

Data Encapsulating Services: A New Paradigm for Developing Enterprise Systems

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今天是2012年11月06日星期二 今日导读: 市房屋拆迁管理办公室招聘公告 关于开展2012年度杭州市房地...

政务公开

- 政府信息公开规定
- 政府信息公开指南
- 政府信息公开目录

机构职能	政策法规
规划计划	办事事项
资金信息	人事信息
业务信息	工作信息
公共服务	工程建设

政务动态

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受理编号: 今日预受理件数: **0**件
 证件号码: 累计预受理件数: **459783**件
 注: 请输入受理部门提供的受理编号、证件号码(单位办事输入组织机构代码,个人办事输入身份证号码)。

面向个人

- 产权登记
- 房屋拆迁管理
- 白蚁防治
- 产权交易
- 组合业务登记
- 商品房预售
- 房改管理
- 危房鉴定
- 房产档案管理
- 物业管理
- 他项权登记
- 直管公房

各房产办证大厅指南

平海大厦房产办证大厅
 工作地址: 平海路45号平海大厦3楼
 工作时间: 上午: 08:30-11:45 下午: 14:00-17:00
 乘车路线: K92, K188, Y8, K900, 814/K814, 617, K591, 290 /K290, 270/K270, K106, 68/K68, 49/K49路市一医院下车...

- “市民之家”房产办证窗口
- 产权登记城北分中心
- 滨江行政服务中心服务大厅
- 产权登记西湖分中心
- 下沙市民中心办事大厅
- 之江房管局办证大厅

面向企业

- 商品房网上合同签订
- 二手房网上合同签订
- 商品房预售证办理
- 房地产经纪机构信息核查
- 商品房网上办证
- 经纪人考试报名
- 物业管理网上填报
- 征收上岗培训报名
- 征收评估上岗培训报名

特殊群体

- 廉租房申请
- 特困家庭白蚁防治
- 经济适用房
- 绿色通道

通知公告

[预售审批项目公示](#) | [人事任免公告](#)

- 拆迁延期公告(2009)第025号 [11-01]
- 拆迁延期公告(2008)第048号 [11-01]

500 workflow models
 300,000 cases/year


商品房买卖


存量房买卖


经济适用房


廉租房申请

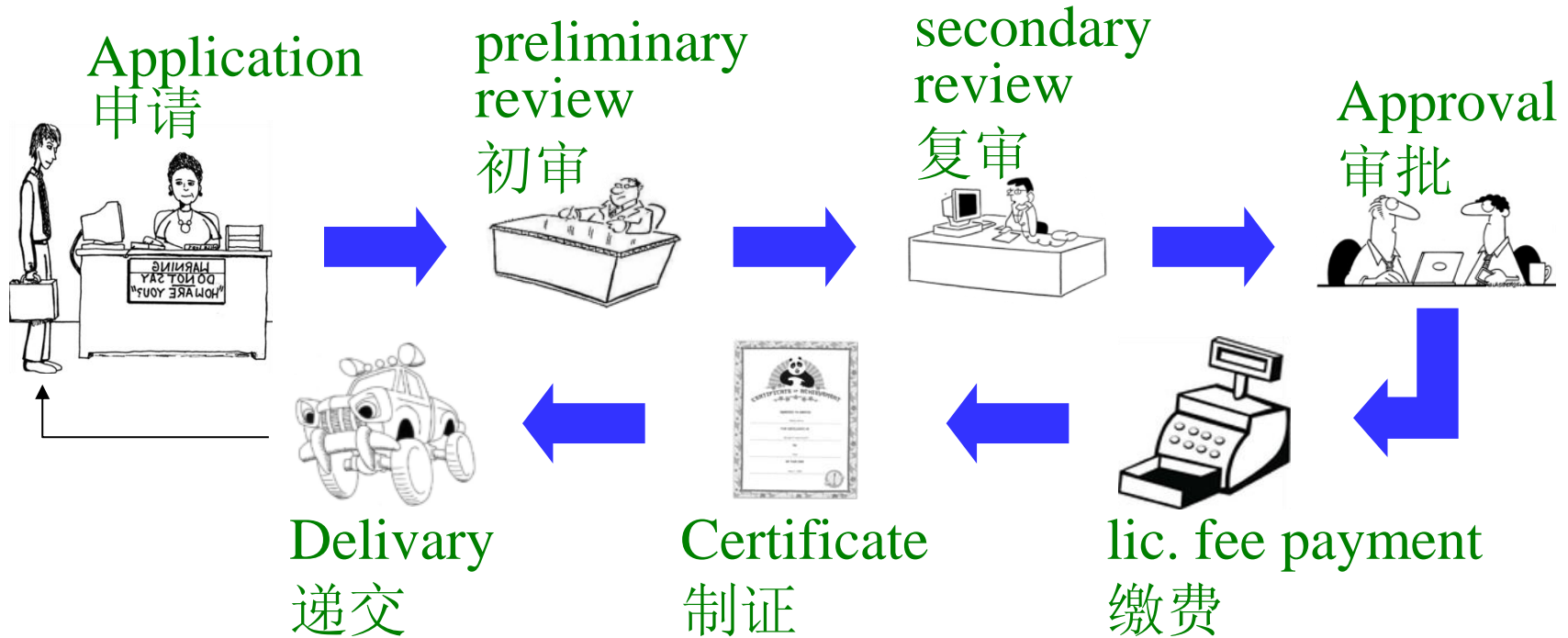

拆迁安置房


更多

诚信档案	拆迁企业	评估企业	物业企业	经纪企业	开发企业
被投诉开发企业	投诉事宜	发布时间			

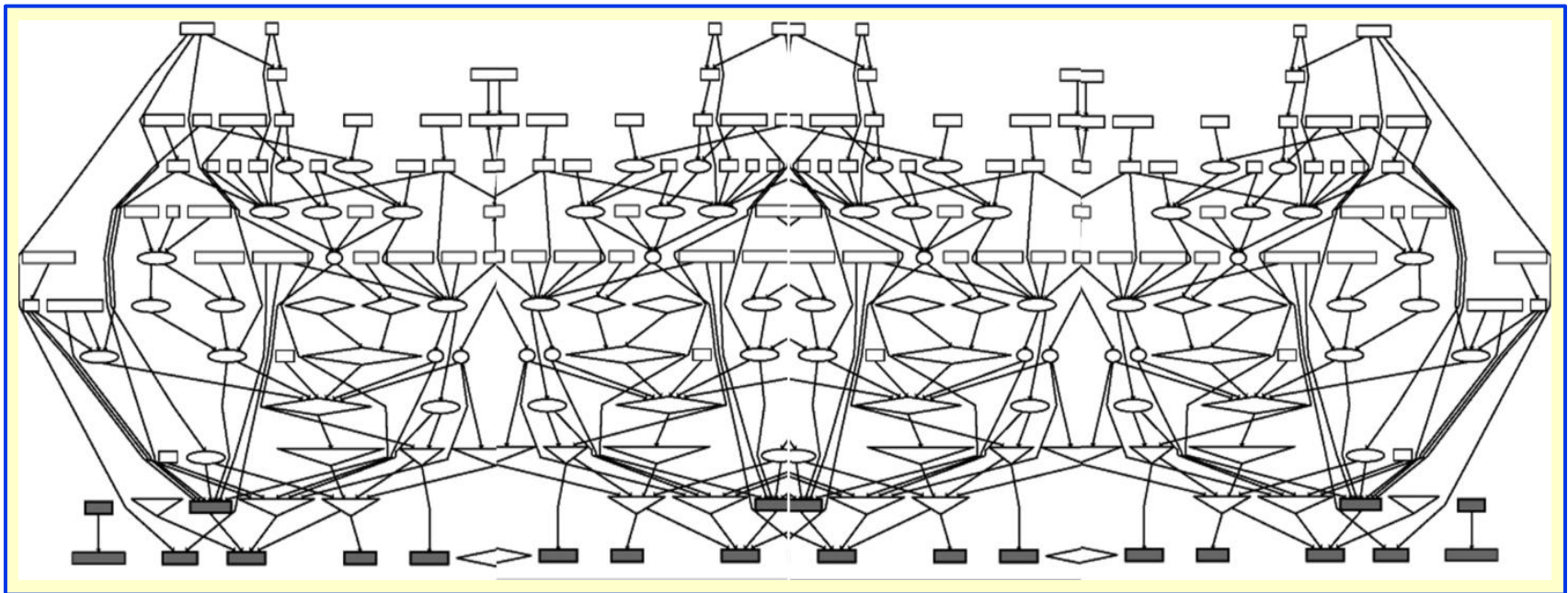
Permit for Selling an Unbuilt Apartment

■ *Obtaining a Permit* (商品房预售申请)

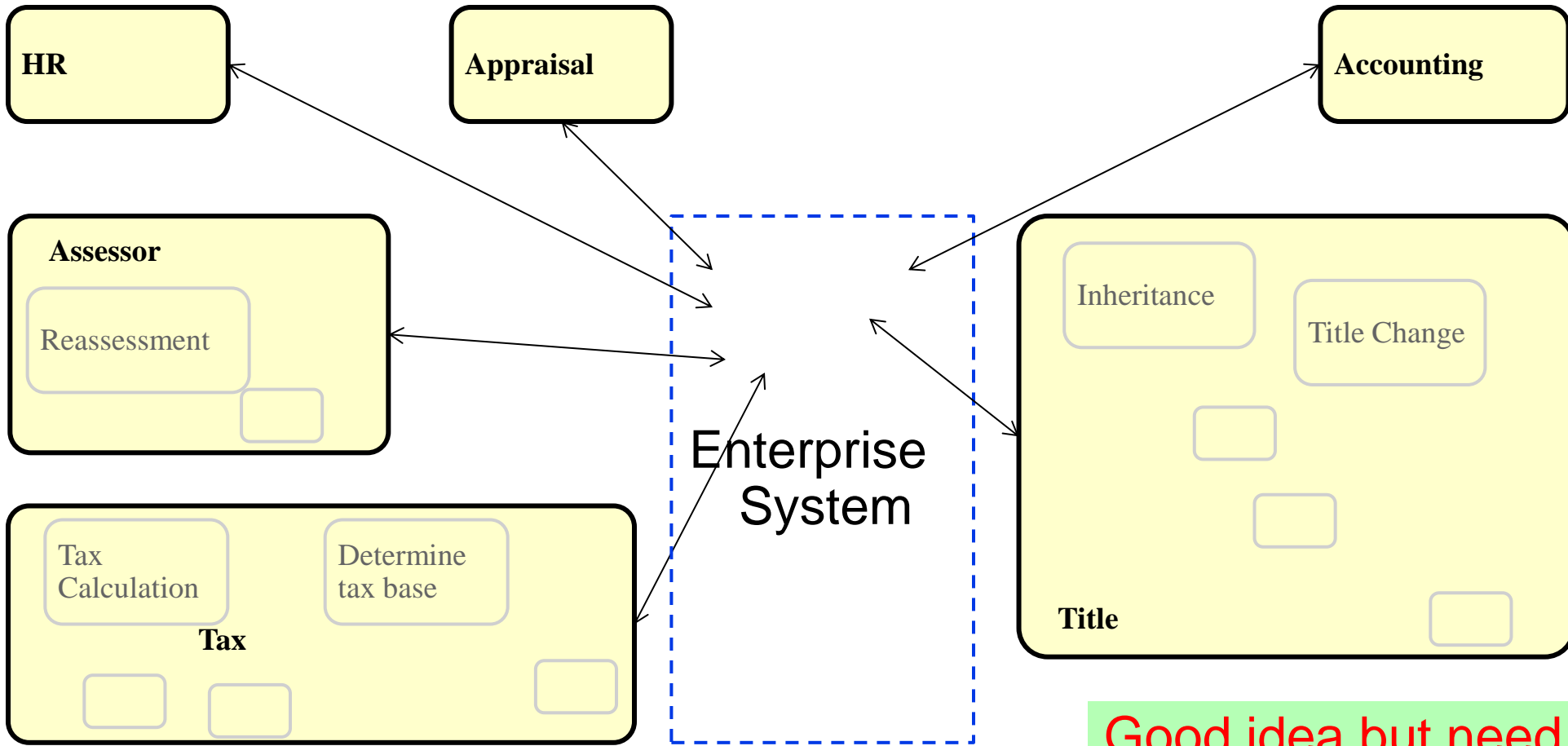


A Typical Housing Management System

- Ad hoc design, developed over time, patches, multiple technologies, ... a typical legacy system
- Problems:
 - ❖ Embedded business logic, hard to learn
 - ❖ hard to maintain, costly to add new functionality
 - ❖ hard to change/evolve



Virtual Enterprise Systems



Good idea but need to manage enterprise data

OpenAPI approach towards

- Business Process as a Service (BPaaS)
- Enterprise may run virtual IT systems

Current Practice

- Data and services are separately modeled, designed, managed
 - ❖ Adds difficulties in design, execution, maintenance, and making changes
- Furthermore, many issues can't be addressed
 - ❖ Workflow transaction remains an art
 - ❖ Data consistency is a concern of DBMS even though violations are caused by service execution
 - ❖ Business analytics is an after thought
 - ❖ Long tail phenomenon is a “holy grail”
 - ❖ Big data

Big Data—A Gowing Torrent

\$600 to buy a disk drive that can store all of the world's music

5 billion mobile phones in use in 2010

30 billion pieces of content shared on Facebook every month

40% projected growth in global data generated per year vs. **5%** growth in global IT spending

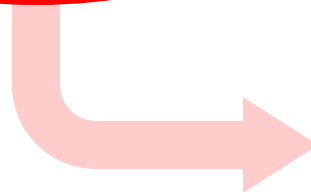
235 terabytes data collected by the US Library of Congress by April 2011

15 out of 17 sectors in the United States have more data stored per company than the US Library of Congress

- Mckinsey Global Institute, June 2011: **Big data: The next frontier for innovation, competition, and productivity**

- Availability of “big data” brings opportunities for improving productivity

15 out of 17 sectors in the United States have more data stored per company than the US Library of Congress



Big Data + Biz Processes → Big Potential



US health care

- \$300 billion value per year
- ~0.7 percent annual productivity growth



Manufacturing

- Up to 50 percent decrease in product development, assembly costs
- Up to 7 percent reduction in working capital



US retail

- 60+% increase in net margin possible
- 0.5–1.0 percent annual productivity growth



Europe public sector administration

- €250 billion value per year
- ~0.5 percent annual productivity growth



Global personal location data

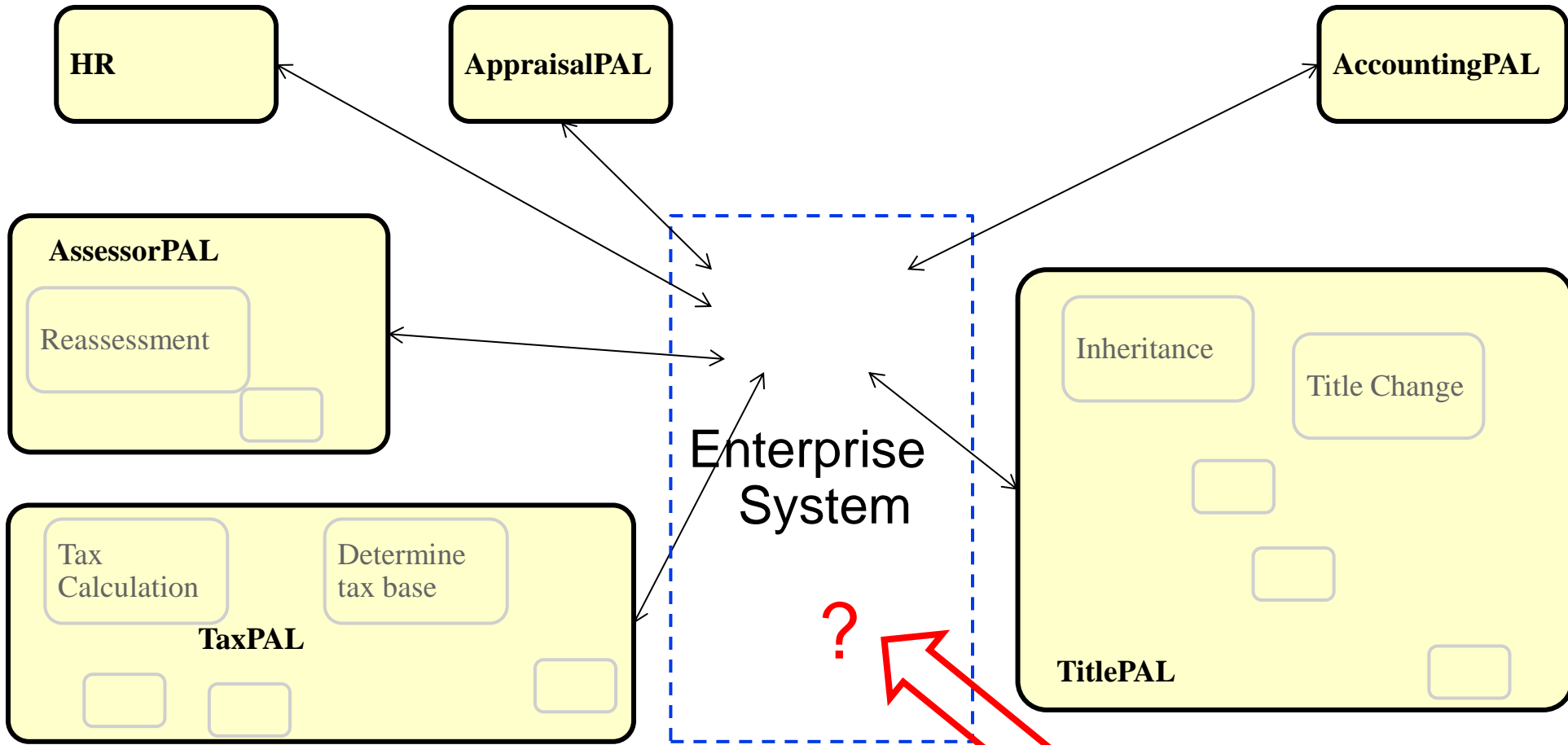
- \$100 billion+ revenue for service providers
- Up to \$700 billion value to end users

Source:
MGI Analysis

Two observations

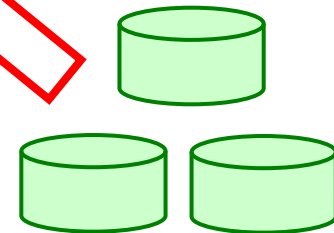
- A significant portion of big data generated by biz processes
- Productivity growth only obtainable via more efficient/effective biz processes

Virtual ES's: Data Management Problem



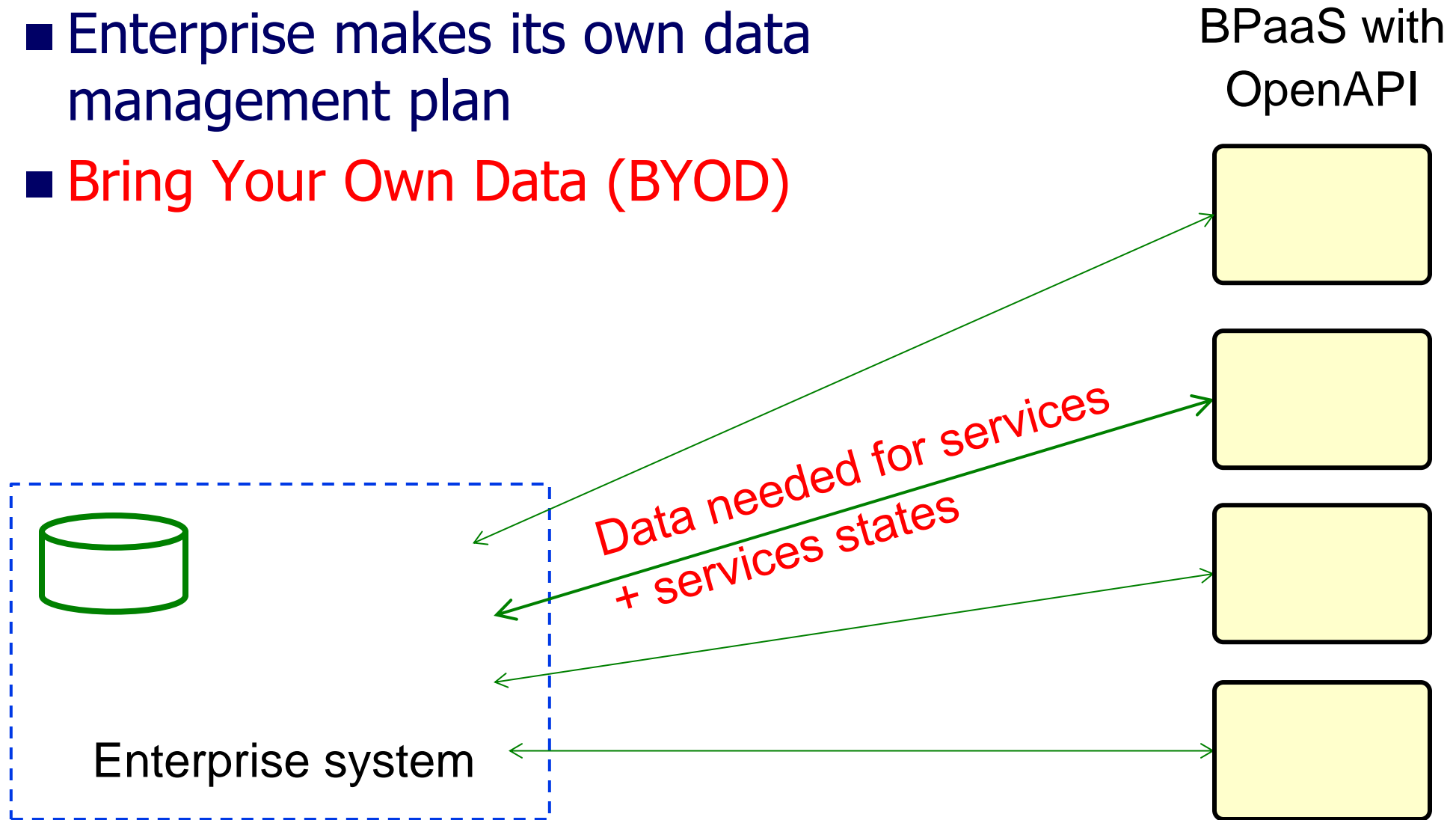
OpenAPI approach towards

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An Open Market Model

- No major players
- Enterprise makes its own data management plan
- **Bring Your Own Data (BYOD)**



Business Artifacts (业务流程工单)

- A **business artifact** is a key conceptual business entity that is used in guiding the operation of the business
 - ❖ *fedex package delivery, patient visit, application form, insurance claim, order, financial deal, registration, ...*
 - ❖ both “information carrier” and “road-maps”
 - Technically, it includes two parts:
 - ❖ **Information model:**
 - data needed to move through workflow
 - ❖ **Lifecycle:**
 - possible ways to evolve
- ✓ Very natural to business managers and BP modelers

Example: Restaurant Processes

repository

Activity

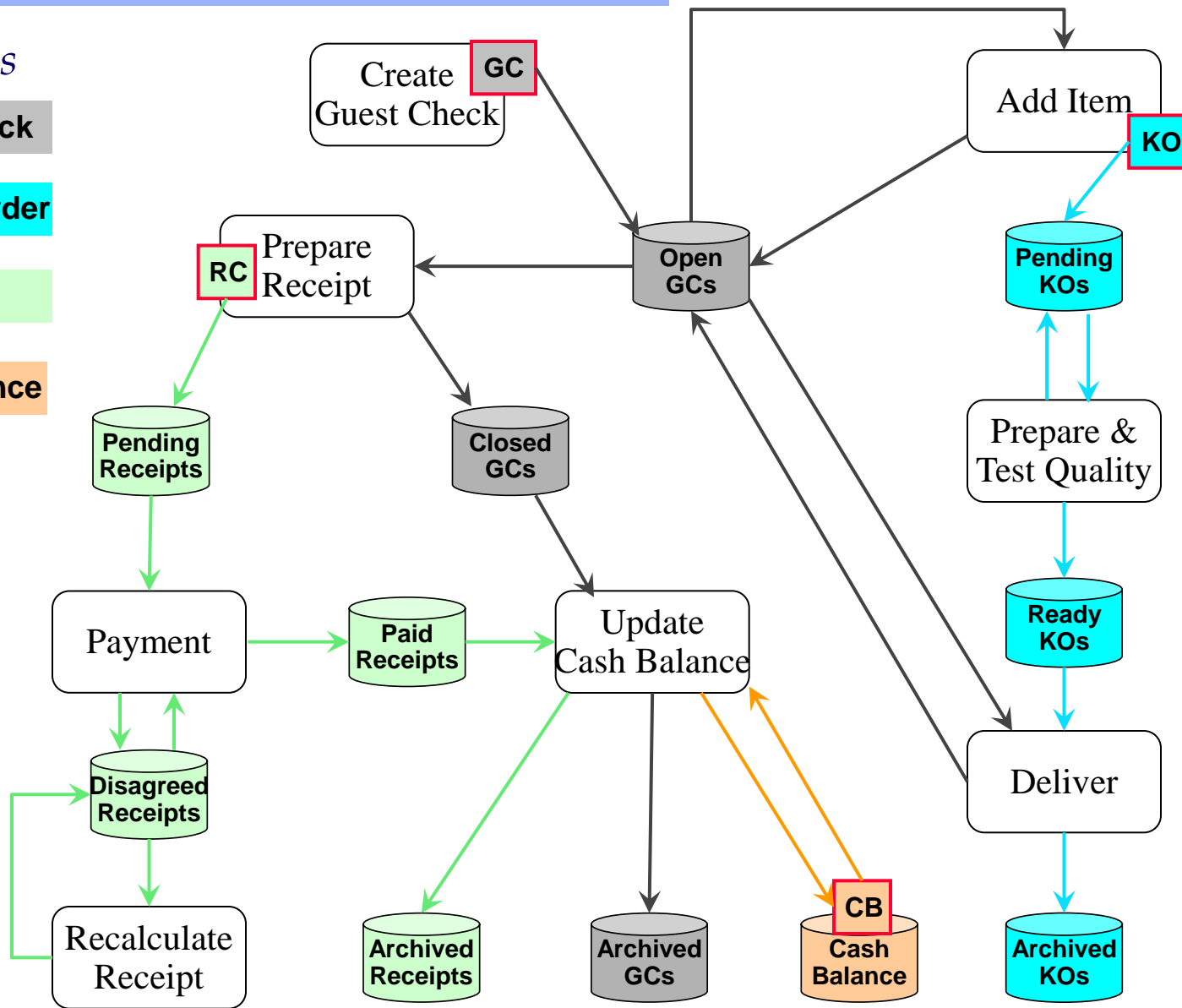
Artifacts

Guest Check

Kitchen Order

Receipt

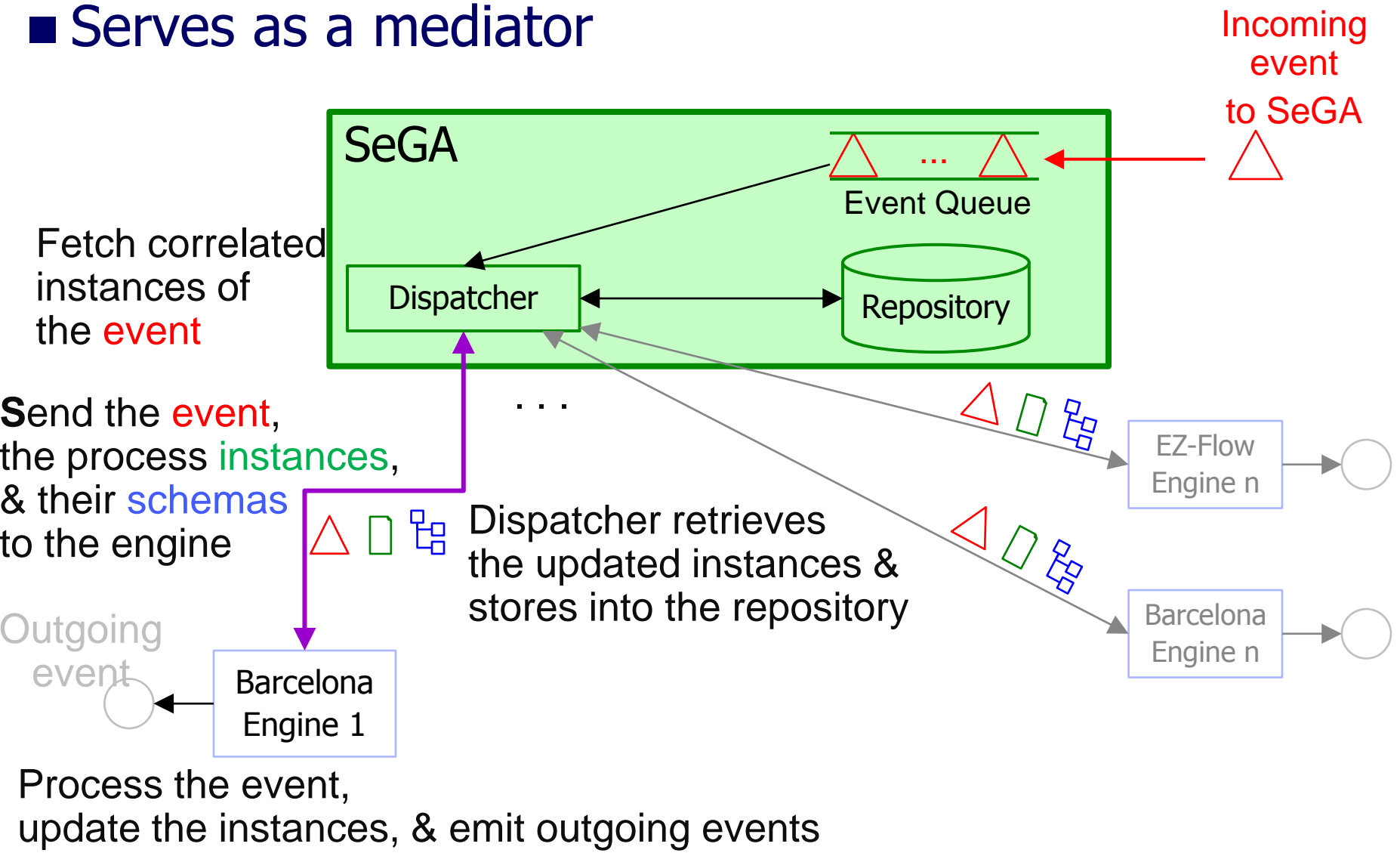
Cash Balance



SeGA: A Service Wrapper/Mediator

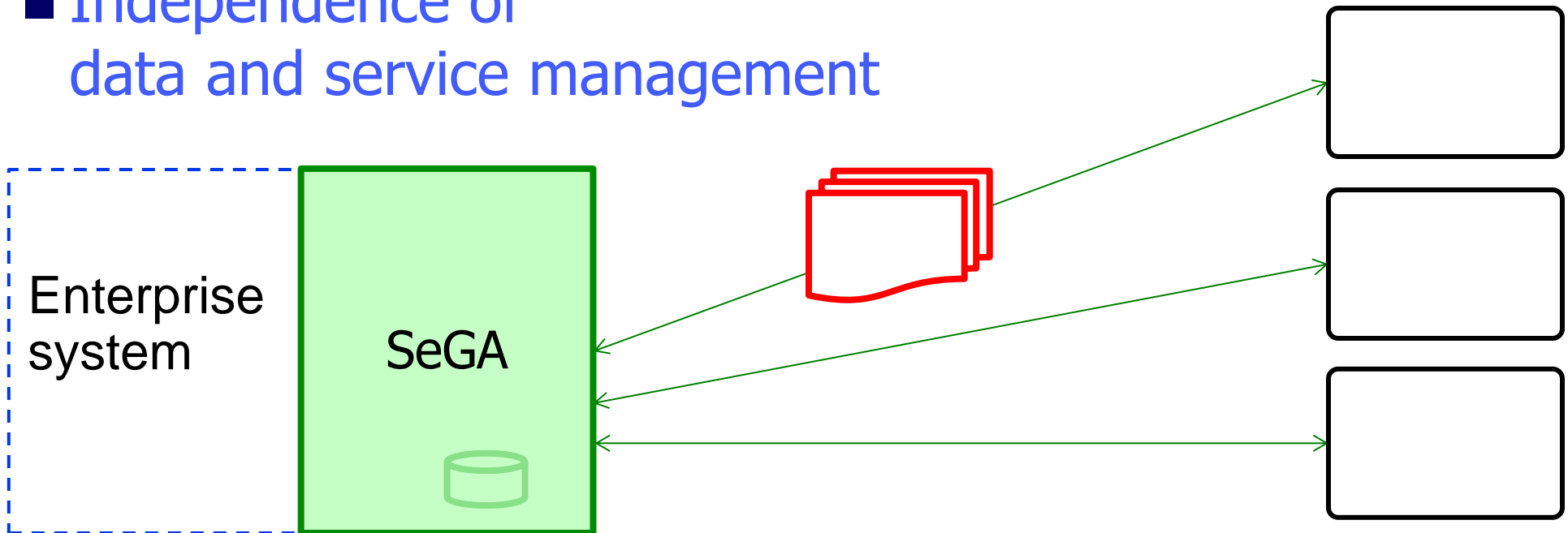
[Sun-Xu-S.-Yang CoopIS 12]

- SeGA separates data from execution engine
- Serves as a mediator



Data Encapsulating Services

- **Data package** between SeGA & services:
 - ❖ Business data, enactment data, resource data, correlation data
- Data encapsulating services: Stateful services but the engine need not maintain state
- Independence of data and service management



Research Challenges

- **Design:** What are appropriate service designs?
Choreography vs orchestration (Part II)? Design aid (analysis/model checking tool), interoperation
- **Runtime:** Enforcement of process/data constraints, KPI/monitoring techniques, resource planning and management
- **Transactions:** What is the notion of workflow transaction?
- **Change/evolution:** Process vs instance changes, long lasting vs temporary, longtail
- **Big data:** monitoring to analytics to change

Potential Applications

- Traditional and new service sectors and businesses
 - ❖ Housing management (房管)
 - ❖ Social security (社保)
 - ❖ Retail
 - ❖ Auditing (审计)
 - ❖ ...
- May spawn new types of service businesses such as
 - ❖ cloud platforms for BPaaS providers
 - ❖ consulting businesses to analyze and improve business processes (big data)

Conclusions

- Inclusion of persistent data is critical to capture business logics into services
- Data encapsulating services enable separation of data and service management and support
 - ❖ Independence of data and service management
- Many research challenges