Triple

Transforming Research through Innovative
Practices for Linked Interdisciplinary Exploration

[29/03/2022] Advancing Open Scholarship

D3.6 – REPORT ON USER EVALUATION (INTERIM)
Version 1.0 – Draft
PUBLIC

D3.6 Report on User Evaluation (interim)

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0.1	Stefano De Paoli	Wrote Quantitative Results and improved methodology
0.2	Giulio Andreini	Wrote section 4.2 & 4.3
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0.6	Taina Jääskeläinen	Reviewer 2 – comments for improvement/amendments
1.0	Paula Forbes	Final amendments for submission

Table of Contents

Table of Figures

Figure 9. The GoTriple Notion Kanban board

*Figure 10. Example of an extract from the Design Diary***Erreur ! Signet non défini.**

Acronyms

EOSC	European Open Science Cloud
RI	Research Infrastructure
SSH	Social Science & Humanities
UX	User Experience
PHP	Hypertext Preprocessor

Publishable Summary

The GoTriple platform will help social sciences and humanities (SSH) research in Europe to gain visibility. It enables researchers to discover and reuse SSH data across disciplinary and language boundaries, and also find other researchers and projects. It provides all the necessary means to build interdisciplinary projects and develop large-scale scientific missions. It will thus increase the economic and societal impacts of SSH resources.

GoTriple will be a dedicated service of the OPERAS research infrastructure and will become a strong service in the EOSC marketplace. The European Commission is financing the TRIPLE project under the Horizon 2020 framework with approx. 5.6 million Euros for a duration of 42 months.

This first iteration of Deliverable 3.6 details some key aspects of the methodology for the GoTriple platform evaluation. The methods selected will be used to ensure that the GoTriple platform meets the end-user needs, in terms of usability and overall user satisfaction. This first iteration of D3.6 also reports the preliminary results of the user testing activities carried out on the Beta platform (released in late October 2021) and discusses the future plans for continued testing and evaluation. The document shares details of both the qualitative methods that have already begun and the quantitative evaluation tools that will be utilised in order to ensure a thorough user evaluation process and ultimately user satisfaction with the platform. A final version of D3.6 is planned for M39 (December 2022).

1 INTRODUCTION

The goal of this first iteration of Deliverable 3.6 is to report on the methodology planned by the project and to share/present some initial results for Task 3.6 (Conduction of User Evaluation). A final version of D3.6 is further planned for M39 (December 2022).

Task 3.6 "Conduction of User Evaluation" aims to evaluate with end-users the entirety of the GoTriple platform, from a social-interactional perspective. The plan for the evaluation is based on three levels of action:

1. A qualitative usability evaluation of interfaces and functionalities of the platform
2. A quantitative usability evaluation via metrics/measurements made from monitoring platform usage
3. An evaluation of user 'satisfaction' towards the GoTriple platform solution carried out by survey methods.

The goal of this task is thus to **provide the consortium with actionable information for improving the final release of GoTriple** at Month 42 (with a particular focus on improving the user interface) as well as to provide a clear picture of the status of some of the project objectives, in particular in relation to the user satisfaction.

In this first iteration of D3.6, we will focus on the methodology and present some initial results for the first two items of the evaluation (the Qualitative and the Quantitative results of usability testing and the ReachOut campaign), while the third item will be addressed in full in the final version of D3.6 (due in M39) and is not covered in this deliverable. This is because for measuring user satisfaction, GoTriple will need to be in use for some time and to have an initial healthy user base which can only be achieved after March 2022 when a full release is planned. The satisfaction questionnaire consequently will be distributed in the late autumn of 2022, and at the time of writing, it was preferable to focus on the usability evaluation. Full results of the usability evaluation will also be reported in the final version of the deliverable at M39.

For the usability evaluation, it has been decided to adopt a think-aloud protocol to work with the users. Moreover, in late 2021 the TRIPLE project partnered with another EU project called ReachOut which has developed a tool/questionnaire for user evaluation of digital products. We have helped them with testing this tool, while at the same time gathering data for our own project. For the quantitative evaluation, we plan to use analytics tools in order to derive usability measures, in particular, by assessing funnels. These two approaches thus intersect, with the first one working with a small number of users gathering in-depth observations, and the second one working on a larger pool of users (potentially all the platform users) gathering a greater number of high-level observations.

To complement the planned methodology, some additional activities have also been initiated, which will be briefly described later. These include the creation of a bug reporting form and a UX (User Experience) board to record the emerging issues that need attention.

2 USABILITY EVALUATION

By late Spring 2022 a new beta release of the user interface will be released and will then become available to testers/a pool of interested users/the public. Until this point, an initial beta of the platform was available to users covering only a limited set of functionalities (in particular the search function). While during the interviewing phase (Task 3.1) and the codesign phase of the project (Tasks 3.2, 3.3 and 3.4) several users have been involved in the process of conceiving the shape of GoTriple, it is of fundamental importance for the success of the GoTriple to ensure that current and future users will be able to use the platform and especially its interface to achieve their every-day research goals. This is where usability and its evaluation become fundamental.

Nielsen [1] defined usability as "*a quality attribute that assesses how easy user interfaces are to use*". This is a known and widely used definition in the literature that captures the task at hand for the GoTriple consortium in T3.6, which is assessing (i.e. evaluating) how easy it is for our users to use the platform interface to achieve their intended goals (e.g. the discovery of resources). Normally usability evaluation concentrates on measuring aspects related to whether the user can easily learn the interface, how and when they may encounter errors or blocked paths in achieving their goals, if the overall interface design is appealing or pleasant for the user, how easy it is for

them to achieve their goal and if they can do so efficiently and also if they can memorise the interface and how to use it when returning to the platform.

During the evaluation of usability, testing activities are thus normally conducted directly with the support of the users. These users are required to conduct some tasks with the digital product (i.e. the GoTriple platform in our case) during which it is possible to evaluate whether and how well these tasks are performed and/or if there are problems emerging. These activities are also called user-testing.

By working on the usability and its evaluation, the research for Task 3.6 will therefore deliver relevant knowledge for assessing whether the GoTriple designed interface well serves the users and will provide insights for improving it. This task will support increasing the overall usability of GoTriple at the end of the project. Figure 1 shows in a simplified way the process, with the usability work intended to deliver insights to improve the platform's interface.
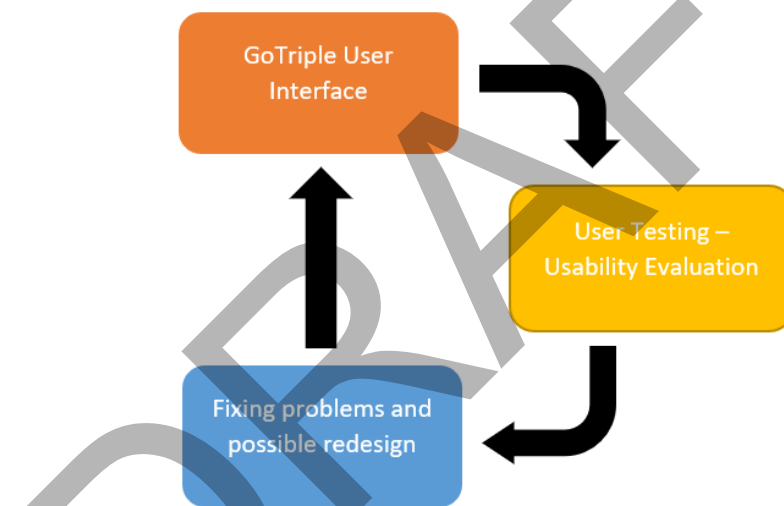

FIGURE 1 - SIMPLIFIED VERSION OF THE PROCESS OF THE RESEARCH FOR TASK 3.6

There are several potential techniques that can be used to assess the usability of a (digital) product and in current research there often is not a common way to classify them. These can range from evaluations that are conducted by expert evaluators (for example using pre-specified heuristics), down to evaluations that are almost entirely driven by users. The most commonly used heuristics are those defined by Nielsen in 1994 [2] where expert reviewers understand the heuristics and can identify issues that conflict with them.

These tests can be moderated and unmoderated. Techniques for evaluation can also be quantitative and qualitative or can use different ways to capture the required data, for example, questionnaires, video recordings or analytics. For simplicity, in the writing phase of the project, we decided to break down our usability evaluation into qualitative and quantitative, meaning for us that we wanted a set of in-depth and rich observations (qualitative) as well as more high level and numerical observations (quantitative). Potential options for methodologies were indicated

in the Task descriptions. Our choices for the evaluation approach and the methods will be discussed in later sections.

Overall, for the usability evaluation, we have set to measure the following main user goal: **how well the users can perform their discovery activities using the GoTriple platform**. This goal pretty much informs all the work conducted for this task and the usability will be measured against the capacity for the users to achieve this goal. To carry out this evaluation, we have used both moderated and unmoderated remote usability tests.

2.1 Creation of the User Testing Group

To support the qualitative usability evaluation activities, it was decided between the coordinator, the WP3 leader, partner Net7 (the lead interface designer) and the WP8 leader that it would be very useful to have a group of active and motivated SSH researchers who would be willing to be involved in the User Testing and other related activities for these tasks. Several meetings were held to ensure that a large enough pool of people could be gathered. The mailing list created by WP1 (with initial contacts gathered from the User Questionnaire conducted as part of Task 3.1) was utilised and also social media to raise awareness about the group and to encourage people to sign up. Moreover, the list of participants of the first Triple conference and the Operas Forums were used to further recruit potentially interested researchers as user testers. Using these communication channels, we have created a group that has 63 people of varying SSH disciplines and of dispersed geographic locations and thus far this has proved to be an invaluable resource for this work, especially for the Think-Aloud user testing described below.

2.2 Qualitative Usability Evaluation Methods

To see how users actually interact with the GoTriple platform and to ensure any usability issues are captured, it is important to carry out User testing activities. In the following sections 2.2.1 and 2.2.2 we share the methods used to highlight any usability issues and then discuss our findings in sections 3.1 and 3.2

2.2.1 Think-Aloud Technique

The Think-aloud method [3] (also referred to as verbal protocols or verbal reporting) is a commonly used and popular method where the participants are asked to verbalise their thoughts as they move through the user interface[1]. It is a very commonly used technique and has the advantage of being relatively simple (Dix et al.) [4], although Preece [5] highlights that it can add to the cognitive load of the user (especially if the task is demanding, Preece Rogers & Sharp [6].

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[1] https://www.nngroup.com/articles/thinking-aloud-the-1-usability-tool/

It is believed that the think-aloud method helps to identify the cognitive processes responsible for the users' behaviour (Karsenty)[7]. A useful paper by Nielsen et al [8] reflects on the think-aloud method, and highlights the fact that '*users think faster than they can speak and their thoughts are much more complex than they can verbalize*'. The paper argues that the success of the think-aloud method, although being the most commonly used method, is dependent on the effectiveness of the recording method and subsequent analysis. The paper argues that the method is best used in conjunction with other techniques (as we have done here for the evaluation of GoTriple platform).

The Think-aloud method is a technique that does not require the user to retrospectively reflect on their interaction with the system but records their thoughts while actually performing the task (whereas the method we used for the ReachOut survey relied on recollection - see later). The advantages of the Think-aloud method is that it is relatively cheap, (no special equipment is needed); it is Robust, Flexible (able to be used at any stage), Easy to learn and Convincing (Neilsen [2] - footnote add ref).

The think-aloud method is a moderated usability test, but for our evaluations, it was undertaken remotely. We engaged with users via Teams or Zoom, making use of the screen share functionality. Users visited the GoTriple website whilst sharing their screen (with the session being recorded) and were then asked to go through a series of predefined tasks set by the moderator. The sessions will last around 45-60 minutes and while the user is carrying out the tasks they will be asked to 'Think-aloud' and explain to the moderator the actions they are making, their intentions and anything they find surprising or frustrating during the process. We developed a protocol for the users to follow that allows them to use the different GoTriple features in a methodical way. The protocol was a list of tasks to achieve rather than specific instructions of how to use the platform. In this way, we can see if the GoTriple interface is intuitive or not, given that the testers have had little or no previous interaction with the platform.

For our user testing, informed consent forms and information sheets were sent to the participant in advance of the planned session, explaining the procedure and checking that they were happy for the session to be recorded. The testers were also made to feel comfortable at the start of the session and it was explained that it was not their performance that was being evaluated, but the platform, and that their feedback is invaluable in making improvements to the platform.

As not all the GoTriple features are currently implemented in the Beta version of the platform, this evaluation task will begin to work on what is available now and increase in scope as new features are added. We have asked for a development 'roadmap' giving an indication of when features will be integrated so that we can plan our user testing accordingly.

During the period December 2021 to March 2022, we have conducted some preliminary user testing activities on the Beta version of GoTriple. Notes on any difficulty encountered by the tester were made during the session by the facilitator. After the session, the video recording was reviewed, and to help highlight any problems encountered by the users to the developers, screenshots of areas of interest were made from the session recording; these have been included

alongside the notes to illustrate the area of focus. The results of these initial user tests are reported in section 3.1

2.2.2 The ReachOut Collaboration

In the final part of 2021, the TRIPLE project had the opportunity to partner with another EU project called ReachOut. The ReachOut project has the goal to deliver tools to improve the market readiness of digital products. In particular, ReachOut had developed a standard questionnaire for the Beta Testing of platforms. We were invited to use this tool and utilise their support for the Beta platform testing. The advantage for TRIPLE was that we received their support in setting up a small testing campaign (with also rewards potentially offered to participants directly by ReachOut) as well as, more importantly, that we collected an initial set of actionable usability observations. We conducted a small campaign in the period 28 October 2021 to 28 November 2021. Twenty-eight users participated in this campaign, with a total of 20 fully completed questionnaires being submitted.

The ReachOut platform works by providing a framework for beta testing and defining potential scenarios that the users have to conduct. After the scenarios are completed, users are required to fill in a questionnaire, containing some quantitative measures (mostly in the form of Likert scales) as well as qualitative fields where the users can write their observations. While the ReachOut platform had a set of predefined questions, we have modified these questions to make them more suitable for the GoTriple testing. Figure 2 shows the presentation of the GoTriple - ReachOut campaign, outlining the intended objectives and the specific requirements, in particular the need for the testers to be (ideally) SSH researchers.

Beta tester level:

Beginner, Intermediate, Advanced

Campaign objectives

The Triple Project has released a beta version of its Discovery platform GoTriple, with an initial set of features. More features will be added in the coming months, till March 2022. The aim of this campaign is to test the beta platform, pick up any usability issues and improve the platform so that when we release the final version, it will meet the needs of the end-users.

Requirements for this campaign

Ideally, you will have a background in Social Science and Humanities and have knowledge of searching for information and research material, such as scientific publications.

Beta test instructions and scenario

The beta version of the software can be accessed at https://www.gotriple.eu

FIGURE 2 - PRESENTATION OF THE GOTRIPLE/REACHOUT CAMPAIGN

Figure 3 shows the Scenarios we have prepared for the campaign. At the time of testing, a limited set of functionalities were available in the Beta version of GoTriple. Nonetheless, we envisioned 3 testing scenarios: 1) related to the discovery of a publication 2) related to the production of a Knowledge Map and 3) related to the production of a Streamgraph. Each testing scenario had a predefined set of steps that users were required to perform, prior to completing the related questionnaire.

Instructions:

Test 1: Goal to find which authors published the most on a topic

1. Go to the GoTriple Beta testing platform via the above web address
2. Enter a search term of your choice
3. Browse the results of the search
4. Select the 'Visual' View of results
5. Explore the visual view elements
6. Refine the results to show papers from just one of the disciplines provided
7. Clear the refinement to show results from all disciplines again
8. Find which authors published the most on this topic
9. Click on an author name to view other publications from this author.

Test 2: Goal to produce a Knowledge Map and examine it

1. Make a new search on 'Society + Covid'
2. Refine the results to show only papers published in 2020
3. Clear the 2020 selection
4. Find book chapters published on this topic (same search Society + Covid)
5. Clear the book chapter selection to return to the overall search list
6. Create a Knowledge Map for this search (be patient it takes a bit of time!)
7. Examine the knowledge map and see the grouped publications
8. Return to Home Page

Test 3 Goal: Examine Disciplines and produce a Streamgraph

1. Examine the Disciplines Tab - try clicking on any that are of interest to you
2. View a list of publications from a discipline
3. Use the filter to refine the results shown
4. Return to the Home page
5. Make a new search on the term 'Co-design'
6. View the Streamgraph for this search
7. Examine the results of the Streamgraph
8. Visit the GOTRIPLE tab to view project information

Incentives

Beta Testers will be offered to be added to the ReachOut "Hall of Fame", will automatically take part in the ReachOut Super Prize, and 24 randomly chosen Beta Testers with a fully completed questionnaire will be awarded a money prize in recognition.

FIGURE 3 - THE 3 TESTING SCENARIOS FOR THE REACHOUT/GOTRIPLE CAMPAIGN

The GoTriple/Reachout questionnaire encompassed a number of Likert scales type of questions (whose specific items will be presented in the Results section) measuring easiness of use and other aspects, but it was otherwise composed of open questions, where users could provide textual details about their experience. Examples of questions included were, for instance:

- In your view, was there anything confusing in using the GoTriple beta platform? What was difficult when using the platform?
- Do you have any further comments on anything you encountered during this initial test that you would like to tell us? Please feel free to be as detailed as possible.
- or Could you elaborate on your answer? [after having asked if they used the platform beyond the testing scenarios]

These open and encompassing formulations for the questions were intended to gather qualitative details of the user experience in terms of usability of the Beta version of the platform, which would otherwise escape from the Likert scales. We will present some key qualitative insights in the results section.

2.3 Quantitative Usability Evaluation

For the quantitative usability evaluation, the method relies on the use of software that is able to track the actions of users and produce analytics. The work conducted so far in this direction has been that of establishing a set of requirements for supporting this work once the full platform will be released after March 2022. Moreover, work has been conducted in order to assess different analytics/tracking platforms to find which would be most suitable for our purposes. During the evaluation, we will in particular concentrate on tracking events, and the building of funnels (which will offer a direct observation of the platform use). These aspects will be described in the following pages, but more space will be given to funnels as they will be the primary means of the quantitative evaluation.

From the internal discussion, we evaluated that two platforms would be suitable for our goals of collecting the relevant analytics:

- Matomo
- Mixpanel

Matomo is already in use by GoTriple as a general analytics platform and it would be suitable for our evaluation purposes. Mixpanel has already been widely used by the lead design partner (Net7) and it offers the advantage that it is a tool designed with the purposes of optimising an interface for achieving specific objectives such as conversion and retention.

2.3.1 Event tracking and Funnels

Event tracking

One fundamental element for the evaluation based on analytics will be the capacity to track events triggered by the users on the frontend Interface, like for example clicks on buttons. This

is usually an important component for understanding user behaviour and assessing high-level aspects of usability. Amongst other things, event tracking allows the designers to understand what the user does when they land on a page of the platform i.e., what is (or are) the main actions that they perform on a page and also to know if they are performing the kind of actions that were intended from the design. Event tracking can then be used to see the occurrence of events over time (e.g., the number of searches started on the homepage) and in particular to build funnels. The possibility to track events also from the server-side (PHP) would be nice but not mandatory.

Funnels

Funnel analysis[2] allows designers to observe how users are actually interacting on a platform. A funnel is a type of analysis that allows designers to understand what actions are taken by the user in order to achieve the desired goal. For example, we would like to track the onboarding flow, from the first click on the Sign-Up button, to the completion of the user registration, tracking all the steps in the middle (those that occur on GoTriple). This will allow us to understand if there are some steps in the user experience of this funnel where users interrupt their journey (that highlight some usability issues or bugs). Any potential pattern of interruption would thus require investigation and intervention on the interface or on the software.

By tracking each step the users take on GoTriple while trying to complete a task and achieve a potential desired goal (e.g. the registration), we can extract two main pieces of information:

1. **The overall "conversion" of a task**: this provides a quantitative value of how many users start a task, and manage to complete it. A good example is how many users will click on the "Sign Up" button, and which percentage of them will actually complete the signup and onboarding process.
2. **Each step of the funnel**: this allows us to investigate with more accuracy at which steps of the funnel users find obstacles and can't proceed (drop-off). The steps with the higher drop-off rate are indicators of usability issues or technical problems that prevent the user from completing the task.

The overall conversion of a funnel is the first indicator we look at. If we notice a drop in the value with time or a value that's below our expectations, we then observe the funnel steps in more detail to see in which phase of the journey users find the most difficulties. In fact, the points of a higher drop-off in the funnel are where we have to focus our attention to understand what can be changed to improve that value.

After we've defined the most critical steps we want to improve, we can:

1. Test the funnel to understand if there are technical issues that prevent some users from completing the task. For this investigation, it is useful to check on Mixpanel the type of device and browser used by users that can't complete the funnel.

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[2] See https://mixpanel.com/blog/introduction-to-analytics-funnel-analysis/

2. Make a usability and heuristic analysis of the drop-off step and see if there are evident usability issues that can be fixed.

After this analysis, we will do a design and development iteration to publish an updated version of GoTriple. After the new version is released, we start a new observation period during which we will check if the new version performs better than the previous. We will verify if the critical drop-off percentage we previously identified has improved. If the funnel conversion has worsened, we will need to revert to the previous version and plan another improvement iteration.

It is difficult to define some absolute values for these conversion metrics: for this reason, we prefer to work iteratively and focus our attention on the most critical steps in the funnel and work to improve the user experience (and the metrics) in successive stages.

In terms of work planning, key funnels will be created after March 2022 when additional core components of the platform will be released, in particular, the sign-up process and the user profiles.

FIGURE 4 AN EXAMPLE OF A FUNNEL ON MIXPANEL
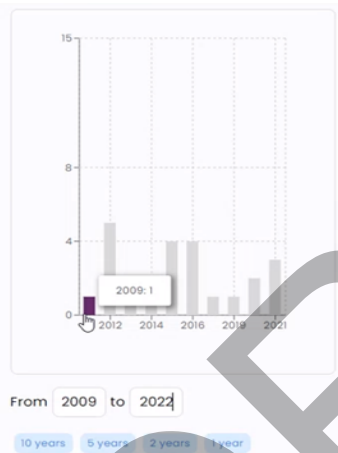
3 RESULTS

3.1 Results of the Think-aloud User Testing

Below we share the preliminary results of these 6 think-aloud sessions carried out between 18.11.2021 and 10.02.2022 with researchers from varying disciplines (Sociology/Criminology/Digital Humanities/ Literary Studies/Librarian/Marketing) **.**

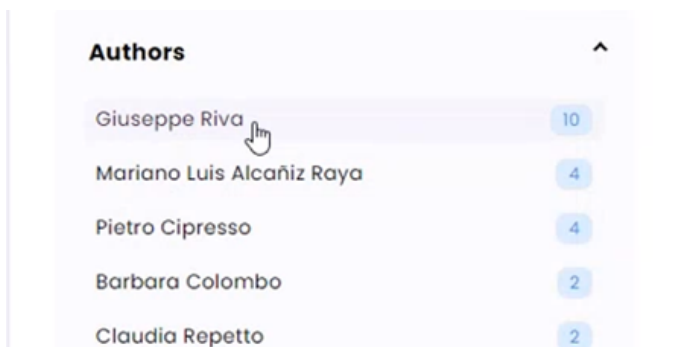Some of the issues that were found during these tests were:

Search Functions:

1. Refining of search results: User clicked on the publication date graph on the left-hand side of the interface. It was expected that the publications would be filtered to show only the date selected, but this did not happen. There was **no Enter** button to confirm the selection that was then typed into the 'From to' Boxes.


   The filtering did work when the 10 years option was selected.
2. The user struggled to find how to go back to make a new search – they eventually did this via the Home Button.
3. The search result was made on Giuseppe Riva which showed 26 publications, but when the authors' tab was explored then the number was shown as 10 which the tester found to be unexpected.

4. **Navigating Search List:** When browsing the search results, the user would like to view the abstract, but not navigate away from the list. I prefer to have the article open in a new tab. It means you can then explore the relevant articles. The user was doing this using the right-click option for opening a new tab and it worked well.

5. A duplication was presented when the user selected the 'people' option
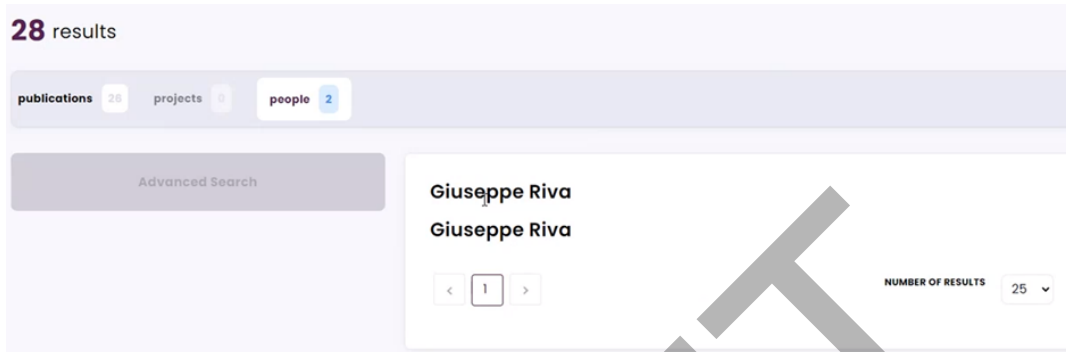
6. Projects tab showing Zero results - Perhaps just hide the project tab until we have this populated.

Metadata Displayed:
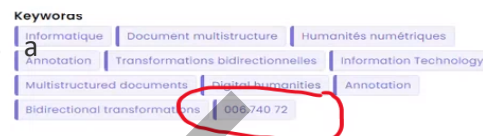
7. The user wanted to know what the code in the top left meant

8. A strange link was shown for the license information – the tester would have liked a symbol to easily see if it is OpenAccess, and would have expected something like 'Creative Commons 4.0'.

Keywords:

9. An unexpected number was presented as a Keyword

10. A list of all **Triple Keywords** might be nice to see, to be able to browse them.
11. The Tester really liked the fact that when you click keywords, you see the other translations. They asked the question 'Could the translations of the keywords be used as a dictionary for me?'

Labelling Types:

12. From a librarian's point of view, I would like to know a **full list of the 'Types'** of different material that GoTriple has. Some of the types are clear, but some are not so clear – **what is the type 'others' ?** Clicked Others to explore – possible that this is a repository for material that is 'undefined' or unidentifiable by the system? The tester found a poster in there – **perhaps Posters should be a category on their own**?
13. **Viewing an article:** It would be **nice to see the 'type'** when viewing the article as you forget. The types are labelled in the list view, but this seems to disappear when you view the article.
14. Where the Share via social media links is – it might be nice to have the option to save to a repository (User usually saves to Zotero).

One tester gave the following comment: '*It's pretty intuitive, it's not like it's clunky or difficult to operate. I think it definitely would be useful for my work. I work on discourse studies, I know researchers in other European countries, and I guess they would have written articles in their own language, so it would be useful to find these articles.*'

3.2. RESULTS OF THE REACHOUT/TRIPLE CAMPAIGN

Several useful observations were derived as a result of the ReachOut campaign. It is important to note however that some of the issues that emerged are already planned to be addressed by the new release of GoTriple in March 2022, such as for example the "filter by language" option. Thus, some items do not constitute usability problems per se, but mostly features that are not

yet available to public users. Nonetheless, we report here the issues as they emerged directly from the research. These included the following:

Search Issues:

1. The lack of a Constant Search Bar forces the user back to the homepage to make a new search
2. Some information regarding the SYNTAX is required for searching WITH multiple words

Filtering:

3. Not having a 'filter by language' option - to be addressed in the new release in March 2022
4. The refinement (filtering) is not intuitive, currently not filtering when clicking on the filter options.
5. Filtering doesn't appear to be working properly, if the filter produces no valid results then the user should be informed.
6. If filtering is working, then more feedback is needed to ensure the users know that it has worked.

Language filter:

7. The tester tried to search with words in French, German, Italian (and English of course) BUT it was not working optimally. They commented that it is crucial to be able to search in different languages

Navigation/labelling:

8. Not having the link to the author when it is clicked (Profiles were not yet part of the Beta Version of the GoTriple platform)
9. The user was not sure what the 'Projects tab was (Projects not yet implemented in Beta)

Data Sources:

10. I would like to know where the data is harvested from.
11. It was hard to know if GoTriple gathers only Open Access items or not. It has potential and I would visit it, yet I have a feeling that it does not have many important items/books/articles etc. for my research.
12. A suggestion was made to check the results given for each discipline with 2-3 experts to evaluate what comes out of the «black box».

Participating testers also provided several **positive comments**, some of which are reported here:

1. When I come across a relevant publication or a book, the platform provides an interesting way of looking at other publications in the same domain, by the same or different authors, and viewing the history of publications on that topic.
2. I think that streamgraph and knowledge map make the platform different from what exists in the market. It allows representing information in different (visual) ways, which is easier for me to perceive.

3. I found the streamgraphs particularly interesting to see how the usage of terms evolves over time.
4. I found it very easy to use and visualise. The UI is very pleasant and not destructive.
5. I found the interface quite intuitive, and nothing confusing really.

A small part of the Questionnaire was composed of Likert scales. These were partially adapted from the original ReachOut questionnaires.

Figure 5 shows the response to a Likert scale intended to provide an initial measure of the ease of use and usefulness of the GoTriple Beta and also the attractiveness and understandability of the interface. As we can see overall we have received positive responses to the scale items (in the Strongly Agree and Agree categories). The interface of the GoTriple Beta appears overall easy to use (19 out of 21 positive responses) and easy to understand (20 out of 21) for the majority of respondents. The Beta interface is clearly also very attractive for the majority (15 out of 21), but with also some users remaining uncertain.

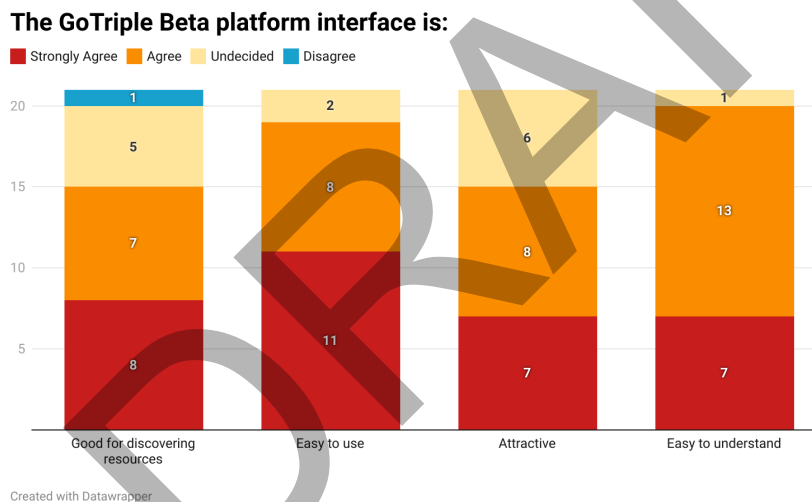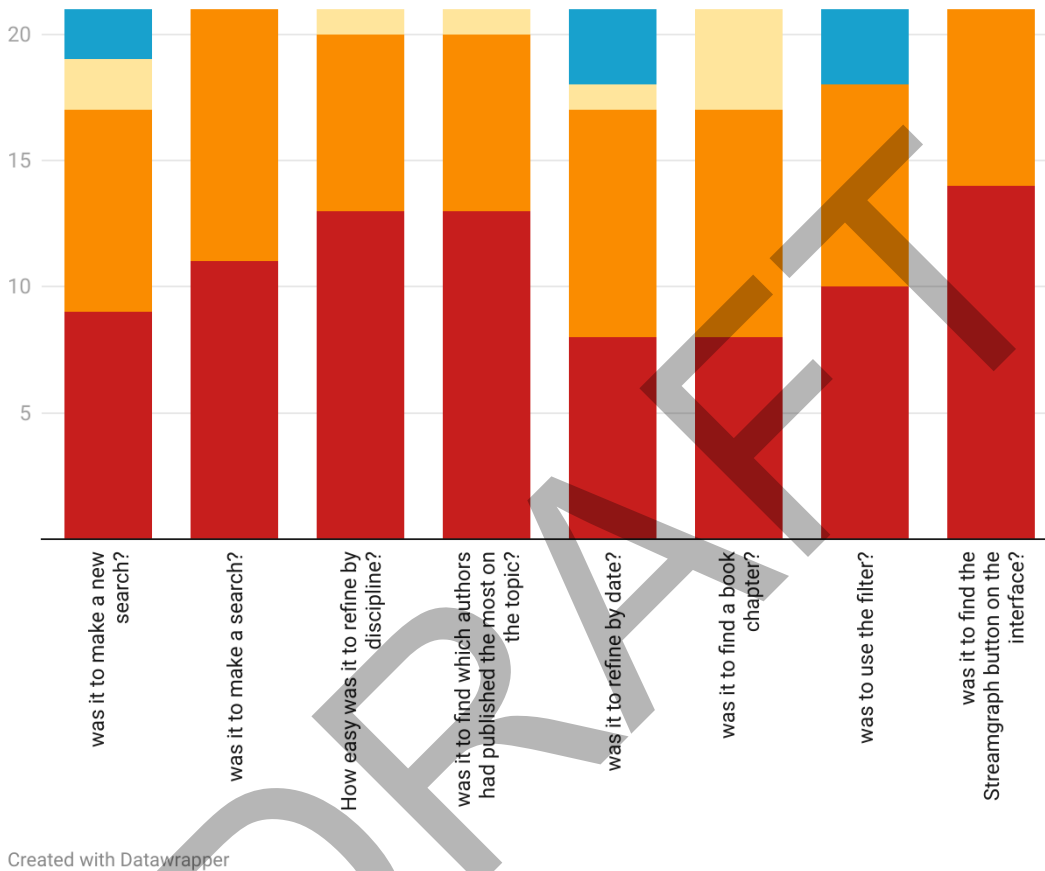**The GoTriple Beta platform interface is:**

FIGURE 5 - INITIAL MEASURES ABOUT THE USER INTERFACE OF THE GOTRIPLE BETA

The questionnaire contained a set of Likert items focusing on the ease of use of the GoTriple Beta. Figure 6, shows the results as well as the items of the scale. Overall, we can see positive responses across all the items. A small number of people reported difficulties in making a new search as opposed to making a search from the platform homepage (this corresponds to the information given in the free text response about the lack of a constant search bar and the difficulty in returning back to the homepage to make a new search). For making an initial search (column 2) no difficulty was reported. The difficulties reported in columns 5 (refine by date) and 7 (filter) also relate to the reports of the filtering not being intuitive or not working correctly in the free-text responses.

How easy

■ Very Easy ■ Easy □ Unsure ■ Difficult

FIGURE 6 - INITIAL EASE OF USE MEASURES ABOUT THE USER INTERFACE OF THE GOTRIPLE BETA PLATFORM

We also asked participants to rate two additional items: 1) the stability of the Beta platform (on a scale 1 to 5, with 5 as very stable and 1 as not stable at all) and 2) whether they would likely recommend the use of the Beta to others. As we can see in Figures 7 AND 8, overall participants gave us positive responses. The stability was rated 5 by half of participants (n=10) and 4 by another eight participants. Sixteen people gave a positive response to their likelihood of recommending the Beta to others, with four unsure and only one unlikely to recommend it.
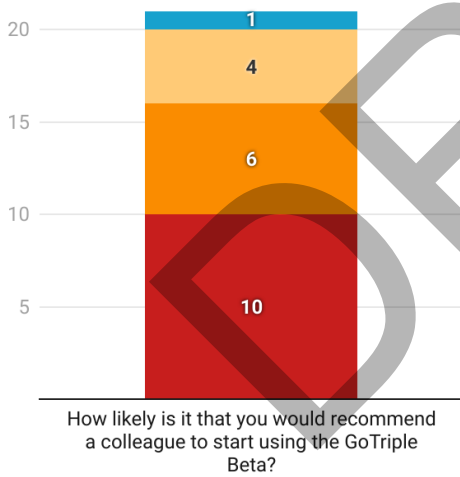
Rate the stability of the Beta

How would you rate the stability of the GoTriple platform?
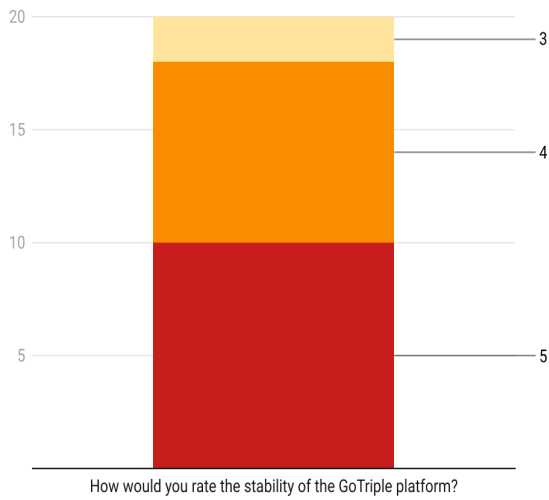
Created with Datawrapper

FIGURE 7 - INITIAL STABILITY RATING OF THE GOTRIPLE BETA PLATFORM

Recommending the Beta

How likely is it that you would recommend a colleague to start using the GoTriple Beta?

Created with Datawrapper

FIGURE 8 - INITIAL LIKELIHOOD OF RECOMMENDATION OF THE GOTRIPLE BETA PLATFORM

4 ADDITIONAL ACTIVITIES

A set of additional activities were carried out as part of T3.6. The goals for these are varied and include capturing errors or bugs from the generic user (i.e., those who are not participating directly in any user testing), organising the usability issues that are identified in order to take action and communicate with developers and the wider community the work done around the design and the usability.

4.1 Bug Reporting

Finding bugs and errors is an important component of improving how users can use the platform and to improve their capacity to achieve their desired goals. However, finding bugs is not always related with evaluating the usability of the interface, as indeed bugs may arise from the malfunction of the underlying software rather than from issues with the design. However, a bug may have an impact on aspects such as the efficiency of achieving goals or the easiness to use the platform. As part of the work for this task, we have also created an initial bug reporting questionnaire. The reporting option is available to users directly on the GoTriple Beta interface where a clearly visible 'bug' icon and a pop-up message invites users to report any bugs they find. The icon links to a google form questionnaire. This form also allows capturing input from the GoTriple Beta causal user which is not directly involved in any specific testing session.

The Bug reporting questionnaire has been organised in four sections according to the ABCD usability approach (Forbes et al.) [9]. An online ABCD form provides a mechanism to support remote user feedback of any issues encountered, and a means for reflection to be incorporated into the feedback process by facilitating the user to document the retrospective recording of insights. This provides a structure for us to better understand the context in which a potential bug or error arose and also to understand what the user was trying to achieve and if they could envision a potential solution to the problem. This structured approach to bug reporting allows us also to potentially link reported bugs with any usability issue. The ABCD questionnaire we devised is as follows:

A= > The 'Antecedent' context

- Question for the user: What were you trying to do with GoTriple?

B => The problem 'Barrier'?

- Question for the user: What was the issue/problem you came across?

C => The 'Consequence' for the user?

- Question for the user: What was the consequence of this?

D => What development or decision is needed?

- Question for the user: Do you have any suggestions for fixing the problem?

The questions are offered as open fields where users are encouraged to provide as many details as they can on the bug they have encountered. Additionally, the form includes the option for the user to upload a screenshot and provide any additional relevant information. Below is the example of a problem reported, which connects to a potential usability issue (the possibility to open a discovered paper in a new tab of the browser). Most importantly, the example shows the kind of detail we can obtain with an ABCD online form giving contextual information, details about the activity, the problem encountered and also a potential solution.

TABLE 1. - EXAMPLE OF A RECEIVED BUG REPORT, VIA THE ABCD FORM

A	B	C	D
Find publications on English as a Foreign Language to get an overview of recent issues in the topic.	I would like to be able to open a document in a new tab or page so that I don't lose my spot when I come back, but right clicking doesn't give the option for some reason and left clicking directly opens the entry.	Since right clicking doesn't give me the option to open in a new tab, I end up coming back to the top of the list and having to click through the pages to find where I left off.	Have the entries automatically open in a new tab.

The reported bugs are periodically passed on to the technical team for investigation and fixing where necessary. To date we have received eight reports.

4.2 UX Tracking Board

To keep track of all the design activities we set up a Notion kanban board. One component of the board is strictly related with the user research, including the evaluation work. The board is organised in the following sections:

1. **Main layout design:** in this section, we keep track of the design of the main pages of GoTriple. Each layout goes through a set of predefined steps like wireframe design, UI design, and design review.
2. **End-users feedback:** this section brings together all the feedback from the various activities that involve users (workshops and usability testing). These are usually small comments and usability issues that are converted into tasks for the designers, to improve the user experience of GoTriple.
3. **Frontend tasks:** here we add more general tasks that are related to the frontend of the platform and that lie between design and development (i.e. SEO, loading states, empty states).
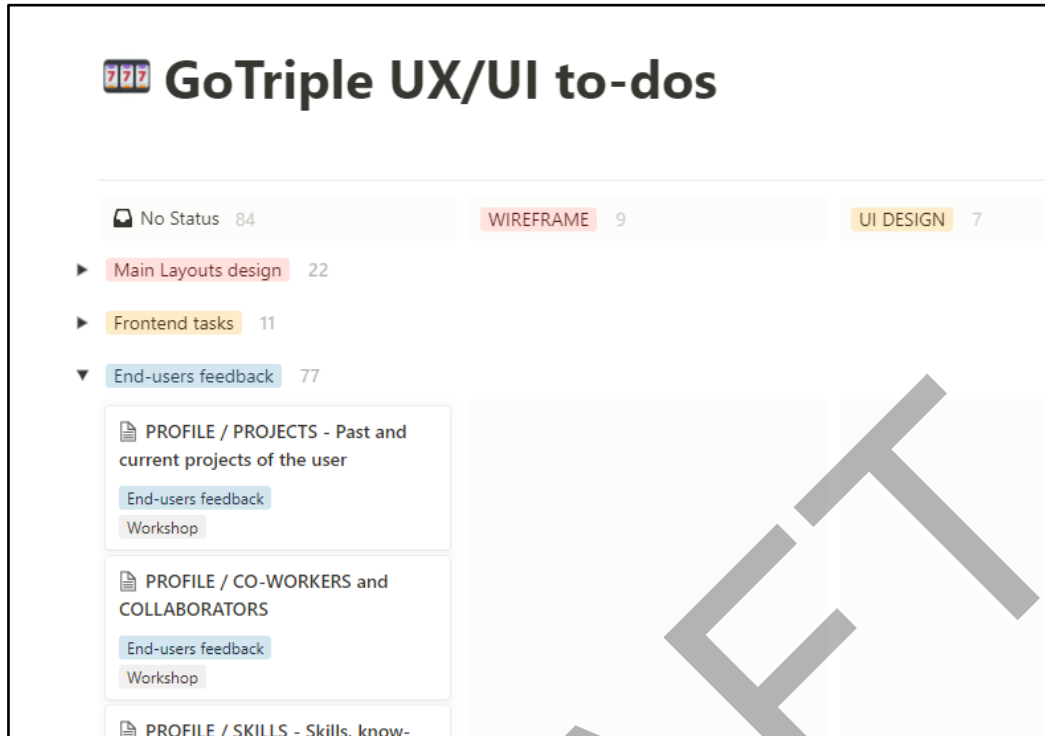
FIGURE 9 THE GOTRIPLE NOTION KANBAN BOARD

4.3 Design Diary

In order to keep the whole TRIPLE team updated, we started the TRIPLE UX design diary, a Notion page where we write updates related to the progress of the design of the platform. We are aware that it is difficult for the project partners to keep track of the evolution of the design of GoTriple, and that using the provided interactive prototypes can be time-consuming and overly complicated. For this reason, we started the diary, to have a unique web page where partners can refer to if they want to have updates on the design process. Moreover, we started recording

screencast videos of our designer interacting on GoTriple and explaining its functionalities.
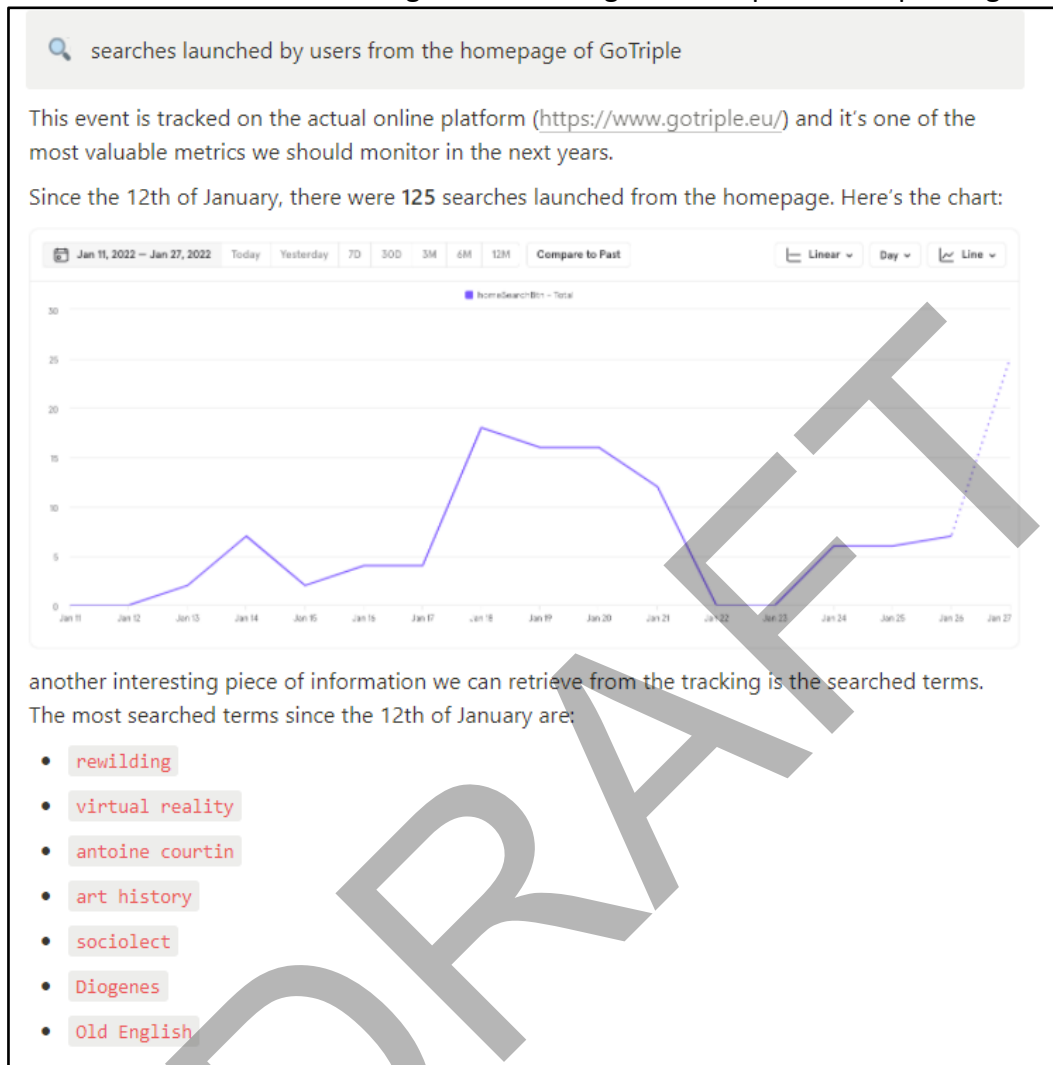

FIGURE 10 EXAMPLE OF AN EXTRACT FROM THE DESIGN DIARY

5 CONCLUSIONS

The initial work reported in this report (*D3.6 User Evaluation - Interim*) has given some valuable early insights and also defined and described the various methods to be used for a more detailed evaluation of the GoTriple platform.

Some of the key insights were:

- The need for a constant Search box
- The language filter (confirmed - as it was planned for a later release)
- Filtering issues
- Insights on navigation (eg for viewing articles)
- Clear labelling of Open Access resources is needed

- Clarification of the two different Keyword lists (clearer labelling of the lists)
- Clarification of the 'types' of material available

The platform is, as yet, still evolving in terms of additional functionality and the last months of the TRIPLE project will be a crucial time for the evaluation and subsequent iterative development of the features. With the next release of the platform (expected around May), we have planned a concentrated effort on testing and evaluation. We will utilise the Beta testers group and the 1:1 think-aloud user testing described in section 2.2 and also make full use of the quantitative metrics and analytical tools described in section 3 to ensure that the platform is as good a fit as possible in terms of the usability of the platform. A final survey on user satisfaction is also planned for the late stages of the project. The final version of this user evaluation deliverable (D3.6) will be delivered in month 39.

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