High Performance Hospital Enterprise Architecture

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Motivation / Problem

US Healthcare Industry at a glance:

- In 2005 expenses were more than **16%** of the GDP, and hospital care alone accounted for the largest portion of expenditure, **30.8%**.
- In 2000 medical errors in hospitals are suggested as the **3rd** leading cause of death in the nation (as many as **98,000** a year).
- In 2004, **5%** of the population accounts for **49%** of total spending, and **25%** is spent during the last 6 months of patient life.

The Healthcare industry is a complex socio technical system:

- Comprised of multiple stakeholders driven by incentives which often times are not aligned with one another.
- With compromised ability to deliver to the patient the appropriate care, at the appropriate time, at the appropriate location, and at an adequate cost.

Hospitals find themselves scrambling to cope with:

- A broken system that continuously issues new requirements, shortens available budgets, and demands the latest innovations.
- The absence of a systematic approach that encompasses the whole enterprise, both within and outside immediate boundaries of control.

Key Questions

- **How should one measure hospital service complexity?**
- **How should one measure hospital enterprise performance?**
- **How does enterprise architecture relate to hospital enterprise performance?**

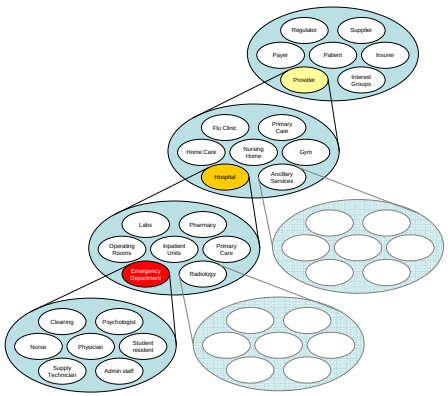
Methodology

The research methodology comprises quantitative and qualitative case studies using a grounded theory approach:

- Case studies (Yin, 1984) allow to front load with literature review prior to field work, and to capture lessons learned and value judgments.
- Grounded theory (Strauss and Corbin, 1998) allows to systematically revisit external sources, refine hypothesis, build theory, and revisit the field.

The Research

Early 2007, an integrated multi specialty group practice and academic medical center, voiced concern about its Emergency Department (ED).



Study results yielded:

- Tactical mindset and change initiatives had led to local sub optimization
- ED did not operate in a vacuum and competed for resources elsewhere in the hospital
- Disparate electronic medical records crippled the organization
- Significant problems were beyond immediate organizational control

Case study data collection will be carried out via:

- Interviews at both senior leadership and operational levels
- Tools from Enterprise Value Stream Mapping and Analysis (EVSMA)
- Direct and participant observation
- Documentation and archival records

Several embedded units of analysis will be addressed:

- 3 medical centers from the same privately owned single network (Lahey Clinic)
- 11 community based primary care group practices (Lahey Clinic)
- The major healthcare insurance company in Massachusetts (BCBSM)
- 1 medical center from an external multi owner network (Partners)
- The commission of hospital accreditation (JCAHO)

Expected Contribution

Contributions to Healthcare Domain:

- Characterize the historical evolution and current state of the healthcare enterprise
- Descriptive understanding of how strategic decision making made at hospital level considering both clinical and financia performance measures, as well as future trends

Contributions to Enterprise Architecture:

- A general framework to support continuous decision makin and implementation based on alternative high performance enterprise designs
- Tool and validation on how strategy can align enterprise architecture within and outside boundaries of control

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Relevant Literature

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