Constructing Technology-in-use Practices: EPR-adaptation in Canada and Norway

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☐ Draft ☐ Overview
☐ Presentation ☐ Other

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Constructing Technology-in-use Practices: EPR-adaptation in Canada and Norway


Nina Boulus & Pernille Bjørn
1. Introduction

- Electronic Patient Records (EPRs):
  - Introduced in the 60s-70s
  - ‘Magic silver bullets’ → solve financial problems
  - Funded through national or provincial initiatives
  - $ + Expectations → High
    - Despite that, many goals have not been met yet
    - Therefore, research grounded in real case studies is highly important and can access the construction of alternative approaches

![Diagram showing integration, adaptation & redesign, reflection-on-practice between Technology (EPR) and Local work practices](image-url)
2. Setting the stage: Case studies

**Case A:** Norway

**Case B:** Canada

**Aim of study:** Investigate the driving forces that promoted the adaptation processes
2. Setting the Stage

- **Similarities:**
  - Paper-based infrastructure
  - Infrastructure pre-EMR
  - Supporting artifacts
  - Work practices
  - Technical infrastructure
  - IS
  - Excel sheets
  - PAS
  - Labs
  - Binders
  - Folders
  - Notebooks
  - Paper charts
2. Setting the Stage

- Differences:
  - Institutional structures, organizational size, and technical architecture of the EPR system

- But:
  - Comparing the adaptation process in these 2 different settings, we have the opportunity to provide insights into the way in which technology-in-use practices develop and evolve over time
3. Research Methods

- Longitudinal ethnography
- Fieldwork:
  - **Case A:** Oct 2002-2003
  - **Case B:** Oct 2004-Still in progress

Data collection techniques:
- Open-ended interviews
- Participant observations
- Participation in formal & informal meetings
- Collection of various documents
- Attending EPR-Training sessions
3. Research Methods

- Cross-case analysis:
  - Identify diversities and similarities between the management, execution, and impact of the reflective spaces
  - Identify technology-in-use practices
- Findings:
  - Meetings had different degrees of impact on the adaptation process in the 2 cases
  - Continuous reflection-on-practice activities
4. **Case A**: Technology-in-use practices:

- 1 day training

- Adaptation process: led by the IT department
- The same ‘go-live’ date for: physicians & secretaries
- Introductory meetings: conducted by the IT department
### 4. **Case A**: Technology-in-use practices:

#### Initial Technology-in-use practices:

<table>
<thead>
<tr>
<th>Physicians:</th>
<th>Secretaries:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Validating &amp; signing notes</td>
<td>Transcribing &amp; correcting notes</td>
</tr>
</tbody>
</table>

#### Emergent Technology-in-use practices:

<table>
<thead>
<tr>
<th>Physicians:</th>
<th>Secretaries:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transcribing &amp; correcting notes</td>
<td>Creating templates</td>
</tr>
<tr>
<td>Partial use of prescriptions</td>
<td>Piloting scanning</td>
</tr>
<tr>
<td>Partial use of doctor’s notes</td>
<td></td>
</tr>
<tr>
<td>Retrieving information</td>
<td></td>
</tr>
<tr>
<td>Internal electronic referrals</td>
<td></td>
</tr>
</tbody>
</table>
4. **Case B**: Technology-in-use practices:

- 1 day training

- Adaptation process: led by the EMR committee:
  - Representatives from each professional group
  - Weekly meetings
  - Aim: discuss challenges, evaluate the transition process, and define new goals
4. **Case B**: Technology-in-use practices:

### Initial Technology-in-use practices:

<table>
<thead>
<tr>
<th>Physicians:</th>
<th>Secretaries:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entering medical notes</td>
<td>Scheduling</td>
</tr>
<tr>
<td>Prescriptions</td>
<td>Billing</td>
</tr>
<tr>
<td>Search function</td>
<td>Scanning</td>
</tr>
</tbody>
</table>

### Emergent Technology-in-use practices:

<table>
<thead>
<tr>
<th>Physicians:</th>
<th>Secretaries:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entering medical notes</td>
<td>Grooming &amp; updating the EPR</td>
</tr>
<tr>
<td>Retrieving information</td>
<td></td>
</tr>
<tr>
<td>Prescriptions</td>
<td>Scanning</td>
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<td>Search function</td>
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<td>Referrals</td>
<td></td>
</tr>
<tr>
<td>Creating templates</td>
<td></td>
</tr>
<tr>
<td>Visual graphs &amp; diagrams</td>
<td></td>
</tr>
<tr>
<td>Scanning</td>
<td></td>
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</tbody>
</table>
4. Cross-case analysis

- Technology practices evolved in both cases

- But the extent to which the work practices changed was different
  - **Case A:** Developed technology-in-use practices over time
  - **Case B:** Developed greater amount of changes and increased use of EPR
4. Cross-case analysis

- What are the **factors** promoting the adaptation process?

- One of the major driving forces in **Case B** was the establishment of the **EPR committee** and their **meetings**
## 5. Discussion

<table>
<thead>
<tr>
<th></th>
<th><strong>Case A</strong></th>
<th><strong>Case B</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EPR meetings:</strong></td>
<td>IT department</td>
<td>EPR committee</td>
</tr>
<tr>
<td><strong>Decisions:</strong></td>
<td>Challenging</td>
<td>Continuous discussions &amp; negotiations</td>
</tr>
<tr>
<td><strong>New function:</strong></td>
<td>Struggle with workload</td>
<td>- Comments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Pilot testing new work practice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Feedback &amp; evaluation</td>
</tr>
<tr>
<td><strong>Source of change:</strong></td>
<td>External (IT department) ‘Top-down’</td>
<td>Internal (health care personnel)</td>
</tr>
<tr>
<td><strong>Approach:</strong></td>
<td>‘Top-down’</td>
<td>‘Bottom-up’</td>
</tr>
<tr>
<td><strong>Participants:</strong></td>
<td>Randomly chosen</td>
<td>Self-selected</td>
</tr>
<tr>
<td><strong>Frequency of EPR-meetings:</strong></td>
<td>At the beginning</td>
<td>Weekly basis (then biweekly &amp; monthly meetings)</td>
</tr>
</tbody>
</table>
5. Discussion

Case B:

- Content of meetings:
  - Continuous reflection-on-action activities
  - Technology-in-use practices emerged from situated actions
  - Space to engage in critical debates and question existing rigid routines.
5. Discussion

- Introduction of new functions:
  - **Case A:** Discussed in isolation
  - **Case B:** Evaluated in context

- View of the technology:
  - **Case A:** Time-demanding & disrupting
  - **Case B:** Embedded in the medical practice and enhances quality of care
6. Concluding Remarks

Our findings lead to the following recommendations:

- Change should be internally initiated
- Space for reflection-on-practice
Thank you for listening!

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