

Business Case for User-Centred Design

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How Usable are current systems ?

- UK Passport Office
 - New software for issuing passports took operators twice as long
 - Caused delays of up to 3 months in obtaining a passport
 - Huge cost of additional clerical staff
- E-commerce web sites
 - User success in purchasing ranges from 25%-42%



What is the Quality of the User Requirements ?

- Standish Group found that
 - 51% of projects failed
 - 31% were partially successful
- Main causes were poor user requirements:
 - 13.1% Incomplete requirements**
 - 12.4% Lack of user involvement**
 - 10.6% Inadequate resources
 - 9.9% Unrealistic user expectations**
 - 9.3% Lack of management support
 - 8.7% Requirements keep changing**
 - 8.1% Inadequate planning
 - 7.5% System no longer needed**



Quality in Use

ISO/IEC 14598-1 (1999) Software product evaluation - Part 1: General overview quality in use

the extent to which a product used by specified users meets their needs to achieve specified goals with effectiveness, productivity and satisfaction in a specified context of use

- Quality in use is the user's view of the quality of a system containing software, and is measured in terms of the result of using the software, rather than properties of the software itself
- Quality in use measures the combined effect of ease of use, functionality, efficiency and reliability.



IBM

- “IBM's focus on ease of use has led to technology breakthroughs and advances in design research”
- “For developers and manufacturers, the advantages of creating usable products far outweigh the costs”
- “Every dollar invested in ease of use returns \$10 to \$100”

<http://www.ibm.com/ibm/easy/>



Microsoft

- “The Usability Group is an integral part of the product design process at Microsoft”
 - Over 100 usability engineers
 - Over 25 usability labs

<http://www.microsoft.com/usability/>



Ease of Use/PC Quality Roundtable

PC usability enhancements to improve the consumer's experience

- Intel
- Microsoft
- Aveo
- Compaq
- Dell
- Diamond Multimedia Systems
- Gateway 2000
- Hewlett-Packard
- IBM
- Inverse Network Technology
- Packard Bell NEC



Conclusions

- PCs hard to set up, difficult to operate, difficult to expand or fix problems
- Areas for improvement
 - Faster boot, less frequent reboot
 - Email and internet as easy as phone and fax
 - Automatic software maintenance, maintained performance
 - Easier hardware and software failure detection
 - Simpler more reliable install and uninstall
 - Adding or changing hardware or software configuration is failsafe
 - PC can be installed and ready to use in 5 minutes
 - Common tasks easy and intuitive, simple additional assistance



Why is usability important?

- Focus on user and organisational needs
 - reduce development times
 - less training and support and documentation is required
- Improve productivity
 - simpler interface, fewer user errors
- Improve the competitive edge
 - increasing expectations for ease of use
 - increasing usability of competitive products
 - high profile of usability in advertising
- Improve the quality of life
 - less stress, users are more satisfied
 - lower staff turnover
- Health and safety legislation
 - European Directive on Display Screen Equipment



Case study: Hewlett Packard

User-centred design methods were applied to redesign software used for identifying network problems:

| | Old | New |
|---------------------------|----------|---------|
| time to finish task | 9.4 min | 4.1 min |
| problems identified | 16% | 78% |
| average length of call | 30 min | 10 min |
| size of manual | 25 pages | 4 pages |
| people needing the manual | 53% | 3% |
| user satisfaction rating | 3.5 | 6.8 |

In addition to the benefits to customers, HP recovered their costs in 18 months



Common Industry Format usability tests

- NIST initiative
 - National Institute of Standards and Technology
- Objective: raise the profile of usability in procurement
- Suppliers provide standard test reports to purchasers
- Suppliers include:
 - IBM, Microsoft, HP, Sun, Kodak, Oracle, Compaq
- Purchasers include:
 - Boeing, Northwest Mutual Life, State Farm Insurance, Fidelity
- Reports provided in confidence
- Could permit comparisons
- Format currently being agreed

<http://www.nist.gov/iusr>



Report format - technical

- Test objectives
- Participants
 - Total number and user groups
 - Key characteristics and capabilities expected
 - How selected: with the key characteristics and capabilities?
- Context of evaluation
 - Task scenarios and task data used
 - Any performance criteria used
 - Physical and computer environment



Report format - results

- Effectiveness
 - % completely and correctly achieving their goals
 - Separate data where assistance was given
- Efficiency
 - Mean time taken to complete the task
 - Standard deviation (and standard error)
- Satisfaction
 - Optional: own scales or standard questionnaire



How it will work

- Purchaser requests supplier to provide a CIF report
 - initially as part of agreed trials
- The supplier may already be planning a usability test
 - may have to adapt the test plan to be suitable for CIF report
 - or
- The supplier asks the purchaser to carry out the test
 - or
- The supplier asks a third party to carry out the test
- The test results help the purchaser decide
 - whether to purchase
 - whether to request changes

