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## **Metodi di Inspection: MiLE**

### **Che cosa è MiLE**

- MiLE = Milano-Lugano Evaluation
- Sviluppato in collaborazione tra HOC-Lab (Politecnico di Milano) e TEC-Lab (Università di Lugano).
- Metodi di inspection
- Integra metodi basati su euristiche e metodi task-based
- Supporta un approccio sistematico
  - alla ispezione
  - alla integrazione di ispezione e user testing

## Concetti chiave 1

“ L'usabilità è l'efficacia, l'efficienza e la soddisfazione con cui specifici utenti possono conseguire specifici risultati in particolari contesti” (ISO 9241-11)

- Identifica due tipi di “attributi” (euristiche) di usabilità:
  - **Application independent**
    - “Indipendenti” dai requisiti specifici della applicazione
    - Possono essere valutati senza conoscere obbiettivi e profili utente della applicazione
  - **Application dependent**
    - “Dipendenti” dai “requisiti” specifici della applicazione
    - Possono essere valutati solo conoscendo obbiettivi, contesto d'uso, profili utente della applicazione
    - Essendo legate a questi aspetti, sono a meta' strada tra USABILITA' E UTILITA'

## Concetti chiave 2

- Due tipi di attività di ispezione:
  - **Ispezione “tecnica”**
    - Per scoprire violazione di attributi application independent
  - **User Experience Inspection**
    - Per scoprire violazione di attributi application dependent

## Concetti chiave 3

Per gli attributi **application independent**:

- Diverse dimensioni di analisi, per una analisi “tecnica” sistematica
  - **Contenuto**
  - **Design dell’interfaccia**
    - Interazione/navigazione
    - Semiotica
    - Elementi cognitivi
    - Elementi grafico-visivi
    - ...
  - **Navigazione**
  - **Tecnologia**
- Per gli attributi **application dependent**:
  - Uso intensivo di **scenari**
  - Definizione di **indicatori della qualità della user experience**

## Attributi “application independent”

Legati a:

- “Qualità” della navigazione
- Accuratezza del contenuto
- Consistenza
- Evidenza dello “stato” della applicazione
- Qualità visiva (grafica e lay-out)
- Aderenza agli standard (tecnici, di interfaccia)
- Qualità tecnica
- ...

## Esempi di attributi “application independent”

### Aggiornamento dell'informazione

The screenshot shows the MoMA.org website interface. At the top left is the MoMA.org logo with the tagline 'The Museum of Modern Art'. To the right is a search bar with a 'search' button and the text 'Advanced Search'. Below the search bar is a green header bar with the text 'Calendar of Events | Film and Media Programs'. Underneath this header is a list of links: 'Film and Media Programs', 'Adult and Academic Programs', 'Family Programs', 'High School Programs', 'Members Programs', 'Special Events', 'Access Programs', and 'Visitor Information'. Below these links is a section titled 'Film and Media Screenings Schedule'. This section contains three dates: 'November 11-29, 2004', 'December 1-15, 2004', and 'December 16-31, 2004'. The date 'November 11-29, 2004' is highlighted with a red rectangular box. A red arrow points from the text 'Pagina visitata il 2 dicembre' to this highlighted date. In the bottom left corner of the page, there are links for 'Home Page' and 'Calendar of Events'.

MoMA.org  
The Museum of Modern Art

search

Advanced Search

Calendar of Events | Film and Media Programs

[Film and Media Programs](#) [Members Programs](#)  
[Adult and Academic Programs](#) [Special Events](#)  
[Family Programs](#) [Access Programs](#)  
[High School Programs](#) [Visitor Information](#)

Film and Media Screenings Schedule

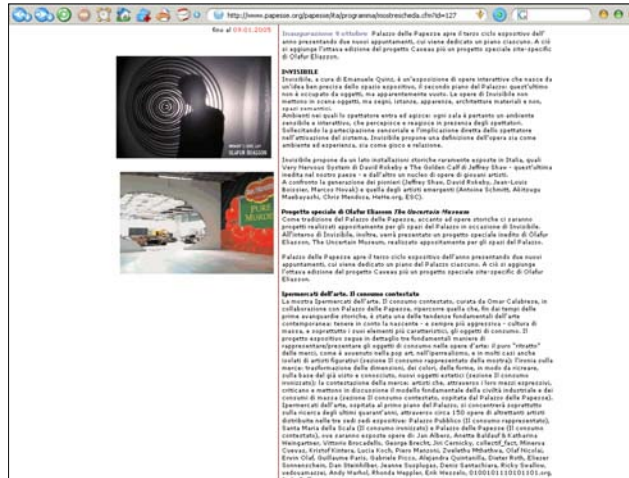
[November 11-29, 2004](#)  
[December 1-15, 2004](#)  
[December 16-31, 2004](#)

Home Page  
Calendar of Events

Pagina visitata il 2 dicembre

[www.moma.org/events/film/](http://www.moma.org/events/film/)

## Concisività del testo



[www.papesse.org/papesse/ita/programma/mostrescheda.cfm?id=127](http://www.papesse.org/papesse/ita/programma/mostrescheda.cfm?id=127)

## Tecnologia: Compatibilità del browser



Explorer 6.0



Mozilla Firefox 1.0

[www.exploratorium.edu/listen/](http://www.exploratorium.edu/listen/)

## Tecnologia: Reazione agli errori

**Billing Information**

Title:

\*First name:  \*Last name:

\*Street address:

Address 2:

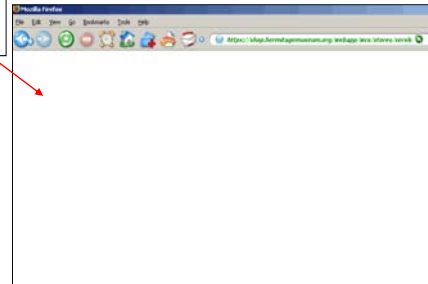
\*City:  State/Prov:

\*ZIP/Postal code:  \*Country:

\*Daytime number:  \*Evening number:

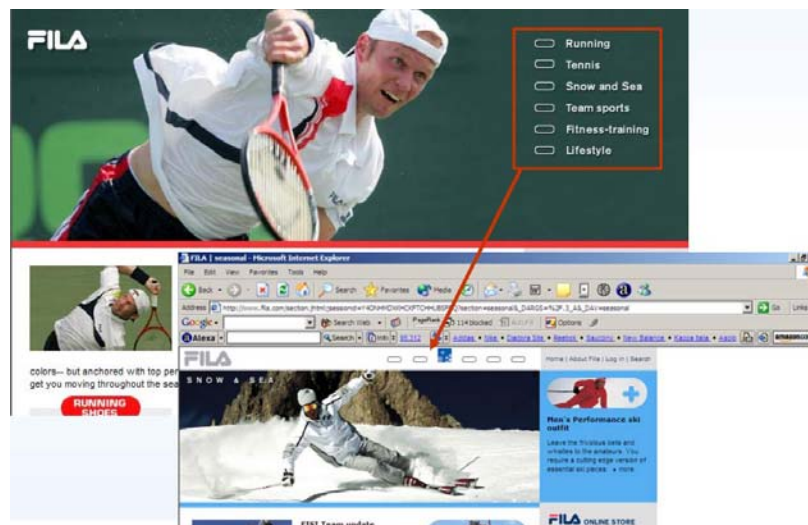
Fax:  \*E-mail address:

Che cosa ha fatto di sbagliato l'utente?



<http://shop.hermitagemuseum.org/index.html>

## Semiotica: comprensione dei menu



Immagini dal precedente sito di FILA; il sito nuovo <http://www.fila.com/it/ita/> ha problemi ancora piu' seri!!!

## Semiotica: Ambiguità delle etichette

The screenshot shows the 'exhibitions' page of The British Museum website. It features a grid of exhibition thumbnails. Two thumbnails at the bottom are highlighted with red boxes and labeled 'online tour'. Red arrows point from the text '2 etichette: 2 links diversi?' to these two links, illustrating the ambiguity of the labels.

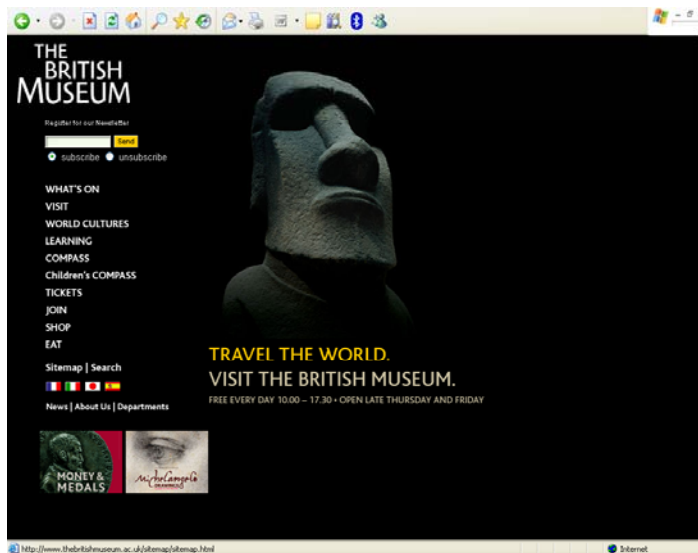
<http://www.thebritishmuseum.ac.uk/whatson/exhibitions/index.html>

## Aspetti cognitivi: Sovraccarico cognitivo ("Information Overload")



[www.metmuseum.org/Works\\_of\\_Art/collection.asp](http://www.metmuseum.org/Works_of_Art/collection.asp)

## Aspetti cognitivi: Comprensione della struttura generale del sito ("Mappa Mentale")



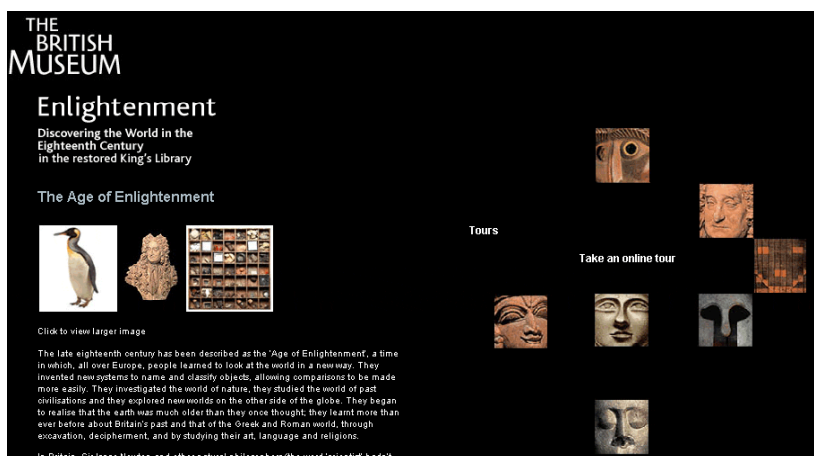
Provate a navigare il sito per 5 minuti:

Riuscite a costruirvi una qualche "mappa mentale"?

[www.thebritishmuseum.ac.uk/](http://www.thebritishmuseum.ac.uk/)

## Aspetti semiotici: Ambiguità delle etichette dei link

[www.thebritishmuseum.ac.uk/enlightenment/theageof.html](http://www.thebritishmuseum.ac.uk/enlightenment/theageof.html)



Che succede quando seleziono "Tours"?

E quando seleziono "Take a online tour"? Quale differenza?



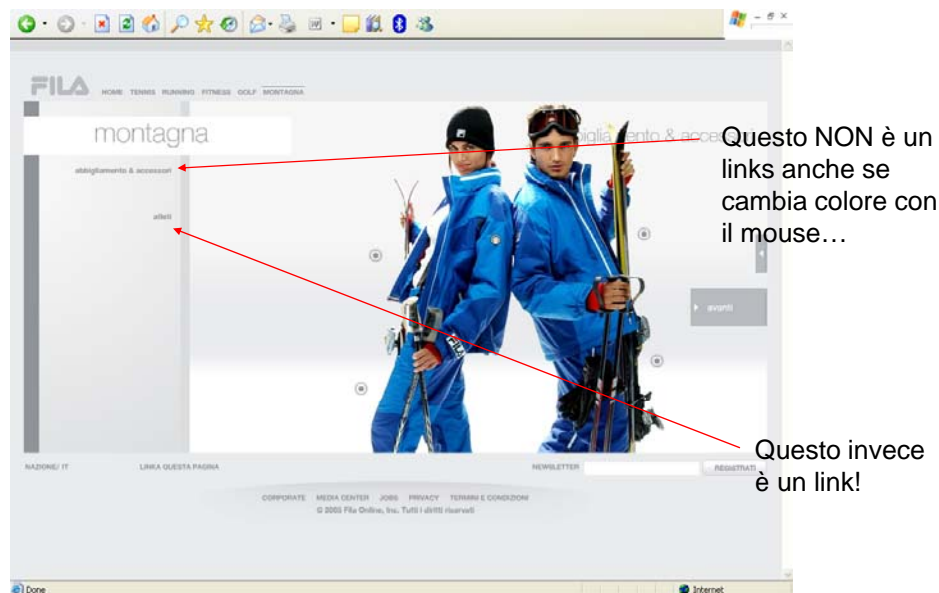
## Grafica: Identificazione dei link 1

MOCA THE MUSEUM OF CONTEMPORARY ART			
Selection		Payment	Confirmation
<a href="#">Event Schedule</a>   <a href="#">Shopping Cart</a>   <a href="#">Customer Service</a>   <a href="#">Cancel Order &amp; Exit</a>			
November 2004 Event Schedule			
Click on a month below to view events.	<b>Event</b>	<b>Venue Name</b>	<b>Date &amp; Time</b>
November - 2004	Museum Admission	MOCA California Plaza & MOCA Geffen Contemporary	Monday, 11/29/04
December - 2004			Tickets Available at Box Office
January - 2005			

Quali sono i links?

<http://purchase.tickets.com/buy/TicketPurchase>

## Grafica: Identificazione dei link 2



<http://www.fila.com/it/ita/mountain>

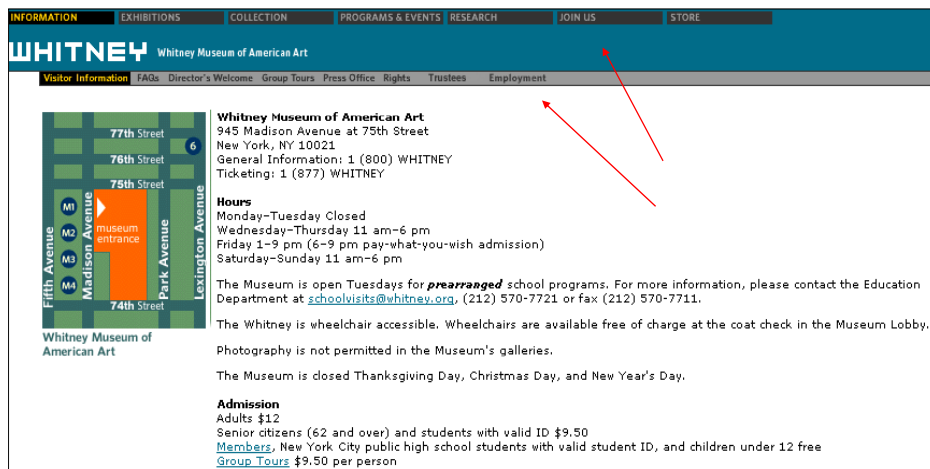
## Grafica: Colore di background e Dimensione del carattere

Si riesce a leggere il testo azzurro scuro sullo sfondo azzurro chiaro?



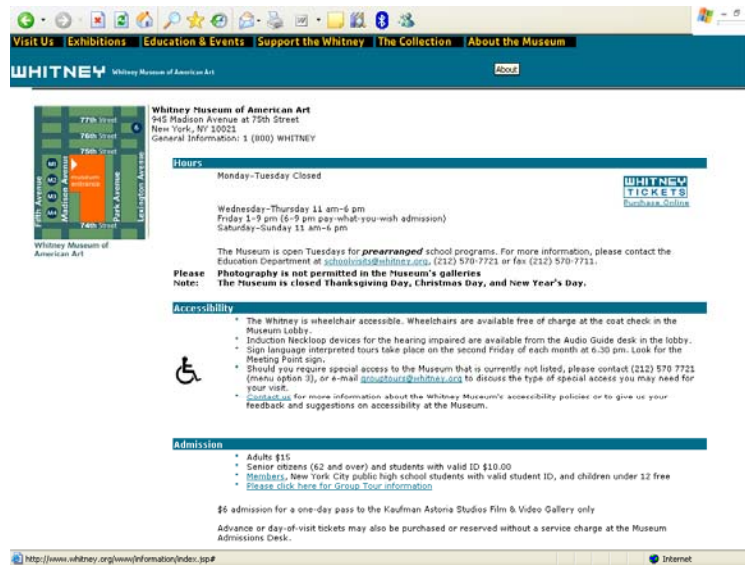
[www.moca.org/museum/visit\\_home.php](http://www.moca.org/museum/visit_home.php)

## Grafica: Menu Design



[www.whitney.org/information/index.shtml](http://www.whitney.org/information/index.shtml) (novembre 04)

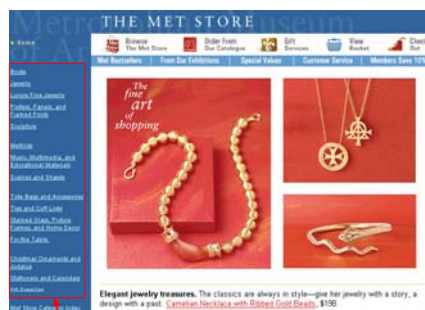
## Grafica: Menu Design



<http://www.whitney.org/www/information/index.jsp#> (rivisto aprile 06)

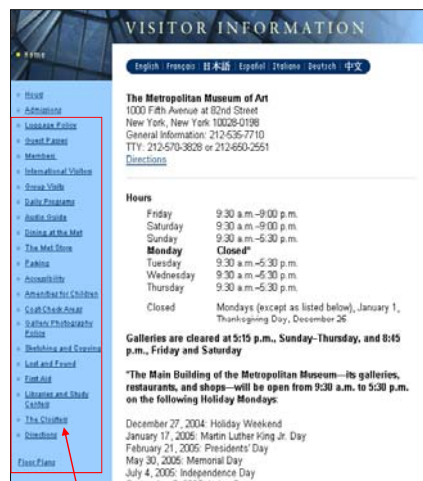
## Navigazione: Consistenza della strategia di navigazione

[www.metmuseum.org/store/index.asp](http://www.metmuseum.org/store/index.asp)



Links per accedere alle sottosezioni  
(in pagine diverse)

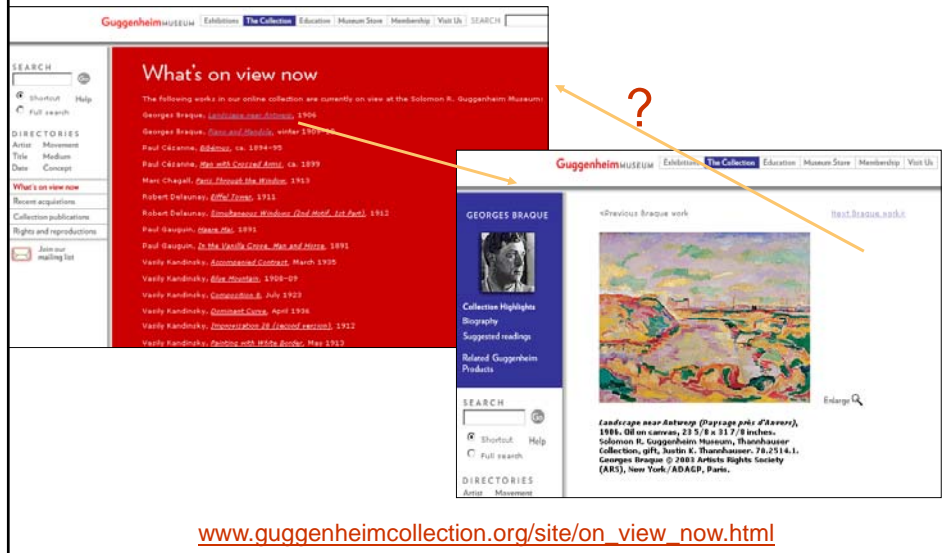
[www.metmuseum.org/visitor/index.asp](http://www.metmuseum.org/visitor/index.asp)



Lnks per accedere a sezioni della  
stessa pagina)

## Navigazione all'indietro

Come ritorno alla pagina delle opere?

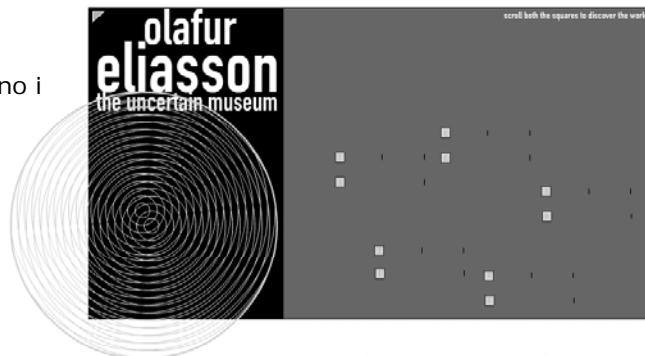


## Navigazione: localizzazione dei links

PALAZZO DELLE PAPERIE CENTRO ARTE CONTEMPORANEA

Come si  
naviga?

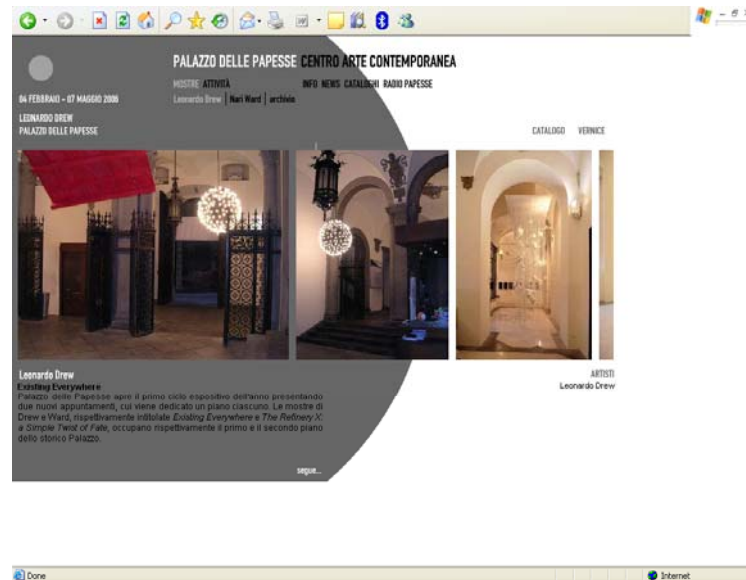
Dove sono i  
links?



[www.papesse.org/papesse/minisiti/invisibile/index.htm](http://www.papesse.org/papesse/minisiti/invisibile/index.htm) (novembre 04)

## Navigazione: localizzazione dei links

Ora i links  
sono  
evidenti e  
hanno  
anche un  
effetto  
sonoro



[www.papesse.org/](http://www.papesse.org/) (aprile 06)

## Attributi “application dependent”

- Dipendono dalla soddisfacibilità dei requisiti utente
  - Profili utente
  - Obbiettivi
  - Contesti d'uso

Esempi:

- Completezza dei contenuti
- Intuitività
- Predicibilità
- “Engagement”
- .....

## Esempi di attributi “application dependent”

### Multilinguismo

Sono un  
turista  
americano:

esiste una  
versione in  
inglese della  
descrizione  
della mostra?

E della  
collezione?



[www.men.ch/expositions.asp/1-3-583-99-21337-99-32-4-1/](http://www.men.ch/expositions.asp/1-3-583-99-21337-99-32-4-1/)

## Completezza dell'informazione

Questa informazione e' sufficiente per organizzare la visita al museo di un turista (che capisce il francese)?

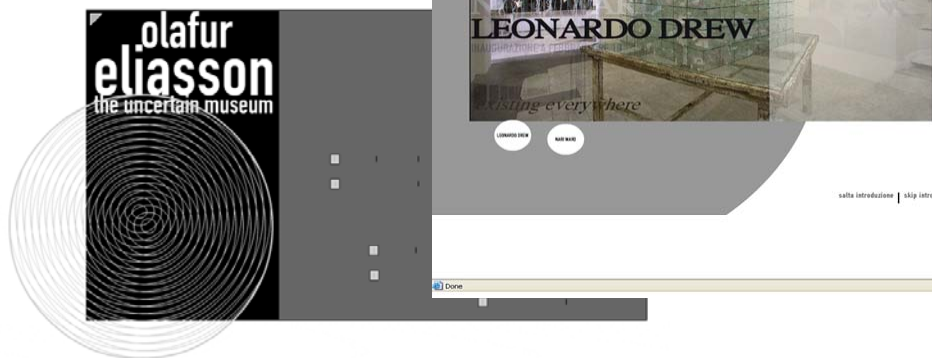


<http://www.men.ch/infomusee.asp/1-0-110-99-21-6-1/>

## Engagement

[www.papesse.org/papesse/](http://www.papesse.org/papesse/)

PALAZZO DELLE PAPERESSE CENTRO ARTE CONTEMPORANEA



Una volta capito come navigare, è "divertente" e accattivante il modo proposto di esplorare questi contenuti?

## HOW TO PERFORM EVALUATION: TECHNICAL INSPECTION

- **Main goal:** to evaluate Application INDEPENDENT Usability, i.e., identification of design problems and implementation breakdowns.
- The inspector evaluates the application from the design dimensions' perspective
  - **Content**
  - **Navigation**
  - **Technology**
  - **Interface Design**
    - **Semiotics**
    - **Cognitive**
    - **Graphics**

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## MILE+ Technical Inspection

- For each design dimension MiLE provide a **library of “technical” heuristics** organized in various dimensions:
  - **Content**
  - **Navigation**
  - **Technology/Performance**
  - **Interface Design**
    - **Semiotics**
    - **Graphics**
    - **Cognitive**
- For each tech heuristic MILE+ provides:
  - Its **definition**
  - Suggested **(inter)actions** on the web site to perform in order to measure it
- (see [pdf](#) in WB)

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## How to carry on Technical Inspection: simple applications (“few” pages)

- Explore the application page by page
- For each page:
  - For each **heuristic which may be relevant for the current page** perform the suggested ACTIONS and
    - give a score to the heuristics (choose a metric previously agreed among all evaluators)
    - Record the page where problems are detected, and the reason why you gave a given score
- Organize the results
  - By design dimension
  - By heuristics
  - By page
  - ....
- Provide aggregated numerical data (and their proper visualization) along various perspectives

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## How to carry on Technical Inspection: complex applications (many pages)

If the application is wide and complex, and cannot be inspected exhaustively, use **SCENARIOS** to choose where to focus inspection

### FOR EACH SCENARIO:

- Perform the tasks; for each task, work on the pages you are traversing as indicated in the previous slide

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## HOW TO PERFORM EVALUATION: UX INSPECTION

➤ How to evaluate Application DEPENDENT Usability Problems?

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## USER EXPERIENCE INSPECTION:

CONCEPTUAL TOOLS:

SCENARIOS

+

USER EXPERIENCE INDICATORS (UEIs)

UEIs: Fine-grained heuristics that cannot be evaluated without knowing user profiles and goals – i.e. their measure depends upon some scenarios

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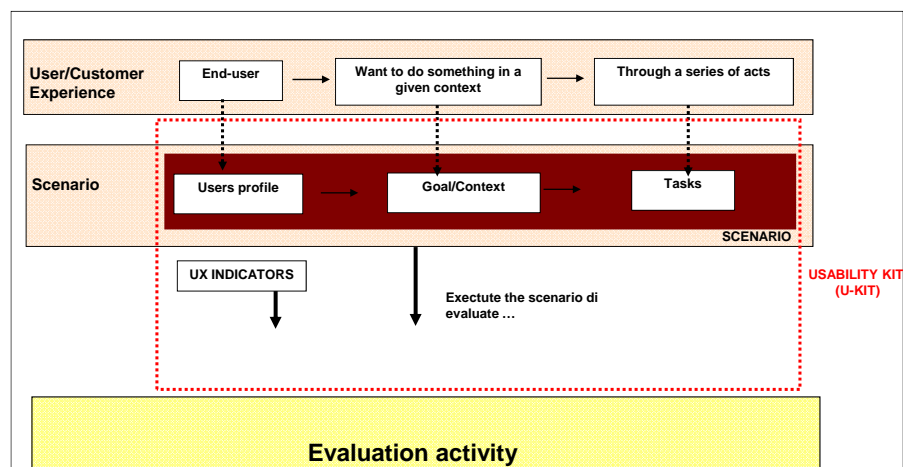
## UEIs

➤ Three categories of UEIs (corresponding to the different types of user interaction experiences)

- **Content Experience Indicators** (ex. Multilinguisticity)
- **Navigation & Cognitive Experience Indicators** (ex: Predictability)
- **Interaction Flow Experience Indicators** (ex. Naturalness)

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## The role of scenarios



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## How to build scenarios / 1

- Identify the user profiles (or user types): Who will use the application?

User Type	
Learner	User profiles
	Responsible
	Acceptor
	Seller
Instructor	Tutor (1..n)
	Administrator
	Responsible

- Identify their high-level (or macro) goals: Why will they use the application?

Macroscenario A	
User profile	Seller
Macrogoal	Plan the learning experience

User type (or profile) + macro-goal = MACRO-SCENARIO

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## How to build scenarios / 2

- Refine the Macro-scenario goals into finer-grained goals

Macroscenario A	Plan the learning experience
Scenario 1	Plan the study
Scenario 2	Know course conditions
Scenario 3	Know the learning level achieved

- Refine Scenarios into user tasks

Macroscenario A	Plan the learning experience	
Scenario 1	Goal	Tasks
	Plan the study	– Know the time required to frequent a course
		– Find the ideal period to frequent a classroom session
		– Know the time needed to download a document
Scenario 2	Know course conditions	– See course goals
		– See the course structure
		– See how to communicate with tutors and peers

Choose the scenario granularity most appropriate to your project.

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## Examples of scenarios

SCENARIO	Well-educated American tourist who knows he will be in town, he wants visit the real museum on December 6th 2004 and therefore he/she would like to know what special exhibitions or activities of any kind (lectures, guided tours, concerts) will take place in that day.
USER PROFILE	Tourist
GOAL	Visit the Museum in a specific day
TASKS	<ul style="list-style-type: none"><li>• Find the events/exhibitions/lectures occurring on December 6th in the real museum</li><li>• Find information about the museum's location</li></ul>

SCENARIO	Marc looking for some information about Enlightenment period studying at school.
USER PROFILE	Marc, High-school student
GOAL	To be informed on a specific historical period (e.g. Enlightenment)
TASKS	<ul style="list-style-type: none"><li>• Find general information about this period;</li><li>• Find detailed information about social and religious impact of Enlightenment period.</li></ul>

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## How to carry on UX evaluation

### FOR EACH SCENARIO:

- Perform the tasks; for each task
- Evaluate the task through User Experience Indicators (UEIs)
  - For each attribute which may be relevant for the task, give a score.
- (Weight the results according to the priority of user profiles and goals)

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## Example of evaluation (excerpts from the analysis of the Louvre web site)

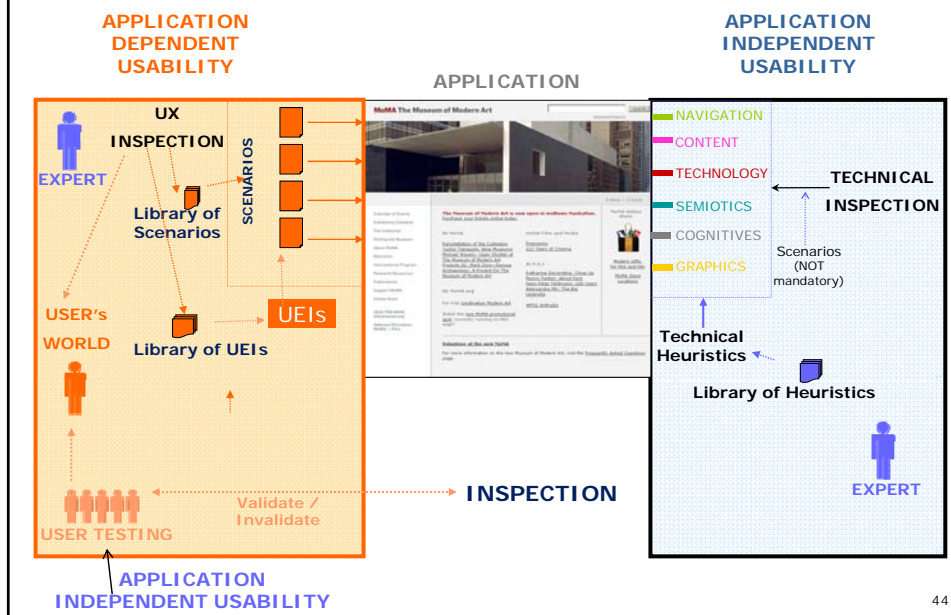
SCENARIO	
USER PROFILE	Art-lover
TASK	Find information about the history of museum collection
SCENARIO DESCRIPTION	Joe is an art-lover. He would like to find some information about the history of a particular collection of the museum (e.g. paintings). He wants to know how the museum has acquired some works of art.

Example of User Experience Matrix

	UEIs				
	Predictability	Understandability	Richness	Comprehensibility	
<b>Task:</b> Find information about the history of museum collection					<b>Global Score for this Task</b>
<b>Scores</b>	8	8	5	6	6.75 (just average score)
<b>Weights</b>	0.1	0.1	0.5	0.3	
<b>Weighted Scores</b>	0.8	0.8	2.5	1.8	5.9 (weighted average)

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## MILE+ activities: mutual relationships and relationship to User Testing



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