

Empowering Nurses by Making Electronic Patient Records Collaboratively Available

... or ...

The role of ethnography in the design and implementation of large IT systems

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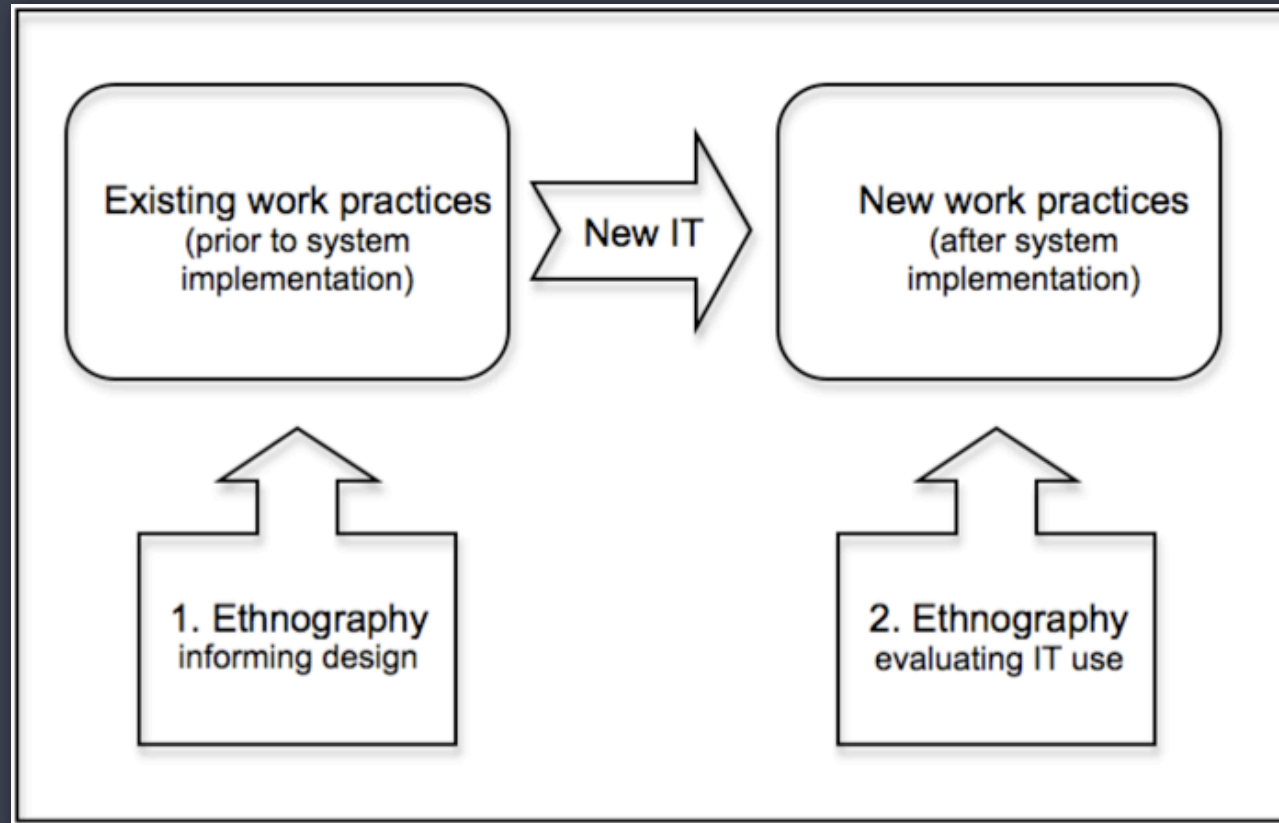
User-Driven IT-Innovation

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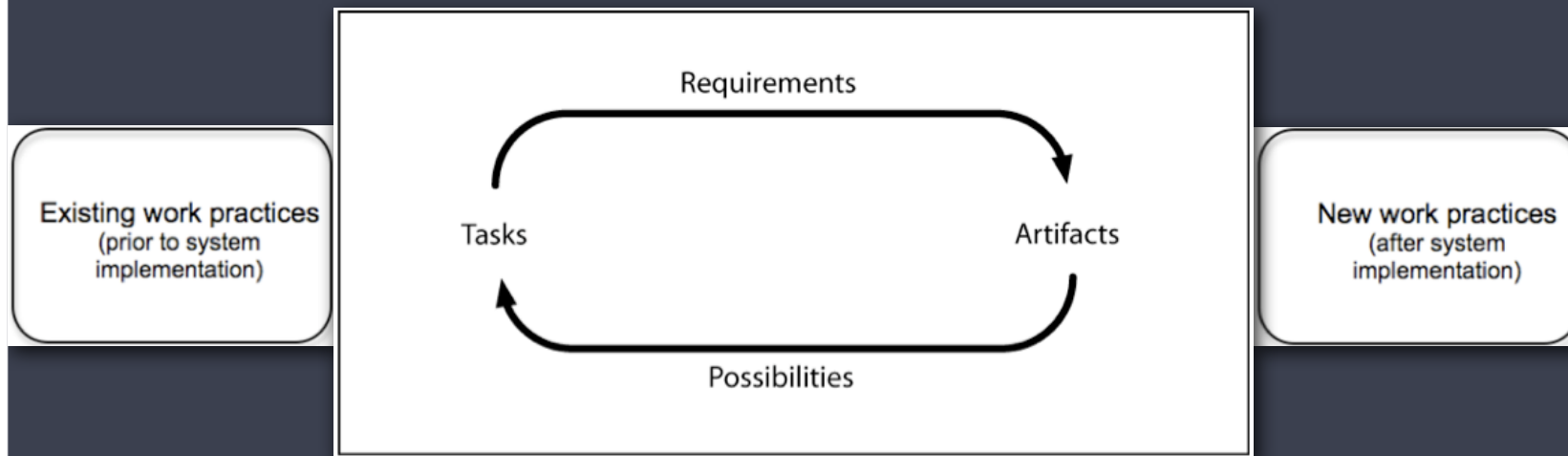
Denmark

The role of ethnography

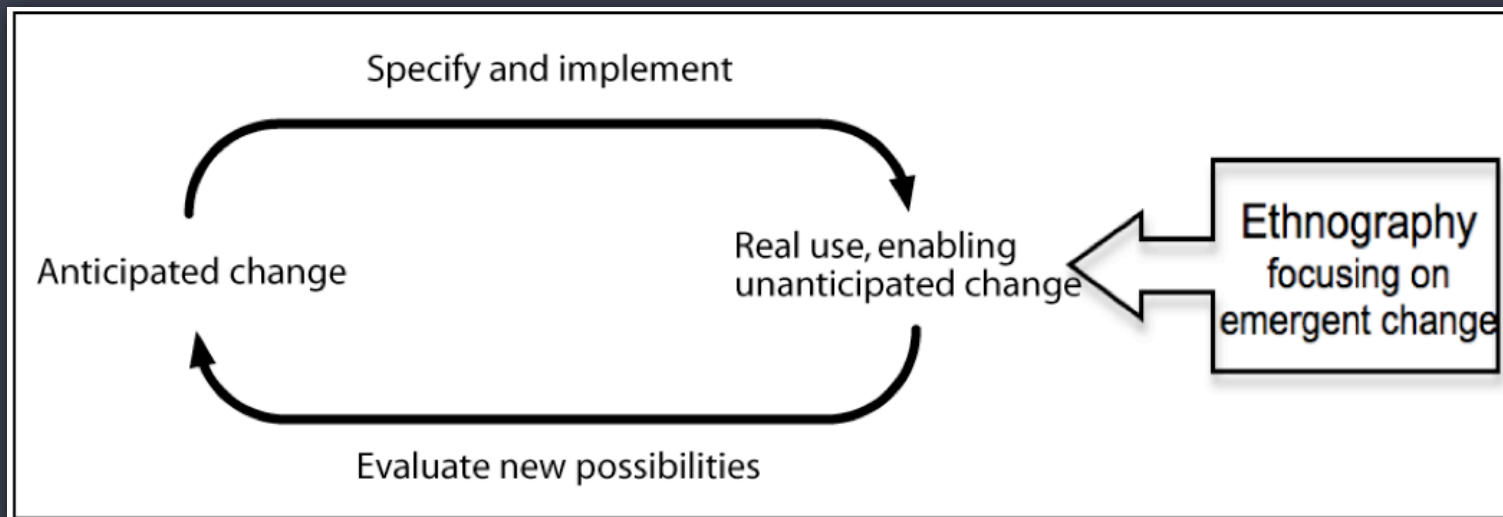


The task-artifact cycle

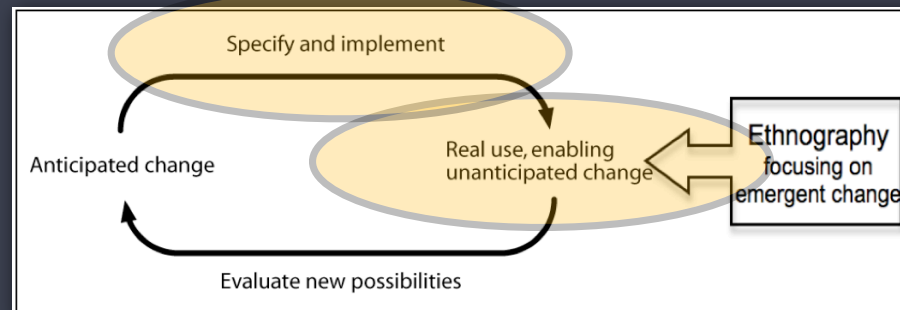
Carroll et al., (1991)



A new role for ethnography



A sustained iterative design approach inspired by Carroll et al., (1991); Orlikowski and Hofman (1997)

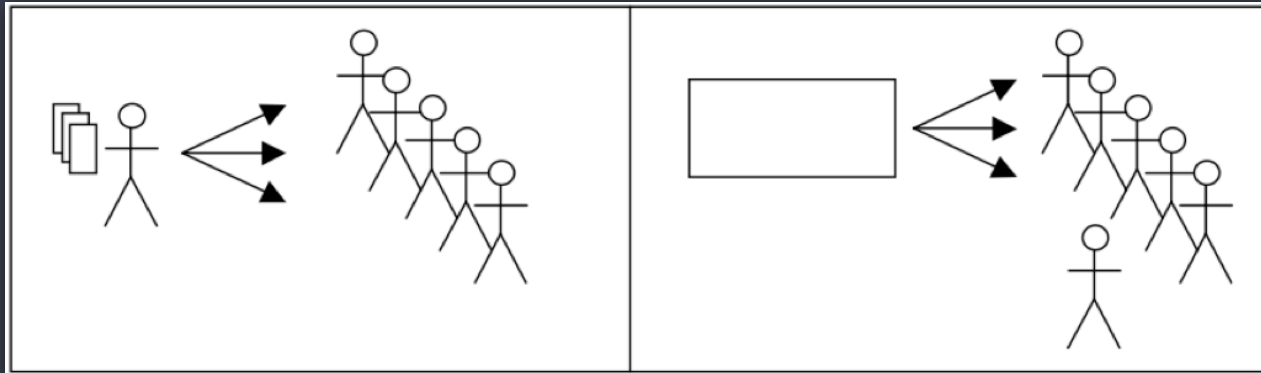
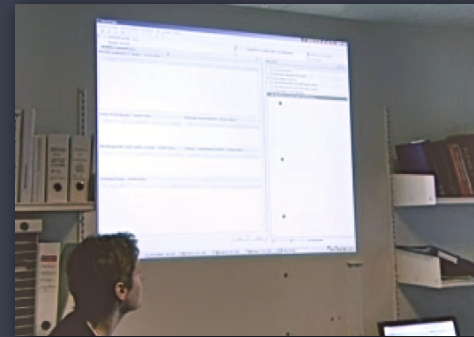


- ▶ Collaboration: Vendor (CSC); regional EPR unit; acute stroke unit; researchers (evaluation)
- ▶ Fully integrated EPR (243 screens, 300K patients, 26M records) configured during 5 workshops with clinicians
- ▶ EPR in real use 24 hours a day in one week
- ▶ All Clinicians used EPR (no paper records used)
- ▶ ‘Back-office’ using Wizard-of-Oz techniques
- ▶ 38% (183 out of 482) design ideas emerged during 5 days of real use



Nursing handover

From oral information to collective investigation



Empowering nurses

Murnane (2005)

- ▶ Most physicians in attendance inspect the patients periodically and act on a 'snapshot' of the patients' medical status
- ▶ Nurses represent a more continuously monitoring and interacting with the patients
- ▶ The emerging collective investigations stimulated mutual learning situations that 'empowered' the nurses' interaction with physicians
- ▶ Case 'vignette':
 - ▶ An older woman with symptoms of having had a stroke in her brain
 - ▶ Observed by nurses and seen by physicians in attendance
 - ▶ Investigated at nursing handover prior to team conference and ward round
 - ▶ At the team conference the physicians acknowledge the nurses' investigation and change the patients' diagnosis to an acute kidney malfunction

Physicians

- ▶ I-1: Sodium chloride is installed for slow infusion over night
- ▶ I-2: Infusion increased because of increasing creatinine
- ▶ I-3: Attempts catheterization, but without success. Contact made to the gynecological ward
- ▶ I-4: More sodium chloride because of possible dehydration

Nurses

- ▶ Observe little urine out
- ▶ Discuss catheter problems (H1)
- ▶ Discuss bladder dysfunction (H2)
- ▶ Investigates stroke scores (challenges H2)
- ▶ Doubts H1 and H2 and suspect a new H3 (kidney failure)
- ▶ Forwards results of their investigation to team conference

Results

- ▶ New requirements for designing the EPR user interface to support collective investigation
- ▶ Different role for the nurse team leader during handover (from gatekeeper to floor manager)
- ▶ More active and salient role for nurses during team conferences
- ▶ Motivated nurses to obtain more structured documentation to indicate relevant observations in EPR user interface for team conferences

Implications for ethnography

- ▶ From a descriptive observer role to a 'Participatory Design' role (Simonsen and Kensing, 1997)
- ▶ Focus on unanticipated change (support vs. constraints) and on informing further design
- ▶ Intensive and short-termed observations required, 'quick-and-dirty' or 'rapid' ethnography (Hughes et al., 1995; Millen, 2000)
- ▶ Situations to observe must carefully be selected and prioritized (a.o. to compare 'before-situations' with 'after-situations')
- ▶ Special awareness ascribed to the limitations, constraints, and biases due to the pilot implementation (learning curve, maturity of IT and organization, "being-in-a-study effect", etc.)