

# L382L.20

## Understanding and serving users

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Thurs 3-6pm pm

# What is this class about?

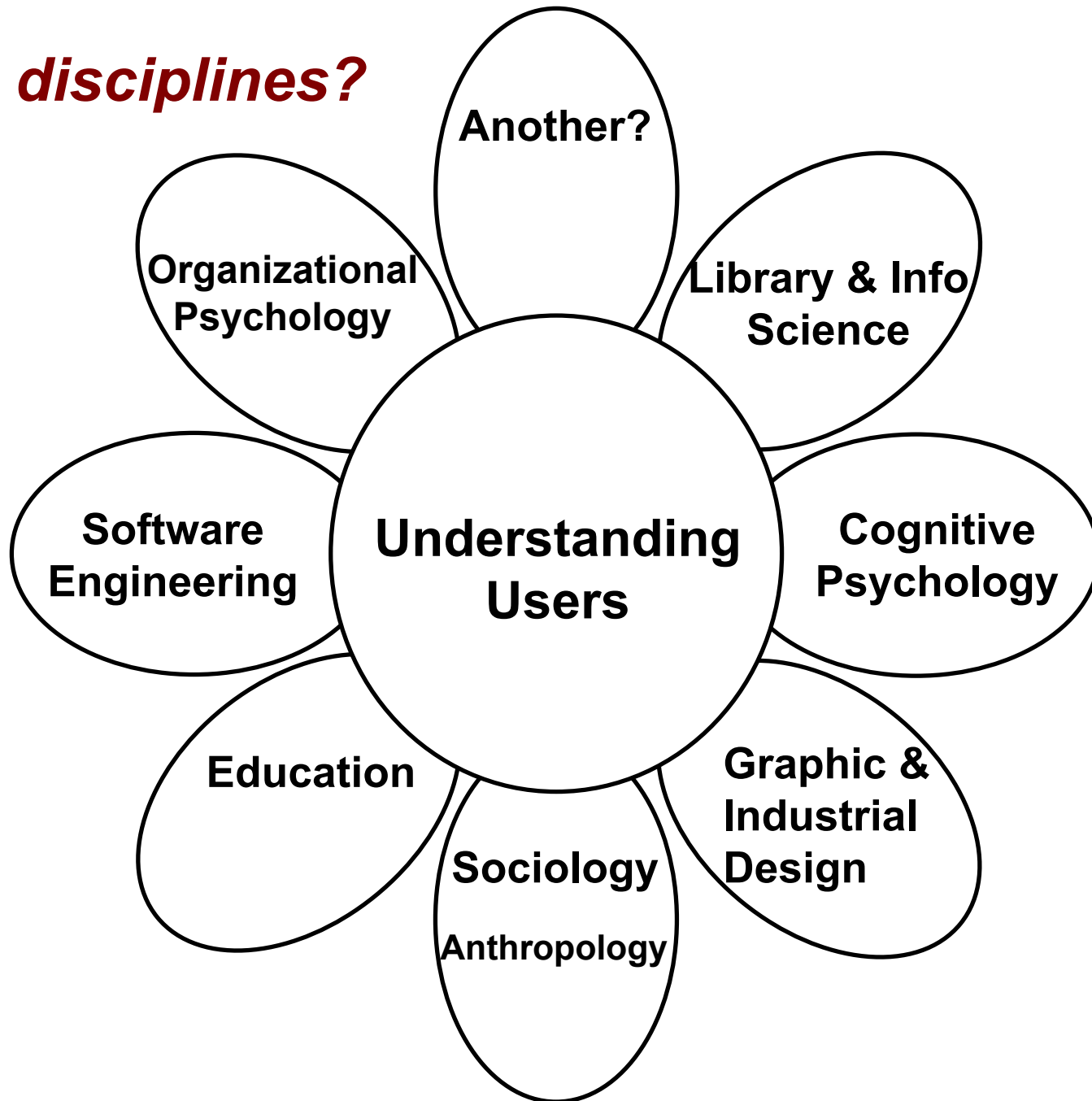
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Interdisciplinary study of the nature of users in terms of their:

- behavior
- attitudes
- needs
- contexts of use
- tasks

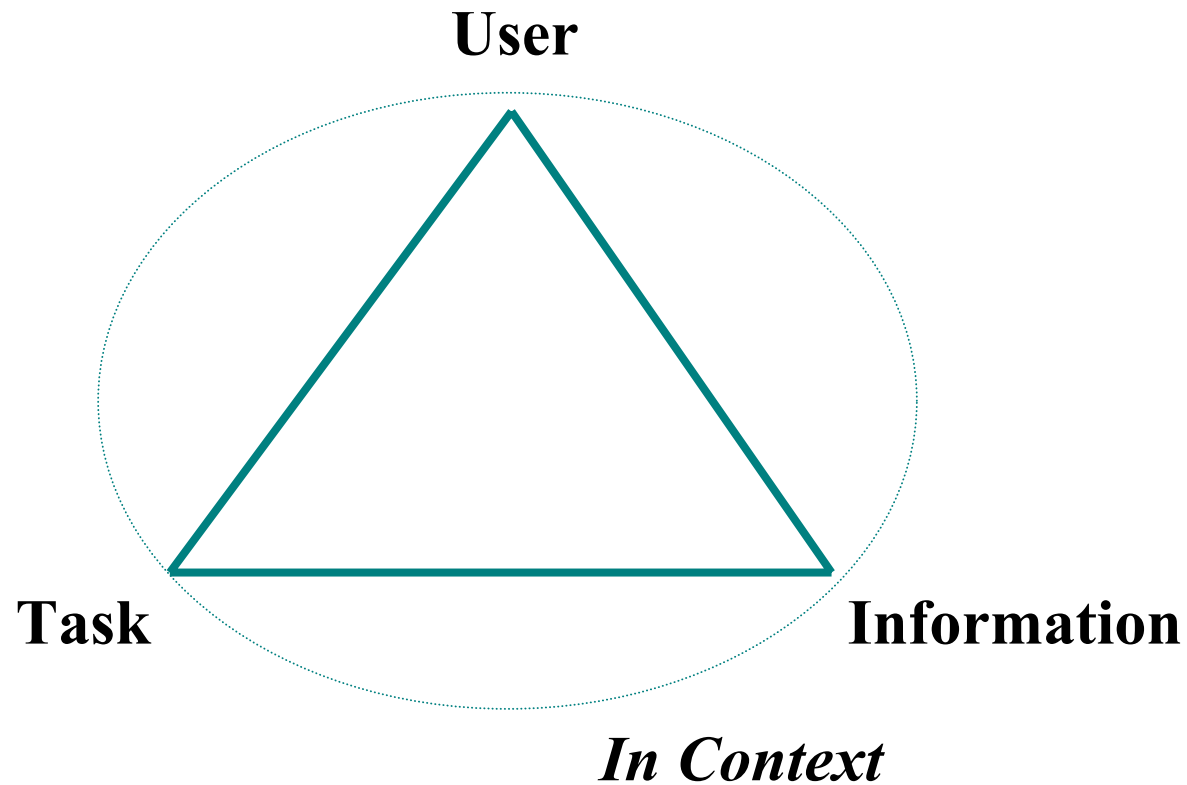
in order to support the design, implementation and management of usable and acceptable information systems

# *Which disciplines?*



# What is an information system?

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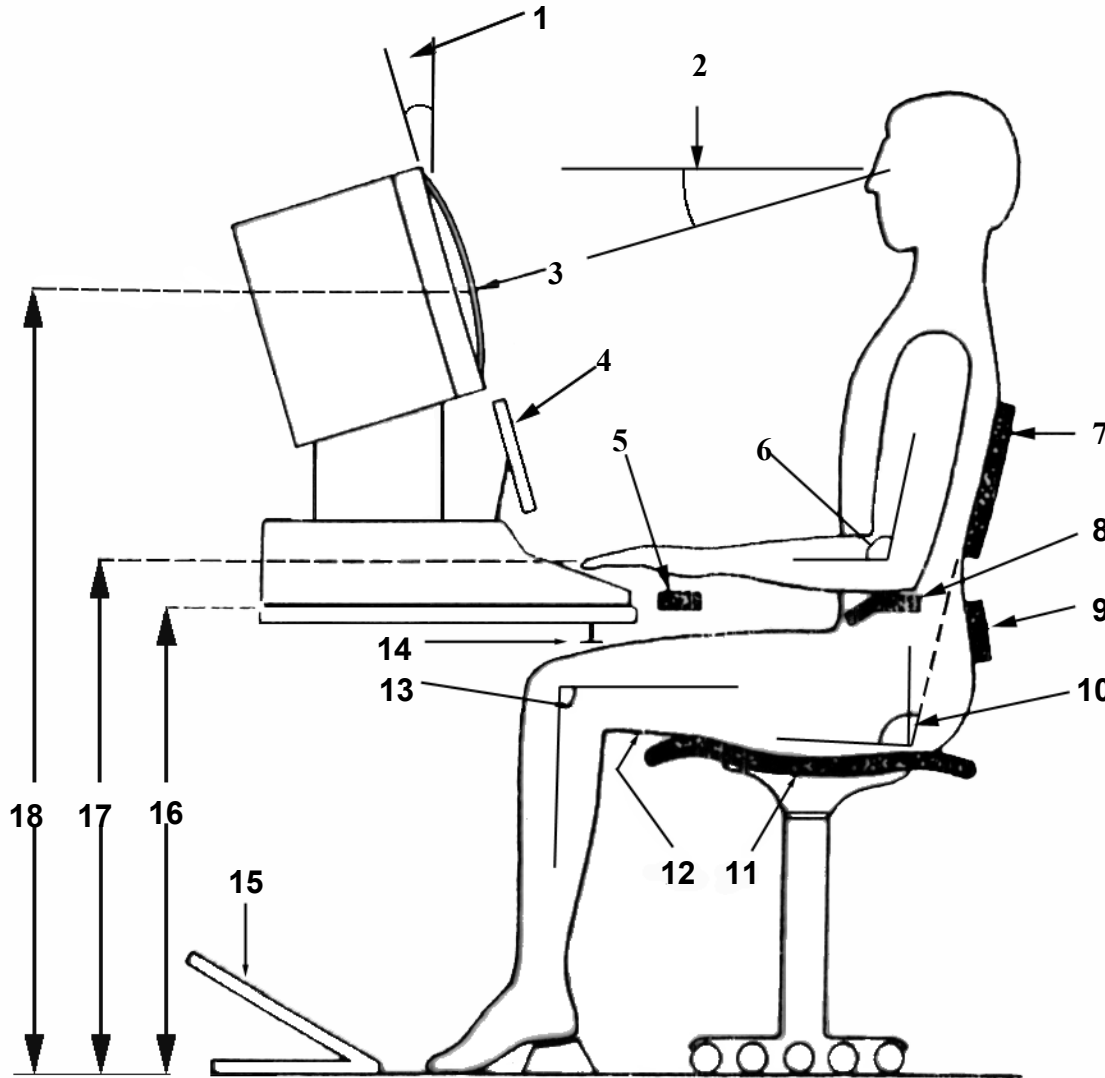


# Why study users?

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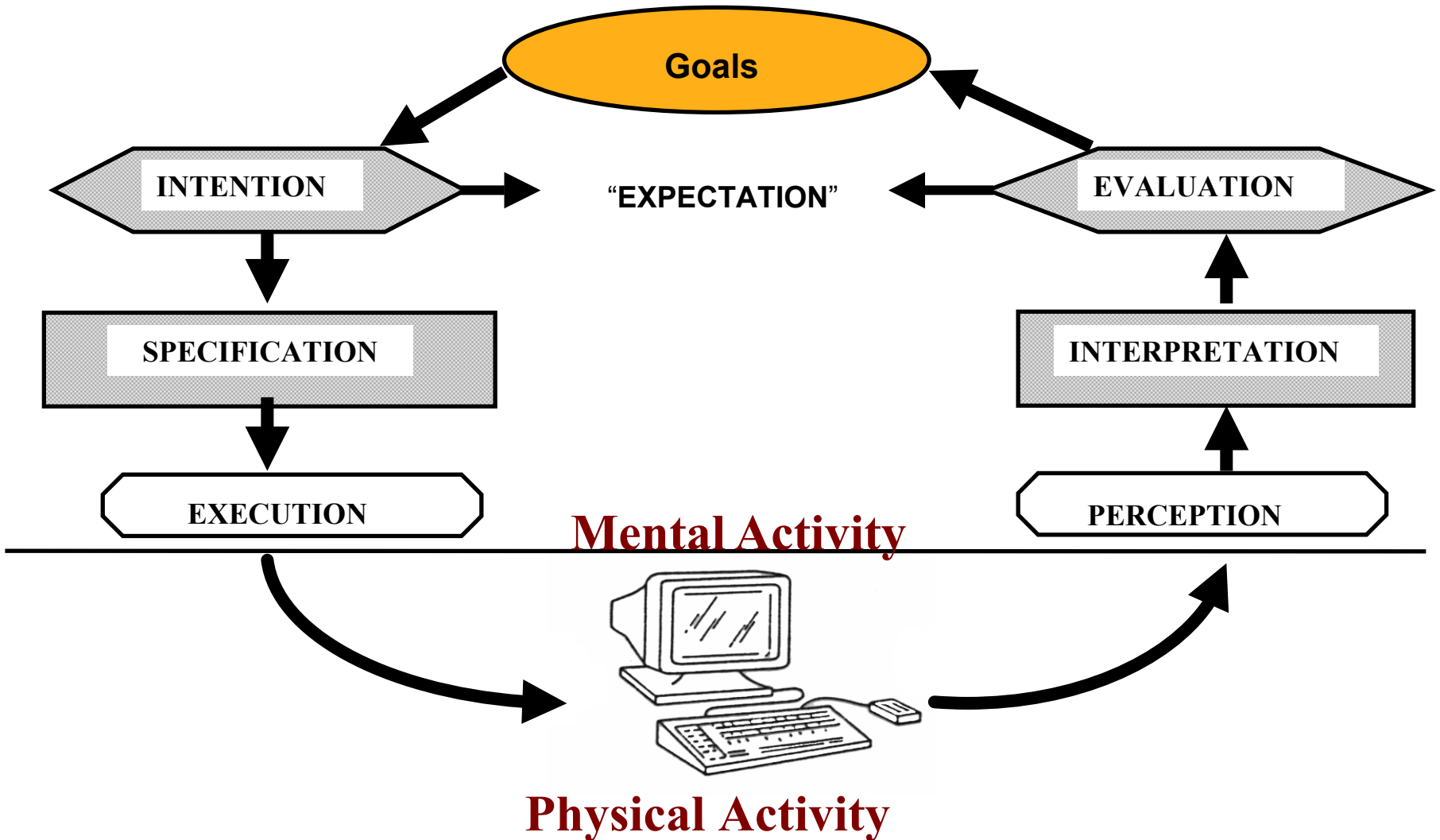
- *Growth of user population*  
Everyone is an information user at some stage
- *Organizational reliance*  
Most companies would cease to function without I.T.
- *Critical applications of information technology*  
Medical, industrial and corporate applications may have fatal consequences if errors occur
- *Clues to human behavior and cognition*  
Studying humans interacting with information artifacts can inform our theories and models of human capabilities and activities

# User as physical being?

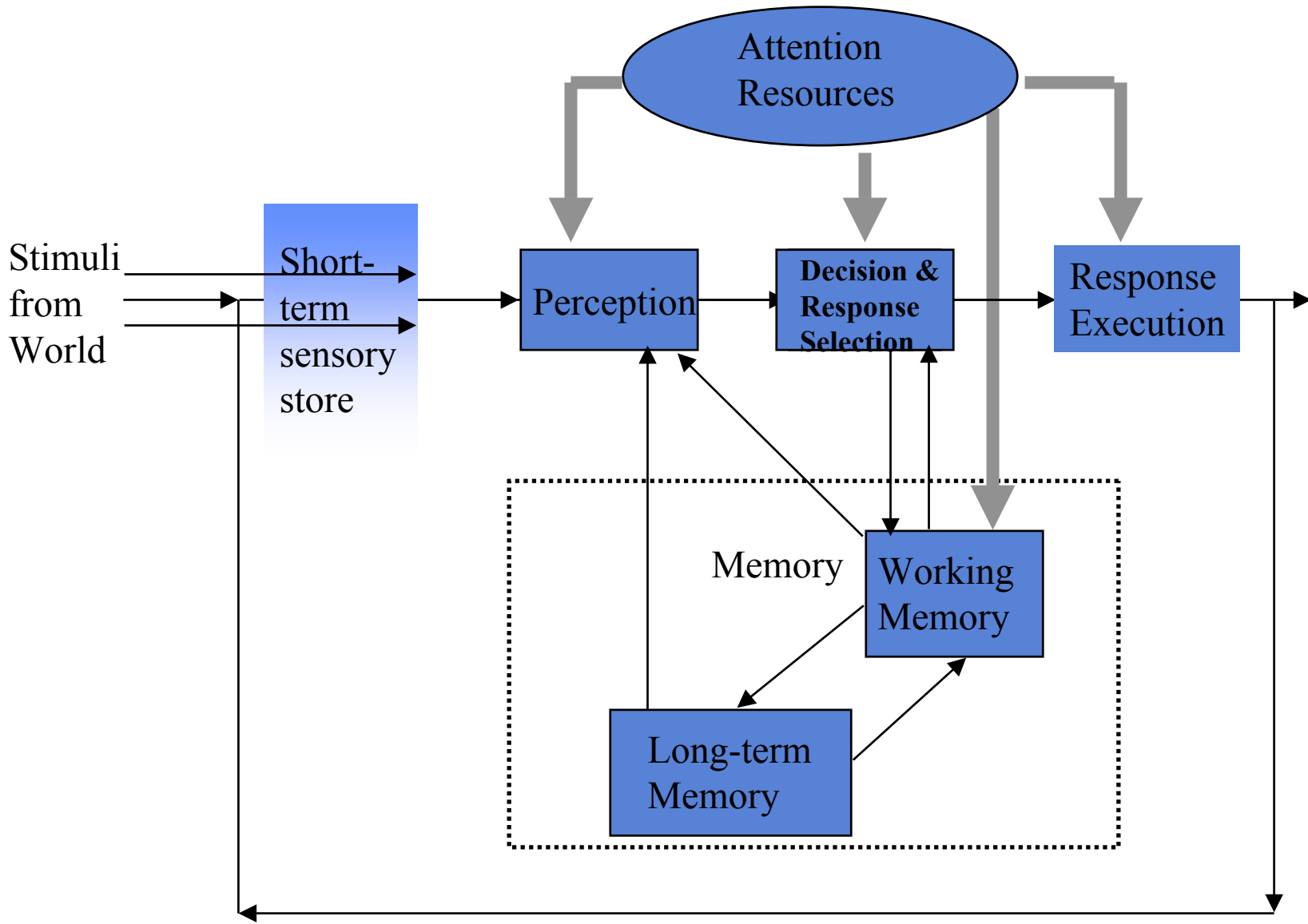


1. Screen tilt angle
2. Visual angle between the horizontal and the center of the display
3. Eye-screen distance
4. Document holder and source document
5. Wrist rest
6. Elbow angle
7. Backrest
8. Elbow rest
9. Lumbar support
10. Seat back angle (from horizontal)
11. Seat pan angle (from horizontal)
12. Clearance between leg and seat
13. Knee angle
14. Clearance between leg and table
15. Footrest
16. Table height
17. Home row (middle row height)
18. Screen height to center of screen

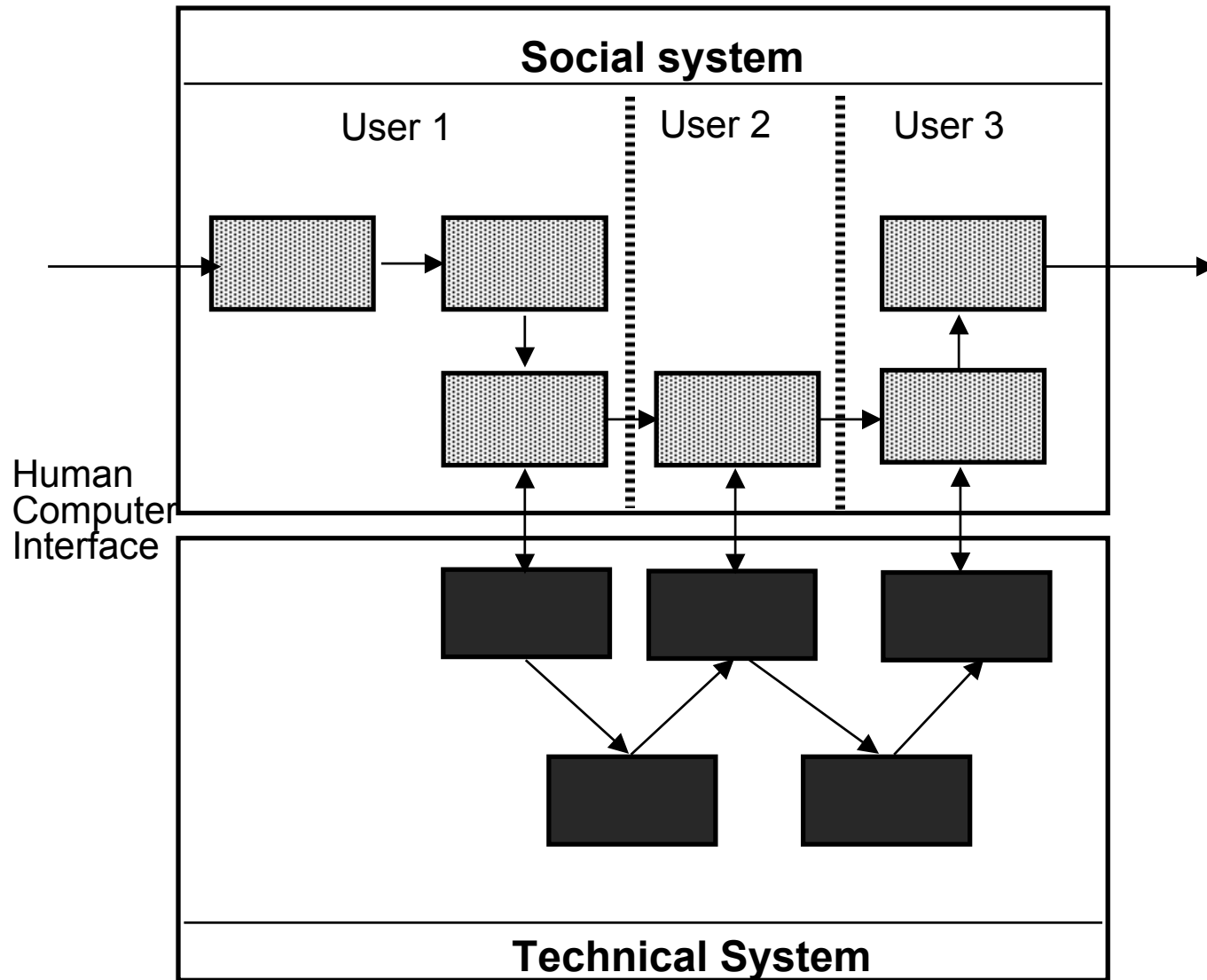
## User as cognitive being?



Seven stages of user activities involved in the performance of a task  
Don Norman (1987) *The Design of Everyday Things*.

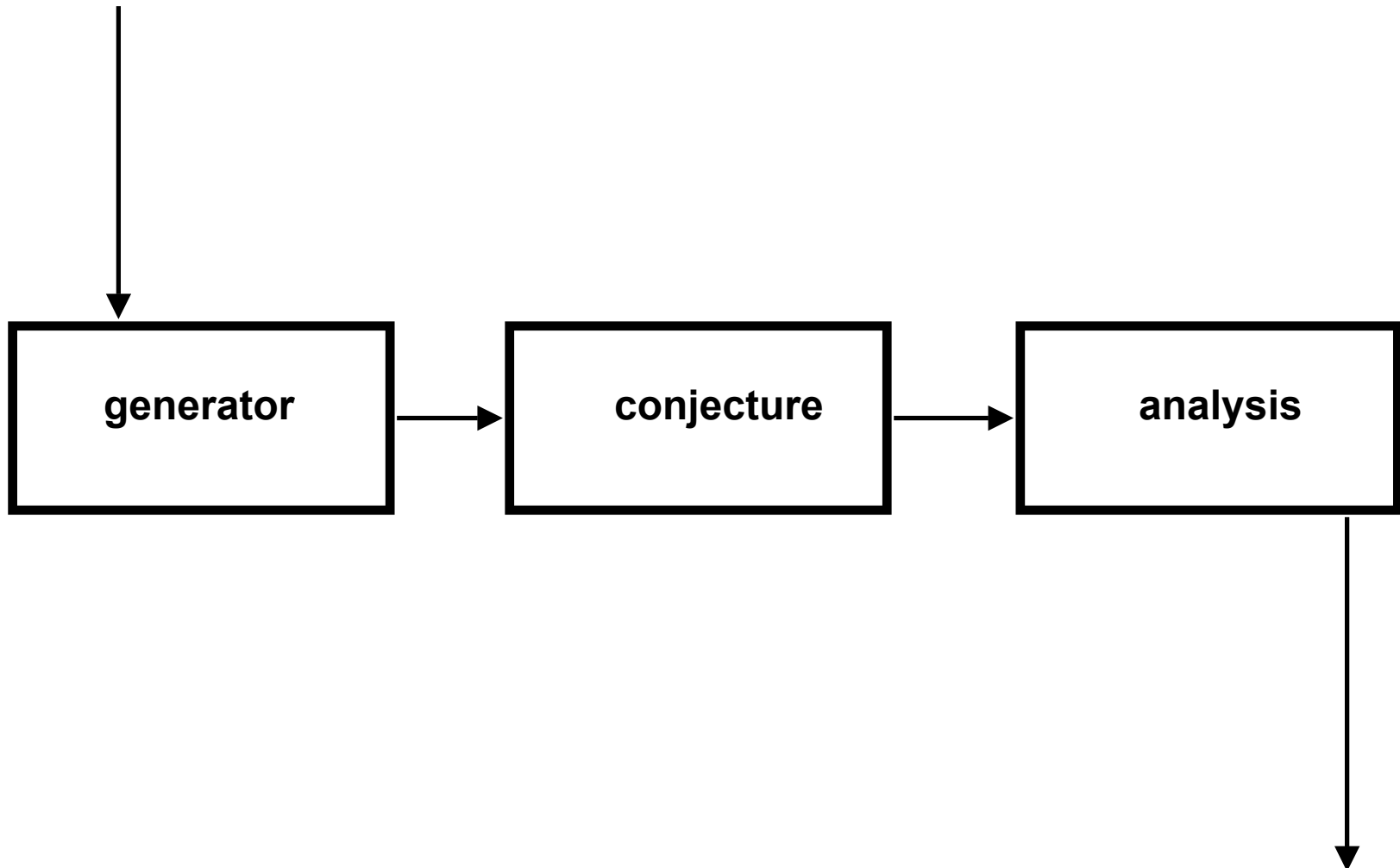


# Organizational Information Interaction

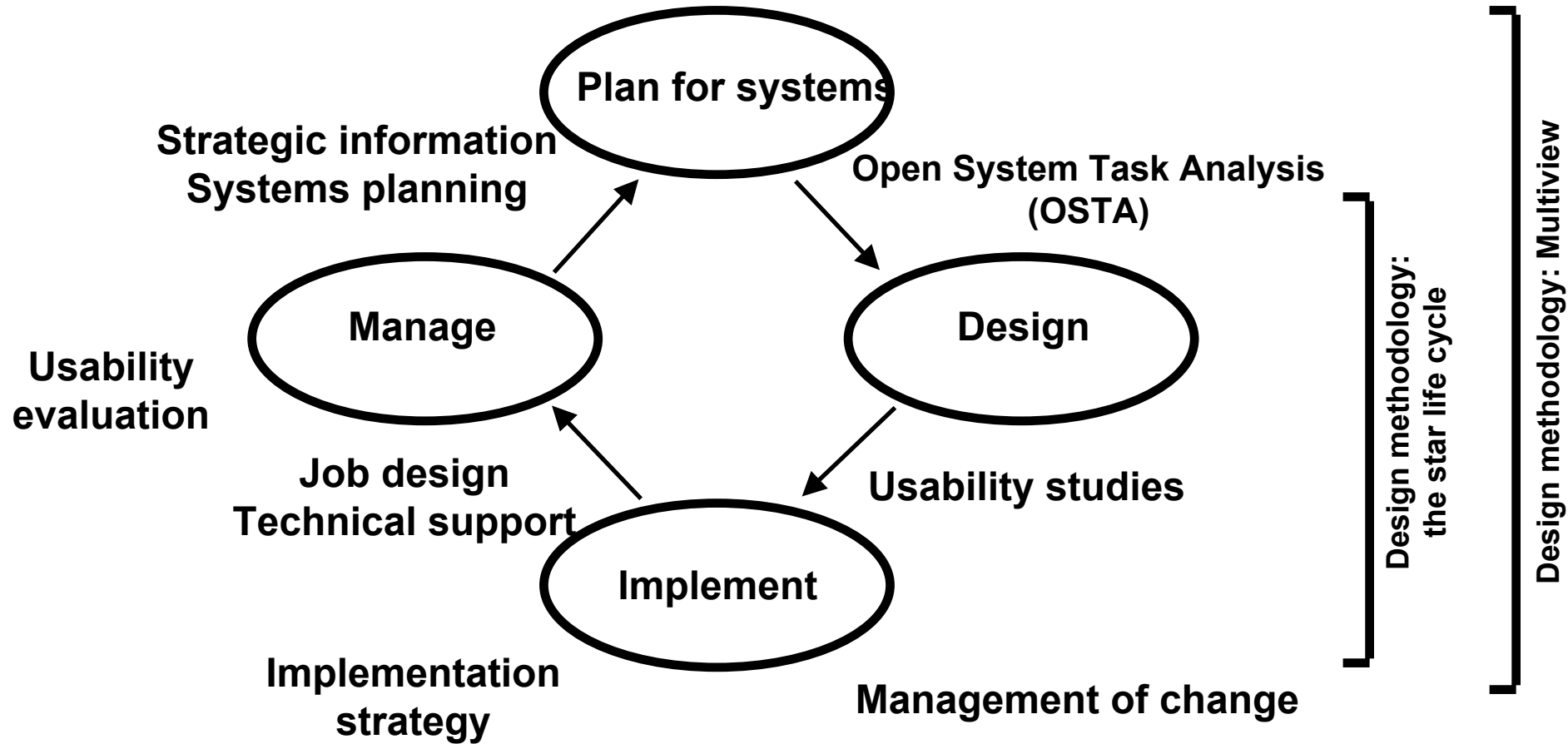


# WHAT IS DESIGN?

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# What is user-centered design anyway?



Methods for user-centered design (adapted from Eason, 1992)

# What will we cover?

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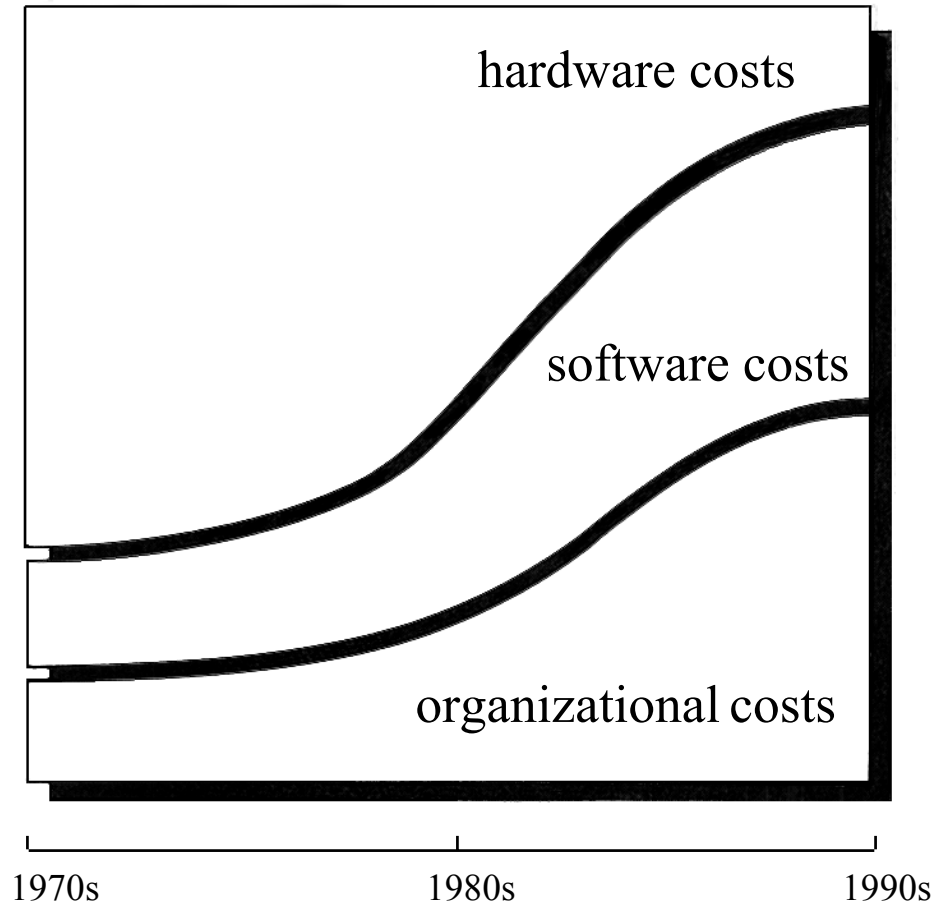
- The emergence of user-centered information design
- The form of user-centered design
- Usability testing
- Psychology of the user
- Socio-technical systems analysis
- Resistance to information technology
- Design as a cognitive act
- Data analysis from user studies

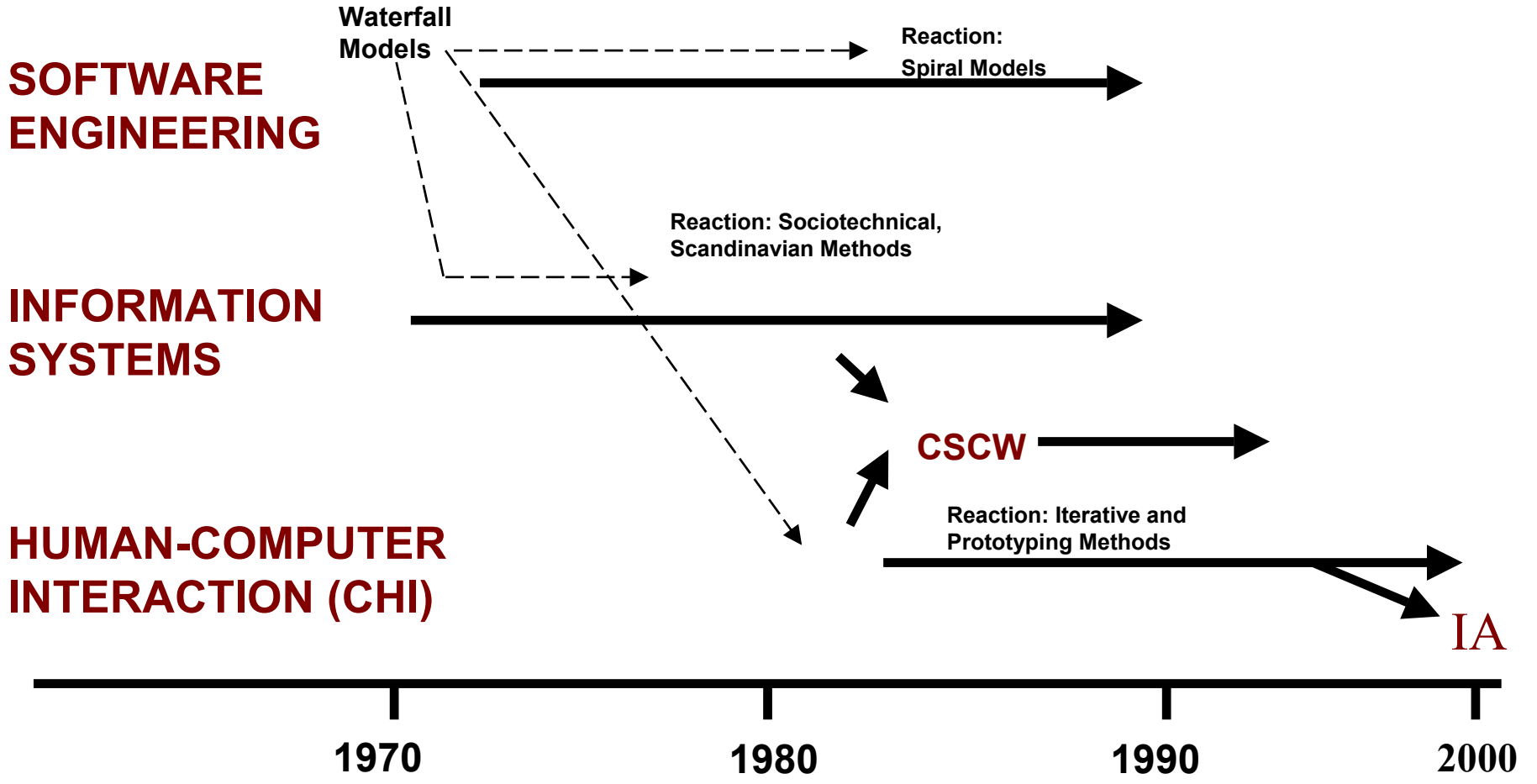
# Emergence of user-centered design in Information systems

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- Falling hardware costs
- Rising software and human costs
- Rise of the 'casual' user (Cuff 1980)
- Systems failing to meet requirements
- The 'productivity paradox' (Landauer, 1995)
- Need for non computing explanations

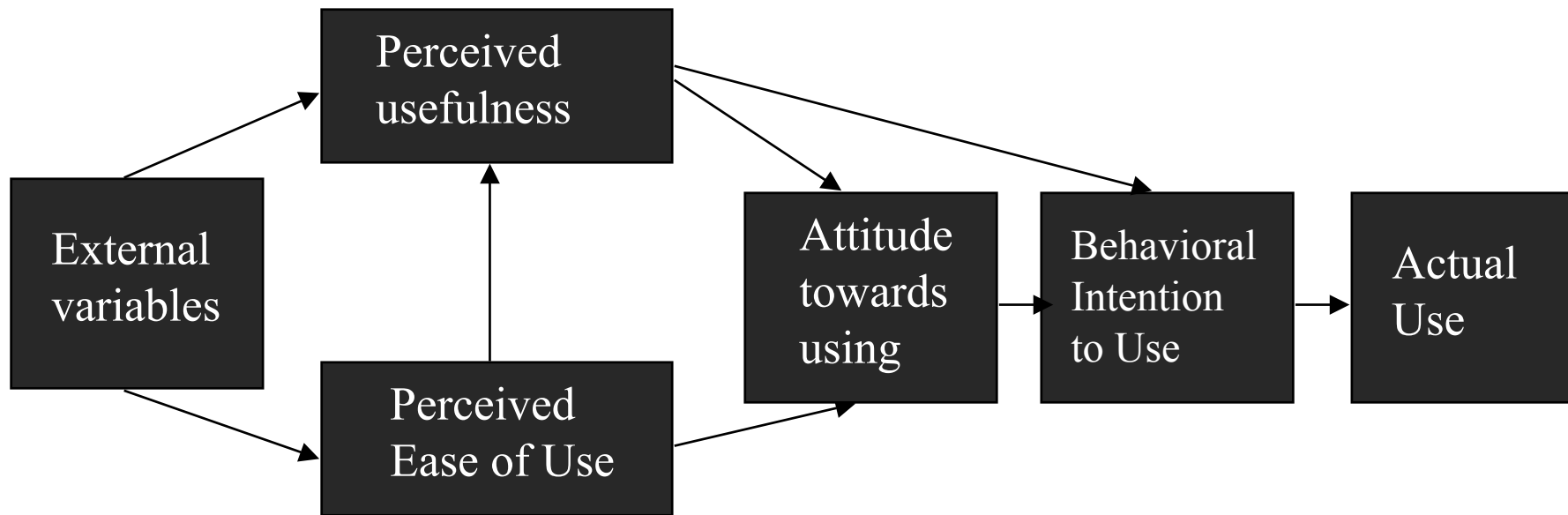
# Costs of implementing new systems (see Eason, in readings)





# Technology Acceptance Model (Davis, 1989)

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# Resistance theories - Predict and Explain

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## THEORIES

User,

System,

Interaction

Must Predict

Context of  
Resistance

Explained by

# Serving users..

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- Is it giving users what they want?
- Do users always know what is best?
- Can user-centered design actually inhibit user involvement?
- Is it enough to just ask?
- How do we create better information systems?

# Basic user tendencies:

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- Users frequently don't estimate own performance accurately
- Users change over time
- Are impatient
- See things in their own way
- Seek to minimize cognitive effort

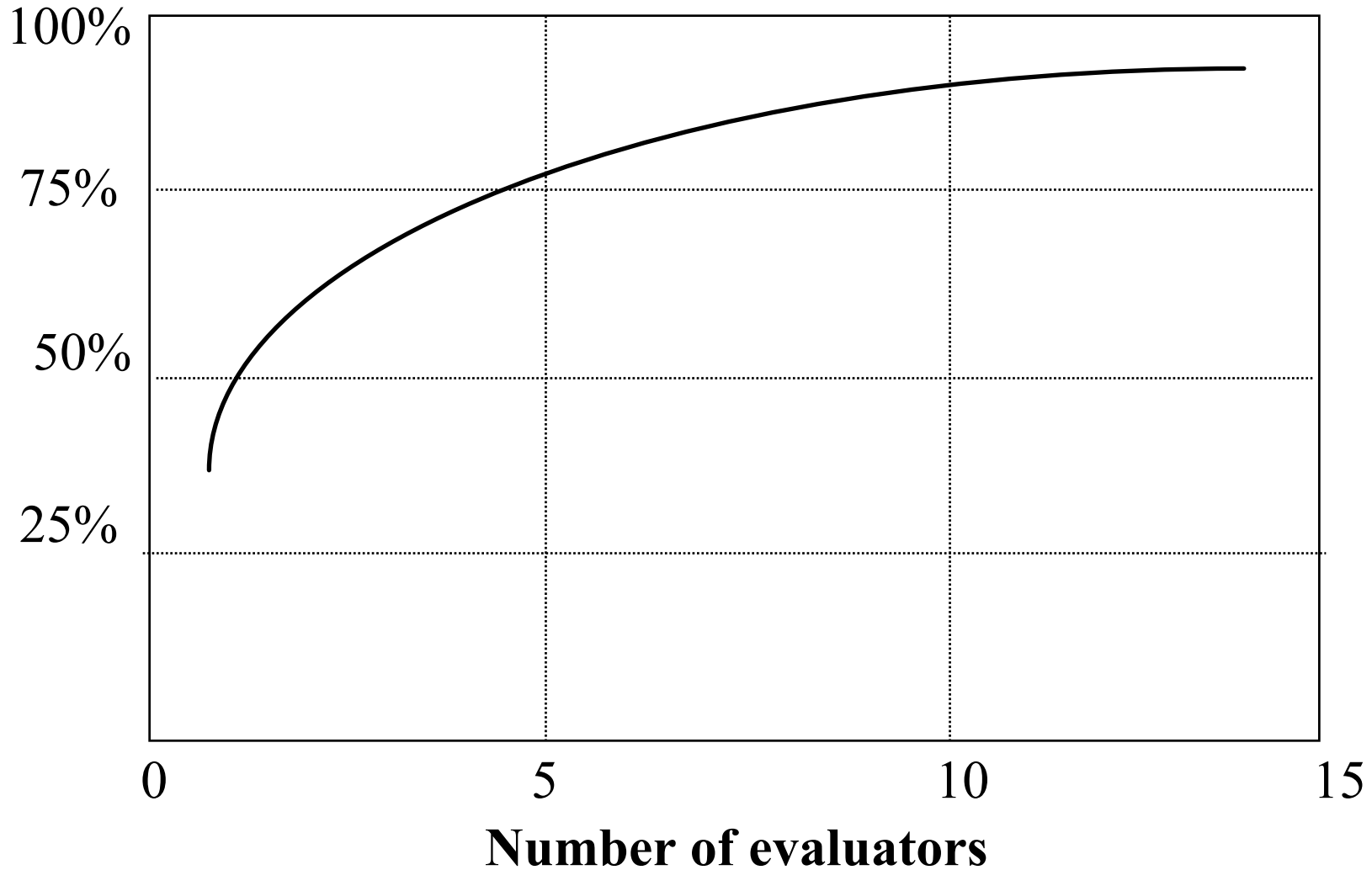
# Performance v. Preference?

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“ There is little question that designers will continue to make most design decisions based on their personal preferences. Also, if allowed to do so, users will continue to evaluate interfaces based on *their* personal preferences..... There is ample evidence that making design decisions to satisfy preference will not automatically lead to optimal user performance” (Bailey, 1993).

# Nielsen (1993) How many evaluators do we need?

Problems Found



# User studies are empirical

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- We collect data
  - Interviews
  - Test scores
  - Observations
  - Verbal protocols
  - Data logs etc....
- We analyse data

# Se we must deal with this:

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$$t = \frac{\bar{X}_A - \bar{X}_B}{\sqrt{\frac{\left[ \left( \sum X_A^2 - \frac{(\sum X_A)^2}{n_1} \right) + \left( \sum X_B^2 - \frac{(\sum X_B)^2}{n_2} \right) \right] \times \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}{n_1 + n_2 - 2}}$$

# Student Requirements

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- Term paper (50%)  
5-10k words,  
Topic of your choice
- Design Diary (50%)  
10 entries  
Analyze HCIs in real-world
- Readings/Discussions/ (Grade up/down)

# Resources

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- Class page: <http://www.gslis.utexas.edu/~l382ad/index.html>
- Paper copy of readings available in GSLIS computer lab
- Design diary ideas: <http://www.baddesigns.com/>
- ACM Digital library: <http://www.acm.org>
- I will reply to (most) email within 24 hours

# Term papers

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- Two basic types:
  - review/opinion piece
  - Empirical report
- Any user-relevant topic
  - you establish the relevance
- 5000-10 000 words
- Due by last day of classes.

# Review/opinion piece

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- Establish topic area
- Review relevant literature
  - go beyond the readings for class
  - synthesize, don't just report
  - Draw conclusion
  - tell a story!
- Must be something of YOU in there
  - You draw it together, argue the conclusion

# Empirical Piece

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- Less reviewing
- Generate some data:
  - usability evaluation of an information resource
  - user study/interviews/surveys
  - Experiment
- Describe methods used
- Justify analysis procedure

# Why term papers?

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- Writing it down clarifies thought
- Demonstration of strength of reasoning
- Independent research
- Ability to synthesize subject matter
- Creative not reactive

# Sample topics

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- User analysis as a tool in design
- What are the most important user issues?
- Develop and test a usability method
- Compare methods
- How user-centered are most design processes?

# Common problems

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- Forgetting to put in a bibliography!
- Not providing a conclusion
- All opinion, no structured argument
  - relate to and reflect the literature
- Using popular press reports as evidence
- Ignoring relevant material covered in class

# Design Diaries

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- Short (2-5 page) analyses of a user issue with any information resource
- Describe problem, analyze it in user terms, recommend re-design option
- Use any IT out there
  - Help desks, ATMs, VCRs, Phones, Cars, OPACs, Websites, etc.

# Design Diaries

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- Relevance - is it a user issue?
- Description - can the reader envisage the issue clearly?
- Theory - how does this issue relate to the literature on users and usability?
- Recommendation - how might the issue be resolved?

# For next class

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- Readings packet - class one readings
- Seek to understand:
  - What is user-centered design - what is not?
  - What questions do user theorists seek to answer?
  - How do we answer these questions (methodologically)?