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Report on Third-Party Applications Integration

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Acronyms

API	Application Programming Interface
App	Application
DH	Digital Humanities
Discovery Platform	GoTriple Platform
DoW	Description of Work
ECSP	European Crowdfunding Service Provider
EOSC	European Open Science Cloud
GDPR	European General Data Protection Regulation
KYC	Know Your Customer
RI	Research Infrastructure
SSH	Social Sciences and Humanities
T&Cs	Terms of Use
TGE	Transnational Giving Europe
WP	Work-package
WP1	Work-package 1 – “Management”
WP2	Work-package 2 – “Data acquisition and categorisation”
WP3	Work-package 3 – “Co-design and user research”
WP4	Work-package 4 – “Integration and building of TRIPLE platform”
WP5	Work-package 5 – “Development and integration of innovative services”
WP7	Work-package 7 – “Innovation, Exploitation and Sustainability”

Publishable Summary

This document presents the activities performed in the task T5.1 of the TRIPLE project until month M24. T5.1 focuses on the integration of third-party applications in the GoTriple Discovery Platform. Several tasks have been performed in this regard in the period under consideration.

To start with, a significant effort was devoted to analyse the integration of a Crowdfunding service for SSH researchers. We recognise in fact that such a tool can constitute an agile and an effective opportunity to find financial sources for a particular kind of research activities, e.g. small projects, which can be accomplished with limited investments but need quick timings to be performed successfully.

This integration has been analysed in full, not only analysing the possible implementation scenarios but especially by taking in considerations all the organizational aspects, including governance, financial, legal and fiscal issues, made even more complicated in an international context as those of the GoTriple platform.

Two specific assignments have been given to external partners: one to WelcomEurope, for the analysis of all the possible issues to consider when operating a platform dedicated to financing SSH research projects; another to Wemakeit, the company which will operate the TRIPLE Crowdfunding service until the end of the project.

The work in T5.1 didn't stop here: through user research, other third-party tools to integrate in GoTriple have been identified, namely: a metrics service, to obtain data about the impact of a publication; a translation service, to guarantee that every content published in GoTriple has always a description in English. Finally, the integration of widely used bookmarking tools, that allow users to manage bibliographic references of publications, will be also pursued: a supplement of analysis will be done in the following months to identify the possible integration scenarios and to select the actual tools to support in GoTriple.

The integration with third-party apps is therefore an ongoing process: the presentation of the final scenario will be provided at month M40, in the updated release of this deliverable.

1 | INNOVATIVE SERVICES IN TRIPLE: AN OVERVIEW

The main outcome of the TRIPLE project is the creation of the GoTriple Discovery platform, which has the ambition to become the “one stop shop” for discovering all relevant information related to the SSH domain, being scientific publications, datasets, projects or profiles of researchers working in this field.

As part of the OPERAS ecosystem, GoTriple will have a significant visibility, attracting users from the very diverse disciplines of the SSH world in their search for specific information, either with a “Google-like” paradigm, or when approaching research with an explorative perspective, that is starting from a generic need and following, repeatedly, the suggestions that the platform provides.

In offering these functionalities, GoTriple also aims to enrich the users’ experience by providing additional services. This is exactly the main goal of Work-Package 5, which is focused on the design, development and integration in GoTriple of innovative applications and tools that are not part of the core of the TRIPLE platform.

As stated in the project’s DoW [1] innovative services “aims to deliver additional fundamental services for SSH researchers and other TRIPLE stakeholders”, including, as an example” tools to:

- support users to involve and engage other users (researchers and other stakeholders), allowing them to interact, exchange ideas and collaborate on SSH related content
- help TRIPLE users with the discovery and exploration of content
- allow TRIPLE users to perform "specific" and innovative actions, not possible or available in other similar platforms.

Some of these additional tools have been identified since the inception of the project, namely the Recommender, the Trust Building System, the Open Annotation Tool and the Visualization and Discovery systems. These services are not developed from scratch but they expand existing applications, which have been updated, refactored and finally integrated with the Core of the GoTriple platform in the course of TRIPLE. For each one of them, there is a dedicated task within WP5, their development is carried on by project partners and the work done so far is described in specific deliverables.

Besides these “main” innovative services, it has been planned to consider the integration of few other external third party applications, that is, existing tools not developed within the TRIPLE consortium, that can be technically integrated in the GoTriple platform to provide significant added value to its users.

This is the focus of the T5.1 task in the project, whose work is described in the present document.

2 | FOCUS ON THIRD PARTY APPLICATIONS

The goal of T5.1 is to identify and integrate “applications that are most commonly used by SSH researchers for their research activities”, in order to “facilitate the onboarding process, attracting researchers that use the third-party applications integrated with GoTriple; engage and involve users who don't know GoTriple but see contents shared from GoTriple on other applications; integrate GoTriple into the existing workflows of researchers”¹.

From an organisational viewpoint, this task runs from month M10 (July 2020) to month M40 (January 2023) in the TRIPLE’s timeline. Its goal is therefore to identify which type of third party applications can be suitable and eligible for a synergy with GoTriple, to select the actual services and finally to perform the necessary technical integration.

Amongst the possible categories of services to consider, crowdfunding has always had a special importance. The possibility to consider such a tool for TRIPLE has been even mentioned in the DoW, since it has been recognised how crucial the research for funds can be for SSH researchers.

Of course having a crowdfunding tool at hand doesn’t represent the definitive answer to all the financial problems of the SSH domain, but it can constitute an effective option for our target audience to find financial sources for a research activity. This might be especially interesting for “small initiatives”, for example something to perform to follow a particular pressing social phenomenon that emerges and might need a quick time of analysis and a fast response.

As such, it has been decided to devote part of the focus of T5.1 to analyse in detail the integration of a crowdfunding tool in TRIPLE. At the same time, other third party applications, not known beforehand, might enrich the users’ experience of our Discovery platform: the rest of T5.1 is therefore dedicated to identify them and to “bring them on board” of GoTriple. In both cases, the specific services (and consequently the service providers behind them) haven’t been defined beforehand but have to be selected as part of the work of T5.1, performed in close cooperation with

- WP3, the “Co-design and user research” TRIPLE work-package, specifically dedicated to elicit the user needs as well as to co-design core functionalities of GoTriple platform. This collaboration is fundamental to select the most suitable and useful services amongst the possible options.
- WP4, whose team is at work to design and implement the GoTriple platform. They can identify the best integration strategies in the discovery platform of the chosen applications.
- WP7, the work-package dedicated to the analysis of innovation, exploitation and long-term sustainability of the outcomes of the TRIPLE project.

The present deliverable describes the activities performed in T5.1 so far. The document is divided in two main parts, the first completely dedicated to the crowdfunding service (chapter 3) and the other which focuses on the selection and integration of other third party applications (chapter 4). As it is explained below, at present the services to integrate have been just

¹ As indicated in the project’s Description of Work (DoW) [1].

identified, while the real integration work will be carried on in the following months of the project.

3 | THE CROWDFUNDING SERVICE

3.1 Defining the requirements for the service

The work to integrate a crowdfunding tool in TRIPLE has been assessed and performed from multiple viewpoints.

To start with, the team of WP3 has conducted dedicated workshops in February 2021 as part of their work for the task T3.2, with the intention of investigating the perceived important factors for crowdfunding SSH research amongst a selection of future possible GoTriple users (both researchers and citizens).

While the full description of their findings is described elsewhere, it might be useful to summarize here the main issues that arose at these workshops.

First of all, 19 persons (9 citizens and 10 researchers) were involved in a total of 7 sessions. Their viewpoints were analysed from a complementary perspective: on the one hand it was analysed the “intention” of citizens to fund research through crowdfunding, while researchers were interviewed about their propensity to exploit this kind of service.

Citizens, who were in general quite aware of existing crowdfunding services, were asked about their possible motivating factors to join a crowdfunding campaign. They cited as the main reasons the interest on the topic of the research, the possibility to achieve a common good, empathy with the initiative, the trust on the platform used, in particular as far as the security of payment is concerned, but also being reached by targeted promotion, the possibility to receive feedback on progresses, possibly by email on a monthly basis, and to be acknowledged as contributors.

Very important factors for making the decision to fund a project were also:

- the possibility to peer review the initiative by other researchers in the field
- the affiliation of the researchers, their experience, qualifications, metrics and (to a lesser extent) career level
- the quality of the proposal and its presentation (e.g. the use of videos).

Preferences were given to a crowdfunding platform in which the anonymity of donors is preserved, that is trustworthy, easy to use, without a “log-in barrier” and that supports multilingualism.

It is very interesting to also note that citizens mentioned the necessity of having a fixed timeline for the crowdfunding campaign as well as the importance to avoid “closed” (siloes) research and to have reusable results, e.g. in open access form.

As said (and also reported in section 5.3 of D3.4 [2]), the interviews with researchers were done with a different perspective. To start with, they were in general quite open to the possibility of using crowdfunding for their research, especially in the case in which the initiative is directly managed by their organisation (e.g. a University or a Research Centre) which directly gets the funds at the end. This option in fact was also preferred to avoid the burden of managing finances and taxation.

They perceived as the most important motivational factors, mostly the same ones cited by citizens (common good, empathy, interest in the topic, open access results, the trust on the platform,...).

Again, the importance of having a well presented research proposal, the use of video explanations and good visual solutions, is considered paramount for the success of a crowdfunding campaign.

Researchers were also asked about the kind of support that they expect to receive from the crowdfunding service: useful features were the guidelines in putting together the proposal, with online instructions and videos, the access to past examples, the possibility to find collaborators to onboard but also the support for promoting the initiative in an effective way.

They were also quite comfortable to leave a small percentage of the total sum raised to the platform, as a service fee.

For them, what could give the greatest chance of success to the campaign is targeting a particular network, presenting the project with a realistic timeframe and transparent budget, a smart use of social media and creating an effective advertising campaign.

If the campaign is not completely funded, the researchers prefer not to waste the opportunity. They suggest that in this case they can:

- resort to “completion grants”, given by their research organisation, to reach the needed amount of funds
- divide the research in stages, so to be able to initiate the first parts
- simply request an extension of time for the crowdfunding campaign.

For communicating the progress of the research to the funders, researchers would prefer to send updates not very frequently (e.g. every 6 months or when reaching important milestones) through an email newsletter, possibly by using the services provided by the crowdfunding tool. They would also communicate updates on the Internet (through social media, by blogging or updating a dedicated web page) or on “real-life” events, e.g. conferences and guest lectures.

Finally, they were also asked to indicate their perception of the possible problems to face. They cited the difficulty in communicating effectively with the prospect funders, especially in this period of “culture war” in which the experts might not be “trusted” by the general public. Regulation of money and taxes have been also mentioned as a possible reason for concern.

Finally, the WP3 team has also conducted an extensive survey with 587 respondents to assess their previous experiences with crowdfunding.

While the full results are available on D3.4, it's important to point out that this study allowed us to evaluate the tendency regarding crowdfunding of both researchers and the general public, in terms of their interest and perception toward giving funding. In particular it was useful to better understand the kinds of scientific projects that could have a higher chance to get funded through crowdfunding, namely: those with a clear societal impact, projects endorsed by experts (e.g. experienced researchers in the area of the projects), projects that “strike a chord”, that is those in which the funder has a personal interest.

3.2 Defining the boundaries of the crowdfunding service in TRIPLE

The result of these workshops reinforced the idea that crowdfunding research is not an alien concept but something that can be absolutely feasible in the SSH domain. On the other hand, some important attention points were raised and must be properly considered.

To start with, it is important to have a solid and secure technological platform, easy to use both for researchers and funders and that provides all the necessary services for managing the whole lifecycle of a crowdfunding initiative, well beyond the time of the actual fundraising campaign.

Also, the actual organizational aspects of crowdfunding in the context of scientific research cannot be underestimated and must receive special attention. They in fact include governance, financial, legal and fiscal issues, made even more complicated in an international context as those of the GoTriple platform.

In order to have an assessment on all these issues, a specific assignment was given in 2020 to Welcomeurope, an agency selected by CNRS (Huma-Num) through a dedicated tender.

They produced in November 2020 a comprehensive report with an analysis of all the possible issues to consider when operating a platform dedicated to financing SSH research projects.

In particular their work focused on the feasibility of a crowdfunding service with the following characteristics:

- A specialization on the Social Sciences & Humanities (SSH) domain, with the aim to increase the awareness and involvement (validation, input) of the general public in the work of SSH researchers and vice-versa
- A pan-european platform for EU academic research projects
- Small budgets projects, between €500 and €10,000 to be funded quickly and efficiently
- No perks/rewards for donors, beyond a symbolic “thank you.”
- Target donors should be primarily private individuals, but companies and associations should be allowed to give money

- Project owners will be individual SSH researchers (but possibly backed-up by their organisations)
- The platform must be based on open source software and support open standards, to ease its integration with other EU infrastructure (e.g. EOSC)
- The platform must be ready by mid-to end 2021, in order to have it up and running from the beginning of 2022.

The outcome of their work is a comprehensive report [3] which includes:

- An assessment of the needs, strategies and resources, conducted through interviews to members of the TRIPLE consortium
- An analysis of the possible governance models
- A state of the art overview of the existing crowdfunding services
- The definition of the needs to operate a crowdfunding platform
- The analysis of the legal and regulatory aspects.

The report ended by providing a set of recommendations, which define the roadmap and the steps to follow for implementing the crowdfunding tool in TRIPLE.

It is useful to summarise the main findings of this study in the chapters that follow.

3.2.1 Need, strategy, and resources analysis from interviews

Welcomeurope carried out interviews with six members of the TRIPLE consortium and three researchers of the SSH and IT domains. The intention was similar (and complementary) to the WP3 workshops described in the previous chapter: in this case, the main objective was to identify views and expectations about the future crowdfunding service, how to build it and how to find the best technical partners to manage it.

To start with, an apparent real need emerges for an agile solution like crowdfunding for SSH: on the one hand, researchers stated that financing research through the classic sources (EU projects, calls for proposals) has become more and more difficult, given the higher level of competition; moreover significant costs are needed for preparing the application. In this scenario, crowdfunding appears to be a viable solution that needs a lower effort from researchers, especially in the context of small-scale projects which require a limited amount of money, too little for traditional calls for proposals and funding programs.

On the other hand, the potential target users for this service in TRIPLE might be remarkable: just to make an example, a European Commission study of 2019 [4] estimates in over 45.000 the number of senior academic staff (grade A) of the SSH domain.

The importance of rewards/perks was not considered as paramount, since it was underlined that donors will fund projects in which they have a direct interest or that regard subjects they are passionate about. On the other hand, this requires giving much more attention to communicating effectively the goal and topics of the project.

It is also important to set a realistic budget, since normally in crowdfunding, if the total money is not reached, the project cannot be funded. A suggested alternative was to define a threshold (e.g. 90% of the total sum) that, if reached, allows the project to be funded in any case.

While the perceived motivational factors for donors were quite similar to those that emerged through the WP3 workshops (e.g. Societal impact, Attractiveness, Academic background of the applicant, Openness,...), the report also pointed out some requirements that it is expected that the crowdfunding service must respect. In particular:

- High reputation of the technological platform, through endorsement by an identified authority
- It must guarantee the independence of research.
- It must provide high selection standards, to safeguard its reputation, providing controls to ensure quality.

The study also provided an analysis of risks and their consequent mitigation strategies, by which no real “showstopper” has emerged. The main benefits, both for SSH researchers and for the TRIPLE platform, were also assessed.

Quite interesting and insightful were the final considerations that emerged from the interviews, both for the future crowdfunding project owners (e.g. the importance to have a strong network of contacts, through social media and the web, to have a potential large audience of donors; how projects must have a well-defined and comprehensible target results and/or impacts for non-experts,...) but especially for the construction of the crowdfunding service in TRIPLE. Amongst them:

- The platform must provide a strong support, both in terms of training and promotion of the projects
- The platform must be understood as a component of a larger set of services, that covers the full journey of a researcher
- Its structure should be as light as possible for the users, quick and intuitive
- Projects should be as free-form as possible and can tackle cross-cutting topics, not matching a standard funding line
- It should request the lowest possible commission on funded projects.

Finally, it was also suggested that the follow-up of projects is necessary, to ensure a high quality of the initiatives funded through this channel, both for the image of TRIPLE and for a form of guarantee to donors.

3.2.2 Governance analysis

The governance analysis took into consideration the crowdfunding service in a wider perspective, not limited therefore, to the TRIPLE project. In this sense it is important to consider

that TRIPLE is a service of OPERAS and aims to be enlisted in the EOSC Marketplace (and in the SSHOC Marketplace, the latter specialised in services for SSH).

The final proposal is exemplified in the diagram that follows, in which the various actors responsible for all the aspects of the crowdfunding service have been enlisted.

Special attention has been devoted to the various options to put in place for the selection of projects, considering the impact of the various choices in terms of effort for the TRIPLE consortium. The possibilities are in fact:

- “Automatic approach,” for a quicker and less resource-consuming selection process (less expensive, lighter structure, less control): the eligibility of projects is ensured by predefined requirements and peers or experts recommendation letters, or institutions’ endorsement letters, with or without central check.
- “Peers approach”: vote by other project leaders or peers
- “Committee approach.” Selection by a recognized Scientific Committee (more expensive, heavier structure, more control). Alternatively the selection can be performed within the TRIPLE consortium or amongst members of OPERAS.



Figure 1 - The suggested Organizational structure for the Crowdfunding Service

For the follow-up of the funded project, it has been recommended to perform a regular quality control assessment on the project advancement. Upon its completion, all results and publications should be collected into GoTriple and all donors must be automatically informed.

Amongst the possible scenarios that were identified, it was also considered the possibility to build the service on an existing platform and not to develop it from scratch inside the TRIPLE consortium. This could provide advantages in terms of costs (for maintenance too) and time to market. Also many crowdfunding platform operators offer complete white-label or grey-label (co-branded) solutions that include everything including legal advice, user education and user support.

3.2.3 State of the art of crowdfunding

The WelcomEurope report also analysed the most renowned crowdfunding services, considering their features, policies, support services and the type of projects they host.

Donation-based crowdfunding (*crowdgiving*) reflects the trend of a new-generation of donors who prefer to support projects rather than institutions, seek transparency and like to donate through peer-to-peer online platforms. There are hundreds of crowdfunding platforms but the 20% best-known get the 80% of the donations.

82% of donors are individuals as opposed to legal entities. Project owners can be private individuals, companies or associations. Over 50% of charities' project owners are female. Crowdgiving is often used to build communities around a specialized cause, such as environment or cultural preservation.

Scientific crowdfunding is very small and mostly limited to medical or environmental research, albeit it is noted that there are many promising examples of initiatives of this kind.

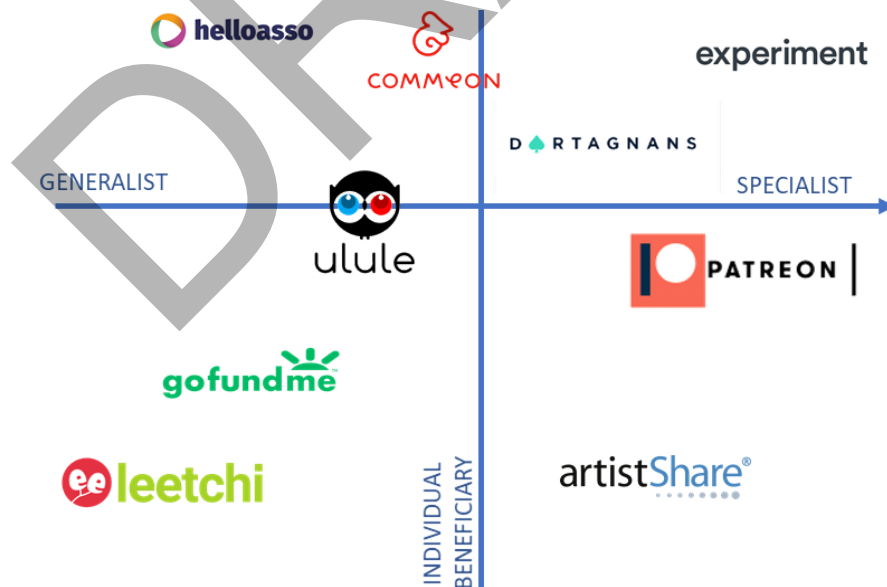


Figure 2: Crowdfunding platforms analyzed in WelcomEurope report and their positioning

Apparently it has been noted that donation-based crowdfunding at large might not be a profitable business, with the few exceptions of some big players (Patreon, GoFundMe,...): because of that many existing services have additional financial sources (donations, institutional support). Costs for the implementation of the platform are high (up to 100.000 €) albeit once the service is up and running its operating expenses can be limited.

Again, it has been emphasized the importance of making projects attractive, e.g. through multimedia storytelling, and the need to have educational tools and individual support to project owners. The latter are especially needed in the area of scientific research, where researchers might not be used to present their project to the general public.

3.2.4 What does it take to operate a crowdfunding platform

While creating and managing a crowdfunded project seems a very straight-forward process, there are other important factors that come into play and that shouldn't be underestimated.

In particular, the education of researchers is one of the major challenges for scientific crowdfunding. Academic researchers in SSH are used to applying for grants and funding from public and private institutions but they are not used to raising funds from the general public. They need support to learn how to:

- Present their project in layman's terms
- Explain the overall context and the social impact of their project
- Make their presentation attractive by using multimedia storytelling techniques with video, graphics and pictures
- Call on their community of friends and family (1st circle), colleagues and acquaintances (2nd circles) and wider connections of their institution (3rd circle)
- Set a pledging goal and commit to it through a simple "business plan".

This proves once again that creating a crowdfunding service in TRIPLE is a complex and multifaceted endeavour, which cannot be limited to the mere implementation of the technological platform.

3.2.5 Legal and regulatory analysis

As expected, this is the most extensive part of the WelcomEurope report, analysing multiple issues including:

- Crowdfunding regulation
- Terms of use and limitation of liability
- Limitation of liability as a platform and case law in liability
- Self-regulation, reputation, codes and labels

- Payments regulation
- Regulation and taxation of donations
- Cross-border donations
- Personal data, copyright and other legal requirements.

In 2020 the European Parliament adopted a set of harmonized EU rules for crowdfunding platforms, by creating the European Crowdfunding Service Provider (ECSP) status. Moreover most European countries have an existing specific crowdfunding regulation: for example in France, where TRIPLE's coordinator Huma-Num is based, it is possible to operate a crowdfunding platform as a public interest foundation or "fonds de dotation" (endowment fund).

For managing a newly built TRIPLE crowdfunding platform, the latter seems the most suitable solution. In particular, if members of OPERAS are already non-profit public institutions, they may possibly already be able to receive donations, also coming from another European country, and issue tax receipts, for foreign donors too. As an alternative, an OPERAS endowment fund can be created.

Like all websites, crowdfunding platforms define and limit their responsibilities through their Terms of Use (T & Cs), which have the value of a contract between them and their users, donors, and project owners.

The T & Cs present the specific services of the platform, its commitments and requirements. They recall the legal rights and obligations of the platform and its users under applicable laws. Users must confirm having read them before doing any transaction: using the service in fact implies that the user is aware of the T & Cs and constitutes acceptance.

Since the crowdfunding platform hosts content produced by its users, it should protect itself by providing a limited responsibility for them. The legal risk is low if the T & Cs are properly written by specialized lawyers and translated/adapted in every language. This of course can come at a cost that has been estimated at €10.000 or more if multilingual. On the other hand, it is demonstrated that having well written T & Cs protect effectively against legal actions against the users of the crowdfunding service, as for example the cases in law of Kickstarter, GoFundMe, Leetchi demonstrated.

The main form of management of a platform is self-regulation, to maintain its reputation and users' trust. Joining a professional association provides an additional trust-inspiring seal of quality as it adds obligations of ethics, transparency, monitoring and traceability. Leading professional associations in this space are for example the European Crowdfunding Network, Crowdfunding France and in Germany Bundesverband Crowdfunding. These, plus other additional labels related to the specific activity of the platform, can increase user trust.

A similar thing might be done in TRIPLE, by creating a specific TRIPLE (or OPERAS) label for all those SSH projects that use its crowdfunding platform.

As far as payment is concerned, normally platforms collect donations through online payment services providers (e.g. Stripe, Lemonway or Mongopay): this normally implies a one-time only set-up cost, a recurrent operating cost plus transaction fees on each payment done by donors.

More complex and nuanced is the situation for taxation. All European countries provide a “framework” for donations/gifts without compensation designed to prevent fraud, in particular tax fraud, as well as money laundering and the financing of terrorism.

Unless it goes to a non-profit, a gift is taxable. In this case, if the money is given directly to the researcher, she should report the donations as a revenue, offset by the expenses of the project, and issue tax files. On the other hand, donations to non-profit associations are not taxable: because of that, having a non-profit, public-interest organization which is responsible for the crowdfunding service seems to be the best option.

Also, donations might represent a form of tax savings for donors. All EU countries in fact recognize public education and research as activities of general interest. However, the tax incentives they provide and the conditions under which they grant them are quite different.

In principle, the donor from a European country should be able to benefit from a tax reduction in her country if she donates to a European project abroad. In practice, the tax offices do not always recognize the receipt issued by a foreign organization.

To overcome these difficulties, the Transnational Giving Europe (TGE) network exists. TGE allows donors in one of the countries of the network to make a donation to a general interest organization in another member country and to receive a tax receipt which will be recognized by the authorities of their country of residence.

TGE is operational in Germany, Belgium, Bulgaria, Spain, France, Hungary, Ireland, Italy, Luxembourg, Romania, United Kingdom, Netherlands, Poland, Slovakia, Slovenia and Switzerland. A 5% contribution intended to cover the administrative costs of control and monitoring is taken from the donation and shared between the two intermediary organizations (2% for the foundation which collects the donation, 3% for the one which controls the beneficiary).

It is also important to point out that generally it is not the crowdfunding platform that issues tax receipts but the project owner and beneficiary of the funds.

As far as privacy is concerned, by putting her project on a crowdfunding site, the project owner must agree to make it public and authorizes the platform to advertise it. For their part, project owners and donors also must agree to respect copyrights. The crowdfunding service on the other hand must comply with the European General Data Protection Regulation (GDPR) for the management of personal data, like all websites in Europe.

Finally, donations are legally not refundable, unlike e-commerce purchases. However, many donation platforms allow the donor to retract her pledge as long as the crowdfunding campaign is open.

3.2.6 Recommendations

The final recommendations recognize how the launch of the crowdfunding platform within an international consortium of public research institutions such as OPERAS is a ground-breaking initiative and therefore it cannot be expected to bear fruits in the short term. It also requires extensive communication and support to educate researchers on this new approach to funding.

Because of that, it is advisable to take a progressive approach, working with an existing crowdfunding service as opposed to implement a new platform from scratch, while, at the same time, devising this unique concept of SSH scientific crowdfunding. This choice can reduce costs and time-to-market but it also allows one to benefit from the service provider experience in dealing with both project owners and donors.

The Welcomeurope report also identifies the following as the main key success factors for crowdfunding in TRIPLE:

- the need to have a “strong and clear branding”: the platform must have a strong scientific positioning in SSH, with a clear mission statement and the promise that 100% of donations will go to research. Also the platform must be backed by recognized institutions that inspire trust.
- the platform should have a business model suitable to support a very progressive start and long-term growth.
- the platform should be governed as a (network) of non-profit foundations of recognized public interest status authorized to issue tax receipts. A system should be put into place for transnational giving.
- the focus in the first year should be on making projects emerge and use them to define the key success factors for crowdfunding a SSH research project
- educational material should be developed to guide researchers on how to lead their project, become visible and tell their story
- the platform must select quality projects. As the existence of a centralized selection committee is uneconomical, researchers should bring their own clearly identified testimonials that can make a public endorsements on the project.
- the platform should use one of the well-known payment services providers
- the platform should have all the essential modules necessary for covering all the needed functionalities for crowdfunding: registering and managing users, project creation and presentation, managing fundraising campaigns, managing compliance, running analytics and reporting.
- it should be ideally based on open technologies and must provide a clear set of APIs to enable the integration with TRIPLE and other OPERAS’ services.
- legal aspects must be effectively covered. Terms of Use for donors and project owners must be well written with the support of lawyers. Legal elements should be translated in all necessary languages.

- “community management” is a paramount success factor. Once the platform is up and running, it will be necessary to invest time supporting, motivating, and growing the community.

To follow an “experimental” and “gradual” approach, based on “learning by doing”, selecting the right partner to launch the crowdfunding platform, supporting project owners in the use of the service and investing in the dissemination, of both projects and of the crowdfunding service per se, are therefore the main short-term steps to take according to the Welcomeurope report.

<ul style="list-style-type: none"> • Focus on the spirit of innovation and experimentation • Highlight the long-term value • Be open to changes and adaptations as the project progresses • Think co-construction with the partners, piloting institutions, and researchers • Bet on younger researchers and innovation enthusiasts • « Steal » existing building blocks that fit your goals • Design for ease-of-use, simplicity, attractiveness emphasize visuals 	<ul style="list-style-type: none"> • Don't try to build the perfect all-encompassing platform • Don't raise high short-term expectations • Don't try to get everything right the first time, focus on the mid and long-term • Don't put on the project leaders the burden to have all the answers • Don't let sponsoring institutions delegate reluctant project leaders • Don't needlessly reinvent the wheel • Don't underestimate the importance of convenience and visual look
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Figure 3: Some of the main advice from the Welcomeurope report on TRIPLE crowdfunding

At the same time the report emphasizes the importance of not losing sight of the long-term strategy, including:

- the identification of the governance model of the service, covering administrative, fiscal, legal and sustainability issues into account
- the creation of a strong brand for the service
- nourishing a community of researchers willing to lead projects, to endorse projects and to interact with donors from their circles
- involving research institutions, willing to participate in the platform
- making the service scale, allowing a quick selection of projects to accept, without decreasing the general quality of the proposals
- the importance of investing in support for project owners, with a rich body of resources, educational material but also “ambassadors”, who can help in all phases of the crowdfunding life cycle

- a communication strategy to make the platform, the projects and the researchers visible through all European SSH structures, as well as to their potential circles of donors, and the general public, thereby fulfilling the mission of bringing SSH and the public closer together.

3.3 The Call for tender for the crowdfunding service provider

Following the recommendations of the Welcomeurope report, a call for tender [5] to find the crowdfunding service provider has been prepared by Huma-Num, the TRIPLE coordinator, in May 2021. The call presented a request for the following services:

- The provision of a crowdfunding platform, active at the European level, for research projects on SSH, which can be interconnected through APIs with the GoTriple platform and some of its innovative services
- Support to researchers for the presentation of the first projects
- Management of payments, through third-party specialized services, and of tax credit at the European level.

As a prerequisite, it has also been requested that the candidate has:

- A good knowledge of the scientific context and of research projects
- A familiarity with the SSH domain
- A solid experience in crowdfunding
- An experience of crowdfunding of international projects, in particular in a European context.

Activities have to be organised in three main tasks:

- Development
- Support and management
- Planning,

each of them described in the chapters that follow.

3.3.1 Task 1 - Development of the crowdfunding service

It has been requested to provide a crowdfunding platform that provides:

- The presentation of projects
- The management of the financial flows
- Support to researchers with dedicated tools (user manuals, guides,...)

It must be possible to automatically import the created projects in GoTriple and aptly categorise them according to the data model and classification rules of the TRIPLE project. Because of that,

it is requested that the crowdfunding platform provides APIs to support this data exchange. Other APIs might be needed to implement the integration with some of TRIPLE's Innovative Services.

The platform must be fully compliant with the GDPR and be autonomous and fully functional: it can be developed from scratch or provided as a “white label” service or it might also consist of an already existing platform: in the latter case, it is requested that a dedicated page/URL for the projects created for TRIPLE exists, featuring the logo of the TRIPLE project itself.

Multilingualism must be properly addressed: the platform must support multiple languages for the description of projects. The possibility to have an automatic translation in English is considered a plus. Each project must be described by inserting a certain set of mandatory metadata in English (e.g. title, description,...) and, optionally, in one or more other European languages.

Each project should be able to receive peer review validations in the form of recommendations made by other researchers, who can explicitly support the project owner behind the initiative.

3.3.2 Task 2 - Support and management

It has been requested that the service provider could take care of:

- Financial and fiscal management, including tax credit towards donors
- The management of financial flows
- The definition of a memorandum of understanding to be signed between the legal entity who owns and manages the crowdfunding platform and the organizations of the researchers who use the service, to define the rules for the transfer of the funds directly to the researchers
- Ensuring the support of the first researchers (first users) using the platform (at least to 20 of them)
- A collaborative definition of the economic model for the platform
- Software maintenance and bug correction until the end of the assignment (until April 2023)
- Supporting the first users and all TRIPLE projects created on the platform, together with the management of financial flows, until April 2023.

3.3.3 Task 3 - Planning

Through this task, it has been requested to elaborate a future contract for the maintenance, the management of the platform (also from a financial and legal viewpoint) and the support to the project owners after April 2023.

3.4 The selection of the service

The call for tender ended on May 28th 2021 and the selection of the proposals was based on the following criteria:

- 35%: budget
- 65%: technical value, estimated as:
 - 30%: technical, administrative and fiscal experience in crowdfunding/participatory financing
 - 15%: expertise on crowdfunding at the European or international level
 - 10%: expertise on the crowdfunding of scientific projects
 - 10%: ability to manage multilingualism, in particular the possibility to have the automatic translation in English of the project description from the original language of the project owner.

The call ended with two participants, Mipise [6] and Wemakeit [7].

Mipise is a French company founded in 2013. It is a Fintech enterprise specialized in the development of technological tools for financial players. Amongst their products they offer Crowdfunding and Crowdsourcing platforms, a Fund Subscription workflow tool and a software suite for the management of unlisted securities and shareholding. Through their crowdfunding solution they were able to raise over 162 million € to this day. Their headquarter is in Paris and they currently have a team of 14 people.

Wemakeit was founded in Switzerland in February 2012 to provide a specialised solution for crowdfunding. They were able to secure funds for over 5.300 projects, with a total amount of backings of over 62 million €. They have created the Science Booster initiative, a dedicated crowdfunding channel of their platform to raise funds for science projects: through it, they were able to raise over 1 million Swiss francs over the past 4 years. Wemakeit is formed by a team of about 20 people and has headquarters in Zurich and Lausanne, plus secondary offices in Vienna and Bellinzona.

WeMakelt was the chosen partner: a detailed description of its proposal follows.

3.4.1 Wemakeit's proposal

Wemakeit's document was very elegant in terms of presentation but a bit poor in details, albeit it was possible to find some other information on their website.

One of their main distinctive values is their specific experience in crowdfunding science projects with Science Booster: it consists of a dedicated channel on their crowdfunding platform, accessible at the URL <https://wemakeit.com/channels/science>, through which they have made

possible for several scientific initiatives to be funded, spanning a variety of research disciplines, including astrophysics, conservation, healthcare, humanities, management and psychology.



Channel
Science Booster

Get involved and help researchers and citizen scientists find out more about the world that surrounds us! Over the past 4 years, the Science Booster Channel has helped raise over 1 million Swiss francs for science projects.

Interested in raising funds for your science project, too? All necessary information and the conditions of participation are available [here](#). You can also contact us by email: science@wemakeit.com.

Booster Status		
2nd Booster cycle concluded	63 Total of projects backed	
<p style="font-size: small; margin-top: 5px;">Exhibition and Technology</p> <p>Mit Hightech ins Mittelalter</p> <p style="font-size: x-small;">Wolltest Du schon immer mal mit einer App in die mittelalterliche Welt eintauchen und mittels neuester Technologie museale Objekte neu erleben? Genau das möchte dieses Ausstellungsprojekt ermöglichen.</p> <p style="font-size: x-small;">by Noemi Bearth, Bubikon</p> <div style="display: flex; justify-content: space-between; font-size: x-small; margin-top: 10px;"> 101% funded CHF 5'080 pledged 59 backers </div>	<p style="font-size: small; margin-top: 5px;">Startup, agriculture, and Technology</p> <p>Digitizing Farming in Kenya</p> <p style="font-size: x-small;">SOKO is an agriculture startup that aims to digitize sheep farming. It will empower smallholder farmers to make a living from raising healthy sheep and sell them without going through intermediaries.</p> <p style="font-size: x-small;">by Sabine Godinez and Mwangi Maina, Kenya</p> <div style="display: flex; justify-content: space-between; font-size: x-small; margin-top: 10px;"> 103% funded CHF 15'470 pledged 100 backers </div>	<p style="font-size: small; margin-top: 5px;">Science, Fashion, and Environment</p> <p>Local Colours II</p> <p style="font-size: x-small;">The Local Colours project is a more sustainable alternative for industrial textile dyeing – Swiss linen, regional waste, natural colours and local partners.</p> <p style="font-size: x-small;">by Carys Schutzbach & Achim Ecker (ZHAW), C...</p> <div style="display: flex; justify-content: space-between; font-size: x-small; margin-top: 10px;"> 121% funded CHF 18'224 pledged 163 backers </div>

Figure 4 - The Science Booster channel in the Wemakeit crowdfunding platform

They propose to create a dedicated channel to GoTriple in their current crowdfunding service, which should be accessible under the wemakeit.com domain. No specific user interface customization is foreseen.

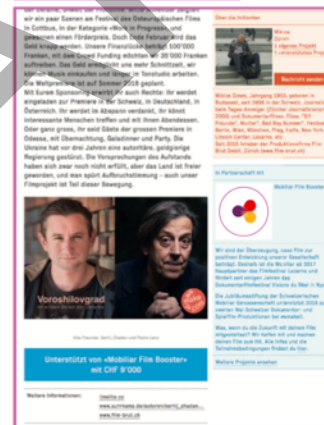
Multilingualism is already well addressed: they currently support English, French, German and Italian in the User Interface of their platform. Project description can be provided in these four languages: they do not propose the integration of an automatic translation service.

They have also managed crowdfunding projects with project owners from all over Europe.

What the GOTRIPLE channel will look like on wemakeit.ch:



GOTRIPLE channel widget for integration on any website using our API



Partnership signature and description of the channel on every participating project

Figure 5 - How TRIPLE projects might look like on Wemakeit

Technical information on how their platform has been developed and where it is hosted are not provided: in any case, they declare to be GDPR compliant and mention the possibility to interact with their service through APIs. They also claim to be able to take care of payments at a European level.

Their proposal for support services is very complete and interesting. On the one hand, they provide technical support 7 days a week: moreover, at an additional price, they can provide active guidance with two science crowdfunding experts, who can advise researchers on all aspects of running a campaign. This anyway comes at an extra cost.

Time to market hasn't been specified but it should be very short, since the platform already exists and the work needed to create the dedicated TRIPLE channel is probably a simple configuration task.

The Wemakeit offering is more expensive than those of Mipise: also, being based on the creation of a dedicated channel inside the Wemakeit site, impoverishes the idea of having a dedicated crowdfunding platform for TRIPLE.

On the other hand, the international experience of the provider, the multilingual support, the previous experience on crowdfunding science projects and the possibility of having a dedicated support for project owners, represent a significant plus for Wemakeit. Because of that the Swiss company has won the tender for the TRIPLE crowdfunding service.

3.5 Next steps and integration strategies with GoTriple

Discussions have started with Wemakeit to analyse the best way to integrate their service in GoTriple and also to negotiate the final economic terms with them.

A first tentative time plan, as shown in the image that follows, has been proposed. It is expected that the work needed for the integration will be finished by October 2021, allowing us to start the promotion of the service and do the call for projects. The actual "go-live" of the GoTriple crowdfunding service will be in January 2022.

From a technical viewpoint there are several points to analyse. First of all, the "basic" integration should consist in the automatic import of projects created in the Wemakeit TRIPLE channel in GoTriple. This should also take into account the adaptation of the data model of the two platforms plus the necessity to adjust the classification logic used in Wemakeit to the rich categorization system implemented in GoTriple.

The import of project data should also include updates, so that the up-to-date state of the project (e.g. the percentage of funding, the number of donors, the number of days to the end of the campaign) can be visualised on the Discovery Platform. This data exchange can also happen multiple times a day, at a specified frequency, with a batch logic, so that data regarding multiple projects are exchanged each time at once.

Deadline	Task	Responsible
22. July 2021	Kick-Off Call	TRIPLE + wmkt
August 2021	Defining Conditions of Participation	TRIPLE
August 2021	Call 2.0	TRIPLE + wmkt
September 2021	Text proposal for the Partnership Page (Example: https://wemakeit.com/pages/science)	TRIPLE
September 2021	Text proposal for the Channel Description (Example: https://wemakeit.com/channels/science)	TRIPLE
September 2021	Feedback on texts	wmkt
September 2021	Delivery Logo for Channel Button	TRIPLE
October 2021	Final Design Channel Button	wmkt
October 2021	Final texts	TRIPLE
October 2021	Technical Implementation Channel	wmkt
tbd	Call for projects	TRIPLE
January 2022	Channel Launch	wmkt
January 2022	Communication Campaign tbd	TRIPLE

Figure 6 - Proposal of a time plan for activating the crowdfunding service with Wemakeit

A more advanced integration scenario might involve the possibility of allowing users to link their GoTriple profile to the Wemakeit account. This option should be given both to project owners and donors and can be exploited in multiple fashions, including:

- Showing in the GoTriple profile of the user the ownership of projects or the support given to some of them.
- Receiving automatic notifications on the MyGoTriple page coming from the crowdfunding tool for project owners (new donations, messages and comments received on the Wemakeit platform) and donors (result of the campaign supported by the users, messages from the respective project owners, etc).

These possibilities are currently evaluated by a joint team formed by TRIPLE partners and Wemakeit representatives.

4| OTHER THIRD PARTY APPLICATIONS FOR GOTRIPLE

4.1 The selection process

As said, the goal of T5.1 is the integration of some useful third party applications in GoTriple, that is:

- existing tools and services, known and appreciated in the SSH community
- that can provide significant added value to the Discovery Platform's users
- developed outside of the TRIPLE consortium
- whose integration in GoTriple might be technically (and economically) feasible.

From a technical perspective, the integration of external services in TRIPLE can happen at three possible levels:

- **federation** with external and independent services and large SSH initiatives (e.g. the European Projects SSHOC and COESO). The integration in this case is quite loose and it might be based on single sign-on to allow users to be authenticated and recognized on both platforms
- **integration with GoTriple**, that is apps and services directly integrated in the GoTriple user interface (front-end) or that can be exploited to enrich the data acquired by the platform's CORE (back-end)
- **data exchange scenarios**, to enrich the sources of data acquired in GoTriple (IN) or to provide GoTriple's data to third parties (OUT).

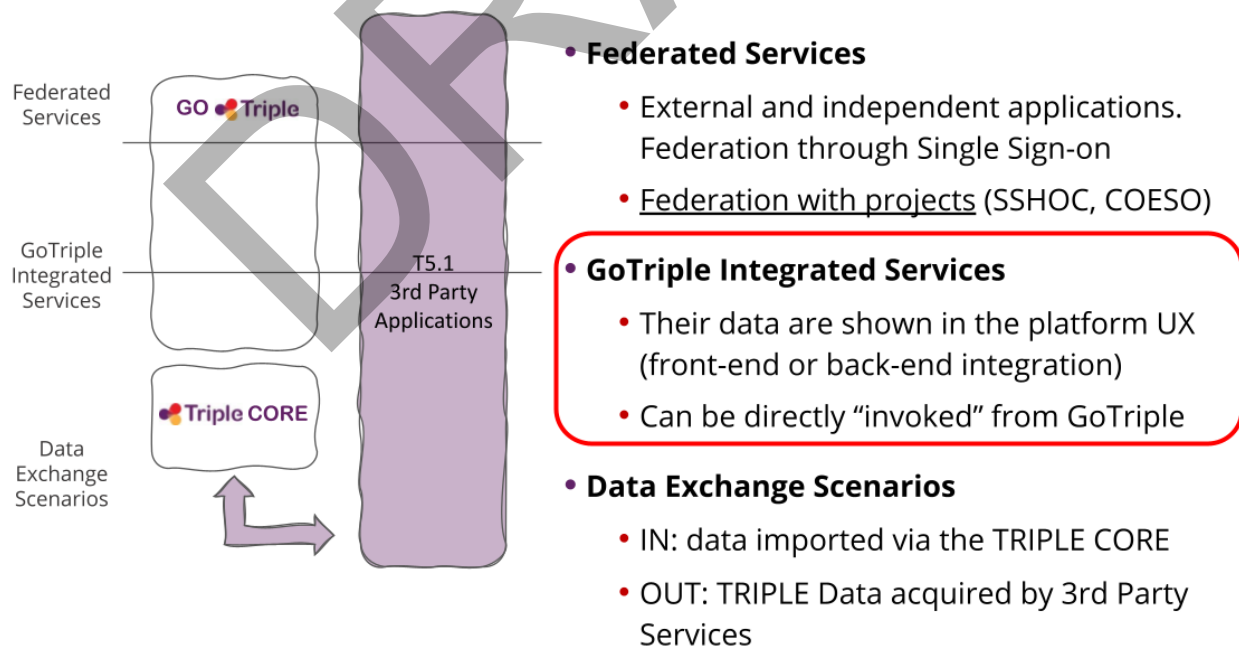


Figure 7 – Different types of third party apps and services integration

The work done in WP5 and described herein concentrated on the second type of third party apps: the federation scenario in fact must also take into account strategical long-term scenarios (which is the responsibility of WP1 and WP7 work-packages), while data exchange, especially for data imported in GoTriple (IN), is managed in WP2.

The first step of course was to identify the possible candidate tools and services to integrate into GoTriple. To select the most promising options, we proposed the following step-by-step methodology:

- Conducting a **survey**, for identifying, through the collaboration of all TRIPLE partners the candidate services/tools to integrate
- In collaboration with WP3 and WP7, evaluate the suggested third party applications, group them in categories and prepare a quick **questionnaire** to disseminate at large, in order to understand which types of services/tools our target users would like to see and use in GoTriple
- By analyzing the results of the questionnaire, and in collaboration with WP3 and WP4, a **shortlist** of third party apps is prepared, to assess how to implement the actual integration, also considering possible legal and licensing issues. Some of these tools/services might be discarded at this step, if the integration might prove too technically difficult or cumbersome to accomplish.
- The final step is the **integration** work that must be planned and later performed.

In the present phase of the project, the first three steps of the above plan have been implemented, while the actual integration work will be performed in the following months. Their description is provided in the chapters that follow.

4.1.1 The Survey

The survey was prepared and launched in December 2020. It consists of a shared Google Drive document, stored in the project folder devoted to WP5, which was disseminated within the TRIPLE consortium by using the internal general mailing-list.

The document provided at first some explanations about the goals of the initiative, followed by specific instructions on how to use it: in particular it was specified that only “external” services, that is not developed within the TRIPLE project, had to be cited and that crowdfunding tools shouldn’t be considered, as they were the focus – as seen – of a parallel analysis.

A first proposal of third party apps was prepared by the WP5 team, taking in consideration some relevant articles on this subject, specifically focused on the SSH domain (in particular [8], [9] and [10]).

The final result has been included herein in the Appendix 1: it consists of a list of 22 suggested services, quite diverse in nature, functionalities and technical requirements for their integration.

Albeit valuable, the result of this survey didn't provide a clear indication of the best services to consider: on the one hand there wasn't an evident "fil rouge" that allowed to identify a clear need for a specific category of services; on the other, the final list was too long and risked to be ineffective if used "as is" to ask our target users to evaluate the appreciation of every single mentioned service.

Therefore it was decided to use this material as an input to define a limited set of categories of services which our prospect users could evaluate in a more effective way through a web-based Questionnaire.

4.1.2 The Questionnaire

To select the right categories of services to be included in the Questionnaire a specific on-line workshop was held, on March 30th 2021, during one of the periodic consortium meetings.

Ten partners attended the workshop, which started with a general description of the goal of T5.1, followed by a presentation of the results of the survey and of the methodology of work proposed. A shared Miro board was prepared, with a predefined list of suggested categories that were used to classify the services enlisted in the survey.

The image below is the screenshot of the final work done on the Miro board.

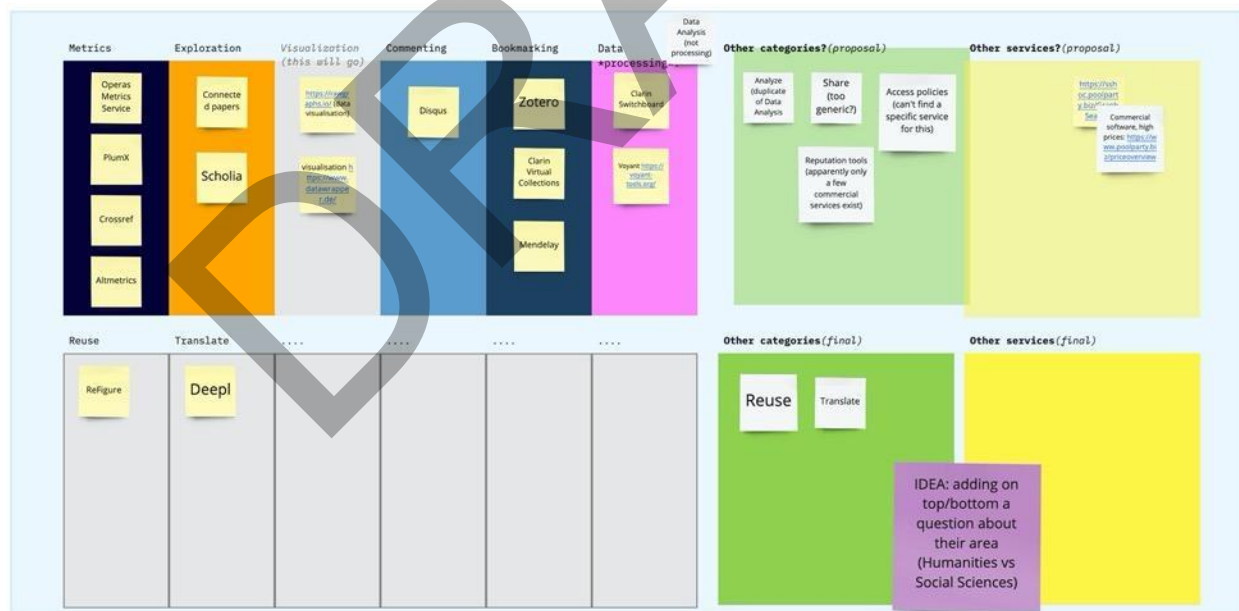


Figure 8 - Miro board used at the March 30th T5.1 workshop

The final categories that have been selected at the workshop, through a collaborative effort, are:

- **Metrics**, for those services that provide information about the impact, in terms of citations, references, mentions, etc, of a specific publication. Example of them are Operas Metrics Service, PlumX, Crossref and Altmetrics
- **Exploration**, for services that allow users to discover other related content starting from a publication found on GoTriple (e.g. Connectedpapers and Scholia)
- **Visualization**, services and libraries such as RAWGraphs and DataWrapper
- **Commenting**, to allow users to discuss content found on GoTriple (e.g. Disqus)
- **Bookmarking**: these are services that allow users to create a personal collection of publications (e.g. Zotero, Mendeley, Clarin Virtual Collections)
- **Data Analysis**: these services can allow users to start a workflow to analyse data and information, for example a text or a dataset, like Clarin Switchboard or Voyant
- **Reuse**, services that can provide the possibility to reuse data and information from the content discovered via GoTriple (e.g. ReFigure)
- **Translate**, e.g. services like Deepl, Google Translate or Microsoft Translator.

From this list the questionnaire was created, without the Visualization category, since this kind of feature is already provided by the one of the Innovative Services. The intention was to create a very agile web-form, that could be answered in about five minutes and that could be easily shared, even through Social Media, e.g. via Twitter, as shown in the image below.



Figure 9 - Questionnaire announcement on Twitter

It consists of a Google form that includes a short presentation of the goal of the initiative and the instructions to answer correctly.

For each category of third party applications, we provided a short description, some examples of tools and a screenshot taken from one of them. We asked to rate them from 1 to 5 in each of these categories. An example of these questions is shown below.



Metrics

These services can provide an estimate of the impact of a publication:

An example of a metric service, which shows the impact of a publication such as citations, mentions or social media dissemination.

Usage	Social Media
Abstract Views: 44	Likes: 22
PDF Views: 1253	Shares: 15
HTML Views: 10348	+1: 4
Captures	Citations
Exports-saves: 7	Citation Indexes: 29
Readers: 44	Clinical Citations: 3
	Policy Citations: 2
Mentions	
News Mentions: 56	
Blog Mentions: 25	
Wikipedia: 3	

Examples of metrics services we are considering
 Operas Metrics Service (<https://metrics.operas-eu.org/>), PlumX (<https://plumanalytics.com/>), Crossref (<https://www.crossref.org/services/event-data/>), Altmetrics (<https://www.altmetric.com/>)

How much would you like to see METRICS SERVICES integrated in GoTRIPLE?

1 2 3 4 5

Not at all Very much

Figure 10 - Third party applications questionnaire

The form started by asking the user to define her role: as shown in the diagram below, a large part of the answers came from Humanities scholars.

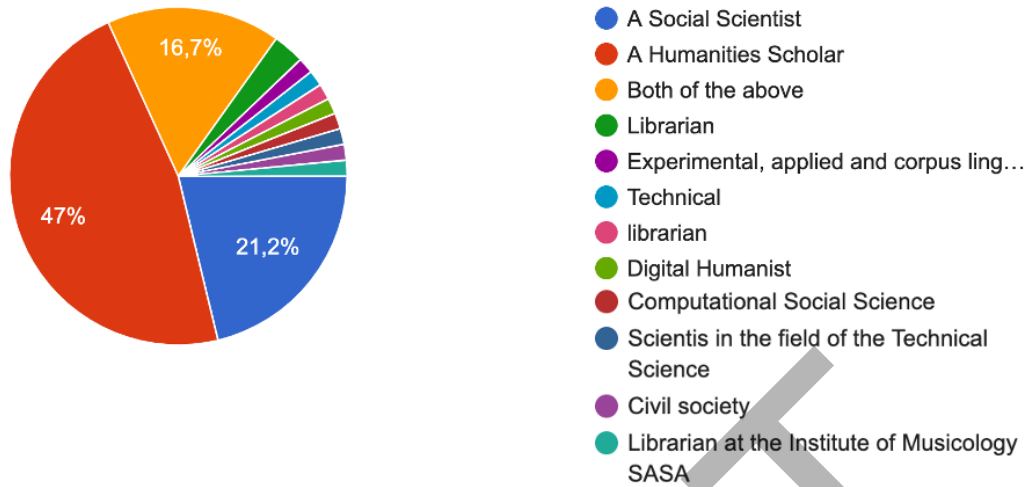


Figure 11 - Role of the questionnaire's respondents

The questionnaire finished by asking the users to provide suggestions on other categories of services or on specific services that they'd like to see integrated in GoTriple. The results of these free-form questions are shown in the tables below.

Please suggest other categories of services to integrate in GoTRIPLE (12 answers)

Link page to DH sites and platforms

If the comment service is sign in - with named participants, yes it would be great to have an Open Peer Review (like humanities commons) if not, if anonymous, then I don't see the value.

Generally speaking, a dedicated focus on open source services.

- Collaborative Authoring tools (e.g. CryptPad, HedgeDoc)
- Video conferencing service (eduMeet <https://edumeet.org/> and BigBlueButton)
- Document sharing & collaboration (e.g. Nextcloud w. integrations)
- see <https://opensciencemooc.eu/community/2019/09/03/teaching-os-open-infrastructure-needed/> (list at the bottom and reasoning)

All connected services should be community-based and non-commercial! Support the development and integration of existing services. Use linked open data for everything. I won't use the platform if it contains trackers of commercial services.

Knowledge graph, querying

Peer review

Possibility to choose the language of interface (localised interface)

An orientation tool towards the main RIs by field or discipline

A good recommender system

Authors identifications and topic identification for publications and databases

Social buttons, advanced export features

Geotags; geographical data and its relations with other type of data.

Please suggest specific services that you would like to see integrated in GoTRIPLE (11 answers)

Datapapers

Mattermost

Nextcloud w. OnlyOffice or CollaboraOffice

GitLab CE

BigBlueButton

Links/integration to/of Humanities Commons, repositories (institutional, disciplinary and Zenodo) and ORCID

Open calls for peer reviews

Links to dictionaries in a variety of languages

Sketch Engine for text analysis

Recommendations of relevant papers, projects, people & datasets. A good profile page for researchers to showcase their work, past projects, papers etc in a more visual way than exists of Google Scholar

Instruments allowing transforming bibliographic data into formats free to be downloaded in different citations managers software

Zotero, OPERAS Metrics

The possibility to extract paper and add it to a corpus

Mapping

While some suggestions were a duplicate of the main categories of the questionnaire (metrics, bookmarking) or not completely suitable for GoTriple (e.g. those regarding communication and authoring services), which is going to be a Discovery Platform and not a collaboration tool, it is interesting to notice that some of the desired services are already part of the native features of the platform (e.g. recommendations, topic identification for publication, support for multilingual dictionaries, harvesting of humanities repositories, support of geographic data).

Also the comments on the use of open source services and open data formats (e.g. linked data, advanced export features) must be taken in due consideration.

4.1.3 The Shortlist

The final results of the questionnaire are shown in the chart below.

It is obvious that, while on the average all suggested categories have a very good rate, there isn't a clear winner.

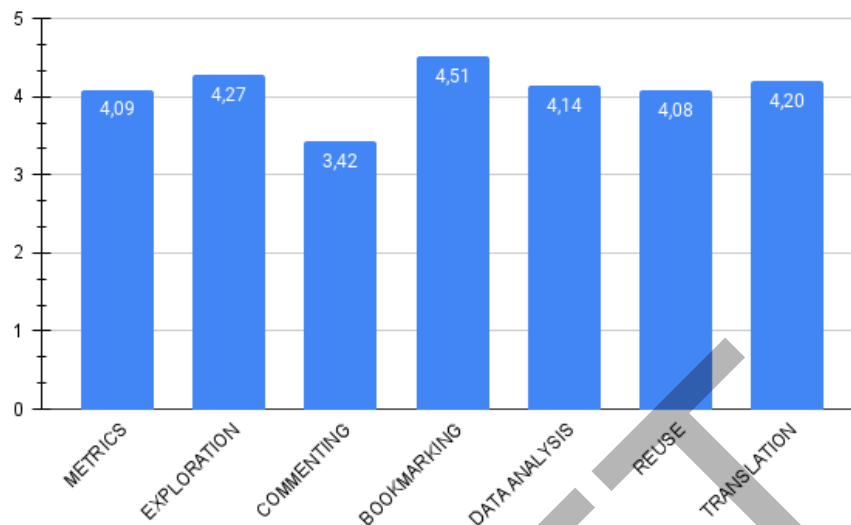


Figure 12 - Results of the questionnaire

While *Commenting* seems the least appreciated category and therefore can be ignored from the shortlist, for the other results the following considerations can be done.

Bookmarking is the most appreciated category, so we must evaluate how to facilitate the integration of TRIPLE with a service like Zotero or Clarin Virtual Collections.

After careful consideration we came to the conclusion that *Exploration* regards a type of features already covered in the project by the Visualization and Discovery Services; so for the moment there is no real need to integrate other similar tools.

For *Translation* a very urgent need in GoTriple, given its multilingual nature, is to ensure that for every publication, in all the supported languages of the project, the translation of the main textual metadata in English (e.g. title, abstracts) is always provided. This is in fact paramount, on the one hand to ensure the widest comprehension of the material published in GoTriple (like it or not, English is a “de facto international lingua franca” [11]), on the other to enable the automatic linguistic analysis of the Visualization and Discovery Services. The latter use in fact NLP and Artificial Intelligence algorithms to identify similarities amongst documents: to maximise their effectiveness they need to operate on homogenous data, therefore on documents’ descriptions provided in a single language like English.

Metrics services make a nice and natural complement to the presentation of publications in GoTriple, so they will be integrated in GoTriple, while *Data Analysis* and *Reuse* services won’t be considered for the moment. On the one hand Data Analysis is again an area that the Visualization and Discovery Services partially cover, while the possibility of an effective reuse is hindered by the fact that in GoTriple we index and maintain descriptive metadata only, while the actual content – like publications or datasets – is not locally fetched and therefore is not immediately available.

4.2 Candidate services and integration strategies

Given the considerations mentioned above, it has been decided to develop the integration of third party applications for *Bookmarking*, *Metrics* and *Translation*.

During user research it has been noted on various occasions how important *Bookmarking* is for our target users. In its easiest form, the integration can consist in the possibility to export bibliographic data of publications from GoTriple in a specific format that the most common bookmarking tools (e.g. Zotero, Mendeley, etc.) support. This is also the use case that is suggested in some of the free-form answers provided in the Questionnaire (see above). Given the importance of this functionality, a supplement of analysis, in collaboration with WP3, is needed to better verify both the various integration scenarios and to select the actual bookmarking tools to support in GoTriple.

As a *Metrics* third party application, we propose to integrate the OPERAS Metrics Service [12]. In its current implementation it collects and analyses usage and impact metrics related to Open Access monographs from many different sources, including Google Books, Open Edition, JSTOR, OpenAIRE, Wikipedia, Twitter, Hypothes.is annotations, etc. Metrics data are then easily accessible via an API by passing the DOI identifier of the monograph.

Since GoTriple will be an OPERAS' service it makes sense to provide in the project an integration with it, in order also to encourage synergies amongst OPERAS initiatives. Albeit at present it only supports data about monographs, the OPERAS team is planning to extend it to also support metrics about publications and articles.

From a technical viewpoint the integration will consist of a front-end widget, developed in React/JavaScript, that extends the publications detail page of the GoTriple interface: when a user visits this page, the Metrics Service API will be invoked with the DOI identifier of the publication and the results obtained will be dynamically shown in the page.

As indicated above, *Translation* is especially important to ensure that every content's description always has an English version as well. To reach this goal it is necessary that the content ingestion service of the GoTriple Core takes care of translating those content lacking the English translation. This implementation will be based on the eTranslation API.

eTranslation is a Connecting Europe Facility (CEF) whose goal is to help European and national public administrations to exchange information across language barriers in the EU, by providing machine translation capabilities that enable all Digital Service Infrastructures (DSIs) to be multilingual. For other information on this service see [13].

In view of the upcoming DIGITAL programme and a possible opening of the eTranslation API to academic users, the eTranslation team organised a pilot among digital services in the scientific dissemination domain, which also involved TRIPLE amongst its participants. This allows the TRIPLE team to freely use the eTranslation API for translating into English all textual descriptions of publications, making a significant step toward having an effectively multilingual platform. It is also important to point out that otherwise it would have been impossible to afford the costs of

a commercial service (e.g. Google Translate, DeepL) to manage this kind of translations in TRIPLE.

5 | NEXT STEPS

As the release date of the first official version of GoTriple is approaching, the work to integrate in it the selected third party applications continues.

As far as the crowdfunding tool is concerned, discussions with the selected provider Wemakeit are ongoing, to define in detail the steps to take both from a technical and an organizational viewpoint. While the tentative timeline has already been defined, which will lead to the official launch of the service in January 2022, there are still some open points to discuss with them, including:

- Analysing from a technical viewpoint the possible integration scenarios with GoTriple, including the use of their APIs to access the details of projects in the TRIPLE Channel, the possibility to implement single sign-on authentication or reconciliation of accounts amongst the two platforms or to let users receive notifications in their MyGoTriple page (either if there are project owners or funders)
- Having clarifications on their declared capacity of managing fiscal receipts at the European level
- How they are going to manage the transfer of funds to organizations (e.g. Universities) and not to single project owners
- How to manage the classification of projects on the Wemakeit platform to make it compliant to the GoTriple data model
- The possibility to reuse the GoTriple crowdfunding tool in other OPERAS projects (e.g. COESO).

For the other third party applications, the work to integrate the eTranslation API has already started in collaboration with WP4: we expect therefore to have a significant amount of content description translated in English in a short time.

The work to integrate the OPERAS Metrics Service will start from October 2021 and we expect to have a first integration ready by the end of the current year.

Again by the end of the year, we expect to finalise the Bookmarking integration scenario, with the identification of the tool (one or more) to support and the definition of the actual functionality that GoTriple will offer for the integration.

These are therefore the third-party applications that we plan to integrate at this stage of the project. When GoTriple is released, and after researchers have the possibility to use the discovery platform for a while, we might verify if the need for other external services and tools to integrate emerges. The presentation of the final integration scenario with third-party apps will be provided at month M40, in the updated release of this deliverable.

6 | REFERENCES

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7 | APPENDICES

7.1 Appendix 1: The Third-Party Applications Survey

Name of the tool/service	Organization/Maintainer	Description	Added value for TRIPLE users?	URL	Type (software framework, on-line service)	Licensing
Clarin Switchboard	Clarin	A web application serving as a broker between data sets and data processing/analysis tools. It currently integrates a remarkable number of NLP tools to be applied on textual data	It might provide a ready-made workflow to process textual datasets indexed in TRIPLE. Possibly less interesting to integrate this tool with other TRIPLE resources (publications, profile, projects and non-textual datasets).	https://switchboard.clarin.eu/ (service) https://github.com/clarin-eric/switchboard (software)	On-line service; also open source software	Software released under GPL v3
Clarin Virtual Collections	Clarin	CLARIN provides a registry where scholars can create and publish their virtual collections. It is closely integrated with the infrastructure and provides persistent identifiers and federated login.	Allowing users to add the items found through GoTriple (e.g. a publication) in their virtual collections.	https://www.clarin.eu/content/virtual-collections	On-line service	
SSHOC Service Catalogue	SSHOC project	It consists of a set of different services which are planned to be released in the incoming months. Some of those that might be interesting for TRIPLE: <ul style="list-style-type: none"> • Computer Assisted Translation (CAT) • SSHOC Switchboard (it is an extension of Clarin's) • NLP recipes relevant for SSH (note: can this be similar to Clarin Switchboard?) 	In general, is it possible to identify a way to make TRIPLE interoperable with SSHOC as a whole? Instead of thinking of single services, just a more global integration amongst platforms.	https://www.sshopencloud.eu/service-catalogue		

		<ul style="list-style-type: none"> • Interoperability Hub (?) • Making Data Findable by being Citable (? Is this a service?) • SSH Data repository service on EOSC 				
OPERAS Metrics Service	Metrics consortium (OBP, UP, COARD, OPERAS)	An API-only service that provides users with Metrics (and Altmetrics) on monographs (to be possibly expended later) from different providers/publishers	To be able to see impacts of research publications (monographs)	https://metrics.operas-eu.org https://github.com/hirmeos/metrics-api/	Online service (API)	MIT license
OPERAS Publication Service Portal	Lexis, UniTo	A wizard-like walkthrough for researchers to find services to publish their own research. (This service is in development and would not be ready in the next months, maybe even year)	Help researchers find what they are looking for: Service to publish their research (e.g. service to publish OA monograph)	(in development, no public URL yet) https://www.operas-eu.org/services/publishing-service-portal-pp/	Online service	Apache License 2.0
SPARNatural	SPARNA http://www.sparna.fr/	Sparnatural is a Javascript component allowing to navigate in an RDF knowledge graph by visually building SPARQL queries	<p>- Because it is end-user oriented and, in particular, the graph structure that is presented to the user is not necessarily - in fact never is - that of the underlying data graph;</p> <p>-Because it can nicely liven up the dull platitude of SPARQL query forms that we expose to users, integrating with YASGUI, to allow intuitive data discovery;</p> <p>-Because it is multilingual: we can associate labels in several languages with each class and each property;</p> <p>More description here (@fr): http://blog.sparna.fr/2019/06/13/sparnatural-ecrire-des-requetes-sparql-tout-naturellement/ </p>	https://github.com/sparna-git/Sparnatural	Javascript component	GNU Lesser General Public License v3.0
Disqus	Disqus (US Corporation)	Very well known commenting service	It can be an easy and effective way to engage users and encourage them to interact	https://disqus.com/	On-line service: plenty of plug-ins; API available	Commercial service. See pricing:

						https://disqus.com/pricing
PlumX Metrics	Plum Analytics (Elsevier)	Content Metrics: <i>"(it) provides insights into the ways people interact with individual pieces of research output (articles, conference proceedings, book chapters, and many more) in the online environment. Examples include, when research is mentioned in the news or is tweeted about."</i>	Showing metrics data related to the content aggregated by TRIPLE.	https://plumanalytics.com/	On line service	Commercial in theory but they <i>"provide PlumX Metrics and (the) artifact widget free of charge to non-commercial open access journals and regional repositories, upon request and approval."</i>
Crossref Event Data	Crossref	Content Metrics. Integrated in OPERAS Metrics Service (see above) for Monographs (later possibly Articles).	Showing metrics data related to the content aggregated by TRIPLE.	https://www.crossref.org/services/event-data/	On line service.	Event Data is a public API
Altmetric	Altmetric	Content Metrics. It tracks citations of a research (<i>"who's talking about your research and what they're saying"</i>)	Showing metrics data related to the content aggregated by TRIPLE.	https://www.altmetric.com/	On line service	Commercial but some free use of specific use cases (apparently not applicable to TRIPLE)
Underlay	Knowledge Futures Group (creators of PubPub) - A non-profit MIT organization	Public knowledge graph services. Underlay is a free and open source system for structuring, storing, and aggregating open, distributed knowledge. <i>"The Underlay will gather knowledge currently used to produce publications, databases, and dynamically generated displays. It will make each associated assertion available in a machine-readable form that can be dynamically searched, vetted, and combined, based on its provenance. By connecting multiple sources together, each</i>	Honestly not clear how this integration might be based on. Underlay in fact revolves around the concepts of "assertions". TRIPLE is centered around the aggregation of content. One possible strategy would be to translate some information stored in the TRIPLE Data Model/Ontology in assertions (e.g. Author -> Article -> Category: Organizations -> Project -> Article). The integration therefore would be to provide TRIPLE data to Underlay. Since Underlay is a work in progress, there won't be a lot of its "knowledge" to be used in TRIPLE, but in perspective integrations might be created at the Pipeline	https://www.underlay.org/	Decentralized knowledge graph	Open source

		<i>asserted claim can be analyzed for relevance and veracity, recombined and re-presented for different purposes."</i>	level (using Underlay Knowledge in the enriching phase of the TRIPLE ingestion pipeline) or at the presentation level (associating Underlay assertions in the GoTriple platform). On the latter point see: https://notes.knowledgeforums.org/pub/annotation/release/2 In this respect, Pundit annotations might be seen as Assertions to enrich Underlay. In short: still to be assessed in full.			
Connectedpapers	ConnectedPapers.com	Visual graph of paper connections. <i>"Explore connected papers in a visual graph"</i>	Visual tool to help researchers and applied scientists find and explore papers relevant to their field of work. Apparently it cannot be embedded in a website (e.g. GoTriple) so the only integration would be via a link and/or an IFRAME	https://www.connectedpapers.com	On-line service. Apparently "self-funded and totally free"	Unsure. Not really a license but a terms of service policy is declared here: https://www.connectedpapers.com/terms
COESO	EU funded research project that has just started (Jan 2021)	Albeit COESO will focus on Citizen Science practices in SSH, it will provide a collaboration platform, named VERA, for creating and managing projects. This functionality will mostly exploit and integrate existing services, the most common ones used SSH researchers.	TRIPLE aims to allow the discovery of researchers. Moreover it manages projects. One possible "next step" for TRIPLE would be to allow to researchers to meet and start to collaborate on a project, by using COESO's functionalities. Another integration aspect to considerate is to harvest COESO's projects in TRIPLE	No web presence yet	It should be an on-line service (first release to be expected not earlier than late 2022)	To be defined
ReFigure Suggested by: Peter/OKM APS	Scimpact LLC	A Visual Metapublication service, linking previously published or new figures from traditional full length papers or single figure publications to assess reproducibility, identify novel findings and catalyze collaborations. <i>"Collect, save and upload figures from published and original work"</i>	Enables users to create a visual dashboard of research findings and provide a synthesis for them. Very useful when a single paper or finding is not enough to answer a research question.	https://refigure.org/	On-line service; also open source software	MIT license

Zotero Suggested by: Peter/OKM APS	Corporation for Digital Scholarship	Open source reference management system	Enable users to easily export references from TRIPLE to Zotero NOTE: we can expose metadata in TRIPLE (e.g. in an article landing page) that can allow an easy integration with Zotero. See: https://www.zotero.org/support/dev/exposing_metadata	https://www.zotero.org/	On-line service; also open source software	AGPL
DOAJ Data Suggested by: Peter/OKM APS	DOAJ	Directory of Open Access Journals	Include data about which journals are listed in the DOAJ/have the DOAJ Seal to give users a further point of reference as to which outputs are credible	https://doaj.org/	Open API, open data	Data: CC0
unpaywall Data Suggested by: Peter/OKM APS	Our Research	Open access data for a large set of publications	Enrich TRIPLE data with additional open access links	https://unpaywall.org/	Open source, open API, open data	Source code: MIT license
ORCID data Suggested by: Peter/OKM APS	ORCID	Researcher IDs and profiles	Include additional data about authors	https://orcid.org/	Open source, open API, open data	
Scholia Suggested by: Peter/OKM APS	Wikimedia/Wikidata	Scholia is a service that creates visual scholarly profiles for topic, people, organizations, species, chemicals, etc using bibliographic and other information in Wikidata	Provide additional visual context for entities indexed in TRIPLE. Includes diagrams and graphs. Open alternative to ConnectedPapers	https://scholia.toolforge.org/	Open source, open API, open data	License for content: CC0 for data, CC-BY-SA for text and media Source code: GPL
RAWGraphs Suggested at the March 30th 2021 workshop	DensityDesign, Calibro and Inmagik.	RAW Graphs is an open source data visualization framework built with the goal of making the visual representation of complex data easy for everyone.	It allows a rapid visualization of datasets in tabular (TSV, CSV, DSV) or JSON format.	https://rawgraphs.io/	On line service, open source software	Apache 2.0
Data Wrapper	Datawrapper GmbH	Datawrapper lets you show your data as beautiful charts,	It allows a rapid visualization of datasets.	https://www.datawrapper.de/	On line service	Commercial, freemium model

Suggested at the March 30th 2021 workshop		maps or tables with a few clicks.				
Voyant Suggested at the March 30th 2021 workshop	"open source community"	Voyant Tools is a web-based text reading and analysis environment. It is a scholarly project that is designed to facilitate reading and interpretive practices for digital humanities students and scholars as well as for the general public.	It provides an easy and ready to use tool for the analysis of text.	https://voyant-tools.org/	On line service, open source software	GPL3 license

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