# Design

Introduction
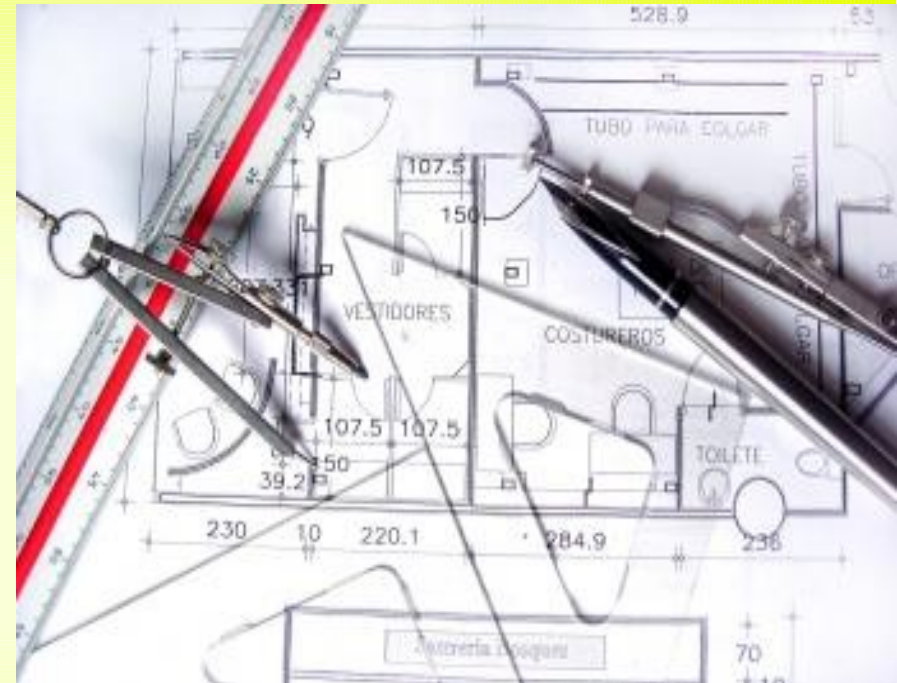Design for usability
The Three Pillars
Development methodologies
Ethnographic observation
Participatory design
Scenario development
Social impact statement for early design reviews
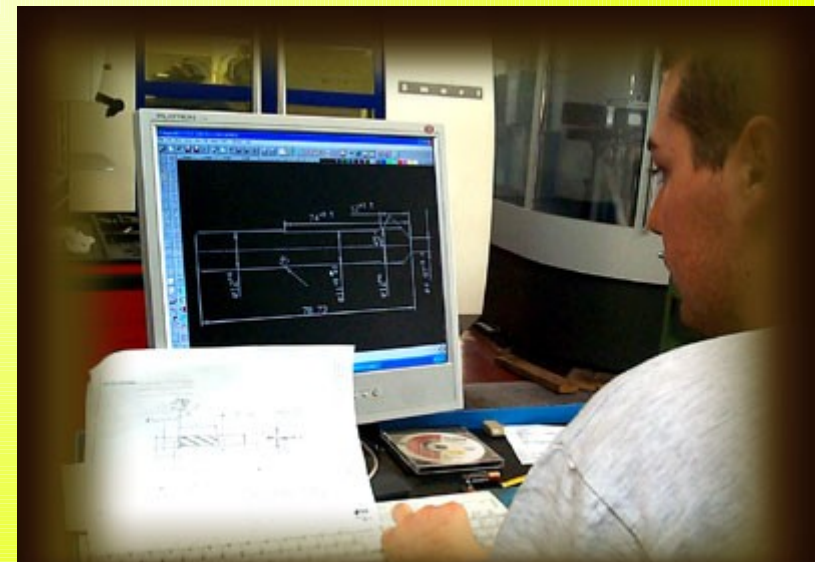Legal issues

# Introduction

Design of the UI should be based on

- User observation

- Refinements after frequency analysis

- Validation (usability and acceptance tests - ch.4)

Strategies must be adapted to

local context and needs

# Organizational design to support usability

- Most companies now are aware of the need for usability in product design
    - They have a "human factors group", or
    - a usability engineer in each product team
- Guidelines are just a starting point in the design-test-refine cycle
- Yet many managers were/are reluctant to spend
    - 1994 study published by IBM: 100 US$ gained per dollar spent in usability!!!
    - Correcting just 20 easiest-to-repair faults improved user satisfaction from 19% to 80% !!!

# Design is...

- A **process** (not statical)
- **Nonhierarchical** (neither top-down, nor bottom-up)
- **Transformational** (prototypes are needed – and maybe thrown away later on)
- Involving the **discovery** of new goals

**--> Strategies** are needed to manage such dynamic process

# The three pillars of design!

- Some image has third pillar as "prototyping"

- Others have "UI software tools"

- The basements of the pillars are theories, models, algorithms,
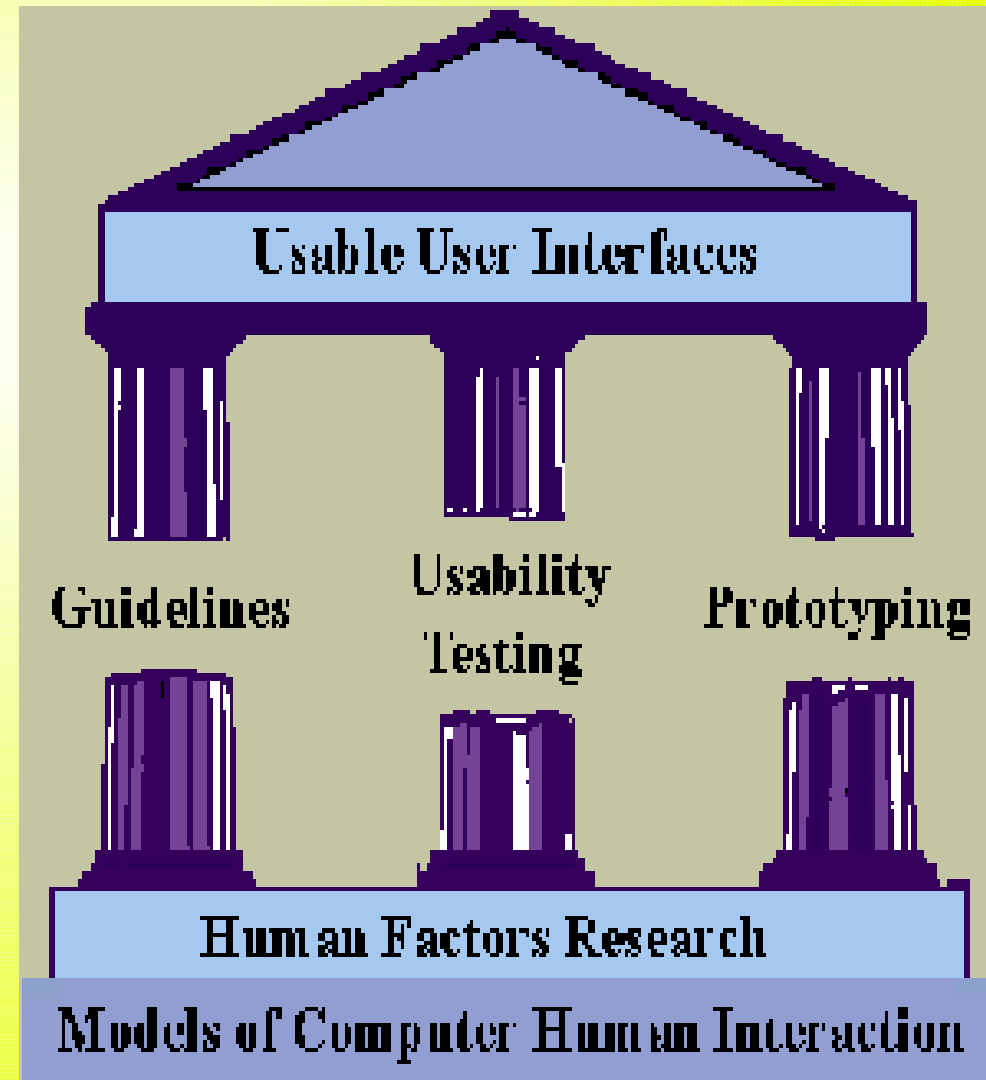
# Pillar No. 1

- **Guidelines (eg. Apple or Microsoft's) with the four E's:**

  - Education, Enforcement,
  - Exemption, Enhancement

- **Covering, for example:**

  - Words, icons, graphics,
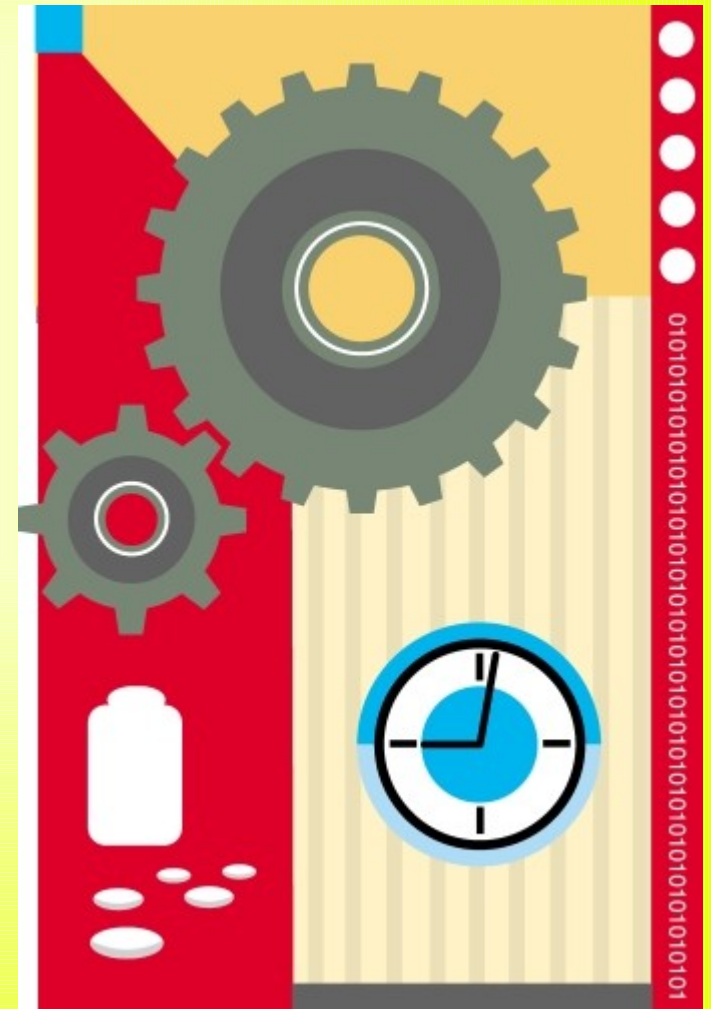  - Screen layout
  - I/O dvices
  - Action sequences
  - training



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FRAN.

THEY'RE THE DRAFT GUIDELINES ON HOW TO RUN A 'PAPERLESS' OFFICE

# Pillar No. 2 – UI software tools

Tools are helpful to provide working prototypes for early feedbacks from the user

# Pillar no.3 – expert reviews and usability tests

see chapter 4.

# Development methodologies

- Software Engineering already provides methodologies for sw development

- Other methodologies specific for UI design

**--> all of them are user-centric!**

IBM provides Ease Of

Use methodology,

others have been developed

# LUCID

Defines 6 stages:

1. envision -- > make a concept sketch

2. discovery --> create user requirements

3. design foundation --> present a prototype, created with one of the developers

4. design detail --> create detailed spec for each screen and element

5. build --> support developers

6. release --> measure user satisfaction

# Ethnographic observation

The UI designer **observes** the behavior of the users community (at least for some hours!)

Steps:

- Preparation
- Field study
- Analysis
- Reporting



- Succesful examples include observations of office workers, teenagers,...

# Participatory design

- Can be the key to success, but may lead to confusion and longer design times

- Example: roles of involvement from children (blue)



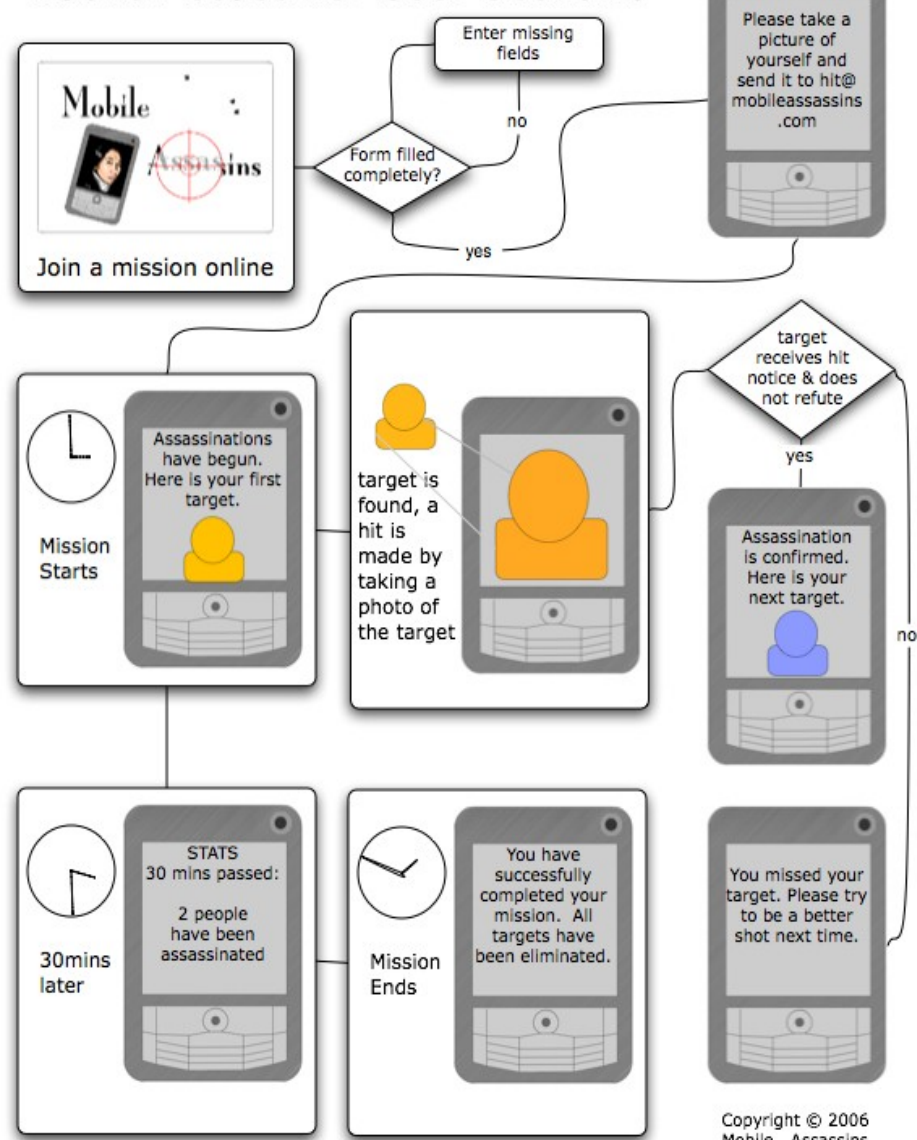user

tester

informant

design partner
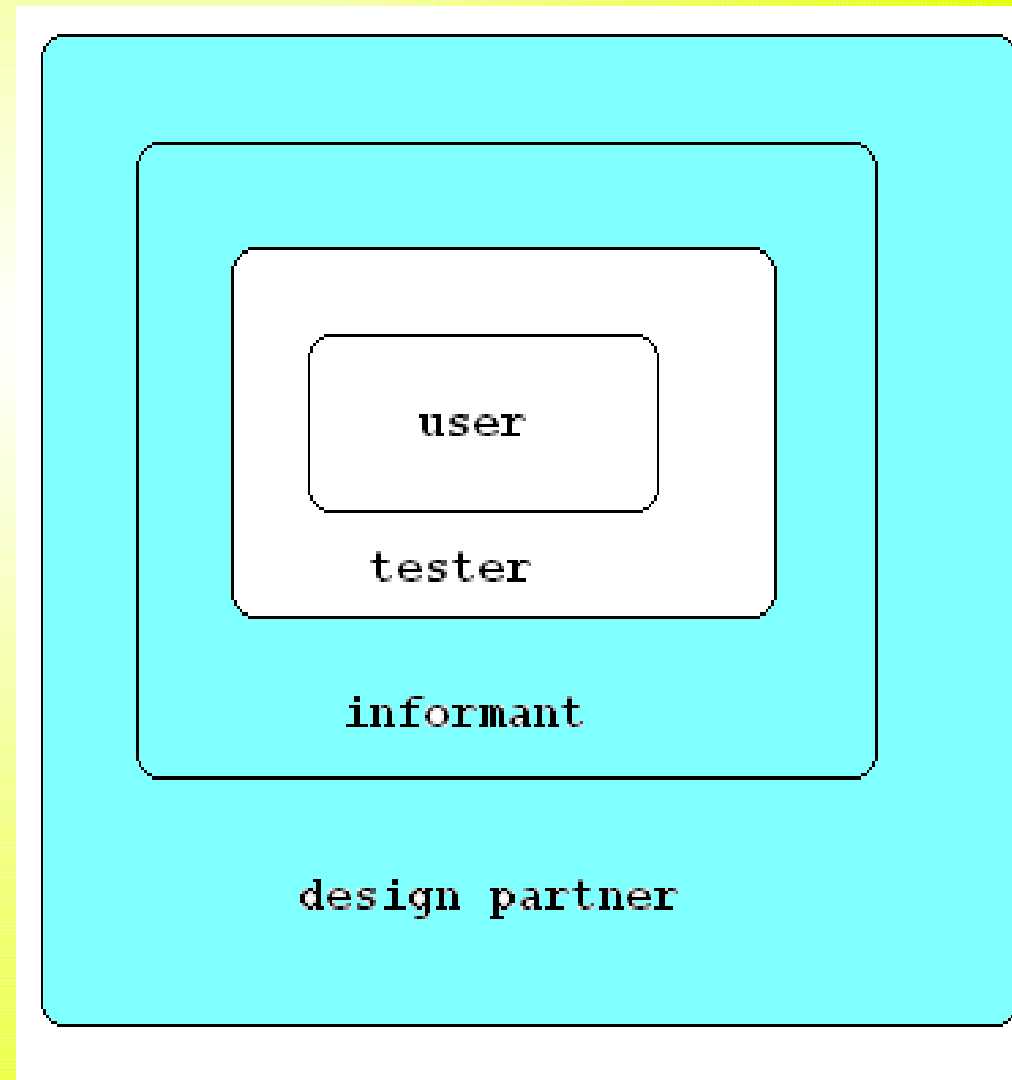
# Scenario development

Collect data about system use, frequency of tasks, typical sequences, transition diagrams

Develop user scenarios (typical and emergency)

Sometimes use the first person, or prepare a videotape with a simulation to demonstrate novel features



Mobile Assassins: User Scenario

# Social Impact and early design reviews

An innovative system may have a dramatic impact

Minimize risks with an early design review

--> Prepare a document analyzing concerns and potential barriers

- Job changes
- Security and privacy issues
- Possible misuse and failures
- Discuss expectations and risks
- Describe a plan for measuring success

# Legal issues

Typical concerns and sources of legal issues:

- Privacy

- Safety and reliability

- Copyright and patent on software

- Copyright on content (music, movies)

- Freedom of speech

- E-inclusion and equal opportunities