Raising Healthy Software Systems

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Intent of the position paper

- To continue to encourage researchers and practitioners to view software systems development in alternative ways

- To elaborate on the analogy between humans and bespoke software systems

- To form the basis for a platform of research and practice that leverages such an analogy

Main ideas

- There are general patterns of evolution…

- …but each entity evolves individually

⇒ Each system has a life during which its behavior changes according to these patterns but with individual dimensions

- Life cycle an old notion, but the detailed consideration of analogy between life of a person and life of a system is new

Life stages

- Conception, incubation, delivery (SE focus)
  - Characteristics map to several norms
  - Monitoring of key indicators
- Childhood, adolescence, adulthood (IS focus)
  - Initial interactions monitored, moulded
  - Erratic behavior as interactions vary
  - Maturity, predictability
- Mid-life, third age
  - Step-changes in context
  - Delivering ongoing value but under challenge
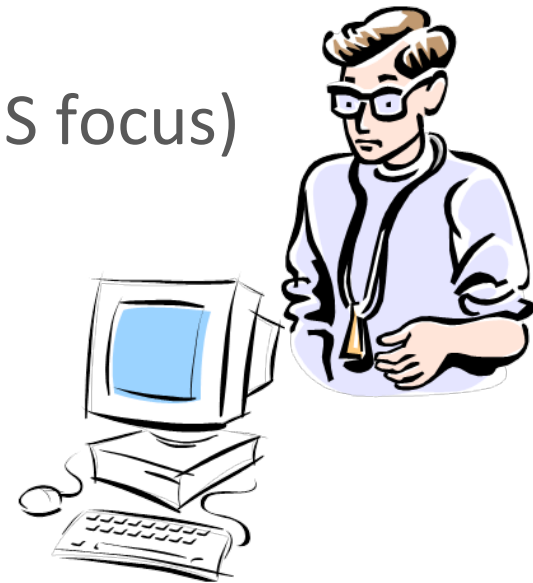
Observations

- Outcomes due to nature and nurture
- Fits with ideas of families and generations
- Change may be intentional or reactive
- What is important depends on life stage and on individual aspirations
- Moving from core values may cause malaise
- Fits with notions of autonomy

Implications and insights (1)

- Some systems may not mature readily and stability is not a constant

- Software change should be guided by targeted objectives rather than generic aims

- Social processes and context-dependent judgement are central to management

- There are limits with regard to the predictability of the impact of actions and our ability to generalise across systems

Implications and insights (2)

- For software professionals – consider far greater specialisation of roles

- Accept judgement and expect informed, evidence-based practice and professionalism that is ongoing and peer-assessed

Limitations and reflections

- Analogies are not predictive; rather, they are informative

- They are also limited e.g. no fixed incubation length for systems

- There are sensitive issues in dealing with aspects of life that will need to be considered with care

- There is a need to position the work formally in relation to prior research

Conclusions and ongoing work

- Belief that the analogy facilitates further novel thinking wrt software systems

- Maps to the principles of evolution but also recognises the individuality of systems

- We are currently working on:

  – New software process model

  – New models for education and training of software professionals

Thank you for your attention.

(And don't forget – ASE 2009
Auckland, New Zealand,
November… sometime!)

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