ANSI/INCITS 354: Common Industry Format for Usability Test Reports

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NIST and IUSR

- ☐ The National Institute of Standards and Technology
  - ■ An agency of the Department of Commerce
  - ■ Mission is to assist American industry including the development of standards
- ☐ Industry Usability Reporting (IUSR) project
  - ■ Formed in 1997
  - ■ Comprised of people from industry (both US and abroad), academia, and government
  - ■ Expertise in usability testing

IUSR Participants - Suppliers/Purchasers

AOL
AT&T
Attachmate Corporation
AUTODESK,INC.
Bell South
Bellcore
bmcsoftware
Boeing
Caterpillar Inc.
Cisco Systems Inc.
Cognetics
Compaq
CSC
Dell Computer
Diamond Bullet Design
Eastman Kodak
Enviz
Ergolab

Fidelity Investments
GE Medical Systems
Hewlett-Packard IBM
I-many, Inc
Intel Corporation
Lockheed Martin
Lotus Development
Microsoft Corporation
Net Perceptions
netLibrary
netRaker
Noldus
Nordea
Nortel Networks
Northwestern Mutual Life
Novator Systems Limited
OKI Electric

Optavia Corporation
Oracle Corporation
Ovo Studios
PeopleSoft
Philips Design
Primus Knowledge Solutions
Sagem
SAMSUNG SDS CO., LTD
Serco Usability Services
Siebel Systems
SMART Technologies Inc.
State Farm Insurance
Sun Microsystems
Symantec Corporation
System Concepts Limited
Technion, Israel Tech. Inst.
Xerox Research Centre

Background

- ☐ Some customers incorporate usability into productivity initiatives (Boeing).
- ☐ Some measure usability of products they purchase with in-house users (Fidelity).
- ☐ Some aggressively demand usability data from vendors prior to purchase (SBC).
    - ■ "Guaranteed Service Level Agreements" vs.
   - ■ shrink-wrapped license no specific "fitness of use" clause

Goals

To increase visibility of software usability by

☐ Encouraging software supplier and consumer organizations to work together to understand user needs and tasks

☐ Developing a common usability reporting format for sharing usability data with consumer organizations.

☐ Conducting a pilot trial to assess

  ■ the value of using this format in software procurement

  ■ the validity of the usability reporting format

Multiplier Effect is Large:
User Time Costs over 5 years
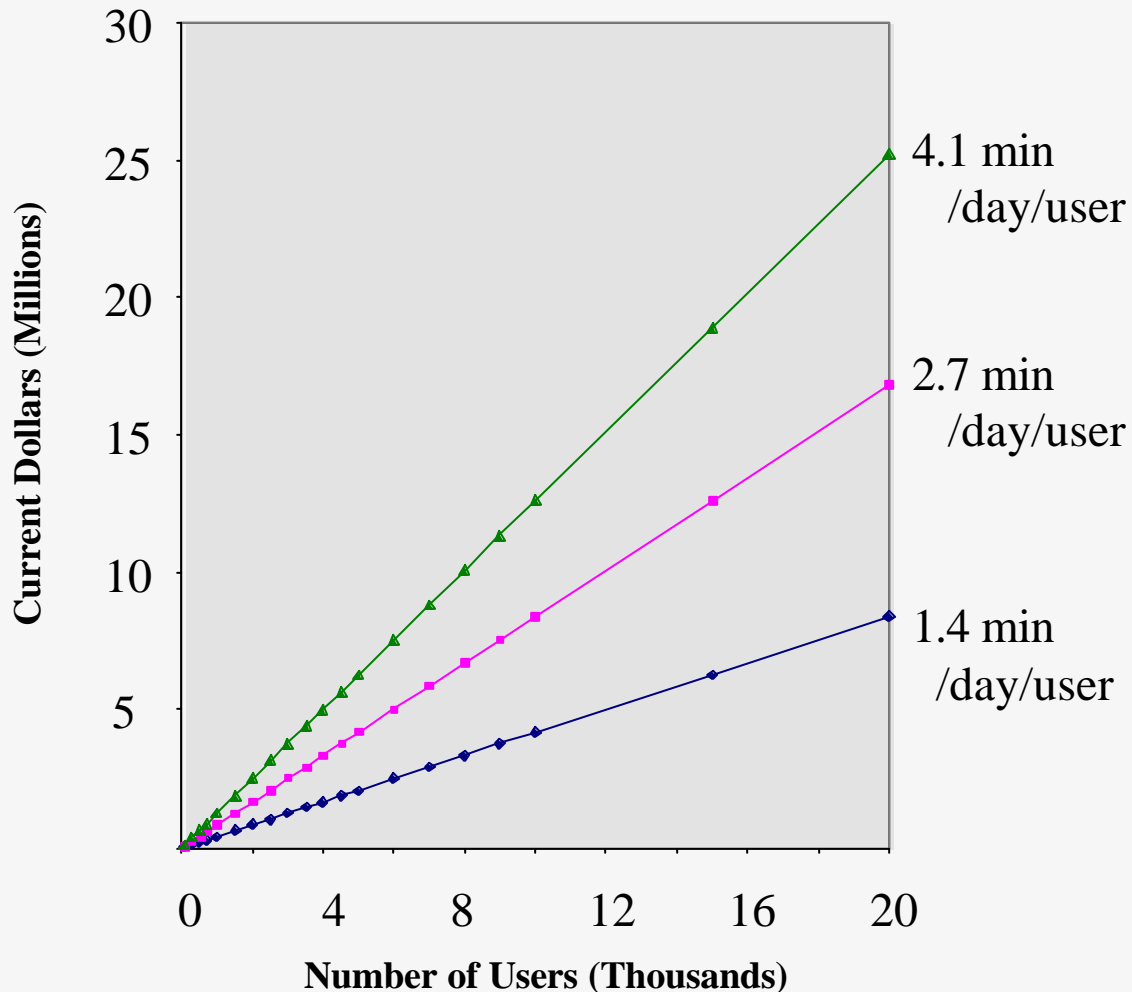
Assumptions:
$34/hr wage and fringe
Constant number of users
3% wage escalation
5 year product life cycle
35% income tax rate
13% ROI after tax

4.1 min /day/user

2.7 min /day/user

1.4 min /day/user

Current Dollars (Millions)

Number of Users (Thousands)

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Obstacles to Usability

Problem	Solution
Usability costs money	Usability saves money
Usability is an interface issue	Usability is a business issue
Usability is not part of the process	ISO 13407 user centred design process
No usability requirements	Use Common Industry Format for requirements
Customers don't ask for usability	Provide Common Industry Format usability results
Buyers can't assess usability	Ask for Common Industry Format usability results

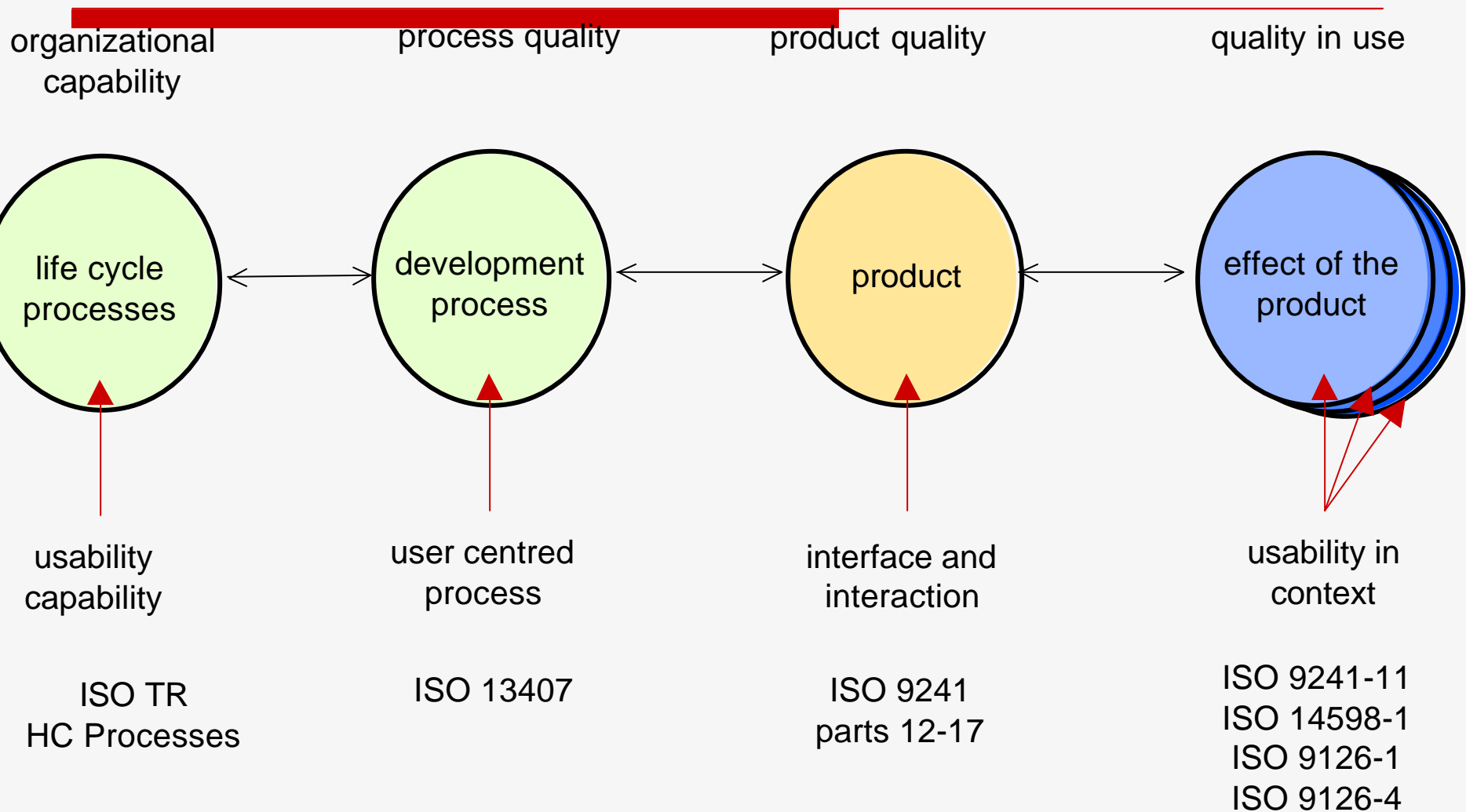# Reasons for evaluating usability

- ☐ Formative: diagnosis
  - Identify usability defects
  - Understand user problems
  - Early in design
  - Fast iteration
  - Eliminate as many problems as possible

- ☐ Summative: measurement
  - How usable is the product?
  - Does it meet the usability requirements?
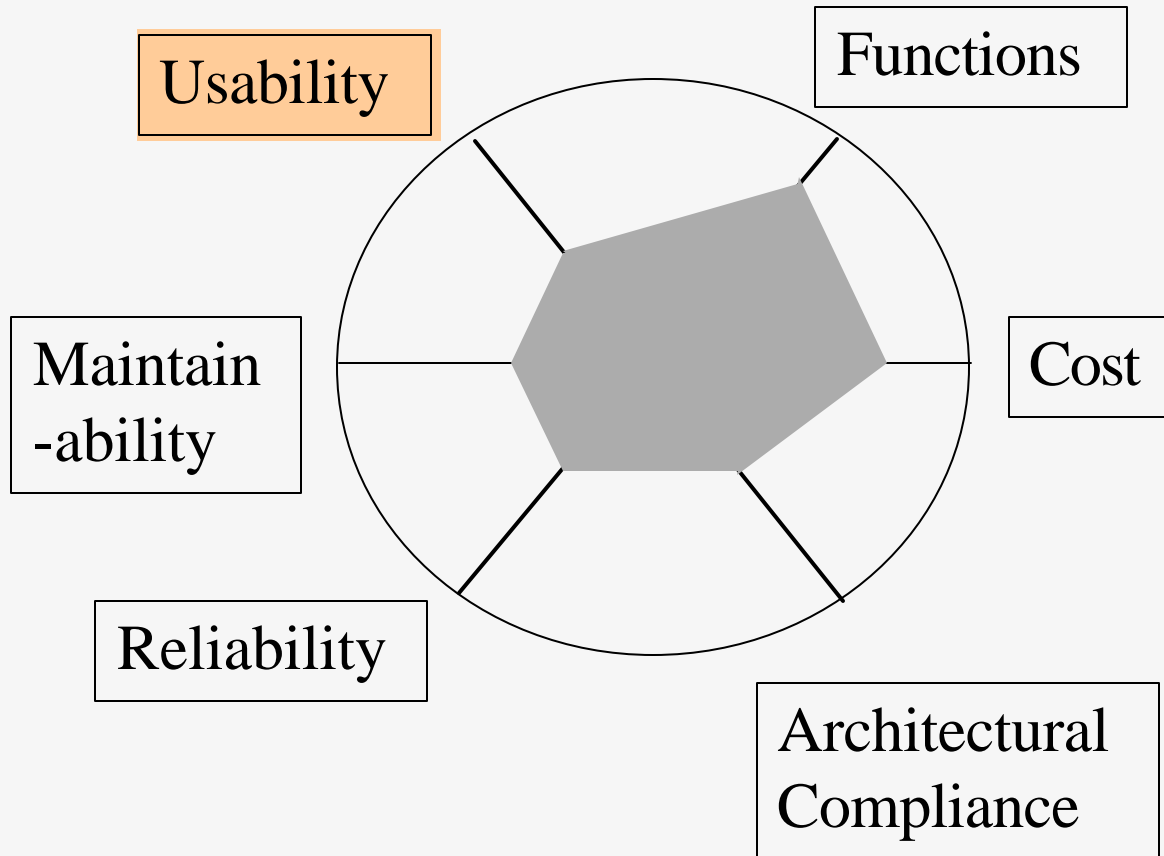 - Does it need further improvement?

Approaches to improving usability

organizational capability   process quality   product quality   quality in use

life cycle processes ↔ development process ↔ product ↔ effect of the product

usability capability   user centred process   interface and interaction   usability in context

ISO TR HC Processes   ISO 13407   ISO 9241 parts 12-17   ISO 9241-11
ISO 14598-1
ISO 9126-1
ISO 9126-4

Software Product Selection
is Multidimensional

Usability

Functions

Maintain-ability

Cost

Reliability

Architectural Compliance

Solution: CIF

- ☐ Produce a format in which to report the results of usability testing.
  - ■ Method:
    - ☐ Started with a set of proprietary formats from IUSR companies.
    - ☐ Determined the features that the formats had in common.
    - ☐ Debated whether the common elements were 'required' or 'recommended'.
    - ☐ Debated which elements from the disjoint set should be included.

Solution (cont'd):

- **Audience:**
  - ☐ Usability professionals in vendor organizations create CIF reports.
  - ☐ Usability professionals in consumer organizations interpret CIF's.
  - ☐ Decision-makers in vendor organizations → ready for release?
  - ☐ Decision-makers in consumer organizations → buy? upgrade?

Common Industry Format (CIF)

- ☐ Reports on summative user testing
  - ■ Not formative testing
  - ■ Not heuristic testing
- ☐ Reflects best practice in industry
  - ■ Similar to reports typically produced internally
  - ■ Requires sample size of at least 8 (per Landauer & Nielsen research)
- ☐ Report written by usability engineering professionals
- ☐ Interpreted by usability engineering professionals
- ☐ Experiments and results should be reproducible

Performance-based Usability Metrics

- ☐ Efficiency – how long it takes to perform a task
- ☐ Effectiveness – how many errors or how many assists
- ☐ Satisfaction

- ☐ Learnability
- ☐ Memorability – how long to re-learn

Advantages of Standardization

- ☐ Requesting a standard report carries more weight simply by virtue of its being a standard.
- ☐ Consumer orgs can start to expect that a CIF will be available for the products they would like to evaluate for purchase and can reasonably expect that vendors will be able to comply.
- ☐ Share a common language for discussing usability test components and encourages communication.
- ☐ Reduce training costs for in-house usability staff -- learn the format once; use it everywhere.
- ☐ The use of standards is associated with increased credibility; usability professionals who use standards stand to benefit by association.

Contact Information

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