A PROCESS MODEL FOR IT-MIGRATIONS IN THE CONTEXT OF A HOSPITAL MERGER

Results from an Austrian case study

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WHAT TO EXPECT?

- Background: Foundation of Kepler University Hospital in Jan. 2016
- Theoretical Considerations on mergers and IT-migrations
- Objective
- Customized Research Model – Methodology and Results on
  - Phase 1
  - Phase 2
  - Phase 3
- Discussion
# BACKGROUND
## KEPLER UNIVERSITY HOSPITAL

![Image of Kepler University Hospital](image)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>AKh</th>
<th>LFKK</th>
<th>LNK-WJ</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal ownership</td>
<td>City of Linz</td>
<td>State of Upper Austria</td>
<td>State of Upper Austria</td>
<td>1,825</td>
</tr>
<tr>
<td>Number of beds</td>
<td>886</td>
<td>270</td>
<td>669</td>
<td>1,825</td>
</tr>
<tr>
<td>Stationary stays</td>
<td>60,000</td>
<td>19,566</td>
<td>17,894</td>
<td>97,440</td>
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<tr>
<td>Outpatients</td>
<td>275,000</td>
<td>21,107</td>
<td>18,917</td>
<td>315,024</td>
</tr>
<tr>
<td>Total spending*</td>
<td>230.6</td>
<td>106.5</td>
<td>143</td>
<td>480.1</td>
</tr>
<tr>
<td>Staff</td>
<td>2,838</td>
<td>1,142</td>
<td>1,838</td>
<td>5,817</td>
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</tbody>
</table>

(* in million Euro)
BACKGROUND: ORIGINAL IT-LANDSCAPE

Main differences:
- administrative HIS
- **clinical HIS**
- laboratory information system, radiology information system, reporting / BI-system, ...
THEORETICAL CONSIDERATIONS

- Company mergers often lead to IT-migrations [1], [2]
  - focus is often on financial and legal challenges
  - Strategic planning and organizational change are often neglected
  - Holistic analytical and planning activities are important for the long-term success

- IT integration itself is critical for the merger success [3]

- Migration of hospital information systems (HIS) and the electronic health record (EHR) are crucial for the success [4]

- Uniform HIS can exploit the full potential of a hospital’s IT-support and process automation [5]
OBJECTIVE OF THE IT-MIGRATION AND THE PRESENT STUDY

**IT Migration**

The KUK will offer an highly effective IT support for all users working in clinical care, administration, research, and teaching, and this highly effective IT support will be realized through the merger and standardization of information and communication systems from the three former hospitals.

**Study**

The research goal was to develop and apply a customized but still generic process model for IT migrations after hospital mergers, including the selection process of an appropriate future HIS.
## METHODOLOGY

<table>
<thead>
<tr>
<th>Phase 1:</th>
<th>• Definition of migration objectives, identification of basic conditions</th>
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<tr>
<td>Phase 2:</td>
<td>• Evaluation of the IT infrastructure in the former individual hospitals</td>
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<tr>
<td>Phase 3:</td>
<td>• Development of migration scenarios, selection of one scenario</td>
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<td>Phase 4:</td>
<td>• Design of a project plan, installing of operational teams</td>
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<td>Phase 5:</td>
<td>• Implementation of the IT migration</td>
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</table>
**PHASE 1**

- Stakeholder interviews ➔ Survey: Key factors of HIS success ➔ World Cafe: Key factors of HIS success

- Survey: Basic conditions ➔ World Cafe: Basic conditions ➔ Survey: Migration objectives ➔ World Cafe: Migration objectives

**Key Factor of IT Success**
- Sufficient financial resources
- Qualified IT-personal
- Reliability of the IT-systems
- Clearly defined IT-strategy
- Sufficient personal resources
- Trained staff
- Uniform system for patient administration
- Process orientation in IT
- Human success factor
- Maximum risk reduction

**IT Migration Objectives**
- High data security
- High reliability in patient related IT systems
- Informed and IT-trained staff
- Realization of IT synergy effects
- Uniform HIS
- Open IT infrastructure
- Investment in sustainable technologies
- Use of mobile technologies
- Paperless hospital
- Outstanding IT systems for research, teaching and care
PHASE 2

- Determination of HIS maturity level

- Detailed IT evaluation of all hospitals
  - Including a gap analysis (degree to which the IT migration objectives were achieved)

- All three hospitals were at a similar level, providing a solid IT basis for the University hospital
PHASE 3

- 5 days intensive workshop as key element of decision making:
  - IT-migration strategy team (13 members)
  - HIS vendor representatives
  - Goal: development, evaluation and rating of migration scenarios

- Strong preference for one migration scenario (62% vs. 38%)

<table>
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<tr>
<th>Evaluation Criteria</th>
<th>Scenario</th>
<th>Vendor</th>
<th>HIS</th>
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<tr>
<td>Controllability of risks</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consideration of organizational and personnel restraints</td>
<td>*</td>
<td></td>
<td></td>
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<tr>
<td>Customer orientation</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Innovative power</td>
<td></td>
<td>*</td>
<td></td>
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<tr>
<td>Professional and personnel competence</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Degree of coverage of clinical care processes</td>
<td></td>
<td></td>
<td>*</td>
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<tr>
<td>Enhancing opportunities for cooperation with university hospitals</td>
<td></td>
<td></td>
<td>*</td>
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<tr>
<td>Sustainable investment in terms of technology</td>
<td></td>
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<tr>
<td>IT support of research &amp; teaching tasks</td>
<td></td>
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- SWOT analyses from different focus groups supported this decision
DISCUSSION

- High degree of user integration
  - High acceptance of process and decision
  - No perceived situation of winners and losers

- 5 out of the 10 top key factors are of category human
  - Only one of category system

- Transparent process model enabled productive working atmosphere
  - Heterogeneous group
  - More than 40 stakeholders from different professional groups, hierachic levels and organizations
  - Competitive HIS vendors
DISCUSSION

- New organization was founded almost two years after project start
  - Lack of accountable decision makers
  - Late decisions led to milestone delays
  - Late definition of future IT-provider
  - Missing definition of future organizational structure
  - Uncertainties concerning financial and personnel resources

- Implications:
  - Early user integration
  - Organizational change management
  - Proactive information policy
BIBLIOGRAPHY


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