Altmetrics: Was ist das?
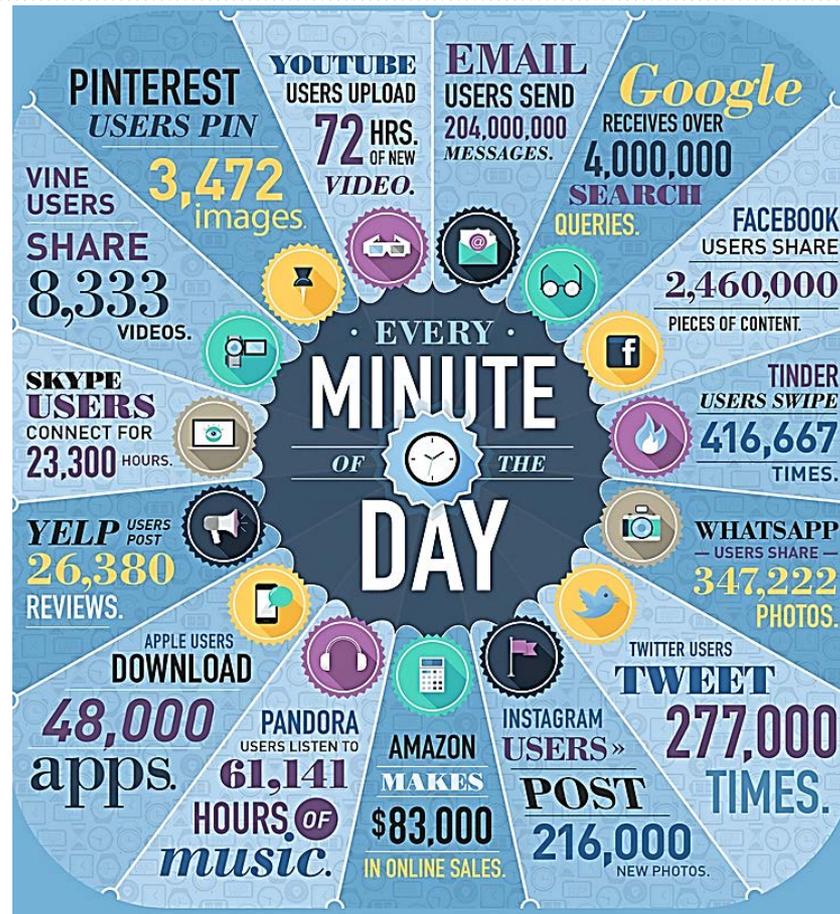
Professorin Dr. Isabella Peters, Web Science

Ausgangssituation I:
Soziale Medien durchdringen den Alltag

Ausgangssituation II:
# Kritik an traditioneller Wissenschaftsevaluation

- San Francisco Declaration of Research Assessment (http://am.ascb.org/dora)
  - "The declaration intends to halt the practice of correlating the journal impact factor to the merits of a specific scientist's contributions. […] this practice creates biases and inaccuracies when appraising scientific research. […] the impact factor is not to be used as a substitute 'measure of the quality of individual research articles, or in hiring, promotion, or funding decisions'"

- Altmetrics Manifesto (http://altmetrics.org/manifesto)
  - "Altmetrics expand our view of what impact looks like, but also of what's making the impact. […] Unlike citation metrics, altmetrics will track impact outside the academy, impact of influential but uncited work, and impact from sources that aren't peer-reviewed. […] The speed of altmetrics presents the opportunity to create real-time recommendation and collaborative filtering systems"
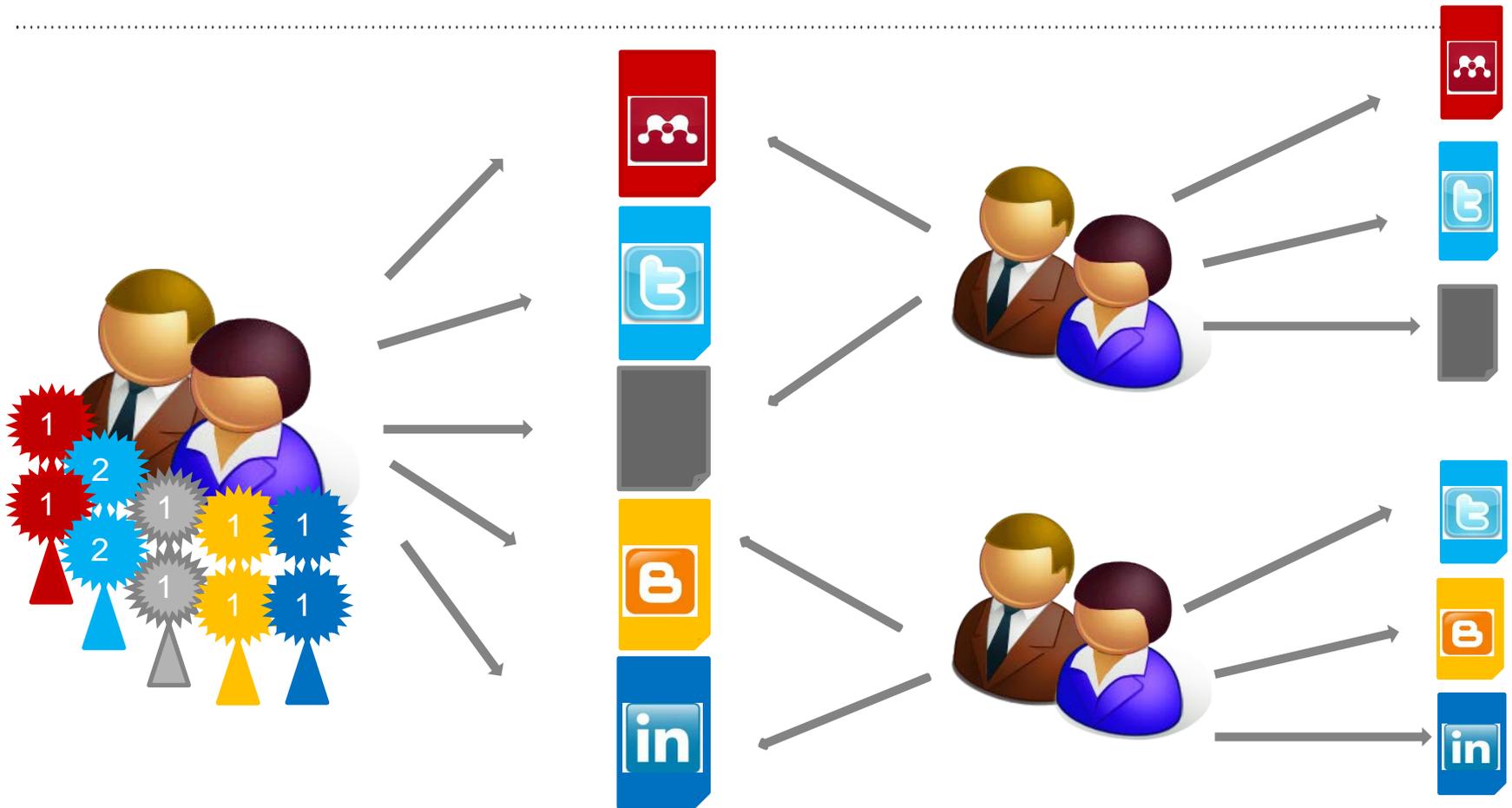
Definition von *metrics

Von der Bibliometrie…
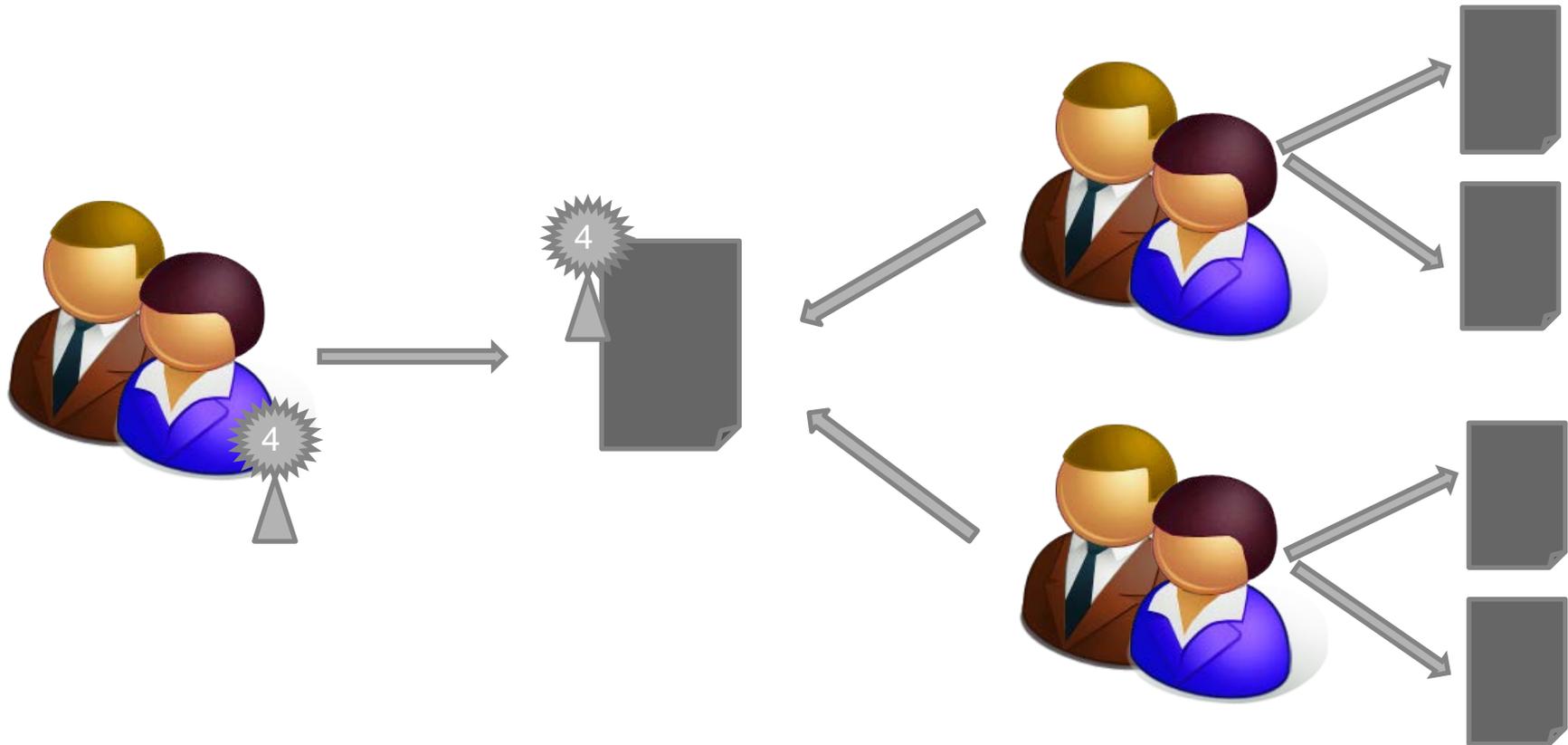
…zu Altmetrics: enge Sicht
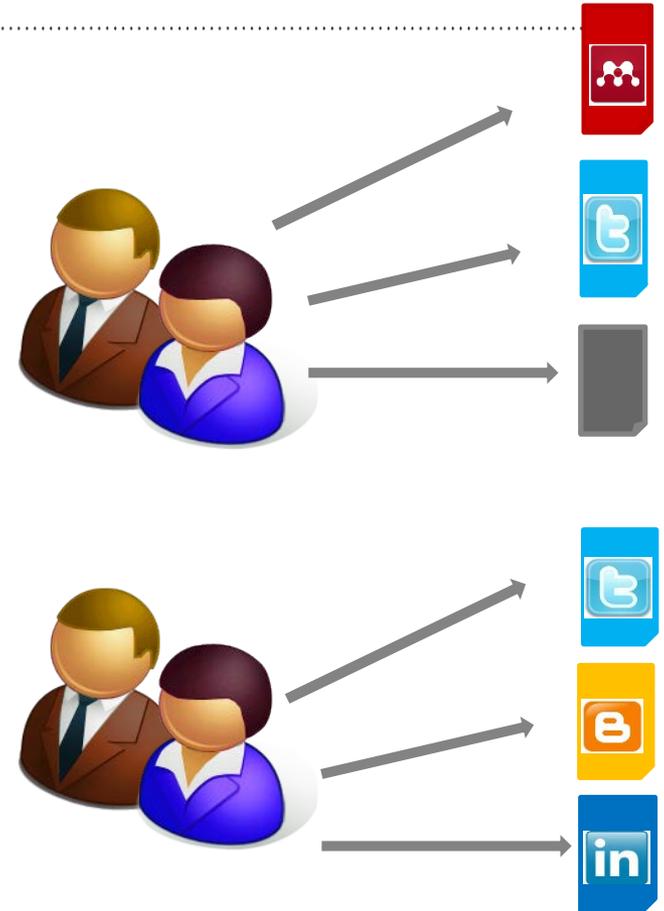
…zu Altmetrics: breite Sicht

Altmetrics in der Praxis

Altmetrics in der Praxis

Altmetrics in der Praxis: Tools

ImpactStory.

article

Synthetic Antitumor Vaccines Containing MUC...
Domains-Induction of a Strong Immune Respo...
(2011) Gaidzik, Kaiser, Kowalczyk et al. *Angewandte Chemie Inte...*

A Complex Standard for Protein Identification,...
(2012) Vaudel, Burkhart, Breiter et al. *Journal of Proteome Resea...*

Dual Function of Sdh3 in the Respiratory Chai...
Mitochondrial Inner Membrane
(2011) Gebert, Gebert, Oeljeklaus et al. *Molecular Cell*

Composition and Topology of the Endoplasmi...
(2011) Stroud, Oeljeklaus, Wiese et al. *Journal of Molecular Biol...*

Raf kinases mediate the phosphorylation of eu...
regulate its stability in eukaryotic cells
(2012) Sanges, Scheuermann, Zahedi et al. *Cell Death and Dise...*

Highly anisotropic effective dielectric functions ...

Webometric Analyst
Plum Analytics
Altmetric.com
Readermeter.org
Datacite.org
Sciencecard.com*
Citedin.org*
...

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Altmetrics in der Praxis: Verlage

Current findings:
Was wissen wir bereits?

Current findings I

- Einschätzungen zu alternativen Indikatoren für die Wissenschaftsevaluation

- Qualitative Expertenbefragung (Bibliometriker)
- STI Conference, 2012, Montréal
- 71 Antworten (63% männlich, 34% weiblich, 3% N/A)
- Auswertung durch Grounded Theory

- Bar-Ilan et al. (2012), Haustein et al. (2014a), Haustein et al. (2013)

Current findings I

58% 👍👎 **32%**

- Wie beeinflussen Social Media das wissenschaftliche Arbeiten?

improving work	17%
expecting future influence	11%
increasing workload	8%
improving contact management and collaboration	8%
research subject	4%
increasing visibility	4%
interfering with work	3%
other influence	3%

Haustein et al. (2013; 2014a)

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Current findings I

- Was sind sinnvolle alternative Indikatoren für die Wissenschaftsevaluation?

downloads or views of your articles	71,8%
citations in blogs	38,0%
mentions of or links to your work in Wikipedia	33,8%
bookmarks on reference managers	33,8%
discussions of your work in Web 2.0 platforms	31,0%
article about you on Wikipedia	26,8%
mentions on Twitter	23,9%
invocations on the Web	21,1%
followers on Twitter or other social…	18,3%
other	9,9%

N=71
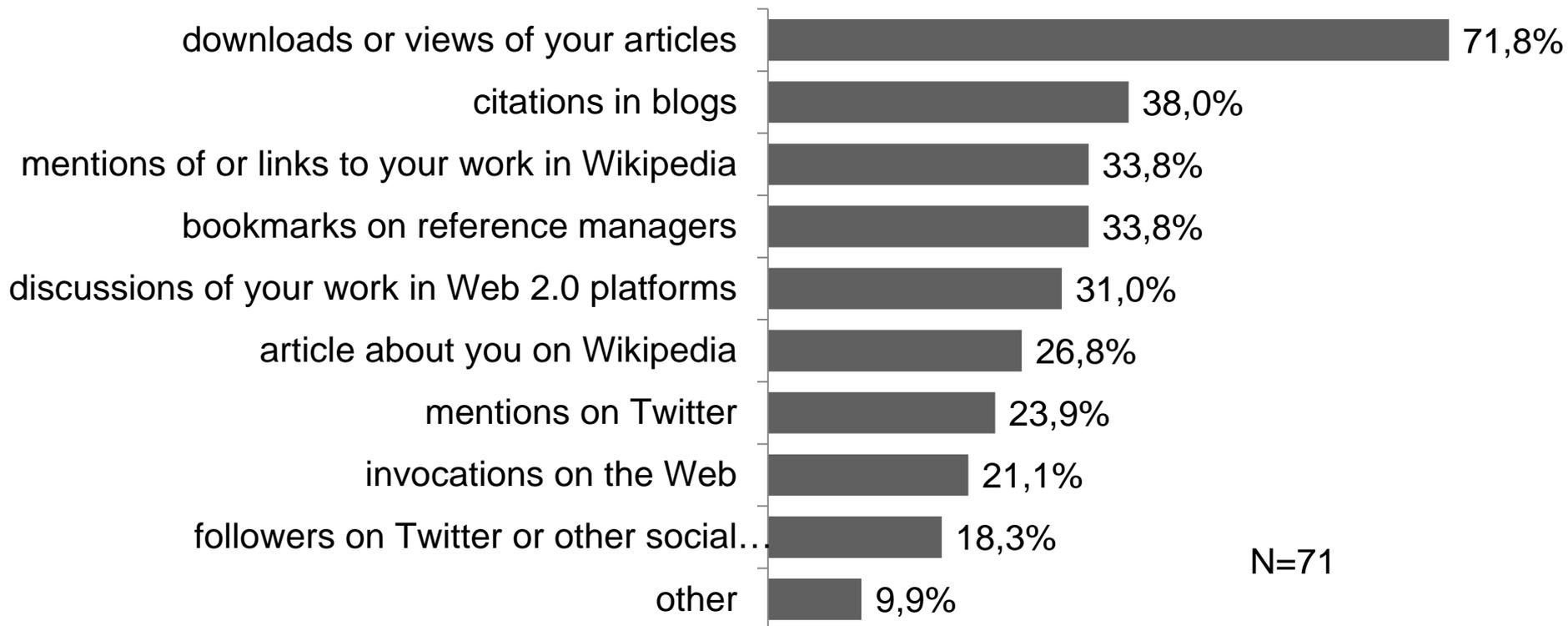
Current findings II

- Leser bevorzugen jüngere Publikationen

Current findings III
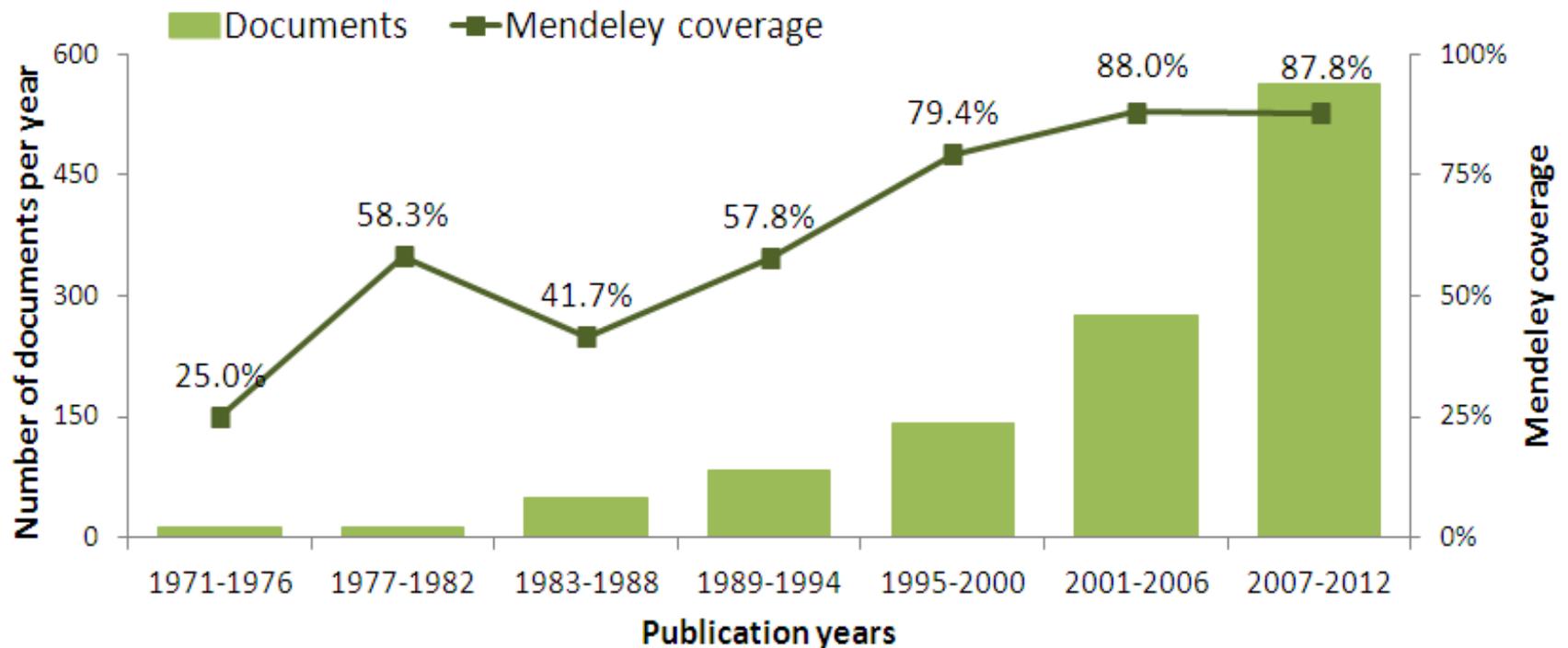
- Publikations- und Tweeting-Verhalten von Wissenschaftlern

- 37 Astrophysiker bestimmt durch *Holmberg & Thelwall (2013)*
  - Manuelle Web-Suchen verifizieren Person und Twitter-Account
- Publikationen in WoS Journals
  - Publikationsjahre: 2008-2012
- 68,232 Tweets heruntergeladen und analysiert
- Haustein et al. (2014b)

Holmberg, K., & Thelwall, M. (2013). Disciplinary differences in Twitter scholarly communication. In: *Proceedings of ISSI*, Vienna, Austria (Vol. 1, pp. 567-582)

Current findings III

- Unterschiedliche Publikations-/ Tweeting-Aktivität resultiert in verschiedenen Nutzergruppen

Selected astrophysicists (N=37)	tweet rarely (0.0-0.1 tweets per day)	tweet occasionally (0.1-0.9)	tweet regularly (1.2-2.9)	tweet frequently (3.7-58.2)	Total (publishing activity)
do not publish (0 publications 2008-2012)	--	--	1	5	**6**
publish occasionally (1-9)	4	3	4	2	**13**
publish regularly (14-37)	--	5	5	3	**13**
publish frequently (46-112)	1	3	1	--	**5**
total (tweeting activity)	**5**	**11**	**11**	**10**	**37**

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- Publikations-/ Tweeting-Aktivität

Current findings IV
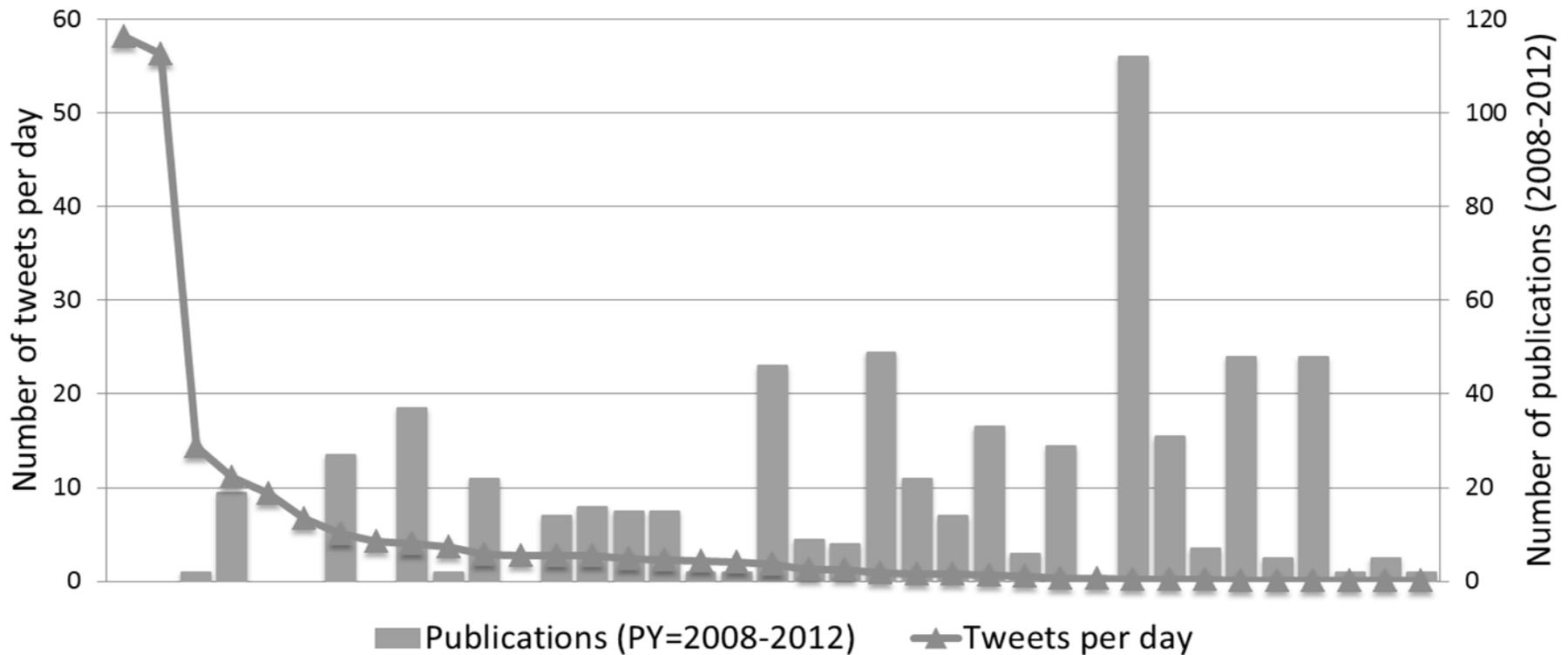
- Korrelationen zwischen Zitationen und Lesern/ Tweets

- 1,4 Millionen PubMed-Artikel in Web of Science
- Publikationsjahre: 2010-2012
- Dokumenttypen: Artikel & Reviews
- Tweetzahlen bereitgestellt durch Altmetric.com
  - Basiert auf PMID, DOI, URL

- Abdeckungsgrad: 9,4% der Artikel sind auf Twitter zu finden
- Auch hier: Vorteil für jüngere Artikel
- 63% der Artikel wurden nur einmal getweetet

Current findings IV

• Korrelationen zwischen Zitationen und Tweets

	N	Spearman's ρ	Mean	Median	Max.
T^{2010}			2.1	1	237
C^{2010}	13,763	.104**	18.3	7	3,922
T^{2011}			2.8	1	963
C^{2011}	63,801	.183**	5.7	2	2,300
T^{2012}			2.3	1	477
C^{2012}	57,365	.110**	1.3	0	234
$T^{2010-2012}$			2.5	1	963
$C^{2010-2012}$	134,929	.114**	5.1	1	3,922

Note. **Correlation is significant at the 0.01 level (2-tailed).
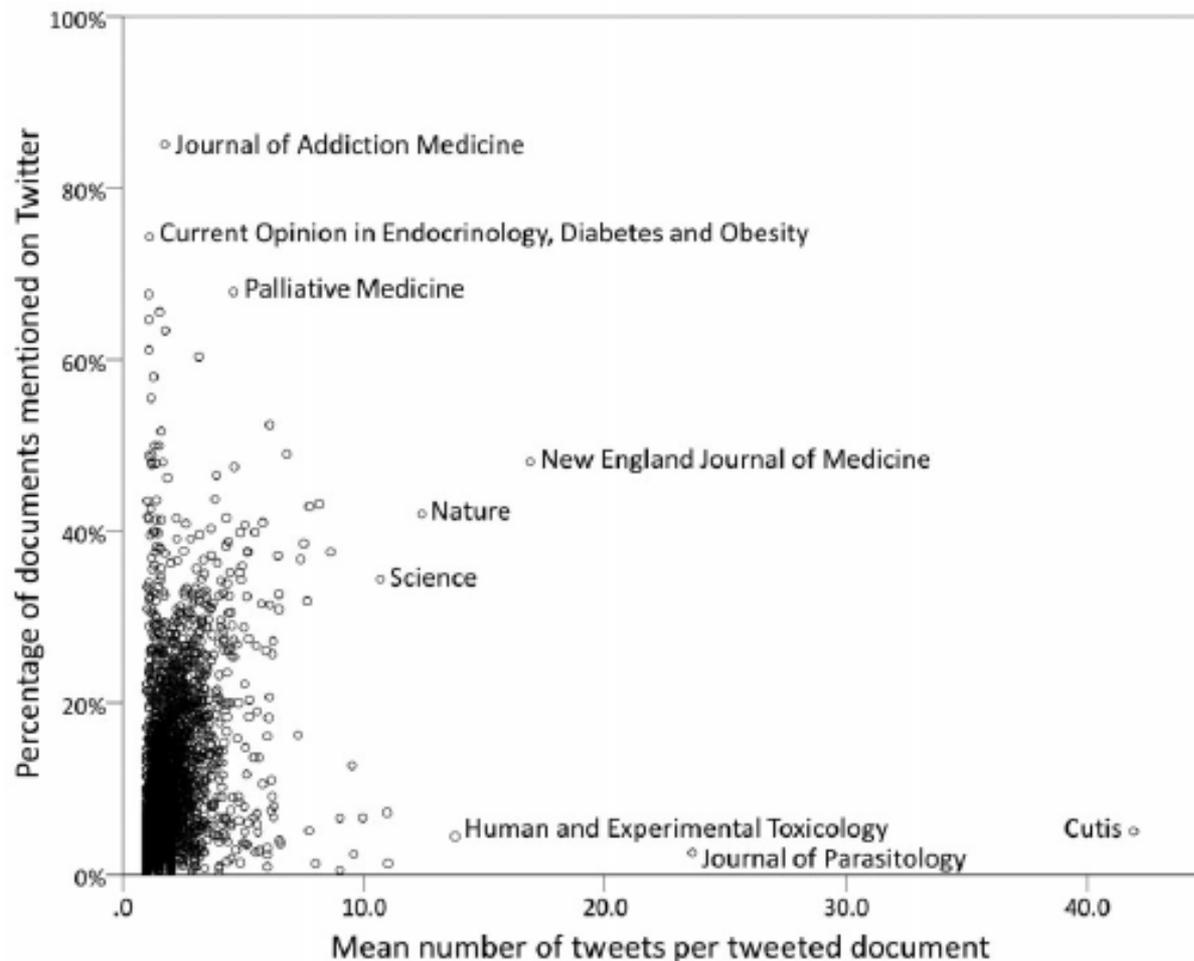
Current findings IV

- Korrelationen zwischen Zitationen und Lesern und Tweets

NSF disciplines	P_{PubMed}	$P\%_{read}$	$P\%_{tweeted}$	R	T	R/P_{read}	$T/P_{tweeted}$	$\rho\ P_{read}$	$\rho\ P_{tweeted}$
Arts	71	66.2%	--	128	--	2.7	--	-0.209	-0.645
Biology	61,785	72.7%	7.1%	570,713	9,634	12.7	2.2	0.448**	0.142**
Biomedical Research	286,398	72.4%	9.8%	2,973,664	90,633	14.3	3.3	0.530**	0.232**
Chemistry	121,874	60.8%	5.5%	619,418	10,933	8.4	1.6	0.476**	0.147**
Clinical Medicine	779,707	62.8%	10.1%	3,712,112	184,002	7.6	2.4	0.439**	0.155**
Earth and Space	26,938	72.4%	4.0%	155,095	2,885	8.0	2.7	0.396**	0.082
Engineering and Technology	27,792	71.6%	5.5%	304,512	2,916	15.3	1.9	0.622**	0.159**
Health	59,073	67.0%	12.8%	257,973	17,306	6.5	2.3	0.336**	0.099**
Humanities	691	40.7%	6.5%	1,036	121	3.7	2.7	0.227**	0.007
Mathematics	2,461	69.2%	5.4%	13,586	197	8.0	1.5	0.306**	-0.209
Physics	19,892	76.4%	1.8%	124,904	539	8.2	1.6	0.386**	0.032
Professional Fields	5,600	72.1%	17.0%	45,231	2,510	11.2	2.6	0.370**	0.177**
Psychology	35,980	81.0%	14.9%	408,440	16,240	14.0	3.0	0.441**	0.075**
Social Sciences	9,019	68.8%	9.1%	54,253	2,192	8.7	2.7	0.431**	0.054
Total	**1,437,281**	**66.2%**	**9.4%**	**9,241,065**	**340,751**	**9.7**	**2.5**	**0.456****	**0.157****

Current findings IV

- Zusammenhang von Tweetzahl und Abdeckungsgrad

Current findings V

- Qualitative Evaluation von Autoren & Publikationen

- Loet Leydesdorff

- Stevan Harnad

Open questions:
Was wissen wir noch nicht?

Allgemeine und berufliche Nutzung von Online-Werkzeugen
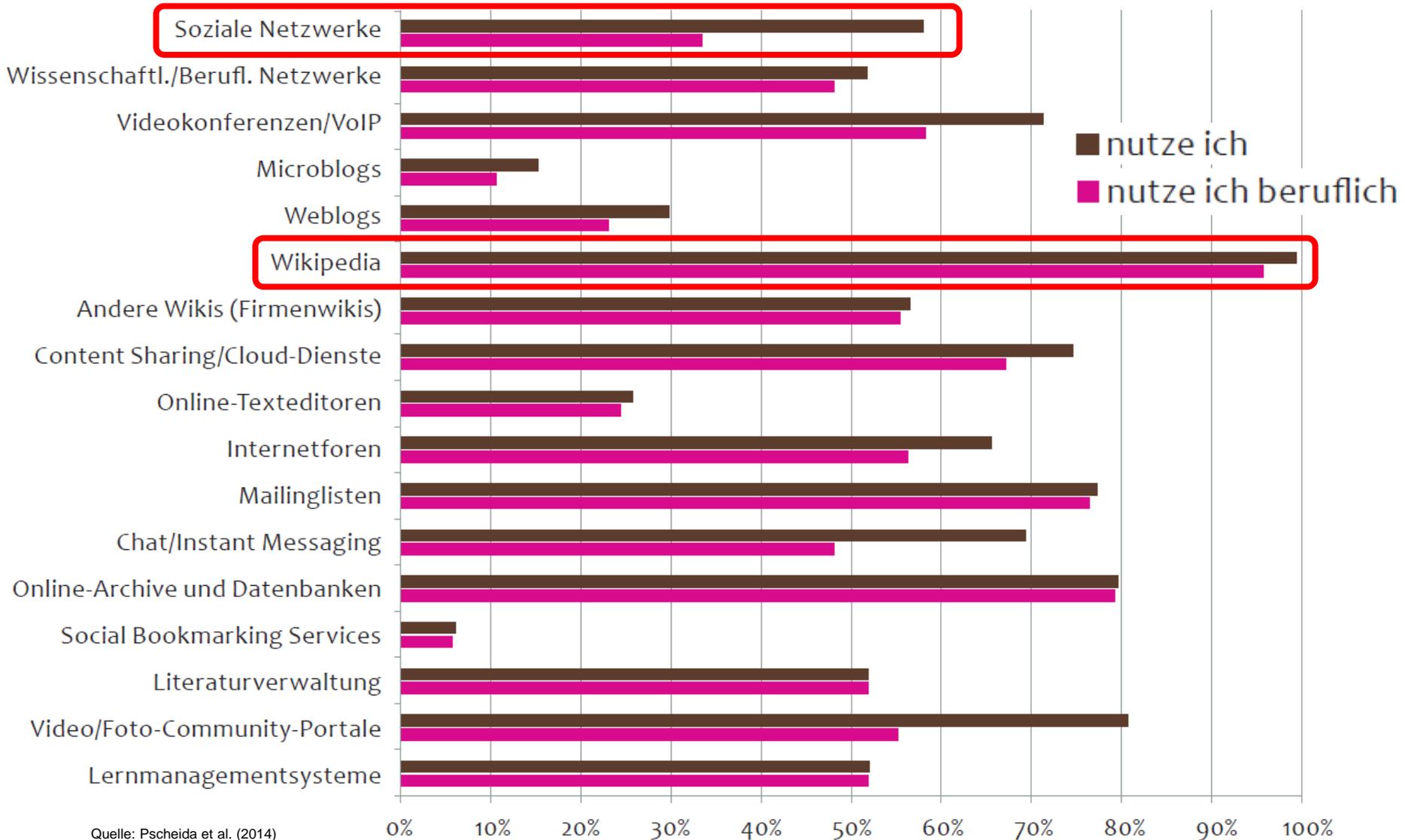
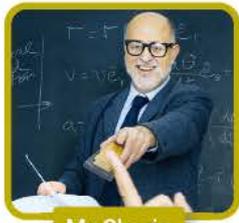# Die vier Social Media-Typen in der Wissenschaft
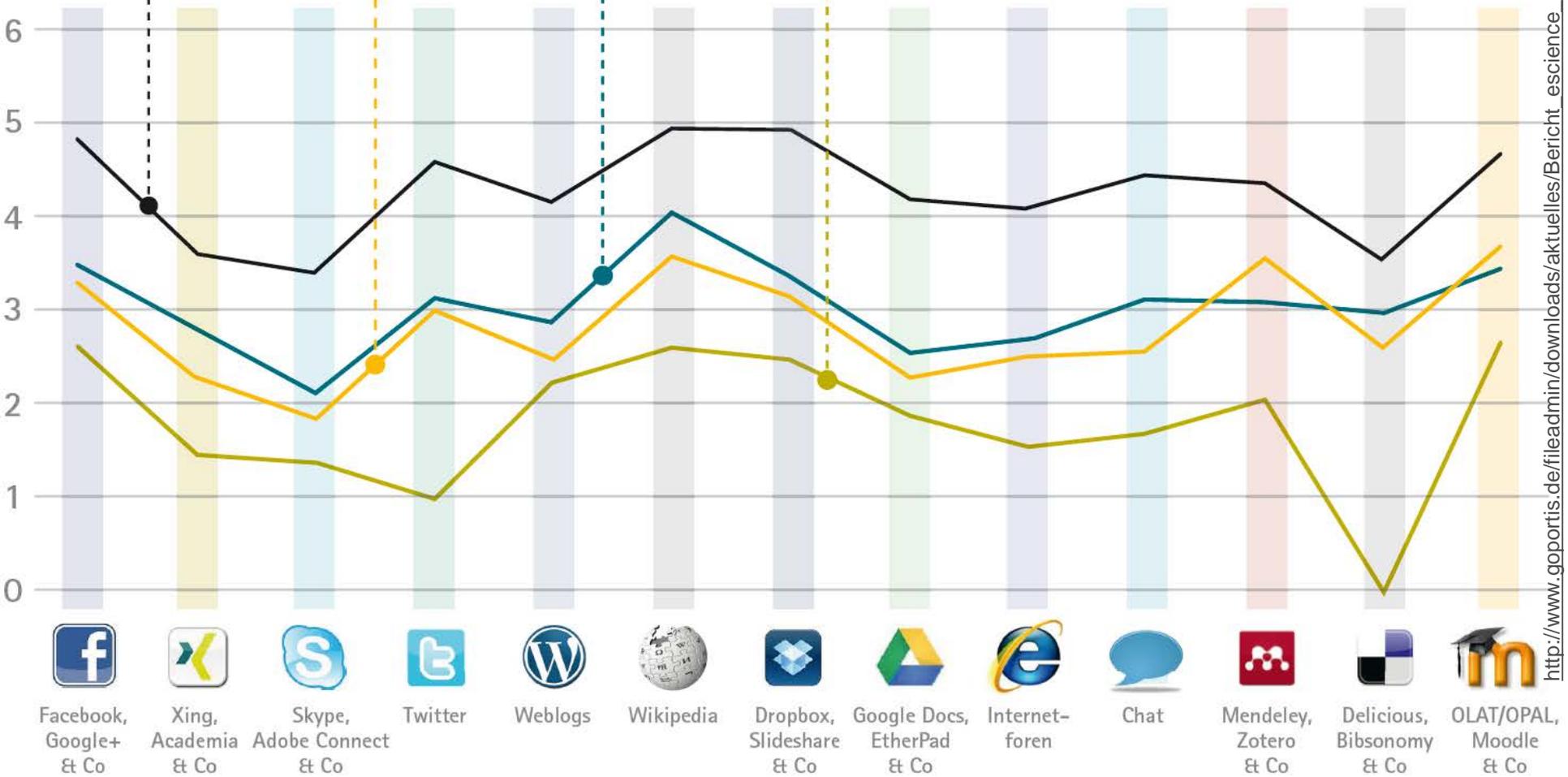
Take aways

- Herausforderungen
  - Datenmanipulation
  - Datenqualität
  - Repräsentativität

- Forschungsdesiderat
  - Nutzung der verschiedenen Social Media-Tools variiert (disziplin-abhängig: Haustein & Siebenlist, 2011; Holmberg & Thelwall, 2013; Mohammadi & Thelwall, 2013)
  - Kenntnis über Nutzung und Einschätzung von Social Media-Tools unterstützt Auswahl der Produkte und Evaluation der Indikatoren
  - Kontexte verstehen, in denen auf Content zurückgegriffen wird, und Informationsflüsse nachvollziehen

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- Social Media-Typen: http://www.goportis.de/fileadmin/downloads/aktuelles/Bericht_escience_2_0_Hochschulsample_Download.pdf

Vielen Dank!

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