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LEGAL REGULATION OF INFORMATION SECURITY

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MODULE 1

INFORMATION SECURITY AND ELECTRONIC SERVICES

LECTURE 4

INFORMATION SYSTEMS, ELECTRONIC INFORMATION RESOURCES AND ELECTRONIC SERVICES

LECTURE OBJECTIVE

Distinguish information systems from electronic information resources and explain how ownership, access and personal data rules shape electronic services.

LECTURE PLAN

1. Information systems and electronic resources

2. Ownership, access and personal data

3. Types of electronic services

INFORMATIZATION OBJECTS

Concept or participant	Meaning, duties and application
Electronic information resources	Digital information held on electronic media, websites or within information systems.
Software and internet resources	Applications and online resources provide ways to publish, access or process information.
Information and communication infrastructure	Systems, platforms, hardware and software complexes, data centres, networks and security facilities support service operation.

Infrastructure includes data centres, telecommunications networks and security facilities as well as the systems they support. These components create dependencies. A resource may remain intact in storage while the application or network needed to reach it fails. Describing both the information and the supporting infrastructure helps identify the required protection.

COMPONENTS OF AN INFORMATION SYSTEM

Concept or participant	Meaning, duties and application
Technology	Hardware, software and communications networks support information processing.
Personnel and documentation	Staff operate and maintain the system. Technical documentation describes its configuration and operation.
Interactions	Workflows define how staff and technical components exchange and process information.
Purpose	The system performs defined functions, such as recording student enrolment or issuing a certificate.

An information system has an operational purpose and an organized relationship between technology and personnel. Documentation records how components work and how staff use them. Agreements with suppliers and other parties can also affect operation. A technical installation becomes a working service through these combined operational arrangements.

INFORMATION SYSTEMS AND DIGITAL RESOURCES

Concept or participant	Meaning, duties and application
Information system	The organized environment that collects, stores, processes and delivers information.
Electronic information resource	The digital content that the system manages, such as a registry entry, a document or a dataset.
University example	The student portal is an information system. Enrolment records and transcripts are electronic information resources.

Examples of electronic resources include registry entries, documents, datasets and multimedia files. The system provides the mechanisms for creating, searching, updating and delivering those resources. Distinguishing content from the processing environment helps identify which party controls the information and which party maintains the service that handles it.

CLASSIFICATION BY OWNERSHIP AND ACCESS

Ownership

Systems and resources may be state or non-state. Their origin, funding and ownership arrangements help determine the category.

Access

A system or resource can be publicly accessible or have restricted access.

Restricted resources

The lecture distinguishes state secrets from other confidential information. Each category has its own protection regime.

Critical systems

Some non-state systems are subject to additional information security requirements because of their role or integration with public resources.

State and non-state ownership concerns the origin and legal status of the asset. Public and restricted access concerns the conditions of using the information. These classifications answer different questions. A privately operated system can handle protected public-sector data, while a state-owned portal can publish information freely accessible to citizens.

OWNERSHIP OF SYSTEMS AND DATA

Owner

The owner holds the rights of possession, use and disposal.

Holder

The holder possesses and uses an object within the limits granted by law or agreement.

Separate assets

The ownership of a platform, its software and the data stored in it can belong to different parties.

Third parties

Licences, maintenance terms and hosting agreements can affect how a system operates and who may access it.

Possession concerns control of the asset, use concerns obtaining its benefits, and disposal concerns determining its legal fate. A holder receives a defined scope of rights. Software licences, warranties and operating agreements may impose further conditions. Data ownership can remain with a separate party even when another organization supplies the platform.

PERSONAL DATA IN ELECTRONIC RESOURCES

Identifiability

Personal data relates to a person who is identified or can be identified. Examples include names, birth dates and biometric records.

Access regime

Personal data can be publicly accessible in specified circumstances or subject to restricted access.

Consent and exceptions

The lecture discusses consent as a basis for collection and processing, alongside exceptions provided by law.

Electronic confirmation

An electronic document or a confirmation through a registered phone can record consent where the service permits it.

Personal data can identify a person directly or through a combination of details. The processing purpose and permitted access need to be established before collection and transfer. Electronic confirmation records the person’s action in the service. Access to publicly available data and access to restricted records follow different conditions.

ELECTRONIC INFORMATION SERVICES

Informational

A user views a public registry entry or downloads published information.

Interactive

A user submits a request and receives a response through a two-way exchange.

Transactional

The service includes an electronic payment as part of the exchange.

Composite

A single request initiates a bundle of related services.

A service can move through several modes during one workflow. It may first publish information, then receive an application and finally request payment. A composite service combines linked services under one request. Each stage creates records and responsibilities, so the workflow needs to preserve the relationship between the request and its result.

CASE DISCUSSION

A university portal publishes admissions deadlines, accepts applications and collects a fee.

Which items are electronic information resources?

Which functions are informational, interactive and transactional?

Analysis

Deadlines and applications are electronic information resources. Publishing deadlines is informational, accepting applications is interactive and payment is transactional. Access conditions and privacy duties depend on the information and the service.

HARDWARE, SOFTWARE AND OPERATING ARRANGEMENTS

A hardware and software complex combines equipment and programs to perform defined tasks. ICT adds methods of processing and communication. An information system also incorporates staff, documentation and organized interaction.

The system’s purpose links these components to an outcome, such as maintaining a registry. Technical capability, operational responsibility and the legal conditions of using the result all contribute to the functioning service.

A system can contain equipment purchased from one supplier, licensed software from another and data belonging to a third party. Warranty terms, licences and hosting agreements can each impose conditions on operation.

The holder exercises the rights granted by the owner or by law. Agreements define the scope of use and access. They also address derived products when parties process or combine electronic resources.

PUBLIC AND RESTRICTED RESOURCES

Public resources are available under the access conditions that apply to them. Restricted resources include state secrets and confidential information. Classification determines which users can access the resource and which protection measures apply.

A public-facing system can still contain restricted records. Its design therefore needs to distinguish published information from protected datasets and administrative functions.

Personal data includes information relating to an identified or identifiable person. The lecture gives examples such as names, dates of birth and biometric information. It also distinguishes public and restricted personal data.

For an electronic service, consent can be recorded through an electronic document or another permitted confirmation mechanism. The record needs to connect the person, the processing purpose and the confirmation event.

CONCLUSION

1. An information system processes digital content. Electronic information resources are the content it manages.

2. Ownership of a platform and ownership of its data can belong to different parties.

3. Access conditions and privacy duties depend on the information and the service.

SELF-ASSESSMENT QUESTIONS

1. What makes an electronic action legally significant?
2. How can identity, authority and consent be established in an electronic transaction?
3. What functions does a digital signature perform?
4. What records help establish the content and timing of an electronic agreement?
5. Why does a valid digital signature alone not resolve every question about a transaction’s validity?

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1. Lecture 4. Information Systems, Electronic Information Resources and Electronic Services. Course materials.

2. K. C. Laudon and J. P. Laudon. Management Information Systems: Managing the Digital Firm.

3. Republic of Kazakhstan. Law On Personal Data and Their Protection.