Usability and User Experience

Metropolia 2023
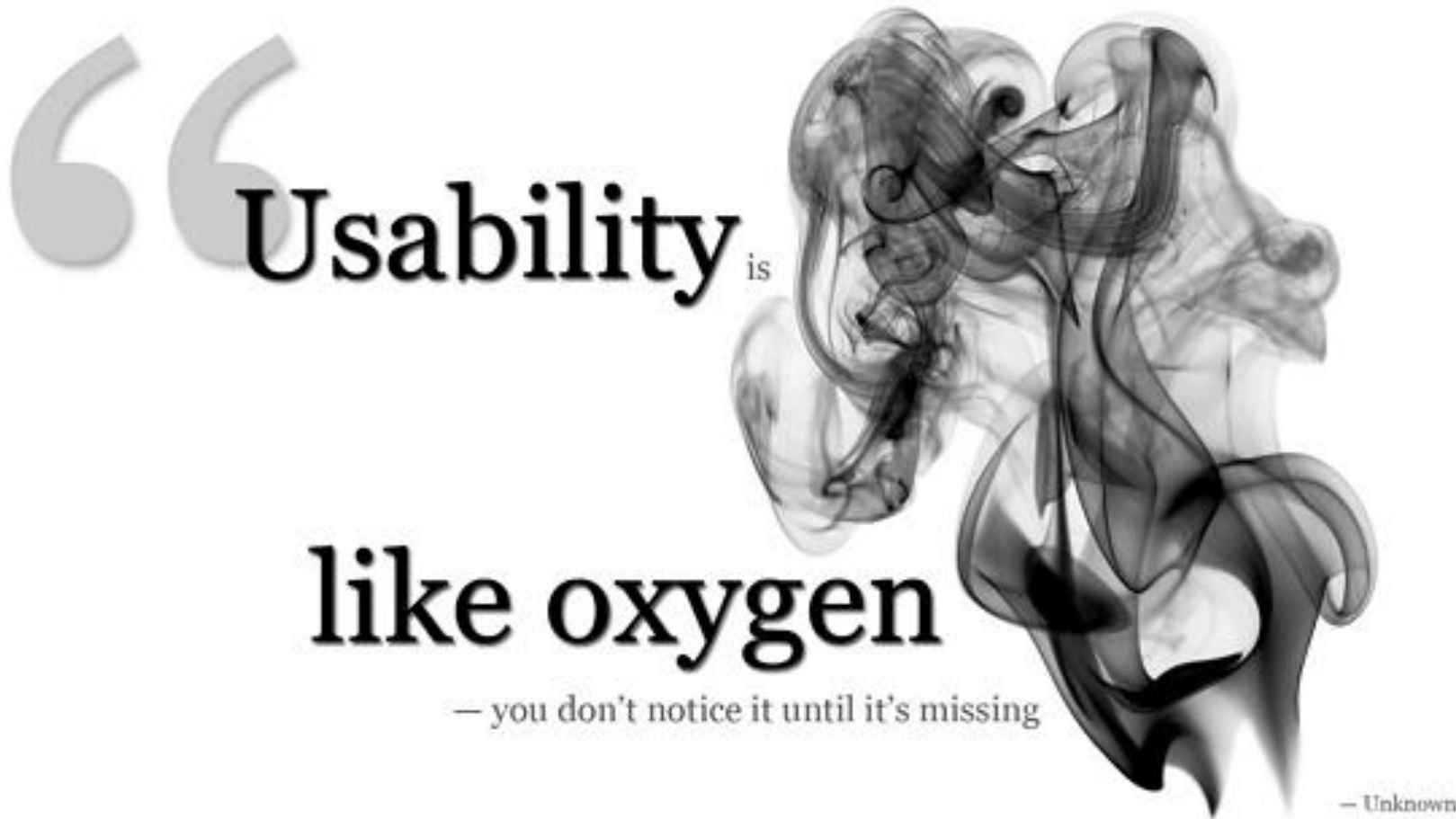
Amir Dirin

https://padlet.com/amir_dirin1/x40de2ccmiyacoae

Why is important?

Amir Dirin

What is Usability?

— Unknown

[Usability refers to] the extent to which a product can be used by specific goals with effectiveness, efficiency and satisfaction in a specified context of use : ISO 9241-210

☑ Learnability
    ☑ Completeness

☑ Efficiency
    ☑ Speed, Effort

☑ Memorability
    ☑ Predictable

☑ Errors tolerance
    ☑ Prevention, recovery

☑ Satisfaction
    ☑ Engage the user, satisfying

➢ Jakob Nielsen, "Usability Engineering, 1993"

Poor Usability Result

- **Frustrated Users,**

- **Visitor leaving**

- **Reduction in Repeat visiting**

- **Higher Support Cost**

- **Decreased Productivity**
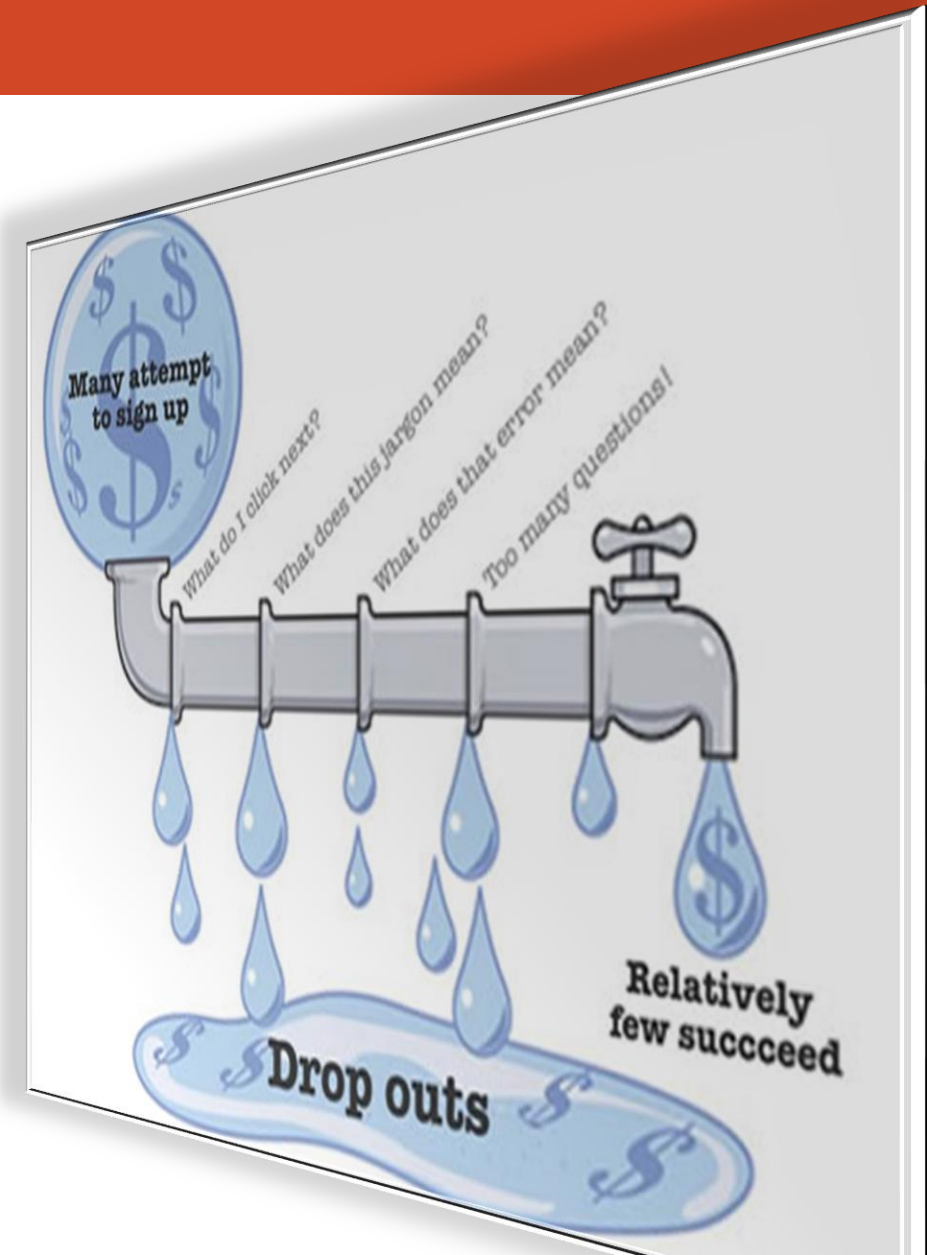
Why Isn't Usability Done Regularly?

☑ Top Management

☑ Developers:
  ➤ it takes too long
  ➤ is too expensive
  ➤ is not critical to development
  ➤ may not know *how* to do it
  ➤ …

Developer vs. user

- Relying solely on interior thinking is a risky approach to design

- It risks making incorrect assumptions about the people who will use a system

AFTER WASHING YOUR HANDS,
PLEASE USE THE StepNpull WHEN EXITING

Toilette ↓

TWO HOUR PARKING
8AM – 6PM
EX   SUN

TOW AWAY ZONE
NO PARKING
STREET CLEANING
7 AM – 10 AM
FIRST TUESDAY
EACH MONTH
APRIL 1ST TO NOV 30TH
EXCEPT HOLIDAYS

no design

thoughtless design

difficult design

difficult design

inexplicable design

Types of Usability Problem

- Product doesn't match job or task

- Poor organization / layout

- Product not self-evident

- Required recall rather than recognition

- Inconsistent screens, Messages, terminology

Usability vs. Investment

- Every $1 invested in usability returns between $10 and $100
    - IBM Cost: Justifying Ease of Use
- Investing 10% of a total project budget yields:

Metrics	Returns
Sales / conversion rate	100%
Visitors / Traffic	150%
User Performance / Productivity	161%
Use of (Key) Features	202%

- Jakob Nielson, Return an investment for Usability

- http://www.useit.com/alertbox/roi-first-study.html

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What is Usability Engineering?

Usability Engineering is the process of
Methodically designing systems which are
- Useful
- Usable

Which includes
- Determining **what is useful**
- Determining **what is usable**
- **Evaluating** system usability

Benefits of Usability to the User

Goals of Usability Engineering

Nielsen
- ◦ Increase learnability
  - How easy is it to learn to use technology?
  - Rem: Training is very expensive.
- ◦ Increase efficiency
  - How quickly can users complete tasks?
    - E.g. Good design, Poor Design
- ◦ Increase memorability
  - How easy it is to remember how to use a technology once you have learned how to use it?
    - E.g Riding a bike
- ◦ Decrease errors
- ◦ Increase satisfaction

Preece
- ◦ Utility ?
  - Beware of creeping featurism.
  - Adding rarely used features can effect usability for most users.
- ◦ Effectiveness ?
  - How accurately and completely users can accomplish tasks e.g. can user find correct and accurate information.
   - Give your assessment on this for University website?

Return of investment

- Every $1 invested in improving your websites returns $10 to $100 (Source IBM)

http://www.amanda.com/joomla_uploads/whitepapers/AM+A_ROIWhitePaper_20Apr0%201.pdf

- A web usability redesign can increase the sales/conversion rate by 100% (source: Jakob Nielson Return an investment for Usability)

http://csi.ufs.ac.za/resres/files/Nielsen2.pdf
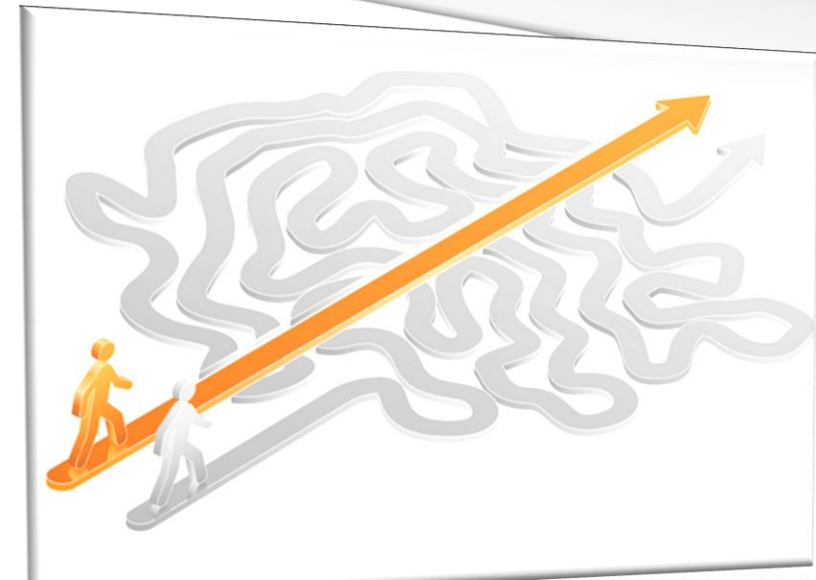
Benefits of Usability to an Organization

➢ Reduce training costs
➢ Reduce development costs
  🔴 Identify and fix problems early
➢ Reduce support costs; minimize need for
  🔴 support personnel/help desks
  🔴 fixes, maintenance, upgrades
🔴 …

Without
Usability Testing

With
Usabi____sting

Smart
Productive
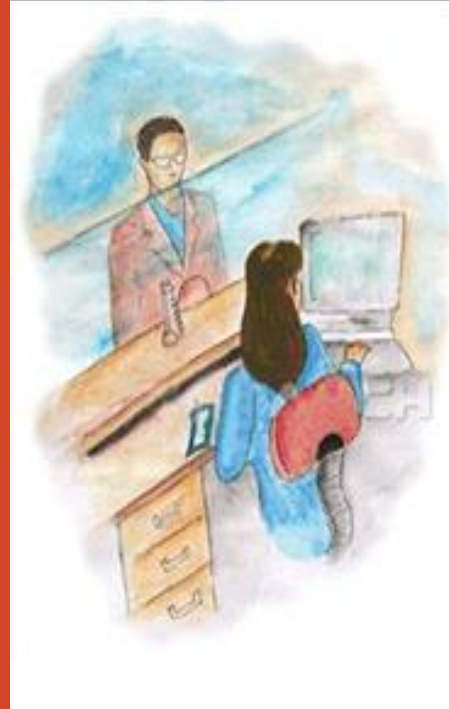Cheaper
Easy
Satisfaction
Secure !!!

EXAMPLES

Stop wasting your marketing budget on bad usability

http://www.youtube.com/watch?v=cwoSQypJ5to →

Stop wasting your marketing budget on bad usability

aka
human factors design

99,000-195,000

deaths in US

per year due to human error

in hospitals!

To Err is Human: Institute of Medicine, National Academy of Sciences
November 1999. Zhan and Miller, JAMA, October 2003.

that's old!
what about 2013?
there have been a lot of changes since 1999

210,000-440,000

deaths in US
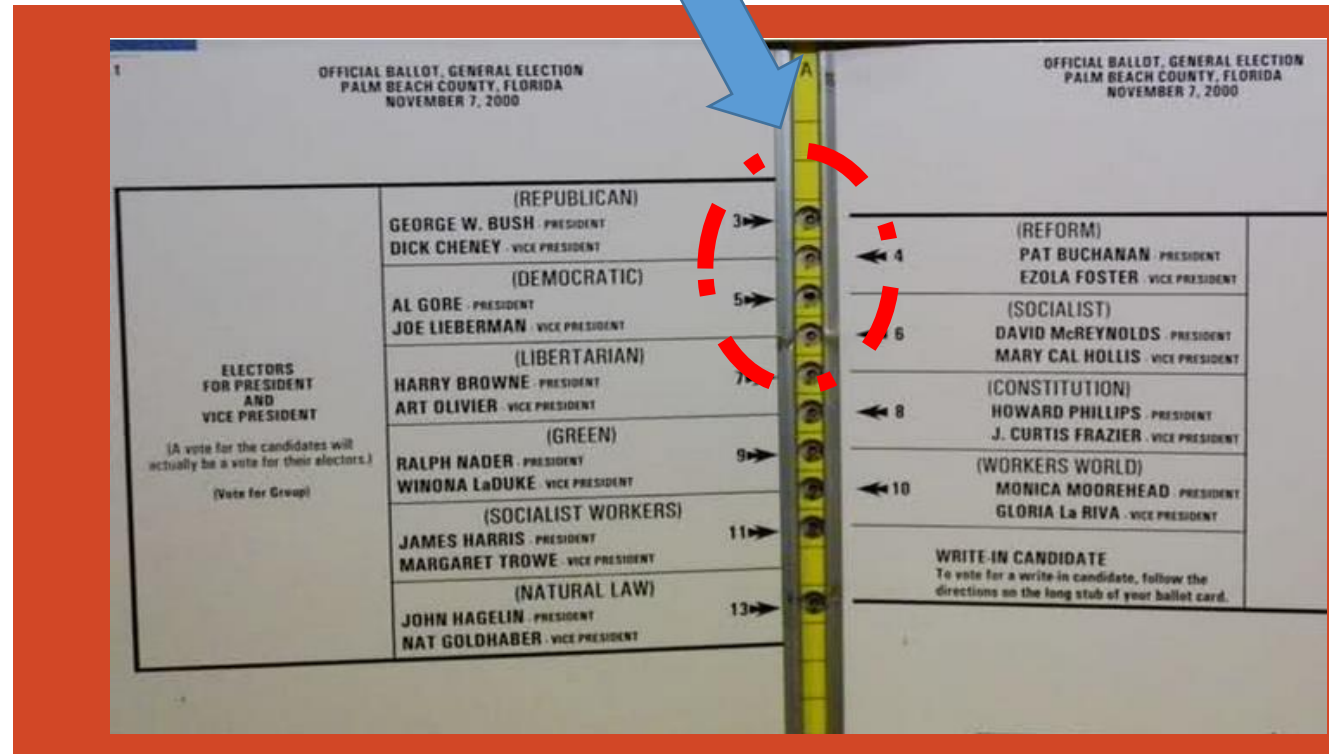
per year due to human error

in hospitals!

A New, Evidence-based Estimate of Patient Harms Associated with Hospital Care: Journal of patient safety. September 2013.
http://journals.lww.com/journalpatientsafety/Fulltext/2013/09000/A_New,_Evidence_based_Estimate_of_Patient_Harms.2.aspx

2000 Palm Beach election debacle

Mode switch in the wrong position

Accident description

Status:	Final
Date:	Monday 20 January 1992
Time:	19:20
Type:	Airbus A320-111
Operator:	Air Inter
Registration:	F-GGED
C/n / msn:	015
First flight:	1988

http://www.youtube.com/watch?v=I9gELPxPG8Q

Therac-25

killed a number of patients due to unclear error messages

https://www.youtube.com/watch?v=Ht12f8EJOys

Airplane crash

Quiz

List 3 actions that might lead to better user-centric design

human factors:

a science devoted to the study of interaction between people and equipment

human engineering, usability engineering, ergonomics

prevent errors, avoid injury, increase productivity

Thank You