University of Abbas Laghrour – Khenchela

Faculty of Social and Human Sciences

Department of Human Sciences

# *Information Society*

**Pedagogical Handout for First-Year Students –**

**Common Core in Human Sciences**

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**Bachelor's Degree Title: Common Core in Human Sciences**

**Semester: First**

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**Course Title: Information Society**

**Credits: 01 / Coefficient: 01**

- **Learning Objectives:**

To enable the student to recognize the **importance of information** and its **role in society**, to understand the **concept of the Information Society**, and to comprehend its **principles, characteristics, and evaluation criteria**.

- **Prerequisite Knowledge:**

  - Foundational understanding of the **stages of human societal evolution**.
  - Basic readiness to **use information and communication technologies (ICTs)**.

- **Course Content:**

1. Information and Knowledge: A Conceptual Introduction
2. The Nature of the Information Society
3. The Historical Background of the Information Society
4. Globalization and the Information Society
5. Features and Characteristics of the Information Society
6. Requirements and Foundations of the Information Society
7. The Information Society between the Geneva and Tunis Summits
8. Indicators for Measuring the Information Society
9. The Digital Divide and Its Impact on Establishing the Information Society
10. Features and Manifestations of the Information Society
11. Ethics of the Information Society
12. The Information Society in the Arab World
13. The Information Society in Algeria
14. From the Information Society to the Knowledge Society

## Introduction:

The term *"Information Society"* is a modern concept that reflects the profound transformations the world has undergone as a result of rapid technological and economic progress. This term refers to societies in which information has become a fundamental element in all areas of life — economic, social, and cultural alike. Information has emerged as the most strategic resource, while information and communication technologies (ICTs) have become the primary means of producing, storing, transmitting, and utilizing it.

The concept of the *Information Society* arose within the context of the technological revolution, which began in the mid-twentieth century with the development of computers and communication systems, reaching its peak with the emergence of the Internet and digital networks. This technological evolution transformed the very nature of life and work, as knowledge and information became the driving forces of development and innovation, replacing traditional resources such as land and raw materials.

Information societies are characterized by several key features, the most prominent of which include a strong dependence on information technology, an unprecedented flow of data and communication, and a shift in the nature of work toward a knowledge-based economy, in which professions related to information processing and analysis occupy leading positions. These societies are also marked by the expansion of education and lifelong learning, the growing importance of intellectual property rights, and the increasing influence of media and communication tools in shaping collective consciousness.

However, despite the many benefits offered by the Information Society, it faces several challenges, foremost among them the digital divide between developed and developing countries, as well as between different social groups within the same society. Other critical

issues also emerge, such as privacy protection, information security, and the ethical use of technology.

Understanding the Information Society is therefore essential to comprehending the transformations of the modern world. It is not merely a stage in human development, but rather a reflection of a new era in which information has become the principal driving force across all domains.

This pedagogical handout has been developed to clarify and analyze the various dimensions of the Information Society, grounded in a scientific and conceptual framework that enables students to gain a deep understanding of this vital concept. It aims to equip students with the conceptual tools necessary to grasp the nature of digital transformations and their impact on contemporary societies, with particular emphasis on how information is produced, distributed, and utilized in various fields.

The course is designed for first-year students in the Common Core of Human Sciences, enabling them to build a solid knowledge base that will help them understand the changes brought about by information technology in different aspects of life. It also seeks to encourage critical thinking regarding the effects of these transformations on social, cultural, and economic structures, both at the local and global levels.

Through this academic formation, students will become familiar with fundamental concepts such as data, information, and knowledge, as well as the digital divide. They will explore the features and characteristics of the Information Society, and examine the influence of globalization and digital communication on individuals and communities. The course will also address the evolution of the Information Society within Arab and Algerian contexts, thereby providing students with a comprehensive perspective that combines theoretical and practical dimensions.

Furthermore, this handout seeks to enhance students' skills in using digital sources and critically analyzing information, thus preparing them to contribute effectively to a society increasingly based on knowledge and information as the main engines of development and progress.

## Lecture One: Information and Knowledge – A Conceptual Introduction

Scholars agree that in order to understand the concept of *information*, it is first necessary to distinguish it from two closely related terms: data and knowledge.
According to Nabil Ali (1994), *data* are the raw material, the initial or "virgin" inputs from which information is derived — such as the items found in a personal identification card. Data encompass everything that can be directly perceived by our senses. (Ali, 1994)

In another sense, data represent sets of numbers, letters, symbols, or words that can be processed by a computer — that is, the raw elements from which information is extracted.

They are also defined as facts, observations, or measurements that may appear as numbers, letters, or symbols, describing an idea, event, or phenomenon. In their raw state, data are unorganized, unevaluated, and uninterpreted, and not yet ready for use. Once processed, analyzed, organized, and given meaningful context, they become information, which can influence attitudes, reactions, and behavior (Al-Ula, 2013).

**Information**, therefore, is the **result of processing data**, whether through **analysis or synthesis**, in order to extract patterns, indicators, relationships, and comparisons. This is achieved by applying **mathematical, statistical, or logical operations**, or by constructing **models** and frameworks (Ali, 1994) .

- **Linguistic Definition of Information:**

Linguistically, the Arabic term (information) derives from the root *(science)*, which carries meanings such as **knowledge, awareness, understanding, guidance, instruction, and recognition** — all related to the functions of the English term *information* (Qasim, 1990).

## Conceptual Definition of Information:

Conceptually, information refers to **data that have been processed** to serve a particular goal or to support decision-making. It represents **data that acquire value** after being analyzed, interpreted, or organized into a meaningful form — allowing them to be **recorded, transmitted, and distributed**, formally or informally, in any medium.

According to **Dr. HishmatQasim (1990)** :"Information is that which alters the cognitive state of the receiver — whether reader, viewer, or listener — regardless of the sensory channel through which it is received".

He further explains that an **information system** performs a variety of essential functions:

- **Collection** of information
- **Organization and storage** of information
- **Production** of information
- **Dissemination** of information
- **Retrieval and utilization** of information . (Qasim, 1990)

According to **Burch and his colleagues**, information possesses ten essential features: (Al-Ula, 2013)

- **Timeliness** – Information must reach the user at the right time; delayed information loses relevance and value.
- **Precision** – Accuracy in the measurement, preparation, and presentation of information.
- **Accuracy** – Freedom from linguistic or numerical errors.
- **Quantifiability** – The ability to be expressed in numerical or statistical form when needed.
- **Verifiability** – Agreement among different users when examining the same information; this reflects **objectivity** and **freedom from bias**.
- **Accessibility** – Ease and speed with which required information can be obtained.

- **Freedom from Bias** – Absence of any intent to distort or manipulate information for personal or external motives.
- **Comprehensiveness** – Completeness and inclusiveness of the provided information.
- **Appropriateness** – Relevance of information to the user's needs.
- **Clarity** – Freedom from ambiguity or confusion (Al-Ula, 2013).

➢ **Characteristics of Information** (Ali, 1994) **:**

**Nabil Ali (1994)** identifies several defining characteristics of information:

- **Aggregability and Fluidity:** Information is highly flexible and can be reformulated or reshaped easily.
- **Transferability:** It can be directed through specific channels or broadcast publicly for open access.
- **Integrability:** Information elements can be easily merged — for instance, combining lists or adding files to an existing database.
- **Abundance:** Unlike physical resources, which are scarce, information is abundant. Producers often impose restrictions to create *artificial scarcity*, turning information into a market commodity.
- **Growth through Use:** Unlike material resources, information **expands as it is consumed**; societies that use information more actively generate more knowledge.
- **Ease of Reproduction:** Information can be copied easily, posing challenges to **intellectual property protection**.
- **Uncertainty:** Much information remains probabilistic; only a small portion can be deemed absolutely certain.

➢ **Knowledge:**

*Knowledge* represents a **state of understanding and awareness** that extends beyond simple familiarity. It denotes an **intellectual capacity** for inductive reasoning, reaching original conclusions, and deriving insights from observed facts. Knowledge must be **inferred**, not merely felt or perceived, because what we sense or think about constitutes **information**, while what we **comprehend** constitutes **knowledge**.

Knowledge thus refers to the **awareness and understanding of facts**, acquired through **experience or introspection**, and is closely tied to **intuition, discovery, and self-development** (Al-Ula, 2013).

It may be described as a collection of **meanings, beliefs, judgments, concepts, and mental frameworks** that emerge through repeated attempts to understand surrounding phenomena. It represents the **accumulated experience and intellectual capital** an individual possesses at a particular point in time (Dubbons, n.d).

Knowledge is the **subtle integration** of information, sensory perception, experience, and judgment. We receive information through our senses and interpret it, while **information acts as a medium for acquiring knowledge** through various means such as **intuition, reasoning, and practice** (Al-Ala, 2013).

- **Knowledge Characteristics :**
  - **Subjectivity:** Knowledge is shaped by an individual's background and personal experiences.
  - **Transferability:** It can be transmitted among individuals and societies, promoting development and innovation.
  - **Tacitness:** Some knowledge remains implicit, residing within the human mind unless expressed or applied.
  - **Contextuality:** Knowledge is influenced by its usage context and can be adapted to different situations.
  - **Practicality:** Knowledge gains value through **application**; unused knowledge remains of limited benefit.

**Nabil Ali** identifies further attributes of knowledge in discussing its future prospects:

- **Generativity:** Knowledge grows through **scientific research** involving deduction, induction, analysis, and synthesis — driven by creative individuals with analytical ability.
- **Obsolescence:** Dormant knowledge — stored in books or confined to individuals — loses relevance over time. Some knowledge becomes marginal or is replaced by newer insights.
- **Accessibility:** Knowledge is **not restricted** to specific individuals or institutions; it can be acquired through learning and converted into inventions or trade secrets.
- **Storability:** Traditionally preserved on paper, knowledge is now stored electronically in **Knowledge Bases**, which contain domain-specific facts and rules for expert use.
- **Classifiability:** Knowledge can be categorized as **tacit** or **explicit**, **procedural** or **declarative**, **exploratory** or **descriptive**.
- **Non-depletability:** Unlike material resources, knowledge **grows with use** rather than being consumed.
- **Shareability:** Knowledge can be shared globally if proper channels and technologies exist (Al-Assafeen, 2020) .

➢ **Types of Knowledge**

- **Scientific Knowledge:** Based on systematic observation, experimentation, and hypothesis testing to formulate laws explaining natural phenomena.
- **Philosophical Knowledge:** Rooted in reflection and reasoning about existence, ethics, and epistemology; seeks truth and meaning.
- **Religious Knowledge:** Derived from sacred texts and faith, addressing spiritual and moral questions.

- **Tacit Knowledge:** Gained through personal experience; intuitive and hard to codify; transmitted through social interaction and practice.
- **Explicit Knowledge:** Clearly expressed and documented — in books, articles, or databases — and transferable via technology (Assalam, 2011).
- **Posteriori Knowledge**: This refers to knowledge derived from empirical experience and sensory observation. It can only be attained after undergoing a particular experience or experiment.
- **A Priori Knowledge:** This type of knowledge can be acquired independently of sensory experience, relying instead on reason and logic as its foundation

➢ **Wisdom:**

Wisdom is defined as the ability to make sound decisions and offer well-founded advice based on knowledge, experience, and deep understanding.It involves the capacity to distinguish between right and wrong, to place matters in their proper context, and to act appropriately according to circumstances.

In the following table, we illustrate how raw data evolve into meaningful information, which then develop into applicable knowledge, culminating in wisdom that guides decisions and behaviors.

| Concept | Definition | Characteristics |
|---|---|---|
| Data | Raw and unorganized facts or figures that lack context or meaning. | - Unstructured- Unintelligible without processing- Serve as inputs for generating information |

| | | |
|---|---|---|
| Information | Data that have been processed and organized to acquire meaning and value. | - Structured- Understandable |
| Knowledge | Comprehension and assimilation of information connected with prior experiences for application in specific contexts. | - Experience-based and learned- Actionable and applicable |
| Wisdom | The ability to make sound decisions based on accumulated knowledge and deep understanding. | Involves insight and critical thinking- Grounded in moral and ethical valuesGuides behavior and decisionmaking |

From all the preceding discussion, it becomes clear that we must distinguish between **four closely interrelated concepts** — namely **data**, **information**, **knowledge**, and **wisdom (or intelligence)**. The distinction between them can be explained as follows: (Rajab, 2010)

**1. Difference between Data and Information:**

**Data** represent the **raw material** from which information is derived. They are the **initial inputs**, such as the items on a personal identification card. Data consist of anything that we **perceive directly through our senses** — eye movements, head gestures, facial expressions, or hand signals.

Information, on the other hand, is the result of processing data, through analysis or synthesis, in order to extract indicators, relationships, comparisons, or patterns. This occurs through the application of mathematical, statistical, and logical methods.

Thus, data serve as the foundation, while information is the dependent variable derived from them. Another perspective defines information

as that which changes human behavior or thinking, supporting decision-making and problem-solving.

## 2. Difference between Information and Knowledge:

Knowledge is the subtle integration of information, experience, perception, and judgment.

We receive information, blend it with sensory input, compare it with stored experiences and prior knowledge, and then apply reasoning and evaluation to derive conclusions, decisions, or new insights — or to reinforce existing concepts.

Therefore, **information is a means or medium for acquiring knowledge**, alongside other sources such as **intuition**, **speculation**, and **practical experience**.

## 3. Difference Between Knowledge and Intelligence (Wisdom):

There is a fundamental difference between acquiring existing knowledge and generating new knowledge.

Intelligence is the mental energy applied to prior understanding in order to formulate new ideas, uncover relationships, prove theories, and derive governing principles from seemingly diverse or scattered phenomena.

Intelligence is a complex synthesis of abilities such as design, creativity, inference, and innovation. Although its structure is difficult to analyze, several general definitions have been proposed:

- “Intelligence is the ability to acquire knowledge autonomously, store it, relate it to prior experience, and adapt automatically to changing circumstances”.
- “Intelligence is the capacity to use available knowledge coherently to answer questions and solve both simple and complex problems».
- “Intelligence is the ability to respond to novel situations in non-mechanical, creative ways”. (Rajab, 2010)

## Lecture Two: The Nature of the Information Society :

Some researchers argue that the term *Information Society* arose from the description of our era as the **"Age of Information".** Others have used related terms such as *Post-Industrial Society*, *Informational Society*, or *Knowledge Society*.

On the other hand, some scholars reject labeling the current period as an "Information Society," arguing that information production remains an industrial activity, and thus we are still living in an industrial phase, albeit with ongoing transformation. They also note that information has been a key driver of development in all societies throughout history — dating back to the ancient Sumerians.

Sociologist Frank Webster observed that although information is undeniably significant in modern life, it is no more essential than other technological phenomena such as electricity or automobiles (Al-Ula, 2013).

The critical point, therefore, is not the abundance or diversity of information, but rather the ability to access it when and where needed — unlike traditional media (press, radio, television), which are restricted by fixed schedules for publication and broadcast (Zaid, 2010).

### Origins of the Concept:

The concept of the *Information Society* first appeared in Japan, within the framework of temporal social thought, particularly in the book
*Introduction to an Information Society* (1968) by Yoneji Masuda and KunioKohyama.
It was also discussed in *The Information Society: From Hard to Soft Society* (1969) by Ojiro Hayashi.
Initially, the term referred to rapid economic and social changes within industrialized societies, which contributed to modernization

processes. By the mid-1960s, however, it became closely associated with technological development, driven by the third wave of technological innovation and the digital revolution that accompanied it.

The concept expanded beyond traditional forms of communication to include both hardware and software dimensions — encompassing data collection, storage, exchange, and analysis thereby reinforcing the central role of information in modern societies.

**Definitions of the Information Society:**

Although numerous definitions exist, the Information Society is generally understood as:"A society in which the creation, distribution, and processing of information constitute the main features of economic and cultural activity».

- **Daniel Bell** defines it as: "A society coherently organized around knowledge for the purpose of managing innovation and change».
- **Yoneji Masuda (Japan)** describes it as: "A type of society in which the possession of information — rather than material wealth — becomes the driving force of transformation and development, and in which human intellectual creativity flourishes".
- **Frank Webster (1995)**, in his seminal work *Theories of the Information Society*, identifies **five key dimensions** characterizing this society:
    - Technological
    - Economic
    - Occupational
    - Spatial
    - Cultural

**Additional Definitions :**

- "An Information Society signifies a transformation from an industrial order to one in which information — in its most diverse and expansive forms — becomes the dominant driving

force. The majority of individuals are engaged in **producing, collecting, storing, processing, or distributing information**". (Al-Ula, 2013)

- "A society characterized by **global communication**, the **mass production and dissemination of information**, and the **emergence of information as an economic power**".
- "A society whose development depends primarily on **information, computing, and communication technologies** — often referred to as **intellectual technology** — encompassing new goods and services, a growing information workforce, and industries dedicated to processing and marketing data". (Darwish, 2000)

The definition adopted by the **World Summit on the Information Society (WSIS)** held in **Geneva, 2003**, states that: "An Information Society is one in which every individual has the ability to **create, access, utilize, and share information and knowledge**, enabling individuals, communities, and nations to fully realize their potential in achieving **sustainable development** and **improving quality of life**. It is a society based primarily on the **abundance of information** as an **investment resource**, a **strategic commodity**, a **service**, a **source of national income**, and a **domain of employment**, fully exploiting the potential of **information and communication technologies (ICTs)**. In such a society, the use of information is clearly evident across all economic, social, and political spheres to achieve **progress and prosperity**". (Rajab, 2010)

**Key Indicators and Criteria of the Information Society:**

Based on this definition, several **criteria and indicators** were established to reflect the level of informatization within a society. The most significant of these are as follows: (Ali M. , 2015)

1. **Technological Criterion:** Refers to the increasing reliance on **ICT** as a source of **work, wealth, and infrastructure**. This

includes the availability of communication networks, the spread of computer and Internet use, and the development of an advanced **digital infrastructure**.

2. **Social Criterion:** Focuses on the role of information in **improving quality of life**, including access to digital tools in areas such as **education, healthcare, and administration**. Information plays a major role in promoting **comprehensive human development**.
3. **Economic Criterion:** Emphasizes the importance of information as a **strategic resource** within the economy. It includes the growth of **information-based industries**, the rising share of workers in the ICT sector, and the impact of information on **productivity and economic growth**.
4. **Cultural Criterion:** Stresses the preservation of **cultural and linguistic diversity** and **local content**, while respecting cultural identity within the Information Society. It also entails the **responsible use of media** in accordance with ethical and professional standards.
5. **Political Criterion:** Highlights the use of ICT as a key tool for **good governance**, enhancing **transparency** and **public participation** in decision-making, developing **e-government**, and providing public services via **digital platforms**.
6. **Educational Criterion:** Focuses on integrating ICT into the **educational process**, including the development of **digital curricula**, **teacher training**, and **student access** to online learning resources.
7. **Environmental Criterion:** Concerns the **impact of ICT on the environment**, promoting the development of **eco-friendly technologies**, proper **e-waste management**, and the use of digital tools for **environmental monitoring and protection**.

These criteria are used to **assess a society's progress** toward becoming an **Information Society**, and to guide **policies and strategies** for achieving **inclusive and sustainable development**.

## Lecture Three: The Historical Background of the Information Society :

**Alvin Toffler** identified **three major waves** that transformed human life: the **Agricultural Revolution**, the **Industrial Revolution**, and the **Information Technology Revolution**, which introduced all the concepts related to the modern **Information Society**.

Human societies have undergone several key developments in the field of information that have led to the emergence of what we now call the **Information Society**:

1. **The Invention of Writing:** Writing enabled humans to **store and transmits information** beyond the capacity of memory and oral communication. Over time, various **writing systems** evolved, culminating in the **alphabet**, which provided a flexible means for preserving language.

   Early writings were inscribed on **clay tablets**, **animal skins**, and **papyrus**. Following the **Chinese invention of paper**, writing became more widespread. Early books were **handwritten**, marking the beginning of recorded knowledge.

2. **The Invention of printing (15th Century):** The **printing press** revolutionized knowledge dissemination by allowing the **mass production of books**, thereby democratizing access to information.

3. **The Use of Audiovisual Media:** Later inventions such as the **telegraph**, **telephone**, **radio**, and **television** accelerated information transmission. These communication tools became the **building blocks of the Information Society**. (John, 1998)

4. **The Invention of the Computer:** The most influential invention was the **computer**, emerging in the early second half of the 20th century. It triggered a **massive information revolution** that

transformed every sphere of human activity — particularly the **economic sector**.

By **1956**, the United States had entered the **post-industrial stage**, characterized by the **expansion of service sectors**, the **decline of traditional agriculture and manufacturing**, and the rise of **knowledge-intensive industries**.

According to **Frank Webster**, there were **two major phases** in the evolution of information technology:

- The **first phase** (late 1970s to early 1980s): saw the emergence of **personal computers**, the creation of **computer networks**, and the use of **satellites for television broadcasting**.
- The **second phase** (mid-1990s onward): witnessed the development of **communication tools** such as **email**, **SMS messaging**, and **information exchange** via the **Internet**.

Webster argued that the **rapid spread of the Internet** and its increasing use across **economic, educational, industrial, and political domains** signaled that a **new system** had already emerged — one based primarily on **communication technologies**.

He predicted that **the future belongs to those who master ICT**, while those who fail to keep pace will become **obsolete**. The impact of these technological advances, he warned, would create **placeless societies**, where users remain **permanently connected**, with both **positive and negative implications**.

The **Information Society** effectively emerged in the **1960s**, when the **U.S. Congress** commissioned economist **Fritz Machlup** to study the role of **patents in the national economy**. His research evolved into an analysis of the **information phenomenon** in the U.S. economy.

Machlup discovered that **information workers** played a distinct and growing role in economic development — marking the beginning of the use of the term **"Information Society":**

The origins of Information Societies can be traced to **two interrelated developments**:

- **Long-Term Economic Transformation:**
  Historically, human societies have undergone fundamental economic shifts.
  - The agrarian economy relied on natural resources such as land, water, and livestock.
  - The industrial economy shifted focus to capital, raw materials, and energy sources such as electricity and gas.
  - In the modern era, information has become a strategic resource, with economies now based on its production, distribution, and utilization, giving rise to the Information Society.

- **Technological Change:**
  Rapid advances in **ICT** have fundamentally altered how information is collected, processed, and transmitted.

  Inventions such as the computer and the Internet have enabled fast and efficient access to information, transforming economic growth and reshaping social and cultural structures — thereby fostering the rise of the Information Society (Baya, 2016).

Bill Gates (1998) predicted that future global competition will revolve not around natural resources, but around control of information. (Radwan, 1998)

## Lecture Four: Globalization and the Information Society

The ability to learn and acquire knowledge depends on the extent to which the achievements of information and communication technology (ICT) are absorbed, as these technologies enable the establishment of a knowledge-based economy. The general and comprehensive knowledge provided by ICT may be equivalent to the formal knowledge gained in schools and universities. Lifelong learning requires broad and inclusive knowledge and occurs through economic and social activities, including research and development, production, marketing, and ICT applications.

Since the applications of information technology affect the social, cultural, and organizational life of developing countries, these nations must take the necessary measures to preserve their **national and civilizational identity**, avoiding blind imitation of Western societies.

Science is rapidly moving from **internationalization to globalization**. As a result of the communication revolution — especially with the widespread use of the **Internet** — global scientific information networks will emerge, supported by contributions from scientists around the world and made accessible to any researcher worldwide.

Moreover, communication among scientists through **virtual conferences** via the Internet, **email correspondence**, and **discussion groups** will create a new state of continuous and instantaneous scientific interaction, leading to an unprecedented accumulation of **scientific and cognitive knowledge**. *(Salah, 2009)*

The modern economy focuses on **science and technology** and is moving toward **globalization**, which presents both opportunities and challenges, eliciting diverse responses from different nations. The **OECD countries** have established strong foundations in **research and development** and **ICT infrastructure**, allowing them to

participate effectively in the **information revolution** — sometimes referred to as the **Third Industrial Revolution**.
The **United States**, considered the driving force behind globalization, has embraced this strategic transformation in the global economy.

There are **four main definitions of globalization**:

1. A **historical reality**.
2. A **set of manifestations** of an economic phenomenon.
3. A form of **American cultural dominance**.
4. A **technological and social revolution**.

Throughout human history, each stage has been characterized by a corresponding form of technology: **hunting technology**, **agricultural technology**, **industrial technology**, and finally **information technology**. *(Yassin, 2000)*

In any case, the transition to a **knowledge society** entails building a society that **encourages innovation, creativity, and scientific research**, responds effectively to **information technology**, and promotes **freedom of democratic practices**.

**Professor El-Sayed Yassin** presents four theses on the phenomenon of globalization, which can be summarized as follows:

1. **The Redistribution Thesis:** Advocated by supporters of socialism, this view emphasizes the **importance of distributive justice** within the context of globalization.
2. **The Closed Capitalism Thesis:** From a theoretical standpoint, capitalism is **not uniform everywhere**, as there are economic differences between various capitalist systems. Consequently, in practice, the responses to globalization will vary according to these different capitalist models. Under this perspective, the **role of the state** will continue to exist.
3. **Modernization Theses:** This view highlights the **dominance of American values**, reflecting ideas rooted in **liberal theory**,

particularly those derived from **early modernization theory**. The reference model here is **Western bureaucracy** and **modernization in the European and American style**.

4. **The Technological Revolution Thesis:** The core idea here is that globalization represents a **scientific, technological, and social revolution**. This thesis focuses on **technological and socioeconomic transformation**, including the **liberalization of markets**, **privatization of assets**, and the **redistribution of certain state welfare functions**. It also involves the **cross-border diffusion of technology**, **foreign direct investment**, and the **integration of global markets and capital flows**. *(Yassin, 2000)*

From a theoretical perspective, the latter thesis includes the idea of a **shift from industrial capitalism** toward understanding the **economic relations of post-industrial or knowledge societies**. The transformation of the dominant model lies in **redefining the traditional components of enterprise — land, labor, and capital —** in light of **knowledge-based industries**, which have become the **core element** of the modern industrial enterprise.

Despite being a **multidimensional historical phenomenon**, the result of a complex process of **capitalist, scientific, and technological accumulation**, globalization faces **multiple forms of resistance** — not only in developing countries but also within industrialized nations. Some political leaders view globalization as a **threat to national identity and economic sovereignty**.

In the **era of globalization**, **state sovereignty** has been weakened due to the **multiplicity of actors operating beyond the state's authority**. These **non-state actors** can be classified into two broad categories *(Salah, 2009)*:

- **The first category:** Includes actors from the **private sector**, primarily **multinational and transnational corporations**.

- **The second category:** Consists of **non-profit organizations**, extending from **civil or voluntary organizations** to what are termed **transnational or cross-regional groups**.
  Conversely, **developing countries**, particularly the **poorest**, suffer from **weak or nonexistent ICT infrastructure**, posing risks of **marginalization**, especially for **impoverished populations** that lack the capacity to adapt to **ICT applications**.
  Accordingly, the **World Summit for Social Development**, held in **Copenhagen (March 6–12, 1995)**, declared the necessity of recognizing that **empowering the poor in developing nations** to use ICT could **help achieve the goals of social development**.

**Challenges Facing the Transition to a Knowledge Society :**

The transition to a **Knowledge Society** faces several challenges, the most significant of which include:

**1. The Challenge of Achieving Information Democracy:**

This is an **objective prerequisite** for avoiding **authoritarianism and totalitarianism**.

Information democracy comprises **four keyelements**:

- **First:** *Protection of individual privacy* — the human right to safeguard one's personal life and keep it hidden from others.
- **Second:** *The right to knowledge* — the right of all citizens to access government-held information that may have significant impacts on their lives.
- **Third:** *The right to use information* — meaning every citizen should have the right to use available information networks and databases **affordably**, **anywhere**, and **at any time**.
- **Fourth:** *The peak of media democracy* — the right of citizens to **participate directly** in managing the global media infrastructure, particularly in **decision-making processes** at **local**, **national**, and **global** levels.

**2. The Challenge of Developing Global Intelligence:**

This refers to the **adaptive capacity of citizens** to cope with **rapidly changing global conditions**. *(Salah, 2009)*.

## Lecture Five: Features and Characteristics of the Information Society

It can be said that the **Information Society** has become the **successor to the industrial society**, following the tremendous developments in the **volume and quality of information**, which now cover all aspects of life to support modernization, development programs, and societal progress. A major leap occurred with the emergence of **advanced computer technologies** capable of controlling, collecting, storing, processing, retrieving, and using information.

Information technology entered **productive, service, and business organizations**, helping them utilize this technology to accomplish their missions, enhance efficiency, and increase production. The **merging of computer technology and modern communications** led to the rise of the **contemporary Information Society**. To present a clearer picture of this society, we shall outline its most significant **features and characteristics***(Ragab, 2010)*:

**a. Information Explosion and Its Growing Importance as a Vital and Strategic Resource:**

Modern societies and their scientific, cultural, and productive organizations now face an **enormous flow of information**, growing at unprecedented rates due to **scientific and technological advancements**, the emergence of new disciplines, and the transformation of information production into an **industry**.

**b. Significant Growth in Intellectual Output:**

Some researchers estimate that the **annual growth rate of intellectual production** ranges between **4–8%**, and that the **volume of information doubles every twelve years**.

**c. Fragmentation of Intellectual Production:**

Scientific specialization and the **interdisciplinary nature of knowledge** have led to the emergence of **new branches and subfields**. As researchers become more specialized and intellectual output expands, the **effectiveness of general journals declines**, making it increasingly **difficult for researchers to keep up** with all published works in their fields.

**d. Growth of Information-Based Societies and Organizations:**

There has been a significant increase in **organizations that rely heavily on information** and use it optimally in their operations — such as **media institutions, banks, insurance companies, and government agencies**. These entities have adopted **modern information systems** to enhance **accuracy, speed, and efficiency** in performance, and to improve **productivity**.

**e. Emergence of Advanced Information Technologies and Systems :**

Recent years have witnessed great progress in **information technologies**.

While earlier methods for storing and transmitting information included **photographs, films, radio, television, and telephones**, today's systems depend largely on **computers of various types** for **information storage, processing, and retrieval**; this evolution has culminated in the rise of **global networks**, led by the **Internet**.

New **hybrid information systems** have emerged, combining **human and machine processing**, and **expert systems** are now used for **problem-solving and decision-making**.

The reliance on **computers** in **commerce, industry, and information exchange** continues to grow, accompanied by advances in **communication technologies**, leading to the development of numerous **information transfer services**.

**f. Expansion of the Information Workforce:**

The **information sector workforce** has grown rapidly — the number of people working in **information development** now exceeds

those in **agriculture and industry**. Today, **most of the world's workforce** is involved in **information processing and delivery**.

**g. Information as an Economic Resource:**

In this society, **information** is considered a **vital economic resource**, invested to **increase institutional efficiency**, **foster innovation**, and **enhance competitiveness** through improved **production quality**.

**h. Accessibility and Speed of Information Retrieval:**

The Information Society provides a **global marketplace for information**, enabling **individuals and institutions** to access data **quickly and accurately** through advanced technologies — positively influencing activities across all sectors.

**i. Impact on Social and Cultural Activities:**

The Information Society affects **social and cultural life**, as rapid developments in ICT challenge the **human mind** to **think more efficiently and creatively**, making individuals **more knowledgeable, productive, and effective**.

**j. Diversity of Beneficiary Groups:**

This society is characterized by the presence of **multiple user groups** who engage with information according to their **specializations and needs**. These include:

- **Researchers and professionals**, who use information for planning and study.
- A small group of **creators** (scientists, artists, designers) who produce information.
- **Information transmitters** — postal workers, journalists, and media professionals.
- **Professionals** such as lawyers, doctors, and engineers.
- **Information storage and retrieval specialists**.

- **Students** and **trainers** working in **finance, planning, marketing, and management**.

**k. Growth of Electronic Publishing:**

**Electronic publishing** refers to the **production and transmission of information** via **computers and telecommunications**, either **directly from author or publisher to the end user**, or through **communication networks**. It includes **electronic information sources**, both **digital and non-digital**, stored on **magnetic or optical media**, or made available through **online databases** and **compact disc systems**.

**l. New Dimensions of Privacy:**

New technologies have introduced **additional dimensions of privacy**, related to the **storage, retrieval, and accessibility** of personal data through **communication networks**. The **ability of computers** to create and manipulate **massive databases** poses **risks to individual privacy**, despite **existing laws and regulatory bodies**.

**m. Communication Chaos and Threats to National Sovereignty:**

The control of **information and communication technologies** and the **power to regulate information flow** have created **imbalances in global communication**, leading to **challenges to national sovereignty**.

## Lecture Six: Requirements and Pillars of the Information Society

The Information Society is defined as a society in which **information and knowledge form the foundation** for development and progress across all fields. This society relies on the **intensive use of information and communication technology (ICT)** to generate, disseminate, and utilize information. To achieve this goal, there are a set of **fundamental pillars and essential requirements** that must be considered:

1. **ICT Infrastructure:** An advanced telecommunications and information infrastructure is the cornerstone of building an Information Society. This includes the provision of **high-speed Internet networks**, **comprehensive mobile coverage**, and the **establishment of advanced data centers**. Such infrastructure facilitates **access to information** and enhances **communication among individuals and institutions**.

2. **Access to Information and Knowledge:** It is essential to guarantee individuals' **right to access information and knowledge without restrictions**. This requires policies that support **transparency** and encourage **open data publication**, in addition to strengthening the role of **libraries** and **educational institutions** in providing knowledge resources for all.

3. **Human Capacity Building:** Developing **skills and competencies** in ICT is vital. This includes updating **educational curricula** to cover **computing and programming skills**, and providing **continuous training programs** for workers in this field, thereby enhancing society's **capacity for innovation** and **adaptation** to technological change.

4. **Trust and Security in ICT Use:** Building **trust** in digital technologies requires ensuring **privacy protection** and **cybersecurity**. This involves developing **data protection policies**,

establishing **cybercrime prevention systems**, and raising user awareness about **digital security**.

5. **Enabling Environment:** Providing a **legal and regulatory environment** that supports **innovation** and **investment** in ICT. This includes enacting **intellectual property laws**, facilitating **start-up creation**, and offering **incentives** for **technological investment**.
6. **Cultural Diversity and Local Content:** Encouraging the production of **digital content in multiple languages**, with a focus on **local content** that reflects a society's culture and values. This contributes to **preserving cultural identity** and ensures broader **human diversity representation** in the digital space.
7. **International and Regional Cooperation:** Building an Information Society requires **close cooperation** among countries and international organizations. This includes **sharing experiences**, **coordinating technical policies**, and **participating in global initiatives** aimed at **reducing the digital divide**.

In addition to these pillars, there are key **requirements** that must be met to ensure the successful development of an Information Society:

- **Digital Content Development:** Focus on creating **rich and diverse digital content** that meets the needs of different social groups, ensuring **quality and credibility**.
- **Public-Private Partnerships:** Cooperation between **governments and private companies** accelerates innovation and provides resources for **infrastructure and digital services**.
- **Ethical Considerations:** Establishing **ethical frameworks** for technology use to **protect human rights** and **prevent misuse of information**.

Building an Information Society requires a **comprehensive vision** and **collective efforts** from all stakeholders — including **governments**,

**educational institutions**, **the private sector**, and **civil society** — to achieve **sustainable development** and **prosperity for all**.

## Lecture Seven: The Information Society Between the Geneva and Tunis Summits

### 1. The First Information Society Summit – Geneva, Switzerland (2003)

The first phase of the **World Summit on the Information Society (WSIS)** was held in **Geneva, Switzerland**, from **December 10 to 12, 2003**, with participation from **over 11,000 delegates** representing **175 countries**, to discuss key global issues prioritized by the summit, such as:

- Information security and the Internet
- Intellectual propertyrights
- Support and funding for the global Information Society
- Software development
- Freedom of opinion and expression
- The role of media *(Karim, 2008)*

**Preparations for the Summit:**

Preparations began with the **first preparatory committee** in **July 2002**, followed by additional meetings to ensure broad participation from **governments**, **the private sector**, and **civil society**.

The summit's most significant achievement — acknowledged by all participants — was the adoption of the **Declaration of Principles** and the **Plan of Action**, serving as a **framework and foundation** for building the global Information Society envisioned by nations worldwide.

A **people-centered, development-oriented society**, where every individual can **create, access, use, and share information and knowledge**, enabling individuals, communities, and nations to fully harness their potential for **sustainable development** and **improved quality of life**, in accordance with the **purposes and principles of the UN Charter** and **full respect for the Universal Declaration of Human Rights**. *(Karim, 2008)*

**Declaration of Principles:**

Titled "Building the Information Society: A Global Challenge in the New Millennium," the Declaration focused on **human development** and **sustainability**. It emphasized the **right of every individual** to **create, access, use, and share information and knowledge**, while affirming the importance of **respecting human rights**, including **freedom of expression**, as stated in the **Universal Declaration of Human Rights**.

**Plan of Action:**

The **Plan of Action** outlined **concrete goals** to reduce the **digital divide**, including:

- Ensuring that **over half of the world's population** could access ICT by **2015** *(Information, WSIS Documents, 2025)*.
- Promoting **local content** and **multilingualism** on the Internet.
- Developing ICT infrastructure in **rural and remote areas**.

The plan also called for **enhanced international cooperation** and **financial and technical support** for developing countries to **build ICT capacity**.

**Challenges and Discussions:**

The summit witnessed discussions on **Internet governance**, **funding for ICT projects in developing countries**, and **intellectual property rights**. Divergent views among nations on these issues led to **postponing some debates** to the **second phase of the summit**, held in **Tunis (2005)**.

**Outcomes and Impact:**

The **Geneva Summit** represented a crucial step toward building an **inclusive Information Society**. Participants agreed on a **shared vision** and **specific goals** to improve **access to information and technology**, emphasizing **partnerships** among **governments**, **the**

**private sector**, and **civil society**. *(Information, WSIS Documents, 2025)*

## 2. The Second Information Society Summit – Tunis (2005)

The **second phase** of the WSIS was held in **Tunis**, from **November 16 to 18, 2005**, with representatives from **175 countries**, as well as **international organizations**, **private sector institutions**, and **civil society groups**.

The summit aimed to **follow up** on the outcomes of **Geneva 2003**, focusing on **Internet governance**, **ICT project financing**, and **bridging the digital divide** between developed and developing nations. *(Information, Tunis Summit 2005, 2025)*

### Preparations for the Summit:

Preparations for **Tunis** began immediately after **Geneva**, through a series of meetings addressing proposed topics and coordinating national positions. These meetings evaluated **progress since Geneva**, identified **remaining challenges**, and developed **strategies** to overcome them.

### Main Outcomes :

- **Tunis Commitment:**
  The "Tunis Commitment" reaffirmed adherence to the **principles and objectives** of WSIS, focusing on:
  - Enhancing the role of ICT in **sustainable development**.
  - Upholding **human rights**, including **freedom of expression**.
  - Promoting **international cooperation** to bridge the **digital divide**.

- **Tunis Agenda for the Information Society:**
  The "Tunis Agenda" served as a **roadmap** for implementing initiatives and projects agreed upon, emphasizing:
  - **Funding mechanisms:** Establishing innovative financing tools to support ICT projects in **developing countries**.

- **Internet Governance:** Creating the **Internet Governance Forum (IGF)** as a global platform for discussing **Internet policy**, involving **governments**, **the private sector**, and **civil society**.
- **Implementation Follow-Up:** Developing mechanisms to **monitor and assess** progress in implementing summit outcomes and ensuring **sustained efforts**. *(Information, Tunis Summit 2005, 2025)*

**Challenges and Discussions :**

The summit featured intense debates on **Internet governance**, with differing national perspectives regarding the roles of **governments** and **international institutions** in managing Internet resources. Discussions also addressed **freedom of expression** and **human rights** in the **digital space**, emphasizing the need to **balance security and information freedom**.

**Outcomes and Impact:**

The **Tunis Summit** marked an important step in strengthening **international cooperation** in ICT. It established the **Internet Governance Forum (IGF)** as a **permanent global platform** for Internet policy dialogue and reaffirmed the importance of **partnerships** among **governments**, **the private sector**, and **civil society** in achieving the goals of the **Information Society**.

## Lecture Eight: Indicators for Measuring the Information Society

The measurement of the Information Society refers to the **indicators used to determine the informatization level** of a society, its **progress toward becoming an Information Society**, or to judge whether a given society **belongs to or is on its way toward** such a classification. *(Al-Assafin, 2020)*

The benefit of these measurements or indicators lies in their ability to **enable comparisons** between different countries and regions, or between different time periods for the same nation or region. Moreover, they assist in **understanding future policy measures** after accurately assessing the current situation. In developing societies especially, indicators provide **feedback** for **policy-making** and **national investment**, as well as **foreign contributions** to projects and investments.

In general, indicators have numerous advantages, as they present **factual data** reflecting the **current status**, and help **decision-makers** adopt appropriate measures to **advance development**.

It is worth noting that there is still **no consensus** on fixed indicators or criteria that can serve as a universal measure of progress toward the Information Society. These indicators are **not static**, and they evolve over time as the **objectives of the Information Society** change. With ongoing technological advancement, there is a constant **need for new indicators** to define appropriate reference standards.

In general, **Information Society indicators** evolve across **four interrelated stages**:

1. **Readiness:** This relates to **technical, technological, and social infrastructure**, representing the **basic requirements** for building the Information Society. It measures how prepared a society is for **ICT adoption**.
2. **Usage Intensity:** This highlights the **extent of ICT application** across various sectors — such as **business**, **education**, and

others. These are **core indicators** of the Information Society and provide a **foundation for assessing performance**.

3. **Impact of Use:** This refers to the **outcomes resulting from ICT utilization**, including **administrative reengineering**, **creation of new wealth**, **mobility and competitiveness**, and ultimately, **innovation**, **research**, and **development** — the pillars of future progress.
4. **Outcome:** This represents the **final results** achieved within institutions and communities in terms of **productivity** and **social impact**. *(Al-Assafin, 2020)*

**According to Academic and Organizational Frameworks:**

Various academic and institutional bodies have proposed different sets of **Information Society indicators**. Four major frameworks are highlighted below: *(Information Systems and the Knowledge Economy – Perspectives on the Concept and Approach, 2016)*

**a. Information Society Index (ISI)**

Developed by **IDC (International Data Corporation)** in collaboration with **World Times**, this **composite index** includes **23 measures** grouped into **four categories**:

- Computing infrastructure,
- Information infrastructure,
- Internet infrastructure,
- Social infrastructure.

**b. ESCWA Information Society Index:**

The **Economic and Social Commission for Western Asia (ESCWA)** recognizes that developing countries have **different needs and goals** compared to developed nations. In addition to shared basic indicators, ESCWA established **region-specific indicators** reflecting local contexts to assess progress toward the Information Society.

These indicators are divided into **two main categories**:

- Indicators focusing on **telecommunication network readiness**.
- Indicators focusing on **ICT usage intensity**.

They are further organized into **two sections**:

- Global coreindicators, and
- Regional supplementary indicators used to assess ESCWA countries' progress.

## 1. Global Group

## Readiness Indicators

### Infrastructure and Access:

- Average number of fixed lines per 100 inhabitants.
- Average number of mobile subscriptions per 100 inhabitants.
- Monthly cost of a residential fixed line subscription.
- Cost of a 3-minute local call using a fixed line.
- Monthly cost of a business fixed line subscription.
- Mobile subscriptionfees.
- Cost of a 3-minute local mobile call.
- Average number of television sets per 100 inhabitants.
- Average number of personal computers per 100 inhabitants.
- Average number of Internet-connected PCs per 100 inhabitants.
- Average number of Internet subscribers per 100 inhabitants.
- International bandwidthavailability ratio.
- Average number of broadband subscribers per 100 inhabitants.

### ICT Sector:

- Percentage of **ICT workers** (disaggregated by gender) within the total workforce.
- Percentage of **ICT imports and exports** relative to total trade.

## Usage Indicators

### Household Usage:

- Monthly household Internet access cost.
- Percentage of households with Internet access.

**Business Usage:**

- Percentage of business organizations using computers.
- Percentage of businesses connected to the Internet.
- Percentage of businesses with a website.
- Share of online transactions in total business value.

**Education Usage:**

- Ratio of students enrolled in primary and secondary schools to the number of available computers.
- Percentage of schools with Internet access available to students for educational purposes.
- Percentage of higher education students enrolled in ICT-related fields, disaggregated by gender.
- Percentage of teachers skilled in ICT in primary and secondary schools.
- Percentage of higher education institutions offering e-learning programs.

**2. Regional Complementary Group**

**Readiness Indicators:**

- Computer cost relative to average individual or household income.
- Existence of official ICT policy or strategies in one or more economic sectors.
- Number of active ICT-related initiatives at the national level.

**Usage Indicators:**

- Number of locally developed Arabic-language applications (local content).
- Volume of locally available online content (measured in web pages).
- Percentage of government organizations providing interactive services online.

- Volume of government information available online (measured in megabytes).
- Percentage of government services accessible via the Internet.

### 3. Arab Information Society Index

Proposed by Mohamed Ben Ahmed, this index builds upon ISI indicators while incorporating Arab regional context and emphasizing human and content dimensions over purely technological aspects.
It includes 34 measures grouped into four main categories:

### a. Infrastructure (13 indicators):

- Number of computers per 100,000 inhabitants.
- Number of computers per 100,000 households.
- Percentage of networked computers outside households.
- Ratio of software spending to hardware spending.
- Local Internet bandwidthcapacity.
- Number of Internet users in the non-agricultural workforce.
- Number of Internet users per 1,000 households.
- Number of fixed-line subscribers per 1,000 inhabitants.
- Number of mobile subscribers per 1,000 inhabitants.
- Average line fault rate per telephone line.
- Average number of telephone lines per household.
- Number of television owners per 1,000 inhabitants.
- Number of major and local networks and users in non-agricultural production organizations.

### b. HumanResources (5 indicators):

- **Adultliteracy rate** (ages 15+).
- **Gross enrollment ratio** across primary, secondary, and higher education.
- **Average cumulative knowledge level** of adults.
- Ratio of **scientists, engineers, and researchers** per thousand or million inhabitants.

- Percentage of **ICT specialists and related professionals** among teachers and engineers.

**c. Content (Educational and Knowledge Dimensions) (7 indicators):**

- Total number of **websites and pages** by content language.
- Number of **educational software products** available online or on optical media.
- Percentage of **industrial, professional, educational, and cultural institutions** connected to the Internet.
- Number of **Internet users per 10,000 students**.
- Number of **Internet users per 1,000 teachers**.
- Share of **exports** in **software, hardware, and computing applications industries**.
- Total expenditure on **e-government, e-learning, e-commerce, and e-services** as a percentage of GDP.

**d. Cultural and Social Environment (9 indicators):**

- Number of **public libraries**, users per 100 residents, and titles per 100 residents.
- Number of **books produced annually** and **translated works**.
- **Individual freedoms:** freedom of expression, association, correspondence, travel, and belief.
- Number of **newspaper readers per 100,000 inhabitants**.
- **Freedom of the press**.
- **Secondary education enrollment rate**, by gender.
- **Higher education enrollment rate**, by gender.
- Percentage of **students in science, mathematics, and engineering fields**.
- Percentage of **students enrolled in masters and doctoral programs**.

In conclusion, measuring access to the **Information Society** is essential for the **development** of any nation. Implementing these

measurements in practice requires **awareness and commitment** from responsible authorities to establish a **national statistical system** capable of providing **accurate data**, thus highlighting **appropriate measurement indicators** for each society.

## Lecture Nine: The Digital Divide and Its Impact on Establishing the Information Society

The digital divide is defined as the disparity in access to and use of information and communication technologies (ICT) among individuals, communities, or nations. This gap is not limited to infrastructure and technology, but also includes differences in digital skills, knowledge, and the ability to benefit from these technologies. The digital divide is considered a major obstacle to achieving an inclusive and equitable Information Society.

The danger of the digital divide lies in the fact that possessing ICT and the skills required to use it grants social and economic advantages to those who have access, over those who do not — whether they are nations, institutions, or individuals. For individuals, this advantage can mean the difference between poverty and prosperity, while for nations or societies; it can determine success or isolation from the global economy. *(Abbas, 2004)*

If we examine the digital divide more closely, we can easily recognize its magnitude. It is known today that a large proportion of people in developed countries use three different types of phones in their daily lives — a home phone, a mobile phone, and Internet access. Meanwhile, half of the world's population has never used even a single telephone, and in many countries, most citizens do not have a phone at home. *(Abbas, 2004)*

**Causes of the Digital Divide:**

- **Economic Factors:** Low income is one of the most significant barriers preventing individuals or communities from acquiring technological devices or subscribing to Internet services.
- **Geographical Factors:** Rural or remote areas face difficulties in establishing telecommunication infrastructure, resulting in weak or absent Internet services.
- **Educational Factors:** A lack of education or digital training limits individuals' ability to effectively use modern technologies.

- **Social and Cultural Factors:** Customs, traditions, or language differences may influence the adoption and use of technology.

**Types of Digital Divide :**

- **Global Divide:** The disparity between developed and developing countries in access to and use of ICT.
- **Social Divide:** The disparity within a single nation among different social groups in technology access.
- **Demographic Divide:** The disparity among age groups or genders in the use of technology.

**Effects of the Digital Divide on Establishing the Information Society:**

- **Impact on Education:** Education is among the most affected sectors; the lack of **Internet access** or technological devices limits students' ability to access digital learning resources, resulting in unequal educational quality and learning opportunities.
- **Impact on the Economy:** The digital divide contributes to economic inequality among individuals and communities. Those lacking digital skills or technology access face difficulties obtaining decent jobs or participating in the digital economy.
- **Impact on Healthcare:** In an era where digital health services — such as online consultations and electronic medical records — are expanding, lack of access to technology deprives some individuals of these services, negatively affecting their health and well-being.
- **Impact on Civic Participation:** Participation in democratic processes, such as voting or access to government information, is essential in an Information Society. The digital divide restricts some individuals' ability to actively participate in civil society.

Reducing the digital divide — whether within a single society or between nations — by enabling individuals to access digital tools and training educators to use them, represents the pursuit of digital justice *(Abbas, 2004)*.

Achieving digital justice has become one of the strategic priorities of international development organizations, therefore, cooperation among these countries should be strengthened in the field of computing to foster solidarity and integration, through:

- Adopting **supportive policies** and **regulatory environments** that promote ICT and encourage competition.
- Supporting **development and social cohesion** through ICT.
- Intensifying efforts in **education** and **capacity-building** for ICT professionals.

Global experience has shown that ICT can act as a **powerful catalyst for economic growth**, particularly for **emerging economies** in developing countries. Nations that have managed to **master ICT** have a greater chance of **overcoming obstacles** and can **maximize the benefits of e-commerce**.

These outcomes have been reinforced by the significant achievements of some developing nations, such as **India** and **Malaysia**. *(Abbas, 2004)*

## Lecture Ten: Features and Aspects of the Information Society

Information is cumulative by definition, and the most effective means of gathering and distributing it are based on participation by ordinary citizens, technicians, and experts, each in their respective fields. The value of information lies in overcoming uncertainty and enhancing a person's ability to make the most effective decisions.
The social impact of information stems from its focus on intellectual work, or what is known as the automation of intelligence, deepening mental activity through knowledge creation, problem-solving, and expanding opportunities for individuals, thereby fostering social development.

The features of the Information Society can be summarized as follows: *(Yassin, 2000)*

- Information will be made available to all users through a computing infrastructure, a communication network, and ICT applications, and knowledge creation will occur through mass participation.
- The information industry will become the leading industry, dominating both national and global industrial structures.
- There will be a separation between technology and the political, economic, and social institutions of society.
- There will be great opportunities for political transformation based on participatory democracy and self-governance.
- The social structure will consist of multiple, decentralized, and voluntarily integrated local communities.
- Human values will shift from a focus on consumption to an emphasis on improving the quality of the social and natural environment.

The Information Society is defined as one in which information serves as a central element in all aspects of life and relies on ICT for

its production, processing, and distribution. This transformation has led to several distinctive features reflecting the nature of this society. The most notable include:

- **Information Explosion:** The world has witnessed an enormous increase in available information due to technological advances and the emergence of new means for generating and exchanging data. This continuous flow of information requires advanced tools and technologies for effective management and utilization.
- **Reliance on ICT:** ICT has become the **backbone** of the Information Society, used across sectors to improve **efficiency** and enhance **communication**. This includes the use of **computers**, **the Internet**, and **smartphones** in everyday life.
- **Digital Economy:** The global economy has transformed into a **digital model**, where **information** is a **primary commodity**. New industries have emerged, such as **e-commerce**, **online banking**, and **digital marketing**, bringing fundamental changes to business and work practices.
- **E-Learning:** The availability and accessibility of information have transformed education systems. **Online learning** has become an essential component of education, allowing students to **access educational resources** and **interact digitally** with teachers and peers.
- **Remote Work:** Advances in communication technologies have enabled individuals to **work from anywhere**, fostering a **remote work culture**. This shift has increased flexibility, boosted productivity, and reduced operational costs.
- **Social Networks:** Social media has become an integral part of daily life, serving as a platform for **communication**, **information exchange**, and **relationship building**. These platforms have significantly influenced **culture**, **politics**, and **economics**.
- **E-Government:** Governments have adopted ICT to provide services efficiently and transparently. This includes **online**

**public services**, such as document renewal, tax payment, and communication with officials.

- **E-Health:** The use of digital technologies in healthcare — such as **electronic medical records**, **telemedicine**, and **health-tracking applications** — has improved service quality and accessibility.
- **Digital Divide:** Despite technological progress, disparities persist in access to information and technology between and within countries, creating a **digital divide** that affects **education**, **employment**, and **development opportunities**.
- **Privacy and Security Issues:** The growing flow of information has brought challenges related to **data protection** and **information security**. Individuals and organizations must take steps to **safeguard data** against **cyber threats**.
- **Digital Libraries:** Traditional libraries have evolved into **digital platforms**, offering access to **online resources** and **references**, making information retrieval easier.
- **Electronic Publishing:** It has become possible to **publish books, articles, and research electronically**, allowing wider distribution and accessibility.
- **E-Commerce:** E-commerce platforms have expanded, enabling individuals and companies to **buy and sell products and services online**, transforming traditional shopping habits.
- **Digital Entertainment:** New forms of entertainment have emerged, such as **streaming platforms**, **video games**, and **virtual reality**, relying on technology to deliver **interactive user experiences**.

These features reflect the **profound transformations** brought about by the Information Society across all aspects of life and highlight the **importance of information and technology** in shaping modern societies.

## Lecture Eleven: Ethics of the Information Society:

The term "information ethics" was first known in the field of libraries and information, but it soon spread to various other fields and professions such as journalism, media, public administration, informatics, the Internet, and computing. Information ethics originates from the right of access to information, the right to research and conduct theoretical and applied studies, inquiry and statistics, and the free flow of information within the framework of the right to knowledge. It also stems from freedom of the press, media ethics, the ethics of professionals working in information, documentation, and public libraries, as well as the right to transparency and other rights related to information. Furthermore, information ethics is associated with good governance in terms of the proper preservation, management, use, circulation, and dissemination of information, based on principles of integrity, honesty, transparency, democracy, and human rights, rather than on relations of power, domination, or citizen surveillance for intelligence or tax purposes. **(Rajab, 2010)**

Among the conditions and requirements of information ethics are:
• Objectivity, responsibility, and accuracy.
• Quality in publishing and using information.
• Tolerance and respect for beliefs when using information.
• Respect for cultural, linguistic, and media diversity as a shared heritage that promotes exchange, development, and participation.
• Bridging the digital divide between peoples, establishing free and compulsory education, launching information databases, and eradicating all forms of illiteracy, including information illiteracy.
• Protecting intellectual and literary property rights, combating information piracy, managing information portfolios properly, and promoting modern communication technologies.
• Supporting the right of access to information for everyone, especially for people with disabilities and special needs, through

technologies designed for them, without alteration, falsification, embellishment, restriction, truncation, or diminution.
• Encouraging free access to information for educational and academic purposes, promoting e-government, reducing the cost of communications, correspondence, and the internet, and protecting whistleblowers who report legal violations such as failure to comply with legal obligations, committing crimes like bribery, environmental or health violations, or the presence of imminent danger to public safety. (**Rajab, 2010)**

It is also believed that the export of technologies and information technology to countries contributes to the dissemination of information. Therefore, all this requires the establishment of professional and ethical codes of conduct — a set of principles and rules that define the behavior to be followed by the media and by those who own or control information, in order to handle information according to professional standards in terms of receiving, storing, managing, and disseminating it; specifically:

- Not prioritizing public, political, or personal interests or opinions over the content of information, and avoiding bias in using information; acting with responsibility, objectivity, integrity, and honesty in dealing with information and its users.
- Not violating privacy, private life, human dignity, or moral or religious values, and refraining from promoting war or inciting racial, national, or religious hatred.
- Respecting the rights and freedoms of others, which includes the right of reply and correction for anyone who has been wronged by false or misleading information attributed to them; verifying the accuracy of information and its sources, avoiding the dissemination of false or unverified information, and refraining from malicious propaganda.
  Fairness and equality in handling information and in dealing with its users and seekers.

- Consulting specialists regarding specialized information. Protecting legally reserved rights in authorship, use, publication, copying, storage, and ownership through the protection of intellectual and literary property and patents.
- Encouraging research, studies, and technological and linguistic empowerment. There are also many other rules and ethics of information that should be included in codes of conduct.
- Information ethics is a fundamental condition for building knowledge or information societies, the subject of recent world summits and conferences, many organized by UNESCO. These ethics cover multiple fields that go beyond technology and communications, as information ethics is closely related to contemporary issues such as cloning and scientific experiments.

Information societies possess the ability to identify, create, disseminate, and use information in order to generate essential knowledge and apply it for human progress. This is based on respecting the following principles and priorities: Freedom of expression — freedom to transmit information — access to information and knowledge for all at an affordable cost, supporting modern means of accessing information alongside traditional ones (such as supporting public libraries), respect for human dignity and cultural and linguistic diversity, the right of all to quality education, and investment in science and technology.

## Lecture Twelve: The Information Society in the Arab World

The World Summit on the Information Society, held in Tunis in 2005, marked an important turning point in building the information society in Arab countries. Many of these countries were alerted to the importance of the information society and the benefits of involving the private sector alongside governments in building information and communication technology. The value of foresight in this sector increased, and coordination began between governments and the private sector to address several issues, such as increasing access rates, capacity building, and providing Arabic digital content.

However, there is a clear disparity in the development of information and communication technology in Arab countries. The pace of development accelerated between 2002 and 2008, with the rate of mobile phone penetration increasing by 100% in 2008, especially in the Gulf Cooperation Council (GCC) countries. More than one-third of the population used the Internet, with the United Arab Emirates and Bahrain leading, while in other Arab countries, the percentage of mobile phone users was less than 60%.

Internet usage varied between 10% and 15%, with Jordan leading, followed by Lebanon. In contrast, low-income countries such as Sudan, Mauritania, Yemen, and the Comoros showed disparities. Mauritania led in mobile phone subscriptions, with more than two-thirds of the population owning mobile phones, but Internet usage remained very low at less than 2%. In Sudan, Internet use exceeded 9%, while mobile phone use was below 30%.

This variation in the rates of information and communication technology use among Arab countries reflects differences in national information policies from one country to another, as well as differences in individual income levels. The Gulf countries were the fastest-growing in terms of information technology indicators, due to their higher per capita income.

Accordingly, it is necessary to address some of the difficulties facing the Arab world that make it hard to establish well-defined programs with clear objectives, including:

- Lack of real integration between communication and educational approaches in the Arab world.
- Restricting efforts to purchasing technology rather than transferring and mastering it, stripping it of its knowledge context.
- Limiting the use of communication technology in the Arab world to major cities.
- Using information and communication technology mainly for entertainment and consumption rather than for development.
- Restricting the components of the information society to the urban minority who have special individual means to interact with information technology. (Baya, 2016)

On this basis, Arab countries should develop a strategy to advance the information society while taking into account these various factors and aligning them with their specific contexts.

As a first requirement for anticipating the future of the information society in the Arab world, Arab societies should be prepared through the following:

- Urgently formulating comprehensive and clear policies that rely on communication and information as key pillars for social, economic, and cultural development.
- Considering the preparation of Arab societies for the information society as a cultural priority, given that the coming era is the era of information.
- The need for Arab cultural institutions and organizations to urge formal educational institutions to respond quickly to the demands of the electronic revolution.
- The weakness of political and institutional structures for information technology in most Arab countries due to a shortage

of specialists and lack of qualified individuals for a technological future.

- It is crucial to address chronic problems that hinder Arab informational integration due to closed borders and the lack of pan-Arab institutions capable of keeping up with the dynamics of the electronic revolution.
- Focusing on the educational and pedagogical aspects, and not limiting efforts to formal education but including self-learning and lifelong education.
- Aligning educational planning with development strategies, as development planners often neglect information technology, particularly in education.
- Introducing computers into formal education systems.
- Producing computer-based educational programs in Arabic and attracting as much talent as possible.
- The necessity of changing the educational philosophy from rote learning to one that encourages problem-solving, innovation, and creativity.
- Abolishing the outdated perception that underestimates the value of information. Information has become a primary industrial material and a renewable resource comparable or superior to financial resources. The global civilizational revolution impacts us with its results, even though we play no part in shaping it; we remain consumers and must think about becoming active and productive participants.

## Challenges Facing the Arab Information Society:

At the beginning of the twenty-first century, Arab governments began to show genuine interest in information issues, as these topics became part of their regular meetings, seminars, and conferences. This inspires optimism and hope despite the many challenges ahead. According to the Arab Human Development Reports (2003), there were fewer than 18 computers per 1,000 users. The Arab budget

allocated to information production did not exceed 5% of the annual budget. The Arab world also suffers from brain drain, losing more than 41% of its highly educated and skilled professionals over 50 years. This is due to authoritarianism, the absence of intellectual life, and weak information infrastructure.

Among the most significant challenges facing the Arab region are:

- Expanding economic and social applications of information and communication technology.
- Developing information infrastructure and communication networks.
- Accelerating the transition toward the digital society and increasing Arabic digital content.
- Establishing a service sector for information technology production.

  Using the Arabic language in information technology applications.

  Creating a legal and administrative framework to address information security crises.
- Employing information technology for regional industrial integration.

  Providing human resources and financial means.

## Lecture Thirteen: The Information Society in Algeria :

In the 1970s, Algeria held a respectable position compared to developed countries in terms of communication means. Twenty-five percent of the state budget was allocated to establishing training structures at all levels, including computer science. However, the drop in oil prices led to an economic crisis, reduced investment, and consequently weakened networks.

The dissemination and use of information and communication technologies necessarily accelerated economic development by contributing to the advancement of the service and industrial sectors.

In 1996, alarm bells rang, and the urgent need arose to move toward decentralization, privatization, economic liberalization, competition, and a market economy (Alaoui, 2004).

In 1997, restructuring began for around one hundred public economic companies. With the rise in oil prices at the beginning of the millennium and the improvement of the security situation, the national economy experienced noticeable recovery. However, the implementation of reforms was particularly slow regarding foreign trade liberalization, modernization of the banking sector, development of legal frameworks, and support for small and medium-sized enterprises.

In August 2000, the law on postal services and telecommunications was approved, marking an important step in the development process. It transformed the historical telephone operator into a joint-stock company, ended the state's monopoly over the telecommunications sector, and established a regulatory authority. As a result, two licenses were granted to foreign operators in the mobile sector — the first in July 2001 to the Egyptian company Orascom, and the second in December 2003 to Kuwait's Wataniya. (Baya, 2016)

In April 2001, the Economic Recovery Plan (2001–2004) was approved, with a budget of 525 billion dinars (7 million dollars) allocated to infrastructure costs and corporate assistance.

The information and communication technology (ICT) sector directly benefited from portions of the budget, including investments in telecommunications infrastructure. These allocations were divided into four parts as follows: three projects under the responsibility of the Ministry of Post and ICT, which include:

- Establishing a technology park for ICT at a cost of 130 million dollars.
- Developing and enhancing postal services nationwide with a budget of 83 million dollars.
- A program to expand telephone communications in remote municipalities with a value of 83 million dollars.

The fourth project, under the Ministry of Higher Education and Scientific Research, aimed at supporting and developing research programs in higher education institutions, was allocated 86 million dollars.

The privatization program for major public companies was almost frozen between 1996 and 2002 before being reactivated.

In April 2002, a list of 60 companies eligible for partial privatization was published. The creation of a privatization agency was also announced. However, according to data from the National Statistics Office, the results of these measures regarding the establishment of small and medium-sized enterprises and investment promotion did not meet expectations.

On October 28, 2001, a guiding law for the promotion of small and medium-sized enterprises was approved. This law regulated tax system adjustments, simplified banking and monetary procedures for SMEs, and created a loan guarantee fund.

It also stipulated that the state would allocate a portion of the public market to competition among SMEs and expand the scope of privileges concerning public services.

In August 2001, the Investment Law was approved, enabling significant progress in investment reforms, particularly in renewing priorities, simplifying, facilitating, and accelerating permit procedures, and reducing tax burdens. It is worth noting that national investments enjoy the same privileges as foreign ones.

**Establishment of a Special Committee for the Information Society:**

A special committee for the Information Society was established on May 9, 2001. It consisted of twenty members representing ministries, public and private institutions, members of ministerial offices, academics, and Internet service providers. Their mission was to submit a report on the challenges posed by the Information Society and the conditions necessary to achieve it. The report, presented in October 2001, analyzed legal, regulatory, banking, tax, and economic obstacles hindering both public and private initiatives in building a comprehensive information society.

**The State of the Telecommunications Sector Before August 2000:**

Between 1975 and 1981, major investments were made to modernize and expand the telecommunications network nationwide. Starting in 1980, public investment in the sector ranged between 0.20% and 0.40%, showing a lack of sufficient effort. Fixed-line telephone density remained low, waiting lists grew longer — averaging seven years in 1990 — and service interruptions increased by 2000. At that time, there were 800,000 pending fixed-line requests and 250,000 for mobile lines.

Connection, subscription, and call costs were low compared to neighboring countries. However, international calls were expensive — $0.72 per minute to Southern Europe, $2.13 to Asia, and $0.20 per minute to Maghreb countries.

From a regulatory standpoint, the ministry operated under Ordinance No. 75-89 on postal services and telecommunications, dated December 30, 1975.

## Telecommunications Sector Reform:

To compensate for delays, address shortcomings, and meet the challenges of the 21st century while ensuring Algeria's integration into the information society, the Algerian government decided to implement reforms aimed at enhancing competitiveness and diversity in the national economy and its institutions, and developing a dynamic telecommunications sector in preparation for joining the World Trade Organization (WTO) and the partnership agreement with the European Union.

These reforms primarily sought to align the telecommunications sector with global economic trends and transformations resulting from market expansion and technological growth. Among the objectives of the program to rehabilitate communication infrastructure was to increase service availability by constructing new facilities and improving connectivity.

**In June 2000**, the Algerian government developed and adopted a strategy to address the delays experienced by the sector, aiming to:

- **Increasing supply:** Concerning telephone services, to facilitate the use of communication services by the largest possible number of users, especially in rural areas, in response to high demand and to reduce prices.
- **Improving and diversifying service quality:** To meet the needs of institutions and individuals.
- **Expanding the scope of communication services:** Making them accessible to residents of remote and isolated areas, which is considered an economic necessity.
- **Developing an integrated national communication network:** To modernize the administration and public institutions.
- **Promoting communications as an economic sector:** Essential for establishing a competitive, open economy in which services represent a significant part of national income.

The government reform program revolves around the following axes:

- Introducing amendments to the legislative and regulatory framework of the sector to ensure that reforms are based on solid, proper, and transparent foundations.
- Separating exploitation, regulation, and sectoral policy — this is to restructure the Ministry of Post and Telecommunications and divide it into:
  - A telecommunications company.
  - A postal company.
  - A regulatory authority and a ministerial branch responsible for defining the sector's policy regarding post and telecommunications.

- Liberalizing the postal and telecommunications market and opening it to competition, promoting private participation and investment.
- Opening the capital of the historical operator to a strategic investor, followed by a public offering of its shares on the stock exchange.
- Protecting and developing universal or nationwide services across the entire national territory.

- Law **2000-03**, dated **August 5, 2000**, is considered the cornerstone of Algeria's entry into the information society. It includes:
- Separation of postal and telecommunications activities and the creation of a private law company (Algérie Télécom) to manage public telecommunications services under the supervision of the ministry.
- Establishment of an industrial and commercial institution to manage public postal services (Algérie Poste).
- Creation of an independent regulatory authority for the postal and telecommunications sector.

- Opening the telecommunications market to competition according to three types of services: license, authorization, or declaration.
  Gradual liberalization of the postal and telecommunications market.
- This law was followed by several implementing decrees, including:
  Decree No. 109-10 of May 3, 2001, appointing members of the Postal and Telecommunications Regulatory Authority.
- Decree No. 123-01 of May 9, 2001, concerning the methods of operating all types of networks, including wireless and communication networks.
- Decree No. 124-01 of May 9, 2001, defining the procedures for applying bidding processes to grant telecommunications operating licenses.
- Decree No. 01-417 of December 20, 2001, granting authorization for the creation and operation of public telecommunications networks, including wireless ones, except GSM, or authorizing AlgérieTélécom to provide telecommunication services.
- Additional important texts were issued concerning interconnection regulation, competition, universal service, the use of scarce resources, numbering, waves and frequencies, infrastructure sharing, and dispute resolution.
- The ministry retained two of its four main functions: regulation and sectoral policy.

## Lecture Fourteen: From the Information Society to the Knowledge Society

The **information age** is still in its early stages, as information technology will change the face of life and accelerate economic and social transformation. It will also bring about a new revolution in education and scientific research. It is observed that after World War II, advances in information technology had a major impact on employment levels in the industrial and service sectors — similar to the first industrial revolution's impact on agriculture, where employment levels fell from 80% to 30%.

Information technology will have enormous and unimaginable effects in the future. The history of computer science illustrates the strategic role of scientific research and the disappearance of boundaries between basic and applied sciences. Just as scientists provide their societies with solutions to development problems, they also warn against the dangers of dealing with scientific progress without an accompanying philosophy of economic and social change and a strong plan for technological development. The isolation of the local scientific community limits the ability to benefit from scientific advances, weakens innovation capacity, and prevents the utilization of others' innovations. Likewise, societies that neglect global scientific progress will fall victim to backwardness and the technological gap.

The transition to a knowledge society faces several challenges, the most significant of which can be summarized as follows:

The **first challenge** is achieving **information democracy**, which is an objective condition to avoid totalitarianism and authoritarianism. Information democracy includes four components:

- The first is the **protection of individual privacy**, which means the human right of a person to safeguard his private life and keep it hidden from others.

- The second is the **right to knowledge**, meaning every citizen's right to access all types of confidential governmental information that may profoundly affect people's lives.
- The third is the **right to use information**, which means every citizen's right to use available information networks and obtain information at a low cost, anywhere and at any time.
- Finally, the **pinnacle of media democracy**: the citizen's right to direct participation in managing the global media infrastructure, particularly in decision-making processes at local, governmental, and global levels.
- The **second challenge** facing the formation of the global information society is the **development of global intelligence**, meaning the adaptive ability of citizens to cope with rapidly changing global conditions.

**The Nature of Information and the Knowledge-Based Economy:**

The common definition of the word *information* refers to the change in the recipient's cognitive state through the use of data for a cognitive purpose. It is an intermediate stage between **data**, which exist in numbers, symbols, and linguistic forms, and **knowledge**, which refers to the integration of organized information and its use for practical benefit.

Thus, the information revolution will lead to profound cultural and social changes, as well as significant impacts on the structure of national and global economies. The information sector represents about **10% of total global income**, and information activities affect all economic sectors. Information and knowledge, as public goods, will change the nature of the economy.

Some believe that the structure and form of the economy will evolve over time due to rapid technological development. Economic growth will include unprecedented expansion in the potential for providing

goods and services, and economists — along with other scientists — will be preoccupied with these future transformations.

## Conclusion

In conclusion, it becomes clear from these lessons on the information society that the world is witnessing unprecedented transformations brought about by the information revolution, which has reshaped human life at all levels. The production, processing, and distribution of information have become the main driving forces of the economy, education, culture, and even social interaction. Information is no longer merely a tool to aid development — it has become the core foundation upon which modern societies rely to achieve progress and innovation.

This profound transformation compels us to reconsider our understanding of the world around us. The information society is not merely a technological stage; it is a civilizational shift affecting every aspect of daily life — from work and communication methods to ways of thinking and decision-making. In this context, the individual's role becomes crucial in managing this massive flow of information, transforming it into useful knowledge, and ultimately into wisdom used to build a more just and efficient society.

However, these transformations are not without major challenges — the most prominent being the digital divide, which deepens inequalities among societies, both at the national and individual levels. There are also important ethical issues concerning privacy protection, information security, and the responsible use of technology. These challenges require us to think carefully about how to seize the opportunities offered by the information society while addressing its potential drawbacks.

The lessons presented in this course, specifically designed for first-year students in the common core of human sciences, aim to equip them with the intellectual and cognitive tools needed to understand these transformations. The course is not limited to theory — it also encourages critical and analytical thinking and enables

students to apply what they learn in their academic and professional lives.

Understanding the concept of the information society and recognizing its impacts and challenges is a fundamental step toward building a generation that appreciates the value of information as a tool for change and development. Thus, the student becomes not only a consumer of information but also a producer and active participant in shaping this society, capable of contributing to its continuous improvement.

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