

Changing research workflows at the University of Pretoria (UP) and the CSIR: results of an international survey



Content

- The survey
- The questionnaire
- Example of the results (data)
- Faculty results
- Going forward: the possible use of focus groups
- Bibliography

International survey

- This online survey ran from the 10th of May 2015 to the 10th of February 2016.
- In over 9 months the survey received **20 663** responses.
- More than 100 academic institutions and publishers used the custom URL and distributed it to researchers in their institutions.
- The survey was written in 7 languages which contributed to the high response rate.
- The response rate is estimated at 1.5%
- The survey is part of an on going effort to chart the changing landscape of scholarly communication.
- <http://f1000research.com/articles/5-692/v1>

UP & CSIR survey

- Both the UP and the CSIR took up the survey and were each given a unique **custom URL** which was then distributed to researchers
- 19 January - 10 February: period of the survey
- **UP** received **183** results (6.5% response rate)
- **CSIR** received 43 results (5.7% response rate)
- NB: This survey (international & local) is a **non-representative survey and results can not be generalised:**
<http://www.sciencedirect.com/science/article/pii/S2212977413000331>
- This is an example of **big data research** where hypotheses can be deduced from the data for further research
- Interesting **trends and patterns** can also be identified

The Questionnaire

- Demographic and Discipline(s)
 - What is your research role?
 - What is the country of your current (or last) affiliation?
 - What discipline(s) are you working in?
 - From which year dates your first scholarly publication?
- Which tools/sites you use for various research activities
 - Discovery
 - Analysis
 - Writing
 - Publication
 - Outreach
 - Assessment
- Questions on Scholarly Communication, Open Access, Open Science

1 Demographic & Discipline(s)

a. What is your research role? *

❖ Professor / Associate professor / Assistant professor

Postdoc

❖ PhD student Bachelor/Master

student

❖ Librarian

❖ Publisher

❖ Industry / Government Other

d. From which year dates your first scholarly publication?

- ❖ I haven't published (yet)
- ❖ 2011-2016
- ❖ 2006-2010
- ❖ 2001-2005
- ❖ 1991-2000
- ❖ before 1991

In the next part of the survey, we ask you to identify which tools/sites you use for various research activities.

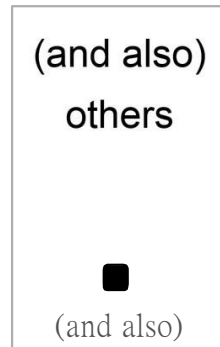
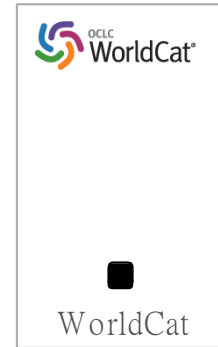
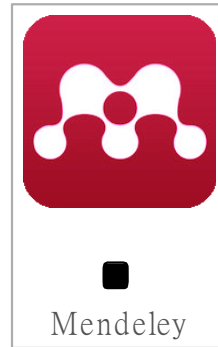
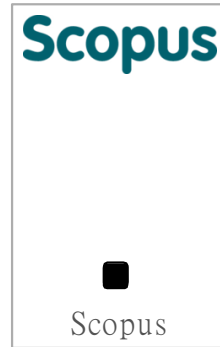
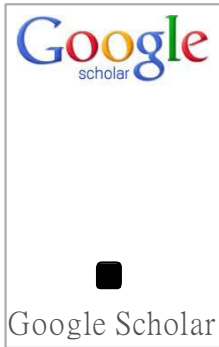
You can always **skip** a question if that particular research activity does not apply to you.

If you are not an active researcher (but a librarian, publisher, funder etc), please indicate which tools you **recommend**.

2 Discovery



a. What tools/sites do you use to search literature / data / etc.?




b. What tools/sites do you use to get access to literature etc.?

access through
my institution
or library


Institutional

 Purchase


Pay per view



ResearchGate



Research4Life



Open Access



Deepdyve

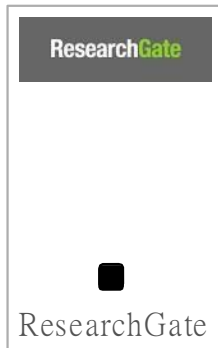
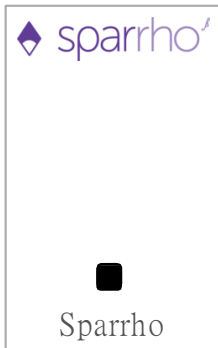
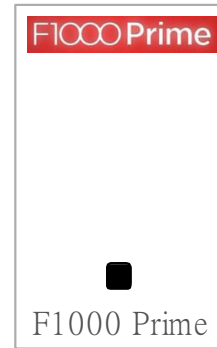
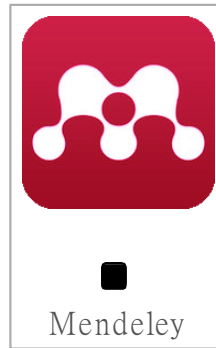
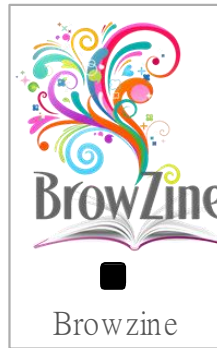
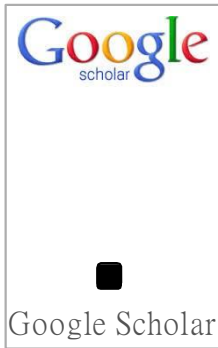


E-mail the

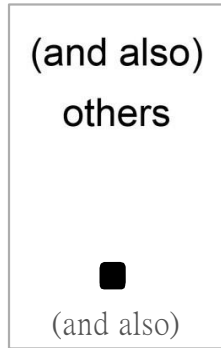
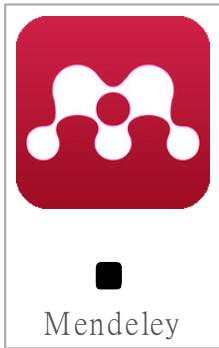
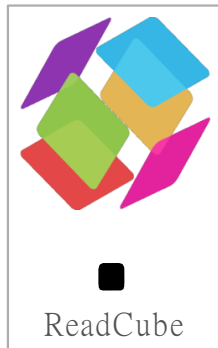
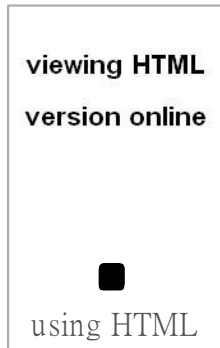
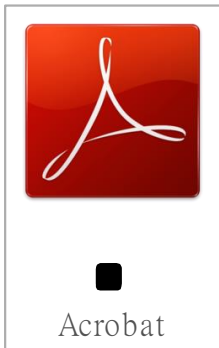
(and also)
others

(and also)

c. What tools/sites do you use to get alerts / recommendations?



d. What tools/sites do you use to read / view / annotate?



9 If you would like to receive **a summary of your responses**, please leave your e-mail address below. You can also indicate whether we can contact you to further discuss how researchers decide which tools to use for scholarly communication. Your e-mail address:

a. Enter your e-mail address here (if you wish)

b. Can we contact you to further discuss scholarly communication workflows?

Yes No

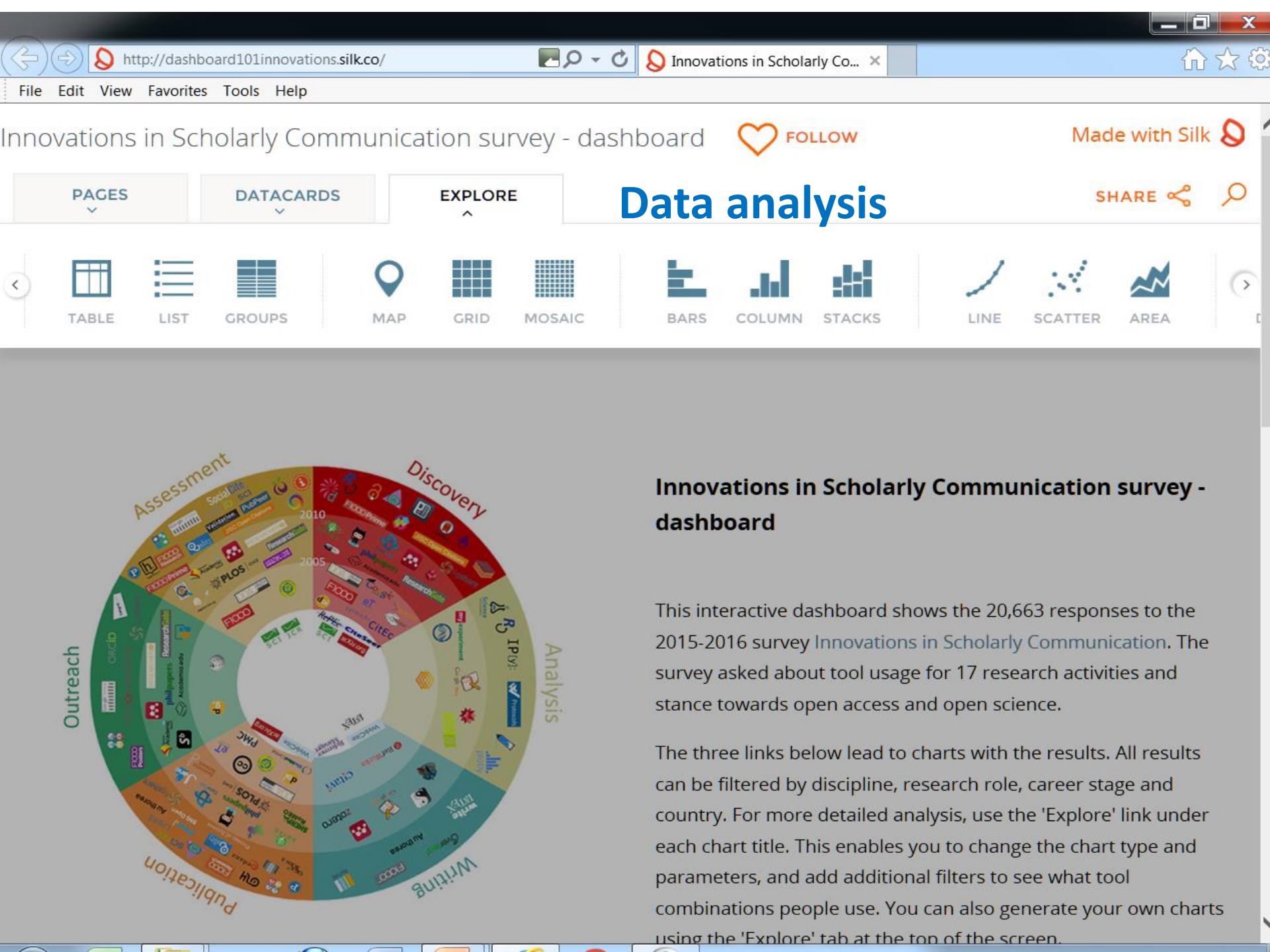
Figure 2. Example of automatic feedback received by survey participants.

Innovative and more traditional tools in your workflow and that of your peer group (PhD student)



Traditional tools (Trad) - Add no functionality compared to print era, except online accessibility; **Modern tools (Mod)** - Use scale and linking possibilities of the internet to increase speed and efficiency; **Innovative tools (Inn)** - Actually change 'the way it's always been done' – e.g. user-driven, different business models, changes in the sequence of research activities, shifting stakeholder roles; **Experimental tools (Exp)** - Represent radical change, with sometimes uncertain technologies and outcomes; still under development. Tools were scored on a scale of 1 (traditional) to 4 (experimental); the chart shows average scores per workflow phase. Tools mentioned as 'others' are not included at this stage.

■ You
■ Peer group (n=1818)



PAGES

DATACARDS

EXPLORE

Data analysis

SHARE



TABLE



LIST



GROUPS



MAP



GRID



MOSAIC



BARS



COLUMN



STACKS



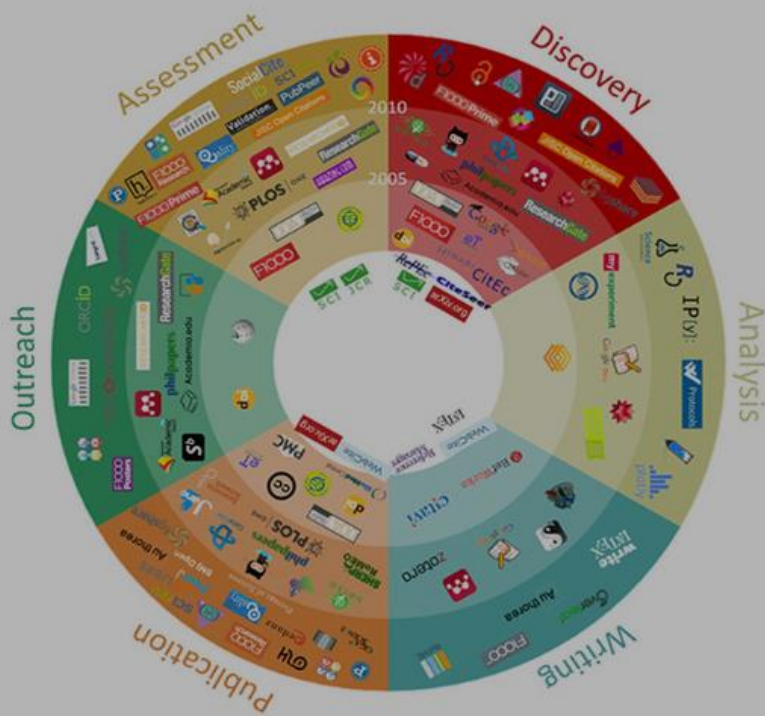
LINE



SCATTER



AREA



Innovations in Scholarly Communication survey - dashboard

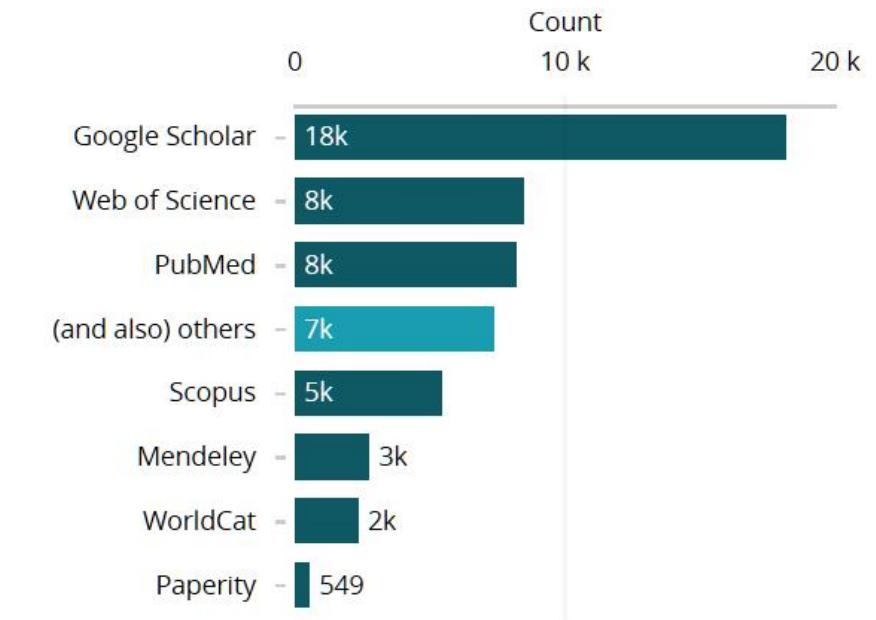
This interactive dashboard shows the 20,663 responses to the 2015-2016 survey *Innovations in Scholarly Communication*. The survey asked about tool usage for 17 research activities and stance towards open access and open science.

The three links below lead to charts with the results. All results can be filtered by discipline, research role, career stage and country. For more detailed analysis, use the 'Explore' link under each chart title. This enables you to change the chart type and parameters, and add additional filters to see what tool combinations people use. You can also generate your own charts using the 'Explore' tab at the top of the screen.

Search literature / data / etc (PRESET ANSWERS)

SHARE & EMBED EXPLORE

- Filter by Research role
- Filter by Discipline(s)
- Filter by Year of first scholarly publication
- Filter by Country of current (or last) affiliation?

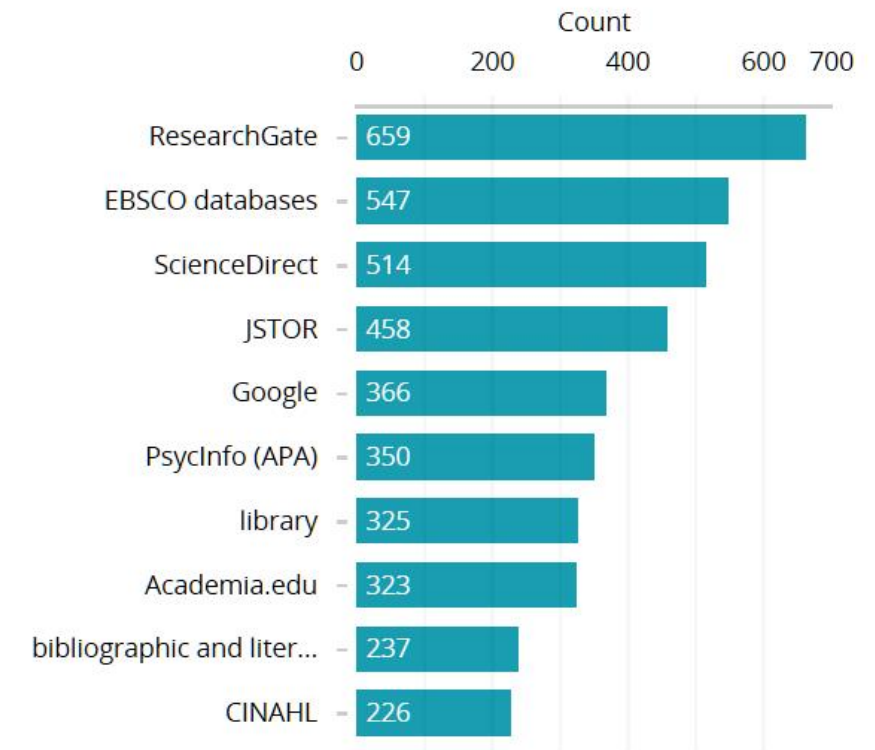


20427 of 20663 respondents answered this question

Search literature / data / etc (OTHERS)

SHARE & EMBED EXPLORE

- Filter by Research role
- Filter by Discipline(s)
- Filter by Year of first scholarly publication
- Filter by Country of current (or last) affiliation?



Most used tools & sites (preset answers)

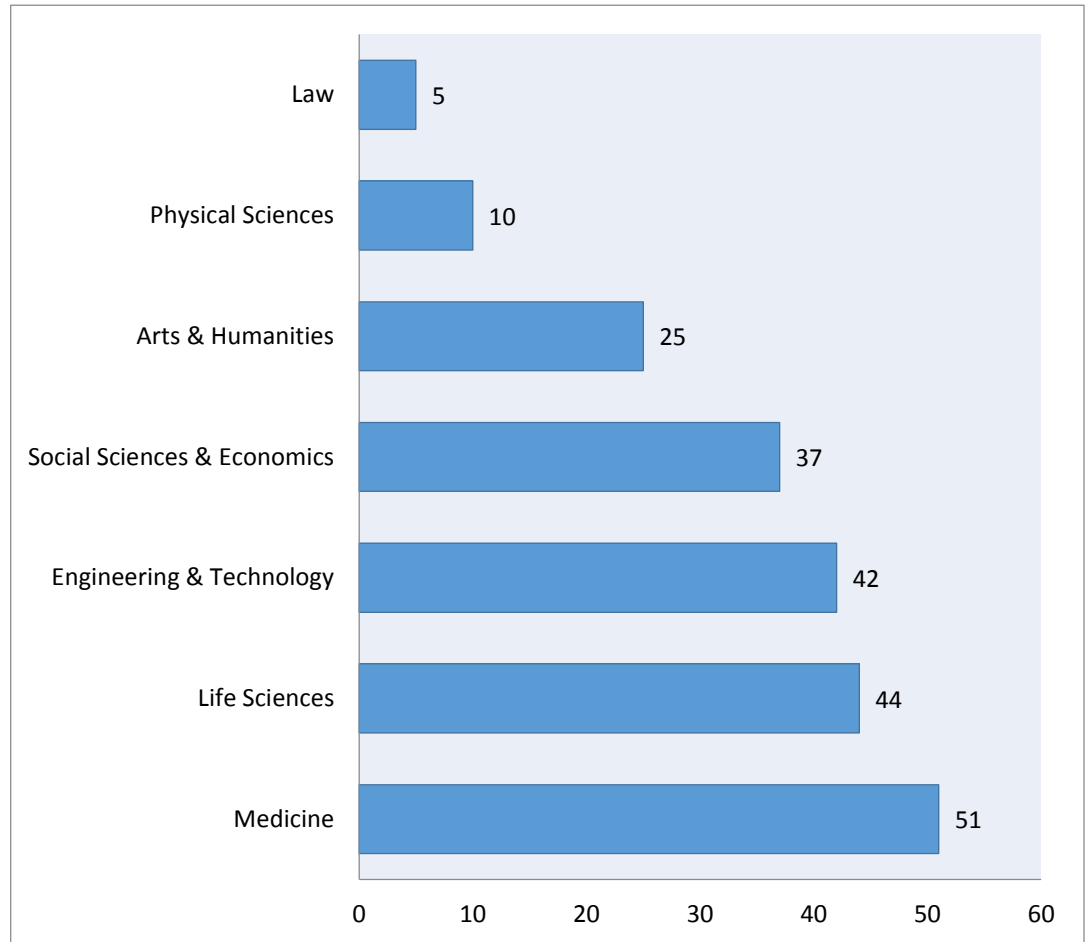
Research activity		International	University of Pretoria	CSIR
Discovery	Search	Google Scholar	Google Scholar	Google Scholar
	Get access	Institutional Access	Institutional Access	Institutional Access
	Alerts	Google Scholar	Google Scholar	Google Scholar
	To read, view & annotate	Acrobat Reader	Acrobat Reader	Acrobat Reader
Analysis	Data & text	MS Excel	MS Excel	MS Excel
	Sharing notes, protocols & workflows	Other (OSF / Dropbox)	Other	Other
Writing tools	Write and prepare manuscripts	MS Word	MS Word	MS Word
	Reference management	EndNote	EndNote	Refworks

Most used tools and sites (preset answers)

Research activity		International	University of Pretoria	CSIR
Publication tools	Archive & share publications	ResearchGate	ResearchGate Institutional Repository	Institutional Repository ResearchGate
	Archive & share data & codes	Github	Other	Other Github
	Deciding which journal to submit a manuscript to	JCR (impact factors)	JCR	Scopus
	Publishing	Topical journal (traditional)	Topical journal (traditional)	Topical journal (traditional)
Outreach tools	Archive/share posters and presentations	Slideshare	Slideshare	Other
	Spreading research outside academia	Twitter	Twitter	Twitter
	Researcher profiles	ResearchGate Google Scholar Citations	ResearchGate Google Scholar	ResearchGate Google Scholar
Assessment tools	Peer review outside normal Journal peer review	PubMed Commons Peerage of Science	Publons PubMed Commons	PubPeer ; Peerage of Science, PaperCritic
	Measure impact	Web of Science JCR	Scopus	Scopus

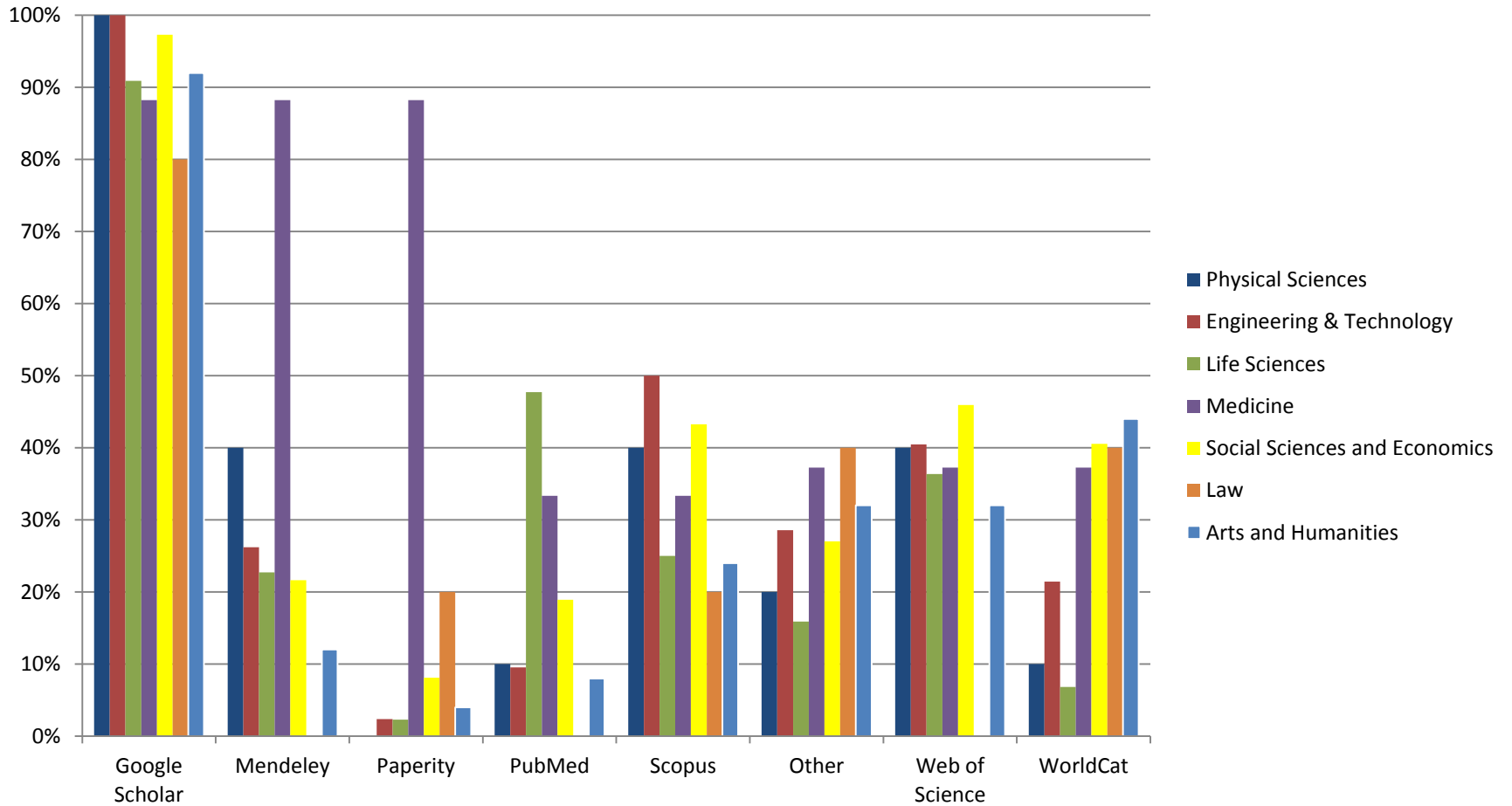
What disciplines are you working in? (multiple responses allowed)

The highest number of respondents, 28%, indicated that they belong to the medicine discipline, 24% to the life sciences, 23% to the engineering & economics, 20% to the social sciences & economics, 14% to the arts & humanities, 5% to the physical sciences, 3% to the law.



Tools used according to Faculty

Search



You can follow up these results by making use of focus group(s)?

- **Example:** Questions that a M. IT students is asking a CSIR focus group:
- **Questions to be put to the Focus Group**
- **Ice breaker question:** Have a look at the graphic against the wall. Which is your personal favourite tool and why?
- **Discovery research phase**
- Looking at the 'discovery phase' of research the results from the survey show that the majority of CSIR researchers are using more traditional scholarly communication tools such as Google scholar, MS Word, MS Excel, Traditional Journals and Library resources for searching, accessing, receiving alerts, reading, viewing and annotating literature. Is this your perception as well? Please explain why you think this is so?
- **Analysis research phase**
- Looking at the 'analysis phase', in terms of analysing and sharing data researchers at the CSIR use a combination of traditional (e.g MS excel), modern (e.g Matlab), innovative (e.g Open Science Framework) and experimental (e.g Myexperiments) tools and sites. Would you agree that such a variety of tools are being used? What is it about this phase of the research process that demands the use of so many different tools?

Writing research phase

Looking at the 'writing phase' of the research process, researchers at the CSIR largely use MS Word and Refworks for writing documents and managing their references. Would you agree with this finding? Why do you think MS Word and Refworks are still the most preferred tools? / Why do you think this finding is not correct?

Publication research phase

Looking at the 'publication phase', it was found that researchers at the CSIR are mostly using traditional tools, they archive and share publications through the Institutional repository, they decide which journal to publish in using Scopus and they publish in topical journals by traditional publishers. Do you agree or disagree with this finding and why?

Outreach research phase

According to the results from the survey the 'outreach phase' is the one phase where CSIR researchers indicated that they use the innovative and modern tools such as twitter, ResearchGate and Figshare to spread their research outside academia. Do you agree or disagree with this finding and why?

Assessment research phase

Looking at this research phase, researchers at the CSIR indicated that they also use new innovative tools for peer reviewing (outside normal journal peer review). They indicated that they use tools such as PubPeer, Peerage of Science and PaperCritic. Do you agree with this finding? Please explain your response.

Concluding question: Were any of the results a surprise to you? Please explain.?

Bibliography

- Kramer B and Bosman J. Innovations in scholarly communication - global survey on research tool usage [version 1; referees: awaiting peer review]. *F1000Research* 2016, 5:692 (doi: [10.12688/f1000research.8414.1](https://doi.org/10.12688/f1000research.8414.1))
- The data is (also) available through an interactive dashboard on Silk (<http://dashboard101innovations.silk.co/>) to enable quick visual exploration of the data
- <https://101innovations.wordpress.com/about-1/>
- Pienaar, Heila, Olivier, Elsabe, Msweli, Zenzile, Van Deventer, Martha Johanna, Gcukumana, Siphethile. 2016. Changing research workflows at the University of Pretoria (UP) and the CSIR: results of an international study, SAOIM 2016 Conference, CSIR ICC, Pretoria, 7 - 10 June 2016. http://repository.up.ac.za/bitstream/handle/2263/56444/Pienaar_Changing_2016.pdf?sequence=1&isAllowed=y