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Report on User Needs

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Acronyms

EOSC	European Open Science Cloud
RI	Research Infrastructure
SSH	Social Sciences and Humanities
ICT	Information and Communication Technology
DH	Digital Humanities
NGLP	Next Generation Library Publishing
EU-SILC	European Union Statistics on Income and Living Conditions
EU-LFS	European Union Labour Force Survey
CENDARI	Collaborative European Digital Archive Infrastructure
SSHOC	Social Sciences and Humanities Open Cloud

Publishable Summary

The overall ambition of the TRIPLE project is to help Social Sciences and Humanities (SSH) research in Europe to gain visibility, to be more efficient and effective supporting collaboration and to improve the reuse of resources within the SSH. TRIPLE will deliver a platform which will be a dedicated service of the OPERAS research infrastructure and will become a strong service in the [EOSC marketplace](#). TRIPLE, the European discovery solution, addresses the following issues: (a) it enables researchers to discover and reuse SSH data; (b) it aims at facilitating the work of other researchers and projects across disciplinary and language boundaries; (c) it provides all the necessary means to build interdisciplinary projects and to develop large-scale scientific endeavours. As a consequence, the ambition of TRIPLE is to increase the economic and societal impacts of SSH research and of the resources produced by this research.

The Work Package 3 of the TRIPLE project is tasked with conducting the user research which is necessary to make the TRIPLE platform a success. The WP3 focuses on understanding the user needs and on co-designing with users some of the core aspects of the platform, including the user profiles and the trust system. The work reported in this deliverable (D3.1) was conducted for the initial definition of user needs. This work is based on qualitative interviews with end-users (SSH European researchers, n=26) and other stakeholders (n=11) and on the definition of Personas and Scenarios for the design. The deliverable reports on the 6 Personas created representing SSH researchers and 2 additional Personas representing other relevant stakeholders of the platform (a policy maker and the owner of an innovative SME). Each Persona is accompanied by an associated Scenario and by the identification of the user needs from these Scenarios. The user needs have then been regrouped under potential platform's functionalities that emerged from the interview analysis. This work has thus prepared the ground for the subsequent design of the TRIPLE platform interface which will start to take place after the publication of D3.1.

1 | ABSTRACT

This deliverable reports on the initial user research conducted for the TRIPLE project. The main output of the research conducted for this deliverable is the production of Personas and Scenarios for the TRIPLE platform. Eight Personas (6 for SSH researchers and 2 for other stakeholders) are presented each with an associated Scenario. Personas are archetypes of users based on empirical research with end-users. Scenarios are narrative of the personas using a novel product, in this case the TRIPLE platform. The project's Personas and Scenarios are based on qualitative interviews conducted with 26 SSH researchers and 11 other stakeholders across Europe, during the period December 2019 - March 2020. The interviews were analysed using Thematic Analysis in order to identify common patterns across all the interviews. These patterns constituted the basis for the creation of the Personas and Scenarios. From each of the Scenarios created we have then obtained a list of end-user needs/requirements which will support the consequent design of the platform's end-user interface and will constitute the basis for the subsequent co-design activities. The user needs have also been grouped in emerging functionalities. This output will be considered in the following months by the project partners in order to identify which user needs should be prioritised and go into production and which needs are out of the project's scope.

2 | INTRODUCTION

Social Sciences and Humanities (SSH) research is divided across a wide array of disciplines, sub-disciplines, and languages. While this specialisation makes it possible to investigate the extensive variety of SSH topics, it also leads to a fragmentation that prevents SSH research from reaching its full potential. Use and reuse of SSH research is suboptimal, interdisciplinary collaboration possibilities are often missed, and as a result the societal, economic and academic impacts of SSH are limited. The TRIPLE project seeks to address these issues. The main output of the project will be a European discovery platform dedicated to the Social Sciences and Humanities data, researchers and projects. With the term discovery we mean the capacity to find, expose and display material such as literature, data, projects, people etc. that researchers would need for their research work (such as finding a relevant paper which will help with a research, or finding a colleague they are interested in collaborating with). Ultimately the success of a discovery platform may be dictated by the extent to which the technological solution responds well to the needs of the end-users and specifically to the SSH research community needs. Essentially, the principle underpinning the TRIPLE design approach is that the user's use of the product or service is the basis on which something is designed (Cooper et al., 2007; Rogers et al., 2007) and this includes the design of large ICT platforms. The perspective we have adopted for TRIPLE thus breaks with the traditional top-down approach to requirements gathering in software engineering (e.g. Waterfall Model), where user requirements are defined far away from the users purely via top level engineering representations (Avison and Fitzgerald, 2003). In the TRIPLE design process the user is instead put at the centre of the creation of the platform and the entirety of the TRIPLE Work Package 3 is tasked with researching the end-users and designing with them the platform.

The Work Package 3 of the TRIPLE project covers the User and Co-Design Research which is necessary for building a platform which could truly meet the needs of the end-users and that could be well suited for the huge variety of the working practices that exists in the Social Sciences and Humanities research community across Europe. Clearly this is not an easy task, due to the huge variety of disciplines and the Europe wide spread of researchers, and also the heterogeneity of research practices and available resources. The WP3 was designed to use a mix of social sciences and design research approaches in order to tackle these challenges and then study the TRIPLE users. Broadly speaking the User Research for TRIPLE is divided in 3 main areas:

1. An **initial identification of needs/requirements**, via qualitative interviews and the creation of Personas and Scenarios (Task 3.1) and with a survey aimed at investigating discovery work practices (Task 3.1 iteration due in Month 14)
2. Extended **co-design activities** encompassing both the general design (Task 3.2) and specific areas/functionalities of the platform including the user profiles (Task 3.4), the trust system (Task 3.3) and the governance for user-driven innovative services (Task 3.5)
3. A **user-centred evaluation**, using both qualitative and quantitative techniques (Task 3.6 and its iteration).

The TRIPLE project “user research approach” -- to work and co-design with researchers and other relevant stakeholders -- is based on using different methodologies. Each methodology will be detailed in the separate deliverables of WP3.

The Deliverable 3.1 reports on the initial identification of the user needs for TRIPLE. More specifically this document reports on the Personas and Scenarios produced in order to better understand the users and what their needs are toward a novel discovery platform. The concepts of Personas and Scenarios are taken from the design approach of Interaction Design, a user-centred approach which puts the user at the centre of the design process.

For this research we have conducted 37 qualitative interviews (26 with SSH researchers and 11 with other stakeholders) across Europe and from the analysis of the interviews we have created eight Personas (6 SSH researchers and 2 stakeholders) and the associated Scenarios. Personas and Scenarios then led us to the identification of a list of needs which will constitute the basis for the subsequent design of the TRIPLE user interface and for the associated co-design activities.

The deliverable is organised according to the following structure:

- A literature review detailing the current knowledge about SSH researchers as users of digital technologies with particular focus on their discovery practices and European research.
- A description of the general perspective of Interaction Design and the relevance of Personas and Scenarios as tools for capturing end user needs.
- A description of the specific methodology adopted for this research and details on the interviews conducted.
- A presentation of the main themes that emerged from the Thematic Analysis of the interviews.
- The TRIPLE project Personas and Scenarios and the associated user needs.
- A conclusion detailing the next steps of the TRIPLE user research and some reflections on the findings of Task 3.1.

3 | PREVIOUS WORK ON SSH RESEARCHERS AS END-USERS AND THEIR DISCOVERY PRACTICES

Digital revolution in the scholarship enabled new types of operations and activities which in turn translate into specific needs for the researcher community, these constitute the user base of research infrastructures and research platforms. Developers can create complex systems but their uptake by users is not a certain thing, what is neatly phrased by the question: “If you build it will they come?”. This is a title of one of the early pieces of user research into digital projects in the humanities (Warwick et al. 2008, p. 86), which linked this problem with sustainability issues, raising such fundamental questions as whether a project is “more likely to be used if it has communicated with the user community during its design phase?”. “If you build it, will we come”, asked Joris van Zundert a few years later (2012), discussing the same problems with regards to large infrastructures like DARIAH and CLARIN and their ability to provide tools that could answer genuine scholarly questions. He concludes that what is needed is a close “knowledge exchange between digital humanities developers and researchers” (2012, p. 20) to create deep synergies and understanding between those groups, allowing not only for providing tools for the research community, but for joint innovation. As Thoden et.al write, “There are many projects in the DH (Digital Humanities) that do address usability and that integrate user-centered design methods. Nevertheless, the resulting tools are often not easy to use or are not self-explanatory” (2017, p. 9). **Therefore, if one wishes to make a tool that is simple and painless to learn, one should incorporate user-centred research into the design process.**

It has long been argued that user-centred research ought to be at the centre of design of new products and services, as the insights about users' actual practices, habits and needs “can reduce the potential for poorly designed or misused products” (Lofthouse and Lilley 2006:741). Karapanos et al. claim that the focus on user experience allows one to see “how users form overall evaluative judgments on the quality of interactive products” (2009:729). Subsequently one can build more usable and useful tools. **This user-centric thinking should also be applied to building the discovery platform in the TRIPLE project** as the same principles apply once we start to conceptualise researchers as users and analyse their practices, needs and preferences (Kemman et al., 2014:3).

It is difficult to ignore the rise of technology and the increased role that computers and the Internet play in scholarship as well as the growing popularity of digital methods used in SSH, which enable researchers to archive and disseminate various research assets (cf. van der Weel and Praal 2020:29-31). What is important is that all stages of the research workflow from discovery to publication are affected by the advance in technology and digital tools available, as indicated by DARIAH European survey on scholarly practices and digital needs in the arts and humanities (Dallas et al 2017). Such workflow usually comprises discovery, gathering, organisation of assets, analysis and dissemination. Yet, what is even more interesting in the context of TRIPLE, “most respondents use them to discover, collect or create research assets”.

There is a growing body of research on digital practices in the humanities (meta-research), which focuses on different aspects of these issues. It should be noted that such research does not focus solely on the front-runners of digital methods, but also addresses the uneven distribution of skills

in the SSH community and the **need to enable transfer of knowledge between researchers** (Thoden et al 2017). Although complex functionalities are meant to speed up and facilitate the research workflow, the learning curve is steep and many scholars have difficulties in using such tools (Boukhelifa et al., 2018). It is noticeable that many researchers of various academic backgrounds feel the need to expand their digital competencies. For example, Wu et. al (2017) note that both students and teachers in business management studies have expressed an interest in incorporating more digital tools in the classroom. However, the researchers in SSH are in a less advantageous position, because arguably SSH has been behind other disciplines in the incorporation of digital tools. This should be taken into account in the design of the Triple platform. The results of SSH work are still mainly published using traditional channels such as monographs or articles (Bulger et al., 2011). Frequently the digital tools are used for speeding up the existing (traditional) research methods rather than for methodological innovation (Gibbs and Owens, 2012).

Hence in the remainder of this literature review we focus on research needs with regards to the **discovery stage of the scholarly work** (finding, identifying and accessing resources). While discoverability of sources plays a significant role for SSH scholars, at least two matters of importance should be considered in this context. **Firstly, the ability to find the resources. Secondly, the opportunity to check the reliability of the sources.** Tóth-Czifra points out: “Researchers in the arts and humanities always need multiple sources to verify interpretations, but this requires a deep knowledge of source provenance” (2020, p. 246). Arguably, therefore, these topics ought to be covered in the user interviews in TRIPLE in order to identify the users’ needs in these two respects.

In order to identify the needs of the future TRIPLE users we need to comprehend their current practices, together with the limitations and the challenges that they face with the specific focus on discovering existing literature and resources. This discoverability of the resources has been strongly affected by the developments in scholarly communication and considered one of the crucial improvements for scholars in the digital age (Evans and Baker 2013:3). Moreover, among researchers surveyed by DARIAH the improved findability of resources was the highly rated need (Dallas et al. 2017). Such improvement, according to Evans and Baker, requires not only shared services and resources but also a widespread engagement of the key stakeholders, thus enabling multiple perspectives to be addressed (2013).

3.1 Scope and method of the previous research

Several studies have been conducted in the last decade to explore how users discover the resources for their work. Most of the research focuses on existing practices of scholars. A number of methodologies are usually applied to investigate user needs. **The traditional methods include surveys, interviews, observation of practices, focus groups, and content analysis.**

More rare (yet interesting) methodology choices also include organising participatory design

workshops (Boukhelifa et al., 2018) or user conferences, events encouraging further communication between data providers and data users. Two users' conference reports were published as part of the Data without Boundaries (DwB) project funded by the European Union (2011-2015). Researchers presented their research and could also discuss their discipline-specific or topic-specific needs in relation to data. They show that the 3rd European User Conference for EU-LFS and EU-SILC (GESIS and CNRS-RQ, 2013) and the 4th European User Conference for EU-Microdata (GESIS, 2015) did not just play an academic role but also offered an opportunity for users to give feedback to the European Statistical System.

An interesting factor is the scope of such research, which becomes more granular in order to address the needs of actual communities. Some of the existing user research has focused on large groups of scholars, such as SSH researchers as a whole. The European survey on scholarly practices and digital needs in the arts and humanities conducted by Digital Methods and Practices Observatory Working Group (DIMPO) working within DARIAH-EU was conducted among 2,177 SSH researchers speaking 10 languages and representing 6 national profiles (Dallas et.al, 2017). On the other hand, discipline-specific research has also been made to explore the challenges, needs and practices around the use of digital tools in a given field and to see how representatives of specific specialties view them. For example, the British History Online user survey was aimed at the researchers who were most likely to use the infrastructure: historians and genealogists. Casual users were also distinguished as a third user group. The infrastructure was created a decade before the survey was issued. Therefore, its aim was not to identify whether there would be any potential users at all but rather to refresh the existing site according to the users' needs (Crymble 2016).

In their study Grubert and Siders (2016) also focused on digital practices in relation to one discipline rather than to SSH researchers as a whole. They investigated using machine-enabled tools for text analysis by environmental scientists. The conclusion was that digital tools could be particularly useful for these researchers especially because their work is nearly always highly multidisciplinary so they can examine a large body of texts. Also, the authors see **a potential opportunity “to engage in truly and deeply transdisciplinary collaboration that sharing a method across fields with dramatically different modes of inquiry could bring”** (Grubert and Siders, 2016, p. 11). The scope can be even narrower i.e. surveying a community studying a specific topic within a discipline, as in the case of example, Phillips and Osmond (2015), who analyse researchers using distant reading as a method of studying women's involvement in surfing in the early 20th century Australia.

In 2015 Union of the German Academies of Sciences and Humanities in cooperation with All European Academies (ALLEA) published the results of the Survey and Analysis of Basic Social Science and Humanities Research at the Science Academies and Related Research Organisations of Europe (SASSH). More than 600 European SSH projects “run at or by science academies and learned societies” were surveyed (Leathem and Adrian, 2015, p. 1). The focus was on their practices and topics. One of the important findings was that “the vast majority of projects producing English language publications do not publish exclusively in English, but also in their native languages” (2015, p. 132). This proves a need to consider multilingualism when developing an infrastructure for scholars in Europe.

Online platforms and infrastructures also conduct user research to see if they meet the requirements of those who use their services. The Polish Literary Bibliography (PBL) - an online database with information about literature, film, and theatre - surveyed their users to find out their gender, age, educational background and the frequency of their visits on PBL. This will help to plan future strategies for the platform (Koper and Umerle, 2019). CENDARI (Collaborative European Digital Archive Infrastructure) was a project which ran from 2012 to 2016 and was funded by the European Commission. Its platform and tools aim to support historians and archivists. It was decided that the CENDARI infrastructure would be developed based on user feedback. To find their requirements, use cases and participatory design sessions were applied. One of the interesting findings was that there was not only a need to be supported on particular stages of the workflow but the users also expressed an interest for the infrastructure to support the whole process of research. Thus, the conclusion was as following: “The visualizations and the built-in collaboration functionalities of the CENDARI infrastructure—such as the sharing of resources, the establishment of collaborative projects, or the possibility of collaborative writing of articles—seem at first glance secondary to the research process but enhance the analysis of search results and the community of historians in general” (Boukhelifa et al., 2018, p. 18). In 2017 FORS, the Swiss Centre of Expertise in the Social Sciences published the results of a survey run among its users (researchers in social sciences). Feedback was gathered on three main themes: sharing data, reusing data and using the services provided by FORS. The results showed that data sharing and data re-use were of high importance to the researchers. The survey also showed that sharing quantitative data was more common among users and therefore they were feeling positive about FORS’s plans to expand the data sharing opportunities for qualitative research by reaching out to scholars specialising in it (Heers et al., 2017).

3.2 Current Infrastructure-related user research

Since “designers know about the technology, and users know their workflow and its context” (Boukhelifa et al., 2018, p. 4) infrastructures and platforms should make decisions informed by scholars’ requirements. Edmond et al. explain that an infrastructure in the scholarly world “assembles a mediating set of technologies for research and resource discovery, collaboration, sharing, and dissemination of scientific output” (2020, p. 208). Research infrastructures and e-infrastructures are particularly important today as many diverse digital resources, online tools, and technical solutions have emerged. This has led to a growing need for them to be harmonised, organised, integrated (Leathem and Adrian, 2015, p.76). There are a number of recent and ongoing projects in which user research is conducted in order to build and enhance research infrastructures.

The Social Sciences and Humanities Open Cloud (SSHOC) is the initiative that ought to be mentioned in the context of WP3 in TRIPLE. The overall aim of SSHOC is to create an area for SSH in the European Open Science Cloud (EOSC). In deliverable 7.1 System Specification -SSH Open Marketplace questions have been shaped as to identify their research habits. The main users SSHOC focused on were the SSH researchers, both Digital Humanities scholars and persons with

little experience in DH. Two categories of researchers were included based on their professional experience: early career researchers and experienced researchers. 22 interviews were conducted. 81 user requirements were then grouped based on 8 main topics. These were subsequently prioritised. The needs gathered for analysis were to guide the way the platform would serve the SSH researchers. They were concerned with “the type of content that will be available in the platform, specific features and functionalities as well as trustworthiness, provenance, or quality of the content” (Barbot et al., 2019:15-22).

The DARIAH ERIC Sustainability Refined (DESIR) project aims to enhance sustainability of the DARIAH infrastructure. The deliverable D7.1 Report about the skills base across existing and new DARIAH communities has been based on the principle that “the more efficient and productive an infrastructure is, the less will it be perceived by the users” (Tasovac et al., 2018, p. 9).

The study involved in-depth interviewing informants from 6 countries: the Czech Republic, Finland, Israel, Spain, Switzerland and the United Kingdom (all of these being DACs - DARIAH Accession Countries). It supplemented the survey conducted in DESIR deliverable D6.2. Empirical investigation of trust, gender and diversity in cross-disciplinary DARIAH communities. The analytic summary of the report sets out the role that DARIAH has to play to its users across countries with different levels of DH training and funding: “Young researchers have to have an idea of where to find the tools, they have to understand the context and the community, including colleagues they could collaborate with. And all of these things don’t have to be next door but can be anywhere and DARIAH should be able to provide access to them” (Tasovac et al., 2018, p. 21).

The Consortium of European Social Science Data Archive - Strengthening and widening (CESSDA SaW) project aimed at strengthening CESSDA and transforming the user experience of social sciences data for researchers in the European Research Area. Various tasks focused on ideas and strategies for widening the CESSDA membership and strengthening the network. A meta-research into user satisfaction surveys with a particular focus on the Slovenian Social Science Data Archives (ADP) was published as part of WP4. It described the methods adopted by ADP but also provided practical guidance for other data archives on how to run a successful user survey (Slovenian Social Science Data Archives, 2017).

There are also some ongoing user studies, conducted by currently running projects, which are closely observed by TRIPLE.

The Open Scholarly Communication in the European Research Area for Social Sciences and Humanities – Preparation (OPERAS-P) project builds and co-ordinates services, practices and technology across main actors in the SSH scholarly communication in Europe. In the OPERAS-P project the OPERAS Survey on SSH scholarly communication has been designed and published in 8 languages.¹ Additionally, a focus group study was conducted in a few countries. Both studies constituted work done for “Task 2.3 - Stakeholders and Users”, were aimed at SSH researchers, attempting to make the group as varied as possible. This diversity includes discipline, experience, career stage and level of expertise on digital humanities and new forms of publishing.

¹ <https://operas.hypotheses.org/operas-survey-on-ssh-scholarly-communication>

Focus group studies have been conducted in Croatia, France, Germany, Greece, Italy and Poland. These were to discuss some topics raised in the survey but more in-depth, including questions about challenges and opportunities in the publishing services. The main discussion points were to be roughly the same in all these countries in order to help to identify the common themes (including experiences, challenges, opportunities) in their scholarly communication across Europe. The aim of the study is to add more qualitative context and (potential) user stories to the data gathered in the online survey.

The Europeana Research Requirements Task Force has conducted a survey in the fall of 2019, collecting SSH researchers' input of how digital cultural heritage is used by researchers and which services are needed. Europeana's earlier work in this field (Daley, 2015) has established the difficulties in cultural heritage from the perspective of the source availability. The recent effort has shifted to understanding the needs of the researcher. The Europeana Research Community has established a dedicated task force to work on identifying requirements among European researchers. The methodology combined a widely spread survey and interview. The final aim was to educate cultural institutions about the needs of the research community².

The **Next Generation Library Publishing (NGLP)** is a project run by Educopia, California Digital Library (CDL), and Strategies for Open Science (Stratos), in partnership with LYRASIS, Confederation of Open Access Repositories (COAR), and Longleaf Services. NGLP's aim is to advance the infrastructure for library publishing. From 31 March to 24 April 2020 a "request for new ideas" has been published encouraging stakeholders to express their thoughts on how to improve publishing technological solutions and workflows.³

3.3 Concluding remarks on the state of the art

In the 2010 OAPEN study, Google proved to be the most widely used tool in discovering eBooks (Adema and Rutten, 2010). Similar conclusions were drawn in a 2012 study where 288 scholars from the Netherlands and Belgium completed an online survey about their research practices, specifically in reference to handling data on the Internet (Kemman et al., 2014). Even though some years have passed since these results were published, the initial findings of WP2 in OPERAS-P project seems to confirm that Google plays a major role in identifying, selecting and finding resources for SSH scholars and as we will see later in this deliverable Google emerged as main tool also from the TRIPLE interviews. Whilst Google is without a doubt a very powerful tool for searching information, it has its limitations. It is a commercial search engine, has not been created for academia and is not discipline-specific. Now, when we know what researchers use we should interrogate these discovery practices in order to understand which functionalities are central for the actual research activity, and could be possibly provided by TRIPLE.

As this state-of-the-art overview aimed to show, user research has become an indispensable aspect of infrastructure-building. In the context of TRIPLE we need to understand how the discovery of resources has already altered due to technological advancements and what is

² <https://pro.europeana.eu/project/research-requirements>

³ https://educopia.org/NGLP_RFI/



required of research infrastructures as a result. Hence digital skills and machine-enabled practices which transfer into discovery-specific needs towards research infrastructures are of particular interest to WP3.

4 | TRIPLE USER RESEARCH APPROACH

As it's clearly emerging from the previous pages, it is paramount to the success of most ICT projects (not only research platforms and infrastructures) to obtain a deep and qualitative understanding of the end users and to involve them in taking relevant decisions about how an ICT platform and the associated services can support the users' goals, whether they are personal, organisational or else. The design of the TRIPLE platform is based on a strong user-centred perspective with the main assumption of working in close contact with end-users, SSH researchers in particular, but also to work with other relevant stakeholders (such as policy makers or SMEs).

For the initial identification of user-needs, the project has conducted a number of qualitative end-user interviews with SSH researchers and other stakeholders. The qualitative interview is a research tool which has been the basis for many important studies across a range of disciplinary fields in social sciences (Edwards and Holland, 2013) but also in Information Systems Design (Marshall et al. 2013). With qualitative interviewing it is possible to explore people's understandings of their lives (e.g. their work, their aspirations etc.) and also many aspects of their experiences (e.g. collaborations with colleagues).

For the initial identification of needs for the TRIPLE platform two sets of qualitative interview scripts were prepared with questions focusing on the exploration of the user needs in connection with the potential services offered by the TRIPLE platforms and for investigating existing practices (e.g. in the use of technologies or current activities conducted for purposes of research and in particular for discovery). The first script was aimed at investigating SSH researchers' needs and the second for the other stakeholders (e.g. policy makers, companies). The two scripts are reported in the Appendix of this deliverable. In addition, later in the Task (with an iteration of the deliverable due in Month 14 of the project) a questionnaire with SSH researchers Europe-wide will be conducted with the purpose of mapping existing discovery practices and services used by our target users. At the time of writing, the questionnaire is being distributed (with a launch on the 4th of May 2019) by project partners via SSH professional mailing lists. The survey will offer a broader view of how SSH researchers interpret and make use of current services offered to them.

4.1 Defining User Needs/Requirements

In the following text we use the terms needs and requirements to broadly mean the same thing. Several possible definitions of user needs or user requirements could be used in the context of the work for the TRIPLE platform, but for this research we have adopted a lean and flexible definition proposed by Olshavsky (2008) for which in the perspective of designers **requirements/needs** means "figuring out what to make before you make it". The definition points to the fact that at the beginning of a design process the work of designers is effectively an anticipatory work, that via appropriate user research and subsequent modelling, contributes to reducing "guesswork in technology product planning" (Olshavsky, 2008). **Thus the definition of user needs becomes the moment where designers can evaluate a number of concrete options,**

decide which should be prioritised and which should be discarded and base their work on empirical evidence and analysis coming from an investigation of end-users, rather than just on guessing, without proper evidence, what the end users would need.

4.2 Interaction Design

The approach adopted by the TRIPLE project for the definition of the user needs is entirely user-centered (Norman, 2002) and all of the research Tasks in WP3 are aimed at understanding the user perspective and support the design and evaluation of the TRIPLE platform. Adopting an user-centred perspective will also support a circular approach to designing the TRIPLE platform, enabling constant interaction between users and technical developers throughout the life-time of the project. This circular approach will support a perspective to design that almost 30 years was described as “from human factors to human actors” (Bannon, 1991) with the invitation to place attention on the user “as an autonomous agent.....rather than simply being a passive element in a human-machine system”. To achieve this, the project TRIPLE has decided to adopt core aspects of the research-design methodology of *Interaction Design* (Cooper et al., 2007), applied to the design of digital objects (Goodwin, 2011).

Interaction Design is a user-centered approach whose goal is to identify user needs, prototype and validate the design assuming the user perspective. Interaction design offers a solid and established approach towards understanding changing contextual situations from the user perspective and offers support to envisioning solutions to user problems. As noted by Rogers et al. (2007, p. 166) in *Interaction Design* “users’ concerns direct the development rather than technical concerns”. Therefore the start of any interaction design process is the intended user or users (Dix et al., 2004), and knowing the user is a fundamental step for designing products that meet their needs. For Nielsen (2003, p. 430) “The benefit of a design process that focuses on the individual user is both to see the individual user as a representation of a group of similar users and the user as a person that the designers can engage with”. Essentially, the principle underpinning Interaction Design is that the user’s use of the product or service is the basis on which something is designed (Cooper et al., 2007; Rogers et al., 2007) and this includes the design of large ICT platforms. As Olshavsky (2008) puts it “The intent is not to gather statistics but to uncover the problems and goals of the people who will be using your product and what functionality will satisfy those goals”. With Interaction Design user requirements are instead defined around user needs and their social contexts, and therefore directly with the user qualitative input.

The approach is traditionally qualitative and requires working with small numbers. Qualitative research is inductive and is not necessarily intended to prove a scientific hypothesis. Qualitative research focuses on “the materialization of unexpected data” (Jacob and Furgerson, 2012, p. 6). In design, qualitative approaches are used in order to explore and identify new ideas and innovative insights that can become part of the design of new products and services (Cooper et al., 2007). User research focuses also on revealing what users “say” and “do” (Mulder and Yaar, 2007), with the goal to identify motivations, actual behaviour and skills. The analysis is also qualitative and focuses on identifying patterns in the data. This can be done with techniques such

as Thematic Analysis or Grounded Theory.

Therefore the adoption of Interaction Design as the basis for the user research work on the TRIPLE project aims to capture user needs in terms of discovery practice, by allowing to focus on representations of a main user group and an additional group of potentially interested stakeholders. The main output of the research conducted for T3.1 are indeed these user representations, in the form of **Personas and Scenarios**. The main user group of TRIPLE are of course SSH researchers and academics, deeply involved in research who need or already actively use discovery solutions for their own work. The second group of users capture a variety of stakeholders which may be potentially interested in the results of SSH research or in active collaboration with researchers, these encompass broadly policy makers, companies (in particular SMSs) and journalists.

According to Rogers et al. (2007), Interaction Design comprises four generic activities: (1) Identifying needs and Establishing Requirements; (2) Developing Alternative Designs; (3) Building Interactive Versions of the Design; (4) Evaluating Designs. In this Deliverable the focus is on Identifying needs and Establishing Requirements for the TRIPLE platform. The design and evaluation phases are instead delegated to other tasks of the Work Package 3.

Formally the research process leading to the definition of the user needs based on Personas/Scenarios is articulated in Figure 1 (the figure is an adaptation of Interaction Design Goal-Directed Process, from Cooper et al., 2007, p. 20), and comprises: qualitative research with the user, analysis of the data collected, modelling of the specific design tools (Personas and Scenario) and then the definition of needs via scenario steps.

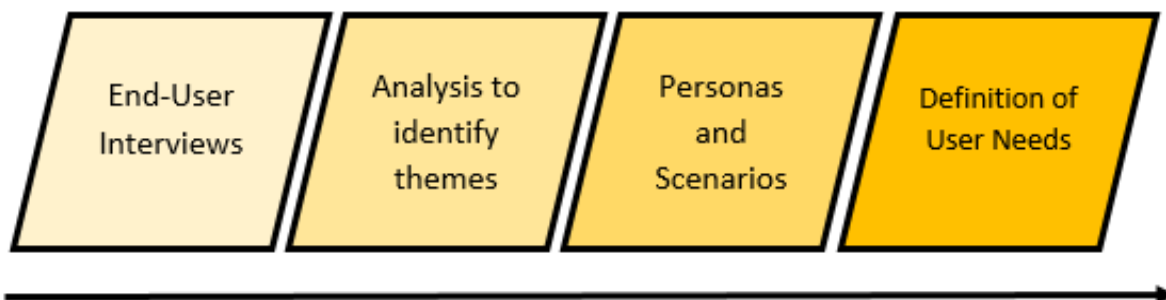


FIGURE 1. Process for the definition of the TRIPLE user needs

4.3 Personas and Scenarios

Personas are “user archetypes” that help make decisions about design solutions that are informed by a user driven perspective. According to (Cooper et al., 2007, p. 81) personas “are not actual people but are synthesized directly from observations of real people”. Personas are models and “precipitates” of real users that are entirely based on user research and in particular they tend to be based on qualitative interviews. The specific traits “are identified through the analysis of interview data” (p. 82). Personas are a first key outcome of user research that involves collecting and analysing data on and with target users groups, with the explicit goal of identifying user goals, activities, frustrations, motivations and emotions. **Scenarios** are narratives of the

personas interacting with the future product or service (i.e. for example the narrative of a Sociology researcher using the TRIPLE platform). Scenarios are fundamental for capturing the user perspective and current design research considers their relevance in a number of areas (Carroll, 2000): (a) scenarios are reflective tools for the design team to imagine plausible and feasible solutions to user needs; (b) scenarios present a narrative of concrete use, from the user perspective. However the narrative is flexible and open to interpretation, in this way different solutions can be explored in conjunction with the user; (c) scenarios support the design team from viewing high and low level design details from the perspective of the user; (d) scenarios help create an order flow in the design process; (e) scenarios helps the design team to focus on the actual user activities in a real situation, rather than on abstract assumptions about the user behaviour.

User Needs/Requirements are then obtained via the transformation of scenarios in so-called scenarios steps. This entails transforming the scenarios in a list of activities that the user conducts within the scenario narrative. These steps lead then to a more formal definition of the user needs as a list which can constitute the basis for the identification of functionalities and subsequent production of interface prototypes. Essentially the task is transforming the Scenarios narrative in a list of plausible steps that the user conducts in order to achieve a series of goals. Each user's need will come in the following form "*The user shall be able [to do something]*", capturing both the user activity and the kind of activity that user does within the platform.

The remaining structure of the deliverable then reflects the steps presented in Figure 1. The document continues now by discussing the details of the empirical methodology and then focusing on the TRIPLE Personas and Scenarios and the associated needs.

5 | METHODOLOGY AND DEMOGRAPHICS

For T3.1 we have conducted in total 26 interviews with researchers and academics in SSH over the period November 2019 - February 2020 and 11 with other stakeholders between January and March 2020. Interviews have been conducted both remotely (using conference-call software) and face-to-face, with a clear prevalence of interviews conducted remotely. Informed consent was collected, either directly or by asking the interviewees to send a scanned and signed copy of the consent form. Partners Abertay, CNRS and NET7 were involved in conducting the interviews. Several project partners were also involved in supporting the identification of participants for the interviews. Most of the interviews have been conducted in English, recorded and then transcribed before their analysis. The scripts of the interviews were developed in October-November 2019, with an initial draft provided by the task leader (Abertay) and with subsequent rounds of comments by other partners and re-drafting by the task leader, before reaching the final, agreed drafts (both are reported in the Appendix).

In terms of these research instruments the main decision has been to structure both interviews around the same areas, focusing on these four macro areas for investigating the end-user needs:

- The Discoverability of Data/Information/Publications/Projects
- The Discoverability of People (in relation to networking and trusting others)
- The Discoverability of you and your work by others
- Looking forward (focusing on the emerging trends in the respective fields)

Earlier in the task we also defined a reasonable sampling procedure, to be used mostly as a map to guide some decisions. We knew in advance that several problems could arise in the enrolment of participants and the sampling map helped in directing some actions. Among the anticipated issues we considered the huge variety in SSH research (i.e. many disciplines) and the wide geographical spread (i.e. Europe wide) of the potential users and the different career levels of potential end-users (e.g. from students to professors). Additionally we placed attention on the gender balance of participants. We developed a reasonable map for the sampling, mainly as a guide to ensure that interviewees were not recruited with e.g. overrepresentation of the same country or the same discipline, to ensure a reasonable gender balance and a balance among the different career levels. In these terms we sought to reach a reasonable balance of representation among: (1) the location in relation to South Europe, North Europe and Central/Eastern Europe, (2) the gender and (3) the discipline area (with 50% from Social Sciences and 50% from Humanities). Moreover, we prepared a reasonable sampling plan for the career level, as presented in Table 1. Ultimately the enrolment of interviewees has been based on the availability of people and contacts of the project partners and in many occasions contacts were made (following the sampling plan) but interviews could not then be performed either because the potential interviewee was not available or because of cancellation of appointments and we had then to approach other potential interviewees.

The demographics of the academic interviewees is presented in Tables 1 and 2. In particular, we

have interviewed researchers from the following countries: Italy, Portugal, Spain and Greece (as South Europe), Austria, Germany, Czech Republic, Poland and France (as East and Central Europe), UK, Finland and Belgium (as North Europe). We have interviewed researchers from the following SSH disciplines (broadly defined): Sociology, German language and literature, Sociology/Gender studies, Linguistics, Literature, Archaeology, History, Political Science, History, Digital Philology, International relations, History of Political Thought, Information and communication science, Computer Arts, Digital Philology, Human Geography/Sustainability, Musicology, Geography, Literary Studies, Digital Humanities, Classical Studies, Language Didactics and Art History.

TABLE 1. INITIAL SAMPLING PLAN BY CAREER LEVEL AND ACTUAL SAMPLING

Career Level	Sampling plan	Number of Interviewees
High/Medium Level (Professor, Principal Investigator, Research Manager, Associate Professor, Senior Lecturer, Senior Researcher)	15% of interviewees	4 (actual 15%)
Medium level (Lecturer, Researcher, Assistant professor and similar positions)	50% of interviewees	14 (actual 54%)
Initial Level (Post-Doc, Research Assistant, PhD Student)	35% of interviewees	8 (actual 31%)
Total	100%	26

TABLE 2. ACTUAL SAMPLING BY RESEARCH AREA, MACRO-GEOGRAPHICAL AREA AND GENDER

Gender balance	Social Sciences	Humanities	South Europe	Central/East Europe	North Europe
13 F (50%)	10 (38%)	16 (62%)	11 (42%)	9 (34%)	6 (24%)

For the “other stakeholders” we similarly developed an initial sampling plan to be used as a guide, where in particular we sought an equal balance between journalists, policy makers and companies/SMEs representatives. We also wanted to have a reasonable variety in terms of countries. The enrolment of participants for this category of interviews has been more difficult generally, likely because of less availability (in terms of times and reachable individuals/contacts). The initial sampling plan was used as a guide, but the variety of countries had remained limited because of the difficulties in enrolment, with prevalence of interviewees coming from France and the UK. Table 3 reports on the interviewees for this part of the research. Nonetheless these interviews have provided enough evidence for the creation of 2 personas. The interviewees were

contacted with the support of the partners with all the interviews conducted by Abertay University.

TABLE 3 NON-ACADEMIC INTERVIEWS.

Job role	Gender	Nationality
Data Scientist	Female	UK
Journalist	Male	UK
External Communications	Male	UK
Head of Digital Dept. Library	Female	France
Political Advisor	Female	Denmark
CEO	Male	Germany
Project Manager/ Consultant	Female	Netherlands
Head of Charitable organisation	Female	UK
Entrepreneur	Male	France
Journalist	Male	UK
Media producer for TV	Female	UK

All the interviews have been analysed with a *Thematic Analysis* approach. The main goal of an analysis conducted for building design personas is the identification of recurring patterns across interviews. These patterns would then become the building blocks for the creation of personas as archetypes representing potentially multiple interviewees, with thus the identification of recurring patterns around users' frustrations, goals, pain points or needs. The approach selected for the analysis of the TRIPLE qualitative interviews, thematic analysis, focuses on identifying themes and patterns in data (Aronson 1995; Braun and Clarke, 2006) and is thus very suitable for the goal of building personas. Thematic analysis is done by applying themes to portions of data, whereas these themes are the interpretation given by the researcher about what is portrayed in the data excerpts. With saturation in the data the themes should then start to consolidate allowing the identification of a set of dominant and recurring themes across the whole data set. Some of the key themes from the interviews are presented separately in the next section of the deliverable, in order to provide a clearer understanding of the main themes around which we have built the project's personas. We have started with an initial thematic analysis, to first identify an initial set of recurring themes and have subsequently re-analysed the data in order to consolidate the initial set of themes and arrive at a core set of themes upon which to base the writing of the Personas and the subsequent Scenarios. The consolidation of themes through the analysis also allowed us to evaluate data saturation. Saunders et al. (2018) identified the use of four different saturation models, one of which is relevant to this study. This is data saturation that appears when new data repeats what was previously observed and that applies to our own data. With twenty-six interviews drawn from a wide geographical and contextual range, we were able to reach a satisfactory level of data saturation and have started observing already during the



interviewing phase good levels of saturation. Saturation occurred also with the other stakeholders' interviews, but to a lesser extent, likely due to the smaller number of interviews conducted and also the more varied working practices of the people involved. Nonetheless, the goal for the other stakeholders' interviews was to have sufficient material to model at least two good personas and the associated scenarios. A goal which was met.

6 | MAIN THEMES

In this section of the deliverable we present some of the core themes that emerged from the Thematic Analysis of the interviews and which constituted the basis for the Personas. This will give a clearer understanding of how Personas have been created and what end-user issues will underpin the consequent design. During the analysis of the 26 SSH researchers' interviews we have observed that working practices of SSH are quite heterogeneous, however we have identified a number of relevant patterns which can constitute the basis for building relevant personas for the platform. While not all of the following themes could be incorporated in the personas, effort was made to include the ones which are most relevant for a discovery platform like TRIPLE.

6.1 Initial Discovery

One thing that emerged clearly is that the majority of SSH researchers are using Google Scholar as an initial search method. A considerable number then consolidate a Google Scholar search by searching other academic databases. Some academics use Twitter as an information source (especially those working on projects that require very up to date information, as there is a lag between things happening and research being published in academic journals or conference proceedings). Later in the iteration of Task 3.1 we will seek confirmation of this finding from the questionnaire, which contains specific questions about discovery practices and tools.

Among interviewees, some commonly mentioned problems encountered when searching for material and during discovery activities were:

- Not finding everything that you need when searching, this is especially difficult in interdisciplinary research, and there is a silo effect of research being published in specific disciplines which makes it more difficult to discover if the research is not so rigidly defined.

“ Disciplines tend to get more and more specialised, the whole university, academic system gets more and more specialised, which makes it so much harder to create the overview across disciplines.” (Sociology Researcher, Austria).

- Discovering how different disciplines' results are linked together considering the huge amount of material that is produced.

" You always have to be so broad in your approach in the beginning to filter out what is really needed for your research. So, what I'm interested in is linked information, how information links to other information. " (Post-Doc Researcher - Social Studies of Science and Technology, Austria)

- Differing Keyword terms for similar topics used by different disciplines, makes it harder to search.
- Availability of 'smarter' searches - eg. The use of Artificial Intelligence to learn what you find useful and to provide context-related linkages of information that you are interested in.
- Overload of information – it's hard to sieve through the long list usually supplied for items of relevance.

"The biggest issue for me is to filter these tons, tons of literature, papers and books because when you Google "Gender and technology" you find millions of results. And of course you cannot read everything, you have to filter, but you are not that aware of the issue, so you have to follow a sort of inner sense that drives you through this sea of references. " (Post-Doc researcher Sociology Gender Studies, Belgium)

- Finding what you need then not having access to the article (not Open Access).
- Quick ways to export files to favoured formats.

"I would like being able to export data from search engines and other tools and read them in my favourite format and export them on my own data treatment channel." (Lecturer/Document Manager History of Art and Digital Humanities, France)

- Difficulty when you do not have a University affiliation – access to journals and other data often relies heavily on this.
- Language differences when searching - different terms being used in different languages, explained well in the quotes below.

"In French, Aeschines is written like this, so I have to write again. But in German, Aeschines is written with a K instead of a C, so I have to research again. And in Spanish it's written like this, Eskiness, so I have to do the research again". (PhD student , Classical Studies, Portugal)

6.2 After the initial discovery

The initial discovery is however only part of the process of searching for relevant material and information. Indeed, from the interviews it emerged clearly that there were other difficulties encountered after the initial searching for information, these include:

- Having to learn a lot of new skills, especially technical/digital skills.

“So, you have to take time out to actually manage to learn to use the things, and pay for it. So, it’s quite a hassle, in a way, to have to do all that just to be able to get what you want from the information. It’s quite difficult.” (PhD student , Classical Studies, Portugal)

- There was evidence that “older” academics experience some feeling of being left behind with the digital skills that are required to be an effective researcher in an environment which sees an increased use of digital tools for research.

“I don’t have the skill to find in a short time what I am looking for. This is a failing. When I make a comparison with a younger researcher, I feel that I am an old researcher. My way of finding what now is considered an essential bibliography is not efficient.” (Professor of History, Italy)

- Some interviewees experienced clear difficulties in retrieving stored information (for example, when publications’ file names, when downloaded from a publisher website are given a number by default rather than a meaningful title, when stored as a PDF).

“I sometimes miss archive sources that I received through We Transfer and that I forgot where I stocked the downloads, or information found on search engines but I can’t remember where I put them.” (Lecturer, Computer Science/Modern History, France)

- Ability to find annotations more easily.

“Have I made notes? Have I made highlights? Tell me what pages they're on” (Computer Arts lecturer, Scotland)

- Many researchers, as it is now a common practice, use reference management systems (RMS) such as Zotero or Mendeley for organising, storing and retrieving publications, but it is often inconvenient to share material with colleagues across the different tools that are in use.

“ And I think the things with those (RMS) is, they are much more shareable, so if academics are likely to continue using different tools, and it’s all well and good me saying ‘I’m Mendeley’ and one or two of the teams might go, ‘actually, quite a lot of us are Mendeley, let’s all use it’. You’re never going to always use one tool. So actually making sure that those tools are as cross-compatible as possible is great” (ECR Human Geography, UK).

- Several academics mentioned shortcuts in their discovery process such as resorting to emailing yourself with links (e.g. relevant publications or a twitter post) as a way to be able to find them again.
- Annotations made on PDF files are not searchable, ideally academics would like to pull out relevant stored PDF files by doing a keyword search (currently only the title is searchable).

6.3 What users would want

As part of the interview we asked what interviewees would a new platform could do to ease their discovery work practices and ultimately facilitate their research work. Several interesting observations were made. When asked what functionality could perhaps make their life easier, then academics replied with the following themes:

- Linkages to other fields working on the same topic.

“If you think in Semantic Triples, information Triples, that is always linking relations between information, a little bit like a meta view on Wikipedia or something, that connects the information with other information. So, that would be super-efficient for researchers, because you can immediately check out four scientific fields that deal with those topics, but also you could check out immediately the other domains that have touched on these topics.” (Researcher, Sociology Austria)

- A way to get a good overview of the research field when collaborating with others, finding out who the key researchers are and establishing if any gaps exist in specific areas.

“You can have a conversation about it that helps you do some of the things that not using the same software gets in the way of, do you know what I mean? You could talk about things and ask ‘have we missed anything? What are the gaps?’” (Early career researcher, Human Geography /Sustainability, UK)

- A visual way of linking together relevant articles. The visual tool would also be a useful discussion point for academics collaborating with others, to see if they have missed anything and to identify research directions.
- A way to find relevant academics with expertise by geographical region (for example to invite them to attend a workshop).
- The creation of a 'Community of Practice' by topic or project.
- The idea of push notifications when new publications arise and suggestions of items of interest is liked (although beware of overloading people e.g. ResearchGate, as constant notifications are disliked).

"I'd like something that builds it up in a more visual way, it's like we've been searching about social practices of water recently. 'Here are some people that are writing about the same sort of thing as you, but it's not about water, it's about energy, but maybe it's relevant'. You can kind of see that those sorts of things must exist and I would only use them if they were integrated in something like Mendeley. I don't search out additional tools, my life is full of tools as it is." (Early career researcher, Human Geography /Sustainability, UK)

- The ability to search for and follow relevant projects and people rather than just publications.

"I follow projects, I follow researchers in Google Scholar, for example, in such a way that when a new paper is published, then I get an email." (Lecturer/researcher Older people/ technology, Spain)

- The ability to move items between programmes and not lose metadata, which has much to do with compatibility among different tools.

"There should be one standard exchange format, so you can exchange your data between all the programmes, because right now this is also, yeah, a pain in the ass sometimes, because you cannot transfer data from one programme to the other without losing some meta information." (Post-Doc Researcher - Social Studies of Science and Technology, Austria)

- Academics are often reluctant to make a 'cold call' to a new person, but like the idea of introductions or recommendations of people from friends/colleagues.
- Being able to send and receive digital research collections/libraries to/from colleagues/collaborators.

- The ability to carry out multiple collaborative tasks within a single platform.

“I would like to have a platform that can aggregate different tools. So for example, like Zotero or Mendeley, something that can allow you to collect references, to take notes together with colleagues; Skype, so you can talk with these people; the calendar to schedule meetings and a place where you can brainstorm through maps, so adding OmniGraffle there”. (PostDoc researcher, Sociology, Belgium)

- An alternative to Google Scholar curated by those producing the research linked to individual identifiers (ORCID).

“ I was really hoping that with ORCID this would change, I hoped that ORCID would be a good alternative to Google Scholar, that there you’d have really curated data by the people themselves, and that you’d have a good search engine that can go through ORCID and also look for topics. But, yeah, it’s not possible right now. Maybe is this planned for the future? I don’t know, but ORCID could be the basis for that in the future.” (Researcher, Sociology, Austria)

- Automation of data provenance.

“So whenever you work with data, you know, all kinds of matched data should be automatically generated. If you look at domains that are really doing a great job when it comes to things like provenance and keeping track of things and making the data fair, they work with tools that automatically track all your work, Jupyter Notebook, those kinds of things, that’s really the way to go, if you ask me, because everyone is lazy. (European Project Manager/Consultant - Denmark)

7 | THE TRIPLE PERSONAS AND SCENARIOS

A range of Personas (n=8) and Scenarios (n=8) have been produced from the analysis of the qualitative interviews to convey the user requirements to the technical partners, helping them to make design decisions. They also allow us to more easily discuss what the platform functionalities will be with stakeholders and are useful during co-design workshops. Since co-design will enable the stakeholders to have an input into the design and functionality of the platform, the process also increases ownership and engagement with the final product. These 6 academic (1-6) and 2 non-academic (7-8) personas are shown below:

7.1 Personas

Persona 1: Dr Emily Lewis



Dr Emily Lewis

AGE: 29

ACADEMIC POSITION: Post-Doc/ Early Career Researcher

DISCIPLINE: Human Geography / Environmental Science

NATIONALITY: British

WORKING IN: University of Leeds

USER STORY: As a researcher, I'd like a tool to help me to identify academics and other relevant stakeholders so that I can conduct workshops for my research with greater ease

NARRATIVE: Emily conducts research on Societal Shifts towards Sustainability. Most of her research focuses on discussions with people. She carries out interviews, focus groups and workshops with relevant stakeholders, but also conducts documentary analysis, e.g. reports of discussions within Parliament, that are published online. So, most of her research is both desk-based and people facing. Social media (especially Twitter) is an important information source for Emily but she finds the transience of the information frustrating; if she is not constantly keeping an eye on it, things disappear down the list and are lost. Emily uses Google to search for information and papers (including Google Scholar when looking for published articles). She tends to download lots of relevant articles, and then puts them into folders organised by project. For every project, each has folders labelled 'to be read', 'finished reading' and 'this is great, come back to this'. Emily works with other Universities in the UK with a focus on sustainability and the security of the water, food and energy supply. As her work is highly interdisciplinary she finds that she needs to check different databases to discover all the relevant research. She's noticed that some open source journals do not tend to show up on a lot of the searches, for example water-alternatives.org which she finds very useful as it is interdisciplinary. Emily is planning a workshop soon and is finding it difficult to find relevant participants for the event, she would like to search more locally as her work relates to local actions.

PAIN POINTS:

- Lag between things of relevance happening and being interpreted by scholars and working its way through the peer review system
- Balancing the fine line that exists between getting too much information, but also knowing that she has got the majority of relevant data.
- Difficulty finding relevant people in a Geographical area to attend workshop

GOALS:

- Would like to find sectoral experts within a geographical region to attend a workshop
- Emily is keen to have sufficient details about the experts in order to
 - i) assess their expertise and
 - ii) personalize the invitations for the workshop

QUOTE: "So my first way into researching Changes in Energy Policies has been through web and Twitter searches really. Twitter is particularly useful for this piece of work, because the actors that I'm interested in are those who are discussing these kind of things on that platform."

TECH EXPERTISE:

INTERDISCIPLINARITY:

COLLABORATION:

Tools Used: Twitter; MS Office; Google Scholar; Mendeley; Web of Knowledge; Emerald Insight



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Persona 2: Professor Julien Martin



Professor Julien Martin

AGE: 49

ACADEMIC POSITION: Senior lecturer

DISCIPLINE: French Literature

NATIONALITY: French

WORKING IN: Sorbonne Université

USER STORY: As an experienced scholar, I want to speed up my discovery process in order to keep up with my research field.

NARRATIVE: Julien is becoming frustrated that he is slower than his younger colleagues at conducting his research on 18th Century French Literature and feels somewhat left behind with technology use. He conducts his research activities in the way he always has done, starting with the bibliography and searching for relevant books and publications using his University library search tool. He also uses internet archives to search for relevant work. Books are still fundamental in his field of work. Julien is thinking about using a Reference Management system after a colleague recommended one, but mainly organises his relevant material using a reference document (a Word file) and he creates different folders on his computer where he stores items by category. A consequence of this is that some files are stored multiple times.

Julien conducts his work mainly on his own, but has a small network of colleagues with whom he discusses ideas (both in person and via email). He would like to be able to exchange libraries with a close colleague. He would also like to know how to make better use of the digital tools he uses, but is not sure who to ask for help. He doesn't want to look 'stupid' and would prefer to have easy to understand online support.

PAIN POINTS:

- Not knowing who key researchers in the field are anymore (due to larger community)
- Not knowing how to use new digital tools for doing research
- Feeling 'slow' and left-behind compared to younger researchers

GOALS:

- Would like to develop his research Profile
- Promote his publications
- Improve his research skills using digital tools
- Share ideas with others in a Community of Practice

QUOTE: "I am a traditional researcher, I'm used to searching, starting with the most important book, then moving to articles and using the bibliographies. I know that the world has changed in a drastic way in the last 20 years. My apprenticeship as a researcher belonged to a prehistoric era, even if I am not so old."

TECH EXPERTISE: ■■■■■■■■■■

INTERDISCIPLINARITY: ■■■■■■■■■■

COLLABORATION: ■■■■■■■■■■

Tools used: Microsoft Office; University Library Search; Google Scholar; National Archives; Academia.edu



The TRIPLE project is funded by the European Commission, under Grant Agreement No. 863420



Persona 3: Dr Giorgia Ricci



Dr Giorgia Ricci

AGE: 38

ACADEMIC POSITION: Senior lecturer/researcher

DISCIPLINE: History (Healthcare)

NATIONALITY: Italian

WORKING IN: University of Bologna

USER STORY: As a senior lecturer I'd like to collaborate with colleagues to produce an overview of current research in a new area in order to find the gaps and to create a new research proposal.

NARRATIVE: Giorgia starts her discovery of research information by using Google Scholar which she feels is useful in terms of making sure you're searching for the right thing, before you disappear into an academic database. Giorgia would also love a really quick and simple way to get the 'main essence' of a paper before going to the effort of downloading it as a pdf file, something a bit more than the abstract gives but that is easy to understand. She recently noticed that Academia.edu has a new 'overview' feature offering this.

Giorgia would like to collaborate with another academic at a different University. They would like to have a shared repository of relevant research, however, her colleague uses Zotero and she uses Mendeley and neither of them are keen to change. What she'd like to be able to do is to sit down with a colleague (or do this remotely), pull up the Triple platform where you have stored relevant research, and to have a shared conversation about it – to be able to identify what the broad overview is and what the gaps are. She'd like to check if she's missed anything and to see what other projects exist on similar topics, before defining the research direction. She'd like to keep a 'visual' map of this overview and to be able to work with her remote colleagues using the map as a discussion point to develop connections and get a better understanding of the research area.


PAIN POINTS:

- Lacking a tool to make connections and to develop a broad overview of the research topic
- Difficulty in finding relevant research projects
- Effort involved in getting to the important parts of a publication


GOALS:

- To have a good overview of the research topic and make connections between relevant items
- Identify 'Gaps' in the existing research
- Work remotely with colleagues to plan a project proposal

QUOTE: "I don't know of any good tools to develop connections between things in a way that reflects how my brain sees patterns and information. So I know that in Mendeley, you can create a sub-folder for a certain theme, but to me that does nothing over and above a quick keyword search. And if anything, when I put things in folders, it means I'm missing connections not making connections".

TECH EXPERTISE: 

INTERDISCIPLINARITY: 

COLLABORATION: 

Tools Used: Google Scholar; Academia.edu; Mendeley; MS Office; Google Drive



The TRIPLE project is funded by the European Commission, under Grant Agreement No. 863420



Persona 4: Dr Ben Dubois



Dr Ben Dubois

AGE: 30

ACADEMIC POSITION: Junior lecturer

DISCIPLINE: European History (Modern)

NATIONALITY: French

WORKING IN: Paris-Sud University

USER STORY: As a lecturer I'd like a better tool to search, read and annotate relevant publications and data in order to save time, be more organised and keep up to date with new research.

NARRATIVE: Ben tends not to organise information in a hierarchical format as he prefers to use tags and keywords in order to retrieve it again, often using 'spotlight' to search his mac. He does keep a directory of material in Evernote to support his organisational methods.

He prefers to sketch out ideas and linkages on paper (as he doesn't like existing digital tools). Ben also prefers writing notes on important sections (rather than highlighting) as he believes he remembers it much better in this way. Frustrations include the fact that some relevant material is not yet declassified, and some has not been properly classed by archivists which makes finding it very difficult. Ben reads the abstracts for recent articles to evaluate their relevance, but very old articles do not have abstracts and it takes him longer to assess them. Ben would like to connect his drafts and notes with published articles, and be able to annotate things in an easier way, perhaps a bit like you can comment easily on Facebook. After he completed his PhD, Ben did not obtain a Post-Doc position immediately, he found it very frustrating during this time that his access to published work was then limited due to his lack of academic affiliation to access Journals, he was limited to using Open Access journals as he was not able to pay the expensive access fees for individual publications. During this time he made use of Research Gate and Academia, often accessing a pre-print of the publication from these sites (sometimes, he had to ask author of the paper which took time).

PAIN POINTS:

- Too many different software platforms and tools – difficulty moving things from one place to another without losing information
- Some archival material is not accessible
- Lack of access to many journals without any University affiliation

GOALS:

- Would like to find a Native English speaking Academic in his field to review publications before submission
- To improve his coding skills
- To quickly know if older articles (with no abstract) are relevant or not

QUOTE: " I'd like something very similar to Google Drive, but also Zotero, and Google Scholar – My dream is to have something that integrated all of that. It could be a portal constituting portlets in which you have all these tools, similar to open office, in a certain sense."

TECH EXPERTISE: ■■■■■■■■■■

INTERDISCIPLINARITY: ■■■■■■■■■■

COLLABORATION: ■■■■■■■■■■

Tools Used: Google Drive; Google Scholar; Zotero; Evernote; Spotlight (Mac); ResearchGate; Academia



The TRIPLE project is funded by the European Commission, under Grant Agreement No. 863420



Persona 5: Ms Carolina Weber



Carolina Weber

AGE: 23

ACADEMIC POSITION: PhD student

DISCIPLINE: Social Science

NATIONALITY: German

WORKING IN: University of Hamburg

USER STORY: As a PhD student I would like to have a more visual interdisciplinary search tailored to my specific research interests to save time and give me a better overview.

NARRATIVE: Carolina has noticed that because her research focus is very multi-disciplinary, she is interested in the 'in-between' work, that searches have to be very broad initially, to filter out what you really need. Google Scholar may not always give the best results, but it is hard to look through specific journals which tend to be very 'siloes' by subject area. Carolina would ideally like a visualisation to have a broad overview across disciplines, she prefers this more visual approach than just a list. She uses the Re3 Data interface to search sometimes, but finds that it is limited by the top down classification logic and therefore less useful for her interdisciplinary research. Carolina would love a search engine that could be trained to use AI to find context-related linkages for information that she is interested in, presenting her with a more tailored search visualisation than a generic one. She is interested in linked information, how information links to other information. Carolina would like an interface, that gives you some associative, or context-oriented information so that when you look for something, then it gives you a list of what it finds, for example, by topic, but it also gives you relevant context-related information around it. She'd like to be able to have a flexible filter for relevance. Overall, Carolina is also very keen to ensure that her PhD thesis is submitted with minimum stress.


PAIN POINTS:

- Lack of Context related search information and 'list' view of searches
- Difficulty in finding results when working on highly interdisciplinary topics due to 'siloes approach' of journals
- Difficulty retrieving non-textual files (eg screenshots of newspapers, twitter feeds, images etc) – it's hard to remember what you called the file when you saved it.

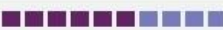
GOALS:

- Would like to be able to search more effectively – eg include other terms that are used for 'behavior change'
- Would like a more 'visual' interface that can display contextual information
- Would like tailored suggestions of publications she'd find useful

QUOTE: "What I'm interested in is always the in-between. I work roughly around behaviour change, but I work with social practice theories which will very rarely use the exact phrase 'behaviour change'. Which means if you want to do a review that says you've looked at all of the behaviour change articles around xxx recently, you have to do 'behaviour change' and then you have to go and gap-fill for all the other sorts of phrases that people use".

TECH EXPERTISE: 

INTERDISCIPLINARITY: 

COLLABORATION: 

Tools Used: Google Scholar, Zotero, Nvivo, Twitter MS Office; Re3Data



The TRIPLE project is funded by the European Commission, under Grant Agreement No. 863420

Persona 6: Dr Christos Sideris



Dr Christos Sideris

AGE: 36

ACADEMIC POSITION: Lecturer

DISCIPLINE: Computational Linguistics

NATIONALITY: Greek

WORKING IN: University of Thessaloniki

USER STORY: As an expert in my field I would like easy access to open data in order to work remotely with others to create annotated corpora, increasing the capacity for data re-use within humanities.

NARRATIVE: For discovery, in addition to the usual Google Scholar search, Christos tends to use a specific platform called L'Année Philologique (The Philological Year), which is an index to scholarly work in fields related to the language, literature, history and culture of ancient Greece and Rome. LinguistList.org is also useful as it sends him daily emails about jobs, books, calls for papers, questions, dissertations etc. It is a very good portal that keeps him updated for all the current trends in his field. He often checks to see what kind of projects are ongoing which helps to focus his interests. He is often frustrated by being unable to access relevant information due to paywalls. He also finds it frustrating that there is a lack of compatibility with file formats and associated metadata. To organise relevant articles Christos uses Zotero and creates folders to store them, he also uses keywords & hashtags to tag and retrieve objects. He finds working with people from other disciplines quite a challenge due to the lack of understanding of each others complexities. He would really like to have an online file system (like repositories work) on his computer, that he is able to add metadata for every object that is in there, and then automatically share this with the university repository.

PAIN POINTS:

- Unannotated Corpora (requiring manual intervention to make them useable)
- Lack of compatibility between formats, mapping from one metadata schema to another is often problematic
- Paywalls preventing access to relevant documents

GOALS:

- To create a super registry of annotated Corpora
- To select export formats for data (eg. Python or R).
- To work with colleagues from other disciplines and have a shared understanding of the project requirements

QUOTE: "Traditional theologians call everything a 'database', they don't have any idea of the time needed to make something that, for them, is very simple, but for us it's very difficult to do. The biggest problem is that it is very difficult for them to formalise the problem, to make it computational. On the contrary, the engineers want to oversimplify the problems of the theologians."

TECH EXPERTISE: ■■■■■■■■■■

INTERDISCIPLINARITY: ■■■■■■■■■■

COLLABORATION: ■■■■■■■■■■

Tools Used: ResearchGate; Academia; Zotero; Google Drive; One Drive; Python; ACM DL; Discord



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Persona 7: Mr David Green



Mr David Green

AGE: 48

POSITION: CEO of a small business

NATIONALITY: British

USER STORY: As the CEO of a small business I want to find accessible information and collaborate with academics to ensure that our interventions reflect the latest research evidence.

NARRATIVE: David is the CEO of a small business working to provide activities supporting positive mental health. He has a specific interest in working with young people and addressing their needs, which are currently not met sufficiently well. He is keen to get an up to date picture of current research recommendations in order to provide direction for his efforts at a practical level. David is very pro-active and would like to collaborate with researchers on a new project. He saw a recent funding call and would very much like to join forces with academics and submit a bid. David is both time and money pressured, and cannot afford to pay to access research publications. As he isn't affiliated with a University, many of the publications that he finds when he does a Google search are not available for free. He would prefer to be shown only open-source material, but isn't sure how to go about this. He often looks for information on populations, such as data on poverty across geographical regions. He is usually looking at deficits, where things aren't going well, trends in education, health, social mobility, the many things that have an impact on mental health. He feels that searching for information can be a real scattergun approach unless he knows the exact key words to use, but often the data he needs is quite hidden. Sometimes he's looking for narratives, sometimes for quantitative information. David finds that some academic work is just not accessible, he feels as though it should be useful, but he just don't understand it, it's not written in terms that a lay person might find it very useful, he questions who the audience is for this work. David tends to use Twitter a lot to see what new initiatives that are coming through, what recent reports have been written and for new deadlines that are coming through. He thinks Twitter is a brilliant source of fresh information, but is a bit frustrated that you have to be on it a lot or you lose the information in the feed.


PAIN POINTS:

- Lack of access to academic research (that is not open source) due to lack of University affiliation and a tight budget
- Inaccessible research publications
- Finding datasets with up-to-date statistics around mental health


GOALS:

- Finding who key researchers and players are in the field
- Getting accessible summaries of the research quickly
- Making contact with academics to investigate collaboration for a research proposal

QUOTE: "As an organisation we've made it part of our distinctiveness that we really care about research, we want people to know that what we do is founded in good quality research and good quality knowledge and understanding. As what we do is so practice based, we're taking all of that theory and stuff that's gone before and saying 'this is how it applies here'"

TECH EXPERTISE: 

ENGAGEMENT RESEARCH: 

COLLABORATION: 

Tools Used: Twitter; MS Office; Google; YouTube



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Persona 8: Ms Maria Masthoff



Ms Maria Masthoff

AGE: 42

POSITION: Advisor to Policy Makers

NATIONALITY: Netherlands (Based in Brussels)

USER STORY: As a Policy Advisor I need access to raw data sources and relevant research to provide accessible information to inform EU policy makers.

NARRATIVE: Maria is an advisor to EU policy makers for socio-economic issues impacting Europe. Maria is currently working extremely hard to provide the relevant policy makers in Brussels with up-to-date information regarding the socio-economic impacts of Covid-19 restrictions brought in with the onset of the outbreak in the different European countries. The information provided will help direct the future responses. She needs accurate data and in a format that allows her to 'query' the data and not just view it in a published graph.

Maria tends to check 'Agence Europe' every day (<https://agenceurope.eu/en/home.html>) and she uses the Google Dataset search in order to find relevant sources of data. She uses Zenodo too as she likes the interface and it's easy to see the type of data presented and the date it's uploaded. Maria noticed that Zenodo has prioritised the Covid-19 data, showing this as a default making it extremely accessible without having to spend much time searching. In the future she thinks it would be a good option for platforms to remember your interests and present the relevant new research as a default.

Maria has learned to write some basic codes in Python and R in order to scrape the data she needs from various sources. She sometimes uses WorkBench to collect data as she likes the interface (and she doesn't need to remember her coding skills). Maria tends to learn the coding as and when she needs it and finds a lot of support from online communities such as a Slack group called the Data Visualisation Society, and also GitHub.

PAIN POINTS:

- Lack of access to original datasets (raw data)
- Incompatible formats of datasets (eg processed via SPSS)
- Lack of time to read full papers, wishes to obtain an overview in a short time

GOALS:

- To Bridge the Gap between the academic and political world
- To produce accessible reports for Policy makers summarising relevant research
- Having a directory of relevant academics who are willing to speak to Policy Makers

QUOTE: "I think it (raw data) probably should be available just as standard. Your average citizen is probably not going to look at it, but it should be out there. The science should be reproducible so it should be fully available if someone wants to look at it and think well I would actually change that, so I need to do X, Y and Z and see how it affects the data."

TECH EXPERTISE:

ENGAGEMENT RESEARCH:

COLLABORATION:

Tools Used: GitHub; Zenodo; Google Dataset; Google Scholar; MS Office; WorkBench; Slack



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7.2 Scenarios

Scenario 1: Dr Emily Lewis



Dr Emily Lewis

AGE: 29

ACADEMIC POSITION: Post-Doc/ Early Career Researcher

DISCIPLINE: Human Geography / Environmental Science

NATIONALITY: British

WORKING IN: University of Leeds

SCENARIO:

Emily has been using Triple as a search engine and repository for her research work for the last few months and has found it much easier to be kept up to date, thanks to the notifications sent to her when relevant new work is published, she can bulk download all the suggestions at a single click if she wishes, or choose to individually download which also allows her to tag and/or colour code the files as they are saved. She finds that it's much easier to retrieve her saved Twitter datasets by using the 'tags'.

Emily is arranging a workshop on regional actions towards the Future Security of Food, Energy and Water, which will be held in Leeds towards the end of the year. She has a number of colleagues from other UK universities who will be involved and who will attend, but they are also looking to invite other key academics and also Policy makers and individuals from the relevant industries.

Emily would like to set a geographical region to limit the search for people to a geographical area, only inviting those within 100 miles as the focus was on local environmental actions. She had previously tried using LinkedIn and Research Gate, but they returned mostly international academics.

In addition to providing a list for the specific region, the Triple platform is able to give details of the people's interests that she'd like to invite so that she can produce a very tailored invitation, explaining how their skills will be useful for the workshop. She has found that she gets a much better response rate taking this personalised approach. She also makes use of any mutual acquaintances that are flagged up by the system. She can view their personal page, some include recommendations from colleagues (similar to LinkedIn) highlighting their individual strengths, which Emily finds very useful in selecting people for her workshop.

Emily is also able to advertise details of the workshop on her public-facing profile page, specifying her need for local stakeholders, she can easily upload the link to the platform and display this as a clickable tile for people to view. Emily can also see the metrics of how many people have viewed the link.

Emily has found several relevant 'Groups' and also other ongoing 'Projects' that are relevant to her research. She is able to link to the individual academics from their project page, saving time with separate searching. She requests that her link is shared to the group. Emily can send invitations via the platform (or she can choose to use their email contact details). She finds that the platform makes it easier to keep up to date with responses as to who is attending (she gets an email notification if she chooses to select the notifications option).



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Scenario 2: Professor Julien Martin



Professor Julien Martin

AGE: 49

ACADEMIC POSITION: Senior lecturer

DISCIPLINE: French Literature

NATIONALITY: French

WORKING IN: Sorbonne Université

SCENARIO:

Professor Julien Martin is about to release a new book that he has written over the last year. His colleagues have advised him that he should spend some time promoting his book online, but not being a big 'social media' fan he is unsure of the best approach to take. He has recently been introduced to the Triple platform which makes discovering research easier and he has been impressed with the platform's ability to produce his 'Profile' that highlights his interests and previous publications, without too much effort on his part as it is automatically uploaded once he identifies himself (confirming his ID) and he just has to confirm it is correct. He decides that adding details of his new book to his public-facing profile page would be useful, he finds it easy to add by simply including the unique identifying number that his publisher has sent him for the book. Once it is uploaded he is able to use the 'Highlight' feature to make the book more prominent when people view his profile page. He is also able to 'share to social media' channels easily, so he chooses to share information about the book on Twitter to reach a wider audience.

What Julien really likes about Triple is the more visual information given when presenting search results, he likes being able to see the type of data it is at a glance and to see the metrics (Impact factor/ number of citations/number of influential citations) without having to spend time downloading the document first. He feels that he gets a much better idea of how useful the item will be to him without having to read the whole article or book. He also enjoys the 'clustering' visual information and finds himself spending a lot of time in this view, annotating and enriching his saved material.

The Triple platform is able to recommend other academics working within the same field as Julien, he notices that some of them are in a special interest 'Group' (SIG) within Triple about 18th Century French literature. He joins the group and finds that this new Community of Practice is an excellent source of information for his work. Many people are sharing information regarding upcoming conferences and new publications. There is also a helpful forum where people can chat. Julien is able to ask advice regarding new digital tools via the forum, another participant shares a link to an excellent online MOOC that is available to learn more about digital humanities methods. He creates a new SIG about the new digital tool and is then able to utilise the forum to ask questions when he encounters a few problems. The forum feature also offers him advice on being more efficient regarding his reference collection and is an excellent place to hear about upcoming events such as webinars and conferences.



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Scenario 3: Dr Giorgia Ricci



Giorgia Ricci

AGE: 38

ACADEMIC POSITION: Senior lecturer/researcher

DISCIPLINE: History (Healthcare)

NATIONALITY: Italian

WORKING IN: University of Bologna

SCENARIO:

Having successfully merged their respective research libraries into Triple (which automatically removed any duplicates and maintained any annotations made previously) Giorgia and her colleagues at other European research institutions could view their initial literature search simultaneously, without the need to meet up in person. Giorgia then carried out a search within the Triple platform to see if they had missed anything or if there had been any new publications since they last checked a month or so ago.

By using the 'visualisation tool' the papers could be viewed, tagged and categorised collaboratively. At the click of a button they will be viewable as 'clusters' rather than a list, with similar research grouped together (with researchers having control on the filters for this). The research team noticed that the majority of papers were about a specific historical period, with a distinct lack of research on the area they intend to study, which confirmed a gap and therefore the importance of the project proposal that they are currently working on.

Using conference call technology they had a discussion about the project proposal and having developed an overview were then able to map out their project more effectively. Viewing an individual paper enabled the team to make annotations and highlight areas of importance, tagging the paper with keywords that are searchable enables easy retrieval and is more flexible than prior categorisation. A relevance 'star' rating system also enables the researchers to more easily focus on the key papers, but still include those of less relevance, that they do not wish to discard. The ability to add colour to the different categories helps the researchers to quickly distinguish them, and a 'Linkage' function allows them to easily connect together relevant publications that might be in different categories. By doing this 'relevance' exercise, the team realised that a small number of academics were very active in their field of interest, they were able to click on the names of these individuals within the publications displayed in the platform, and Triple offered the option to 'follow' the research of these individuals using their Individual identifiers (ORCID), they were able to view what type of collaboration the researchers were interested in.

The Triple interface gives options for notification preferences for future publications by people whose research you opt to follow, and an easy link to all past research papers or datasets published by the individual. A feature that the team found very useful was that by choosing the 'Projects' option they were also given an insight into past, recent, and current projects. The Triple recommender system was also able to suggest (using AI and machine learning) other Projects of relevance that might be useful. Current projects usually have active social media accounts that can be 'followed' easily from the platform, increasing the ease of the discovery process and keeping the team more informed and up-to-date with the latest research developments.



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Scenario 4: Dr Ben Dubois



Dr Ben Dubois

AGE: 30

ACADEMIC POSITION: Junior lecturer

DISCIPLINE: European History (Modern)

NATIONALITY: French

WORKING IN: Paris-Sud University

SCENARIO:

Ben is currently working on his first research post since submitting his PhD. He noticed during his PhD work that many individual academics and some projects had created collections of digital knowledge, but often it was very difficult to find this data. The Triple platform has helped to connect these individual repositories and make them much easier to discover and access.

Ben has found that the Triple visualisation tool for organising his data/publications has been invaluable to him gaining a good overview of his current research. He is able to view the articles in 'clusters' that are grouped together by virtue of similarities that they share. Ben has been able to manually 'tag' material to place it in one of the clusters (or he can choose to drag and drop the article into the cluster). He can also choose to upload articles to reference management systems as a set or individually.

Ben prints out his 'cluster map' of his new project to visualise the themes, he can also annotate this view with comments and hand drawn sketches (especially useful when he uses his tablet device). Bringing up this cluster view, he can also associate other documents with the 'map'; he has been writing some preliminary research notes that he can connect to this project. Some of the clustered data consists of datasets, and he is keen to send some of these to his tech savvy colleague who he often works with on technical tasks relating to his Digital Humanities work. He would like the option of choosing the export format for the datasets he'd like to share, he chooses to export as RDF which can be stored in json or xml.

Ben has been working on a journal publication and has completed the first draft. He would really like a native English speaker with good knowledge of his field to proof read his article before he submits it for publication. His colleague suggested that he use the Triple platform to see if he can find someone willing to do this task. By going to his profile page and viewing the suggested 'similar profiles' he can filter by 'language' and see if any native English speakers are available. Each academic is able to modify their own page to provide details of what they are willing to consider eg. 'new projects' 'conference details' and there is also an option to be willing to act as a reviewer so that others may contact them for this purpose. Ben sees that there is a native English speaker at the academic institute he completed his Masters and who has a few mutual connections, Ben makes contact to request the proof read via the platform and the request is accepted within 48 hours. Carrying out such requests adds points to the Trust building scheme and feedback can be left by both parties about this. Ben notices that the person who has carried out the favour of proof-reading is attempting to gain research funding by crowd-sourcing, he makes a donation as it is something he is interested in and also shares the link via his public profile page and Twitter account.



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Scenario 5: Carolina Weber



Carolina Weber

AGE: 23

ACADEMIC POSITION: PhD student

DISCIPLINE: Social Science/Politics

NATIONALITY: German

WORKING IN: University of Hamburg

SCENARIO:

Carolina is in her final year of her PhD, and is writing up her thesis. For the last few months she has been using the Triple platform to find information as it gives her more flexibility than other search platforms. She has enjoyed the artificial intelligence utilized to provide her with more tailored search results. She has provided feedback on the search results, and, over time these have become even better and now include results for research papers that do not include the specific keyword, but are related to them. This has meant a lot less time putting in different terms (as the different disciplines tend to use different terminology for very similar research. She finds that the 'silo effect' is much less now and she is shown papers from different disciplines rather than individual ones. As her research is at the intersection of different disciplines she found that many different terms were used by different researchers even though they were discussing very similar research.

Carolina has made good use of the article 'overview' feature, where a 5 point summary is made, highlighting the main points of the research paper without having to download it or read it all. She had previously seen this as a feature in Academia.edu, but it was a premium feature. Carolina often chooses to view her resources in the 'cluster' view where they are grouped with relevant articles together. She can also see which are the most important articles (icons displaying contextual information can be seen or hidden using the settings option). She finds the 'influential citations' or 'citation velocity' (as found in Semantic Scholar) are often more useful metrics than the overall number of citations. She often saves this 'cluster overview' and makes annotations and notes to help her gain an understanding of the 'state of the art' of the current research, enabling her to get a visual representation and a n overview of the research topic.

Carolina has been able to share her Twitter feed dataset with her PhD supervisor so that they could discuss how to process it together, she also made a visual plan for each chapter of her PhD, uploading this to her Triple private space. She has the option to share individual files or folders easily from the space without having to separately email the links. Having the option to 'tag' datasets and other non-textual files has made retrieval much easier and she also uses colour codes to ensure it's very easy to quickly identify documents relating to the different themes she is studying. She had previously used exclamation marks as a prefix to the file name to highlight the most important files in her collection, but Triple allows this 'importance rating' be done without having to rename the file. She finds it much easier to find the files she needs having all the visual cues that Triple allows, she downloads and saves a new article, choosing to add a 'tag' of 'digital behavior prompts' and the colour 'yellow' to the file (which she reserves for technology related articles) she also chooses to add the 'star' option to highlight it as important.

Open Access datasets are important for Carolina's work, she finds that Triple provides a much better way to find and store the datasets than her old way which took much longer, with Triple she can select the datasets to download and choose the best format to save it to her own space. Carolina feels that she is much more organized now, and that completing her thesis will be easier thanks to the Triple platform.



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Scenario 6: Dr Christos Sideris



Dr Christos Sideris

AGE: 36

ACADEMIC POSITION: Lecturer

DISCIPLINE: Computational Linguistics

NATIONALITY: Greek

WORKING IN: University of Thessaloniki

SCENARIO:

Christos has realised that his work as a Corpus Linguist usually involves working with people from other disciplines, often historians or traditional theologians and that this can be difficult due to differences in expectations and the different terminology used. The discipline benefits from people sharing new ways of doing things with others, and there is a strong community of practice who interact to share their knowledge about new digital tools, available datasets etc.

Christos has just begun a new collaborative project with a traditional historian and a Cultural Heritage social enterprise aiming to create a Super-registry that aggregates annotated data from smaller registries, they are also trying to improve the OCR (Optical Character Recognition) used in the analysis.

Christos has received a recommendation to use Triple from one of his colleagues. He goes to the site and takes a look at what's available. He likes the clean interface and decides to create an account. He does not have to upload all his details from scratch as he can use the information from ORCID or one of the many academic networking sites, such as ResearchGate, or Academia.edu to save him time. He is able to view his profile, including a full list of his research publications and other material. He finds it useful to keep a track on how often people access his work and cite it, viewing his profile page in Triple allows him to easily monitor the metrics on this.

Christos has found that Triple's aggregation of many different individual research catalogues has saved him a lot of time and effort in searching for new data and datasets. Today he wants to look for new open access datasets and also share a new dataset of annotated Corpora that he has created to the group folder that was set up for their collaborative project. He chooses to upload it in the JSON format as the Computer Scientist he collaborates with is using Python. The platform recognises that it is a dataset and tags it accordingly, displaying the tag when shown in a list of his saved materials. Christos also has the option to add his own tags to help later retrieval, and to allow his colleagues to know the contents at a glance. Once the work is finished and the Corpora complete, they will be make them public for others to use, but for now they remain private and visible only by the group.

Whilst he is logged onto the system he checks out the Computational Linguistic group that he joined, he notices that a fellow member has shared references for several books on learning digital skills for various new methods that he is keen to learn about. He finds the group useful as he is able to ask questions if he's not sure about something and people respond quickly with helpful suggestions and advice. He finds a useful 'Interdisciplinary Glossary' that had listed common terms used in various disciplines with an easy to understand description that would be understandable by others from outside of that discipline. He shares it to their project's group repository, hoping it will help to develop a shared vocabulary and understanding between the technical and non-technical disciplines. He hopes that AI and machine learning methods will be able to present relevant data even if a synonym is used as this is a common problem in multidisciplinary research.



The TRIPLE project is funded by the European Commission, under Grant Agreement No. 863420



Scenario 7: Mr David Green



Mr David Green

AGE: 48

POSITION: CEO Small Business

NATIONALITY: British

SCENARIO:

David has just seen a new call for funding in the area he works (supporting mental health initiatives for Young People) via his Triple notifications. He set up his profile and preferences on the platform, including to be notified about funding calls. The call is a joint Industry/Academic initiative and he is keen to apply for it. His first priority is to see who the 'key players' are in the academic world, he has looked up relevant publications in the past, but after finding a lot of academic work not so accessible, he tends to focus on the 'grey' literature – ie that from third sector organisations working in mental health and education. As David is not an academic, he does not know who the 'key researchers' are in this area. Using the 'order by' options of the search he is able to take into account the 'impact' of the academic work shown to him, with the highest impact publications appearing first (or at least shown as a metric). He can also choose to order by relevance or date of publication. The Triple platform shows various contextual information in colour coded 'tags' above the publication/dataset making it easier to differentiate at a glance. He can also narrow down the search using advanced search options. David uses the advanced search to find the datasets he needs, and he is able to save the materials to his account. He is also able to 'bulk download' the relevant articles once he identifies a few key ones that are relevant, he can choose to also download associated relevant articles. He finds that the clustering function of relevant publications really helps with gaining an overview and to identify the potential gaps that could be addressed in the funding proposal.

David also searches via the Triple platform for relevant 'projects' supporting young people's mental health using the 'Search Projects' option. He also searches for other material, including presentations, publications and reports David finds that the videos of presentations and project findings he finds on the platform are particularly helpful and much more accessible than an academic publication. He also feels that by seeing and hearing the people involved speak about their work, this helps him identify the people he would be keen to work with in a way that academic publications would not, he gets a feel for the passion of the individuals and identifies if they are someone he would like to work with in the future.

David finds that there is a large national project just starting in his area, the local funding he is keen to apply for would benefit from the interaction and perhaps some kind of affiliation with this large project. He is able to request a 'contact call' – introducing himself and his interest in the project via the Triple interface to the relevant academics involved. Academics will be able to view the 'call for collaboration' and also David's profile page. David is also considering setting up crowd-funding to match-fund the bid and increase his chance of success. He is able to scroll through existing and previous crowd-funding via the platform to see how successful they have been.



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Scenario 8: Ms Maria Masthoff



Ms Maria Masthoff

AGE: 39

POSITION: **Advisor to Policy Makers**

NATIONALITY: Netherlands (Based in Brussels)

SCENARIO:

With the current Covid-19 crisis across Europe (and the world) many countries have looked to introduce drastic social distancing models, closing schools and many non-essential businesses. Maria is using current data and social research to provide the Netherlands with documents and information that can guide their evolving response to the crisis.

Maria conducts a Dataset search on the Triple platform; she finds relevant material and is able to save it to her 'dashboard'. She also searches for recent publications, she conducts an advanced search and restricts the results to 'European countries'. As time is very short and she is working to strict deadlines, she does not read all the papers presented in the search results in full, but highlights each paper she is interested in using the select option and then chooses the 'show overview' option for all of the papers selected. This saves her time downloading a lot of PDFs separately and she finds that it's much easier than having to read each abstract as she sees it in the list. The overview, highlights the Abstract and key takeaway messages from the publication in a couple of paragraphs.

The purpose of her report is to Bridge the gap between the academic and political world, ensuring that the information provided to Policy Makers is accessible and relevant to current practices across the current social and economic environment. Maria finds that Triple is able to help her work more efficiently by providing her with a single space to work, providing access to and a suitable platform to store relevant material that she can retrieve easily, group with other material (regardless of document type) and also share easily with colleagues.

Maria is able to create her report using the saved material, especially as the access to the raw data from the datasets allows her to modify the graphs to more effectively show the specific elements she is highlighting. Three of the publications of the 12 that she read the overviews from are of particular interest, so she chooses to download the full version of these which she can then view, organise and annotate easily from her Triple 'dashboard'.

Having easily accessible information, clearly defining the source and the methodology behind the research and the dataset is crucial. As the current Covid-19 crisis has evolved so rapidly, it's essential that she access the research information quickly, as soon as it is produced, she's never been in a situation where it's been so important before. She was interested and pleased to see that many of the research portals have made the Covid-19 data the first thing you see when entering the site. She thinks that an option to be presented with the research you are interested in straight away is very appealing.



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8 | USER NEEDS

From the eight TRIPLE Scenarios the User Needs for the Triple Platform were identified. These are presented in this section by scenarios first and then later in a regrouping, showing the main emergent functionalities/features from this work.

8.1 User Needs by Scenario

Needs for Scenario 1: Emily Lewis

- 1.1 The user shall be able to Receive notifications about new publications of relevance
- 1.2 The user shall be able to Bulk download publications (from search or notification)
- 1.3 The user shall be able to Tag files using Keywords
- 1.4 The user shall be able to Colour code files
- 1.5 The user shall be able to Find academics/key researchers within an area of expertise
- 1.6 The user shall be able to Restrict the search to a geographical area
- 1.7 The user shall be able to View Profile of academics
- 1.8 The user shall be able to View mutual acquaintances
- 1.9 The user shall be able to Add events to Triple Profile page
- 1.10 The user shall be able to View metrics of who has seen the information about the event
- 1.11 The user shall be able to Send invitations to an event

Needs for Scenario 2: Julien Martin

- 2.1 The user shall be able to Create a profile on the Triple platform (from scratch)
- 2.2 The user shall be able to Add details of a new publication to their profile page
- 2.3 The user shall be able to highlight the new publication
- 2.4 The user shall be able to Share details easily to social media channels
- 2.5 The user shall be able to Search for publications

- ☒ 2.6 The user shall be able to Create a 'clustered' view of publications linked by themes
- ☒ 2.7 The user shall be able to Save the cluster view
- ☒ 2.8 The user shall be able to Annotate the cluster view with notes
- ☒ 2.9 The user shall be able to View Special interest Groups (SIG)
- ☒ 2.10 The user shall be able to Connect with others via the SIG
- ☒ 2.11 The user shall be able to View posts in the SIG
- ☒ 2.12 The user shall be able to Create a new SIG

Needs for Scenario 3: Giorgia Ricci

- ☒ 3.1 The user shall be able to Merge a reference library into Triple
- ☒ 3.2 The user shall be able to Ensure no replications of publications
- ☒ 3.3 The user shall be able to View the 'clustered' publications with colleagues remotely
- ☒ 3.4 The user shall be able to View and annotate (highlight and notes) an individual publication
- ☒ 3.5 The user shall be able to Retrieve files using keywords
- ☒ 3.6 The user shall be able to Add a relevance rating
- ☒ 3.7 The user shall be able to View colour coded files together (eg all files coloured blue)
- ☒ 3.8 The user shall be able to Link together files (that may be colour-coded differently)
- ☒ 3.9 The user shall be able to Follow the work of academics (including on Social media sites)
- ☒ 3.10 The user shall be able to Choose to receive notifications when these academics publish new work
- ☒ 3.11 The user shall be able to find out what type of collaboration other researchers are interested in

Needs for Scenario 4: Ben Dubois

- ☒ 4.1 The user shall be able to Sign into their account (using both account password or by connecting via social media or email account).

- ☒ 4.2 The user shall be able to Tag (manually) a publication to add it to a cluster
- ☒ 4.3 The user shall be able to Drag and drop a publication into a cluster to add it to this group
- ☒ 4.4 The user shall be able to Associate other documents with the cluster map
- ☒ 4.5 The user shall be able to Export a dataset (choosing file format)
- ☒ 4.6 The user shall be able to View profiles of similar academics
- ☒ 4.7 The user shall be able to Search for a person by name
- ☒ 4.8 The user shall be able to Search for a Native English speaker in his academic area
- ☒ 4.9 The user shall be able to Request proof-reading by this academic
- ☒ 4.10 The user shall be able to View crowd-funding requests for research
- ☒ 4.11 The user shall be able to Donate to crowd-funding appeal
- ☒ 4.12 The user shall be able to Choose to receive further notifications about crowd-funding

Needs for Scenario 5: Carolina Weber

- ☒ 5.1 The user shall be able to Obtain tailored (AI enhanced) search results (includes terms learnt that are connected)
- ☒ 5.2 The user shall be able to View 'Article Overview' for a publication
- ☒ 5.3 The user shall be able to Share an individual file
- ☒ 5.4 The user shall be able to Share a folder
- ☒ 5.5 The user shall be able to Tag a dataset
- ☒ 5.6 The user shall be able to Colour-code a file/dataset
- ☒ 5.7 The user shall be able to Download a single publication
- ☒ 5.8 The user shall be able to get an overview of a research topic
- ☒ 5.9 The user shall be able to get a visual representation of research topics

Needs for Scenario 6: Christos Sideris

- ☒ 6.1 The user shall be able to Create a new Triple account

- ☒ 6.2 The user shall be able to Create a profile (using existing data – adding Unique Identifier)
- ☒ 6.3 The user shall be able to view a list of their own publications
- ☒ 6.4 The user shall be able to view metrics on how often people view and cite their work
- ☒ 6.5 The user shall be able to Upload a dataset (private)
- ☒ 6.6 The user shall be able to Make the dataset public
- ☒ 6.7 The user shall be able to Create a Group repository
- ☒ 6.8 The user shall be able to Share files to the Group repository

Needs for Scenario 7: David Green (stakeholder)

- ☒ 7.1 The user shall be able to Search ordering by 'impact'
- ☒ 7.2 The user shall be able to Search by most recent publication
- ☒ 7.3 The user shall be able to Search for Projects
- ☒ 7.4 The user shall be able to Search for presentations (slides/video format)
- ☒ 7.5 The user shall be able to View academic profile
- ☒ 7.6 The user shall be able to see contact details of an academic
- ☒ 7.7 The user shall be able to View amount of funding crowd-funding calls obtained

Needs for Scenario 8: Maria Masthoff (stakeholder)

- ☒ 8.1 The user shall be able to Search for a dataset
- ☒ 8.2 The user shall be able to Save the dataset
- ☒ 8.3 The user shall be able to make an Advanced search (eg. Geographical area = Europe)
- ☒ 8.4 The user shall be able to Select publications to download from a list
- ☒ 8.5 The user shall be able to Save search terms to be presented with this search again

8.2 User Needs by Functionality/Feature

The user needs that emerged from the scenarios were then ‘clustered’ by emerging functionalities/features to create the following groups. A new ‘user story’ was written to describe each of the clusters.

Feature: Create Account/Profile

User Story: As a user I would like to easily create my TRIPLE account so that I can keep track of my research and that of others

- 6.1 The user shall be able to Create a new Triple account
- 6.2 The user shall be able to Create a profile (using existing data – add Unique Identifier)
- 6.3 The user shall be able to view a list of their own publications
- 6.4 The user shall be able to view metrics on how often people view and cite their work
- 4.1 The user shall be able to Sign into account (using both account password or by connecting via social media or email account)

Feature: Manage Account/Profile

User Story: As a user I would like to easily manage my TRIPLE account so that I can promote my own work and share my discoveries

- 2.1 The user shall be able to Create a profile on the Triple platform (from scratch)
- 6.2 The user shall be able to Create a profile (using existing data – via Unique Identifier)
- 6.4 The user shall be able to View metrics on how often others view/cite their work
- 1.7 The user shall be able to View Profiles of academics
- 1.1 The user shall be able to Receive notifications about new publications of relevance
- 1.9 The user shall be able to Add events to Triple Profile page

- ☒ 1.11 The user shall be able to Send invitations to an event
- ☒ 1.10 The user shall be able to View metrics of who has seen the profile / information about the event
- ☒ 2.4 The user shall be able to Share details easily to social media channels
- ☒ 2.2 The user shall be able to Add details of a new publication to their profile page
- ☒ 2.3 The user shall be able to highlight a new publication

Feature: Discovery of resources

User Story: As a user I would like to use TRIPLE to discover resources which are relevant for me so that my work benefits from this

- ☒ 2.5 The user shall be able to Search for publications
- ☒ 8.1 The user shall be able to Search for a dataset
- ☒ 7.1 The user shall be able to Search ordering by 'impact'
- ☒ 7.2 The user shall be able to Search by most recent publication
- ☒ 7.3 The user shall be able to Search for Projects
- ☒ 7.4 The user shall be able to Search for presentations (slides/video format)
- ☒ 5.2 The user shall be able to Read an 'Article Overview' for a publication
- ☒ 8.5 The user shall be able to Save search terms to be presented with this search again

Feature: Discovery of Data

User Story: As a user I would like to use TRIPLE to discover datasets so that I can reuse the data for my own research

- ☒ 8.1 The user shall be able to Search for a dataset
- ☒ 8.2 The user shall be able to Save the dataset
- ☒ 4.5 The user shall be able to Export a dataset (choosing file format)

- ☒ 5.5 The user shall be able to Tag a dataset
- ☒ 5.6 The user shall be able to Colour-code a file/dataset
- ☒ 6.5 The user shall be able to Upload a dataset (private)
- ☒ 6.6 The user shall be able to Make a dataset public

Feature: Discovery of People

User Story: As a user I would like to discover other people in TRIPLE and what they are working on so that I can start my collaboration with them

- ☒ 4.7 The user shall be able to Search for a person by name
- ☒ 4.8 The user shall be able to Search for a Native English (or other language) speaker in his academic area
- ☒ 7.5 The user shall be able to View academic Profile
- ☒ 7.6 The user shall be able to View contact details of an academic
- ☒ 4.9 The user shall be able to Request proof-reading by an academic
- ☒ 1.5 The user shall be able to Find academics within an area of expertise
- ☒ 1.6 The user shall be able to Restrict the search to a geographical area
- ☒ 1.8 The user shall be able to View mutual acquaintances

Feature: Advanced Discovery/Cluster view

User Story: As a user I would like to use advanced discovery tools on TRIPLE so that I can increase my capacity to produce high quality research

- ☒ 2.6 The user shall be able to Create a 'clustered' view of publications linked by themes
- ☒ 2.7 The user shall be able to Save the cluster view
- ☒ 2.8 The user shall be able to Annotate the cluster view with notes
- ☒ 4.4 The user shall be able to Associate other documents with the cluster map

- ☒ 3.3 The user shall be able to View the 'clustered' publications with colleagues remotely
- ☒ 4.3 The user shall be able to Drag and drop a publication into a cluster to add it to this group
- ☒ 8.3 The user shall be able to make an Advanced search (eg Geographical area = Europe)
- ☒ 3.4 The user shall be able to View and annotate (highlight and notes) an individual publication
- ☒ 5.1 The user shall be able to Obtain tailored (AI enhanced) search results (includes terms learnt that are connected)
- ☒ 5.8 The user shall be able to get overviews of research topics
- ☒ 5.9 The user shall be able to get a visual representation of research topics
- ☒ 8.5 The user shall be able to Save search terms to be presented with this search again

Feature: Saving discoveries

User Story: As a user I would like to save my TRIPLE discoveries so that I can reuse them later when I need them

- ☒ 5.7 The user shall be able to Download a single publication
- ☒ 8.4 The user shall be able to Select publications to download from a list
- ☒ 1.2 The user shall be able to Bulk download publications (from search or notification)
- ☒ 3.5 The user shall be able to Retrieve files using keywords

Feature: Sharing Discoveries

User Story: As a user I would to share my TRIPLE discoveries with others so all researchers and stakeholders can benefit from them

- ☒ 5.3 The user shall be able to Share an individual file
- ☒ 5.4 The user shall be able to Share a folder
- ☒ 6.7 The user shall be able to Create a Group repository

- ☒ 6.8 The user shall be able to Share files to the Group repository
- ☒ 2.4 The user shall be able to Share details easily to social media channels
- ☒ 2.3 The user shall be able to highlight the new publication
- ☒ 6.6 The user shall be able to Make a dataset public

Feature: Organising discoveries

User Story: As a user I would like to organise my TRIPLE discoveries so that I can easily find and reuse them

- ☒ 1.3 The user shall be able to Tag files (using Keywords)
- ☒ 1.4 The user shall be able to Colour code files
- ☒ 3.6 The user shall be able to Add a relevance rating
- ☒ 3.7 The user shall be able to View colour coded files together (eg all files coloured blue)
- ☒ 3.8 The user shall be able to Link together files (that may be colour-coded differently)
- ☒ 3.5 The user shall be able to Retrieve saved files using keywords
- ☒ 3.1 The user shall be able to Merge a reference library into Triple
- ☒ 3.2 The user shall be able to Ensure no replications of publications

Feature: Crowdfunding

User Story: As a user I would like to use the TRIPLE crowdfunding so that research can receive appropriate financial support

- ☒ 4.10 The user shall be able to View crowd-funding requests for research
- ☒ 4.11 The user shall be able to Donate to crowd-funding appeal
- ☒ 4.12 The user shall be able to Choose to receive further notifications about crowd-funding
- ☒ 7.7 The user shall be able to View amount of funding crowd-funding calls obtained

Feature: Networking

User Story: As a user I would like to connect with other scholars and stakeholders in TRIPLE so that we can better collaborate on joint research activities

- ☒ 1.5 The user shall be able to Find academics within an area of expertise
- ☒ 4.7 The user shall be able to Search for a person by name
- ☒ 7.5 The user shall be able to View academic profile
- ☒ 4.6 The user shall be able to View profiles of similar academics
- ☒ 7.6 The user shall be able to View contact details of an academic
- ☒ 1.8 The user shall be able to Highlight mutual acquaintances
- ☒ 3.9 The user shall be able to Follow the work of academics (including on Social media sites)
- ☒ 3.10 The user shall be able to Choose to receive notifications when these academics publish new work
- ☒ 3.11 The user shall be able to find out what type of collaboration other researchers are interested in

Feature: Notifications

User Story: As a user I would like to receive notifications from TRIPLE so that it is easier for me to keep track of what is going on

- ☒ 1.1 The user shall be able to Receive notifications about new publications of relevance
- ☒ 3.11 The user shall be able to Choose to receive notifications when selected academics publish new work
- ☒ 4.12 The user shall be able to Choose to receive further notifications about crowd-funding

Feature: Groups

User Story: As a user I would like to participate in TRIPLE groups with other participants so that we can collaborate on specific topics

- ☒ 2.9 The user shall be able to View Special interest Groups (SIG)
- ☒ 2.10 The user shall be able to Connect with others via the SIG
- ☒ 2.11 The user shall be able to View posts in the SIG
- ☒ 2.12 The user shall be able to Create a new SIG
- ☒ 6.7 The user shall be able to Create a Group repository
- ☒ 6.8 The user shall be able to Share files to the Group repository
- ☒ 3.3 The user shall be able to View the 'clustered' publications with colleagues remotely

Feature: Events

User Story: As a user I want information about scholarly events to be shared with others in TRIPLE so that people can participate

- ☒ 1.9 The user shall be able to Add events to Triple Profile page
- ☒ 1.10 The user shall be able to View metrics of who has seen the information about the event
- ☒ 1.11 The user shall be able to Send invitations to an event

9 | CONCLUSION AND NEXT STEPS

This deliverable has reported on the findings of Task 3.1 of the TRIPLE project and in particular on the user needs for the platform. Interviews were conducted with SSH researchers and other stakeholders leading to the creation of Personas and Scenarios underpinning the identification of a list of user needs and their grouping within potential functionalities.

The user needs generated by this work will, in the coming months, be discussed within the project consortium to decide: a) which of the user needs are necessary, should be prioritised and thus go into production, b) which of them may be desirable and assess their feasibility within the project constraints (time/budget etc.) and then c) which of them are out of scope and should then be discarded. The identification of the priority needs will also underpin the work on the design of the TRIPLE User Interface. This work specifically, is set to last until Month 24 of the project and go over a number of prototyping cycles which will be intertwined with the activities of the next tasks planned for WP3 and in particular with the co-design Tasks 2.2, 2.3 and 2.4. Also the Personas and the Scenarios produced will put to good use during the whole life time of the project, indeed these can constitute both relevant communication material but also material which will be used during the co-design in conjunction with the interface prototypes. Additionally some of the findings from the initial research on user needs will be later augmented with the results of an end-user survey which is currently being distributed across Europe (with results' writing expected in M14 of the project).

In the coming 3 months, WP3 activities will also be oriented at addressing the challenges of the present COVID crisis. It was indeed the plan for the co-design to be conducted in person, during workshops and other SSH scholarly events, which have been cancelled. As it is unlikely that any close contact will be allowed in the near future, the WP3 consortium members are working on an alternative plan in order to conduct the co-design activities remotely and are studying how other organisations are solving similar challenges in order to prepare a tailored solution for the TRIPLE research.

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11 | APPENDICES: RESEARCH INTERVIEWS

a. Interview Script for SSH researchers

Introductory question:

1. Just to begin the interview and to get to know you a bit better, we would love to know a little bit about yourself and the work that you do?

Discoverability of Data/Information/Publications/Projects

2. How would you normally start a new research endeavour (for example a project) ? What steps would you normally take?
3. How would you usually search for material for a new/unknown research topic or area? (for example Scientific papers, results of previous research activities, other projects and datasets for your research)
4. What is it that frustrates you most in your process of “discovering” this material (Scientific papers, results of previous research activities, other projects and datasets)? What is most satisfying or works well?
5. How do you normally store /organise the new data/information that you discover during your searches?
6. How would you connect this new document/data/material to previous material you might have found or are working on? How would you normally make notes on or annotate an article of relevance? Or a new document? Or a new found dataset?
7. For your work, do you reuse data from others? How would you normally go about analysing the data you have discovered? May not be relevant to all disciplines
8. Are there specific problems with the tools you currently use for any of this [searching, storing, making sense etc/]??
9. Would you like to see something (new tool) different that can better help you?

Discoverability of People

10. Collaboration is becoming increasingly common in the Academic world, due to the need of having different skill-sets in same projects etc. If you wanted to find new research partners in a particular area, or with particular expertise, how would you go about this? can you tell us about any difficulties you have in doing this?
11. How would you establish trust with new people? Is this collaboration virtual or done in real spaces (lab)? What works well?
12. What do you think are potential barriers to doing interdisciplinary research in Social

Sciences/Humanities?

Discoverability of you and your work by others (scalability):

13. When you use existing online tools for creating your own research profile and promoting your work and networking (e.g. linkedin or other platforms) do you think they are effective?
14. What do you do to generate interest in others for your work (e.g. new open data you generated or found, a new paper, a new discovery, a new concept) ? Are there any problems with how you do this and can you envisage something different that could improve the process? What would make your life easier in terms of spreading information about your own work beyond research and academia?
15. Are there specific problems with the tools you currently use for disseminating your work? Would you like to see something (new tool) different that can better help you?

Looking forward:

16. In your opinion, are there any new or emerging trends in your field around the discovery/use of data?
17. What kind of new skills/tools do you think will be relevant for your work in the coming 5-10 years?

Conclusion:

18. Is there something else you would like to add we have not covered in this interview?
Any questions for us?

b. Interview Script for other stakeholders

Introductory question:

1. Just to begin the interview and to get to know you a bit better, we would love to know a little bit about yourself and the work that you do?

Discoverability of Data/Information/articles of relevance

The project we are working on will create tools supporting professionals/citizens like you to find information which is relevant for them, in whatever capacity (whether it's business, citizens, journalists, policy makers etc.).

2.		
Policy Makers	Journalists	Business

<p>How do you normally keep up to date with what you need to know for your work?</p> <p>(for example current news, relevant local/national eu matters etc.). Also Where do you tend to look first?</p>	<p>How do you keep up to date with what you need to know for your work?</p> <p>(for example latest events or developments trends you can write about etc.)</p> <p>Also Where do you tend to look first?</p>	<p>How do you keep up to date with what you need to know for your work?</p> <p>(for example what new business related development in your country, or market trends, customer needs)</p> <p>Also Where do you tend to look first?</p>
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3.		
Policy Makers	Journalists	Business
How do you usually search/look for the knowledge needed to effectively inform you when drafting new policies (or amending existing ones)?	How do you usually search/look for the knowledge needed to inform you when writing articles about new research/discoveries?	How do you usually search/look for new knowledge for new business ideas/improving your current products?

The project we are working on is about research and will also seek to create solutions to allow people like you to get in touch with scientists/experts and especially access the latest knowledge they develop, with a particular focus on social sciences and humanities.

4.		
Policy Makers	Journalists	Business
Could you tell us, to what extent you think having knowledge about the latest	Could you tell us, to what extent you think having knowledge about the latest	Could you tell us, to what extent you think having knowledge about the latest

scientific discoveries/technological development is important for the work that you do?	scientific discoveries/technological development is important for the work that you do?	scientific discoveries/technological development is important for your business activities?
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5.		
Policy Makers	Journalists	Business
And what about the latest development in social sciences or humanities? Are they relevant for your work? Could you tell us how?	And what about the latest development in social sciences or humanities? Are they relevant for your work? Could you tell us how? Do you write often about the latest trends in SSH?	And what about the latest development in social sciences or humanities? Are they relevant for your work? Could they be relevant for your business?

6.		
Policy Makers	Journalists	Business
Have you ever used/read academic reports / publications to inform your work? Could you describe this to us?	Have you ever used/read academic reports / publications to inform your work? Could you describe this to us?	Have you ever used./read academic reports / publications to inform your work? Could you describe this to us?

7.		
Policy Makers	Journalists	Business
Are there any specific problems with the tools (especially digital ones) you currently use (or have used) for any of the things we discussed? (getting	Are there any specific problems with the tools (especially digital ones) you currently use for any of the things we discussed?	Are there any specific problems with the tools (especially digital ones) you currently use for any of the things we discussed? (getting

knowledge, consulting reports etc etc.)	(getting knowledge, consulting reports etc etc.)	knowledge, consulting reports etc etc.)
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Discoverability of People/Expertise and scalability of your work

8.		
Policy Makers	Journalists	Business
If you wanted to find a person with expertise in a particular area (for example in policy work you are developing) how would you go about this?	If you wanted to find a person with expertise in a particular area (for example for writing a new article) how would you go about this?	If you wanted to find a person with expertise in a particular area (for example for a new business idea) how would you go about this?

9.		
Policy Makers	Journalists	Business
On the other side of the equation, if you have a new policy, how do you encourage others to become interested and involved in your work?	On the other side of the equation, if you have a new article/reporting you are working on, How do you encourage others to become interested and involved in your work?	On the other side of the equation, if you have a new business idea/product, How do you encourage others to become interested and involved in your work?

10.		
Policy Makers	Journalists	Business
Could you describe to us an example-case when you have successfully collaborated with experts (in particular scientists) in developing new policies? Or	Could you describe us an example-case when you have successfully collaborated with experts (in particular scientists) in developing new writings? Or even	Could you describe us an example-case when you have successfully collaborated with experts (in particular

even contributing to their research?	contributing to their research?	scientists) in developing new business? Or even contributing to their research?
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11.		
Policy Makers	Journalists	Business
What kind of (digital tools) would you normally use to find experts you are interested in getting in contact with?	What kind of (digital tools) would you normally use to find experts you are interested in getting in contact with?	What kind of (digital tools) would you normally use to find experts you are interested in getting in contact with?

Looking forward:

12. How would you think people like you could collaborate better in the future with scientists? (especially in SSH)

Conclusion:

13. Is there something else you would like to add we have not covered in this interview?
Any questions for us?