

D2.3.2 Evaluation results of the LinkedUp VIDI competition

Citation for published version (APA):

Drachslor, H., Stoyanov, S., Herder, E., Marieke, G., & Maren, S. (2014). *D2.3.2 Evaluation results of the LinkedUp VIDI competition*.

Document status and date:

Published: 23/12/2014

Document Version:

Peer reviewed version

Document license:

CC BY-NC-SA

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

<https://www.ou.nl/taverne-agreement>

Take down policy

If you believe that this document breaches copyright please contact us at:

pure-support@ou.nl

providing details and we will investigate your claim.

Downloaded from <https://research.ou.nl/> on date: 12 Oct. 2022

Open Universiteit
www.ou.nl





LinkedUp: Linking Web Data for Education Project – Open Challenge in Web-scale Data Integration

<http://linkedup-project.eu/>

Coordination and Support Action (CSA)

Grant Agreement No: 317620

D2.3.2 Evaluation results of the LinkedUp VIDI competition

Deliverable Coordinator: Hendrik Drachsler

Deliverable Coordinating Institution: Open University of the Netherlands (OUNL)

Other Authors: Slavi Stoyanov, Eelco Herder, Marieke Guy, Maren Scheffel

Document Identifier:	LinkedUp/2013/D2.3.2/v1.0	Date due:	30.06.2014
Class Deliverable:	LinkedUp 317620	Submission date:	23.06.2014
Project start date:	November 1, 2012	Version:	v1.0
Project duration:	2 years	State:	Final
		Distribution:	Public, Restricted, Confidential

LinkedUp Consortium

This document is part of the LinkedUp Support Action funded by the ICT Programme of the Commission of the European Communities by the grant number 317620. The following partners are involved in the project:

Leibniz Universität Hannover (LUH) Forschungszentrum L3S Appelstrasse 9a 30169 Hannover Germany Contact person: Stefan Dietze E-mail address: dietze@L3S.de	The Open University Walton Hall, MK7 6AA Milton Keynes United Kingdom Contact person: Mathieu d'Aquin E-mail address: m.daquin@open.ac.uk
Open Knowledge Foundation Limited LBG St John's Innovation Centre Cowley Road CB4 0WS, Cambridge United Kingdom Contact person: Marieke Guy E-mail address: marieke.guy@okfn.org	ELSEVIER BV Radarweg 29, 1043NX AMSTERDAM The Netherlands Contact person: Michael Lauruhn E-mail address: M.Lauruhn@elsevier.com
Open Universiteit Nederland Valkenburgerweg 177, 6419 AT Heerlen The Netherlands Contact person: Hendrik Drachsler E-mail address: Hendrik.Drachsler@ou.nl	Lattanzio Learning S.p.A. Via Domenico Cimarosa, 4 20144 Milano Italy Contact person: Elisabetta Parodi E-mail address: parodi@lattanziogroup.eu

Work package participants

The following partners have taken an active part in the work leading to the elaboration of this document, even if they might not have directly contributed to the writing of this document or its parts:

- OUNL, Hendrik Drachsler, Slavi Stoyanov
- LUH, Fritz Pieper, Eelco Herder, Stefan Dietze, Ivana Marenzi
- OUUK, Mathieu d'Aquin
- OKF, Marieke Guy

Change Log

Version	Date	Amended by	Changes
0.1	01.02.2014	Drachsler	Initial structure
0.2	19.02.2014	Drachsler / Stoyanov	Enrichment
0.3	20.03.2014	Drachsler / Stoyanov	Enrichment
0.3	01.04.2014	Scheffel	Minor corrections
0.4	23.06.2014	Drachsler	Reviewers' feedback incorporated

Table of Contents

1. Introduction	4
2. The Vidi competition	5
2.1. The Scoring Sheet for the Vidi competition	8
2.2. Evaluation results	10
2.2.1. Focus Track	10
2.2.2. Open Track	11
2.2.3. Deliberation process	13
2.2.4. The audience award	15
2.2.5. Feedback to the LinkedUp participants	16
3. Methods for the Evaluation of LinkedUp Evaluation Framework	17
3.1. Method	17
3.1.1. Participants	17
3.1.2. Procedure	17
3.1.3. Measurement Instruments	17
3.2. Summary of findings	17
3.2.1. Close-ended items	18
3.2.2. Open-ended question	19
4. Conclusion	21
List of Figures and Tables	22
Appendix A. Overview of all Vidi submissions	23
Appendix B. Example of survey form itmes	29
Appendix C. Responses of judges to open questions in Vidi evaluation survey	30

1. Introduction

This document D2.3.2 is the second report of Task 2.4 - Evaluation of challenge submissions. Task 2.4 is about the actual assessment of the participating projects within the LinkedUp Veni, Vidi and Vici competition on the basis of the LinkedUp Evaluation Framework (D2.2.1).

The main objective of Task 2.4 is to summarise and report the outcomes of the various competitions and analyse the practical experiences of the experts with the LinkedUp Evaluation Framework to further improve the evaluation framework.

In the current document D2.3.2 we report about the Linked Data tools and ideas that have been submitted to the second data competition - Vidi. In total, we received 14 submissions, 9 of them have been shortlisted and invited to a poster presentation at the Extended Semantic Web Conference (ESWC), four of them have been awarded by the LinkedUp evaluation procedure, one submission received an audience award.

This deliverable provides an overview of the Vidi submissions, explains the evaluation procedure that resulted in a short list of the best submissions, justifies the decision for the winners, and also reports the experiences with the evaluation framework that has been created in the previous WP2 deliverables (D2.1, D2.2.1, D2.3.1).

2. The Vidi competition

The Vidi Competition was the second in the competition series comprising the LinkedUp Challenge. The competition was promoted through the LinkedUp Project website¹ and the LinkedUp Challenge website², a site dedicated purely to promoting the challenge. Vidi ran from the 4th of November 2013 to the 14th of February 2014 and requested participants to submit “*an innovative and robust prototype or demo that used linked and/or open data for educational purposes*”, with the remark that “*Your tool still may contain some bugs, as long as it has a stable set of features and you have some proof that it can be deployed on a realistic scale*”. The LinkedUp Challenge website defines “*educational purposes*” by stating that the tools and applications developed must be relevant to education - in the broadest sense of the word. This might mean that they aid learning in some way or that they support educational objectives by expanding knowledge and encouraging critical thinking.

Apart from the Open Track, the Vidi competition featured two Focused Tracks, which were selected from eight candidate focused tasks that were developed from the use cases for the Veni competition in WP5, with further guidance from an analysis of the Veni entries. Focused Track 1, *Simplificator*, called for applications easing access to complex information by summarising them in a simpler form. Focused Track 2, *Pathfinder*, called for applications easing access to recommendation and guidance when choosing an appropriate curriculum of courses and related resources.

By the closing date, 14 valid submissions had been received from 12 different countries. We received 10 entries to the Open Track ranging from ways to browse bibliographic records and navigate scientific records, to tools that allow users to build multimedia linked data stories about art or visualise learning materials. Further, we received 4 entries to the *Simplificator* Focused track, allowing simplification of archeological, historical and health data. Unfortunately, the *Pathfinder* Focused Track did not receive a sufficient number of submissions and so we decided to close this specific track. The entries were heterogeneous, consisting of varying number of authors, institutions, countries etc.

Of the shortlisted Open Track submissions, two submissions provided intelligent search functionality in educational resources: AGRIS links bibliographic references from the agricultural domain to external datasets, and Solvonauts is an open educational search engine. Three submissions focused on connecting people and things with one another: Rhizi is the further development of the Veni submission KnowNodes and allows users to interactively create connections; Konnektid allows people to connect to others in order to learn or teach something; LOD Stories lets users connect artworks, artists and places into a storyboard. Finally, two submissions help users to make sense of data with various visualisations: DBLPEXplorer is a browsing and exploration interface for publications in the field of computer science. With TuVaLabs, students and teachers can explore and visualise datasets and create assignments around them. The shortlisted submissions for *Simplificator* focused on two specific domains: a visualisation of labour conflicts in the Netherlands and an electronic Discharge Letter that makes the lives of patients and doctors easier. Apart from the tool itself, several submissions also provided a SPARQL endpoint for their data. Table 1 provides a summary of the Vidi submissions and Table 2 an overview over all submissions and a short description. Full abstracts of the submissions are given in Appendix A.

¹ <http://linkedup-project.eu/>

² <http://linkedup-challenge.org/>

Table 1: Summary of the Vidi submissions

Number of submissions received	14
Number of submissions entered into competition	14
Number of submissions received from	4 from UK, 4 from Netherlands, 3 from Germany, 3 from US, 2 from Italy, 1 from Croatia, 1 from Ireland, 1 from Spain, 1 from Belgium, 1 from France, 1 from Australia and 1 from India (these numbers total higher than 14 due to international teams) - 12 countries represented
Variety of institutions	9 from universities, 5 from start up companies and think tanks, 1 from government organisation and 1 from an individual consultant (these numbers total higher than 14 due to cross-sector teams)
Number of team members	4 with 3 members, 4 with 1 member, 2 with 4 members, 2 with 8 members, 1 with 2 members and 1 with 10 members.

Table 2: Detailed overview of all submissions of the Vidi competition

ID	Track	Authors	Title	Abstract
1	OT	Ricardo Kawase, et al.	DBLPXplorer: Interactive Graphical Interfaces for the Computer Science Bibliography	Keeping up to date with the latest research in a particular field is often a time consuming task. Currently, available tools to explore such information are solely text based. To facilitate the exploration of authors, scientific research and relations, we propose a visual exploratory interface for DBLP Computer Science Bibliography. http://linkedup-challenge.org/vidi/#DBLPXplorer
2	OT	Martina Holenko Dlab, et al.	ELARS: E-Learning Activities Recommender System	ELARS is a recommender system that supports collaborative e-learning activities in an online learning environment that consists of a learning management system (LMS) and different Web 2.0 tools. http://161.53.18.114/ElarsDemo
3	FT	Leonardo Lezcano, et al.	The electronic Discharge Letter (eDL) mobile app	Discharge letters are important issues to consider when ensuring patient safety as they represent the transfer of patient care from one caregiver to another in a time of particular risk for medical errors. Nowadays, paper based letters, unstructured texts, unstandardised diagnosis, language barriers, incompleteness and ambiguity make discharge letters a breakpoint in the clinical information workflow that must be addressed. The “Electronic Discharge Letter (eDL) mobile app” as a revolutionary approach to transfer eDLs and prevent the above-mentioned complications. A demonstration video is available at: http://youtu.be/bAT0JKPPZu4 http://leonardolezcano.com/eDLapp.html
4	OT	Jianliang Chen, et al.	LODStories: Learning About Art by Building Multimedia Stories	LODStories is an engaging application where people learn about art while constructing multimedia stories about art and its connections to the people, places and ideas. LODStories mines the Linked Open Data cloud to discover interesting connections between entities that people are familiar with and artworks, artists and places. http://goo.gl/XIZhbJ

5	OT	Lorenz Bühmann, et al.	ASSESS – Automatic Generation of Tests Using Linked Data	<p>The Linked Open Data Cloud is a gold mine for educational applications: First, it contains knowledge of encyclopedic nature on a large number of real-world entities. Moreover, the data being structured ensures that the meaning of the data can be understood by both humans and machines. Finally, the openness of the data and the use of RDF as standard format facilitate the development of applications that can be ported across different domains with ease.</p> <p>http://assess.aksw.org/</p>
6	OT	Fabrizio Celli	AGRIS – exploiting bibliographic records to create rich Linked Open Data page	<p>AGRIS is a lot of things; it is a network, a website, a search engine. But AGRIS is also a database, a collection of more than 7.6 million bibliographic references in the agricultural domain.</p> <p>http://agris.fao.org/agris-search/index.do</p>
7	OT	Jiannan Zhang, et al.	NewDictionary	<p>Learning English vocabulary is usually a pain for non-native speakers. One way to simplify the process is to use different kinds of material to explain word meanings instead of text-only information, and show the relation of a word / phrase to others. There are fairly large amount of open data can be used for this task, including WordNet, DBpedia, CC-Credit, etc. A functioning prototype has been built to help people get word meanings and illustrate the idea of multimedia dictionary.</p> <p>http://newdictionary.co.uk/</p>
8	OT	Michel Visser, et al.	Konnektid - Social Learning Anytime, Anywhere	<p>Konnektid offers peer to peer learning by enabling you to find skilled people nearby. Social Learning Anytime, Anywhere.</p> <p>We are reinventing education with a high social impact. Imagine you can find learnings right around the corner and meet your teacher right away, just by asking around. By sharing your skills with the people around you, we enable you to help yourself and others grow while getting to know the people nearby. One on one, personal and local.</p> <p>http://www.konnektid.com/</p>
9	FT	Vyacheslav Tykhonov	Visualization of Labour Conflicts in the Netherlands for last 700 years	<p>The visualisation interface for the Strikes case study provides a visual interface to the process undertaken in HiTiME and ISHER projects for discovering articles related to strike events in the KB archive and linking these to strike entity events, as these are defined and described in the Strikes DB. The overall objective of the visualisation interface for the Strikes case study is the provision of a visual overview of linked and associated data from primary and secondary historical resources, such as the Strikes DB and the KB archive.</p> <p>http://node-195.dev.socialhistoryservices.org/strikes/</p>
10	FT	Francesco Di Tria	Cultural Heritage Open Catalog	<p>The project aims at presenting a search engine in the context of cultural heritage. The database is composed of several datasets of the Italian Public Administration about archeological, historical, and tourist sites. User can insert key-words to obtain a set of items, which are sorted on the basis of a relevance degree. A detailed page of a given item shows a short description, along with its own</p>

				reference on Google Map. http://codbeni.altervista.org/
11	OT	Dor Garbash, et al.	Rhizi.net	Learning materials in most of today’s online learning platforms are siloed and disconnected. Rhizi is web software to deepen the online connections between learning materials with meaning and context. It is a “WordPress” for knowledge-graphs that enables users to freely make connections between a paragraph from a blog, research data, a video segment, people and more. These connections are special: They can be shared with your community, peer-reviewed, visualised, “followed”, and contain explorable context understood by both man and machine. http://rhizi.org/
12	OT	Abdul Rahim and Pascal Heus	"OpenDataForge SledgeHammer" - An Open Data Enabling Tool	Turn your data into open data (and back)! SledgeHammer is a powerful tool that facilitates the production of open data packages for publication or preservation purposes, and for discovery, access and reuse by data management, analysis software or database engines. SledgeHammer enables the exchange of data between proprietary and open formats, by leveraging industry standard technologies and globally recognised metadata standards. http://www.openmetadata.org/sledgehammer
13	FT	Pat Lockley	Solvonauts : an open educational search engine	Solvonauts is (we believe) the only open educational resource search engine which returns only CC or public domain licensed materials. We harvested from over 1,500 sites including repositories, flickr and tumblr. Our data and source code are available in our github (https://github.com/solvonauts/) http://solvonauts.org/
14	OT	Harshil Parikh, et al.	TuvaLabs - Data Literacy Skills for a Brighter Future	TuvaLabs transforms open data into opportunities for meaningful teaching and learning in the classroom, using it can be a lever to bring neighborhoods and communities closer together through education. Teachers across grades and subjects implement lessons, activities, investigations, and projects that enable their students to explore real data on the TuvaLabs platform. We leverage high quality open data sources to curate datasets that teachers and students find meaningful and for teaching and learning in the classroom. At TuvaLabs, we envision a world in which students are empowered with the skills and tools to address tomorrow's environmental, economic, and societal challenges through open data. https://www.tuvalabs.com/

2.1. The Scoring Sheet for the Vidi competition

In contrast to the previous Veni competition, we provided the Vidi judges with an easier evaluation procedure. The reviewers could provide their review in a single review system - EasyChair (instead of a survey system and EasyChair).

Among this simplification, we also introduced a new Meta-Item: *Overall evaluation of the submission* with five values (accept, weak accept, borderline, weak reject, reject) as the reviewers expressed this addition in our last evaluation of the Evaluation Framework (see D2.3.1). For the same reason, we also added a *Reviewers*

confidence score, where the reviewers can rate their confidence towards the submission that has been allocated to them. The reviewers could express their confidence on a scale from 1-5 (no expert - expert). In addition, we removed the *'Not applicable option'* from the evaluation criteria as this was a major source of confusion for the evaluation during the Veni submission. In the current Vidi competition we clearly described the evaluation criteria to the participants and agreed that the evaluation criteria are fixed conditions in the evaluation process.

Additional modifications have taken place in the formulation and the amount of review items per evaluation criteria. One major change has been the adjustment of the SUS Usability scale to a 3 item model. The reasons are as follows: (a) a questionnaire (SUS) within a questionnaire (the Framework) does not seem practical; (b) the two measurement instruments apply different metrics; (c) difficulties experienced by the judges as indicated in their post-Veni competition interviews; (d) research suggests to use as small a number of items where possible (advice given by Jeff Sauro himself, the person who popularised the SUS questionnaire). The current usability scale consists of items that score very high on validity and reliability criteria (no less than 90% explaining the variance in the data) as indicated by other usability measures (e.g. SUS, CSUQ, UTAUT).

The final review items per criterion for the Vidi competition have therefore been:

Table 3: Overview of evaluation items for the Vidi competition per criteria

Educational Innovation (EI)	<ol style="list-style-type: none"> 1. Rate the extent to which the application implements an innovative educational concept (e.g. innovative ways of presenting content, innovative methods for learning or teaching) 2. Rate the extent to which the application is more effective than existing applications? (e.g. leads to significant improvements in learning or teaching). 3. Rate the extent to which the application is more efficient than existing applications? (e.g. saves time or efforts for learners or teachers).
Usability (U)	<ol style="list-style-type: none"> 1. Rate the extent to which the application is easy to use 2. Rate the extent to which the application can quickly be learned? 3. Rate the extent to which the application has an attractive user interface.
Performance (P)	<ol style="list-style-type: none"> 1. How is the tool available to its target users? 2. How would you rate the overall quality of the tool according to the aims of the tracks? <u>Open Track:</u> To what extent integrates the tool open data for education? <u>Focused Track Simplificator:</u> What is the level of simplification reached by the tool?
Data (D)	<ol style="list-style-type: none"> 1. Does the tool consume multiple data sources? 2. Does the tool expose new datasets to the Linked Data cloud?
Legal (L)	<ol style="list-style-type: none"> 1. Does the tool provide background / licensing information for the used data sources? 2. Does the tool collect only needed personal information about the user? 3. Does the tool provide a statement on the terms of use?
Audience (A)	<ol style="list-style-type: none"> 1. Rate the extent to which the application addresses the needs, problems or challenges of its target group(s) 2. Can the application be used in various domains?

The judges rated the individual tools according to the following instructions:

DETAILED REVIEW PLAN:

Please follow the following steps during your reviews.

1. SCAN the submissions assigned to you – see the list at the end of this email. In each paper, there is a link to the demo site, either in the main text or in the references. Watch the demo or do a live test of the tools.

2. **START REVIEW** by selecting the button *Add Review*. You will see the evaluation form.

3. **RATE** your assigned submission(s) according to the criteria in the evaluation form. We apply six evaluation criteria with some specific indicators.

These are:

- *EI. Educational Innovation* is about the potential innovation of the submission for the educational sector.
- *U. Usability* is about ease to use, ease to learn how to use it and ease to navigate.
- *P. Performance* is about stability of the tool.
- *D. Data* is about the amount of consumed and exposed data sources.
- *L. Legal & Privacy* is about legal status of the user and used data sources.
- *Audience* is about the potentials of the tool to address the needs of its target users.

Once you have provided your ratings for the criteria, please give a short justification of your ratings in the Review text box by addressing each of the six criteria. You can use the following text template for your feedback.

Template for justification of the rating:

EI. Educational Innovation:

[YOUR REVIEW COMMENTS]

U. Usability of the tool:

[YOUR REVIEW COMMENTS]

P. Performance:

[YOUR REVIEW COMMENTS]

D. Data:

[YOUR REVIEW COMMENTS]

L. Legal & Privacy:

[YOUR REVIEW COMMENTS]

A. Audience:

[YOUR REVIEW COMMENTS]

4. **SUBMIT** the review when ready in *EasyChair*.

2.2. Evaluation results

2.2.1. Focus Track

Within the Focus Track - Simplificator we attracted four submissions. Figure 1 shows the rating for each of the submissions according to our six evaluation criteria.

Figure 2 shows the total ratings given to each submission by summing up all single rating values per submission. The figure shows that submission 3 - The eDL App received the highest ratings of all competitors within the Focus Track.

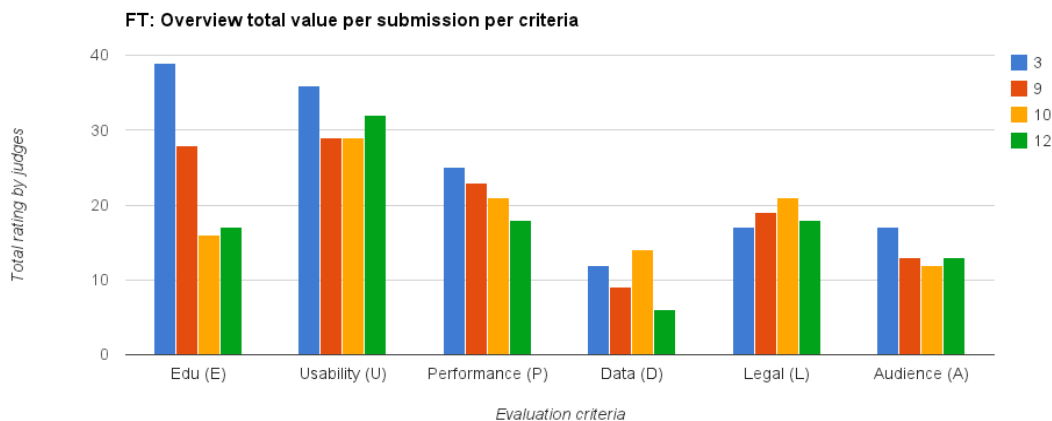


Figure 1: Overview of ratings per criteria given to the Focus Track submissions - *Simplificator*

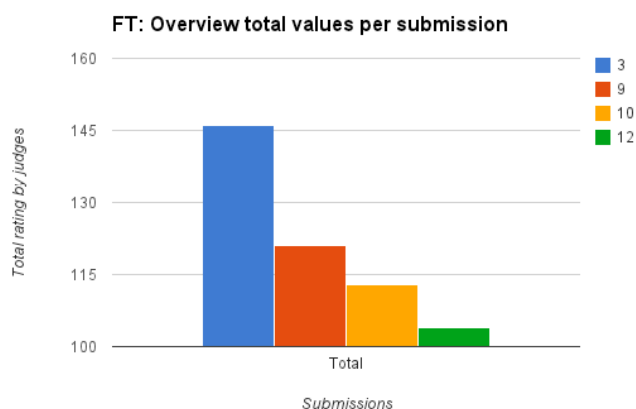


Figure 2: Total sum of ratings for each submission

According to this overview data we shortlisted the 4 submissions for the deliberation meeting. According to the evaluation framework we came up with the following hierarchical ranking for the Focus Track.

1. **ID 3:** *The electronic Discharge Letter (eDL) mobile app*, Leonardo Lezcano (total score: 146; average score: 24)
2. **ID 9:** *Visualization of Labour Conflicts in the Netherlands for last 700 years*, Vyacheslav Tykhonov (total score: 121; average score: 20)
3. **ID 10:** *Cultural Heritage Open Catalog*, Francesco Di Tria (total score: 113; average score: 19)
4. **ID 12:** *OpenDataForge 'SledgeHammer' - An Open Data Enabling Tool*, Abdul Rahim and Pascal Heus. (total score: 104; average score: 17)

Based on the review results, only submission 3 and 9 of the FT submissions have been invited to the ESWC conference. Submission 10 has been rejected as it was not stable and mature enough for the Vidi submission call. Submission 12 has been rejected as it mainly is a data conversion tool and does not address Linked Data or educational aspects and therefore was not suited for the Vidi call.

2.2.2. Open Track

After all reviews were collected, we started a thorough analysis of the evaluation results. First of all we visualised the evaluation results for each criteria in a single bar chart to get a rough overview of the assessment results of the LinkedUp judges.

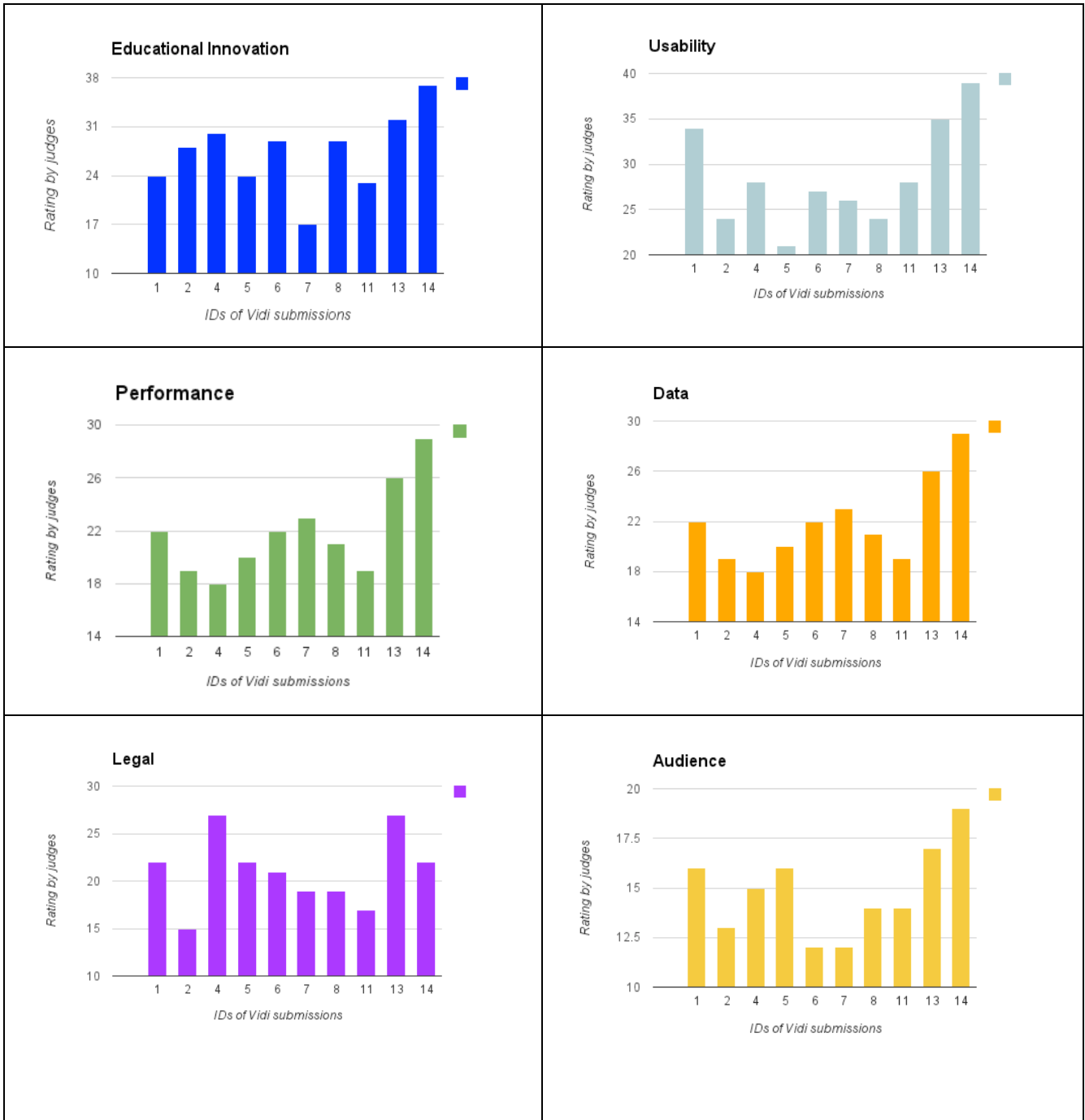


Figure 3: Overview of Open Track evaluation results per criteria and submission ID

The line chart presented in Figure 4 shows all evaluation criteria per submission in a single view. In the legend on the right side you find the submission ID color coded. On the x-axis are the evaluation criteria listed and the y-axis shows the individual ratings that the submissions achieved for each of the criteria.

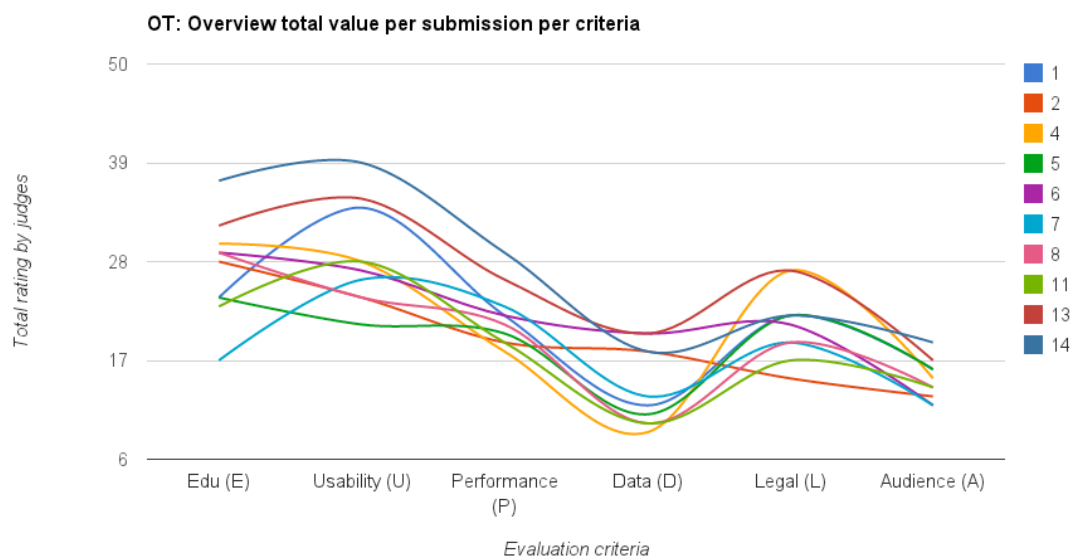


Figure 4: Line chart showing the rating per criteria per submission

The 10 Open Track Vidi submissions are ranked based on the score they received on all criteria. Both the total and average score for each submission is provided although the total score gives a clearer cut line. The list of submissions from the highest to the lowest score is as follows:

1. **ID 14:** *TuvaLabs - Data Literacy Skills for a Brighter Future*
(total score: 164; average score: 27)
2. **ID 13:** *Solvonauts : an open educational search engine*
(total score: 157; average score: 26)
3. **ID 6:** *AGRIS – exploiting bibliographic records to create rich Linked Open Data page*
(total score: 131; average score: 22)
4. **ID 1:** *DBLPXplorer: Interactive Graphical Interfaces for the Computer Science Bibliography*
(total score: 130; average score: 22)
5. **ID 4:** *LODStories: Learning About Art by Building Multimedia Stories*
(total score 127; average: 21)
6. **ID 2:** *ELARS: E-Learning Activities Recommender System*
(total score: 117; average score: 20)
7. **ID 8:** *Konnektid - Social Learning Anytime, Anywhere*
(total score: 117; average score: 20).
8. **ID 5:** *ASSESS – Automatic Generation of Tests Using Linked Data*
(total score: 114; average: 19)
9. **ID 11:** *Rhizi.net*
(total score: 111; average: 19)
10. **ID 7:** *NewDictionary*
(total score: 110; average score: 18).

Overall we received very mature and highly potential submissions for the Open Track. Based on the review results, we rejected submission 2 - ELARS, 5 - ASSESS, and 7 - NewDictionary as they have not been mature enough compared to the other submissions.

2.2.3. Deliberation process

As in the first Veni competition, all Vidi submissions were subject of a scrutinised check by the LinkedUp deliberation committee to make sure that the best applications made the final list and that all received a fair treatment. The deliberation process was conducted face-to-face during the project consortium meeting in

Athens (March, 2014). The deliberation committee took two important decisions. First, the number of shortlisted submissions for the Open Track increased from 5 to 7 and the selected submissions for the Focused Track become 2 rather than 1 as initially suggested. All of them were invited to present their work at the ESWC conference. Second, although some of the submissions had a clear cut edge over their competitors, no final decision on the winners was taken, to provide space for an additional quality check. The final decision has been done in a 2nd online deliberation meeting that took place 13th of May before the ISWC conference.

Table 4 provides an overview of the final decision of the deliberation committee before the ESWC conference. The deliberation committee consisted of representatives from all partner organisation that provided their ranking of the submission and motivates those with a narrative. In the deliberation all reviews comments, feedback from the shortlisted submissions, and the expert judgement have been reconsidered to make the final decision. The winners of the Vidi competition have been therefore:

The Focused Track winner was:

- The electronic Discharge Letter (eDL) mobile app,
eDL is a very convincing mobile application that demonstrates how Linked Data can improve medical procedures in the future. The eDL App provides a very strong medical use case that address one of the WHO high 5 problems on patient safety. It supports explanation of medical diagnoses, support workplace learning for doctors, and empowers patients to better understand their own health care records.

The Open Track winners were:

- 1st place – TuvaLabs – Data Literacy Skills for a Brighter Future
The committee agreed that TuvaLabs provided a very mature application with a clear educational use case: Learning how to use Data for training purposes. It supports modern learning approaches such as problem / project / and inquiry-based learning. It address fully the objective of the Vidi competition by using data for educational purposes in an innovative way.
- 2nd place – Solvonauts – an open educational search engine
Solvonauts is a huge learning object repository search engine that can provide access to more items than traditional OER silo systems. This can support teachers but also learners in findings suitable open educational resources for their learning objectives.
- 3rd place – Konnektid – Social Learning Anytime, Anywhere
The committee was excited about this very innovative approach to support informal learning and stimulate knowledge exchange between EU citizens. The Konnekid project brings a fresh idea to education. Although the data is still limited the fresh approach convinced the jury and we hope to support the project with the LinkedUp award.

Table 4: Overview invited submissions to ESWC, winners are marked in bold

ID	Track	Authors	Title
3	FT	Leonardo Lezcano	The electronic Discharge Letter (eDL) mobile app
9	FT	Vyacheslav Tykhonov	Visualization of Labour Conflicts in the Netherlands for last 700 years
14	OT	Harshil Parikh, Jaimin Patel, Benjamin Farahmand and Rachana Pandey	TuvaLabs - Data Literacy Skills for a Brighter Future
13	OT	Pat Lockley	Solvonauts: an open educational search engine
8	OT	Michel Visser, Simone Potenza and Romee Houben	Konnektid - Social Learning Anytime, Anywhere

6	OT	Fabrizio Celli	AGRIS – exploiting bibliographic records to create rich Linked Open Data page
1	OT	Ricardo Kawase, Ujwal Gadiraju and Patrick Siehndel	DBLPXplorer: Interactive Graphical Interfaces for the Computer Science Bibliography
4	OT	Jianliang Chen, Yuting Liu, Dipanwita Maulik, Linda Xu, Hao Zhang, Craig A. Knoblock, Pedro Szekely and Miel Vander Sande	LODStories: Learning About Art by Building Multimedia Stories
11	OT	Dor Garbash, Eyal Rotbart, William Zeng, Brendan Fong, Erik Edstrom, Jacob Cole, Calvin Fong and Yael Ben Dov	Rhizi.net

2.2.4. The audience award

The concept of the People’s Choice award was introduced in D2.3.1. It was agreed by the partners that offering a voting option was a valid approach and would be carried on through the Vidi Competition.

For the Vidi Competition a different service was used: [GNOSS](#). GNOSS is a software platform, created by RIAM Intelearning LAB S.L., to build specialised online social networks with dynamic semantic publishing. GNOSS actually entered a submission to the Veni competition ([Mismuseos](#)) and was shortlisted; they thus had some understanding of the issues with the previously used Ideascale service.

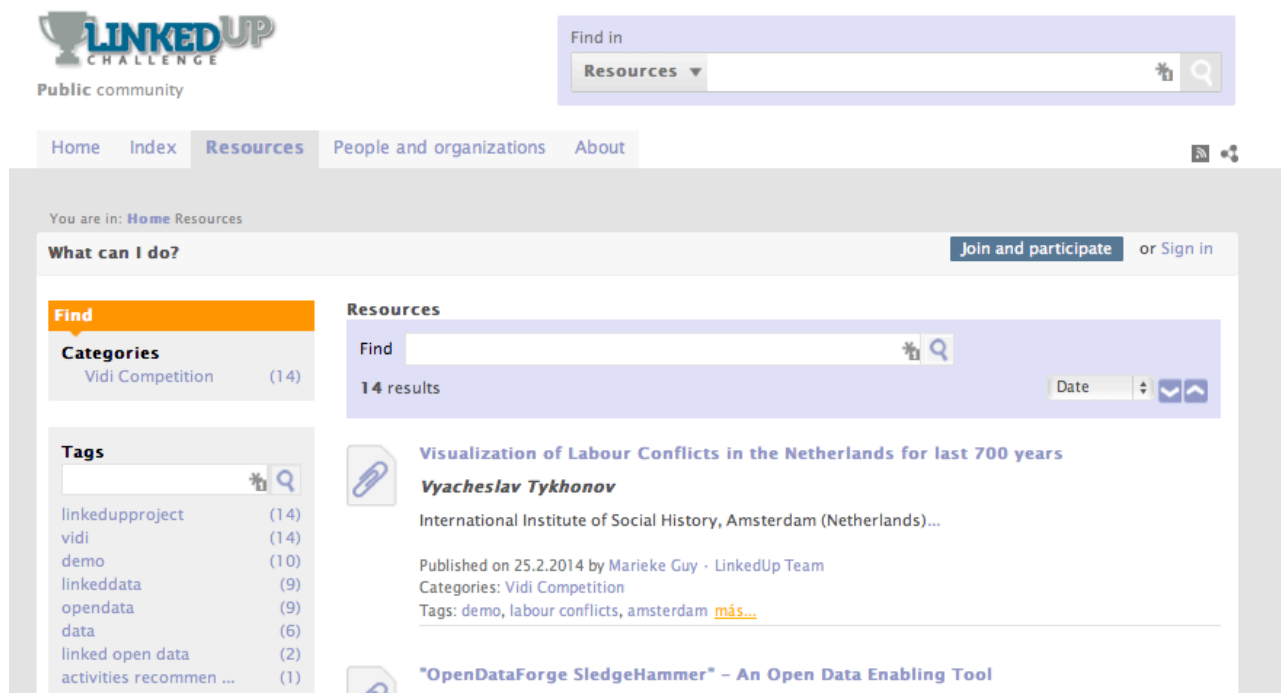


Figure 5: Screenshot of the People's Choice voting on GNOSS

The abstracts were added to the GNOSS site allowing anyone from the wider community to vote for any entries of their choice. They could do this by going to the submission of their choice and clicking the ‘I Like’ button, votes could also share their vote on Google+, Twitter, Facebook etc. In order to vote individuals had to register for the GNOSS site, this was a necessity to prevent vote rigging. Submissions could also be searched and filtered using tags.

The winner of the People’s Choice award was DBLPXplorer: Interactive Graphical Interfaces for the Computer Science Bibliography with 140 votes. There were 2591 visits to the GNOSS People’s Choice site and 297 votes placed. This discrepancy suggests that voting on the GNOSS site was not particularly easy to

carry out. Users needed to register and there were some language problems - the site often reverted to Spanish. For the Vici Competition two alternate solutions have already been suggested.

2.2.5. Feedback to the LinkedUp participants

Based on the evaluation collected from the judges in the EasyChair system we provided each submission with an overview of their performance according to the evaluation criteria. We took the sum of the assessment scores of the judges for each submission and report it with the average value for the evaluation criteria in the following template.

[PROJECT ACRONYM]: [FULL TITLE]

Rating given by the judges ordered by 1. Your rating | 2. Average rating:

<i>Educational Innovation:</i>	<i>[INDIVIDUAL RATING]</i>		<i>AVG Educational Innovation:</i>	29
<i>Usability:</i>	<i>[INDIVIDUAL RATING]</i>		<i>AVG Usability:</i>	25
<i>Performance:</i>	<i>[INDIVIDUAL RATING]</i>		<i>AVG Performance:</i>	18
<i>Data:</i>	<i>[INDIVIDUAL RATING]</i>		<i>AVG Data:</i>	20
<i>Legal:</i>	<i>[INDIVIDUAL RATING]</i>		<i>AVG Legal:</i>	20
<i>Audience:</i>	<i>[INDIVIDUAL RATING]</i>		<i>AVG Audience:</i>	24

Comments provided by the judges:

[WRITTEN COMMENTS MADE BY THE JUDGES]

3. Methods for the Evaluation of LinkedUp Evaluation Framework

Among reporting the outcomes of the Vidi competition, one of the main objectives of this deliverable is to evaluate the effectiveness of the Evaluation Framework as it has been used by the LinkedUp judges. In order to evaluate the latest version of the EF as it has been used in Vidi, we decide this time to use a survey. The purpose of the Vidi survey was to gather in a structured and quick manner information from the reviewers about how they applied the indicators of the evaluation framework to the submissions.

This is especially important for the final competition Vici that will only provide a very short timeframe to evaluate the final version of the EF as the LinkedUp project is ending in October 2014. The evaluation survey was hosted on Google forms³.

3.1. Method

3.1.1. Participants

25 judges of the LinkedUp project Vidi competition submissions were invited to participate in the study. All of them have a strong background in technology-enhanced learning with special interest in semantic web and linked open data. 12 of them, which is almost 50%, responded positively to the invitation and filled out the survey's questionnaire.

3.1.2. Procedure

The reviewers received an invitation to participate in the survey through the conference management system EasyChair. They got 2 weeks to complete the survey. A reminder was sent 1 week after the announcement of the survey.

3.1.3. Measurement Instruments

A questionnaire⁴ with 15 close-ended items was created as the main tool for data collection during the survey. Using a Likert scale of 1-to-5, the reviewers were asked to rate the extent to which it was easy/difficult for them to apply a particular indicator. To each item a space was added in case the participants wanted to make comments. The questionnaire was expected to take no longer than 20 minutes.

3.2. Summary of findings

We first explored the data to identify potential outliers (reviewers who significantly divert their rating from the rest of the group). They could affect the overall outcomes of the survey. Outliers were detected for several items, namely:

- **EI1:** Innovative educational concepts (ID 2 - low),
- **EI2:** More effective than existing applications (ID9 - high; ID6 - low; and ID12- extreme low);
- **EI3:** More efficient than existing applications (ID 12 – low);
- **L1:** Providing background / licensing information for the used data sources (ID10 – low);
- **L3:** Providing a statement on the terms of use (ID 2; ID 5 – both low);
- **P2:** The overall quality of the tool according to the aims of the OPEN track (ID10 and ID12 – both extreme low);
- **P2:** The overall quality of the tool according to the aims of the FOCUS track (ID8 and ID10 – both high).

³ <https://docs.google.com/forms/d/1QsUw-msZeo09uKH-Chpl-nHZvkAYfRtJJWb2zkSkGzU/viewform>

To determine the extent to which the outliers would affect the results we checked the mean of each of the items above with its trimmed mean approach, that is the recalculated mean after the top and low 5% of the cases are removed from the data. No significant difference between the two means was found meaning there was no need to exclude any data from the analysis.

3.2.1. Close-ended items

A screening of Figure 6 suggests that no item in the evaluation framework scores lower than 3. A more detailed inspection of the outcomes in Table 1 indicates that 11 out of 16 items received a score higher than $M = 3,75$ with an overall $M = 3.77$.

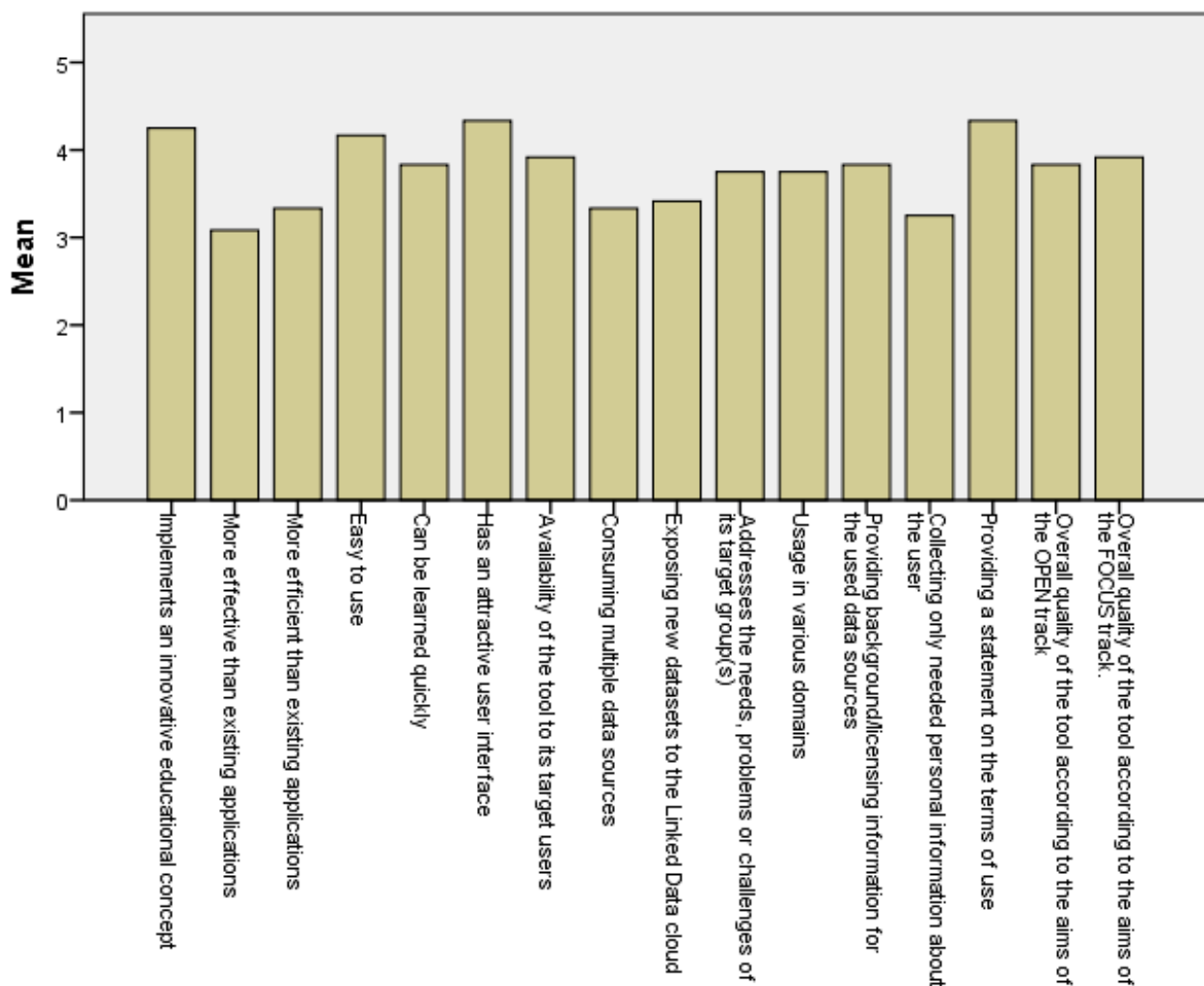


Figure 6: Visualisation of the scores of the indicators of the evaluation framework

The following items have been valued the most by the LinkedUp judges:

1. L3: Providing a statement on the terms of use ($M = 4.33$; $SD = 1.23$),
2. U3: The application has an attractive interface ($M = 4.33$; $SD = 0.65$),
3. EI1: The application implements an innovative educational concept ($M = 4.25$; $SD = 0,866$),
4. U1: Easy to use ($M = 4.17$; $SD = 0.718$),
5. P1: Availability of the tool to its target users ($M = 3.92$; $SD = 0.996$).
6. P2: The judgment on the overall quality of the focus track submission ($M = 3.92$; $SD = 0.669$) and the overall judgment on the open track ($M = 3.83$; $SD = 0.389$) got also high scores.

The items that scored relatively low are as follows:

1. EI2: The application is more effective than existing applications (M = 3.08; SD = 0.996),
2. L2: Collecting only needed personal information about the user (M = 3.25; SD = 1.138),
3. EI3: The application is more efficient than existing applications (M = 3.33; SD = 1.55),
4. D1: Consuming multiple data sources (M = 3.33; SD = 0.778),
5. D2: Exposing new datasets to the Linked Data cloud (M = 3.42; SD = 0.9).

Table 5: Descriptive statistics in regards to rating of the evaluation framework indicators

Indicators	N	Minimum	Maximum	Mean	Std. Deviation
EI1: Implements an innovative educational concept	12	2	5	4.25	.866
EI2: More effective than existing applications	12	1	5	3.08	.996
EI3: More efficient than existing applications	12	1	5	3.33	1.155
U1: Easy to use	12	3	5	4.17	.718
U2: Can be learned quickly	12	2	5	3.83	1.030
U3: Has an attractive user interface	12	3	5	4.33	.651
P1: Availability of the tool to its target users	12	2	5	3.92	.996
P2: Overall quality of the tool according to the aims of the OPEN track	12	3	4	3.83	.389
P2: Overall quality of the tool according to the aims of the FOCUS track.	12	3	5	3.92	.669
D1: Consuming multiple data sources	12	2	4	3.33	.778
D2: Exposing new datasets to the Linked Data cloud	12	2	5	3.42	.900
A1: Addresses the needs, problems or challenges of its target group(s)	12	3	5	3.75	.622
A2: Usage in various domains	12	3	4	3.75	.452
L1: Providing background/licensing information for the used data sources	12	1	5	3.83	1.267
L2: Collecting only needed personal information about the user	12	1	5	3.25	1.138
L3: Providing a statement on the terms of use	12	2	5	4.33	1.231
Valid N (listwise)	12				

Regardless of the mean scores, it seems that the variation in the answers on some of the questions is higher than in others. Some examples are:

- Providing background/licensing information for the used data sources (min = 1; max = 5, SD = 1.267);
- Providing a statement on the terms of use (min = 2; max = 5; SD = 1.231);
- More efficient than existing applications (min. = 1, max = 5; SD = 1.155)
- Collecting only needed personal information about the user (min. = 1; max =5; SD = 1.138).

3.2.2. Open-ended question

The majority of the reviewers took the opportunity to express their opinions and make suggestions about the indicators of the evaluation framework (see Appendix C). In total 33 comments were generated (educational innovation – 7; usability – 9; performance – 5; data – 5; audience – 3; and legal aspects – 4). In general, there is an agreement among the reviewers that the evaluation framework worked fine. Some of the comments explain the relatively low score of particular items. Effectiveness and efficiency of applications were easy to judge but it became more difficult when submissions needed to be compared to other existing applications. In addition, although the Vidi competition call explicitly required the participants to provide some empirical

evidence for the effectiveness and efficiency of their applications only a few of them submitted such information. All of this means that the indicators on effectiveness and efficiency should not include comparison with other applications.

There are some suggestions for including more items about usability. Overall this indicator worked well for all the judges and the evaluation framework must be kept short with balanced number of indicators for all criteria.

The comments on Data indicators, both of which also scored relatively low, need a better formulation in the next version of the evaluation framework.

4. Conclusion

The implications from the analysis of the survey results for the next version of the LinkedUp evaluation framework are as follows:

- The evaluation framework worked well for the Vidi competition and does not need substantial changes.
- Comparison to other existing applications in the formulation of the items referring to effectiveness and efficiency needs to be removed.
- The two items operationalising the Data criteria, namely ‘Consuming multiple data’ sources’ and ‘Exposing new datasets to the Linked Data cloud’ must be better defined.
- The results suggest that the reviewers felt comfortable with the reduced number of the usability indicators, which was the major change to the Vidi EF.

List of Figures and Tables

Figure 1: Overview of ratings per criteria given to the Focus Track submissions - <i>Simplificator</i>	11
Figure 2: Total sum of ratings for each submission	11
Figure 3: Overview of Open Track evaluation results per criteria and submission ID	12
Figure 4: Line chart showing the rating per criteria per submission	13
Figure 5: Screenshot of the People's Choice voting on GNOSS	15
Figure 6: Visualisation of the scores of the indicators of the evaluation framework	18
Table 1: Summary of the Vidi submissions.....	6
Table 2: Detailed overview of all submissions of the Vidi competition	6
Table 3: Overview of evaluation items for the Vidi competition per criteria	9
Table 4: Overview invited submissions to ESWC, winners are marked in bold.....	14
Table 5: Descriptive statistics in regards to rating of the evaluation framework indicators	19

Appendix A. Overview of all Vidi submissions

ID	Track	Authors	Title	Abstract
1	OT	Ricardo Kawase, Ujwal Gadiraju and Patrick Siehndel	DBLPXplorer: Interactive Graphical Interfaces for the Computer Science Bibliography	<p>http://linkedup-challenge.org/vidi/#DBLPXplorer</p> <p>Every year thousands of new research works are indexed and published online. Scientific publications involve mainly two sets of actors; namely, authors and articles. Consequently, a huge tangle of relations emerge together, where authors collaborate with several other authors and articles reference past literature. Due to this complex network, keeping up to date with the latest research in a particular field is often a time consuming task. Currently, available tools to explore such information are solely text based. The information seeker has to search, browse and navigate page by page in order to find relevant research. Yet, one cannot harness an overview of underlying networks and connections. At the same time, there is an abundance of information in the form of nearly disjoint datasets relevant to research and the actors involved in the Linked Open Data cloud. To facilitate the exploration of authors, scientific research and relations, we propose a visual exploratory interface for DBLP Computer Science Bibliography. To further enrich the data we extract authors' keywords from the articles and additionally annotate each article with identified DBpedia entities. The presentation layer consists of several user friendly exploratory interfaces that utilise state of the art javascript library D3 (Data-Driven Documents). Our interfaces include overview of particular venues, authors' profiles, scientific articles, relations and a knowledge base of keywords and semantic annotations. To complete our work, we expose all the enriched data as linked data.</p>
2	OT	Martina Holenko Dlab, Natasa Hoic-Bozic, Vedran Mornar and Vedran Miletic	ELARS: E-Learning Activities Recommender System	<p>http://161.53.18.114/ElarsDemo</p> <p>ELARS is a recommender system that supports collaborative e-learning activities in an online learning environment that consists of a learning management system (LMS) and different Web 2.0 tools. The recommendations for students and groups include four different types of items: optional e-learning activities, collaborators (colleague students), Web 2.0 tools and advice.</p> <p>One of the most important characteristics used for generating recommendations is the activity level. Student's (group's) activity level represents quantity and continuity of student's (group's) contributions in individual and group-based learning activities. It is calculated using available data from third party services, precisely Web 2.0 tools used for realisation of e-tivities. Data regarding student's actions is retrieved via APIs or RSS, using adapters implemented for services that are part of the e-learning environment. Based on quantitative analysis of gathered activity</p>

				traces, student's activity level is estimated relatively to others participants (class or group members). In case of group-based activity, group activity level is also estimated relatively to other groups. Besides for generating recommendations, activity level estimation is useful for teachers as well, especially in the process of evaluating the quantitative aspect of student's engagement in an e-learning activity.
3	FT	Leonardo Lezcano	The electronic Discharge Letter (eDL) mobile app	http://leonardolezcano.com/eDLapp.html Discharge letters are important issues to consider when ensuring patient safety as they represent the transfer of patient care from one caregiver to another in a time of particular risk for medical errors. Nowadays, paper based letters, unstructured texts, unstandardised diagnosis, language barriers, incompleteness and ambiguity make discharge letters a breakpoint in the clinical information workflow that must be addressed. This paper presents the “Electronic Discharge Letter (eDL) mobile app” as a revolutionary approach to transfer eDLs and prevent the above-mentioned complications. A seamless exchange between doctors, specialists and patients is technically supported by the app through the Near Field Communication standards. To achieve semantic interoperability, the eDL app combines the CLAS scale for discharge letters with nine clinical terminologies and linked data sources. It encourages the adoption of a handover standard and the integration with health care systems. In addition, the eDL app contributes to patient empowerment by offering multilingual definitions and translations of clinical concepts from terminology/ontology mappings rather than text-based searches. It automatically raises allergy alerts based on current prescriptions and previous diagnosis, all of which will ultimately improve the continuity of care, and simplify doctors’ workflow and patient decisions. The app potential for mobile learning in healthcare settings should be also considered. A demonstration video is available at: http://youtu.be/bAT0JKPPZu4
4	OT	Jianliang Chen, Yuting Liu, Dipanwita Maulik, Linda Xu, Hao Zhang, Craig A. Knoblock, Pedro Szekely and Miel Vander Sande	LODStories: Learning About Art by Building Multimedia Stories	http://goo.gl/XIZhbJ LODStories is an engaging application where people learn about art while constructing multimedia stories about art and its connections to the people, places and ideas. LODStories mines the Linked Open Data cloud to discover interesting connections between entities that people are familiar with and artworks, artists and places. LODStories guides users to construct a storyboard that connects the entities in an interesting way. It then fetches text, images and videos that users can arrange to create a multimedia story, and finally constructs a narrated video that users can edit and then publish to tell their story. The process is fun, and students learn about art and its connection to the world

				they live in. The paper describes the architecture of the system and the algorithms to make the exploration entertaining and educational.
5	OT	Lorenz Böhmann, Ricardo Usbeck and Axel-Cyrille Ngonga Ngomo	ASSESS – Automatic Generation of Tests Using Linked Data	<p>http://assess.aksw.org/</p> <p>The Linked Open Data Cloud is a gold mine for educational applications: First, it contains knowledge of encyclopedic nature on a large number of real-world entities. Moreover, the data being structured ensures that the meaning of the data can be understood by both humans and machines. Finally, the openness of the data and the use of RDF as standard format facilitate the development of applications that can be ported across different domains with ease. However, RDF is still unknown to most members of the target audience of educational applications. Thus, Linked Data has commonly been used for the description or annotation of educational data. Yet, Linked Data has (to the best of our knowledge) never been used as direct source of educational material. With ASSESS, we demonstrate that Linked Data can be used as source for the automatic generation of educational material. By using innovative RDF verbalisation and entity summarisation technology, we bridge between natural language and RDF. We then use RDF data directly to generate quizzes which encompass questions of different types of user-defined domains of interest. By these means, we enable learners to generate self-assessment tests on domains of interest. Teachers are supported through the automatic generation and evaluation of tests. Our evaluation shows that ASSESS scales on very large knowledge bases such as DBpedia.</p>
6	OT	Fabrizio Celli	AGRIS – exploiting bibliographic records to create rich Linked Open Data page	<p>http://agris.fao.org/agris-search/index.do</p> <p>AGRIS is a lot of things; it is a network, a website, a search engine. But AGRIS is also a database, a collection of more than 7.6 million bibliographic references in the agricultural domain. Most of these references are enhanced by the Agrovoc thesaurus and this is very important, since Agrovoc is the magic which allows AGRIS to automatically read specific data sources from the Web. AGRIS serves a million pages a month, with more than 350,000 users accessing the system every month. AGRIS is also an RDF-aware system, but for the end user it is simply a single entry point to the information in the agricultural domain. This does not mean that AGRIS will centralise all the information in agriculture, but it relies on a central repository and, using a distributed approach, it can access external data sources. What we want to show to the user is the bibliographic record together with a lot of other meaningful information about the topic of the record. This information must be automatically extracted from the Web (using LOD technologies): here comes Agrovoc, which gives semantic meaning to records and can be used to query external sparql</p>

				endpoints or web services to get information.
7	OT	Jiannan Zhang, Limeng Liang and Weipeng Kuang	NewDictionary	http://newdictionary.co.uk/ Learning English vocabulary is usually a pain for non-native speakers. One way to simplify the process is to use different kinds of material to explain word meanings instead of text-only information, and show the relation of a word / phrase to others. There are fairly large amount of open data can be used for this task, including WordNet, DBpedia, CC-Credit, etc. A functioning prototype has been built to help people get word meanings and illustrate the idea of multimedia dictionary.
8	OT	Michel Visser, Simone Potenza and Romee Houben	Konnektid - Social Learning Anytime, Anywhere	http://www.konnektid.com/ Konnektid offers peer to peer learning by enabling you to find skilled people nearby. Social Learning Anytime, Anywhere. We are reinventing education with a high social impact. Imagine you can find learnings right around the corner and meet your teacher right away, just by asking around. By sharing your skills with the people around you, we enable you to help yourself and others grow while getting to know the people nearby. One on one, personal and local. People everywhere are walking around with useful skills and knowledge. Unfortunately, all that juicy information is too often inaccessible. What a waste! Konnektid helps you crack open their minds to expand your own.
9	FT	Vyacheslav Tykhonov	Visualization of Labour Conflicts in the Netherlands for last 700 years	http://node-195.dev.socialhistoryservices.org/strikes/ The visualisation interface for the Strikes case study provides a visual interface to the process undertaken in HiTiME and ISHER projects for discovering articles related to strike events in the KB archive and linking these to strike entity events, as these are defined and described in the Strikes DB. The overall objective of the visualisation interface for the Strikes case study is the provision of a visual overview of linked and associated data from primary and secondary historical resources, such as the Strikes DB and the KB archive. This data overview is intended to support historians in retrieving information and in spotting significant data trends across time and space that may lead to new insights about historical facts and events that were thus far scattered along various sources.
10	FT	Francesco Di Tria	Cultural Heritage Open Catalog	http://codbeni.altervista.org/ The project aims at presenting a search engine in the context of cultural heritage. The database is composed of several datasets of the Italian Public Administration about archeological, historical, and tourist sites. User can insert key-words to obtain a set of items, which are sorted on the basis of a relevance degree. A detailed page of a given item shows a short description, along with its own reference on Google Map. The search

				<p>engine is social-oriented, since it allows users to share reports and items with popular on-line communities. Future work is devoted to the development of a recommender system to suggest related items and itineraries using a user profile.</p>
11	OT	Dor Garbash, Eyal Rotbart, William Zeng, Brendan Fong, Erik Edstrom, Jacob Cole, Calvin Fong and Yael Ben Dov	Rhizi.net	<p>http://rhizi.org/</p> <p>Learning materials in most of today's online learning platforms are siloed and disconnected. Rhizi is web software to deepen the online connections between learning materials with meaning and context. It is a "WordPress" for knowledge-graphs that enables users to freely make connections between a paragraph from a blog, research data, a video segment, people and more. These connections are special: They can be shared with your community, peer-reviewed, visualised, "followed", and contain explorable context understood by both man and machine.</p> <p>Open source, open data and free, Rhizis are built collaboratively and empower communities, students, educators, researchers, and governments to create, share, and explore open learning materials in new ways. Rhizi.net can be used for many different education methods, our first use case is with edX and the French FUN platform, but can be used as an additional layer to any Massive Open Online Course (MOOC) system. These annotations are accessible to course participants and supply insight and context to the learning materials. We provide open analytics so both teacher and student can see where students interact, and which concepts discussed.</p> <p>Rhizi.net early adopters include EdX, the Israeli Center for educational technology, Paris-Sorbonne, MIT, Stanford, and Oxford.</p>
12	OT	Abdul Rahim and Pascal Heus	"OpenDataForge SledgeHammer" - An Open Data Enabling Tool	<p>http://www.openmetadata.org/sledgehammer</p> <p>Turn your data into open data (and back)!</p> <p>SledgeHammer is a powerful tool that facilitates the production of open data packages for publication or preservation purposes, and for discovery, access and reuse by data management, analysis software or database engines. SledgeHammer enables the exchange of data between proprietary and open formats, by leveraging industry standard technologies and globally recognised metadata standards.</p> <p>SledgeHammer is a component of OpenDataForge, a collection of desktop and cloud based solutions developed by Metadata Technology North America (MTNA) to address practical user needs around data management and to foster the adoption of globally recognised metadata standards.</p>
13	FT	Pat Lockley	Solvonauts : an open educational search engine	<p>http://solvonauts.org/</p> <p>Solvonauts is (we believe) the only open educational resource search engine which returns only CC or public domain licensed materials. We harvested from over 1,500 sites including repositories, flickr and tumblr.</p>

				<p>Our data and source code are available in our github (https://github.com/solvonauts/)</p> <p>Our code is also modularised and internationalised so anyone can set up and curate their own collection should they wish too.</p> <p>We also have on solvonauts.org a community site where people can discuss the site and help move us forward.</p>
14	OT	Harshil Parikh, Jaimin Patel, Benjamin Farahmand and Rachana Pandey	TuvaLabs - Data Literacy Skills for a Brighter Future	<p>https://www.tuvalabs.com/</p> <p>We are living in an open data renaissance. Governments, institutions, and organisations across the globe are making their data available for free use, reuse, and redistribution. At TuvaLabs, we believe that visualising, analysing, and interpreting data, and communicating your insights have become gateway skills for future STEM jobs, to full participation in the workforce, and civic engagement in 21st century. Our mission is to help students develop these data literacy skills, enable them to be critical thinkers and persistent problem solvers, and empower them to become active members in their own communities and global citizens of the world.</p> <p>TuvaLabs transforms open data into opportunities for meaningful teaching and learning in the classroom, using it can be a lever to bring neighbourhoods and communities closer together through education. Teachers across grades and subjects implement lessons, activities, investigations, and projects that enable their students to explore real data on the TuvaLabs platform. We leverage high quality open data sources to curate datasets that teachers and students find meaningful and for teaching and learning in the classroom. At TuvaLabs, we envision a world in which students are empowered with the skills and tools to address tomorrow's environmental, economic, and societal challenges through open data.</p>

Appendix B. Example of survey form itmes

Assessment of the Vidi Evaluation Framework

Please use the form below to give a fair account of how easy or difficult it was for you to apply the set of criteria in the Evaluation Framework to assess the quality of the LinkedUp Vidi submissions.

Your responses will be treated confidentially and the information will be used for improving the LinkedUp Evaluation Framework only.

The questionnaire takes no longer than 10 minutes.

* Required

Educational Innovation

On a scale of 1-to-5 how easy or difficult was it to apply the criteria (i.e. the individual questions) about educational innovation to the evaluation of the LinkedUp submissions?

(1 = very difficult; 5 = very easy).

The application implements an innovative educational concept. *

How easy or difficult was it to apply this criterion?

1 2 3 4 5

very difficult very easy

The application is more effective than existing applications. *

How easy or difficult was it to apply this criterion?

1 2 3 4 5

very difficult very easy

The application is more efficient than existing applications. *

How easy or difficult was it to apply this criterion?

1 2 3 4 5

very difficult very easy

Please use the box below to describe what was difficult in applying these criteria (if this was the case) or provide some general comments related to the criteria.

Appendix C. Responses of judges to open questions in Vidi evaluation survey

Educational Innovation

- Effectiveness and efficiency are difficult to compare unless you carry out some evaluations with the same scenarios.
- Evaluating innovation and effectiveness of educational technology is rather hard - it requires to know all alternatives and what the most effective outcome is.
- Not very difficult if you have a firm belief in what constitutes effectiveness and efficiency, and that these are the key criteria for assessment.
- It is usually fairly easy to say whether a tool seems effective or efficient but it is hard to say this in comparison to specific other tools.
- Efficiency can be a difficult one sometimes, but overall these criteria are fairly easy to have an opinion on.
- Effectiveness is sometimes hard to judge, as most applications do not provide some sort of assessment.
- For some applications, efficiency was not the main aim (for example, a visualisation invites exploration, people would spend more time with a good visualisation).

Usability

- Assessing usability criteria is rather easy if you are familiar with well-known usability attributes.
- It's relatively hard to judge the learnability of the application.
- The challenge here was to decide whether to take a purely personal stance or act as a representative for a specific or general stakeholder community (e.g. independent learners). Appeal of the interface clearly is a personal aspect, but depends on current Web-design "fashions".
- I think an alternative breakdown of usability would be easier to apply, and more meaningful. For example, "attractive" is very subjective, whereas an alternative approach could be to ask about consistent visual style, structured layout. Quick learning and ease of use are hard to separate.
- Although above criteria are easy to apply there other usability issues that have not been considered. Perhaps offering a wider range of criteria would have been of interest in order to pinpoint issues involved. I miss usability questions on management of errors and visibility.
- Ease of use is relatively easy to rate, particularly for applications that are already quite mature. Buggy applications automatically get a lower rating.
- Some applications aim to be useful/usable from the early beginning. There is no real learning curve.
- The information is provided in a subjective manner, and criteria may differ a lot among different people.
- Attractiveness is a bit subjective, but also includes proper design decisions.

Performance

- I found this evaluation criteria the most interesting; since the performance of the application largely depends on the environment where it will be applied, and the core to the environment is the target user.
- The categories overlap or are vague.
- It is a subjective criteria.
- The highest rating was for "The tool is publicly available". However, this also yields for prototypes that are publicly available (in contrast to non-publicly available applications that have been evaluated - which would receive a lower rating). Perhaps rephrase into "The tool is actively used by a fair amount of users" or something.
- It is reasonable easy to identify those issues.

Data

- The data perspective is difficult - it's hard to assess the data quality of different sources, as data seems to be integrated into an own system and integration might involve transformation rules.
- The amount of data sources is relatively speaking not very relevant. In one case these were just hauled in and sitting side-by-side. The real challenge was in assessing the relevance of the data source, and the mix and dependency of data upon each other.
- This depended on the submission. It was not necessarily easy to find out.
- This might have been better dealt with specific questions to the competitors to list (with URL). This could be checked by the competition administrators, leaving value-judgements to evaluation panel.
- The first question (consuming multiple data sources) might be difficult to answer when there are data sources that depend or are built in terms of others which are not apparent at the top level.

Audience

- For these criteria, I had to rely on the information provided in the paper. It is not always obvious from the user interface.
- Sometimes the application approach is clearly focused on a particular domain and thereof is tricky to envision its usage elsewhere.
- I think these questions are pretty clear. Some applications target one specific domain - and this should not always impact the 'audience' rating.

Legal aspects

- Some information seems to be not given for some solutions.
- First (providing licensing information) and third item (providing a statement on the terms) are yes/no, either they were there (visible) or not. The data collection is not so straight forward visible, or easy to judge its need.
- The first two questions, regrettably, might be difficult to answer when related information is not readily available.
- Should background/licensing information be available within the application or is it sufficient if the authors state this in the paper?