# Usability
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# What is Usability?

- Concept that has been around for generations, but only recently standardized and greatly expanded.

- Idea is that a user needs to complete a task in the most efficient, stress-free manner possible based on a way that user (or user group) would understand.

- "[Usability refers to] the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use." - ISO 9241-11

# Benefits of Usability

- Increased productivity

- Decreased training and support costs

- Increased sales and revenues

- Reduced development time and costs

- Reduced maintenance costs

- Increased customer satisfaction

# History and Evolution

- World War II – instrumentation (Pearrow)

- Software industry

- Web explosion

- Consumer devices

- Medical devices

# Human Factors

- Human Factors comes from the field of psychology and has its roots in academia.

- Human factors allows you to understand basic biological/human traits and tailor to the user's needs.

# Human Factors

- The sensory system

- Pre-attentive processing

- Prior knowledge and mental models

- Cognitive factors

- The memory system

- Motivation and anxiety

# Human Factors

- "The key to making things understandable is to understand what it's like not to understand."

  (Richard Saul Wurman)

# User-Centered Design

- An outgrowth of human factors was User-Centered Design (UCD).

- Overall, UCD is a philosophy & method to create products that correctly match a user's needs and expectations. Products produced using UCD principles will be successful since user's needs are incorporated from the initial planning stages.

- "Know thy user, know thy user, know they user."

# User-Centered Design

- Ease of learning and relearning
- Ease of use (efficiency)
- Consistency within and between products
- First impressions
- Error prevention and recovery
- Memorability
- Satisfaction or likeability
- Flexibility and accessibility

# What User-Centered Design is Not

- Allowing users to design an build products/Web sites.

- **Users are not designers and designers are not users!**

http://simpsons.wikia.com/index.php?title=The_Homer&image=TheHomer-png

- Incorrect assumption that usability is all common sense. You need Human Factors and User-Centered Design to help design, prototype, evaluate, and review products during conception and development.

# Usability In Practice

- Most Frequently Used Methods
  - o User interviews
  - o Card sorts
  - o Usability testing
  - o Surveys
  - o User observations

# Usability In Practice

- Where are we?
  - o Software/hardware
  - o Web
  - o Others (insurance, energy, grocery stores, etc.)

- Practice models
  - o On project teams
  - o Often usability/UX groups within companies
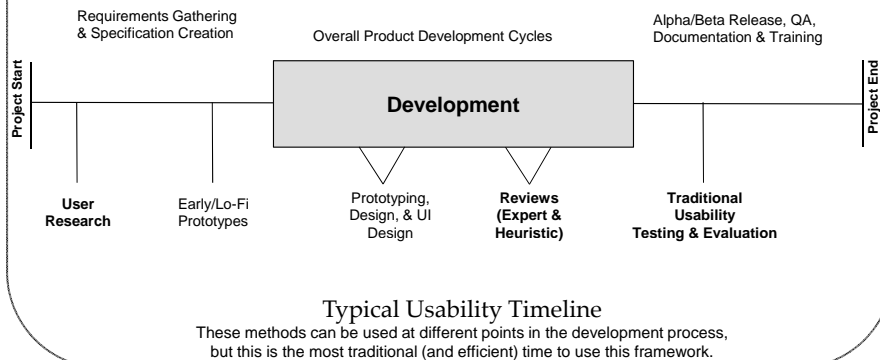  - o Consultants (internal/external)

# Terms You May Know

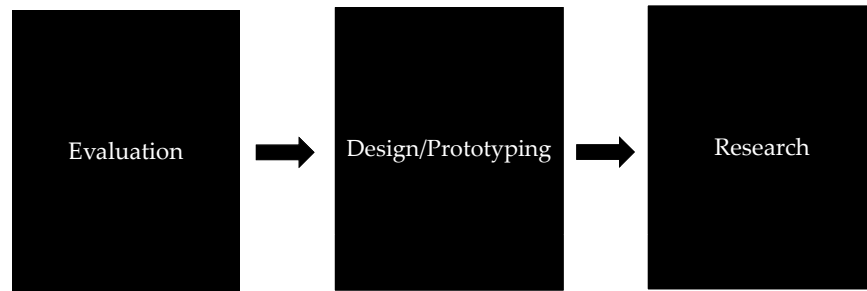information_architecture    hf

human_factors    user_experience

# usability

product_design    ux    hci

interaction_design    visual_design

information_design

# Project Timeline

Requirements Gathering
& Specification Creation

Overall Product Development Cycles

Alpha/Beta Release, QA,
Documentation & Training

**Project Start**

**Development**

**Project End**

**User
Research**

Early/Lo-Fi
Prototypes

Prototyping,
Design, & UI
Design

**Reviews
(Expert &
Heuristic)**

**Traditional
Usability
Testing & Evaluation**

Typical Usability Timeline
These methods can be used at different points in the development process,
but this is the most traditional (and efficient) time to use this framework.

# Usability Evolution

Evaluation → Design/Prototyping → Research

# Usability Future

- The User, or Customer, Experience (end to end) is now an important concept in many products. Products need to deliver more than just a 'good interface.'

# Usability Future

- "The user experience is the careful alignment of human behaviors, needs, and abilities with the core value delivered through a product or service. Depending on the context, this experience may have psychological, cultural, physiological, and emotional components – most likely, a combination of the four." (Gribbons, BostonCHI, Sept 2011)

# Bibliography

Coe, Marlena. (1996). *Human Factors for Technical Communicators.* New York, New York: Wiley & Sons.

Morville, Peter & Louis Rosenfeld. (2006). *Information Architecture for the World Wide Web – Third Edition.* Sebastopol, California: O'Reilly Media, Inc.

Nielsen, Jakob. (1993) *Usability Engineering.* San Francisco, California: Morgan Kaufmann.

Norman, Donald. (1988) *Design of Everyday Things.* New York, New York: Doubleday.

Pearrow, Mark. (2007). *Web Usability Handbook, Second Edition.* Boston, Massachusetts: Charles River Media.

Wurman, Richard Saul. (1989) *Information Anxiety.* New York, New York: Bantam Books.

# Questions

- If you have any questions or would like to use our services, contact us at: <u>usability@mit.edu</u>