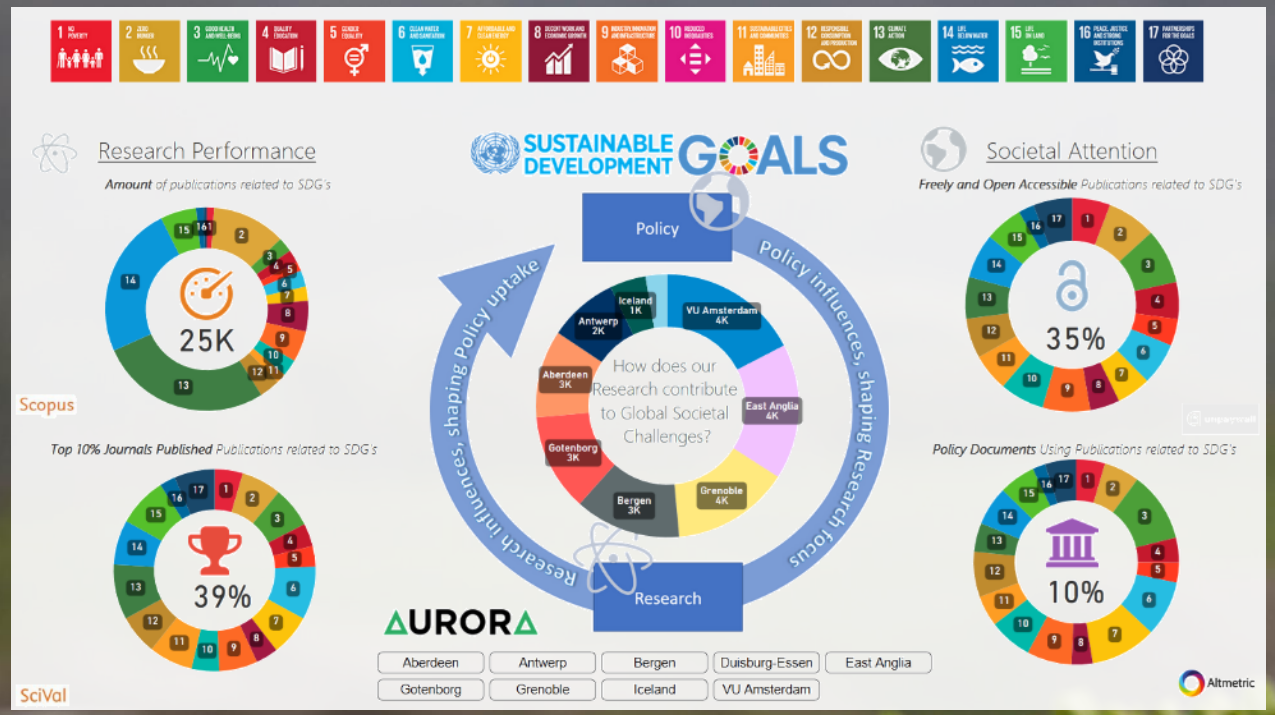
UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

AN INTERACTIVE BIBLIOMETRIC PROOF OF CONCEPT



http://bit.ly/aurora-sdg

*June 28th 2019, Dublin | Maurice Vanderfeesten | Vrije Universiteit Amsterdam | Twitter: @maurice_*

AURORA

SUSTAINABLE DEVELOPMENT GOALS

VU VRIJE UNIVERSITEIT AMSTERDAM

LOOKING FURTHER

Photo by: Cpl. Jesus Sepulveda Torres
https://www.mcbhawaii.marines.mil/Photos/igphoto/2001813560/

WHO AM I?

- Maurice Vanderfeesten
  - Innovation Manager Research Services
  - University Library, Vrije Universiteit Amsterdam
- Topics:
  - Scholarly Communication
  - Open Science
  - Research Intelligence

- Projects:
  - Data tools for strategic decision making
  - Frictionless Open Access experience
  - [future: nano publications, blockchain4science, librarAI]
- Background:
  - Information Science MSc, SURF, EU-DRIVER, EU-OpenAIRE, TUDelft | OA repositories, Enhanced publications, RDM, Linked data, Semantic web

@maurice_

2015: OCCUPATION/STRIKE; AGAINST THE PERFORMANCE DELIVERY CULTURE OF SCIENCE AND EDUCATION | SPARKED DISCUSSION IN NL UNIVERSITIES

Photo by: Jos van Zetten
https://www.at5.nl/artikelen/142130/UvA%20raamt%20schade%20Maagdenhuisbezetting%20op%20460.000%20euro

UNIVERSITY OF AMSTERDAM

VU VRIJE UNIVERSITEIT AMSTERDAM

VU

OVER THE YEARS: TRANSITION IN VALUING RESEARCH: METRIC TIDE, LEIDEN MANIFESTO, …

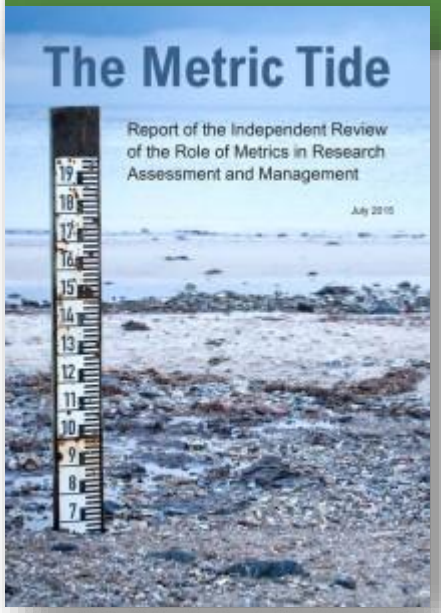
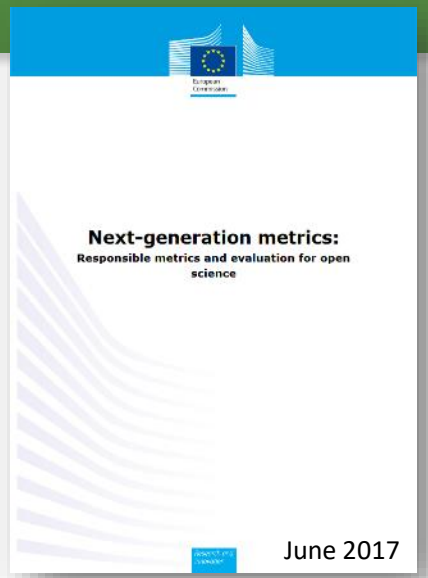
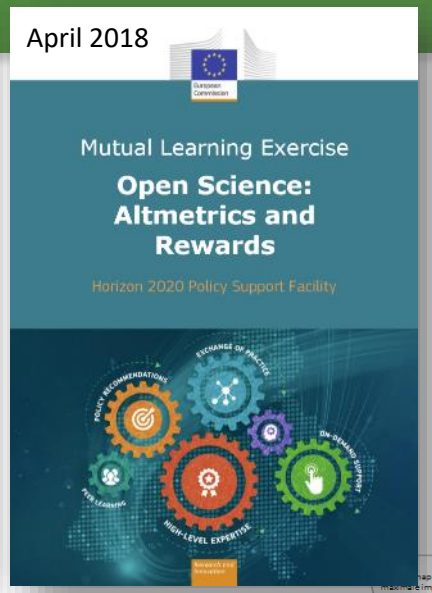


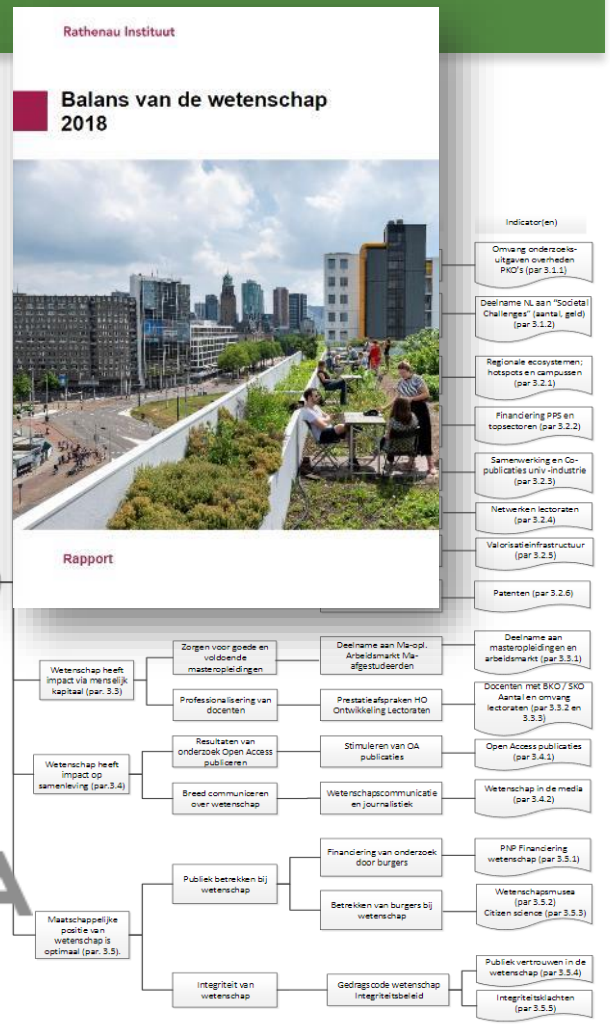
Figure 3: The Metric Tide: Report of the Independent Review of the Role of Metrics in Research Assessment and Management.



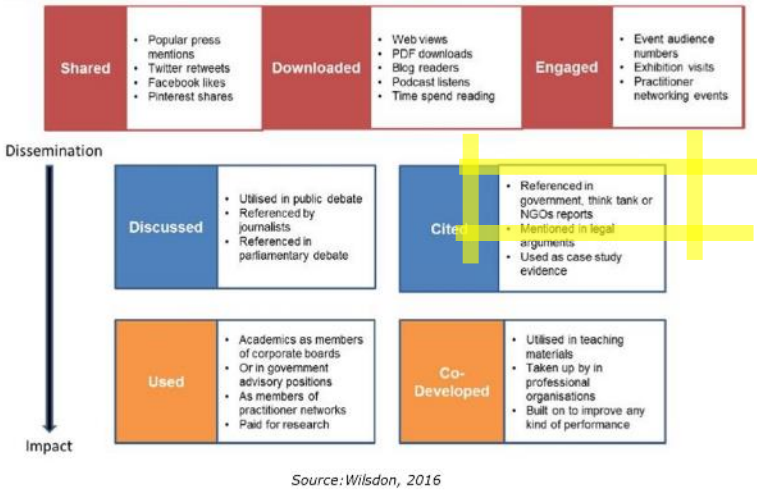
http://ec.europa.eu/research/openscience/pdf/report.pdf



https://rio.jrc.ec.europa.eu/en/library/mle-open-science-altmetrics-and-rewards-final-report



Knowledge ecosystem
https://www.rathenau.nl/nl/kennisecosysteem/balans-van-de-wetenschap-2018



https://responsiblemetrics.org/the-metric-tide/

1) Quantitative evaluation should support qualitative, expert assessment.
2) Measure performance against the research missions of the institution, group or researcher
3) Protect excellence in locally relevant research.
4) Keep data collection and analytical processes open, transparent and simple.
5) Allow those evaluated to verify data and analysis.
6) Account for variation by field in publication and citation practices.
7) Base assessment of individual researchers on a qualitative judgement of their portfolio
8) Avoid misplaced concreteness and false precision.
9) Recognize the systemic effects of assessment and indicators
10) Scrutinize indicators regularly and update them.

http://www.leidenmanifesto.org/

DORA

NWO

April 18th 2019,
NWO, ZonMW, KNAW
Sign the DORA agreement
http://sfdora.org/

VU

RESEARCH FUNDING INCREASINGLY FOCUS ON MISSION-ORIENTED INNOVATIONS
[RELEVANT FOR SOCIETY, ACROSS DISCIPLINES]

Figure 1 below illustrates the movement from broad challenges to specific missions.

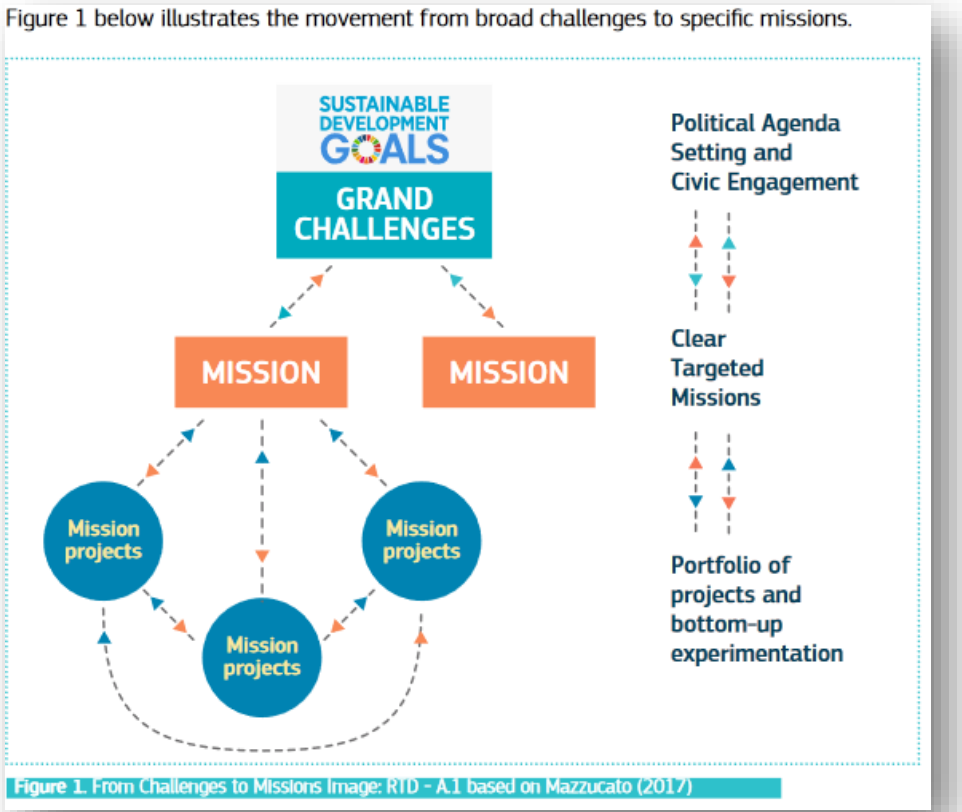
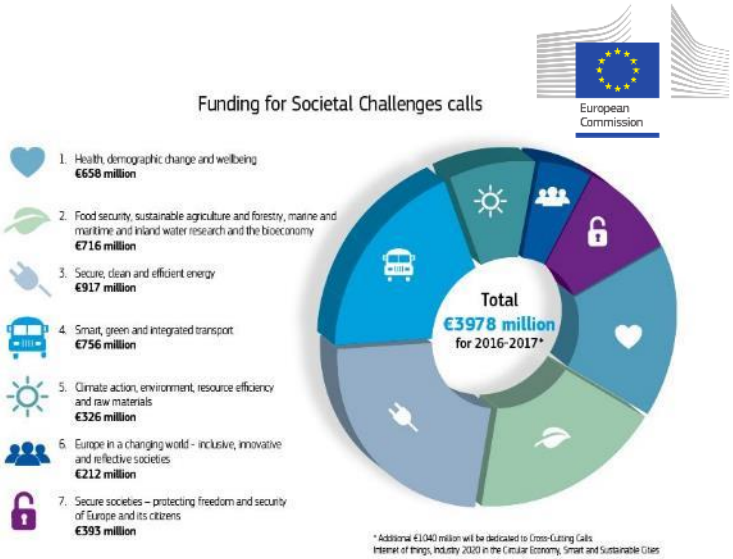


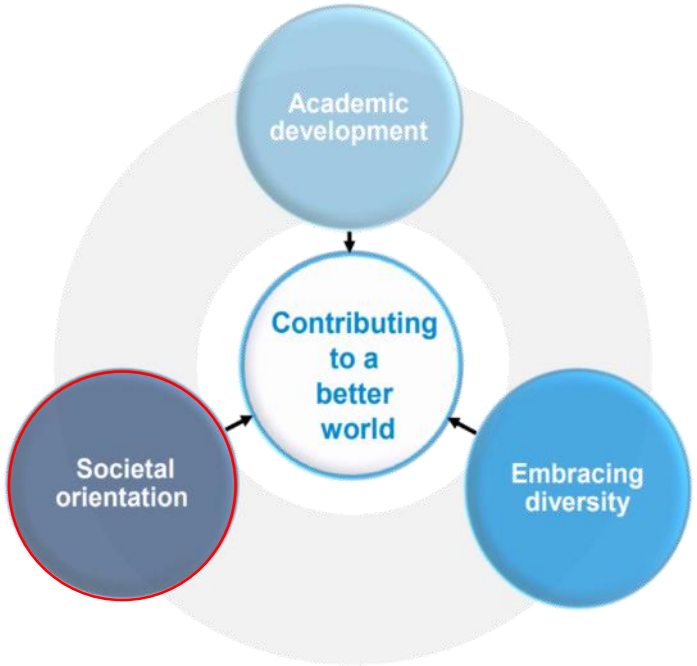
Figure 1. From Challenges to Missions Image: RTD - A.1 based on Mazzucato (2017)

Source:
https://ec.europa.eu/info/sites/info/files/mazzucato_report_2018.pdf

VU: “HOW CAN WE SHOW SOCIETAL IMPACT ON SOCIETALLY RELEVANT TOPICS?”

What are those societally relevant topics?

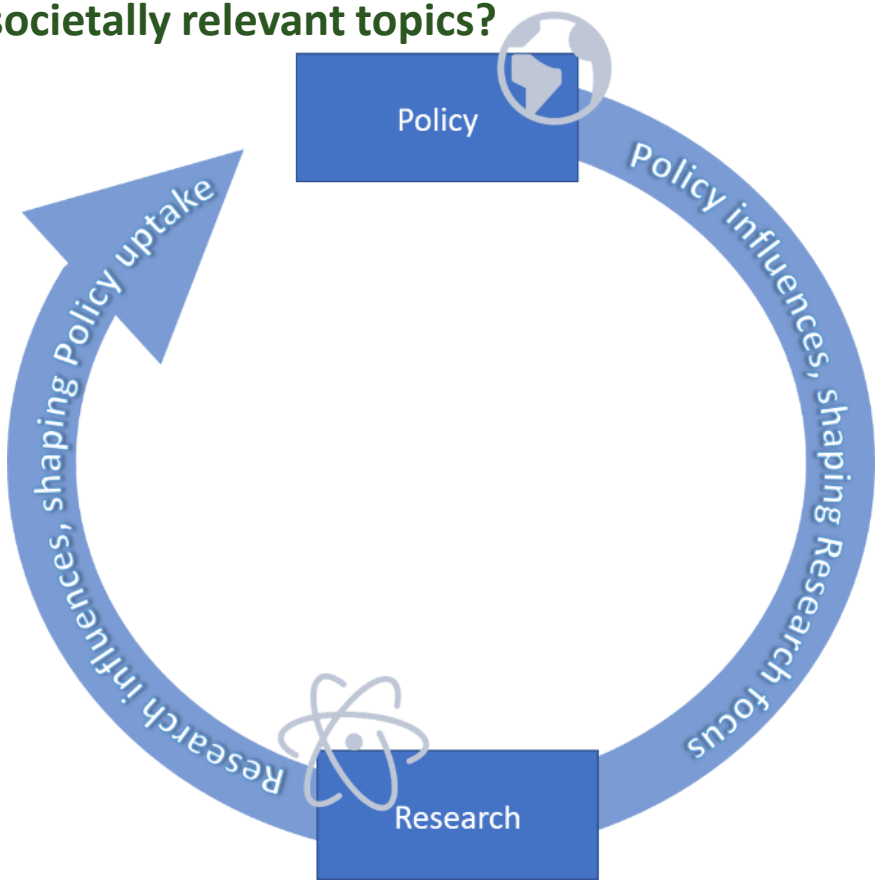




Gross Academic Value

VU VRIJE UNIVERSITEIT AMSTERDAM

What research are we doing within these societally relevant topics?



Is this research on societally relevant topics, actually influencing policy of societal relevant organisations?

VU

AURORA

UNIVERSITY OF ICELAND

"Aurora institutions are committed to working together to find solutions to globally relevant problems"

SUSTAINABLE DEVELOPMENT GOALS

COLLABORATION WITH GROUP OF BIBLIOMETRICIANS FROM AURORA PARTNERS

Antwerp Dec 2018; Joeri, Susanne, Pam, Lars, Felix, Hubert, Raf, René.
Not is picture: Eike, Susana, Nykohla, Jaqui, Baldvin

3 GOOD HEALTH AND WELL-BEING

UN goal & target indicators

SUSTAINABLE DEVELOPMENT GOALS

3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases

3.3.1	Number of new HIV infections per 1,000 uninfected population, by sex, age and key populations
3.3.2	Tuberculosis incidence per 1,000 population
3.3.3	Malaria incidence per 1,000 population
3.3.4	Hepatitis B incidence per 100,000 population
3.3.5	Number of people requiring interventions against neglected

Collaborative effort in converting UN policy texts to bibliometric search strings, reviewing & testing results, and data acquisition

Query for SDG 03 good health and well-being

From Targets and Indicators on https://sustainabledevelopment.un.org/sdg3

Needs improvement!

```
("mortality" AND ("suicid*" OR "premature" OR "maternal" OR "neonatal" OR "under-five" OR ("under" AND "five"))) OR
("malaria" OR "hepatitus b" OR "hiv" OR "aids" OR "tropical disease*" OR "zika" OR "ebola") OR
("abuse" AND ("substance*" OR "drug*" OR "alcohol")) OR
("road traffic" AND ("injur*" OR "death*" OR "accidents" )) OR
"family planning" OR
"adolescent birth rate" OR
(("health") AND ("large household") AND ("expenditur*" OR "income*")) OR
(("mortality") AND ("pollution" OR "unsafe" OR "poisoning") AND ("water" OR "air" OR "sanitation" OR "hygiene")) OR
(("health") AND ("tobacco") AND ("prevalence")) OR (("national") AND ("vaccine*") AND ("programme*")) OR
(("health worker*") AND ("density" OR "distribution*")) OR
"International Health Regulation*" OR
"health emergency preparedness"
```

PROCESSING SDG QUERIES & COLLECTING DATA

Query Crafting

SUSTAINABLE DEVELOPMENT GOALS

Basic topic extraction

Representative Publications set sampling

Deep topic extraction

Affiliation IDs / University

SDG query

Data Visualisation

PowerBI / Tableau

VOSviewer
Visualizing scientific landscapes

Data Collection

Scopus

SDG publications metadata

EID

DOI

Scival

Performance data (top percentiles, field weighted impact, citescore, sjr, snip)

Altmetric

Mentions data (policy docs, blogs, news, patents, tweets)

Unpaywall

Open Access data (is_oa, oa_journal, pdf_url)

SDG data

publications

+ extra's

https://github.com/Aurora-Network-Global

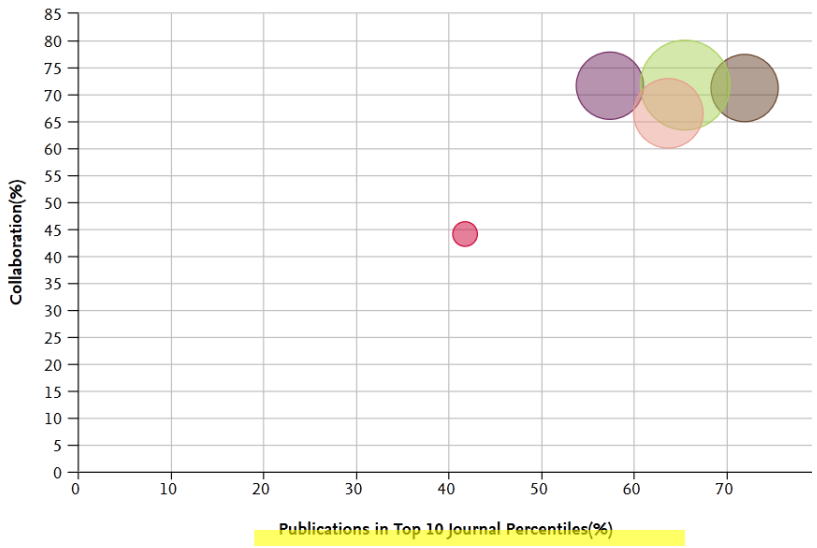
VU

RESEARCH QUALITY:
TOP 10% PERCENTILE MOST CITED JOURNALS

SciVal | Benchmarking | Collaboration | Reporting | My SciVal | Scopus | Maurice Vanderfeesten

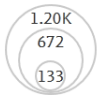
2010 to 2017 | no subject area filter selected

y-axis: Collaboration | x-axis: Publications in Top Journal Percentiles | Bubble size: Scholarly Output



Publication Sets
- Aberdeen - SDG13
- Duisburg-essen - SDG13
- GU - SDG13
- Grenoble - SDG13
- VU - SDG13

View list of Scopus Sources for the selected Researchers and Groups



Scholarly Output

Metrics details

y-axis: **Collaboration (International, %)**
Types of publications included: all. Field-weighted: no

x-axis: **Publications in Top 10 Journal Percentiles (In top 10% of Scopus Sources, %)**
CiteScore Percentile (from 2011 onwards - Learn more)
Types of publications included: all.
The percentage of the Publications in Top Journal Percentiles is calculated using only the publications that have a CiteScore Percentile, SNIP, or SJR value.

Bubble size: **Scholarly Output**
Types of publications included: all.

Top 10% Journals Published Publications related to SDG's

SOCIETAL ATTENTION:
AURORA SDG13 PAPERS WITH REFERENCES FROM POLICY DOCUMENTS

Sort by: Policy documents

1085 Global Carbon Budget 2016
Article in **Earth System Science Data**, November 2016
8 policy mentions

658 Coastal flood damage and adaptation costs under 21st century sea-level rise
Article in **Proceedings of the National Academy of Scie... United States of America**, February 2014
8 policy mentions

35 Too much of a good thing.
Article in **Nature**, April 2011
7 policy mentions

25 Exploring dietary guidelines based on ecologi... nutritional values: A...
Article in **Food Policy**, ...
7 policy mentions

43 Have Disaster Losses Increased Due to Anthropogenic Climate Change?
Article in **Journal of Physical Oceanography**, January 2011
5 policy mentions

208 Global Carbon Budget 2015
Article in **Earth System Science Data**, December 2015
4 policy mentions

80 The uncertain climate footprint of wetlands under human pressure

79 Enhanced nitrogen deposition over China.
Article in **Nature**, February 2013

Sea-level rise

19 EURO-CORD... projections f...

Policy Documents Using Publications related to SDG's

AGGREGATION
ROWS AND ROWS OF NUMBERS

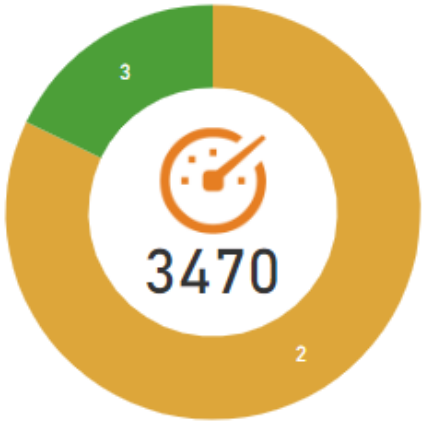
	C	D	H	I	L	M
1			SCOPUS	SCIVAL	UNPAYWALL	ALTMETRIC
2			Absolute	Absolute	Absolute	Absolute
3			Production	Excellence	Society access	Society use
4	SDG	Institution	Number of p	Number of pu	Number of pub	Number of publi
149	Institution	Bergen	24617			
150	SDG-01 no poverty	Bergen	44	10	27	1
151	SDG-02 zero hunger	Bergen	394	93	251	56
152	SDG-03 good health and well-being	Bergen	125	23	84	20
153	SDG-04 quality education	Bergen	83	9	41	8
154	SDG-05 gender equality	Bergen	63	5	28	2
155	SDG-06 clean water and sanitation	Bergen	23	9	10	1
156	SDG-07 affordable and clean energy	Bergen	35	12	7	1
157	SDG-08 decent work and economic growth	Bergen	69	8	26	2
158	SDG-09 industry, innovation and infrastructure	Bergen	129	25	77	38
159	SDG-10 reduce inequalities	Bergen	48	8	28	16
160	SDG-11 sustainable cities and communities	Bergen	6	1	2	0
161	SDG-12 responsible consumption and producti	Bergen	71	18	40	11
162	SDG-13 climate action	Bergen	1065	313	507	57
163	SDG-14 life below water	Bergen	911	246	458	59
164	SDG-15 life on land	Bergen	97	28	44	3
165	SDG-16 peace, justice and strong institutions	Bergen	49	2	7	0
166	SDG-17 partnerships for the goals	Bergen	10	3	6	1
167	Institution	Iceland	8016			
168	SDG-01 no poverty	Iceland	4	0	3	0
169	SDG-02 zero hunger	Iceland	123	20	74	6
170	SDG-03 good health and well-being	Iceland	25	8	14	3
171	SDG-04 quality education	Iceland	27	1	2	0
172	SDG-05 gender equality	Iceland	39	4	7	0
173	SDG-06 clean water and sanitation	Iceland	17	2	6	2
174	SDG-07 affordable and clean energy	Iceland	27	5	8	2
175	SDG-08 decent work and economic growth	Iceland	50	4	11	0
176	SDG-09 industry, innovation and infrastructure	Iceland	37	8	11	0
177	SDG-10 reduce inequalities	Iceland	16	1	5	0
178	SDG-11 sustainable cities and communities	Iceland	19	8	6	0
179	SDG-12 responsible consumption and producti	Iceland	53	12	15	2
180	SDG-13 climate action	Iceland	324	92	135	15
181	SDG-14 life below water	Iceland	249	59	94	11
182	SDG-15 life on land	Iceland	65	18	24	0
183	SDG-16 peace, justice and strong institutions	Iceland	16	0	1	0
184	SDG-17 partnerships for the goals	Iceland	3	0	1	0
185	Institution	Antwerp	24018			
186	SDG-01 no poverty	Antwerp	57	9	21	3
187	SDG-02 zero hunger	Antwerp	194	61	73	14
188	SDG-03 good health and well-being	Antwerp	110	30	41	14
189	SDG-04 quality education	Antwerp	59	4	19	0
190	SDG-05 gender equality	Antwerp	46	5	9	1
191	SDG-06 clean water and sanitation	Antwerp	121	46	46	18
192	SDG-07 affordable and clean energy	Antwerp	34	12	11	0
193	SDG-08 decent work and economic growth	Antwerp	139	11	38	3
194	SDG-09 industry, innovation and infrastructure	Antwerp	129	37	41	10
195	SDG-10 reduce inequalities	Antwerp	62	12	15	2
196	SDG-11 sustainable cities and communities	Antwerp	49	10	9	1

BUILD YOUR OWN INTERACTIVE VISUALIZATION (RAPID PROTOTYPING IN POWER BI)

INTERACTIVE, GO TO BIT.LY/AURORA-SDG AND PLAY

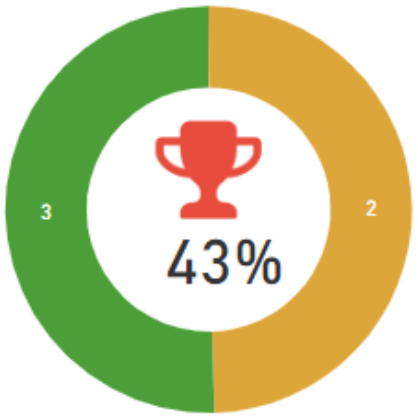
Research Performance

Amount of publications found, related to SDG's



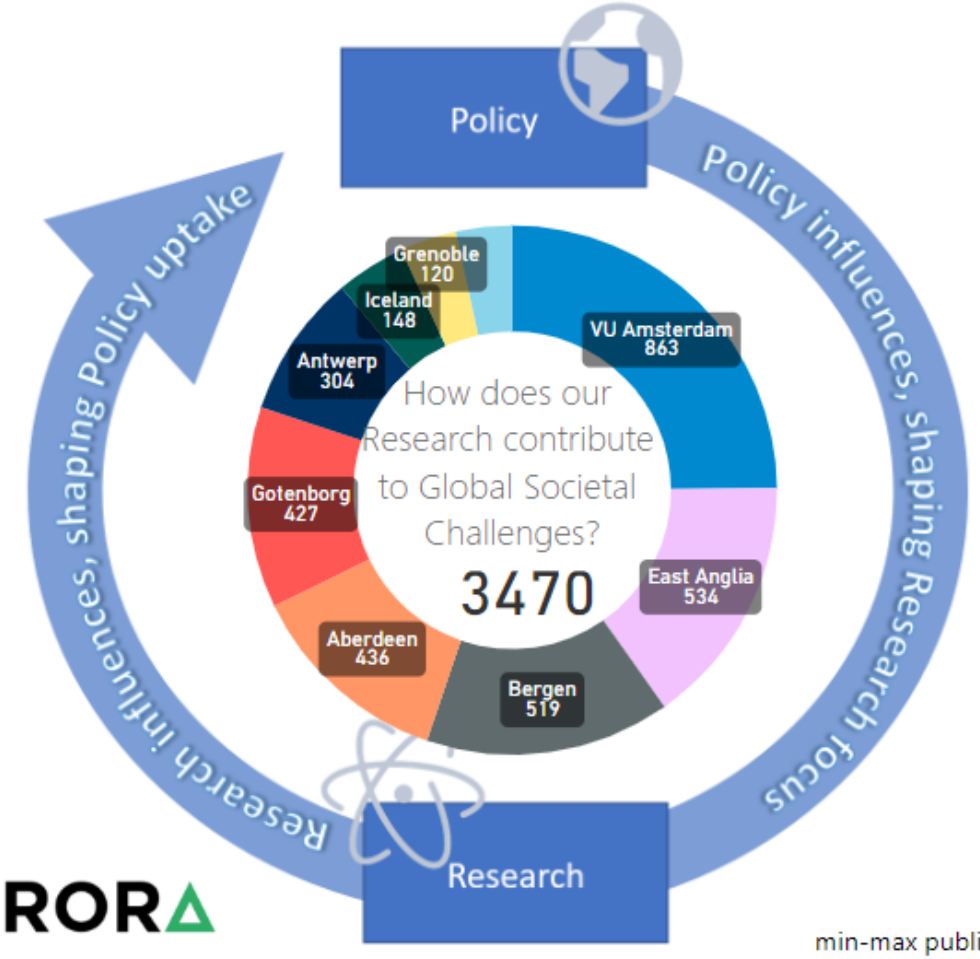
Scopus

Top 10% Journals Published Publications related to SDG's



SciVal

SUSTAINABLE DEVELOPMENT GOALS



AURORA

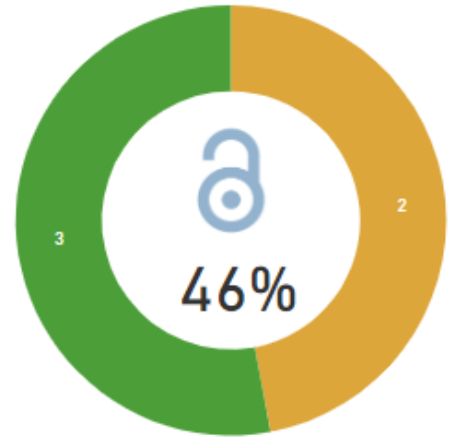
Aberdeen | Antwerp | Bergen | Duisburg-... | East Anglia
Gotenborg | Grenoble | Iceland | VU Amste...

min-max publication sa...

2 — 2234

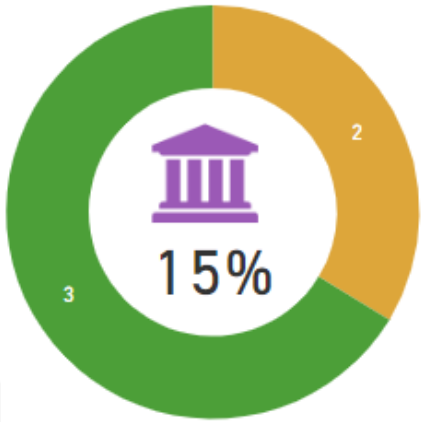
Societal Attention

Freely and Open Accessible Publications related to SDG's



unpaywall

Policy Documents Using Publications related to SDG's



Altmetric

Choose your SDG...

1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS

min/max papers in SDG group

2 2234

...or your university. AURORA

Aberdeen | Antwerp
Bergen | Duisburg-Essen
East Anglia | Gotenborg
Grenoble | Iceland
VU Amsterdam

Research Papers related to Sustainable Development Goals

Societal Attention : % of papers cited in (N)GO Policies

Research Excellence : % of papers in Top 10% most cited journals

Aurora Total Average: 41%

Average of selection Cited in (N)GO Policies: 10,37%

Average of selection Published in Top 10% most cited journals: 38,84%

Quadrant with *Strong SDG's*

Quadrant with *Opportunities*

SDG-03 good health and well-being
SDG-07 affordable and clean energy
SDG-06 clean water and sanitation
SDG-09 industry, innovation and infrastructure
SDG-10 reduce inequalities
SDG-02 zero hunger
SDG-12 responsible consumption and production
SDG-15 life on land
SDG-11 sustainable cities and communities
SDG-01 no poverty
SDG-14 life below water
SDG-17 partnerships for the goals
SDG-05 gender equality
SDG-04 quality education
SDG-13 climate action
SDG-08 decent work and economic growth
SDG-16 peace, justice and strong institutions

3470
papers in selection

Learn more: http://bit.ly/aurora-sdg

Choose your SDG...

SUSTAINABLE DEVELOPMENT GOALS

2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND

2

min/max papers in SDG group

100 2234

...or your university. AURORA

Aberdeen	Antwerp
Bergen	Duisburg-Essen
East Anglia	Gotenborg
Iceland	VU Amsterdam

2794
papers in selection

Research Papers related to Sustainable Development Goals

2 ZERO HUNGER

Societal Attention : % of papers cited in (N)GO Policies

Research Excellence : % of papers in Top 10% most cited journals

Aurora Total Average: 41%

Average of selection Cited in (N)GO Policies: 11.00%

Average of selection Published in Top 10% most cited journals: 44.63%

Quadrant with *Strong SDG's*

Quadrant with *Opportunities*

East Anglia
Aberdeen
Bergen
VU Amsterdam
Antwerp
Gotenborg
Duisburg-Essen
Iceland

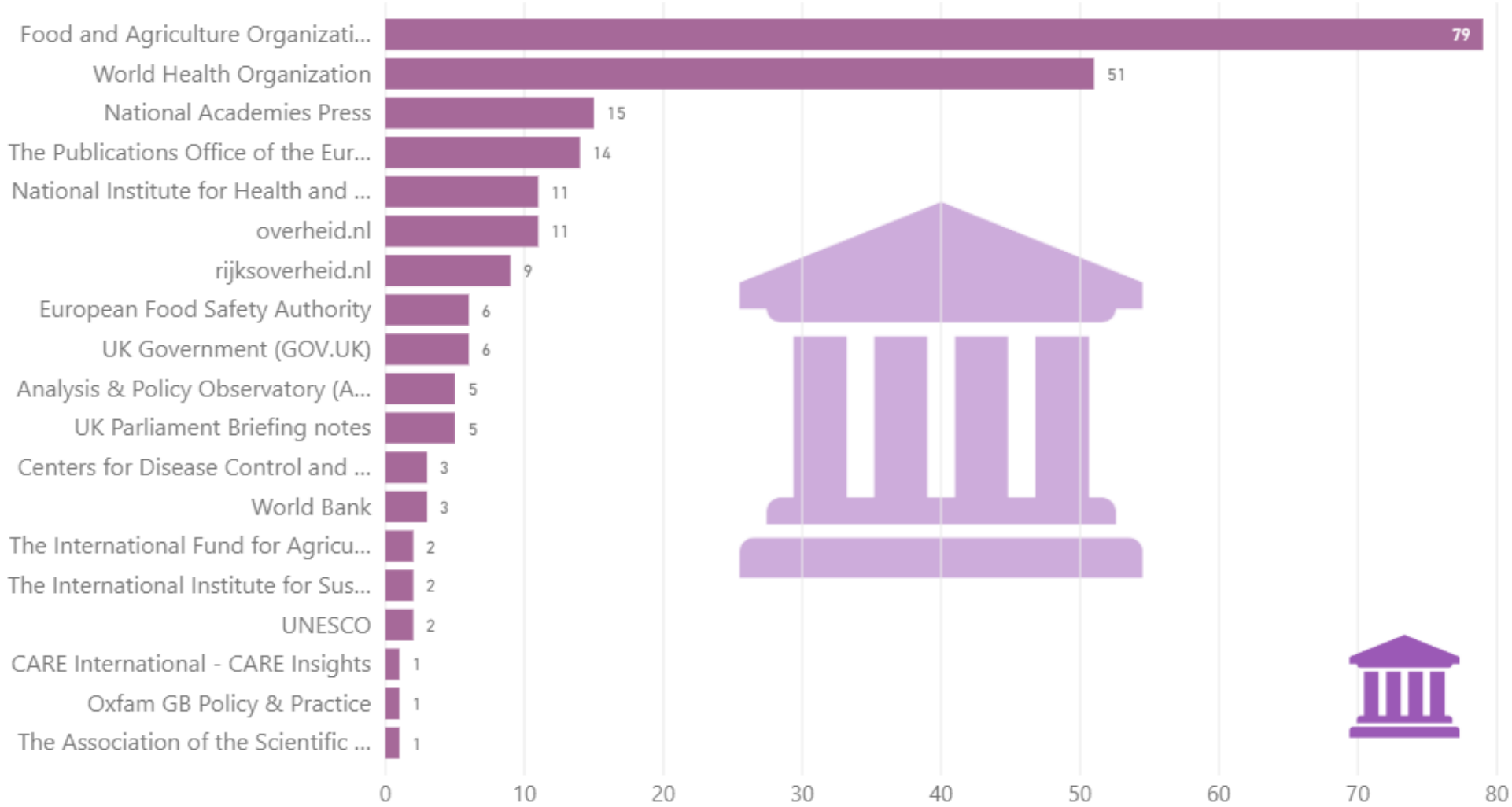
0% 5% 10% 15% 20% 25% 30%

0% 10% 20% 30% 40% 50% 60%

VU VRIJE UNIVERSITEIT AMSTERDAM University Library

Learn more: http://bit.ly/aurora-sdg

Number of Policy documents mentioning publications about Zero Hunger



Country

Mention Type

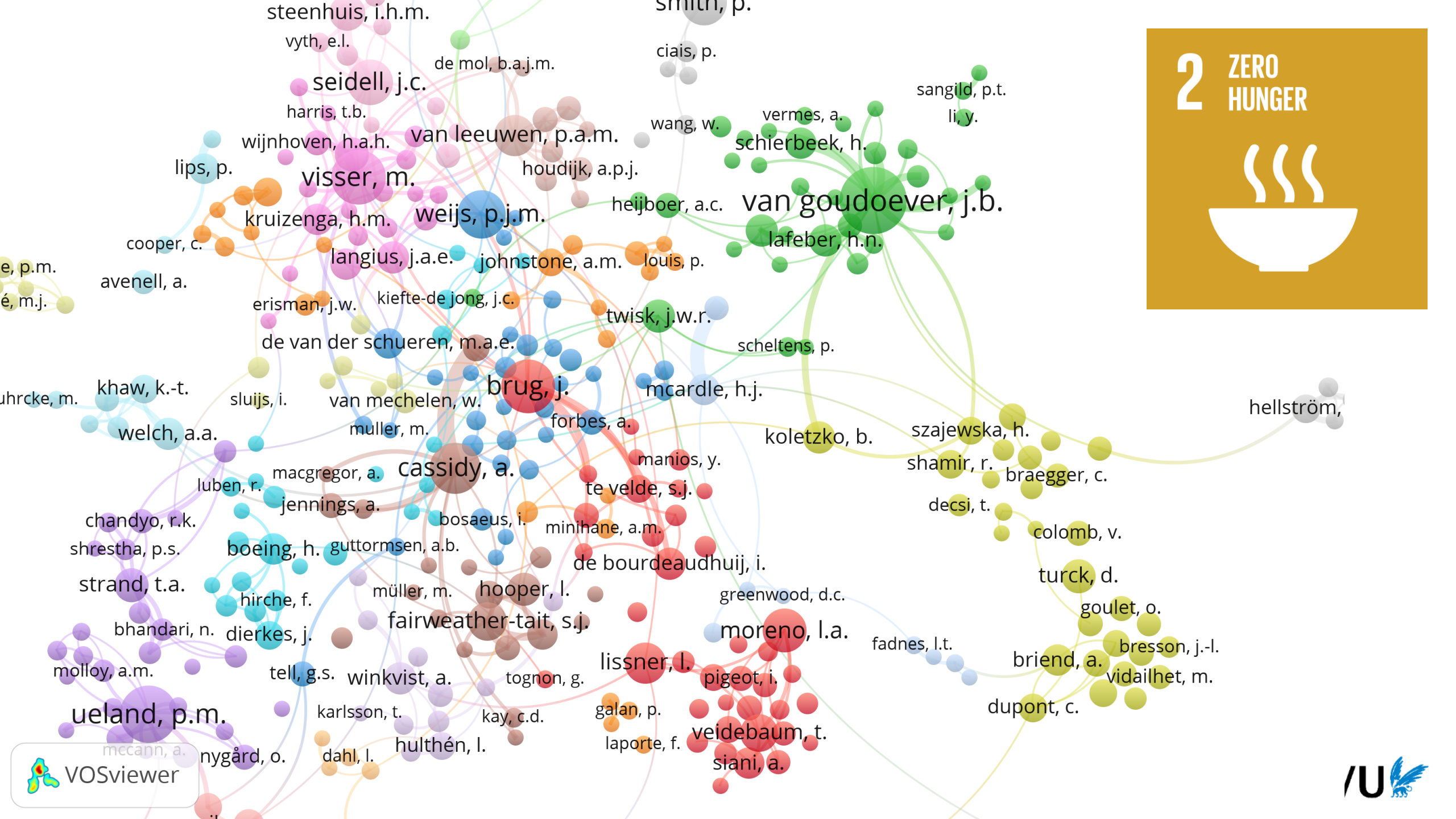
- ☐ News story
- ■ Policy document
- ☐ Tweet
- ☐ Video

Altmetric

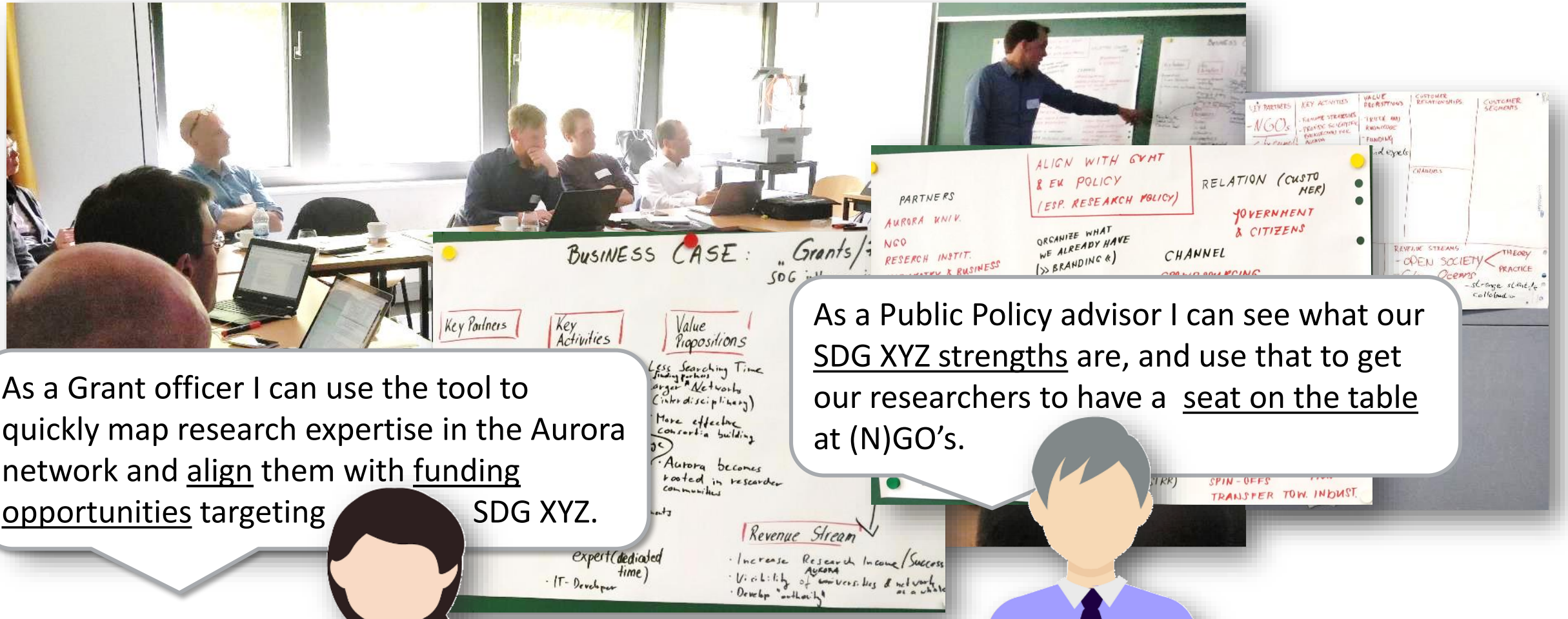
Outlet or Author	Mention Title	Country	Mention Type	Mention URL	Research Output Title	Altmetric Attention Score	Details Page URL
World Health Organization	Human papillomavirus vaccines: WHO position paper, May 2017 – Vaccins contre les papillomavirus humains: note de synthèse de l'OMS, mai 2017	Switzerland	Policy document		Immunogenicity of the 9-Valent HPV Vaccine Using 2-Dose Regimens in Girls and Boys vs a 3-Dose Regimen in Women	718	
World Health	Weekly Epidemiological Record, 2017,	Switzerland	Policy document		Immunogenicity of the 9-Valent	718	
Total						36435	

head
validation
weight loss
patient
validity
nutritional status
life
type
community
inflammation
man
human
malnutrition
implication
management
placebo
ill patient
evidence
body composition
vitamin
aid
month
cancer
preterm infant
meta analysis
european prospective investiga
impact
infant
country
prevalence
perspective
food security
practice
idefics study
fish
dietary pattern
land
china
pregnant woman
fruit
vegetable intake

VOSviewer


steenhuis, i.h.m.
vyth, e.l.
seidell, j.c.
de mol, b.a.j.m.
harris, t.b.
wijnhoven, h.a.h.
van leeuwen, p.a.m.
lips, p.
visser, m.
houdijk, a.p.j.
kruizenga, h.m.
weijs, p.j.m.
cooper, c.
langius, j.a.e.
johnstone, a.m.
avenell, a.
erisman, j.w.
kiefte-de jong, j.c.
de van der schueren, m.a.e.
khaw, k.-t.
sluijs, i.
van mechelen, w.
brug, j.
welch, a.a.
muller, m.
forbes, a.
macgregor, a.
cassidy, a.
luben, r.
jennings, a.
chandyo, r.k.
bosaeus, i.
shrestha, p.s.
boeing, h.
guttormsen, a.b.
strand, t.a.
hirche, f.
müller, m.
hooper, l.
fairweather-tait, s.j.
bhandari, n.
dierkes, j.
molloy, a.m.
tell, g.s.
winkvist, a.
tognon, g.
ueland, p.m.
karlsson, t.
kay, c.d.
mccann, a.
nygård, o.
dahl, l.
hulthén, l.
ciais, p.
smith, p.
sangild, p.t.
li, y.
wang, w.
vermes, a.
schierbeek, h.
van goudoever, j.b.
heijboer, a.c.
lafeber, h.n.
louis, p.
twisk, j.w.r.
scheltens, p.
mcardle, h.j.
hellström,
koletzko, b.
szajewska, h.
shamir, r.
braegger, c.
decsi, t.
colomb, v.
turck, d.
goulet, o.
fadnes, l.t.
bresson, j.-l.
briend, a.
vidailhet, m.
dupont, c.
manios, y.
te velde, s.j.
minihane, a.m.
de bourdeaudhuij, i.
greenwood, d.c.
moreno, l.a.
lissner, l.
pigeot, i.
galan, p.
veidebaum, t.
laporte, f.
siani, a.
2 ZERO HUNGER
VOSviewer

USER BENEFITS: HOW CAN WE POTENTIALLY USE THIS KIND OF INFORMATION?



As a Grant officer I can use the tool to quickly map research expertise in the Aurora network and <u>align</u> them with <u>funding opportunities</u> targeting SDG XYZ.

Grant officer

As a Public Policy advisor I can see what our <u>SDG XYZ strengths</u> are, and use that to get our researchers to have a <u>seat on the table</u> at (N)GO's.

University Public Policy Adviser / Lobbyist

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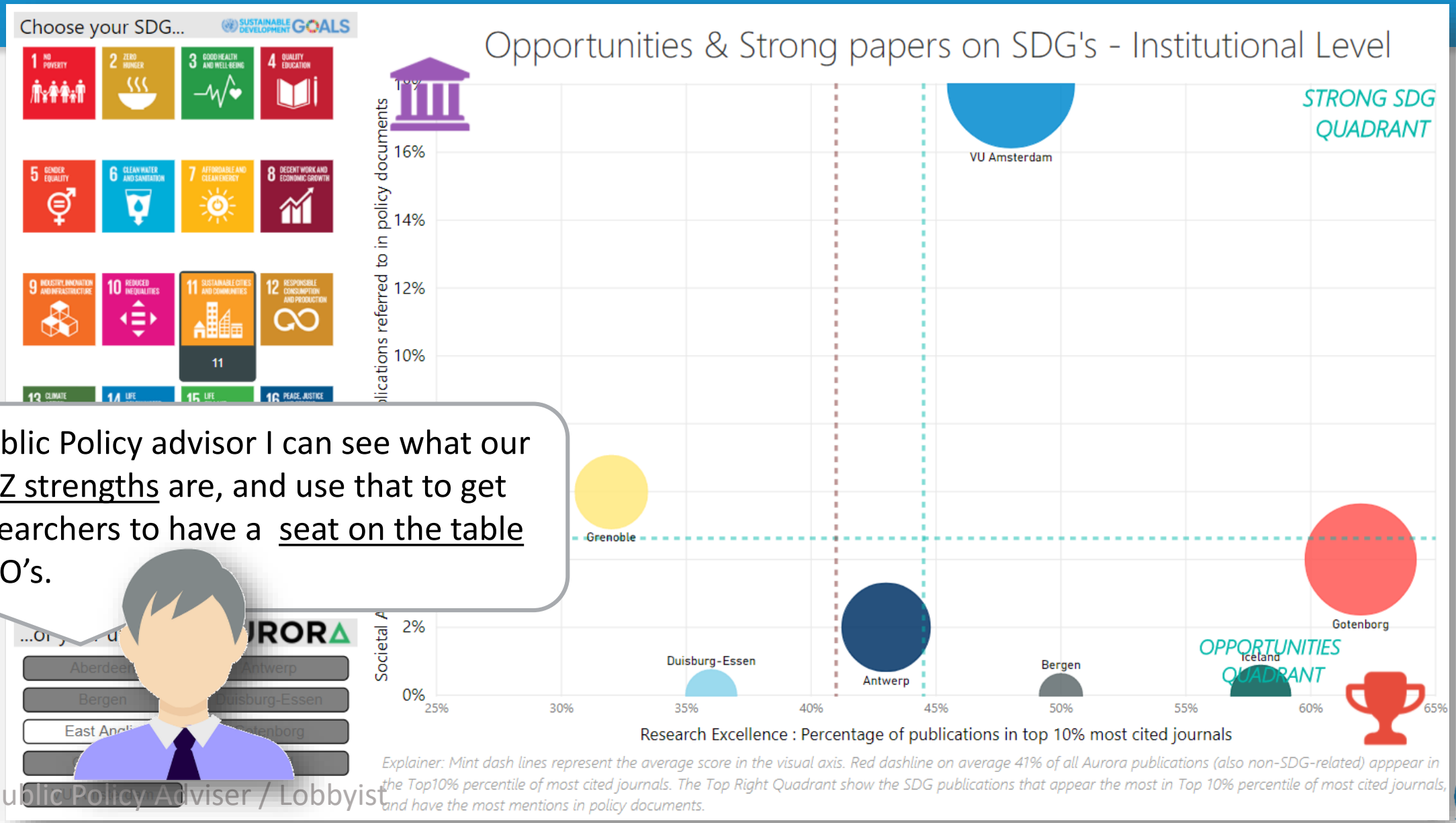
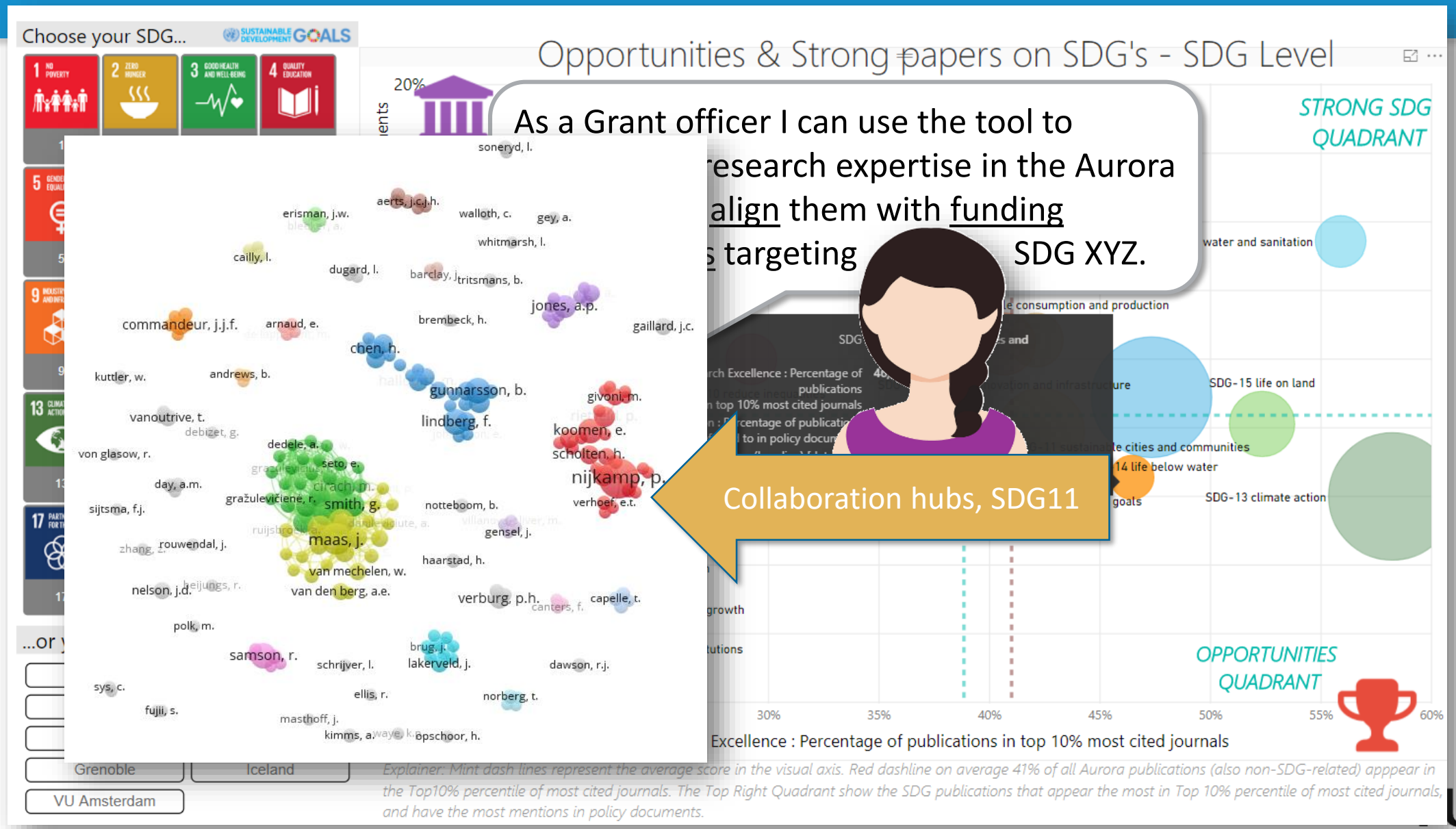


As a Public Policy advisor I can see what our SDG XYZ strengths are, and use that to get our researchers to have a seat on the table at (N)GO's.

University Public Policy Adviser / Lobbyist

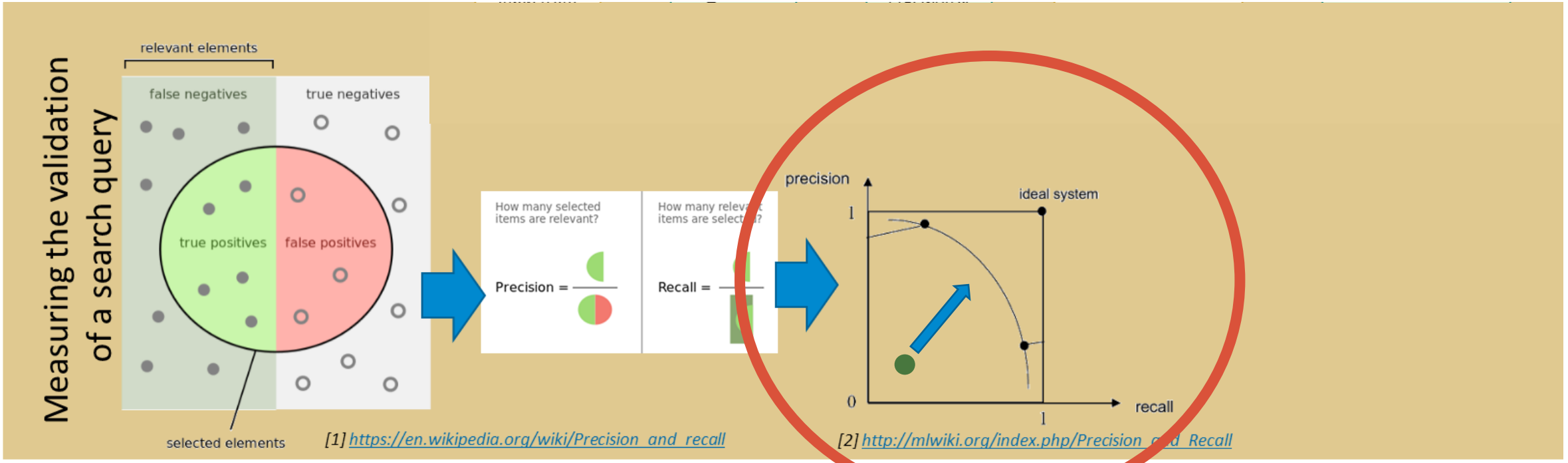
USER BENEFITS: HOW CAN WE POTENTIALLY USE THIS KIND OF INFORMATION?



USER BENEFITS: HOW CAN WE POTENTIALLY USE THIS KIND OF INFORMATION? EXCHANGE KNOWLEDGE ON POLICY OUTREACH

INCREASE DATA QUALITY > DATA MUST REPRESENT AN INSTITUTION

[GREEN DOT MUST GO UP]

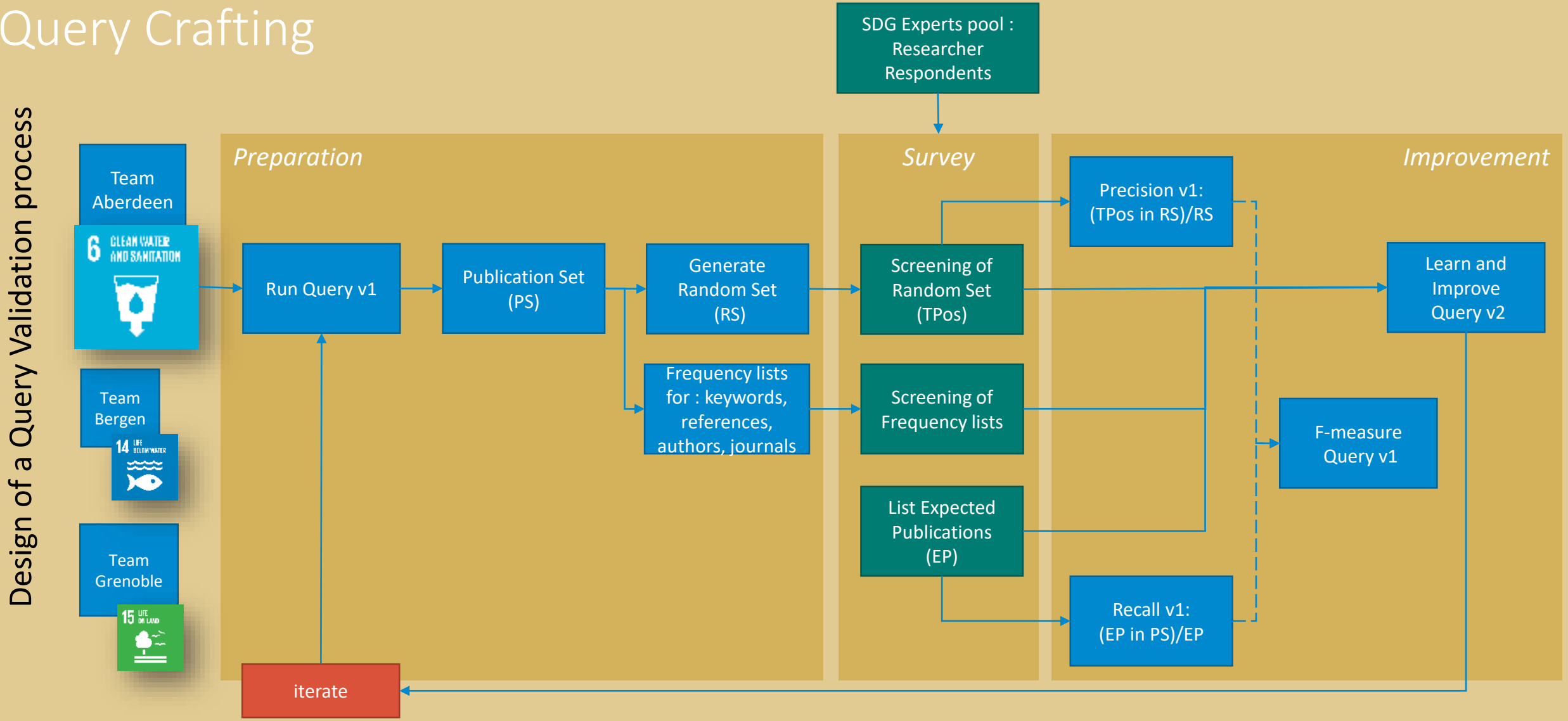


[1] https://en.wikipedia.org/wiki/Precision_and_recall

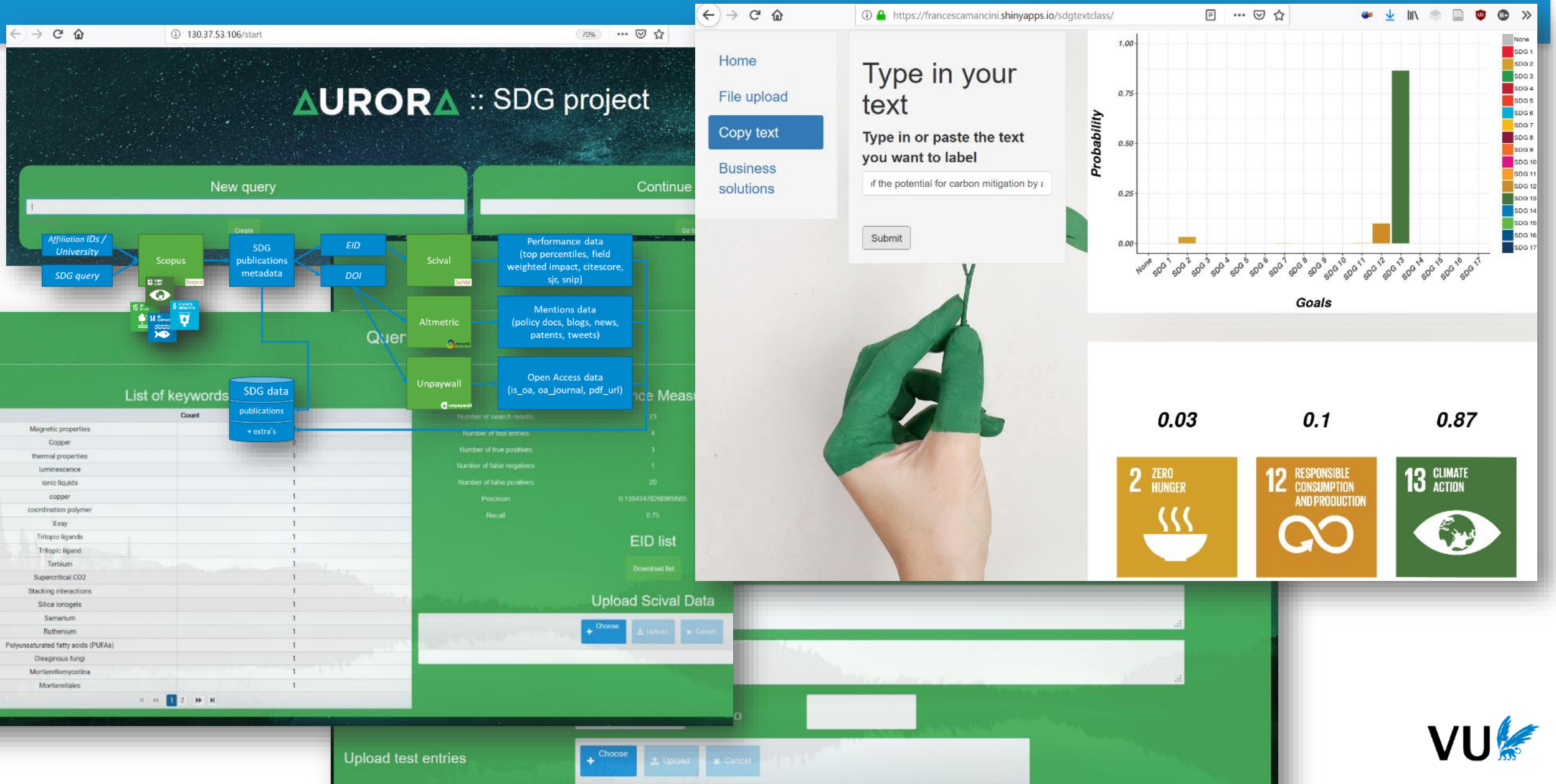
[2] http://mlwiki.org/index.php/Precision_and_Recall

INCREASE DATA QUALITY > HELP DISTRIBUTING THE SURVEY

Query Crafting



CUSTOM TOOLING AND ALTERNATIVE METHODS FOR SPEEDING-UP THE VALIDATION OF DATA QUALITY AND DATA COLLECTION



THANK YOU FOR YOUR ATTENTION!

AURORA

http://bit.ly/aurora-sdg

June 28th 2019, Dublin, #LIBER2019 |
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E-mail: maurice.vanderfeesten@vu.nl