Usability Report of YesMilano

A report for the course Hypermedia Applications

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Table of Contents

Abstract

The purpose of this report is to conduct a usability evaluation on the YesMilano website. The study was performed by using two heuristic evaluation methods - Nielsen's and MiLe's and was analyzed by two groups of evaluators.

The first part of the usability study of yesmilano.com website was developed by our team which consisted of four experts in the area of front-end web design. We performed the given task using the website and assessed it according to the usability heuristic evaluation guidelines.

The second part involved two types of basic users that were asked to navigate through the website following our instructions while we analyzed their online behavior. After their evaluation, the users were asked to fill out a questionnaire about their browsing experience. Their answers served the evaluators to get a better understanding where the users experienced trouble and confusion.

This report details the findings of our research and recommends some alterations to the interface of the website that will further encourage users to interact and explore the site without complications or frustration.

1 Inspection

1.1 Introduction

With the performed inspection, the website of YesMilano, www.yesmilano.it, is analysed by experts using heuristics. This is done by four experts in the area of front-end web design.
This inspection is commissioned by the official promotional agency of the Municipality of Milan, called Milano&Partners. They use the brand YesMilano to promote Milan to the world. Through YesMilano, partnerships and collaborations are established. The mission of Milano&Partners is "to make Milano the greatest, most welcoming city in the world".

The usability study of YesMilano website was performed by using a heuristic evaluation method. This report will begin by defining the scope of evaluation and explaining the Heuristic Evaluation method including both Nielsen's Heuristics (1994) and a subset of MiLe Heuristics (2004).

The second part will present a conducted study on twenty basic users who engaged in usability tests on the website and were asked to complete specific tasks, assuming the role of the possible target user.

After the completion of both the inspection and user testing study, our team will evaluate the findings of the study and compare the problems observed by both parties. We will then propose some adjustments to the interface of the website that will further encourage users to interact and explore the site without complications or confusion

1.2 Methodology

1.2.1 Heuristics

Heuristic Evaluation (HE) is a type of usability engineering method involving a set of principles that allow a group of expert evaluators examine an interface according to its compliance with usability principles, or heuristics, as a way to diagnose problems.

1.2.1.1 Jakob Nielsen's Heuristics

This method was developed by Nielsen Consultant group in 1994 and it includes ten usability heuristic evaluation guidelines.

Nielsen's Usability Heuristics

1. **Visibility of system status-** The system should always keep users informed about what is happening, through appropriate feedback within reasonable time.
2. **Match between system and the real world-** The language and concepts of the system should be consistent with that of a typical user, rather than system oriented terms.
3. **User control and freedom-** Users often choose system functions by mistake. Having "emergency exits" to leave the unwanted state without having to go through an extended dialogue would allow the user to have more control over the experience.

4. **Consistency and standards-** The words, symbols, and concepts should be consistent over the whole system.
5. **Error prevention-** Error messages are a careful design which prevents a problem from occurring in the first place. It is useful to check error prone conditions and warn users with a confirmation option before they commit to the action.
6. **Recognition rather than recall-** Minimise the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another.
7. **Flexibility and efficiency of use-** Accelerators — unseen by the inexperienced user — may often accelerate the interaction for the expert user such that the system can adapt to both inexperienced and experienced users. Users should be allowed to tailor frequent actions.
8. **Aesthetic and minimalist design-** Dialogues should not contain information which is irrelevant or unnecessary. Every extra unit of information in a dialogue could diminish the visibility of the relative ones.
9. **Help users recognize, diagnose, and recover from errors -** Error messages should be expressed in easy customer language (no codes), precisely indicate the problem, and constructively suggest a solution.
10. **Help and documentation-** Although it could be better to use the system without documentation, it may be necessary to provide help and documentation. Such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and it should not be too exhaustive.

1.2.1.2 MiLe Heuristics

MiLE is the acronym for Milano-Lugano Evaluation Method. It is a method that was developed in cooperation between two universities: Politecnico di Milano and University of Lugano. The method covers 3 main categories for inspection: navigation, content and presentation.

MiLe Usability Heuristics

Navigation

>**Interaction consistency.** Do pages of the same type have the same link and interaction capability?

>**Group navigation.** Is it easy to navigate from and among groups of "items"?

>**Structural Navigation.** Is it easy to navigate among the "components" (parts") of a topic?

>**Semantic Navigation.** Is it easy to navigate from a topic to a related one (in both directions)?

>**Landmarks.** Are "landmarks" useful to reach the key parts of the web site?

Content

>**Information overload.** Is the information in a page too much/too little?

Presentation

>**Text lay out.** Is the text readable? Is font size appropriate?

Interaction placeholders-semiotics. Are textual or visual labels of interactive elements "expressive"? i.e., do they reflect the meaning of the interaction and its effects? Are they consistent?

Interaction placeholders-consistency. Are textual or visual labels of interactive elements consistent in terms of wording, icon, position, etc.?

Spatial allocation. Is the on-screen allocation of contents and visual appropriate for their relevance? Are "semantically related" elements close and "semantically distant" element far away?

Consistency of Page Structure. do pages of the same type have the same lay out (same visual properties of each component and similar organization and lay-out of the various elements?)

1.2.2 Procedure

This study was performed by identifying heuristics, defining the scope of the evaluation, performing the review where each evaluator completes a list of usability problems, summarising the usability problem and making recommendations to fix it.

Firstly, in order to examine the usability of the website, we performed the given task on the website and assessed it according to Nielsen's heuristic evaluation guidelines. Then we reported the usability problem using a problem severity rating (see figure 1).

Secondly, we followed MiLe Heuristics in 3 main categories: navigation, content and presentation and formulated complementary questions. As regards navigation, we evaluated the interaction consistency, the group navigation, the structural navigation, the semantic navigation and the landmarks displayed. As for the content, we analysed the information overload. Regarding the presentation we analysed the text layout, the interaction placeholders-semiotics, the interaction placeholders-consistency, the spatial allocation and the consistency of page structure.

1.2.3 Scoring method

In our analysis, all heuristics were measured on a 1 to 5 scale, where 5 means 'not a problem' and 1 means 'usability catastrophe'. The scores for each heuristic are explained with a comment, while some also have a direct URL to the page at issue.

Problem Severity Rating				
1	2	3	4	5
Usability catastrophe	Major usability problem	Minor usability problem	Cosmetic Problem only	Not a problem

Figure 1: Problem severity rating

1.2.3 Inspection sheet

Below is the inspection sheet we created for our analysis. In the first sheet, each expert evaluator could write down their personal evaluation results. The second one was the final form which included the results of the comments and scores agreed among everyone.

Heuristics	Score	Comment	Page URL

Figure 2: Table used for inspection sheet

1.2.4 Pages and time to analyse

We established the following steps to guarantee a deep inspection of the entire website:
- Main page: Inspected the entire main page in general and analyzed different types of elements that are displayed.
- Drop-down menu: Explored around 12-15 subsections at random from the 38 available and compared their structure and interaction and ease of navigation.
- Hyperlinks: explored most of the hyperlinks under the different subsections.
- Search bar: tested the search option including typing and the showcase of the results.
- Login: created an account and tested the login procedure.
- Footer: Tested all the hyperlinks in the footer.

We gave each other 6 days to analyse all the pages indicated above in detail. We also tested the usability of the website from a smartphone and from different browsers (Firefox, Chrome and Safari), as well as different operating systems (Android and OS). One of the main advantages of this method is that the participants were most likely to do the test in their environment, representing real-world usage.
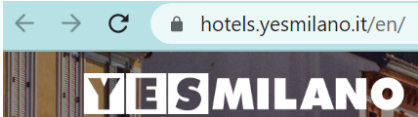
1.3 Execution of the study

Inspection sessions averaged approximately ranged from 20 minutes to 1 hour. All team members analysed the same pages. Finally, each one of us read the scores and comments written independently by the other team members. Then we gathered and evaluated in a holistic way the whole website and each of the individual pages together with the aim to get a collective score for each heuristic analysed in each page of YesMilano.

1.4 Results

1.4.1 Final scores with comments

1.4.1.1 Nielsen's Heuristics

Heuristics	Score	Comment	Page URL
Visibility of system status	2	There are inconsistencies with the breadcrumbs in the different pages and sometimes they are not shown. **STUDY** Welcome to Milano "Study" breadcrumb is missing: Home / **Welcome to Milano** Milano and Partners link doesn't open. **MILANO&PARTNERS** About us	https://www.yesmilano.it/en/welcome-to-milano
Match between system and the real world	4	Language and pictures are coherent and natural. No major criticisms.	https://www.yesmilano.it/en
User control and freedom	2	No exit points clearly stated. Users can only go back to the index page clicking on the logo icon, or with the browser back button or breadcrumbs.	https://www.yesmilano.it/en
		If the user clicks on a button by mistake, they could be redirected to an external page which could be disorienting as they wouldn't be able to navigate through the main website. ← → C 🔒 hotels.yesmilano.it/en/ **YESMILANO**	https://hotels.yesmilano.it/en/
Consistency and standards	4	The used components are consistent with the page context and are standardised for the same topics.	https://www.yesmilano.it/en

Error prevention	2	Error prevention on login and registration forms is not present. There is a simple 404 page but then the error already happened. The email in the registration form is case sensitive.	https://www.yesmilano.it/en/user/login
		Email validation is present only in the newsletter form.	https://www.yesmilano.it/en/registrazione
Recognition rather than recall	3	No completion hints in search boxes. **Events**	https://www.yesmilano.it/en
		Global search box gets stucks loading for minutes(e.g. searching "Events").	https://www.yesmilano.it/en
		No obvious way to know where the user came from as the breadcrumbs are not consistent/dynamic.	
		The main buttons are always on top, but the structure of the website is not the same for every page. This is Milano · Moving to Milano · Living in Milano **Not to be missed** **Follow our suggestions to experience Milano**	https://www.yesmilano.it/en/welcome-to-milano https://www.yesmilano.it/en/travel-info
Flexibility and efficiency of use	2	Flexibility is absent and the website is static. There are no shortcuts and the navigation in the website is slow because of breadcrumbs and structure not well defined.	https://www.yesmilano.it/en
		No landmarks in the whole website.	https://www.yesmilano.it/en
		Items adapt to different page sizes which becomes not suitable to look at. INVEST IN MILANO UNIVERSITIES, ACADEMIES & SCHOOLS IN MILANO Our Educational offer	https://www.yesmilano.it/en/study/universities-in-milano https://www.yesmilano.it/en/invest-milano

		After logging in the header doesn't show the user is logged in. It just redirects to the students page.	https://www.yesmilano.it/en/user/login
Aesthetic and minimalist design	3	Webpages are minimal but not aesthetically well organised. They try a lot of popular pretty looking things, but as a whole it comes across as too much, and not professional. Here the distinction between the elements is not clear (there are attractions, neighbourhoods and a hashtag) Top Attractions City centre Brera Sant'Ambrogio Navigli #churches	https://www.yesmilano.it/en/see-and-do/itineraries/10-major-churches-milano
		Accademia del Lusso · Accademia di Belle Arti di Brera · Accademia Fiera Milano ACME European Academy of Fine Arts and Media · Bocconi University · Civica · Civica Scuola Interpreti e Traduttori Altiero Spinelli · Civica Scuola di M Here there are too many links which take up a very big part of the page.	https://www.yesmilano.it/en/study/universities-in-milano
Help users recognize,diagnose and recover from errors	5	Errors in navigation and exceptions are well-handled.	https://www.yesmilano.it/en
Help and documentation	3	Contact support form easily reachable from footer. FAQ doesn't not exist. Privacy policies are reachable from footers in both languages. Not enough information in the credits section: Home / Credits Associazione Milano & Partners	https://www.yesmilano.it/en/credits https://www.yesmilano.it/en/privacy-policy

Figure 3: Most important results on Nielsen's Heuristics

1.4.1.2. MiLe's usability heuristics

Heuristic Category	Heuristics	Score	Comment	Page URL
Navigation	**Interaction consistency**	3	Pages from the same category have different links. E.g. some have a link at the top to see where you are in the site, some don't. There are some pages (summer school/university) that don't vary very differently and don't have links or features in common.	https://www.yesmilano.it/en/summer-courses-milano https://www.yesmilano.it/en/study/universities-in-milano
	Group navigation	3	Website structure can be complicated -> not very hierarchical. If we enter an item of a group, we cannot move to another item of the same group. EVENTS Milano Cortina 2026 Major events of the year Business Fairs & Congresses	https://www.yesmilano.it/en
	Structural navigation	4	Easy to explore subcategories in menu and in category pages Components mostly structured below each other, and have subcomponents within them that are similar.	https://www.yesmilano.it/en
	Semantic navigation	4	Sibling nodes are accessible in "on the same theme" section at the bottom of the webpage (e.g when a specific itinerary page is loaded) In some categories, related sibling links are put next to each other, but when you click on one of the siblings, you can not easily go to the other.	https://www.yesmilano.it/en/see-and-do/itineraries/10-open-air-masterpieces-milano
	Landmarks	2	No landmarks in general but the menu is always reachable during navigation. Expandable menu and overview menu at the footer	https://www.yesmilano.it/en

			exist. However, not all the sublinks from the expandable menu are shown in the footer.	
Content	**Information Overload**	2	Information overload sometimes present in lists of links (e.g. university page) A lot of information often on a long vertical page. Often either no little menu at the top (in case of events) or a lot of links at the top. In both cases it doesn't work well.	https://www.yesmilano.it/en/study/universities-in-milano
	Text lay out	5	Text presentation is familiar and consistent in all pages.	https://www.yesmilano.it/en
	Interaction placeholders-semiotics	5	URLs are always readable. They respect the subcategories' depth and specific topic. Most of the links are underscored, which makes clear that they are links. Icons also work well. evolution of the current emergency.	https://www.yesmilano.it/en/how-get-milano
	Interaction placeholders-consistency	3	On some pages, all hyperlinks are bolded, on some none, on some a few. No consistency coded. Again, some pages have a little menu below the header, some don't. No underscore here: ACCADEMIA DI BELLE ARTI DI BRERA WEBSITE → Underscore here: You can also consult our database	https://www.yesmilano.it/en/study/universities-in-milano

Presentation	Spatial allocation	2	Spatial allocation is sometimes not aesthetically perfect but in general paragraphs and different topics are well-separated using lines. On the home page, it says COVID-19 update, then Learn More is way below the part and just as close to the next content block. They also have the same white background colour. **COVID-19 UPDATE** The measures to safely visit the city LEARN MORE	https://www.yesmilano.it/en
	Consistency of page structure	3	Page consistency is respected with exceptions (e.g. pages with very similar layout). All the big content blocks have centred structures, except from Welcome to Milan, which is docked to the left.	https://www.yesmilano.it/en/welcome-to-milano
			Most pages have a yellow background next to the header image, but some have pink. Most of these are from the Milano & Partners category but not all. It's not clear what they mean with it. **BECOME A PARTNER** Be part of Milano's growth **ABOUT US** Milano & Partners	https://www.yesmilano.it/en/about-us https://www.yesmilano.it/en/become-partner
			The fintech page has a red/orange bar below the header image with the font that they normally use for the main text. The font size is bigger than the main text so that's not consistent as well.	1

Figure 4: Most important results of MiLe's usability heuristics

1.4.2 Aggregated data

1.4.2.1. Nielsen's Heuristics

Heuristic	Score
Visibility of system status	2
Match between system and the real world	4
User control and freedom	2
Consistency and standards	4
Error prevention	2
Recognition rather than recall	3
Flexibility and efficiency of use	2
Aesthetic and minimalist design	3
Help users recognize, diagnose and recover from errors	4
Help and documentation	3

Figure 5: Agreed scores Nielsen's Heuristics

1.4.2.2 MiLe's Heuristics

Heuristic category	Heuristic	Score
Navigation	Interaction consistency	3
	Group navigation	3
	Structural Navigation	4
	Semantic Navigation	4
	Landmarks	2
Content	Information overload	2
Presentation	Text layout	5
	Interaction placeholders-semiotics	5
	Interaction placeholders-consistency	3
	Spatial allocation	2
	Consistency of Page Structure	3

Figure 6: Agreed scores MiLe's Heuristics

Heuristic	Score
Navigation	**3.2**
Content	**2**
Presentation	**3.6**

Figure 7: Average of MiLe per dimension

1.4.2.3 Final Score

Heuristic	Score
Nielsen's heuristics	**2.9**
MiLe's heuristics	**3**

Final Score
2.95

Figure 8 and 9: Average of both heuristics and final score

1.4.3 Visual representation
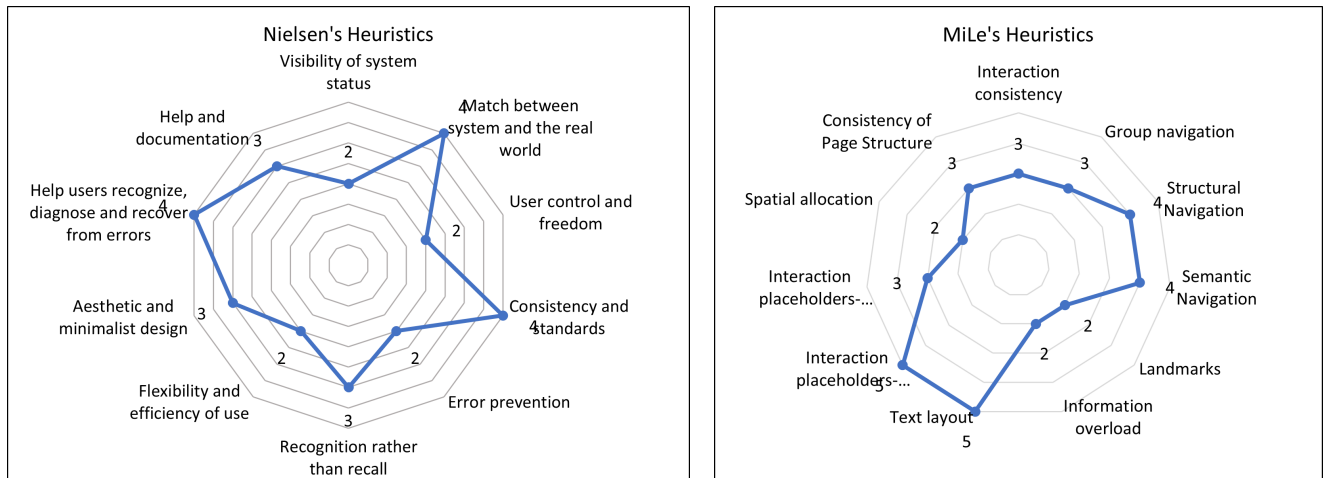
Figure 10 and 11: radar graph of heuristic scores

1.5 Inspection conclusions

Based on the results of inspection, as well as principles of usability and principles of materials design, we identified some bugs and graphical inconsistencies which we believed are worth emphasising on in our evaluation. From this, we made the following conclusions about the website of YesMilano:

1. Lack of consistent breadcrumbs on each page to inform the user what is happening.
2. Lack of "emergency exits" and easy to navigate "go back" buttons.
3. Not carefully displayed error messages.
4. Inconsistent display of hyperlinks including lack of indication whether they lead to internal or external pages.
5. Different colours and sizes of similar pages without a clear reason.
6. Lack of shortcuts and options for easier navigation throughout the website.
7. Too much information particularly in the form of links.

Possible solutions to these problems will be proposed in chapter 3.

2 User Testing

2.1 Introduction

For the second part of the study, we asked users to perform specific outlined tasks and give feedback about the website's performance. The purpose of this exercise was to observe the user behaviour on the web application.

2.2 Test Design

2.2.1 Overview

For our user testing, two main categories of users were defined. Those categories are *tourist* and *inhabitant*, as both target customers of the website of YesMilano. 10 tourists and 10 inhabitants of Milan were put under test. The users were asked to follow several inspection instructions in order to analyse the usability of the website. All of the users were in the age of 20 to 30 years old and consisted of 12 men and 8 women.

They were instructed to "think out loud" while they were trying to complete the tasks. They were instructed not to use the search feature. However, they could comment if and when they would normally want to use the search button at any time. The users were assured that no identifying information would be published, and any off-the-record comments will be kept confidential by the research analysts.

2.2.2 Variables

To evaluate the quality of the website from different points of view, some variables were defined. Four variables were measured through a survey conducted among users immediately after the completion of the last task:

- V1 : Effectiveness (measures the success rate of various tasks)
- V2 : Perceived ease of task (measures the ease with which a user completed a task)
- V3 : Satisfaction (measures the users' feelings about the navigation experience)
- V4: Confidence with the design (measures how confident the user feels in using the design)

Each of these variables was coded with a problem severity rating score from 1 to 5, where 1 corresponds to "usability catastrophe"' and 5 to "not a problem", just as in Figure X.

Four more variables were measured by the evaluators themselves. These variables are:

- V5: Errors (measures the number of errors, i.e. wrong paths or actions, committed by users during the execution of various tasks);
- V6: Time (measures the time a user takes to complete a task);
- V7: Assists provided (measures the times where a moderator had to assist the user with the task);
- V8: Unexpected behaviours (measures the times where a user was surprised by an event on the website, i.e. a pop-up);

2.2.3 Tasks

In this 25 minute evaluation, the 20 test subjects were asked to perform 4 tasks. 3 of these tasks are the same for both the tourist and the inhabitant, as both could be interested in them. The fourth task is one specific to being a tourist or an inhabitant.

Tasks for all users:
1. User wants to register and make a reservation
2. User wants to look for padel places and events
3. User wants to check for events during summer

Unique task for the inhabitants
1.   User wants to look for investing opportunities

Unique task for the tourists
1.   User is looking for information for a three-day tour

The three tasks that both user categories perform allow us to see if users of these categories experience the website in different ways. The task that is different for both categories gives us more information about the success of performing very user-specific tasks. All tests were conducted either through a video call with screen sharing, or in real life.

2.2.4 Post-test questionnaire

After the completion of the last task, we asked the users to fill in a questionnaire in order to complete the measurement of the qualitative variables described above.
This questionnaire consists of nine mandatory statements to be evaluated, choosing among five different opinions: Strongly disagree, Disagree, Neutral, Agree, Strongly agree. Furthermore, users had the possibility to write additional comments and suggestions.

The statements to be evaluated were:
- S1: The website was easy to use (measured variable: V6);
- S2: I found the website structure complex (measured variable: V7);
- S3: I felt very confident using the website (measured variables: V5 , V6);
- S4: During the navigation I felt lost once or more (measured variables: V4 , V6);
- S5: I could quickly get the information I needed (measured variable: V5);
- S6: The content was easy to read (measured variable: V7);
- S7: I found the interaction elements self-explanatory (measured variable: V5);
- S8: The structure of the pages helped me to locate information I needed (measured variable: V4);
- S9: I found the tasks too difficult (measured variable: V8).

2.3 Execution of the user test

The execution of the study began with the inspector explaining the purpose of the test and reassuring the user that there was no right or wrong way to behave during the test and that they should behave like they usually do when browsing the web. He then informed the user of the possibility of aborting a task or the entire test at any time. The inspector briefly introduced the user to YesMilano and encouraged him to "think aloud" in order for the moderator to better understand the user's intentions.

2.4 Results

The following tables show the average results of the inhabitants and the tourists per task. Detailed results per user can be found in the appendix.

Inhabitants Variable	Task 1	2	3	4
1	2	3,2	3,2	2,7
2	2,3	3	2,8	2,6
3	1,8	2,6	3	3,1
4	2,4	2,9	3,2	3,3
5	1,9	1,2	0,9	1,3
6	08:52	03:34	01:56	04:38
7	1,2	0,6	0,5	0,9
8	1,4	0	0	0,2

Tourists Variable	Task 1	2	3	4
1	2,1	2,9	2,7	2,3
2	2,3	2,4	2,5	2,6
3	2	2,2	2,1	2,3
4	2,1	2,5	2,4	3,1
5	2,3	0,9	1	1,8
6	08:51	04:10	02:33	04:21
7	2,6	0,6	0,7	1,2
8	1,7	0,4	0,2	0,4

Figure 12 and 13: average scores per variable and task

For each task, we will now discuss some interesting results. The variables V1 to V4 are shown in a radar graph, as they were coded with the same 1 to 5 score.

Task 1: User wants to register and make a reservation
Performing this task, the inhabitants and tourists show comparable results on most variables. The coded variables, V1 to V4, show a score between 1.8 and 2.4, meaning that performing this task did not score well on effectiveness, perceived ease, satisfaction, and confidence with design. The registering and reservation processes therefore need to be improved. Tourists needed more than twice as much assists (shown with the red box in Figure … and …), suggesting that while performing this task, there are too many hurdles for non-Italians or people that are not familiar with Milan.
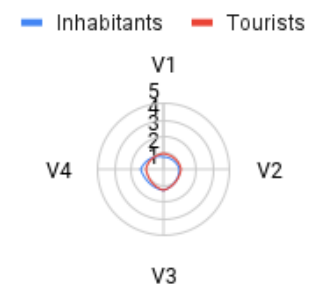
Figure 14: radar graph for task 1

Task 2: User wants to looks for padel places and events
As can be seen in the radar graph, V1 to V4 performed better in this task when compared to task 1, but still not great. On each of those variables, the inhabitant scored better than the tourist. V5 to V8 were very comparable between the two. When looking at all the variables, this could mean that the task will not bring up a lot of errors or unexpected behaviours, but it does frustrate the user, especially the tourists, while performing the task.
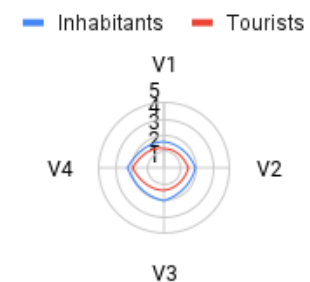
Figure 15: radar graph for task 2

Task 3: User wants to check for events during summer
In the third task, the tourists had a much harder time on the website than the inhabitants. This could be because inhabitants of Milan are more familiar with yearly events and places to go out in the city. However, an effective website promoting Milan should make it very easy for tourists to find events during the summer. The comment of an inhabitant also showed relative ease during the process, while one of the potential tourists wrote that it "took a lot of time to find nice events during the
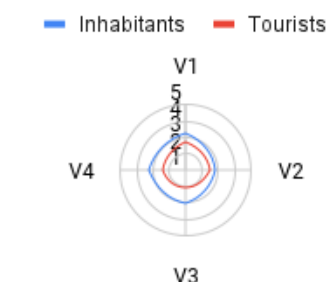
Figure 16: radar graph for task 3

summer". Another tourist user looked at a page called "10 Major Churches In Milano" where she saw a link to Attractions, with multiple words under it that were hard to understand for the user. This is a good example where an inhabitant of Milan would know those are areas and a basilica of Milan, but for a tourist this is confusing, especially with the random order of the words.
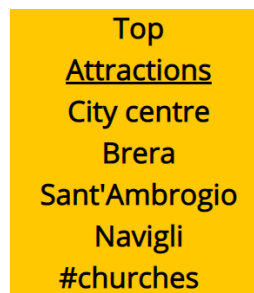
Figure 17: screenshot of YesMilano with confusing signals

Task 4 - Inhabitants: User wants to look for investing opportunities

In this task specific to the inhabitants, they should be able to find information about investing in businesses in Milan. The comments of the inhabitants show that most could find the specific page, but that the process was not instinctive.
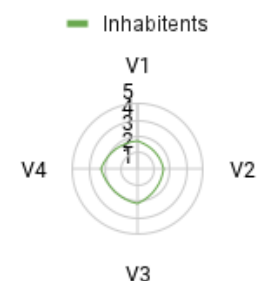
Figure 18: radar graph for task 4 - Inhabitants

Task 4 - Tourists: User is looking for information for a three-day tour

This task is a task that for a website like YesMilano is very important. The tourist users had different experiences with how successful this task was. Where one user talked about the task being easily done, others were more critical. For example, one user was trying to select 3 days of Milan specifically, instead of for example 1 or 2 days, and could not find this easily. Another person typed in "3 giorni a Milano". This produced 156 items as a result, while the actual page "Cosa vedere in tre giorni a Milano" was not on top.

Figure 19: radar graph for task 4 - Tourists

2.5 User Testing conclusions

The results show that the website generates relatively low scores for the performed tasks. This suggests that work needs to be done on making the website more clear. Furthermore, the tourists score in general a little worse than the inhabitants, which could mean that the website is also more friendly towards people that are familiar with Milan or that speak Italian.

3 Final Conclusions

3.1 Comparison between inspection and user test

Based on the results of both inspection and user testing, we identified some similarities between the ways both groups interacted with the website of YesMilano. By using both evaluation methods, we managed to analyze the website thoroughly from the eyes of an expert evaluator on the one side, and from the eyes of a basic user on the other. This approach allowed us to notice the most critical aspects of the website performance.

When searching for a certain list of information both us and the tested users believed that there are inconsistencies with the hierarchical order of the categories which made it disorienting. Further, the hyperlinks on the different pages were perceived as not always distinguishable. In addition to the that, some hyperlinks would redirect to an external page and then it would be frustrating to go back. Both groups believed that there should be an easier way to return to the original pages.

Whenever making a registration, for some users, the expected confirmation link sometimes would land in the spam folder while in the case of our team, it never arrived anywhere. In any way, then if wanted to create a new account, the system would not allow to use the same email again.

The existing shortcuts used to navigate easier on the website, would show to be more frustrating for the inexperienced user rather than the experienced one. However, by all means, clearer pathways, including breadcrumbs can be useful for all parties.

In general, as expected, through the eyes of the experienced evaluatior, the criticisms are larger due to the deep analysis of the elements. However, confusion and disorientation was also likely to be experienced by the basic users. Therefore, alterations to the interface and display infrastructure of the website is necessary in order to improve the usability of the website.

3.2 Suggestions for improvements

In this section we will provide some recommendations for adjustments to the interface of the website that will further encourage users to interact and explore the site without complications or confusion.

With the critiques in mind, we will recommend certain alterations to the infrastructure and display of the website to help clarify terms and functions available as well as provide proper feedback from necessary actions the users take to navigate through the website. Below we will enumerate the ones we believe are worth prioritising:
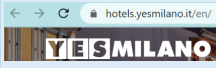
1. Include correct breadcrumbs on each page to inform to the user of what is happening at all times.
2. "Emergency exits" - as users often click on system functions by mistake or they get redirecte to another external page without an option to come back to the initial one, having "emergency exits" and more options to go back would make the experience easier and would give the user more control over the task he is trying to complete.

3. Administer more advanced testing for error prone conditions and design careful error messages that would warn the users before they have committed to action.
4. Provide a consistent format when it comes to hyperlinks and indicate whether they would lead to an external page.
5. Improve consistency between similar pages including colors, sizes and hierarchy of the elements.
6. Improve flexibility of the website by including shortcuts, breadcrumbs and landmarks that would accelerate the journey for both experienced and inexperienced users. Further, standardize similar items on different pages to provide better consistency and clarity.
7. Reduce information especially presented in too extensive lists or links as it could be disorienting for the user. One way to make it look more clear is to create a separate list of all the links and place it in a more discrete spot on the page.

The result from the user testing could be improved by hiring a foreigner that does not live in Milan to help with the design and organisation of the website. Such a person could provide a broader perspective on what a good website for YesMilano would be.

Annex

Nielsen's Heuristics

Heuristics	Score				Comment				Page URL
	MARCO	EMILE	DANIELE	DAVIDE	MARCO	EMILE	DANIELE	DAVIDE	
Visibility of system status	2	2	1	1	Breadcrumbs are inconsitent with the path the user took	Breadcrumbs are inconsistent and sometimes are not there. STUDY Welcome to Milano	The structure of the site is not organized and frequently breadcrumbs is not shown to the user	Some pages shown in breadcrumbs path (e.g. see&do) are not reachable from the menu	https://www.yesmilano.it/en/welcome-to-milano
					Events section leads to "What's On" page and the breadcrumb is missing	Language and pictures are coherent and natural.		Milano and Partners link doesn't work and there are inconsistencies with breadcrumbs in different pages	
Match between system and the real world	3	4	5	3	Language is natural and accesible for everyone	No major criticisms.	Language and pictures are coherent with the target final users.	Pictures are consistent with the topics and user interface is very basic	https://www.yesmilano.it/en

User control and freedom	2	2	2	3	No exit points clearly stated. User can only go back to the index page clicking on logo icon.	Users can only go back to the index page clicking on the logo icon, or with the browser back button or breadcrumbs.	No exit points clearly shown, and sometimes new tabs are open (in those case we must close the new tab to going back)	User can't go back to previous page with undo button.	https://hotels.yesmilano.it/en/
Consistency and standards	4	4	5	5	There are few icons. For example the ones for user login,search ,menu hamburger and plus for more content	The icons are consistent, the building blocks for a page are consistent.	The used components are consistent and agreed with the standards	The use of pictures is consistent with the context they are used in and pages are standardized for the same topics.	https://www.yesmilano.it/en
Error prevention	2	3	2	2	Error prevention on login and registration forms is not present.	Login forms there is no error prevention. There is a simple 404 page which is good.	The email in the registration form is case sensitive but capital letters are not accepted for emails	Navigation error prevention is not consistent. Email validation is present only in the newsletter form.	https://www.yesmilano.it/en/user/login

				No back buttons. Breadcrubs often inconsistent or wrong			During registration the website gives hints on password security	https://www.yesmilano.it/en/registrazione
Recognition rather than recall	2	3	3	2	No completion hints in search boxes. **Events**	No obvious way to know where you came from as the breadcrumbs are not consistent/dynamic.	The main button are always on top, but the structure of the website is not the same for every page	Gloabal search box gets stuck loading for minutes(e.g. searching "Duomo")	https://www.yesmilano.it/en https://www.yesmilano.it/en/travel-info
Flexibility and efficiency of use	1	3	1	2	Flexibility is absent and website is static. No landmarks in the whole website	Items adapt to different page sizes, but it becomes not very suitable to look at. UNIVERSITIES, ACADEMIES & SCHOOLS IN MILANO Our Educational offer INVEST IN MILANO	There is no shortcuts and the navigation in the website is slow because of breadcrumbs and structure not well defined	After logging in the header doesn't show the user is logged in. It just redirects you to the students page	https://www.yesmilano.it/en/study/universities-in-milano https://www.yesmilano.it/en/user/login

| Aesthetic and minimalist design | 4 | 3 | 3 | 3 | Webpages are minimal but poor in aesthetic presentation. | They try a lot of popular pretty looking things, but as a whole it comes across as too much, and not put well together professionally. Here the distinction between the elements is not clear (there are attractions, neighbourhoods and a hashtag) Top Attractions City centre Brera Sant'Ambrogio Navigli #churches | The information in the pages are minimal but is not presented in a good way. | User is flooded with content in the homepage but the sigular pages don't have redundant topics | https://www.yesmilano.it/en/see-and-do/itineraries/10-major-churches-milano |
| Help users recognize,diagnose and recover from errors | 5 | 4 | 5 | 4 | Error are expressed in plain text when the warnings are present | 404 page is good. | Errors are well-handled | Errors in navigation and exceptions are well-handled | |
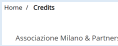
Help and documentation					Contact support form easily reachable from footer	Not enough information in the credits section: Home / Credits Associazione Milano & Partners	Contact us is reachable from bottom and top of website, but FAQ is not present.	FAQ not present but privacy policies are reachable from footer in both languages	https://www.yesmilano.it/en/credits https://www.yesmilano.it/en/privacy-policy
	4	3	3	3					

Figure 20: Nielsen's Heuristics per inspector

MiLe Heuristics

Heuristic Category	Heuristics	Score				Comment				Page URL
		MARCO	EMILE	DANIELE	DAVIDE	MARCO	EMILE	DANIELE	DAVIDE	
	Interaction consistency	2	3	3	2	Pages with similar content are often similar, but sometimes pages from same category have different links.	Mostly divided in a few categories of pages, but they make weird distinctions. E.g. some have a link at the top to see where you are in the site, some don't.	Pages of same type have similar structure, but not are divided correctly on the website	There are some pages (summer school/university) that don't have links or features in commons	https://www.yesmilano.it/en/summer-courses-milano https://www.yesmilano.it/en/study/universities-in-milano
Navigation	Group navigation	4	3	2	3	Good organization in general menu to navigate among groups and items. It is difficult to reach other "members" of a group from a specific one. EVENTS Milano Cortina 2026 Major events of the year Business Fairs & Congresses	Some groupmembers have links that don't work. Website structure can be complicated -> not very hierarical.	If we enter in a item of a group, we cannot move to another item of the same group	Poor organization of groups in specific webpages	https://www.yesmilano.it/en

Structural navigation	4	4	4	3	It's easy to explore subcategories in menu and in category pages	Components mostly structured below each other, and have subcomponents within them that are similar. Some have a little menu below the header, but others don't.	When we are into a topic page, it's easy to navigate among the parts	There are several links corresponding to the subcategories	https://www.yesmilano.it/en
Semantic navigation	5	4	4	4	Sibling nodes are accessible in "on the same theme" section at the bottom of the webpage (e.g when a specific itinerary page is loaded)	Related sibling links are put next to each other, but when you click on one of the siblings, you can not easily go to the other.	Not for all of categories	Siblings are easy to navigate between but not for all categories	https://www.yesmilano.it/en/see-and-do/itineraries/10-open-air-masterpieces-milano
Landmarks	1	3	1	1	No landmarks in general but menu is always reachable during navigation.	Expandable menu and overview menu at the footer exist. However, not all the sublinks from the expandable menu are shown in the footer. Also, the cookies	There aren't explicit landmarks	There aren't landmarks in the website	https://www.yesmilano.it/en

						link at the bottom of the page doesn't work.			
Content	Information Overload	2	3	3	1	Information overload sometimes present in lists of links (e.g. university page)	A lot of information often on a long vertical page. Often either no little menu at the top (in case of events) or a lot of links at the top. In both cases it doesn't work well.	It depends from the type of page, but mostly pages are only links. The quantity of information in the other pages are ok	Lists of links are amassed in some pages	https://www.yesmilano.it/en/study/universities-in-milano
	Text lay out	5	5	5	4	Text presentation is familiar and consistent in all pages	The text is readable and a good size.	It's ok	There is the right amount of informations in all pages without redundancy	https://www.yesmilano.it/en
Presentation	Interaction placeholders-semiotics	5	5	5	5	URLs are always readable. They respect the subcategories depth and specific topic.	The links are underscored, which makes clear that they are links. Icons also work well. evolution of the current emergency	Links are underscored and work well.	Links are consistently named	

Interaction placeholders-consistency	2	3	4	3		- On some pages, all hyperlinks are bolded, on some none, on some a few. No consistency coded. - Again, some pages have a little menu below the header, some don't. No underscore here: ACCADEMIA DI BELLE ARTI DI BRERA WEBSITE → Underscore here: You can also consult our database			https://www.yesmilano.it/en/study/universities-in-milano	
Spatial allocation	3	3	2	2	Spatial allocation is sometimes not aesthetically perfect but in general paragraphs and different topics are well-separated using lines (e.g. universities page)	- On the home page, it says COVID-19 update, then Learn More is way below the part and just as close to the next content block. They also have the same white background color. **COVID-19 UPDATE** The measures to safely visit the city LEARN MORE	Frequently there are different part of a page which are not well separated	Texts are not well-separeted	https://www.yesmilano.it/en	

Consistency of page structure	4	2	3	4	Page consistency is respected with very few exception (e.g. specific itineraries or events have very similar page layout). **ABOUT US** Milano & Partners **BECOME A PARTNER** Be part of Milano's growth	- All the big content blocks have centered structures, except from Welcome to Milan, which is docked to the left. - Most pages have a yellow background next to the header image, but some have pink. Most of these are from the Milano & Partners category but not all. It's not clear what they mean with it. - The fintech page has a red/orange bar below the header image with the font that they normally use for the main text. The font size is bigger than the main text so that's not constant as well.	It's ok, excluded some exceptions.		https://www.yesmilano.it/en/welcome-to-milano https://www.yesmilano.it/en/invest-startup/fintech

Figure 21: MiLe Heuristics per inspector

Comparison of Tourist user testing data per user and task

Tourist

Effectiveness	T1	T2	T3	T4
	3	2	3	2
	2	1	2	3
	2	4	4	1
	2	3	4	2
	2	3	3	2
	1	3	3	3
	1	3	2	4
	2	4	2	3
	2	2	4	2
	2	2	3	2
	3	3	2	2
	2	4	3	2
Average	*2,1*	*2,9*	*2,7*	*2,3*

Perceived Task Difficulty	T1	T2	T3	T4
	2	3	2	4
	3	4	3	3
	3	2	3	2
	2	2	3	3
	2	3	2	3
	2	2	2	2
	2	3	2	2
	2	2	2	2
	2	2	3	2
	2	2	2	3
	2	2	2	3
	2	1	3	2
Average	*2,3*	*2,4*	*2,5*	*2,6*

Satisfaction	T1	T2	T3	T4
	2	3	2	2
	3	1	2	1
	1	2	3	3
	4	2	3	4
	3	1	3	2
	1	3	4	2
	2	1	1	3
	1	2	3	4
	3	1	2	2
	2	2	2	2
	2	3	2	2
	2	1	2	2
Average	*2,1*	*2,2*	*2,1*	*2,3*

Confidence with design	T1	T2	T3	T4
	2	2	2	3
	3	1	4	3
	2	3	2	4
	4	2	3	2
	3	2	2	4
	1	3	2	5
	1	3	2	4
	2	2	2	2
	3	4	3	2
	2	2	2	3
	2	2	2	3
	2	2	2	3
Average	*2,1*	*2,5*	*2,4*	*3,1*

Errors	T1	T2	T3	T4
	2	2	1	1
	0	3	2	1
	3	0	2	2
	1	0	0	3
	2	1	1	3
	4	0	0	1
	4	0	1	0
	4	0	1	1
	2	1	1	3
	2	1	2	3
	1	0	0	3
Average	*2,3*	*0,9*	*1*	*1,8*

Time required	T1	T2	T3	T4
	12:56	03:37	01:37	04:13
	09:32	05:45	02:43	10:00
	13:34	02:37	02:21	05:01
	08:28	03:12	03:54	03:56
	10:16	04:52	01:49	04:30
	18:00	02:54	02:44	03:50
	00:00	02:23	02:23	03:03
	00:00	03:25	03:04	03:03
	00:00	05:43	03:04	06:34
	08:32	05:02	02:58	05:10
	07:21	04:33	01:58	04:04
Average	*08:51*	*04:10*	*02:33*	*04:21*

Assists provided	T1	T2	T3	T4
	3	1	1	1
	0	1	0	1
	2	0	0	2
	0	0	1	1
	2	1	0	0
	1	0	1	3
	1	0	1	0
	0	1	1	0
	10	2	2	1
	3	1	0	1
	4	0	1	0
Average	*2,6*	*0,6*	*0,7*	*1,2*

Unexpected behaviour	T1	T2	T3	T4
	2	2	0	0
	0	0	1	0
	3	1	0	0
	0	0	0	0
	1	0	0	1
	3	1	1	0
	3	0	1	0
	2	1	0	0
	1	1	0	0
	2	0	0	2
	3	0	0	0
Average	*1,7*	*0,4*	*0,2*	*0,4*

Figure 22: Tourist user testing data with tasks next to each other

Comparison of Inhabitant user testing data per user and task

Inhabitant	Effectiveness				Perceived Task Difficulty				Satisfaction				Confidence with design			
	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
	1	5	3	1	2	4	3	3	3	4	2	3	1	3	3	3
	3	3	3	3	3	2	3	3	1	2	1	2	2	2	2	2
	3	2	1	1	5	1	2	2	1	3	4	4	5	1	4	3
	2	4	3	3	2	4	2	3	2	4	3	3	2	4	4	4
	1	5	3	2	1	3	4	3	1	4	2	3	1	3	5	3
	1	2	5	5	2	3	2	2	2	1	5	5	2	5	3	5
	3	4	5	5	3	5	2	2	1	4	5	5	2	5	3	5
	1	2	5	2	2	3	4	2	1	1	3	3	2	4	5	3
	3	2	3	3	2	4	2	2	3	3	4	4	4	5	3	5
	1	3	2	1	2	1	1	2	2	3	3	4	3	3	3	3
Average	2	3,2	3,2	2,7	2,3	3,1	2,8	2,6	1,8	2,6	3	3,1	2,4	2,9	3,2	3,3

Inhabitant	Errors				Time required				Assists provided				Unexpected behaviour			
	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
	3	1	1	1	06:00	02:33	03:33	05:12	2	1	1	0	1	1	0	1
	0	1	1	1	07:36	03:15	01:49	31:00	1	0	1	1	0	0	0	0
	0	2	2	2	08:01	02:59	02:50	06:22	1	1	2	3	2	1	0	0	1
	2	1	1	1	12:15	03:23	02:01	04:21	2	1	0	1	1	0	0	0
	3	0	2	3	07:51	02:55	01:30	05:27	2	0	1	1	2	0	0	0
	3	2	0	1	09:48	06:16	01:45	03:20	1	1	0	0	2	0	0	0
	1	0	0	1	05:25	02:26	00:59	05:17	1	0	1	1	2	0	0	0
	3	0	0	1	11:22	05:32	02:33	04:09	2	1	0	1	1	0	0	0
	1	1	1	1	08:51	02:17	01:07	05:22	1	0	0	2	1	0	0	0
	1	1	0	1	11:39	04:05	01:13	02:27	1	0	1	0	1	0	0	0
Average	1,9	1,2	0,9	1,3	08:52	03:34	01:56	04:38	1,2	0,6	0,5	0,9	1,4	0	0	0,2

Figure 23: Inhabitant user testing data with tasks next to each other

33