Success Factors for Software Experience Bases: What We Need to Learn from Other Disciplines

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Long-term, permanent improvement in SWE practice
- requires continually improving skills and expertise
- implies movement towards a “learning organization”
- can be facilitated by a formalized software experience base (SEB)

BUT
- externalized information is hard to internalize
- practitioners resist adoption of practices from outside
- instability and lack of an economic model don’t help either
Success Factors

Based on earlier efforts and literature studies, we have identified four success factors for software experience bases (SEBs):

F1 Cultural changes to form a learning organization
F2 Stable business environment (organizational and personal)
F3 Should offer concrete business value
F4 Incremental implementation and introduction
An Interdisciplinary Approach?

Where can we look for an interdisciplinary approach to SEBs?

- Behavioral sciences
  - Look at organizational theory and social anthropology.
  - Look at action research -- not "objective" researchers here.
  - Better management techniques to reduce impact of instability.
  - Use questionnaires and qualitative indicators to assess cost/benefits

- Software process improvement and quality management
  - Close coupling to e.g. TQM, ISO-9000, CMM or QIP.

- Classic measurement methods and analysis, cost benefit/models
  - Combine quantitative metrics (GQM method) with qualitative methods.
  - Need better company investment models to amortize SEB/SPI/reuse efforts.

- Technology transfer and introduction
  - SEB both a technical tool and an enabler for learning -- need training.
  - Actively demonstrate the usefulness of a SEB tool to the users.
  - Use a reward system for insertion and reuse?

- Software tools (Databases, Knowledge management, Technologies)
  - SEB is not a technical gadget, but would benefit from technology
  - Web: promising low start-up costs
  - Case-Based Reasoning techniques
  - Computer Supported Cooperative Work (CSCW) technologies
    - to help make the SEB a dynamic entity, not just an experience dump