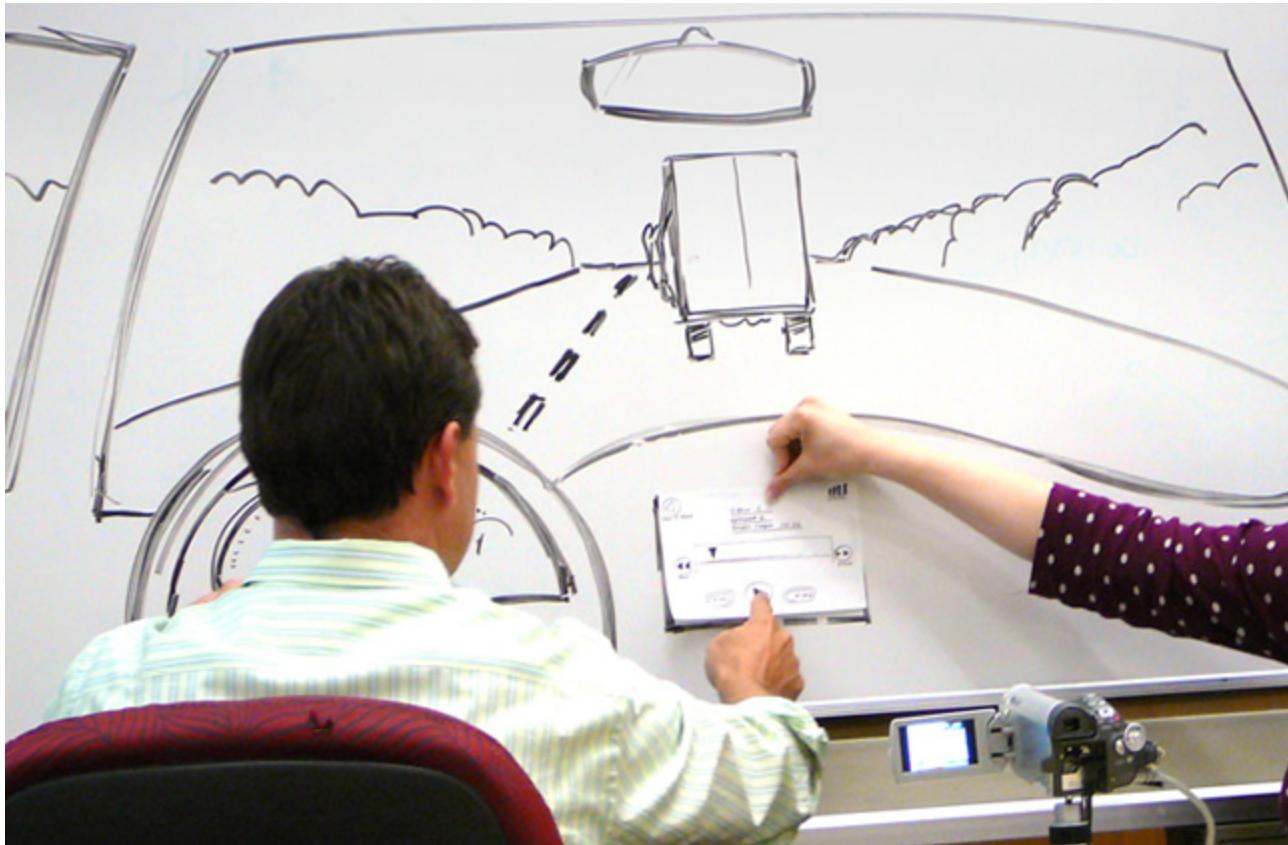


# IOM – curs 3

# Factorul uman



<https://usabilitygeek.com/an-introduction-to-website-usability-testing/>

*Fiecare utilizator considera ca el are dreptate cu privire la flexibilitatea si usurinta aplicatiei atunci cand solicita o anumita structura aplicatiei de interfatare*

## **INTREBARE:**

**CARE ESTE MODALITATEA DE INTERFATA CEA MAI SIMPLA?**

# Interfata de tip linie de comanda?

instructiuni, cuvinte cheie, abrevieri, simboluri speciale?

```
Human-Computer Interaction
Human-Computer Interaction

HCl logo

Course
  * syllabus
  * evaluation

Assignments
  * grading info
  * projects

Resources
  * bibliography
  * contact
Last update: February 19, 2012 . version 11 (2000-2012)
This Website is created by Dr. Sabin-Corneliu Buraga and uses a Creative
Commons license

http://prof.s.info.uaic.ro/~busaco/teach/courses/hci/hci-film.html
```

# Meniuri si submeniuri?

A screenshot of Microsoft PowerPoint. The window title is "Presentation1 - Microsoft PowerPoint (Product Activation Failed)". The ribbon menu includes File, Home, Insert, Design, Transitions, Animations, Slide Show, Review, View, and Acrobat. The Home tab is selected, showing the following toolbars: Clipboard (Cut, Copy, Paste, Format Painter), Layout (New Slide, Reset Section), Font (Font Size 22, Bold, Italic, Underline, Text Direction, Align Text, Convert to SmartArt), Paragraph (Text Indent, Alignment, Spacing, Text Box, Text Direction, Align Text, Convert to SmartArt), Drawing (Shapes, Quick Styles, Shape Fill, Shape Outline, Shape Effects), Find & Replace, Select, and Editing. On the left, the Slides pane shows four slides numbered 4, 5, 6, and 7. Slide 4 contains a screenshot of a terminal window with code. Slides 5, 6, and 7 are blank. The main content area displays a slide with a title placeholder "Click to add title" and a content placeholder "Click to add text". Inside the content placeholder is a bulleted list with one item: "• Click to add text". Below the list are several small icons representing different types of media or data. At the bottom of the slide, there is a note placeholder "Click to add notes". The status bar at the bottom shows "Slide 7 of 8 | 'Adjacency'" and "English (U.S.)". The taskbar at the bottom includes icons for File Explorer, Edge, File Explorer, Mail, Google Chrome, PDF, Word, and PowerPoint, along with a desktop icon, address bar, links, search, and system controls.

# Hyper-text?

Mark the 3-5 features that are most important to you. 8 / 12 [Continue](#)

here for you

Private banking Business banking Corporate banking

Accounts Credit cards Mortgages Loans Savings Investments Insurance Travel International

Digital Banking [Tell me more](#)

Internet banking login is number one priority to me to be easily accessible.]

Get in touch

Branch locator Useful numbers [Ok](#)

Helpful links

Customer Charter PPI Complaints England & Wales branch sale [5 BS](#)

Sign up for online banking Switch to online statements Student account changes

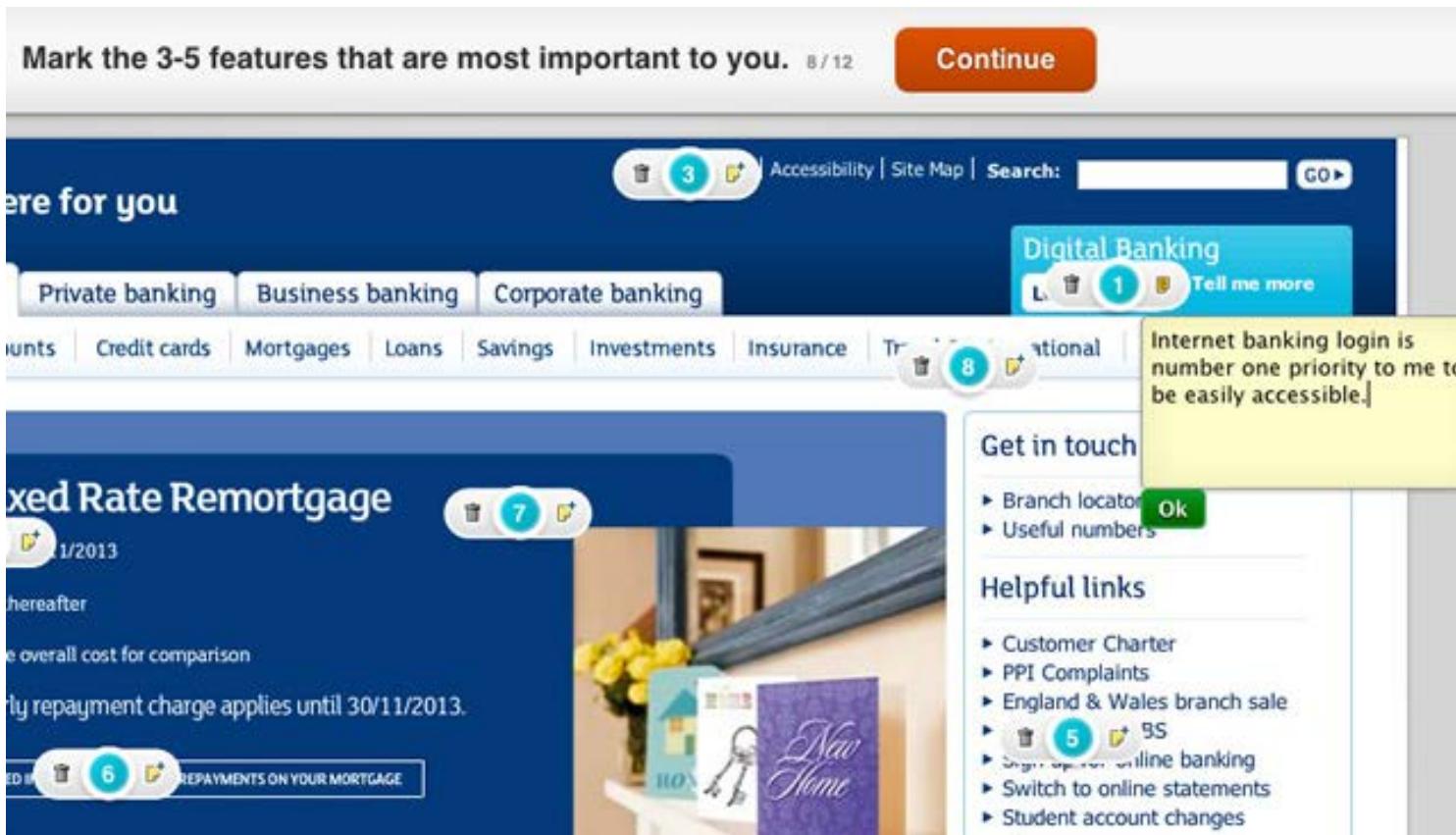
Fixed Rate Remortgage 1/2013

hereafter

the overall cost for comparison

Any repayment charge applies until 30/11/2013.

REPAYMENTS ON YOUR MORTGAGE



# Limbaj natural – aplicatii de tip interactiune – chat-uri?



Fiecare aplicatie are propriul suport audio, interfata grafica, reprezentare, icon-uri



## Solutii si platforme heterogene

Calculatoare personal - desktop computers

Dispozitive mobile: smartphone, tablete, automobile

Periferice de iesire: printer, advertising screen, etc.

Aplicatii domestice – (smart) TV, masini de spalat,...

Dispozitive portabile : ceas, camera, imbracaminte inteligenta (smart clothing), etc.

Dispozitive sociale: ATM, info kiosk, photo booth

Platforme de jocuri si distractie - Blu-ray player, Wii, XBox

# Smart cloths

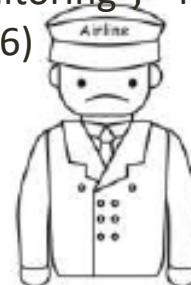
M. Chen et al., "Smart Clothing: Connecting Human with Clouds and Big Data for Sustainable Health Monitoring", Mobile Net. App, 21 (2016)



Empty Nester



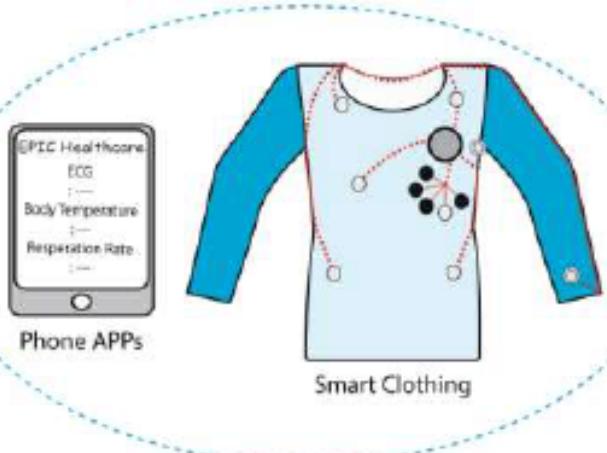
Autism Children



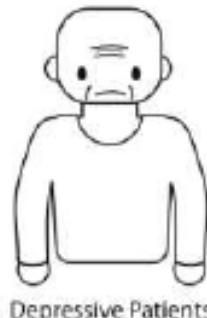
Pilots



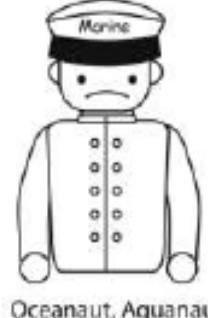
Sportsman, Athlete



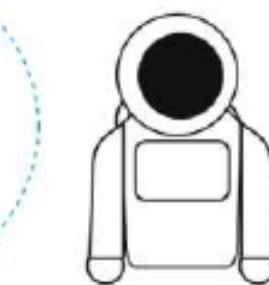
Drivers



Depressive Patients



Marine



Spaceman, Astronaut

# Scopul aplicatiei!

- Dependenta de contextul in care utilizatorul o foloseste:
  - Acasa: software recreativ si distractiv, playere media, aplicatii sociale, jocuri, aplicatii de tip smart home
  - La serviciu: business & office aplicatii, IDEs, tools, etc
  - In excursii: PIMs (Personal Info Managers), planners, servicii de tip harti virtuale, soft de tip instant mesanger, recomandari
  - Locatii speciale: Sali de concert , spitale, mall, restaurante
- Dependenta de domeniul de utilizare:
  - business,
  - programare,
  - Cercetare
  - Studiu
  - antrenament

# Analiza interfata ?

- Automat destinat reciclarii materialelor



Becuri  
IKEA (2016)



Sticle de plastic  
Metrou (China, 2012)

# Sa cunoastem utilizatorul!



**Sa analizam :**

## **UTILIZATORI TRADITIONALI**

*Utilizatori dintr-o comunitate (utilizatori dintr-o tara)*

+

## **UTILIZATORII NETRADITIONALI**

*Persoanele cu anumite disabilitati sau probleme*

Rezultatul ?



**MONA LISA SIMPSON**

# Si totusi cum reusim sa cunoastem UTILIZATORUL?

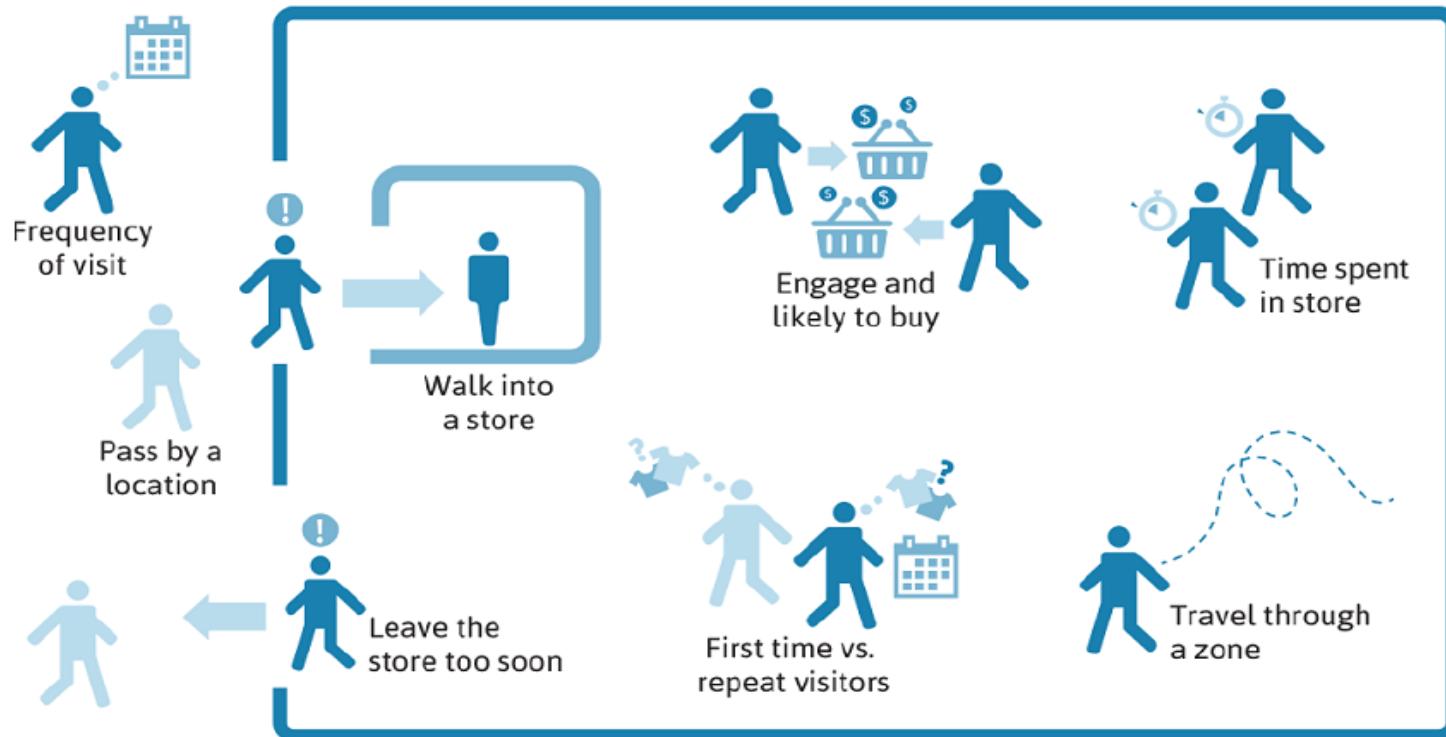


- Discutand cu el ???
- Observandu-l??

*RUM (real user monitoring)*



## RUM privind analiza clientului de supermarket





**Engagement**

SAVE EXPORT SHARE INTELLIGENCE

All Users  
100.00% Users (100.00% Sessions)

+ Add Segment

Distribution

Session Duration Page Depth

Sessions	Pageviews
705	1,893
% of Total: 100.00% (705)	% of Total: 100.00% (1,893)

Session Duration	Sessions	Pageviews
0-10 seconds	479	572
11-30 seconds	40	112
31-60 seconds	29	122
61-180 seconds	70	380
181-600 seconds	42	246
601-1800 seconds	37	301

### Trend of Users for Continent of Europe

Jan 27–Feb 25, 2018



RUM for Web analytics  
(user engagement, Web application performance)



# Cine este utilizatorul?

- Persoana care interactioneaza cu produsul
- Persoana care recomanda produsul altora
- Persoana care beneficiaza de facilitatile produsului
- **Persoana care cumpara sau nu produsul**
- **Persoana care foloseste produsul altui competitor**

## Tipuri de utilizatori:

- **Utilizator primar**: implicat direct in utilizarea produsului
- **Utilizator secundar**: persoana implicata ocazional in utilizarea produsului
- **Utilizator tertiar**: persoana afectata de utilizarea sau prezentarea produsului

# Caracteristicile populatiei utilizator



- Varsta
- Sex
- Apartenenta etnica
- Profil psihologic
- Educatie
- Abilitati fizice (acuitate vizuala, particularitati fizice)
- Abilitati in folosirea calculatorului (persoane tehnofobice)
- Indemnare in folosirea unor dispozitive de intrare/iesire
- Obisnuinta cu o anumita platforma



Wikidata Query Examples Prefixes Tools Help English

```
1 #Locations of universities in Romania
2 #defaultView:Map
3 SELECT ?universityLabel ?universityDescription ?website ?coord
4 WHERE {
5   ?university wdt:P31/wdt:Q279* wd:Q3918 ;
6     wdt:P17 wd:Q218 ;
7     wdt:P625 ?coord .
8   OPTIONAL {
9     ?university wdt:P856 ?website
10   }
11   SERVICE wikibase:label {
12     bd:serviceParam wikibase:language "en,ro"
13   }
14 }
```

Press [CTRL-SPACE] to activate auto completion.

37 Results in 520 ms Data updated a few seconds ago

Run Clear Display Download Link

A map of Iasi, Romania, showing the locations of universities. A tooltip for 'Alexandru Ioan Cuza University' shows its coordinates as Point(27.571691666 47.174230555).



- Experienta de lucru cu un anumit tip de software/serviciu
- Factorul social
- Mediul de lucru
- Relatia cu alte persoane
- Modul de interactiune specific (1:1, 1:n, m:n)

Prezență Zilnică														
Analiza detaliată a prezenței într-o anumită zi.														
Cod	Marca	Anoajat	Schimb	Planificate	Intervale Planificate	Sosir	Plecăr	Intervale Prezență	Durata Intervale Prezență	Lucrate Neplanificate	Lucrate Planificate	Motivări Plăute	Motivări Neplăute	
19	33	Andrei Maria	C1	14:30	5:30-20:00	5:34	20:35	5:34-20:35	15:02	0:36	14:30			
31	26	Balmuș Marian	SF	8:00	7:00-15:00	7:52	18:30	7:52-18:30	10:39	3:31	8:00			
22	8	Barbu Nicusor	N1	8:30	7:30-16:00	7:36	16:12	7:36-16:12	8:37	0:13	8:30			
33	2	Bordea Alexandru	T	8:30	8:00-16:30								8:30	
13	36	Cămătaru Livia	F8	8:00		7:08	15:24	7:08-15:24	8:17		8:00			
5	24	Dinică Robert	1	10:30	8:00-18:30	7:38	20:35	7:38-20:35	12:58	2:28	10:30			
24	12	Enache Doru												
12	11	Florescu Adriana	Motivări Neplăute											
30	17	Furdui Nelu												
8	29	Grigorescu George	9			16		18	41			7	2	
17	31	Haralambie Mirela												
35	9	Ionescu Tatiana				0:04		0:32				0:04		
14	37	Ionescu Lucia						0:52	2:39			0:52		
21	35	Jumară Monica						0:06				0:06		
11	4	Kovacs Carol	8:30					0:07						
7	28	Lupescu Florin							0:17				8:00	
29	16	Mavrodin Valeriu							2:28				10:30	
10	20	Mihalache Doru							0:36				8:30	
									0:19				8:00	
									1:02				8:30	
										0:07	0:11		8	
										2:27			10	
											12:17		12	
											8:17		8	
											8:00		8	
												1:23		
												12:55		
												3:48		
													8:00	
												0:23	8	
												10:08	10	
												9:00	9	
												0:07	10:01	
												0:22	10	
												0:24	10:19	
												0:06	10	
												14:30	14	

Alege

Parametri Raport

Le Date: 12.08.2009

Zonă:

Departament:

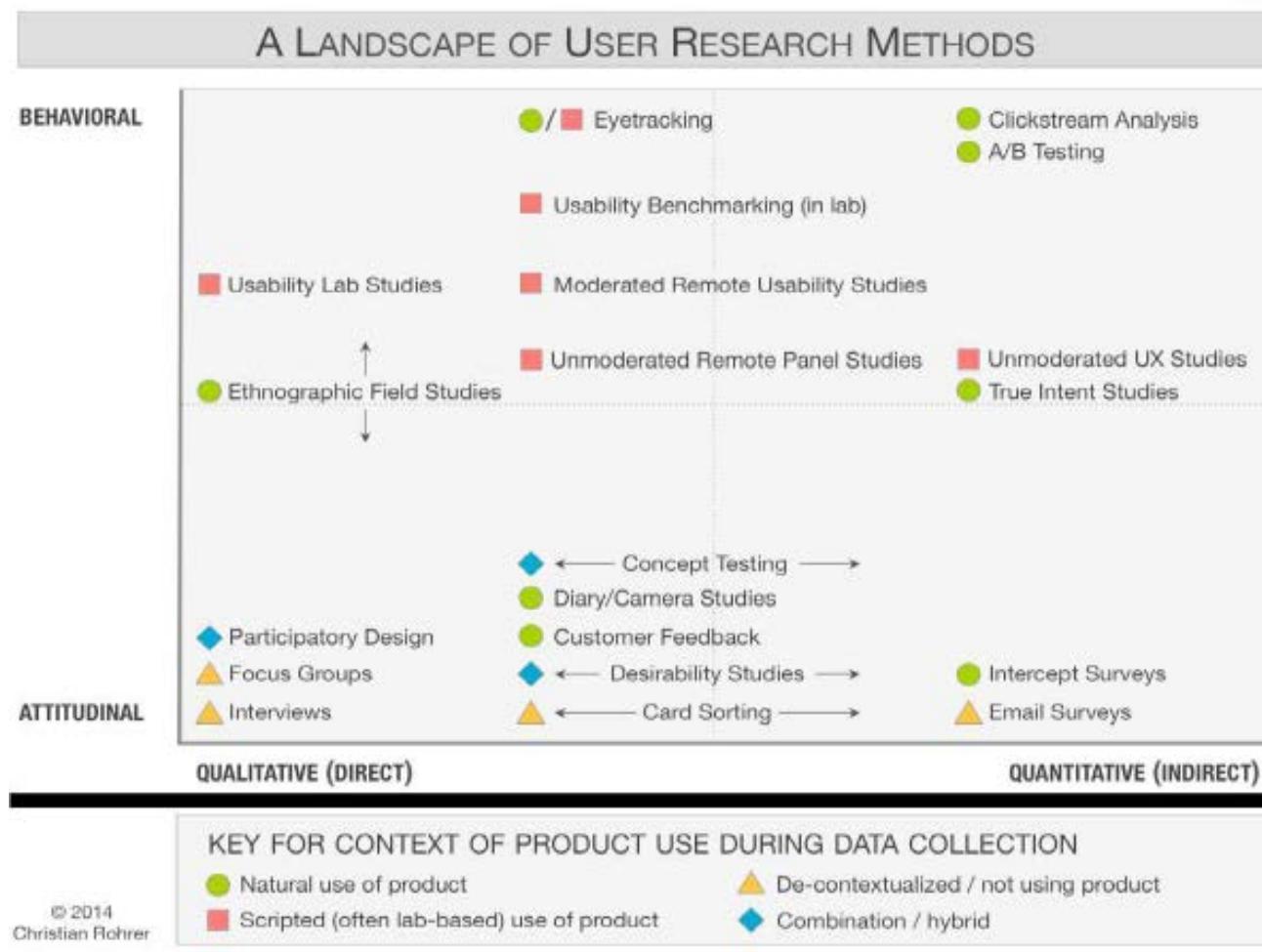
Responsabil Pontaj:

Rezultă Alege

0:06 0:30 0:06 14:30 14

## Tehnici de studiu al utilizatorului:

- user chestionar
- Interview
- Observatia (in)directa : user tracking, feedback real user testing



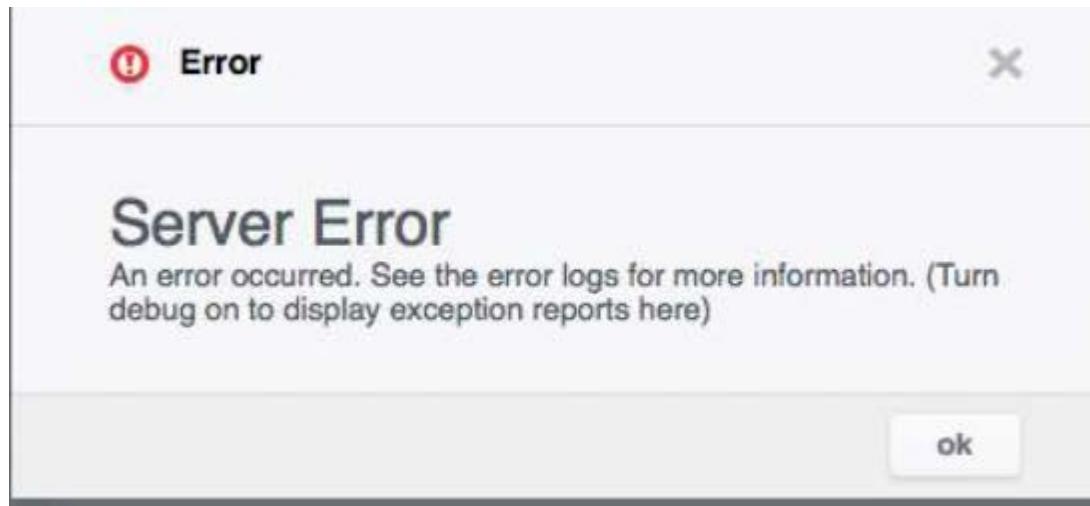


# Interfata

- Este utilizata de mai multe persoane
- Rare ori utilizatorul stie ce vrea
- Trebuie sa fie naturala – actiunile trebuie anticipate de aplicatie pe baza modului de actiune/interactiune specific utilizatorului
- O aplicatie nu trebuie sa compromita actiunea utilizatorului sau sa permita compromiterea activitatii altor utilizatori



- O aplicatie om-masina nu trebuie sa iroseasca timpul utilizatorului sau sa solicite mai mult timp decat este strict necesar



- O interfata este utila(umana) daca raspunde la solicitarile utilizatorului si ia in considerare specificul uman

# Unele aplicatii sunt mult prea complicate pentru utilizator



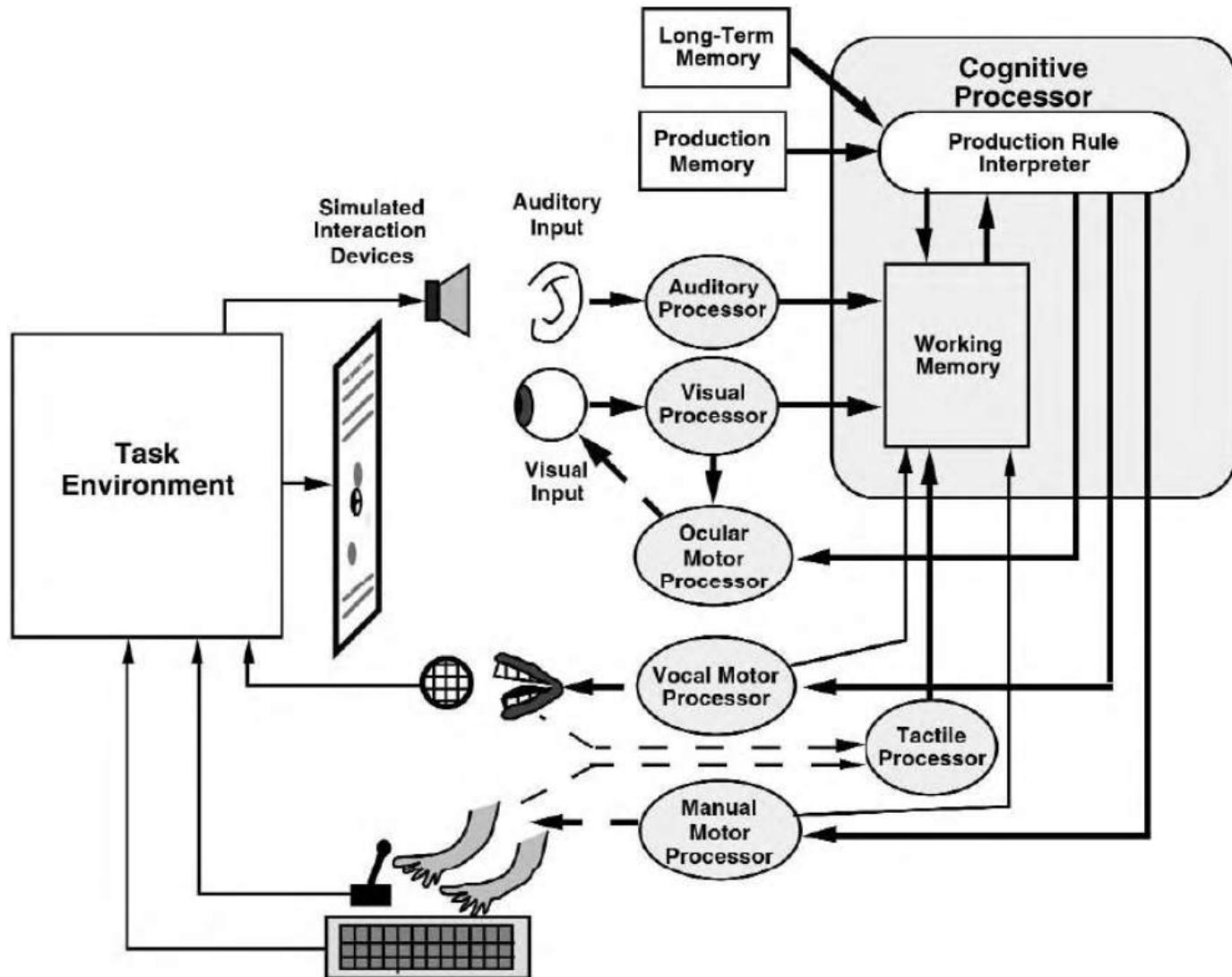
The screenshot shows the FileMatrix application interface from July 14, 2003. The window title is "FileMatrix" and it displays system information like RAM usage. The interface is a grid-based file manager with a toolbar at the top and bottom. Various UI elements are annotated with callouts:

- System information:** RAM 306.4 MB (511.5 MB)
- Board bar:** each board is a set of columns
- User logo:** A small image of a bird.
- Active column:** Favorites (9) and Backup (10).
- Thumbs:** Thumbs are displayed when the "Thumb" is pressed.
- Inactive file:** An arrow points to a file entry labeled "Inactive file".
- Active file:** An arrow points to a file entry labeled "Active file".
- File viewer:** File viewer: text, pictures, movies
- Drag up or down to change the height of the viewer:** A callout for the file viewer height adjustment.
- \* YOU MUST READ the "license terms":** A note about reading license terms.
- Information about active partition, directory, file, link target:** A callout for the status bar information.
- File size = 3.3 MB:** File size information.
- PartSz 6.8 GB(30.4 GB):** Partition size information.
- If you want to sort your projects and notes by time, change the sort mode for each column:** A callout for sorting options.
- Toolbar:** Locate, Search, Recycle, Delete, Close viewer, MPL, Options.
- The hint bar shows hints for controls over which the mouse is moved:** A callout for the hint bar.
- Set the number of columns, for each board:** A callout for the column settings.
- Set the height of thumbs:** A callout for the thumb height settings.
- Quickly change to a new set of colors:** A callout for color selection.

# Elemente ce trebuie identificate in constructia modelului utilizator

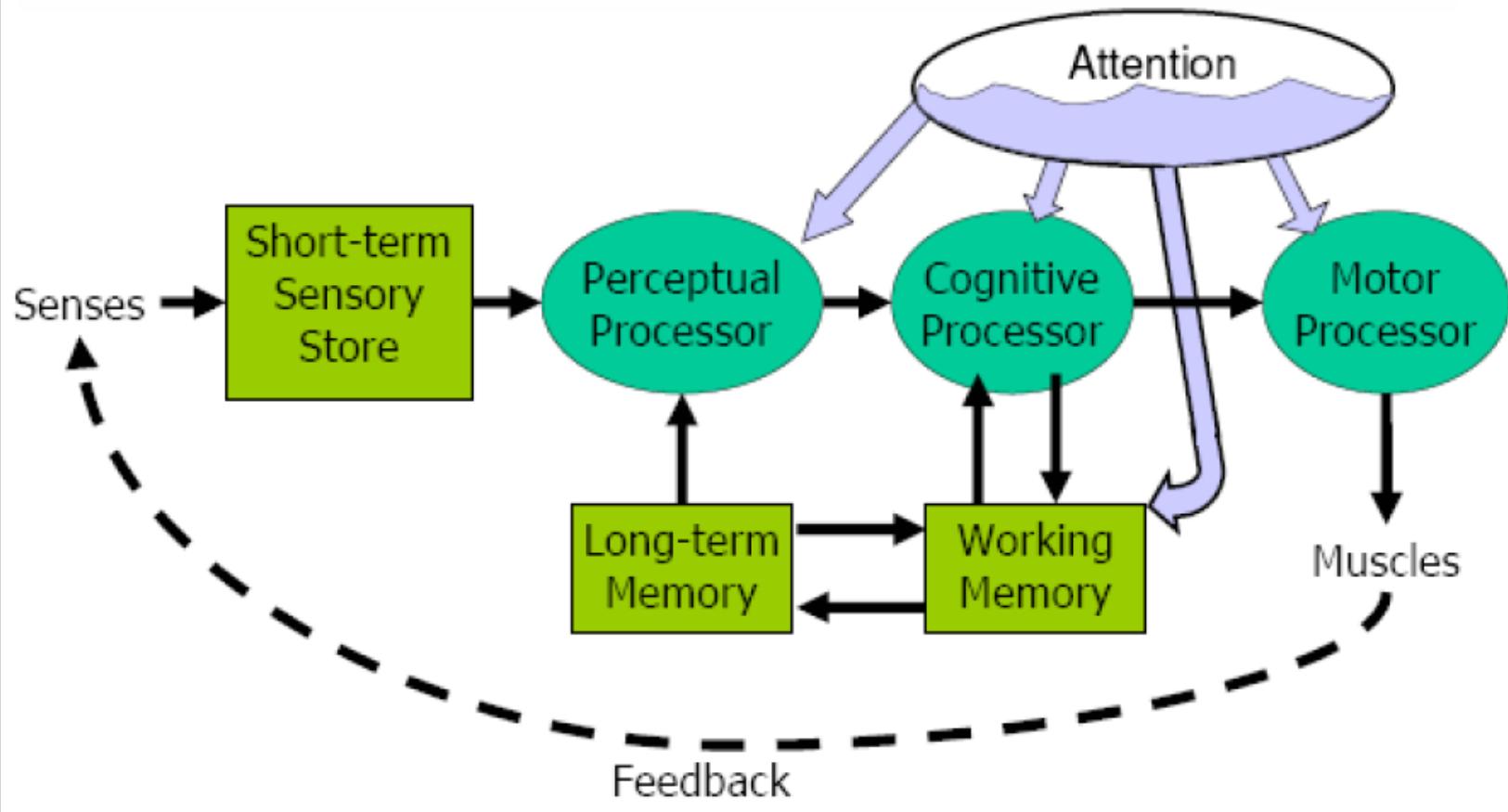


- **Cunoasterea** este procesul achizitiei de informatii pentru a asigura intelegerarea lumii exterioare prin senzatii, perceptie si gandire
- **Cunoasterea din punct de vedere al inginerului ( cu referire la profesie)** va identifica elementele dominante din cadrul procesului de proiectare, implementare si intretinere al aplicatiei.
- Aspectele de baza in modelarea utilizatorului:
  - cunostinte
  - comportanemt
  - experienta
  - aptitudini



# Simturi

- **Vedere – ophthalamoception**
- **Sunet – audioception**
- **Atingere – tactioception**
- **Gust – gustaception**
- **Miros – olfactoception**
- **balans–equilibrioception**
- **temperatura–thermoception**
- **kinesthetic sens–proprioception**
- **durere–nociception**
- **timp–chronoception**
- **Echolocation**
- **Electroreception**
- **Magnetoception**



Card, Moran & Newell, 1983; Wickens, 1984

# Memoria

## Informatie de primara

### Informatia vizuala

- Tip de codificare = imagini (curbe, muchii, lungimi)
- capacitate: 7–17 simboluri
- Durata amprentei memoriale: ~200 ms

### Informatia audio

- Tip de codificare = sunete
- capacitate: ~5
- Durata amprentei : ~1500 ms

## Informatie de context

- Grupuri de litere (seturi de 2-4 litere, uzual 3)
- capacitate:  $7 \pm 2$  grupari
- Durata amprentei memoriale: sec. (5–226 sec.) extindere prin repetitie

B M W R C A A O L I B M F B I

M W R C A A O L I B M F B I B

B M W R C A A O L I B M F B I

0 2 3 2 2 0 1 0 9 0

0 2 3 2 2 0 1 0 9 0

# Informatie de durata – grupari de litere/termeni in asociere cu un context (alti termeni)

- **Recunoastere versul amintire:** Reprezentarile trebuie rapid percepute si recunoscute



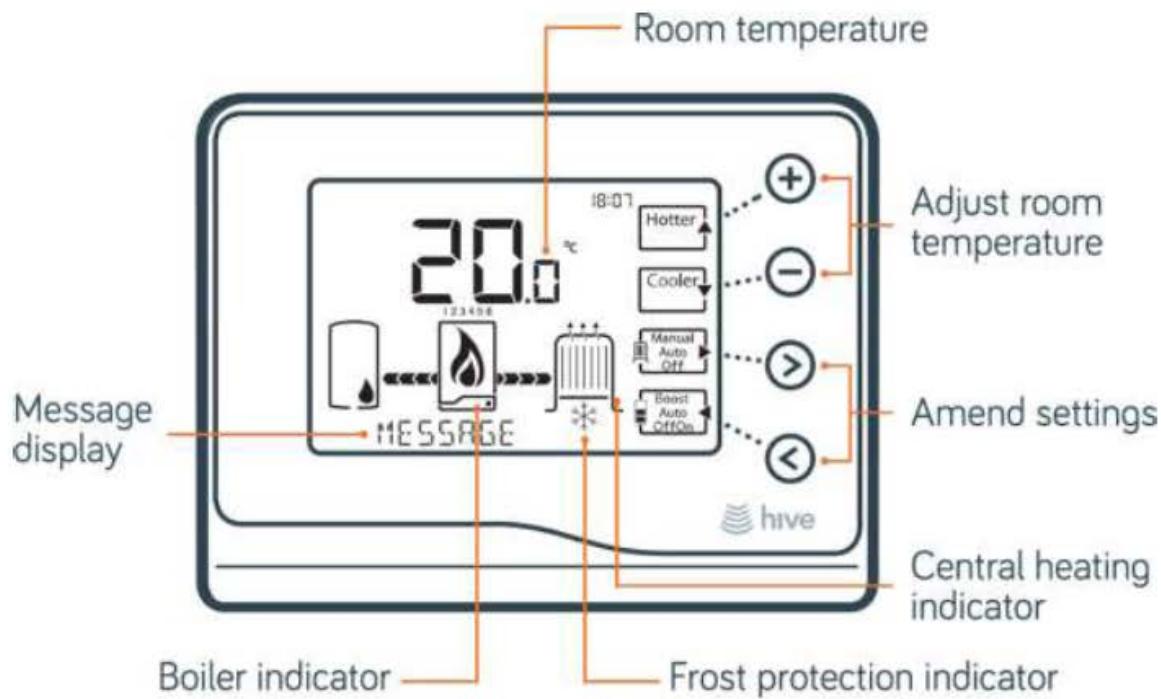
- O alta solutie de memorare pe termen lung este asocierea informatiei cu proprietati vizuale: forme, culori

	<b>Graphic Resources</b>	<b>Correspondence</b>	<b>Design Uses</b>
<b>Marks</b>	Shape		Mark position, identify category
	Orientation	Literal (visual imitation of physical features)	(shape, texture color)
	Size		Indicate direction (orientation, line)
	Texture	Mapping (quantity, relative scale)	Express magnitude (saturation, size, length)
	Saturation		
	Color	Conventional (arbitrary)	Simple symbols and color codes
	Line		

graphical representations in the context of UI design  
 Alan Blackwell (2011)

Graphic Resources	Correspondence	Design Uses	
Symbols	Geometric elements	Topological (linking) Depictive	Texts and symbolic calculi
	Letter forms	(pictorial conventions)	Diagram elements
	Logos and icons	Figurative (metonym, visual puns)	Branding
	Picture elements	Connotative (professional and cultural association)	Visual rhetoric
	Connective elements	Acquired	Definition of regions

graphical representations in the context of UI design  
 Alan Blackwell (2011)



Claire Rowland, *User Experience Design for the Internet of Things*, O'Reilly, 2016

	Graphic Resources	Correspondence	Design Uses
Regions			
Alignment grids	Containment		Identifying shared membership
	Separation		Segregating or nesting multiple surface conventions in panels
	Framing (composition, photography)		
	Layering		Accommodating labels, captions or legends

graphical representations in the context of UI design  
 Alan Blackwell (2011)

## Surfaces

Graphic Resources	Correspondence	Design Uses
The plane	Literal (map)	Typographic layouts
Material object on which the marks are imposed (paper, stone)	Euclidean (scale and angle)	Graphs & charts
Mounting, orientation and display context	Metrical (quantitative axes)	Relational diagrams
Display medium	Juxtaposed or ordered (regions, catalogues)	Visual interfaces
	Image-schematic	Secondary notations
	Embodied/situated	Signs and displays

graphical representations in the context of UI design  
Alan Blackwell (2011)

U

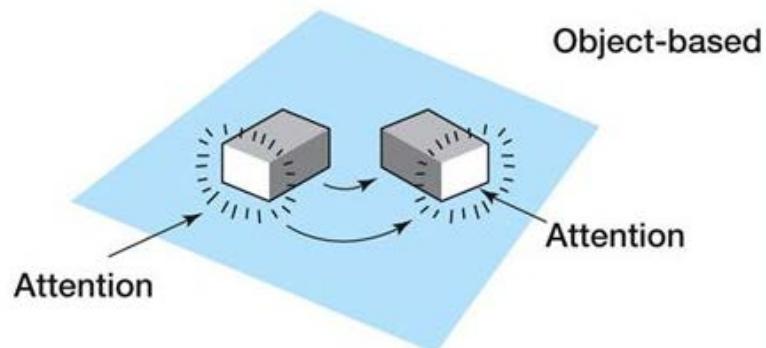
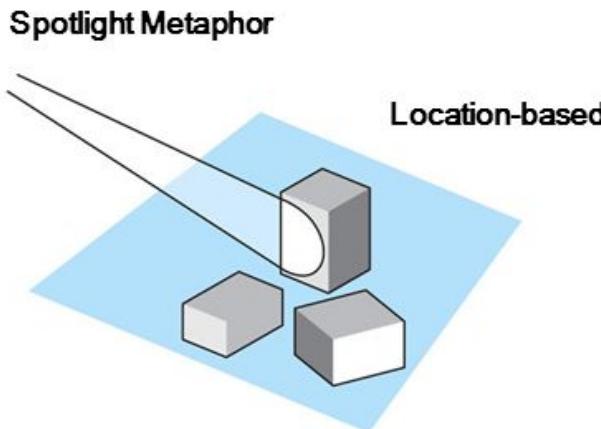
Vede

- Indicați culorile folosite în cadrul textului!

Mov

# Atentia vizuala!

- Memorie geografica (orientata pe obiect) - atentia e organizata in jurul localizarii centrului de interes din campul nostru vizual
- Memorie contextuala sau topologica (bazata pe situatii) - atentia e organizata in jurul unei structuri de obiecte cunoscute
- 



Psych 355, Miyamoto, Spr '16

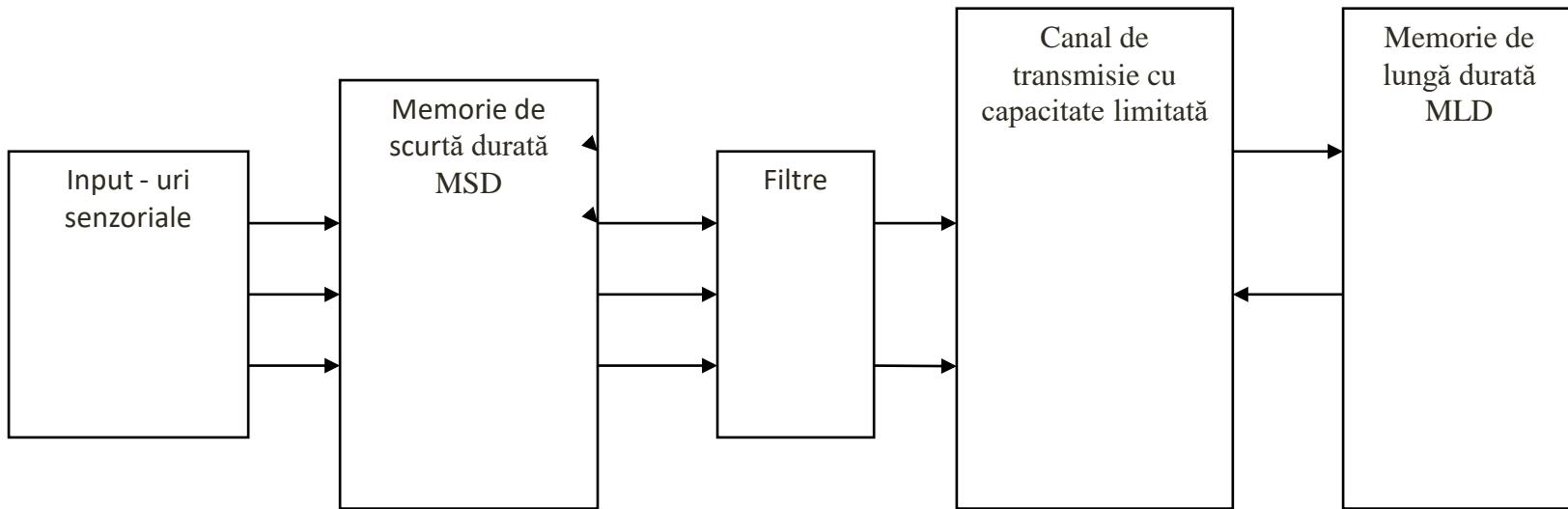
# Modelarea atenției

- Modelul filtrajului timpuriu care consideră că segregarea procesării informației se realizează la nivel senzorial, filtrându-se informațiile stocate în memoria senzorială;
- Modelul filtrajului târziu care consideră că selectivitatea procesării apare abia la nivelul procesărilor superioare, centrale ale informației;
- Modelul filtrelor atenuate, care consideră că segregarea apare la mai multe niveluri de procesare a informației.

# Modelul filtrajului timpuriu

- Acest model a fost propus de Broadbent (1958) care consideră că sistemul cognitiv uman ca sistem de procesare a informației poate fi reprezentat schematic astfel:
  - Filtrele sunt mecanisme care blochează procesarea unor informații favorizând prelucrarea preferențială a altor informații.
  - Cu cat aceasta procesare este mai elaborată, cu atât stocarea în memoria de lungă durată este mai persistentă.

# *Modelul filtrajului timpuriu*



# Modelul filtrajului târziu

- Pornind de la premisa că segregarea procesării apare după ce s-au prelucrat parțial caracteristicile semantice ale stimului, D.A.Norman (1969) a propus acest model, conform căruia, procesarea stimulilor la nivel senzorial (procesarea primară a informației) se realizează în mod automat.

- Cercetătoarea americană A.Treisman prin rezultatele sale experimentale a atras atenția asupra flexibilității modelului filtrajului târziu. Ea a scos în evidență faptul că detectarea unor trăsături fizice simple este un proces preatențional, automat.

# Modelul filtrelor atenuante

- Treisman a propus un model hibrid – modelul filtrelor atenuante.
- Ideea de bază a modelului este că filtrul nu funcționează în manieră discontinuă, ci mai degrabă atenuează semnalele recepționate, procedând la selecții succesive, la diverse niveluri de procesare a informației. Dacă prelucrarea stimulului la care subiectul este atent nu ridică dificultăți deosebite pentru acesta, celelalte mesaje din afara câmpului atenției, pot beneficia de procesări mai laborioase, chiar până la nivelul semantic. Așa se explică de ce, după un anumit antrenament cu sarcinile de ascultare dihotomică, subiecții pot relata tot mai multe lucruri despre mesajul non-dominant.

# Atenția și coerenta comportamentului

- Pentru ca un comportament sau acțiune să fie eficace, să-și atingă ținta cu minimum de efort, organismul trebuie să ignore pe cât posibil, influxurile informaționale colaterale.
- **Selectivitatea** este indusă nu atât de caracterul insuficient al resurselor cognitive, ci de cerința realizării unui comportament coerent, eficace, esențial pentru propria noastră supraviețuire.
- Selectivitatea este înțeleasă din două puncte de vedere:
  - ca selecție a stimulilor sau informațiilor ce urmează a fi procesate;
  - ca procesare selectivă, în diverse grade și modalități a informațiilor deja selecționate

# Inconștientul cognitiv

- Bombardamentul subliminal
- *În 1958 Revista americană Life relata despre cazul a 4500 de subiecți care în timpul vizionării unor filme la cinema, au fost bombardați cu două mesaje subliminale „beți Coca-Cola și Mâncăți floricele de porumb”.*
- *În urma acestor expuneri, se relata că consumul de coca-cola și floricele de porumb a crescut cu 18%, respectiv 50%. Condițiile și modul de realizare a experimentului erau vag precizate, dar articolul respectiv a declanșat o emulație deosebită în rândul psihologilor.*
- *Dar acest fapt a creat o isterie colectivă a anilor'60.*

## Procesări semantice inconștiente. Consecințe comportamentale

- Există însă două mari probleme controversate în abordarea inconștientului cognitiv.
- Dacă există o prelucrare semantică subconștientă sau inconștientă a stimulilor subliminali;
- Dacă procesările subconștiente au consecințe comportamentale vizibile

- Într-unul din experimentele sale, P. Walkins expune un lot de subiecți la mesajul subliminal vizual Drink Coke. La sfârșitul acestei expuneri, subiecții erau rugați să-și autoevalueze pe o scală nivelul lor de însetare, precum și preferința lor pentru Coca-Cola dintr-o listă întreagă de băuturi. Față de lotul de control, senzația de sete era de aproape două ori mai mare.

# Procesarea cognitiva

- Creierul compara informatiile primite de la stimului si selecteaza raspunsul
- Procesul de selectare a raspunsului se bazeaza pe :
  - Aptitudini;
  - Reguli;
  - Cunoastere anterioara
    - 1. **Decizii bazate pe aptitudini :**
      - influentate de varsta
      - Influentate de activitatile umane
    - 2. **Decizii bazate pe reguli** – ex: regulile sociale, specifice unui loc de munca sau domeniu, etc.



## Simboluri specifice Japonia

## Simboluri internationale

			Machine wash, with figure for temperature
Washing			Hand wash
Bleach			Non-chlorine bleach
Drying			<p>— For flat dry        For hang dry</p>
			Tumble dry
Ironing			Iron, with more dots for higher temperature
Dry cleaning			Dry-clean, hydrocarbon solvent

**Decizii bazate pe cunoastere anterioara –** utilizatorul foloseste cunostintele anterioare pentru a face fata/explora situatii noi, necunoasute

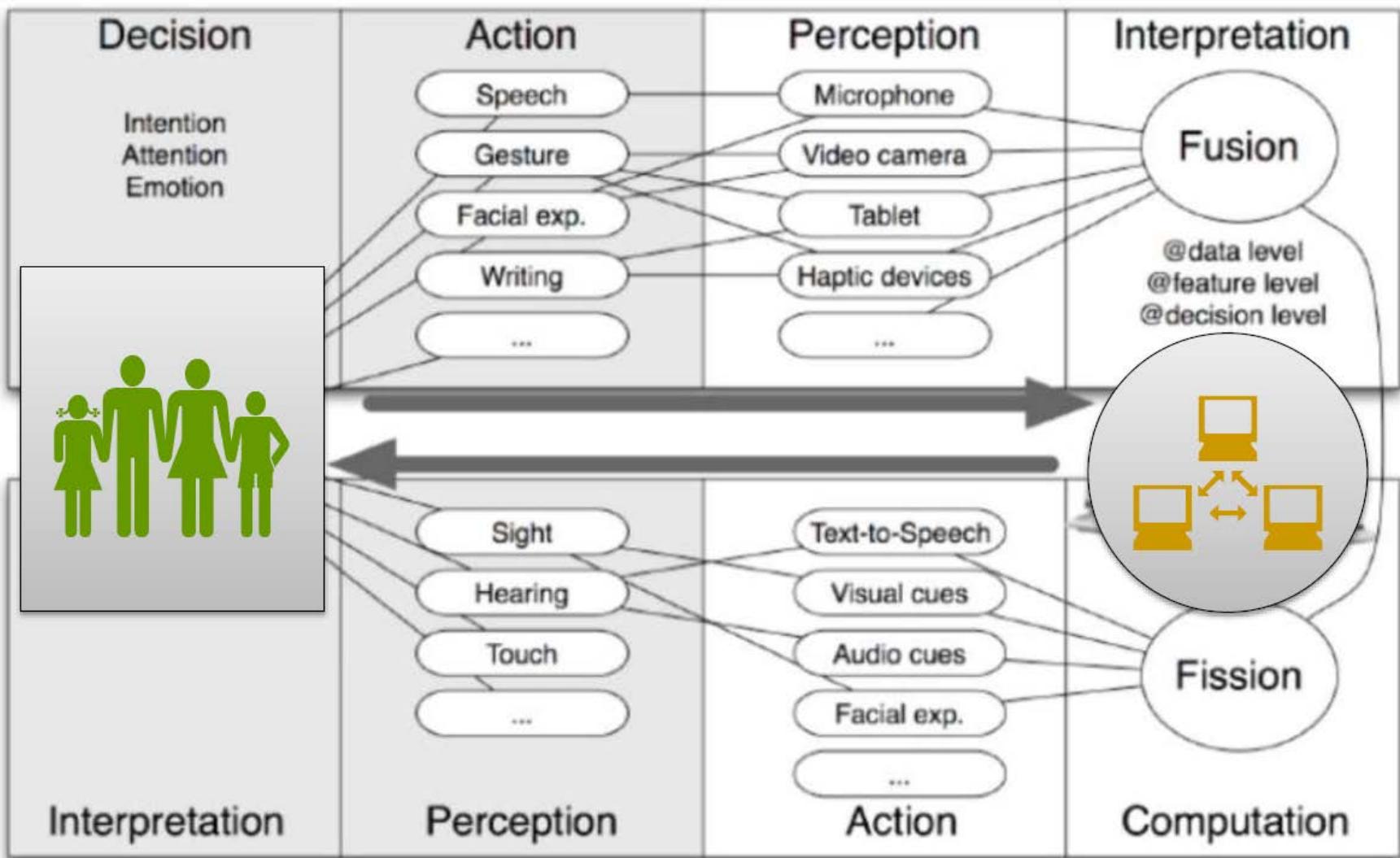
$$\begin{array}{l} 74 + 46 \\ \text{LXXIV} + \text{XLVI} \end{array}$$

Utilizatorul multi-tasking:

Atentia este o resursa ce poate fi partajata pentru a permite utilizatorului sa realizeze mai multe activitati “simultan” in timp.

Pentru aceasta sunt folosite simultan mai multe canale de intrare:

- Cunoasterea perceptuala (vizual, auditiv, tactil)
- Codificarea informatiei
- Specificitatea activitatilor
- Experienta anterioara
- Tipul de activitate motoare solicitat ca raspuns (activitatile in bucla deschisa – perceptuale – au nevoie de ~70 ms in medie pentru a fi realizate, in timp ce activitatile motoare in bucla inchisa ( cele supervizate) , au nevoie de ~240 ms



multimodal man-machine interaction model (Dumas *et al.*, 2009)

## Cunoasterea sistemica versus Cunoasterea anticipativa

Property	Conscious	Unconscious
Engaged by	Novelty Emergencies Danger	Repetition Expected Events Safety
Used in	New circumstances	Routine situations
Can handle	Decisions	Nonbranching tasks
Accepts	Logical propositions	Logic or inconsistencies
Operates	Sequentially	Simultaneously
Controls	Volition	Habits
Capacity	Tiny	Huge
Persists for	Tenths of seconds	Decades (lifelong)

Jef Raskin, *The Humane Interface*, Addison Wesley, 2000

# Organizarea vizuala a informatiei

- Plasati informatiile si instructiunile in context
- Utilizati liste
- Organizati informatia in grupe logice
- Mentineti o anumita consistenta in limbaj si proceduri
- Evidențiati informatiile critice/noi
- Utilizati limbajul uzual, evitand jargonul si acronimele
- Utilizati imagini pentru a completa textul
- Evitati utilizarea unor animatii complexe sau diverse tipuri de comenzi manuale
- Utilizati fonturi uzuale
- Permiteti utilizatorului sa repete pasii
- Evitati sunetul de fundal in cazul utilizarii canalului de comunicare auditiv
- Mentineti un contrast puternic in cadrul textului

# Organizarea informatiei pe baza cunoasterii anterioare

- Evaluati si bazati-vă pe cunoasterea anteroara , aptitudinile si sarcinile cunoscute de utilizator
- Evitati distribuirea atentiei intre 2 sarcini
- Focalizati informatia pe utilitatea utilizatorului
- Limitati informatiile si acivitatile la minimum necesar
- Distribuiti sarcinile in grupe rezonabile ca si complexitate si timp necesar
- Permiteti calcul mental, decizional si comparatii
- Reduceti numarul de optiuni
- Realizati completarea automata a formelor si campurilor neesentiale sau repetitive
- Utilizati menomince uzuale
- Minimizati incarcarea ecranului
- Permiteti timp suplimentar pentru anumite sarcini
- Eliminati stresul intervalului de timp limitat
- Integrati zone cu informatie esentiala recapitulativa

# Legi empirice de organizare a interfețelor vizuale

## Fitts' Law (1954)

- Estimeaza timpul mediu de selectie a unui punct/zone in functie de distanta si dimensiunea obiectivului tinta

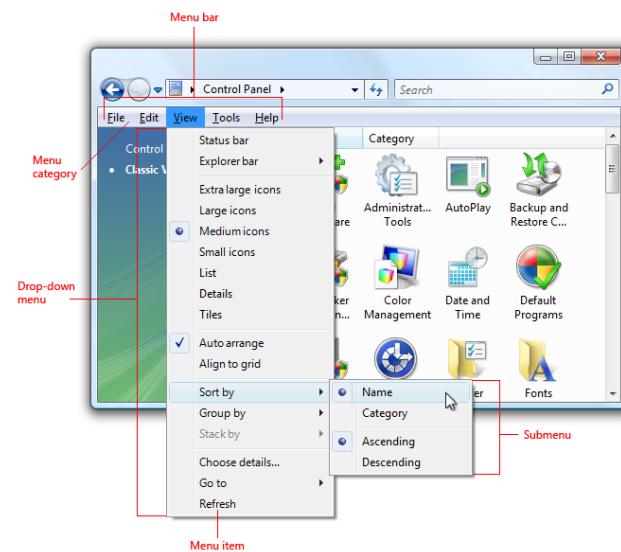
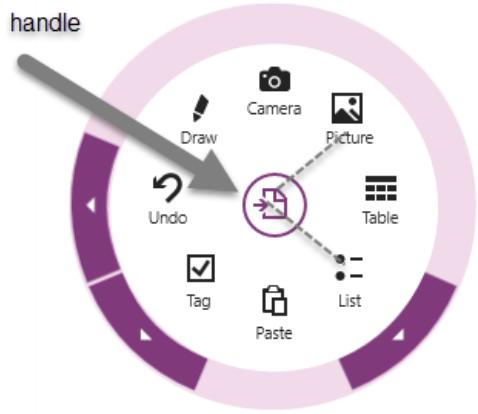
$$T = a + b * \log_2 (2*D / S)$$

T = time, D = distance, S = size

## Consecințe

Meniurile MacOS sunt mai ergonomicice decat meniurile din Windows

Organizarea radiala (pie) este mai ergonomică pentru utilizator decat cea liniara



## Hick's Law(1952)

- Estimeaza timpul de decizie pentru un set de optiuni (ex: intr-un menu)

$$T = b * \log_2 (n + 1)$$

$T$  = timpul mediu de reactie (entropia deciziei),

$n$ = numarul de alternative echiprobabile,

$b$ = o constanta determinata empiric

Exemplu –daca o pagina Web are ~15 link-uri , atunci timpul mediu pentru ca utilizatorul sa ia o decizie va fi de ~22.5 seconds ( $15 * 1.5$ )

Cu cat numarul de optiuni este mai mic cu atat experienta navigarii/deciziei este mai placuta

2010

The Twitter homepage from 2010 features a blue header with the Twitter logo and a search bar. Below the header is a banner reading "Discover what's happening right now, anywhere in the world". A sidebar on the left lists "See who's here" and "Top tweets". The main content area shows several tweets from users like EmoPhillips, preciousweapons, and BrianBenois. At the bottom, there's a "Sign up for Twitter" form.

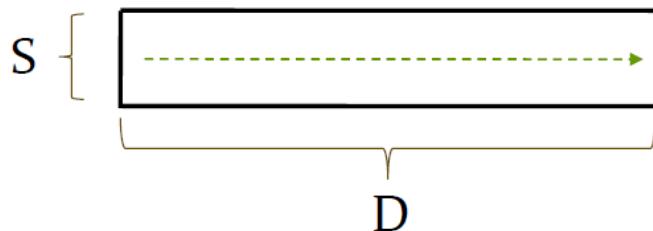
This version of the Twitter homepage from 2010 includes a large background image of a concert with many people raising their hands. The banner text is "Welcome to Twitter." and the main message is "Connect with your friends — and other fascinating people. Get in-the-moment updates on the things that interest you. And watch events unfold, in real time, from every angle." Below the banner is the same "Sign up for Twitter" form as the previous version.

2017

The Twitter homepage from 2017 has a dark, atmospheric design with a background image of a concert. The banner text is "Welcome to Twitter." and the main message is "Connect with your friends — and other fascinating people. Get in-the-moment updates on the things that interest you. And watch events unfold, in real time, from every angle." To the right is a "Sign up for Twitter" form. The bottom half of the page features three sections: "Follow your interests.", "Hear what people are talking about.", and "Join the conversation.", each with an icon and descriptive text. At the very bottom, there's a "Get started" button and a "Log in" link.

## Steering Law

- Estimeaza timpul necesar parcurgerii prin miscarea mouse-ului a unui “tunel” avand lungimea D si sectiunea S



$$T = a + b * D/S$$

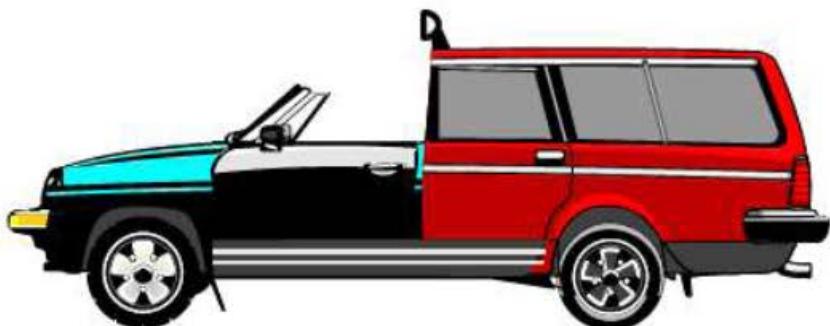
Gradul de dificultate variaza liniar

**Este mult mai dificil sa faci o selectie prin mutarea mouse-ului dupa o traекторie, decat prin selectie punctuala**



# Realizarea modelului utilizator

- Constructia utilizatorului virtual general valabil?



Scopul acestui proces este de a identifica asteptarile si necesarul utilizatorului relativ la interfata pe care o proiectam

# Tom Brodie



**Tom Brodie,**  
Shop Manager

"Sometimes I'm so  
busy fighting  
alligators that I  
forget about draining  
the swamp."



Tom has 8 years of experience in lube shop operations. He's married with two young kids, and his wife jokes that the last time his hands were completely free of grease was on his honeymoon 5 years ago. At the shop he manages, Tom constantly puts out little fires. He works on the floor most of the day, trying to be everywhere at the same time although he prefers to act as greeter and cashier.

Most shop trends get measured on a monthly basis, since Tom has to meet sales targets defined by the owner, Eddie, in order to get his manager's bonus. On a daily basis, Tom frequently monitors car counts, ticket average and employee productivity (especially individual service statistics). Sometimes his team needs a kick in the pants, but he tries to lead by example.

#### Tom's Goals:

- **Keep the cars coming.** Tom has to rely on Eddie's marketing efforts but car count is his make-or-break figure; he focuses on customer service to generate repeat customers.
- **Reduce labor percentages without sacrificing customer service.** Staffing is a tricky balance between keeping the shop's labor costs down while ensuring employees get enough hours and bay times stay low.
- **Meet or exceed last year's numbers for this month.** The Owner's sales targets aim for year-on-year increases across the board, but in the current business climate Tom is happy simply meeting last year's numbers.

Persona copyright ISI, Inc.

## Elizabeth: Expert Searcher

### Goals:

Information I can use  
Answers to specific questions

### Typical Questions:

Tell me something new  
I want the latest!  
I need <this> information.

### Top Usability Needs:

Efficient: Give me a search box and  
I'll tell you exactly what I want

Effective: Give me accurate, reliable,  
up-to-date information

**Information Seeking Styles:**  
Find: Specific question or keyword

Query: What's new about....

### Risks

Not interested in personalization or  
community features

Already knows the basics



"I don't stay on a site long if  
nothing jumps out at me!"

"Where do I type? Here? We  
have to change that!"

For Elizabeth, the web is a vast library. She likes to keep up with healthcare information, and uses the web to do it. Starting from Google, her favorite search engine, she finds a collection of pages that look good and tries them until she finds one that seems promising.

She doesn't like a lot of personal stuff on the web - testimonials, kids, interactive tools don't interest her a lot - but she does have definite ideas about how it should work

### Needs:

- Targeted information at the right level of detail
- Search box or ways to reach information directly



**Rebecca**

Casual audiophile

Age	26
Occupation	Frontend developer
Education	Bachelor degree
Marital status	Single
Location	Mountain View
Online locations	Work and mobile
Computer(s)	iPhone and MacBook Pro
Internet usage	8-9 hours



**Music is essential to Rebecca's life.  
She is listening to tunes almost every  
second of her life, particularly while  
working.**

#### Obstacles Rebecca faces:

- Too busy to explore new music artists she might like
- Streaming music consumes a lot of data

## How will Rebecca interact with Spotify?

#### Questions Rebecca will ask:

- How do I keep updated on new releases by artists I follow?
- How do I learn of new artists I haven't heard of?
- Can I listen to music in a data-efficient manner?
- How can I listen on both my MacBook and my iPhone?

## Who influences Rebecca?



Example of a persona that shows the six main elements you should include. Name, age, gender, tag line, experience and skills are placed on the left-hand side. The middle column focuses on the context to indicate how they would interact with a product or service. Finally, on the right-hand side some goals and concerns are shared, as well as a short scenario to indicate the persona's attitude.

INTERACTION DESIGN FOUNDATION | interaction-design.org

## Rebecca's situation

### Goals, motivations:

- Listen to great music to keep her productive at work
- Relax and unwind at the end of the day
- Superior music quality for full enjoyment of tracks
- Expand the circle of music artists she listens to

### Key words

music, jazz, r&b, pop, artists, new releases, top charts, background music

## Rebecca's story

Music is a big part of my life; I like to think that I always have a "background music" running in each scene of my life. I love working while listening to music, somehow, it gives me a lot of focus on my task.

I regularly talk to my co-workers about music and singers – that's what we like to talk about over lunch. We're constantly looking for new artists to inspire us and to expand our music library, but lately it seems a little tough to do that. Everything seems to have a "filter bubble" effect, and we keep listening to the same genres and artists.

I really enjoy finding new artists that match my subjective taste, and most of the times I get those from my close friends. I wish there were a way to find more music and artists without having to rely on the serendipity of life!

## Jasmine Ultimo



### GOALS

Gain a full-time job as a stylist,  
grow personal clientele base,  
Build a social media presence for brand.

### PERSONALITY



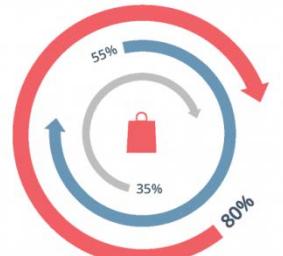
### BRANDS

**ZARA**

**RALPH LAUREN**

**for all mankind**

**FOREVER 21**



### BIO

Jasmine Ultimo lives in NYC working as a intern at a hospital part-time and also has a part-time job at foot-locker as a cashier. Her day to day can be very hectic. A typical day in Jasmine's life proves that she is always on the go. She is normally running from school to her internship to work. In between all that she has to fit in time to study and handle the loads of papers you get during the program.

SHOP ON MOBILE

VIEW ONLINE WHILE IN STORE

SHOP ONLINE (ON PC)

FAVORITE APPS

Instagram Facebook



# Utilizatorul virtual

- Scopul acestei etape este de a particulariza designul la persoanele care reflectă cel mai bine structura și așteptările grupului tinta utilizator al aplicației

“Unlike the standard persona, proto-personas are based on the *assumptions* of the stakeholders, and further checked against actual data. [...] They ultimately represent what we *think* our users are like.” - Andrew Jacobs (2016)

- “It’s not important how smart users are; it’s important to be effective” - Stephen Turbek, 2011

S.T.U.P.I.D. user

Stressed Tired Untrained Passive Independent Distracted

S.M.A.R.T. design

Simply Memorable Accept autopilot Recovery Test in realistic situations



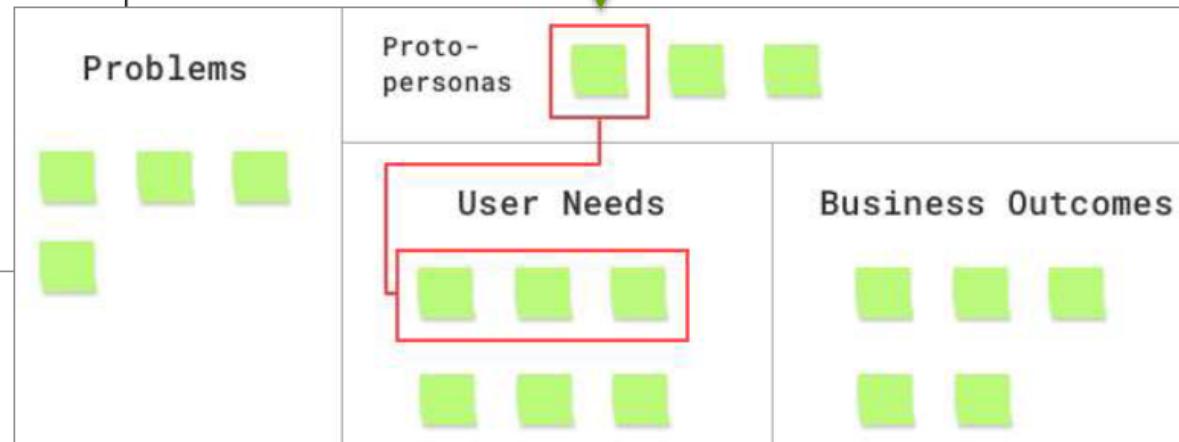
drawing,  
name, role

demographic  
factors which  
influence  
behavior

age  
marital status  
outcome  
...

a **proto-persona template** offers  
a collection of **heuristics**, **market**  
**research**, and **intuition** in order to  
articulate the **target audience(s)**,  
**their needs**, and **behaviors**

needs      frustrations      desires



examples: [uxmag.com/articles/using-proto-personas-for-executive-alignment](http://uxmag.com/articles/using-proto-personas-for-executive-alignment)

# **Etape de realizare a utilizatorului virtual**

- Identifica utilizatorul virtual
- Concentreaza imaginea acestuia la elementele esentiale aplicatiei
- brainstorm (realizati clasificari)

## **Proto-persoane**

- Rafineaza imaginea
- Adapteaz-o la realitate

*Pentru realizarea acestei prezentari au fost folosite materiale realizate de dl Dr. Sabin-Corneliu Buraga , respectiv resurse internet*