Functional Paleontology: System Evolution as the Users Sees It

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Goals

- Provide a vocabulary for delineating, classifying and comparing the value of services as they evolve so that future system evolution can be more rationally anticipated and planed for.

Terms

- Paleontology: the study of fossils
  - Feature that where available
- Morphology: shape at a particular time
  - The form benefits and burdens took at a particular time
- Saltation: Leaping or bounding
- Epochs: times of stability
  - Service cohort, displacement cohort

Perspective

- Focus on what feature are available to the user
- Ignore or downplay:
  - Underlying technology
    - Switching vs packets
  - Business environment
    - Culture
    - Economics

Method

- “We tabulated the named services contained in the call guide of the Atlanta telephone directories for the years 1950-1999
  - Classify services
- Validity
  - Human communication vs transformation application

Benefits

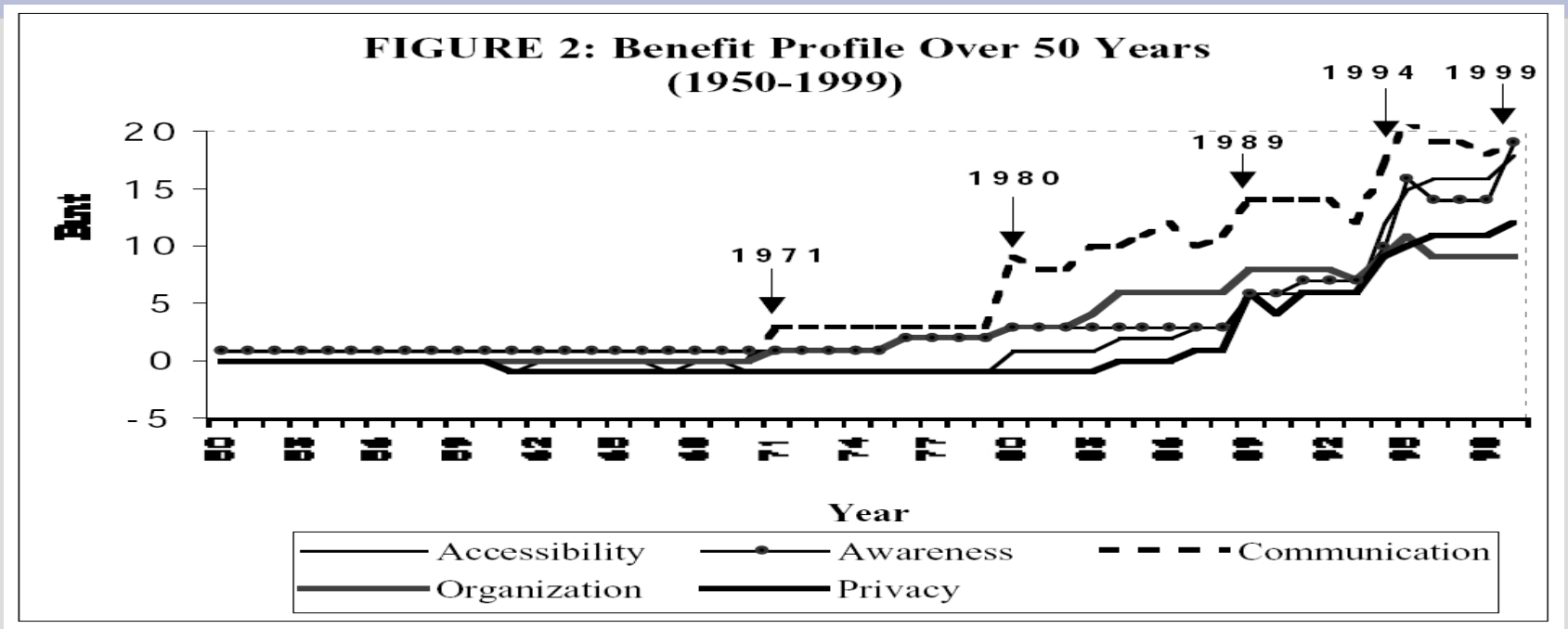
- Core services
- Modulating services (non-core or second-order services)
- Autonomous and Reactive Benefits
  - Intended vs unintended benefits
- Amplified and Qualified Benefits
  - Further increases usefulness of a service
- Can other use there taxonomy?

Instantiation

- Communication is core knowledge
- Accessibility is core knowledge
- Awareness is Modulating
- Privacy is Reactive
- Organization
- Useful?
  - Are these categories just benefits?
  - Can we discuss the phone system?

Burdens

- Withdrawal or diminishment of benefits
- Mechanism
  - Special equipment
- Location
  - Collocation
- Role responsibility
  - Cognitive
  - Action
- Setup
  - Action



- Notice gradual and bursty
- Core service has mostly been increasing
- Huge recent increase in privacy
- 1980s touch tone

Results

- Punctuated evolution
  - Not a smooth increase
- Periodic Retrenchment
  - Dip shortly after sharp increase
  - Cultural resistance and redundant
- Functional Decentralization
  - intended vs inventive vs abuse
  - Must benefit primary actor
  - Core services must take priority of non-core

Conclusion

- Not a measure of size or code functionality
- Less fine grained than use cases
- Recognizes differences between features and that priorities cannot be compared in a “common currency”
- Really just provide a vocabulary to discuss issues
  - Where able to quantify
  - One of many possible vocabularies?
    - Is it a useful vocabulary?