Interoperable Information System for National BioBank of Korea

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National BioBank of Korea (NBK)

- Government-supported
- To consolidate human-originated biomedical resources (e.g. tissue or blood samples) and associated clinical information
- Collected and managed by six Regional BioBanks (RBs) across the country
- Available to researchers for further study to develop new drugs or treatments
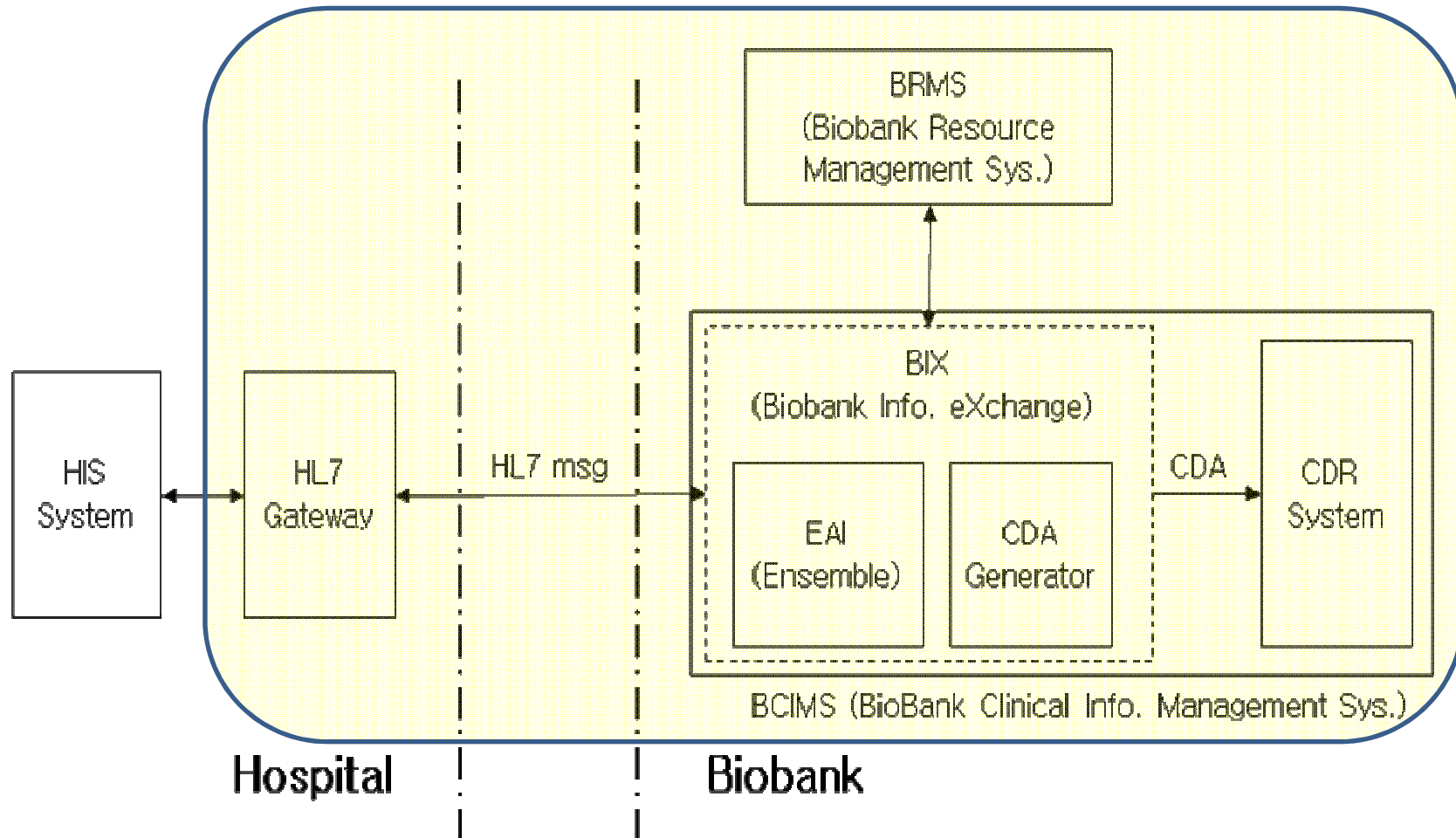
Information System for NBK

- Management of resources
- (Semi-)automatic extraction and management of relevant clinical information
  - Donor's demographic data, type of disease, lab test results, etc.
- Integrated information services to consumers (i.e. researchers)
  - *"Find specimens from lung cancer patients of age between 45 and 55".*
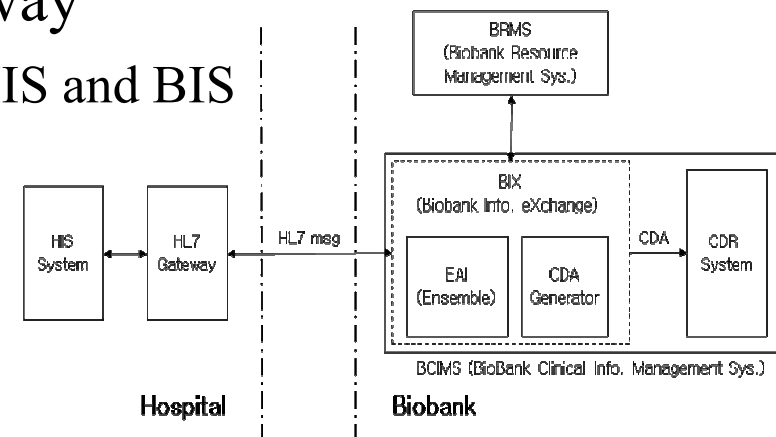
Requirements on Info. System

- Must use standard technologies as much as possible
- Must communicate with existing HIS to automate extraction of associated clinical information
- May not hurt independence and autonomy of HIS
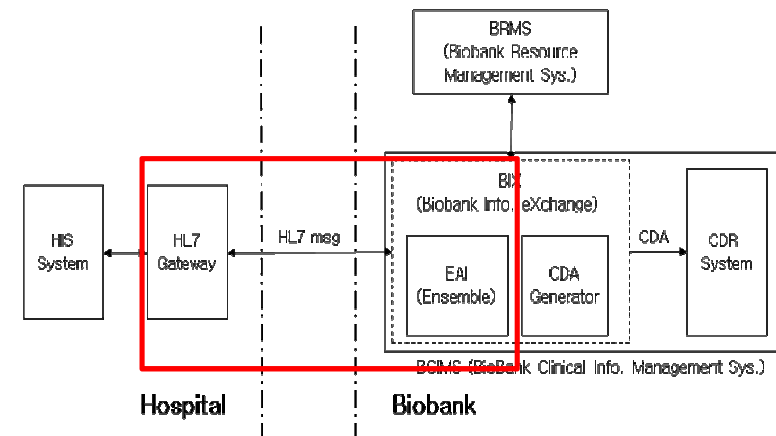
Overall System Structure

Subsystems

- Biobank Resource Mgmt Sys. (BRMS)
  - Responsible for managing resource lifecycles
- Biobank Clinical Info. Mgmt Sys. (BCIMS)
  - Extraction and management of related clinical information
  - Further divided to *Biobank Info. eXchange (BIX)* and *Clinical Document Reg/Rep (CDR)*
- HIS-to-BIS HL7 Massage Gateway
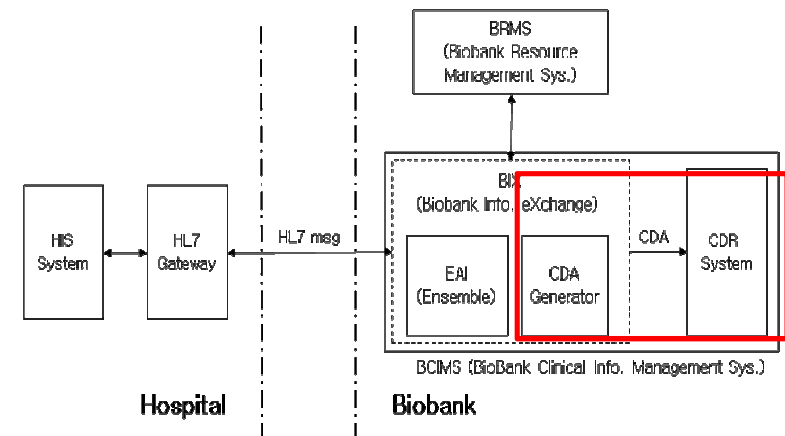 - Handling all HL7 messages between HIS and BIS

Interoperability Issues

- Communication between HIS and BIS
  - HL7 Message (v2.x)
  - Message processing:
    - BIX: InterSystems Ensemble EAI
    - Hospital gateway: HIToolkit of our own

Interoperability Issues (cont.)

- Maintenance, sharing, and dissemination of associated clinical information
  - CDA, CDR (IHE XDS.b, ISO DTS27790 DRF)
  - DRF for header, body separation
  - ➔ Only body fragments are disseminated for privacy protection

Conclusion

- Introduced National BioBank of Korea (NBK)
- Constraints on Information System for NBK
- System design, components and functions
- Interoperability issues and solutions

Questions / Suggestions?