COMP3342:
Health Systems Interoperability and Integration

Interoperability in Health Systems

Time: **Tuesday+ Thursday: 11:25-12:40**

Location: **Masri204**

Section: **1**

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Co-funded by the
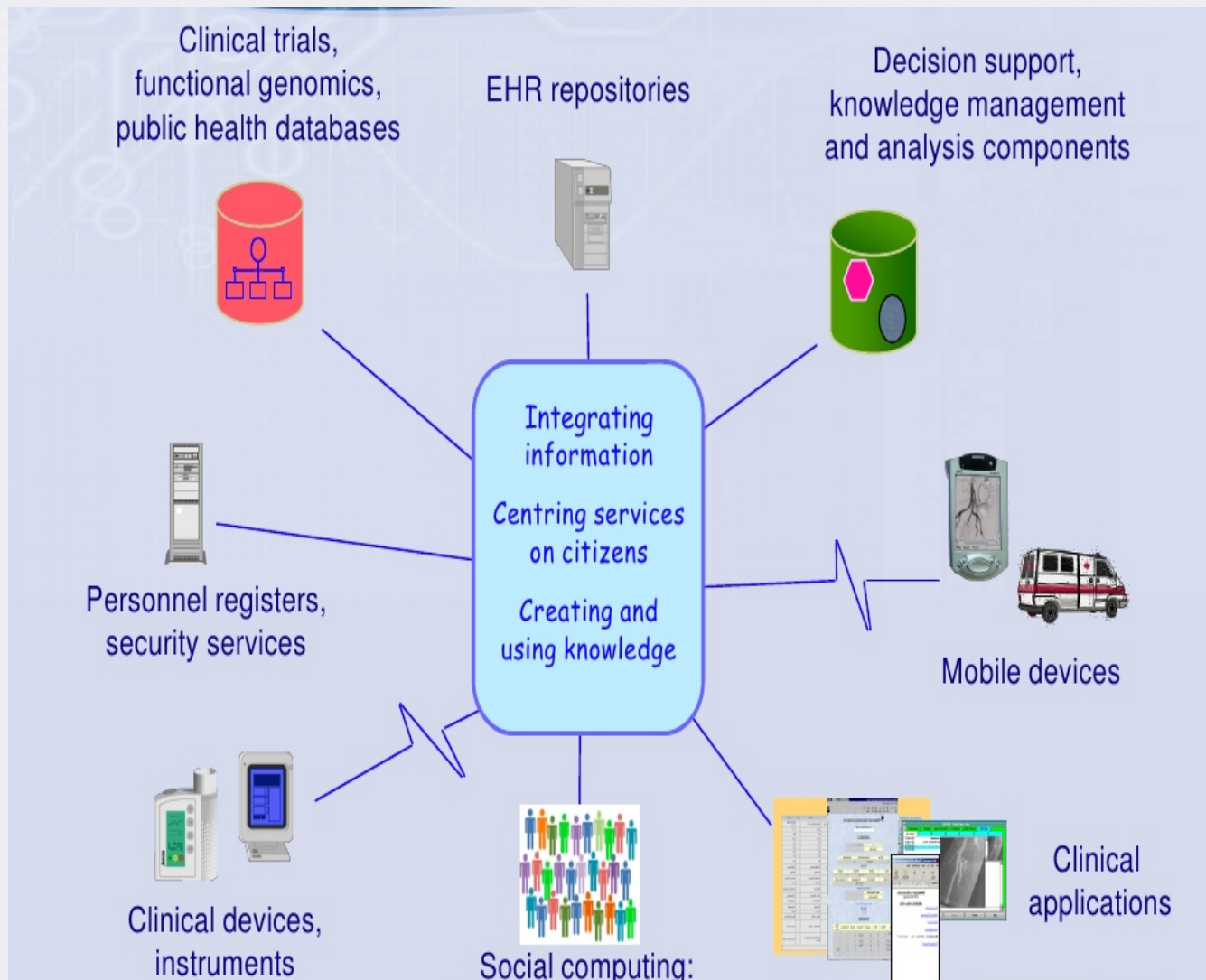Erasmus+ Programme
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Interoperability in Health Systems
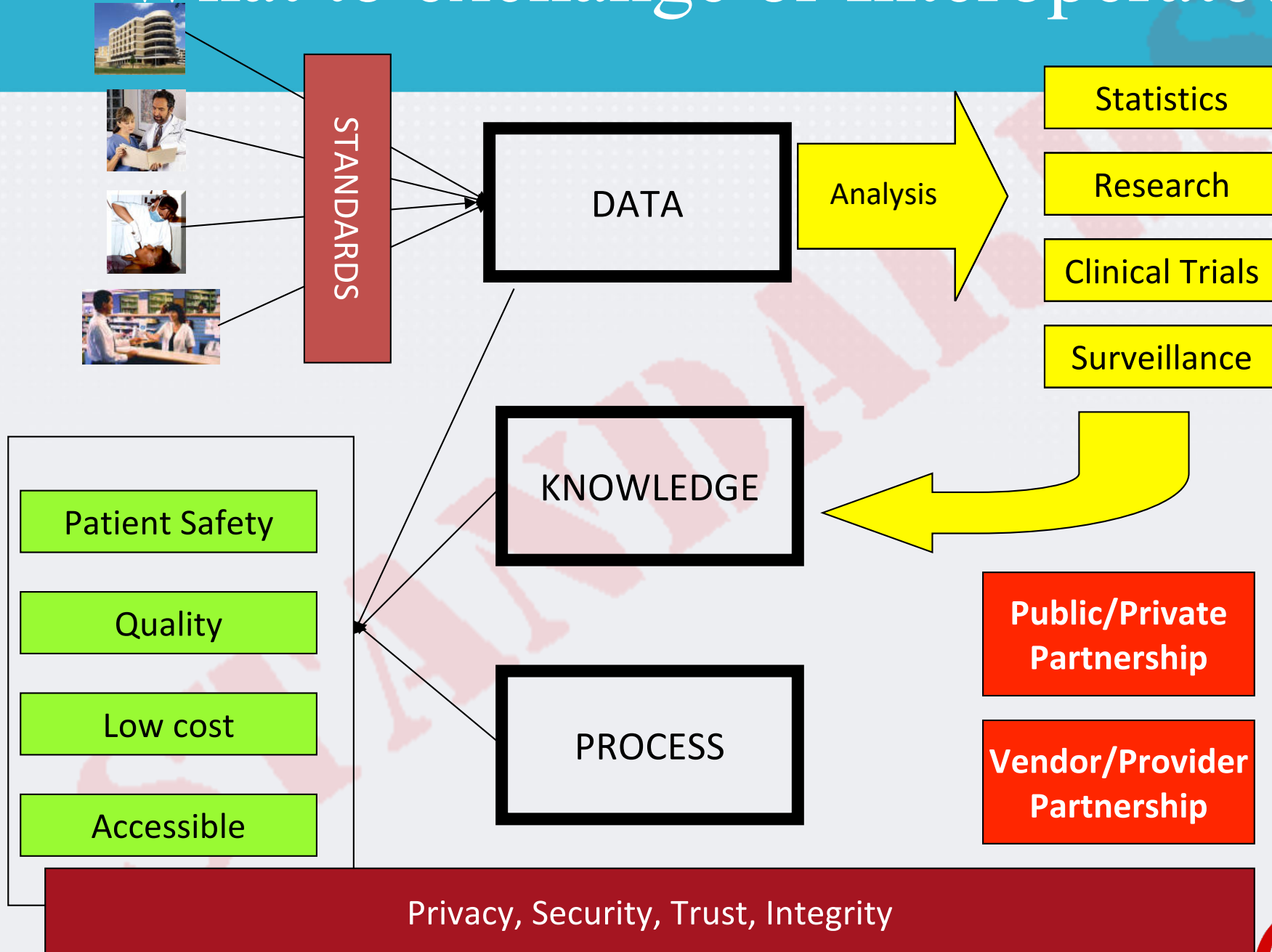
Learning Objectives:

1. Understand what is meant by Interoperability
   1. layers,
   2. types,
   3. benefits and challenges

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Electronic Health Records Land escape

Source: Eurorec

What to exchange or Interoperate?

STANDARDS

DATA

Analysis

Statistics

Research

Clinical Trials

Surveillance

KNOWLEDGE

Patient Safety

Quality

Low cost

Accessible

PROCESS

Public/Private Partnership

Vendor/Provider Partnership

Privacy, Security, Trust, Integrity

Interoperability

Introduction: what is meant by interoperability?

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What is Interoperability?

- According to IEEE: "*Interoperability is ability of two or more systems or components to exchange information and to use the information that has been exchanged"*
(IEEE 1990)

- In the field of Health Informatics: "*Interoperability means that the ability to communicate and exchange data accurately, effectively, securely and consistently with different information technology systems, software applications, and networks in various settings and exchange data such that clinical or operational purpose and meaning of the data are preserved and unaltered"**

* *G. Patricia, A. Noam et al, "Coming to terms: Scoping Interoperability for Health Care",*
Health Level Seven, EHR Interoperability Work Group, Feb 7, 2007

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What is Interoperability?

- The capability of different systems to <u>work together</u> and <u>share information</u> within organizational boundaries

- It is necessary for systems, when integrated, to share information with different <u>structures</u> and <u>formats</u>

- The systems have to agree on the <u>format of data</u> and <u>what is being shared</u>

- Compatibility and interoperability is a challenging requirement for systems integration

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Interoperability in Health Systems

- To allow interoperability between systems, health information standards must cover
    - Syntax (structure)
    - Semantic (meaning)

- In 2007, a single EHR system at Mayo Clinic in Rochester, Minnesota, USA, processes more than 650 million (HL7) messages

=>Thus the need to standardizing the processes/transactions in EHR

Source: (Principles of Health Interoperability)

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Health Transactions

- Health Transactions/messages may include:
  - Lab Test requests
  - Lab Test reports
  - Prescriptions for medicines
  - Orders of nursing care, equipment, transports…
  - Letters between clinicians such as referral, clinic, and discharge letters
  - Aggregate information for management, audit, and monitoring
  - Billing and accountancy

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