

Designing for User Acceptance

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Structure

- The challenge
- Theory
- Process
- Results

Challenges for Design for Public Access

- Designers are faced with the problem of
 - an increasingly large and complex marketplace
 - speed of development of communication technologies
 - increasing use of public access electronic ‘kiosks’ and information devices
 - many new inexperienced users, e.g.,
 - 10.6 million adults accessed the Internet at least once during 1998, a 48% increase on 1997
 - free service providers are attracting a new type of Internet user - generally older and from the C2DE social groups .
 - (NOP Research Group)

Design for Who?

Needs and motivations change by adopter type

Familiarity with
technology ←

% Adopting

*The
chasm*

Innovators
and early
adopters

Early
majority

Late
majority

Laggards,
skeptics

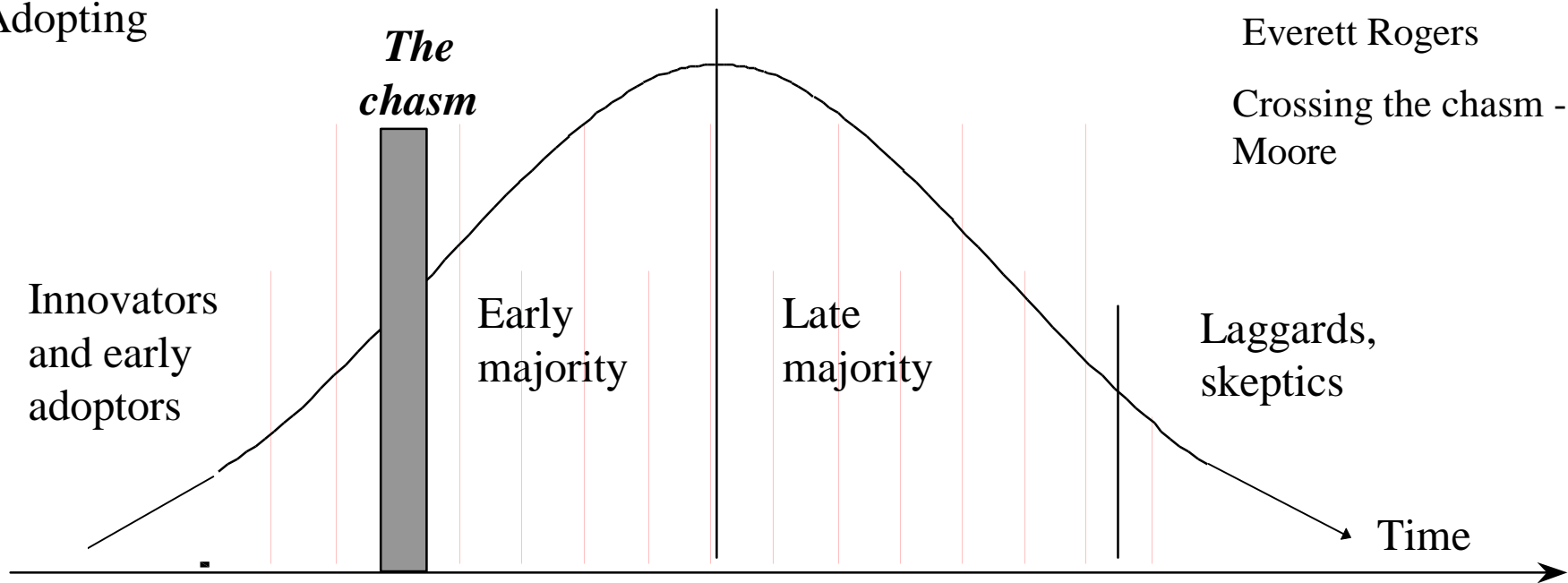
Time →

The Diffusion of Innovations
Everett Rogers

Crossing the chasm - Geoffrey
Moore

→ Ease of Use, Convenience,
Risk Aversion, Efficiency

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Comparison to Organisational Use

- Fewer restraints on choice of behaviour
 - ‘pull’ instead of ‘push’
 - have to attract user in a competitive environment (2 points)
- Diverse situations and conditions
- Less shared understanding
- Shorter, intermittent interactions
 - reduced training scope
 - ‘permanent novices’
- **All exacerbated when public access**

Beyond Usability Criteria

- Designing for a competitive environment forces us to ask new questions
 - why should customers use the this site?
 - what criteria do customers use to evaluate the site?
 - how do the specific system design attributes affect the customer criteria evaluation?
 - what is the role of brand?
 - on customer behaviour
 - on constraints on design

Designing for competitive environments

- Use qualitative methods to evaluate user requirements in terms of **value and benefit to the customer.**
 - What goals/tasks does the customer wish to accomplish?
 - How does this site/system help them to achieve those goals/tasks?
 - rather than as accomplished at present
 - rather than other sites/systems of the same kind
 - What drives repeated use of the site/system?
 - what are the benefits to the user of using the site?

Designing for competitive environments II

- Using quantitative methods to assess where companies should concentrate resources.
 - What evaluation criteria do customers use?
 - the relative weighting of these criteria by the customer
 - which are important to the customer
- How do the specific system design attributes affect the customer criteria evaluation?
 - Are there recognisable customer segments?
 - needs for modifications relevant to particular segments?

Theory

Diffusion of Innovations
Technology Acceptance Model

The Diffusion of Innovations (after Rogers, 1995)

Perceived Attributes of Innovations

Relative Advantage

Complexity

Compatibility

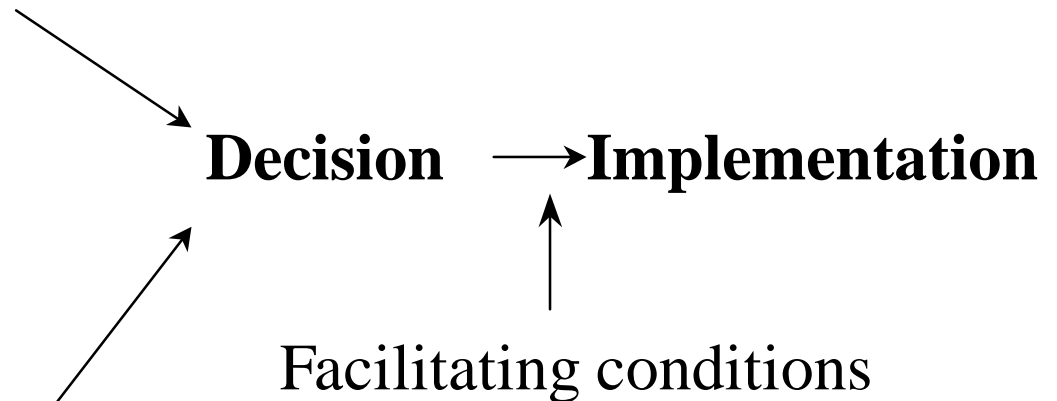
Trialability

Observability

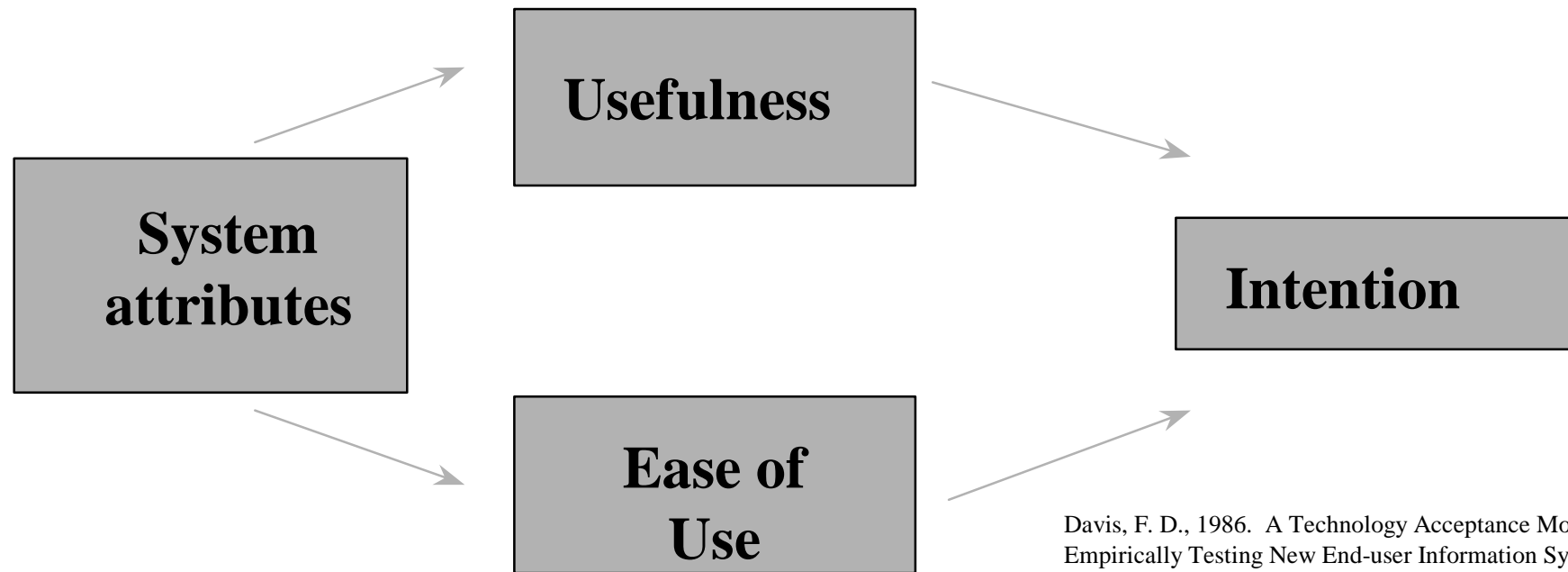
Nature of Social System

Norms

Networks



Technology Acceptance Model

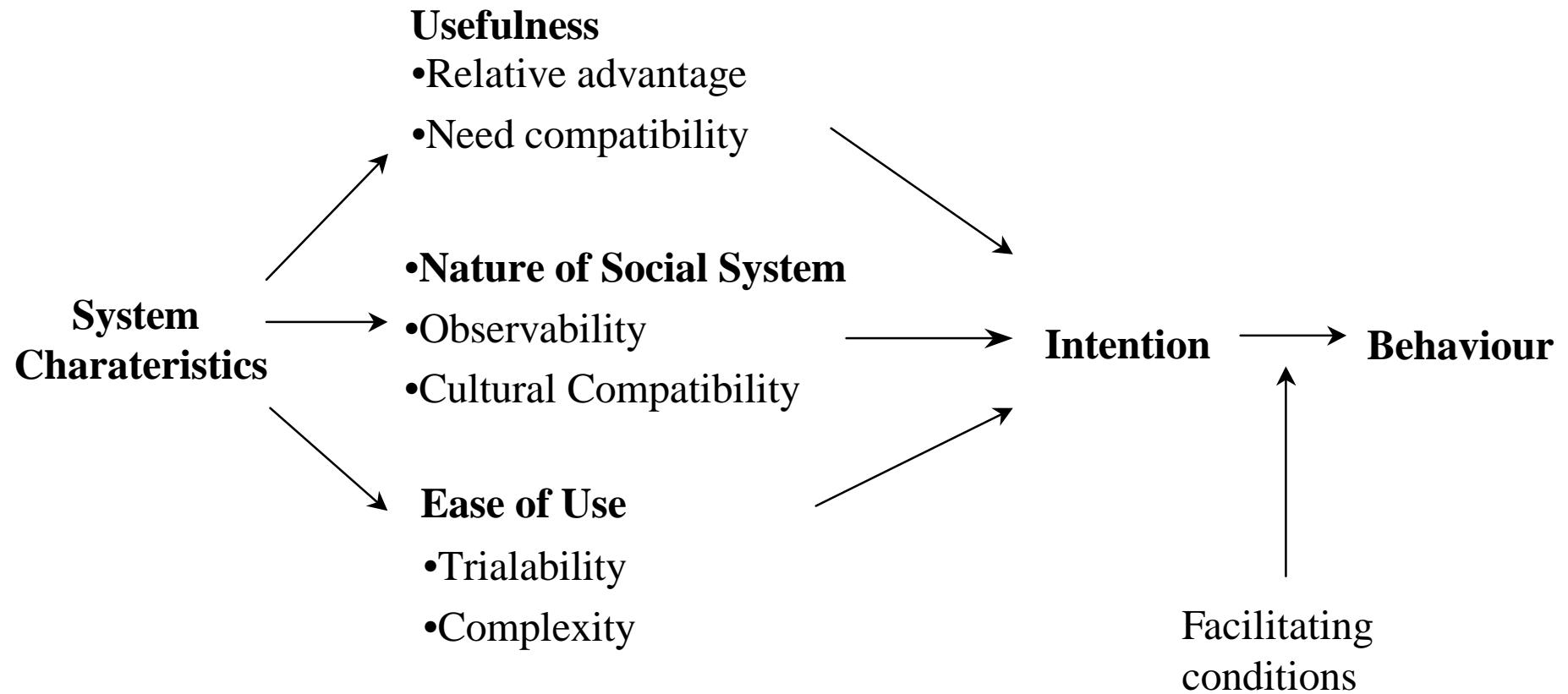


Davis, F. D., 1986. A Technology Acceptance Model for Empirically Testing New End-user Information Systems: Theory and Results. Doctoral Dissertation, Sloan School of Management, Massachusetts Institute of Technology

Davis, F. D., R. P. Bagozzi and P. R. Warshaw, 1989. User acceptance of computer technology: A comparison of two theoretical models. *Management Science* 35 (8) 982-1003.

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Combining Theories



Process

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Objective

- Detailed understanding of the user environment viewed as a social system- requirements for improved solutions.
 - The requirements definition phase is therefore a creative one with an eye both to the capabilities of technology to transform the task as well as to our understanding of the current situation

Requirements Capture Process

- Study of task as presently carried out
 - Understanding current ways of achieving task indicates how they may inform, impinge on and create problems for potential technology intended to serve, replace or improve these.
- Co-operative requirements capture

- Concept testing ideally takes place at three stages: paper prototype, electronic prototype and beta.
 - Testing is done *in situ* as far as possible, with the intended users of the application performing the actual task. Control is given to the trialist.
- The full program is built based on feedback from user trials with regard to functionality and 'look and feel'.
- Once installed *in-situ* the system is evaluated quantitatively to measure its success and feedback into updated versions or entirely new solutions.
 - questionnaire based, many users

Usefulness, social and facilitating conditions examples

Using the XXX touch screen system will:

- a) fit well with how I like to shop for XX..
- b) save me time ...
- c) be easier than bothering a sales assistant for information....
- d) allow easier comparison between products.....

I would be likely to use XXX.

- a) if I were alone...
- b) if I were with a group of people.....
- c) if I thought other customers were watching me...
- d) if there were long queues at the ticket office.....
- e) if I were short of time.....

Brand/store image examples

for the better

for the worse

..a) pleasantness of store to shop in

..b) convenience.....

..e) excellence of store

..f) level of service

..g)spaciousness of store

..h)up-to-date store

..j) breadth of selection of goods.....

..p)adequacy of information.....

a) the ease of use of this site increases my liking for XXX

b) XXX listen to their customers

c) XXX are leaders in YYY

Observability and Clarity of Purpose

Examples

The instore Interactive Guide ...

...is easily accessible for use

...is in a prominent, easily visible position..

...is situated conveniently in relation to the rest of the software.

...is housed in an attractive unit

It was clear from the beginning...

that the purpose of the kiosk was to provide information on software

...that the guide concerned XXX products

Results

What drives acceptance?

Usefulness

- Relative advantage
 - Task facilitation - easier, faster, cheaper
 - High-quality content relevant to the user
 - depth of information; relevance of information; up-to date information, e.g., student information site
 - one-stop information shopping - up-to-date, cannot find elsewhere, appropriate depth
- Need compatibility
 - Fit with the task and the person
 - may change the task performance, e.g., coupons
- Stimulation
 - Evoked emotion & experience unique to medium

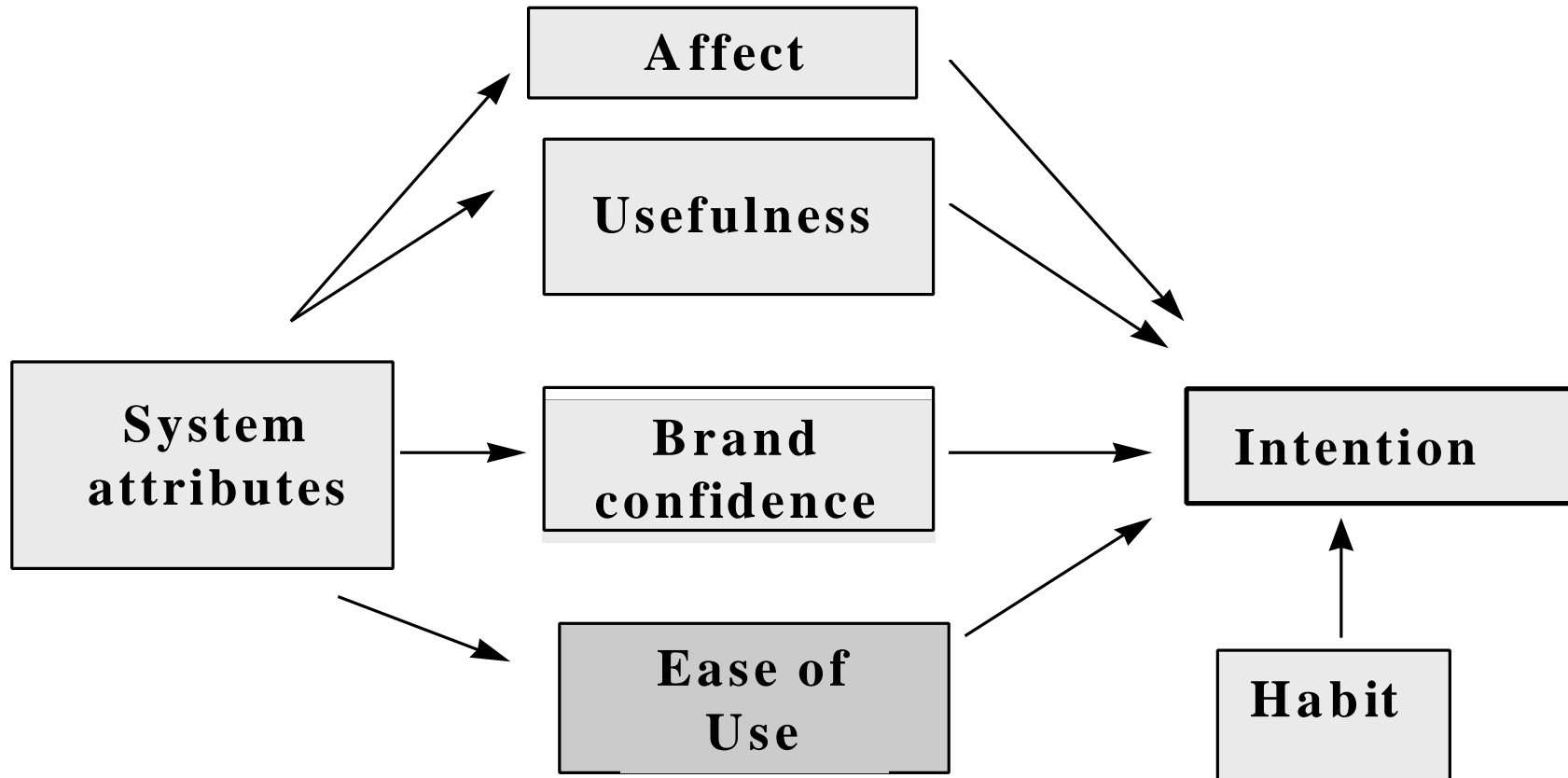
Nature of Social System

- Observability
 - promoting effectively
- Cultural Compatibility
 - fit with social situation and expectations (including effects of past behaviour)
 - appropriate to task
 - appropriate to user
 - credibility and confidence
 - brand
 - indication of secure servers (if appropriate).
 - well written and clearly understood privacy policy

Ease of Use

- **Clear communication of the purpose**
- Navigation
 - cognitive mapping
 - links
- Feedback on actions and errors
- Consistency in design and visual presentation
 - page layout and visual themes
 - procedures for similar or related actions
 - text clarity and clarity of layout
- Clarity of language

Designing for User Acceptance



Summary

- Design has effects on all experiences
 - usefulness
 - enjoyment
 - and on BRAND
- Design must be user centred
 - understand what users want to do
 - how they want to do it
 - and feelings surrounding use

Design Guidelines

- Sources
 - Previous research
 - Guidelines
 - SUN, Microsoft, IBM and Yale
 - Evaluation /Usability Checklists
 - Ravden and Johnson, Bevan, Nielsen, and December

Sources

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- Usability - is the effectiveness, efficiency and satisfaction with which specified users can achieve specified goals in particular environments.
- Consistency The consistency of the layout of screens, instructions and naming conventions from one part of the system to another.
- Flexibility How well the system can cater for or tolerate different levels of user familiarity and performance.
- Naturalness The extent to which the user does not have to alter significantly his or her approach to the task in order to interact with the system.
- Non-redundancy How much users should be required to input only the minimum information for the system's operation.
- Supportiveness
 - a) Quantity and quality of the instructions provided
 - b) Nature of the error messages produced
 - c) Confirmation of what the system is doing.