

Towards societal impact through open research

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A Strategic Partnership




**Munin
Conference**
on Scholarly Publishing

SPRINGER NATURE



What is the “societal impact” of research?



Mentions in:

- News media
- Policy docs
- Blogs
- Social media



- Downloads



- Evidence of non academic usage



Building an SDG content classifier

We built an SDG classifier + mapped NL publishing trends and societal impact



Classified 100 million items in Dimensions



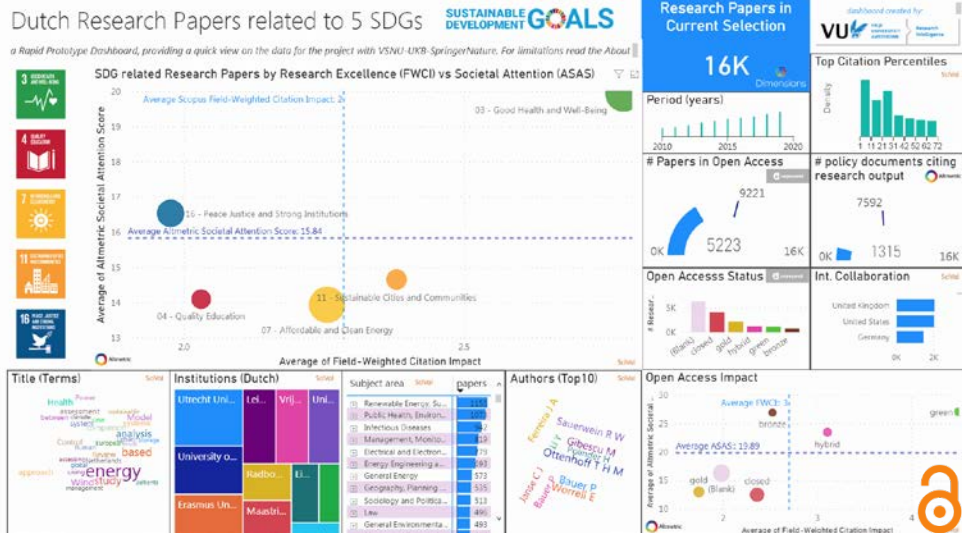
Continual improvement, 2nd version

Phase I: x5 goals. Phase II: all goals.

Visualizing the data, identifying trends, role of OA..

We built an SDG dashboard and mapped NL publishing trends, downloads, and altmetrics


Prototype & quick win – 5 goals, 12 filters, NL publication data



Source: <https://www.springernature.com/gp/researchers/sdg-impact>

Dimensions integration

SDG filter also available in the subscription and free version of  Dimensions

 Dimensions

[Search](#) | [Export](#) | [Support](#) | [Register](#) | [Log in](#)

FILTERS FAVORITES

➤ PUBLICATION YEAR

➤ RESEARCHER

▼ RESEARCH CATEGORIES

➤ FIELDS OF RESEARCH

▼ SUSTAINABLE DEVELOPMENT GOALS

- 13 Climate Action 466,925
- 7 Affordable and Clean Energy 133,911
- 11 Sustainable Cities and Communities 6,266
- 14 Life Below Water 2,691
- 15 Life on Land 2,553
- 12 Responsible Consumption and Production 2,324
- 3 Good Health and Well Being 2,115
- 2 Zero Hunger 2,067
- 6 Clean Water and Sanitation 1,812
- 16 Peace, Justice and Strong Institutions 1,571
- 8 Decent Work and Economic Growth 1,273

More

➤ PUBLICATION TYPE

➤ SOURCE TITLE

➤ JOURNAL LIST

➤ OPEN ACCESS

PUBLICATIONS DATASETS GRANTS PATENTS CLINICAL TRIALS POLICY DOCUMENTS

466,925 18,852 80,485 selected filter not applicable selected filter not applicable selected filter not applicable

Show abstract Sort by: Publication Date ▼

Title, Author(s), Bibliographic reference - [About the metrics](#)

Estimating the distribution characters of Larix kaempferi in response to climate change

C Wu, J Shen, D Chen, C Du, X Sun, S Zhang

2020, iForest - Biogeosciences and Forestry - Article

Abstract: A better understanding of the distribution of suitable habitats of Larix kaempferi and its environmental constraints is crucial to know how global climate change will affect its growth and f... [more](#)

[View PDF](#) [Add to Library](#)

Biochar amendment regulated growth, physiological, and biochemical responses of conifer in red soil

K Tarin Muhammad Waqqas, L Fan, Y Cai, M Tayyab, L Chen, T He, J Rong, Y Zhang

2020, iForest - Biogeosciences and Forestry - Article

Abstract: The addition of Biochar (BC) into the soil is expected to improve soil physicochemical properties and plant growth. However, few studies have verified such an effect on the growth and physio... [more](#)

[View PDF](#) [Add to Library](#)

Thermodynamic Analysis of a Renewable Energy-Driven Electric Vehicle Charging Station with On-Site Electricity Generation from Hydrogen and Ammonia Fuel Cells

Yusuf BICER

2020, International Journal of Automotive Science And Technology - Article

[Open Access](#) [Add to Library](#)

13. The Soil Sponge: Collaborating with the Work of Other Species to Improve Public Health, Climate Change, and Resilience

Didi Pershouse

2020, Health in the Anthropocene - Chapter

[Add to Library](#)

Successive and automated stable isotope analysis of CO₂, CH₄ and N₂O paving the way for unmanned aerial vehicle-based sampling

Simons I, Lehner B, Bahner A, Hovuf, Nouarouh A, Rufina W, Wotrnowski

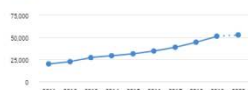
← ANALYTICAL VIEWS

RESEARCH CATEGORIES ▼

09 Engineering	155,540
04 Earth Sciences	108,655
06 Biological Sciences	59,919
0406 Physical Geography and Environmental Geoscience	54,875
05 Environmental Sciences	53,124

OVERVIEW ▼

Citations **9.9 M** Citations (Mean) **21.17**

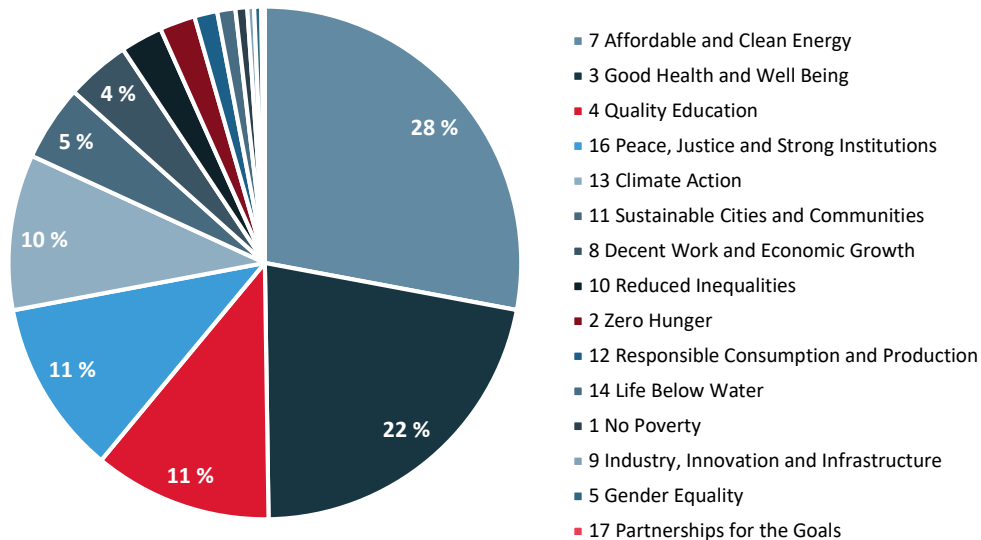


Publications (total)

RESEARCHERS ▼

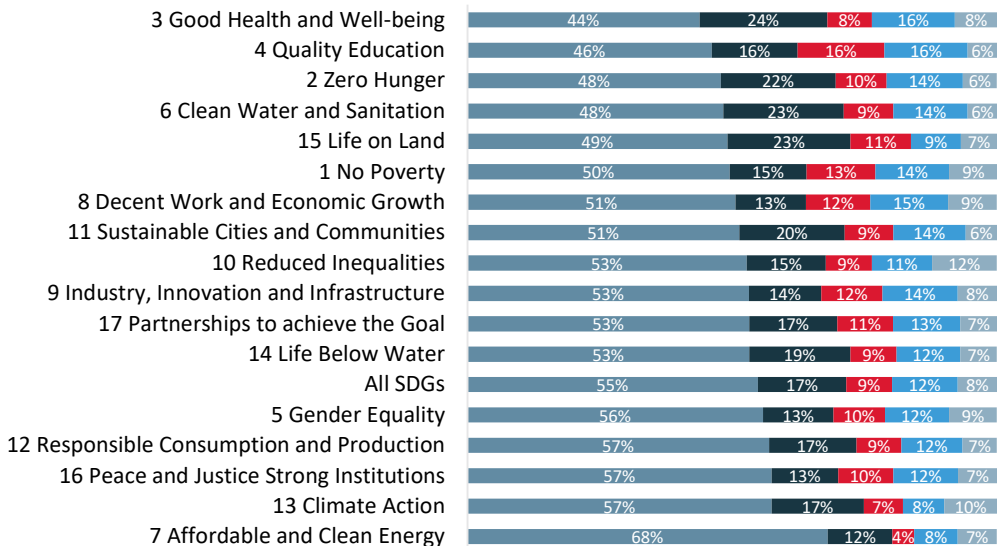
Philippe Clais Laboratoire des Sciences du Climat et de l'Environnement, France	391
Pete Smith University of Aberdeen, United Kingdom	281
Detlef Peter Van Vuuren Utrecht University, Netherlands	242
Frede Blaabjerg Aalborg University, Denmark	224
Ibrahim Dincer University of Ontario Institute of Technology, Canada	216

Number of SDG documents published 2015-19 (n=1.9m)



SDG content (2015-2019) by publication format

■ Not any form of OA
 ■ Gold: Fully OA Journal
 ■ Gold: Hybrid OA
 ■ Bronze OA
 ■ Green OA



OA-status
data source:



SDG content (2017) by OA status, usage and altmetric attention

COUNTER
CONSORTIUM OF ORIGIN COMPANIES

36k SN only

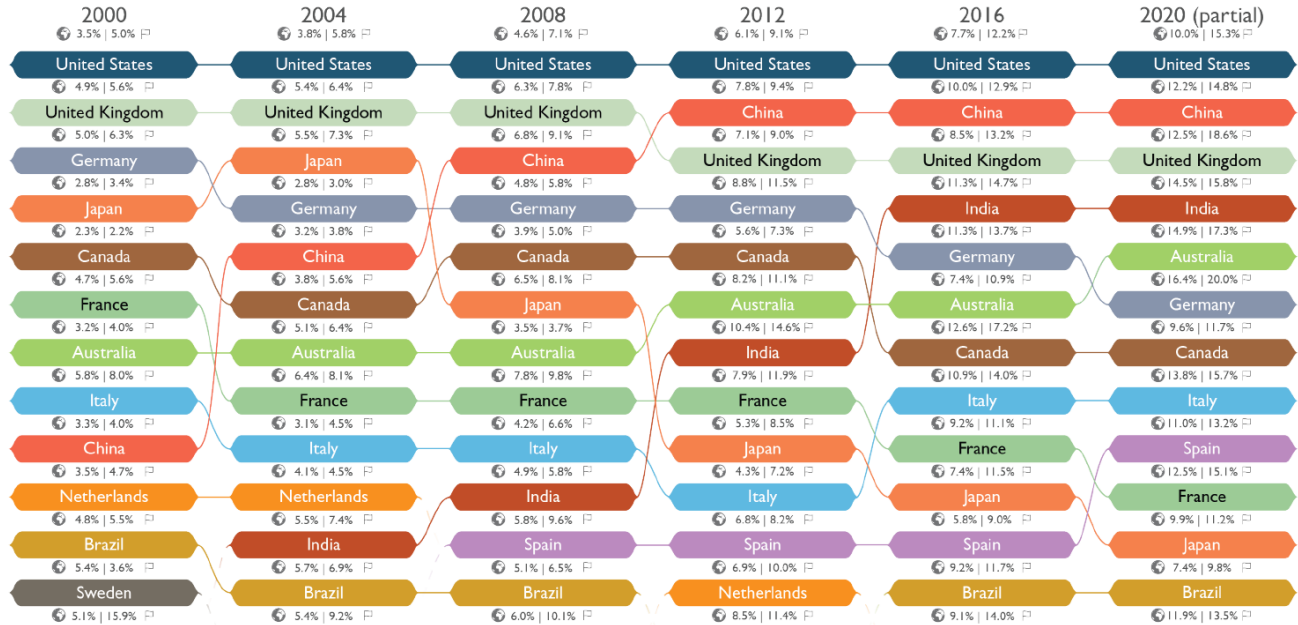
OA Status	# Springer Nature Documents only	Avg. # Downloads	Median # Downloads	Regression Downloads
Non-OA (Sub)	22,192	898	507	100%
Gold: Fully OA Journal	8,379	2,489	1,699	286%
Green OA	3,556	1,081	620	132%
Gold: Hybrid OA	1,707	4,049	2,368	422%
Bronze OA	989	1,400	676	201%

358k all publishers

OA status	# Docs	Avg. Alt. Score	Avg. # Twitter	Avg. # News	Avg. # Policy	Regression Alt Score
Non-OA (Sub)	191,739	2.51	1.72	0.13	0.01	100%
Gold: Fully OA Journal	61,176	6.51	4.55	0.41	0.02	182%
Bronze OA	44,096	8.44	4.84	0.64	0.02	196%
Green OA	31,241	11.48	7.68	0.73	0.04	151%
Gold: Hybrid OA	30,671	7.81	5.48	0.52	0.03	243%

Negative Binomial Model
(Controlled for : document, author, journal)

The global picture!



% SDG output of country total ———— 1.0% | 10.0% ———— % SDG citations to total citations

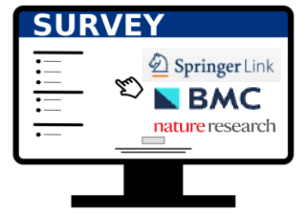
Source: "Contextualizing Sustainable Development Research, by Jürgen Wastl, et al, Digital Science, 2020.

Survey and White Papers

SDG, Alt, Usage



Survey



White Papers

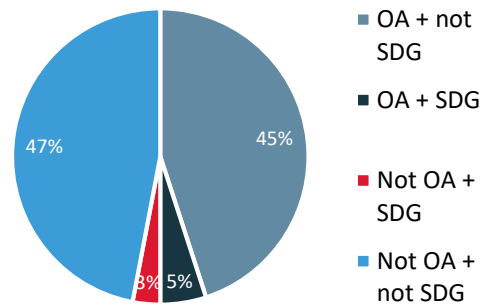


Publication 1 Dec 2020

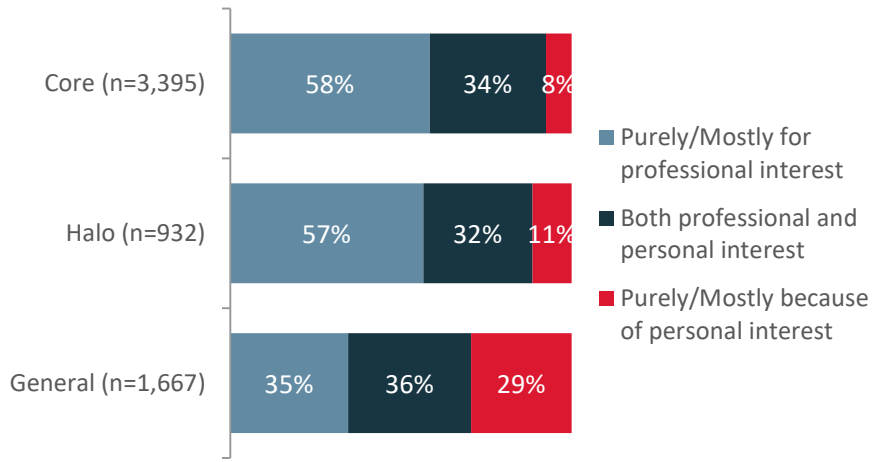
Spring 2020

Survey Data – key outcomes

Type of content surveyed



Were your reasons for looking at this paper primarily professional or personal?



Source: "Utilisation and impact of SDG content outside of academia", Springer Nature, 2020.

How can we support researchers to maximize societal impact?

We're creating a toolkit for researchers to maximize societal impact



Survey & Infographics



Impact support dashboard



Workshops



Interviews

Dashboard – mapping impact support services in NL

152 Support Mechanisms for Societal Impact at Dutch Universities

last update: June 2020

Language
 Dutch
 English
 Unknown

Accessibility
 Public
 Publicly accessible
 Requires Login

Type of Activity
 Collaboration
 Commercialisation
 Entrepreneurship
 Impact analysis
 Increasing visibility
 Intellectual Property Prote...
 Multiple
 Not specified
 Open Access Publishing
 Post-graduate education
 Public Engagement
 Unknown

Type of Support
 Access to Expertise
 Competence Development
 Facilities
 Financial Support
 Information
 Multiple
 Networking
 Platform or Event
 Recognition
 Tool
 Unknown
 Vision development

Logos of participating universities: VU, Radboud Universiteit, Universiteit Leiden, TU/e, Maastricht University, TU Delft, Wageningen University & Research, Tilburg University, Open Universiteit.

Search

SUPPORT WEBSITES

URL	Description	University	Type of Activity	Type of Support
	Information on online profiles	Utrecht University	Increasing visibility	Information
	Homepage of entrepreneurship c...	Utrecht University	Entrepreneurship	Multiple
	Information on available funding ...	Delft University of T...	Multiple	Financial Support
	Information on exploiting intelle...	Delft University of T...	Commercialisation	Information
	Information on registering intell...	Delft University of T...	Commercialisation	Information
	Information on financial reward p...	Delft University of T...	Commercialisation	Information
	Main page on Open Access	Open University	Open Access Publishing	Information
	Information on impact training	University of Amste...	Multiple	Competence Develop
	Homepage of research facility for...	Eindhoven Universit...	Collaboration	Platform or Event
	Information on impact training	University of Amste...	Multiple	Competence Develop
	Information on impact training	University of Amste...	Commercialisation	Competence Develop
	Main page on available funding f...	University of Amste...	Multiple	Financial Support
	Workshop on online presence	Utrecht University	Unknown	Competence Develop
	Unknown	Utrecht University	Increasing visibility	Unknown
	Unknown	Utrecht University	Unknown	Unknown
	Portal on value creation	Wageningen Univer...	Unknown	Unknown
	Communication advice	Wageningen Univer...	Unknown	Unknown
	Increase visibility of your work	Vrije Universiteit A...	Increasing visibility	Information
	Information on impact training	Maastricht University	Multiple	Competence Develop

Word cloud visualization showing terms like 'researchers', 'impact', 'research', 'university', 'social', 'entrepreneurship', 'innovation', 'knowledge', 'technology', 'business', 'industry', 'academia', 'public', 'policy', 'education', 'healthcare', 'environment', 'culture', 'arts', 'sports', 'media', 'communication', 'marketing', 'branding', 'public relations', 'community engagement', 'social media', 'digital marketing', 'analytics', 'data science', 'artificial intelligence', 'robotics', 'nanotechnology', 'space exploration', 'biotechnology', 'pharmaceuticals', 'agriculture', 'forestry', 'fishing', 'tourism', 'hospitality', 'real estate', 'construction', 'infrastructure', 'transportation', 'aviation', 'maritime', 'energy', 'power generation', 'water management', 'waste management', 'circular economy', 'sustainable development', 'climate change', 'resilience', 'risk management', 'disaster preparedness', 'emergency response', 'public safety', 'law enforcement', 'justice system', 'healthcare services', 'education services', 'social services', 'elder care', 'childcare', 'mental health services, etc.

All Support Mechanisms for Societal Impact of Selected Dutch Universities

University: Maastricht, Utrecht, Vrije U., Wage., Leide., Eindhoven, Radboud, U., T., Tilburg, Open U.

Type of Impact: Information, Financial Support, Competence Development, Platform or Event, Multiple, Increasing Visibility, Publicly Accessible, Requires Login, Not Specified, Open Access Publishing, Post-graduate Education, Public Engagement, Unknown

Societal Impact: Academic, Multiple, Public, Policy, Education, Healthcare, Environment, Culture, Arts, Sports, Media, Communication, Marketing, Branding, Public Relations, Community Engagement, Social Media, Digital Marketing, Analytics, Data Science, Artificial Intelligence, Robotics, Nanotechnology, Space Exploration, Biotechnology, Pharmaceuticals, Agriculture, Forestry, Fishing, Tourism, Hospitality, Real Estate, Construction, Infrastructure, Transportation, Aviation, Maritime, Energy, Power Generation, Water Management, Waste Management, Circular Economy, Sustainable Development, Climate Change, Resilience, Risk Management, Disaster Preparedness, Emergency Response, Public Safety, Law Enforcement, Justice System, Healthcare Services, Education Services, Social Services, Elder Care, Childcare, Mental Health Services, etc.

Type of Audience: Multiple, Companies, Not Specified, Academic, General, University, etc.

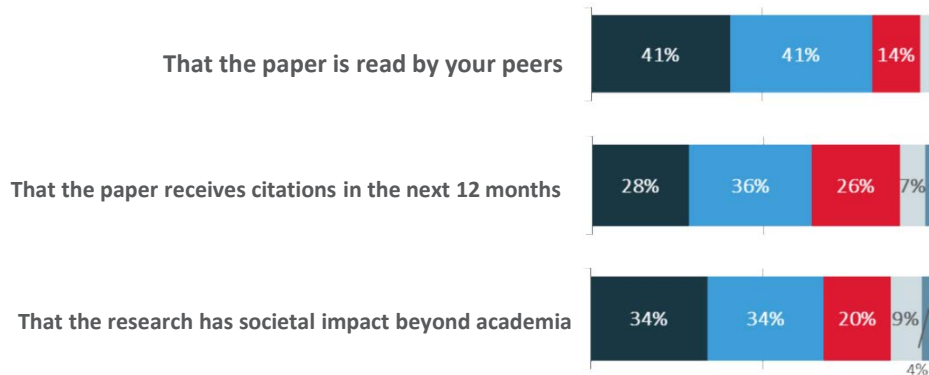
Type of Support: Information, Access to Expertise, Multiple, Competence Development, Tool, Platform or Event, Financial Support, Networking, Vision Development, etc.

Type of Activity: Multiple, Commercialisation, Collaboration, Increasing Visibility, Public, Entrepreneurship, Open Access Publishing, etc.

Survey – Researcher attitudes, motivations, and practices..

For your most recent publication, how important to you are each of the following?
(n=6,001)

Extremely important
 Very important
 Moderately important
 Slightly important
 Not at all important

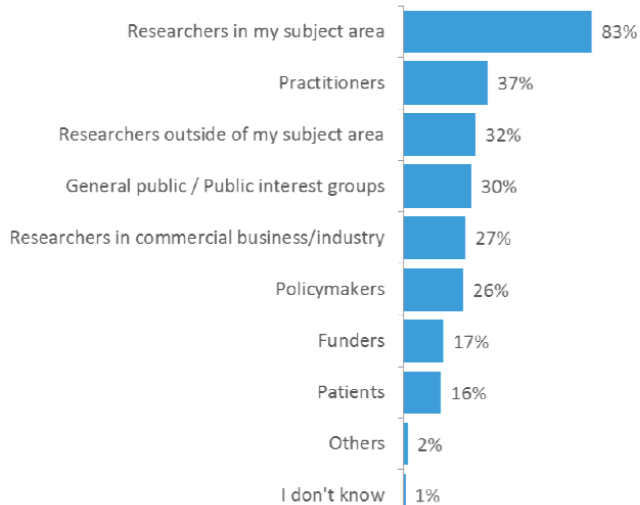


Motivations to societal impact

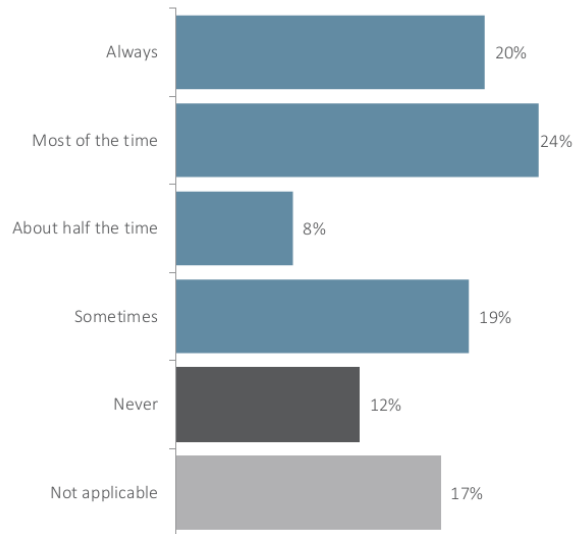
Intended type of impact (select all that apply)	Eng/Phys /					
	Biology	Medicine	Chem / Mats	Earth & Env	Social Sciences	Arts & Humanities
Academic impact - inform future research	72%	64%	75%	70%	73%	85%
Inform public opinion	23%	25%	14%	36%	41%	53%
Improve quality of life	40%	55%	34%	32%	42%	32%
Improve health	46%	81%	22%	22%	28%	13%
Support sustainable development	35%	12%	37%	60%	28%	17%
A commercial application or economic development	24%	9%	34%	20%	12%	7%
Influence government policy	22%	27%	14%	47%	50%	35%

Target Audience and Funders

Which of the following audiences were you trying to reach with your most recent publication?
(Mark all that apply) (n=5,604)



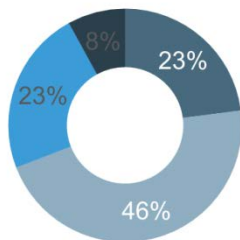
"My funder asks me to consider the potential societal impact of my research when I apply for a grant..." (n=5,184)



Tracking societal impact of research

To what extent do you attempt to track the societal impact of your published research?
(n=5,302)

■ Always ■ Sometimes ■ Rarely ■ Never



What are the challenges with regards to tracking the societal impact of your research? (n=3,897)



Some concluding thoughts..

- The SDG classifier generally speaking works well but has some limits due to an “imperfect training set ”
- Initial global insights show that around 8% of all annual scholarly publications have SDG relevancy
- Goals with a lower doc count include: No Poverty, Zero Hunger, Gender Equality, Life Below Water.
- Around half of all SDG research is openly accessible
- SDG research that is OA receives more usage & alt attention than all non-SDG AND non-OA research
- Researchers say they are mostly interested in academic impact
- Lack of tools and methods are cited by researchers as main obstacles to tracking societal impact

Thank You!

By Timon Oefelein

Senior Manager Strategic Partnerships, Springer Nature

19 November 2020

A Strategic Partnership

