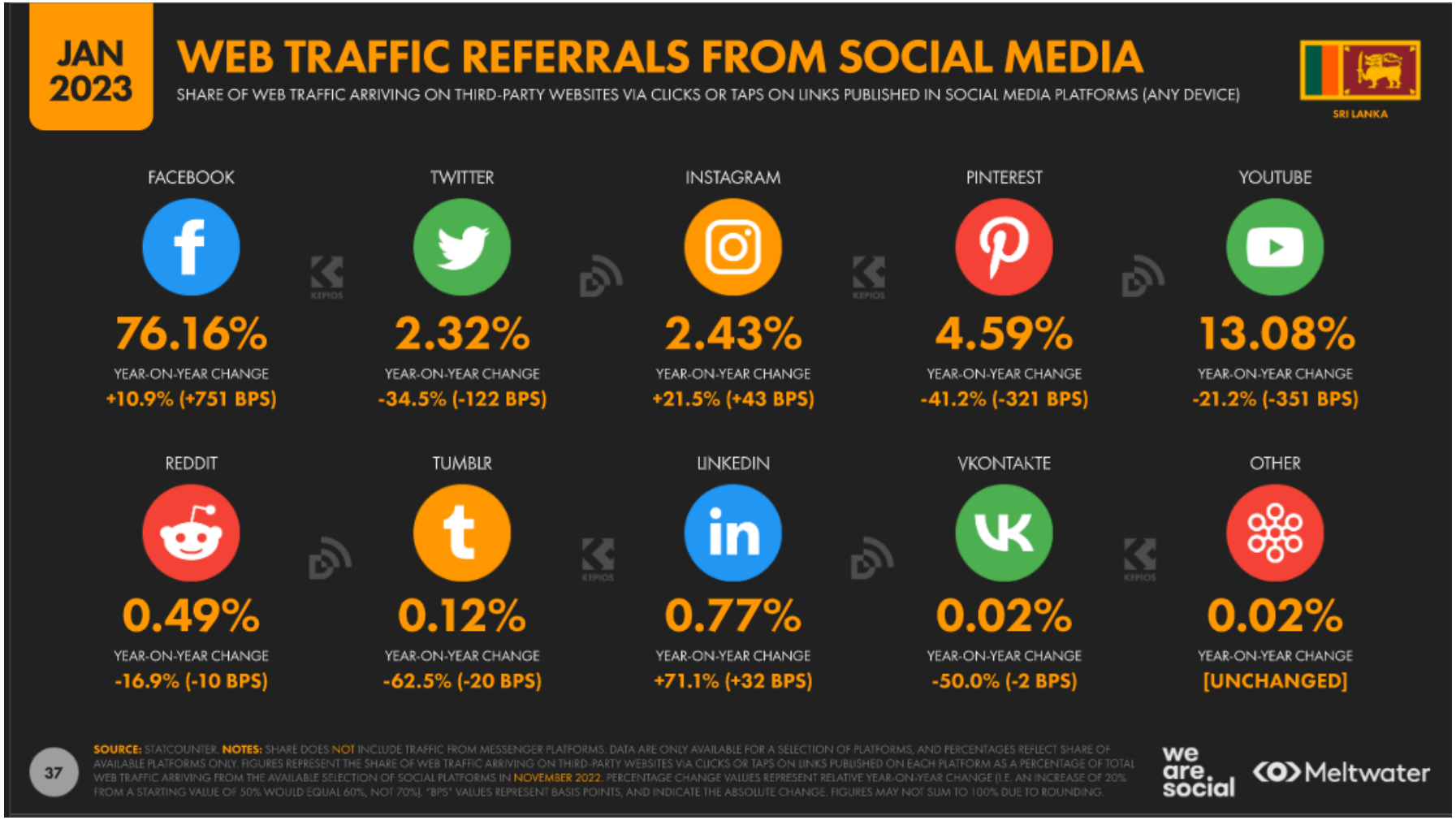
Source: https://datareportal.com/

Overview of Social Media use - Sri Lanka



Source: https://datareportal.com/

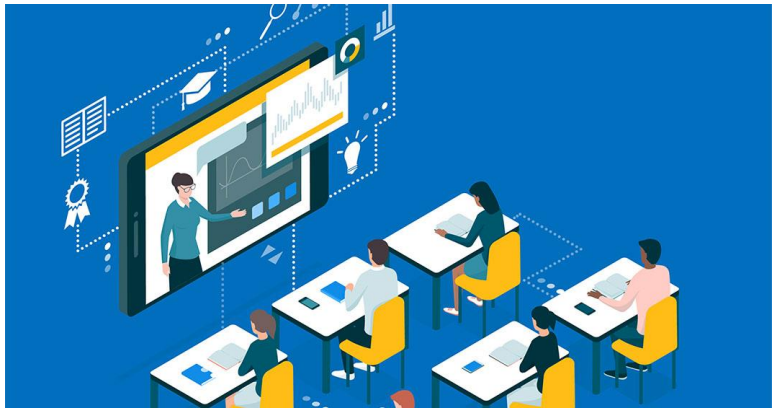
Web Traffic Referrals from Social Media – Sri Lanka



Source: https://datareportal.com/

ICT4D

E-Learning



https://elearningindustry.com/how-will-the-elearning-landscape-transform-in-2024

E-Business

https://www.temok.com/blog/what-is-e-business/

E-Health

https://www.fingent.com/blog/the-application-and-impact-of-information-technology-in-healthcare/

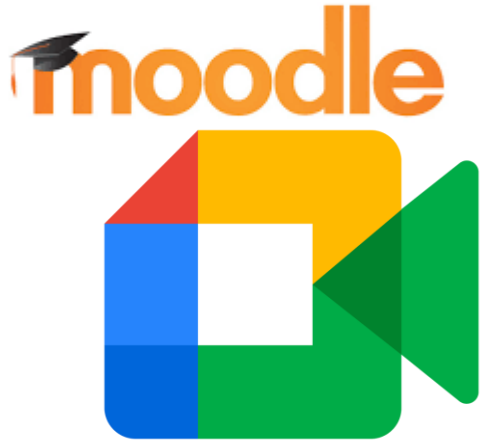
E-Governance

https://idfi.ge/en/georgia-in-the-un-e-governance-research-review-of-findings-and-recommendations

E-Learning

- E-learning is the delivery of education (all activities relevant to instructing, teaching, and learning) through various electronic media

(Koohang & Harman, 2005)



coursera

Google Classroom

E- business

- Electronic business, or e-business, refers to the use of digital technology and the Internet to execute the major business processes in the enterprise.

(Laudon and Laudon, 2016)

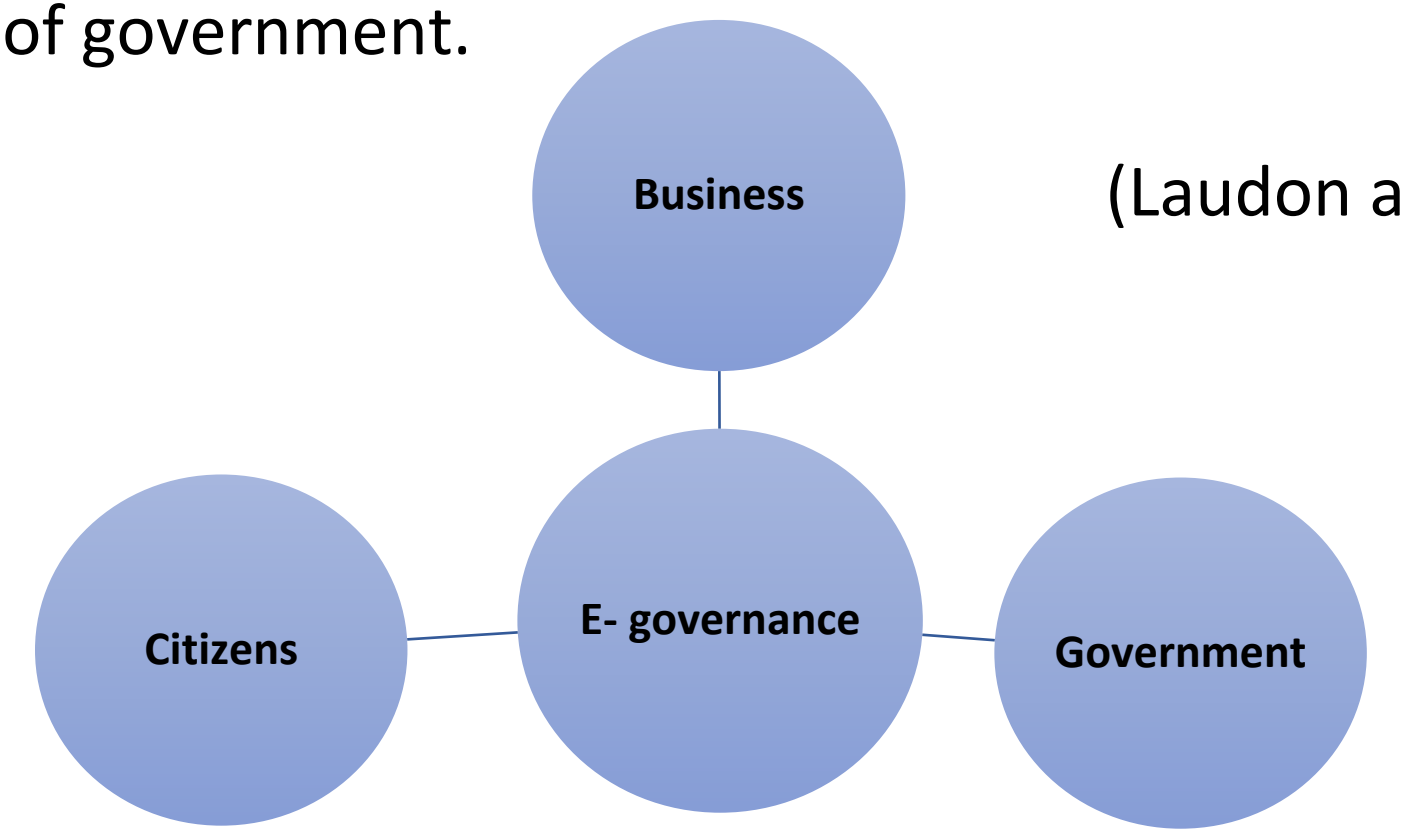
E-Health

- E-Health refers to health care transactions, encounters, messaging, or care provision occurring electronically.

(Oracle Corporation, 2000)

E-governance

- E-governance refers to the application of the Internet and networking technologies to digitally enable government and public sector agencies' relationships with citizens, businesses, and other arms of government.



(Laudon and Laudon, 2016)

Importance of Information Technology (IT)

An organization can use information technology for several purposes;

- To improve operational excellence
- To introduce new products, services, and business models
- To improve customer and supplier intimacy
- To improve decision making
- To gain competitive advantage
- To ensure survival

Source : Laudon, K.C. and Laudon, J.P. (2020). Management Information Systems – Managing the Digital Firm

Importance of Information Technology (Cont…)

- The integration of information technology has influenced the structure of organizations.
- The increased ability to communicate and share information has led to a “flattening” of the organizational structure.
- The network-based organizational structure is another changed enabled by information systems.
- In a network-based organizational structure, groups of employees can work somewhat independently to accomplish a project.
- People with the right skills are brought together for a project and then released to work on other projects when that project is over.

Competitive Advantage

- In almost every industry you examine, you will find that some firms do better than most others
- Firms that “do better” than others are said to have a competitive advantage over others: They either have access to special resources that others do not, or they are able to use commonly available resources more efficiently

Using Information Systems for Competitive Advantage

- A strategic Information System is designed specifically to implement an organizational strategy meant to provide a competitive advantage.
- These types of Information Systems began popping up in the 1980s.
- A strategic Information System attempts to do one or more of the following:
  - ✓ Deliver a product or a service at a lower cost
  - ✓ Deliver a product or service that is differentiated
  - ✓ Help an organization focus on a specific market segment
  - ✓ Enable innovation

Using Information Systems for Competitive Advantage (Cont…)

- Here are some examples of Information Systems that fall into Strategic Information Systems
  - ✓ Business Process Management Systems
  - ✓ Electronic Data Interchange
  - ✓ Collaborative Systems
  - ✓ Decision Support Systems

Investing in Information Technology for Competitive Advantage

- Information Systems can be used for competitive advantage, but they must be used strategically. Organizations must understand how they want to differentiate themselves and then use all the elements of Information Systems (hardware, software, data, people, and process) to accomplish that differentiation.

Thank You