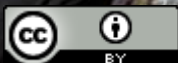


# SOCIETAL RELEVANT IMPACT



CC-BY: Maurice Vanderfeesten ([orcid.org/0000-0001-6397-4759](https://orcid.org/0000-0001-6397-4759)) & René Otten, *Societal Relevant Impact*, Societal Impact and Relevance of Research workshop, AuroraA conference, Norwich, 2017-11-09, [doi:10.5281/zenodo.1041406](https://doi.org/10.5281/zenodo.1041406)

**VU**  **VRIJE  
UNIVERSITEIT  
AMSTERDAM**

**LOOKING FURTHER**

# AGENDA

- **Intro: Aurora Mission**
  - > Societal Relevance = relevant topics for society: SDG's and SC's
- **Research Excellence (morning session ARBI 1)**
  - > Bibliometric: Institutional production profiles on Societal relevant themes
  - > Bibliometric: Institutional excellence profiles (Top 1%) on Societal relevant themes
  - > Suggestions for bibliometric collaboration:
    - > Who want to join for a first collaborative bibliometric analysis for institutional profiles on societal relevant themes (phase1: production and excellence only, o SDG's & SC)
    - > Consensus on keywords for search queries on societal relevant topics
    - > Present results in next AuroraA meetup.
- **Societal Impact (noon session ARBI 2)**
  - > Societal relevant themes
  - > Open Science for an Open Society (ARBI 3)
  - > Alternative metrics: known & unknown influence on policy on national and international level
  - > Show case catalogue: ACASI > Gross Academic Value (BAW) and PURE

*“United by our commitment to build a different kind of inclusive university community ...*

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

# GLOBALLY RELEVANT PROBLEMS (GRP'S)



# WHY ARE THESE GRP'S IMPORTANT?

Policy

Research influences  
shaping policy uptake



Policy influences  
shaping research focus

Research

# WHY ARE THESE GRP'S IMPORTANT?



# WHY ARE THESE GRP'S IMPORTANT?



# NEXT-GEN METRICS? | RESPONSIBLY USING EXISTING FRAMEWORKS



## Next-generation metrics: Responsible metrics and evaluation for open science

Research and  
Innovation

June 2017

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



## VSNU Standard Evaluation Protocol (SEP)

	Research quality	Societal relevance
Production		
Use		

2015-2021

<http://www.vsnul.nl/sep>

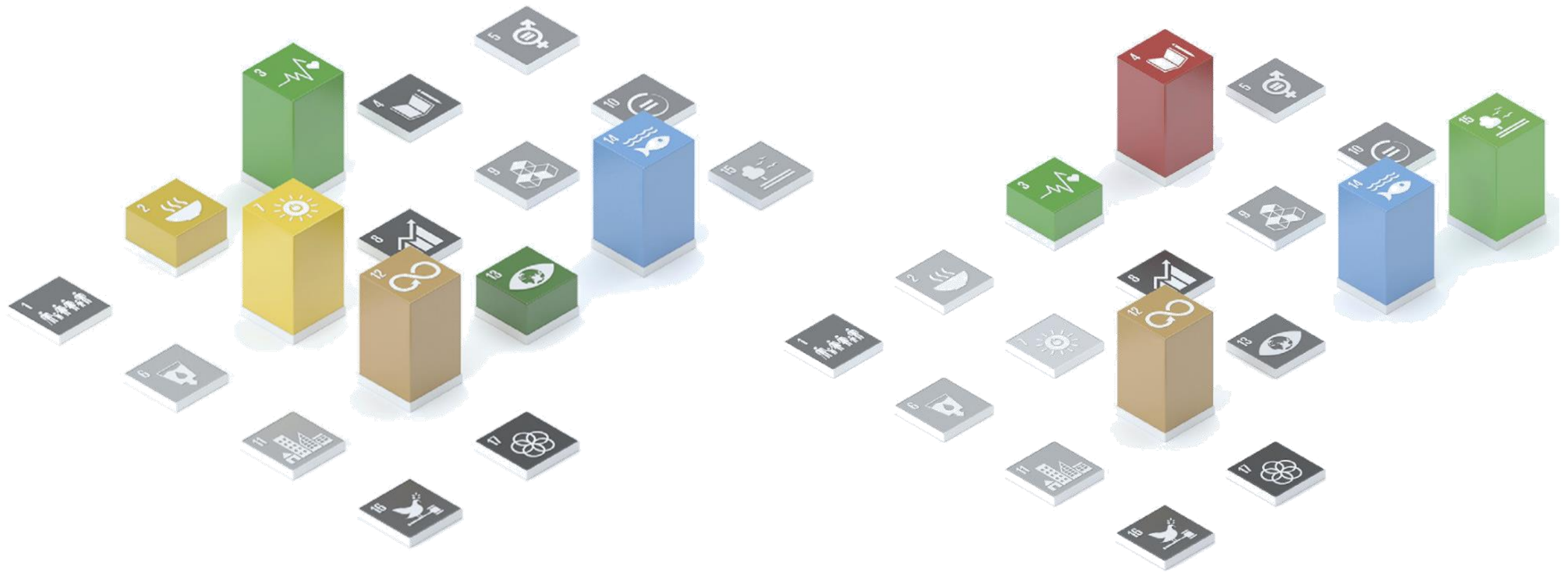


# IMPACT OF OUR RESEARCH ON SOCIETAL RELEVANT THEMES














# AURORA
















# VISUAL EXAMPLE OF IMPACT-STRENGTH OF RESEARCH ON SOCIETAL RELEVANT THEMES



# EXAMPLE: INSTITUTIONAL PROFILE OF THE VU ON 7 SDG'S; RESEARCH QUALITY

 Vrije Universiteit Amsterdam		Institutional SDG profile		2017-10-06		
SDG: Themes		SEP: Research Quality		SEP: Relevance to society		
 SUSTAINABLE DEVELOPMENT GOALS		 Production: thematic skew of publications	 Usage: skew in top 1% most cited	 Production: of publications in OA (2016)	 Usage: of publications in (N)GO Policy	Usage: of most cited in (N)GO Policy
	2 Zero Hunger	179%	480%	44%	17%	56%
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<b>Averages</b>		<b>192%</b>	<b>424%</b>	<b>43%</b>	<b>16%</b>	<b>62%</b>

# EXAMPLE: INSTITUTIONAL PROFILE OF THE VU ON 7 SDG'S; SOCIETAL IMPACT (MORE IN ARBI 2)

 Vrije Universiteit Amsterdam		Institutional SDG profile		2017-10-06		
SDG: Themes		SEP: Research Quality		SEP: Relevance to society		
 SUSTAINABLE DEVELOPMENT GOALS		 Production: thematic skew of publications	 Usage: skew in top 1% most cited	 Production: of publications in OA (2016)	 Usage: of publications in (N)GO Policy	Usage: of most cited in (N)GO Policy
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<b>Averages</b>		<b>192%</b>	<b>424%</b>	<b>43%</b>	<b>16%</b>	<b>62%</b>

# EXAMPLE: INSTITUTIONAL PROFILE OF THE VU ON 7 SDG'S; POLICY IMPACT OF SDG13 (MORE IN ARBI 2)

VU VRIJE UNIVERSITEIT AMSTERDAM		Institutional SDG profile		2017-10-06		
SDG: Themes		SEP: Research Quality		SEP: Relevance to society		
SUSTAINABLE DEVELOPMENT GOALS		Production: thematic skew of publications	Usage: skew in top 1% most cited	Production: of publications in OA (2016)	Usage: of publications in (N)GO Policy	Usage: of most cited in (N)GO Policy
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<b>Averages</b>		<b>193%</b>	<b>424%</b>	<b>42%</b>	<b>16%</b>	<b>62%</b>

Policy sources	Policy papers referring to all VU climate research (n=2006)
Intergovernmental Panel on Climate Change	61
The Publications Office of the European Union	54
Food and Agriculture Organization of the United Nations	41
Australian Policy Online	40
National Academies Press	33
World Bank	28
rijksoverheid.nl	21
overheid.nl	11
World Health Organization	10
National Bureau of Economic Research	8
The Inter-American Development Bank	6
UK Government (GOV.UK)	6
UNESCO	3
Brookings Institute	2
The International Fund for Agricultural Development	2
UK Parliament Briefing notes	2
International Monetary Fund	1
Oxfam GB Policy & Practice	1
The International Institute for Sustainable Development	1
<b>Totaal</b>	<b>331</b>

# EXAMPLE: INSTITUTIONAL PROFILES OF THE AURORA INSTITUTIONS ON 4 SC'S;

# AURORA



## EU Societal Challenges - Research profile of Aurora institutions

last update: 2017-10-10

SC Themes	European Commission	SEP: Research Quality	
		Production: thematic skew of publications	Usage: skew in top 1% most cited
Aurora institution			
Vrije Universiteit Amsterdam		1.7	7.0
Université Grenoble-Alpes		1.0	2.0
University of Aberdeen		2.7	6.8
University of Antwerp		0.1	25.0
University of Bergen		1.1	2.8
University of Duisburg-Essen		0.5	2.9
University of East Anglia		5.5	6.2
University of Gothenburg		1.3	2.0
University of Iceland		2.0	1.7
SC 2 Food security	All AURORA universities	1.7	4.5

Vrije Universiteit Amsterdam		1.1	1.9
Université Grenoble-Alpes		1.7	3.3
University of Aberdeen		1.4	4.1
University of Antwerp		1.4	2.5
University of Bergen		0.8	2.0
University of Duisburg-Essen		0.7	1.1
University of East Anglia		2.0	5.9
University of Gothenburg		0.9	1.9
University of Iceland		2.0	2.4
SC 3 Energy	All AURORA universities	1.2	2.9

## EU Societal Challenges - Research profile of Aurora institutions

last update: 2017-10-10

SC Themes	European Commission	SEP: Research Quality	
		Production: thematic skew of publications	Usage: skew in top 1% most cited
Aurora institution			
Vrije Universiteit Amsterdam		1.4	2.4
Université Grenoble-Alpes		2.2	2.7
University of Aberdeen		1.7	2.3
University of Antwerp		1.5	4.4
University of Bergen		1.3	0.0
University of Duisburg-Essen		2.0	0.5
University of East Anglia		2.1	2.3
University of Gothenburg		1.4	1.1
University of Iceland		1.7	0.0
SC 4 Transport and Mobility	All AURORA universities	1.7	1.8

Vrije Universiteit Amsterdam		2.8	5.2
Université Grenoble-Alpes		2.2	8.5
University of Aberdeen		3.2	5.5
University of Antwerp		2.0	5.6
University of Bergen		3.7	4.0
University of Duisburg-Essen		0.4	2.7
University of East Anglia		8.0	7.5
University of Gothenburg		2.1	4.2
University of Iceland		4.9	2.0
SC 5 Climate Action	All AURORA universities	2.8	5.3

# AURORA VU

End of introduction



# #HOWTO | HOW DID WE MAKE THIS WORK?



... literal translation of a Dutch proverb



## ■ Research Quality (morning session ARBI 1)

- > Bibliometric: Institutional production profiles on Societal relevant themes
- > Bibliometric: Institutional excellence profiles (Top 1%) on Societal relevant themes
- > Suggestions for bibliometric collaboration:
  - > Who want to join for a first collaborative bibliometric analysis for institutional profiles on societal relevant themes (phase1: production and excellence only, o SDG's & SC)
  - > Consensus on keywords for search queries on societal relevant topics
  - > Present results in next AurorA meetup.

Policy

Research

Research Quality



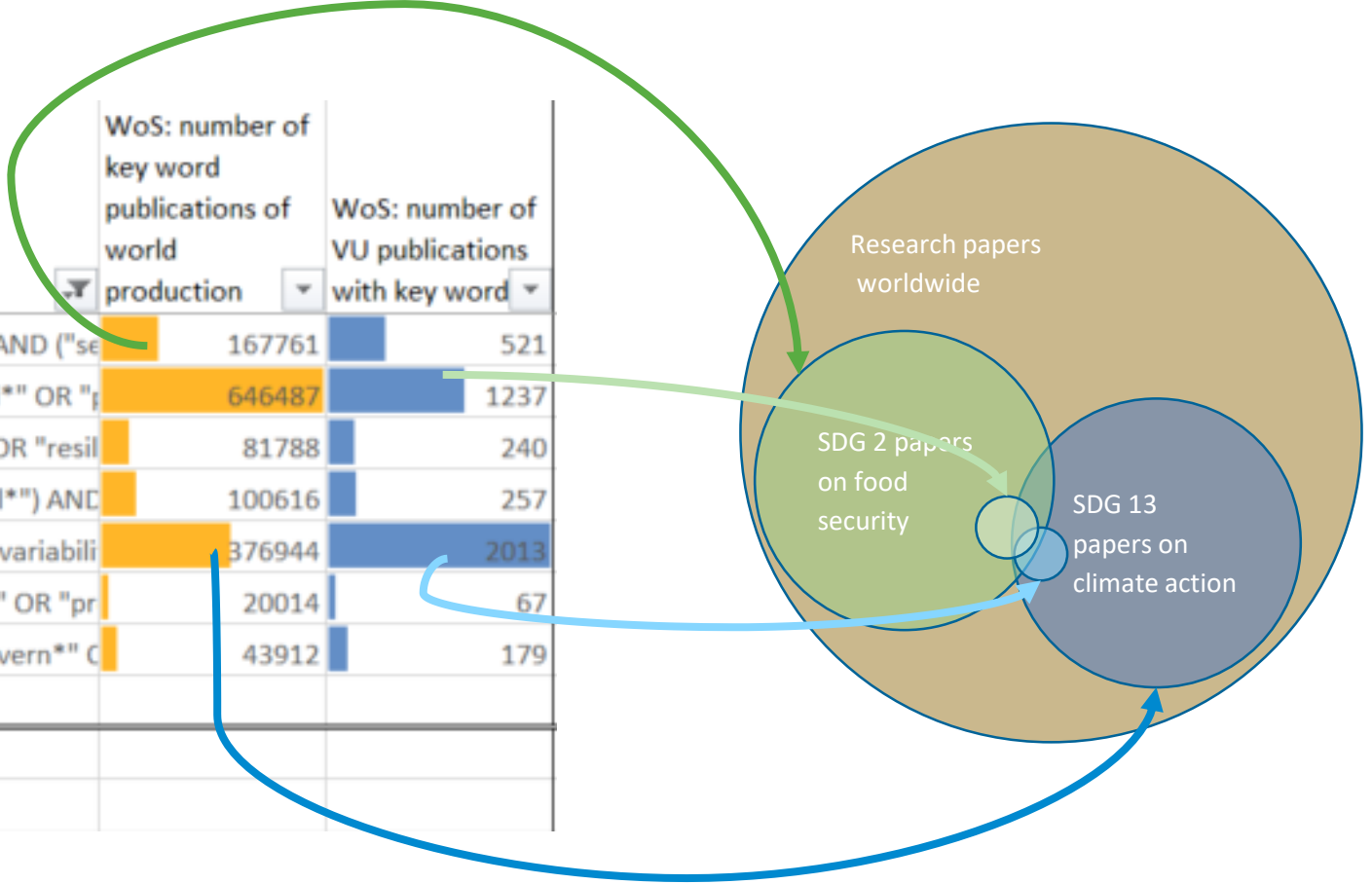
*Research production*



*Research excellence*

# SELECTION OF KEYWORDS PER TOPIC | CLUSTERING AND SEGMENTATION

SDG number	SDG short name	Key words used	WoS: number of key word publications of world production	WoS: number of VU publications with key word
2	Zero Hunger	((("food" OR "nutrition") AND ("se	167761	521
3	Good Health and Well Being	("mortality" AND ("suicid*" OR "g	646487	1237
11	Sustainable cities and communities	((("inclusive" OR "safe*" OR "resil	81788	240
12	Responsible consumption and production	((("sustainab*" OR "recycl*") AND	100616	257
13	Climate Action	climat* and (change* or variabili	376944	2013
15	Life on Land	((("protect*" OR "restor*" OR "pr	20014	67
17	Partnerships for the goals	((("sustainab*") AND ("govern*" C	43912	179
Averages				



# CURRENT ISSUES WITH SELECTING KEYWORDS | SENSITIVITY VS SPECIFICITY | RECALL VS PRECISION | AUTHORITY |

*“Climate Change”*

vs.

*“climat\* and (change\* or variabilit\* or anthropogenic\* or model\* or strategy\* or policy\* or regime\* or scenario\* or carbon\* or “integrated assessment” or environment\* or reforestati\* or deforestati\* or desertificati\* or “greenhouse gas”\* or GHG or ecolog\* or environment\* or biodiversity or “global change” or “water stress”) or climate-driven or “global warming” or “sea level\*” and (change\* or rising)”*

**SUSTAINABLE DEVELOPMENT GOAL 13**  
Take urgent action to combat climate change and its impacts\*

PROGRESS & INFO (2017) | PROGRESS & INFO (2016) | TARGETS & INDICATORS

The global indicator framework was developed by the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs) and agreed to, as a practical starting point at the 47th session of the UN Statistical Commission held in March 2016. The report of the Commission, which included the global indicator framework, was then taken note of by ECOSOC at its 70th session in June 2016. [More information.](#)

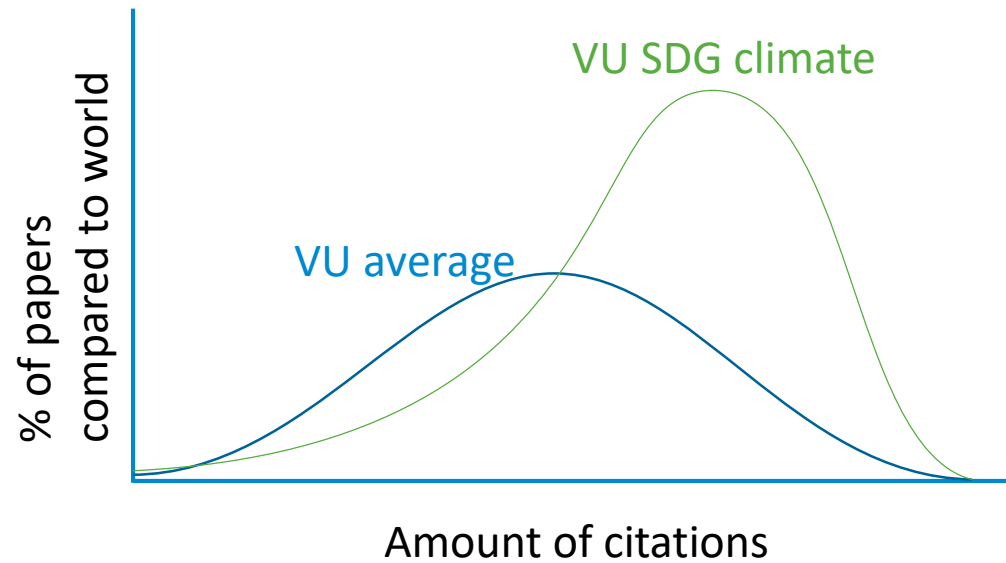
TARGETS	INDICATORS
<b>13.1</b> Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	<b>13.1.1</b> Number of countries with national and local disaster risk reduction strategies <b>13.1.2</b> Number of deaths, missing persons and persons affected by disaster per 100,000 people
<b>13.2</b> Integrate climate change measures into national policies, strategies and planning	<b>13.2.1</b> Number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other)
<b>13.3</b> Improve education, awareness-raising and human and institutional	<b>13.3.1</b> Number of countries that have integrated mitigation.

Besselaar, P. A. A. van den, & Sandstrom, U. (2013). The effects of funding modes on the quality of knowledge production.  
Retrieved from <https://research.vu.nl/en/publications/the-effects-of-funding-modes-on-the-quality-of-knowledge-producti>

# PHASE 1: PRODUCTION & EXCELLENCE PROFILES



Research production



*Thematic skew of amount of papers in SDG topic x*

=

*(factor VU SDG production, compared to VU total production)*

VU SDG climate (0.7%)

=

*(percentage VU SDG production of SDG production worldwide on topic x)*  
*(percentage VU total production of worldwide total production)*

=

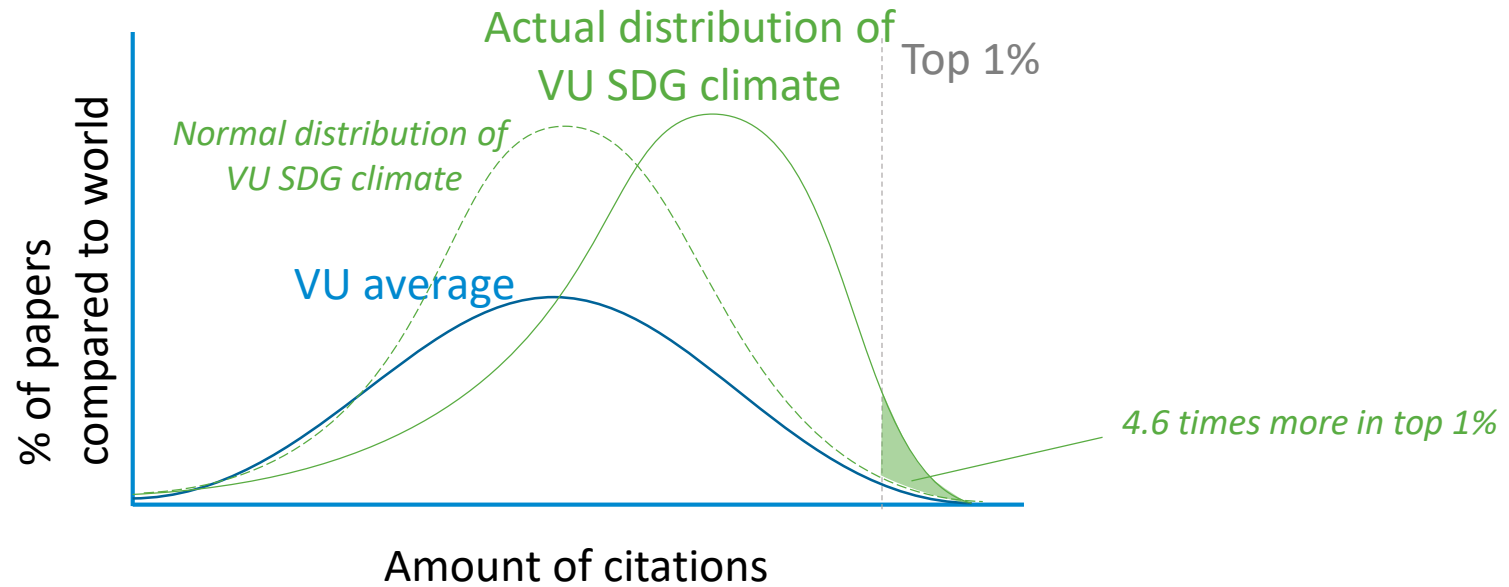
*( $\frac{\text{VU SDG papers published on topic x,}}{\text{SDG papers published worldwide on topic x}}$ )*  
*( $\frac{\text{VU total papers published}}{\text{total papers published worldwide}}$ )*

VU average (0.17%)

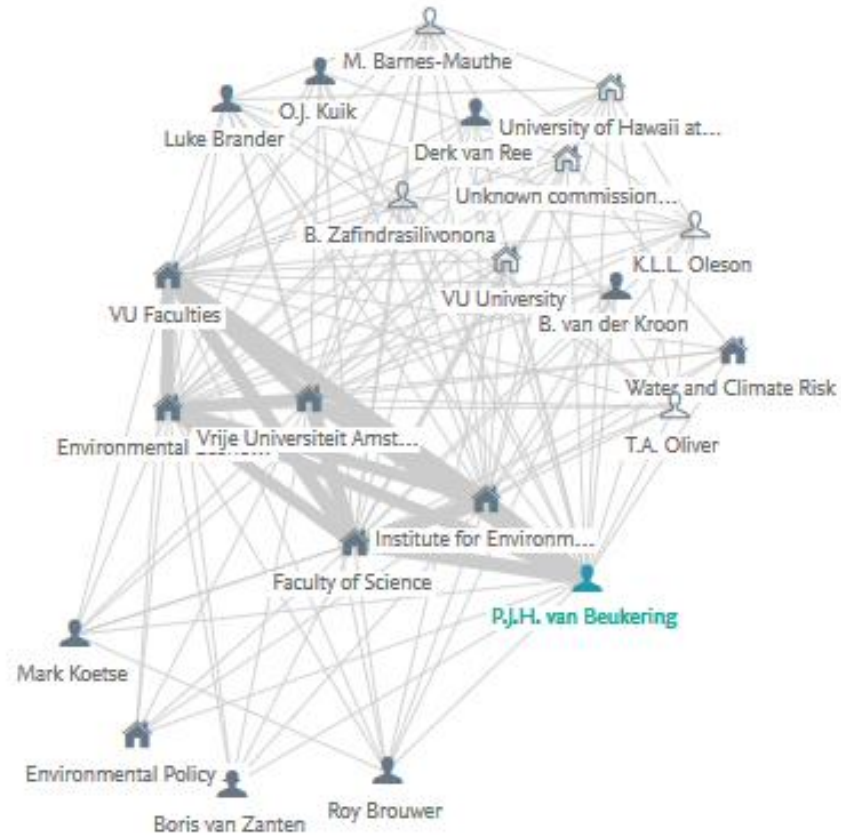
# PHASE 1: PRODUCTION & EXCELLENCE PROFILES



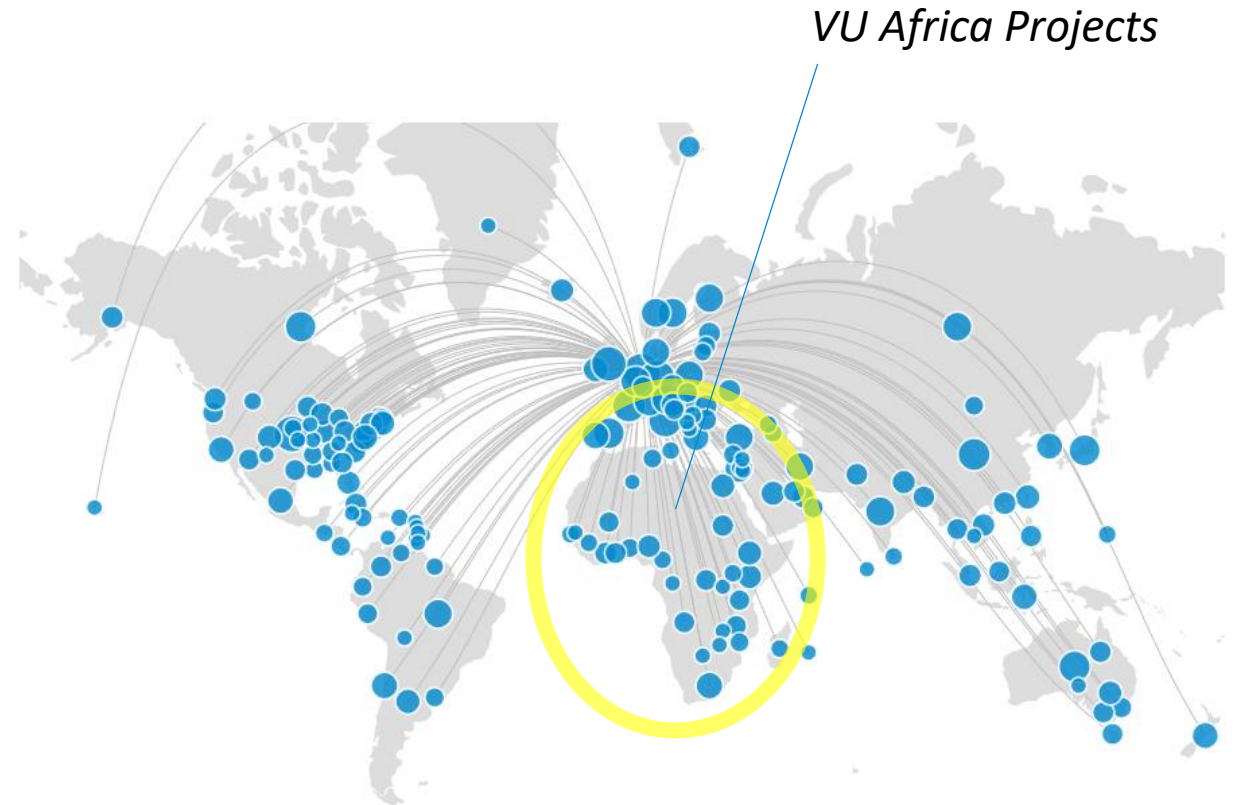
Research excellence



# PHASE 2: FUTURE ANALYSES | AURORA COLLABORATION ON SDG'S AND SC'S



Network Analysis,  
current and potential collaboration  
On SDG's and SC's  
Between and within Aurora universities.



Identify important projects  
On SDG's and SC's  
Between and within Aurora universities.

## SUGGESTIONS FOR BIBLIOMETRIC COLLABORATION IN AURORA

Who wants to join for a first collaborative bibliometric analysis for institutional profiles on societal relevant themes?

1. Develop consensus on keywords for search queries on 24 societal relevant topics (17 SDG's & 7 SC's)
2. Work on institutional profiles (production and excellence) of these societal relevant topics
3. Present results in next AurorA SIRR meetup.

End of explanation 1





# #HOWTO | MEASURING SOCIETAL IMPACT – FOR SOCIETAL RELEVANT TOPICS

Societal Impact



*Societal use*



*Societal availability  
(Open Access)*

Policy

Research

- **Societal Impact (noon session ARBI 2)**

- > Societal relevant themes
- > Open Science for an Open Society (ARBI 3)
- > Alternative metrics: known & unknown influence on policy on national and international level
- > Show case catalogue: ACASI > Gross Academic Value (BAW) and PURE

## WHY OPEN ? | OPEN SCIENCE FOR AN OPEN SOCIETY



*“Everyone has the right (...) to share in scientific advancement and its benefits.”*

(Article 27, [Universal Declaration of Human Rights](#))

# OPEN SCIENCE: OPEN ACCESS TO PUBLICATIONS (DISCUSSED IN SESSION ARBI 3 – SKIP IN 2)



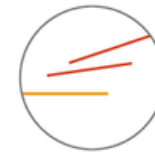
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## Initiatives

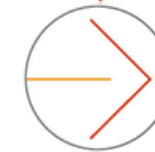
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Have  
Impact



Take  
Action



Create your  
Roadmap



Redirect  
your money



Collaborate  
Advocate

## Tools:

## Issues in Benchmarking Open Access Publications

- > Defining Open Access
- > Only scientific papers? Or also Popular articles?
- > Peer reviewed articles only?
- > Only account for papers in an Open Access journal? (Gold)
- > Also count the papers in a repository? (Green) Your local repository, or appearance elsewhere?
- > What about articles made open, in traditionally closed journals? (Hybrid)

# KNOW AND UNKNOWN INFLUENCE ON NATIONAL AND INTERNATIONAL POLICY



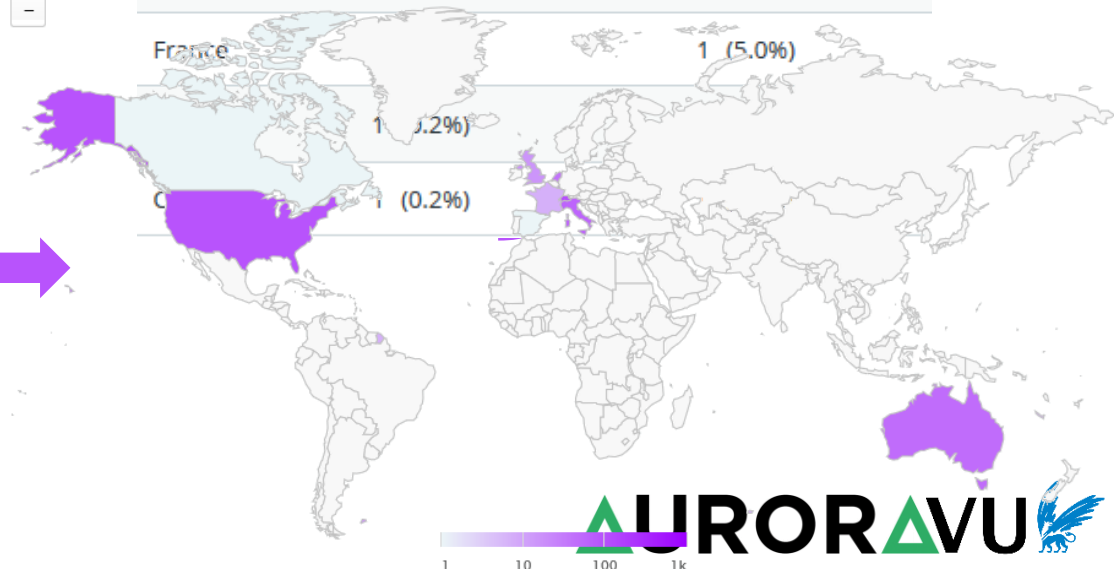
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COUNTRY	TOTAL POLICY DOCS	UNIQUE SOURCES
---------	-------------------	----------------

Switzerland	112 (25.5%)	2 (10.0%)
United States	95 (21.6%)	1 (5.0%)
Luxembourg	63 (14.4%)	1 (5.0%)
Italy	59 (13.4%)	2 (10.0%)
Australia	47 (10.7%)	
Netherlands	39 (8.9%)	
United Kingdom	15 (3.4%)	3 (15.0%)

unknown policy influence

Known policy influence



# EXAMPLE OF EVIDENCE ON POLICY INFLUENCE OF A VU CLIMATE CHANGE PAPER ON POLICY

## Have Disaster Losses Increased Due to Anthropogenic Climate Change?

Overview of attention for [article published in ADS, January 2011](#)



? About this Attention Score

In the top 5% of all research outputs scored by Altmetric

SUMMARY

News

Blogs

Policy documents

Twitter

? So far, Altmetric has seen 4 policy documents that reference this research output.



### Drought risk management: a strategic approach

Cited by UNESCO on 01 Jan 2016

The United Nations Organization for Education, Science and Culture (UNESCO) is a specialized agency of the United Nations which encourages international peace and universal respect for human rights by promoting collaboration among nations.



### An Exploration of the Link between Development, Economic Growth, and Natural Risk

Cited by World Bank on 03 Oct 2012

The World Bank is a United Nations international financial institution that provides loans to developing countries for capital programs. The World Bank is a component of the World Bank Group, and a member of the United Nations Development Group. The World Bank's mission is to end extreme poverty within a generation and boost shared prosperity.



### Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation

Cited by Intergovernmental Panel on Climate Change on 06 Apr 2012

The Intergovernmental Panel on Climate Change (IPCC) is the leading international body for the assessment of climate change. It reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide relevant to the understanding of climate change.

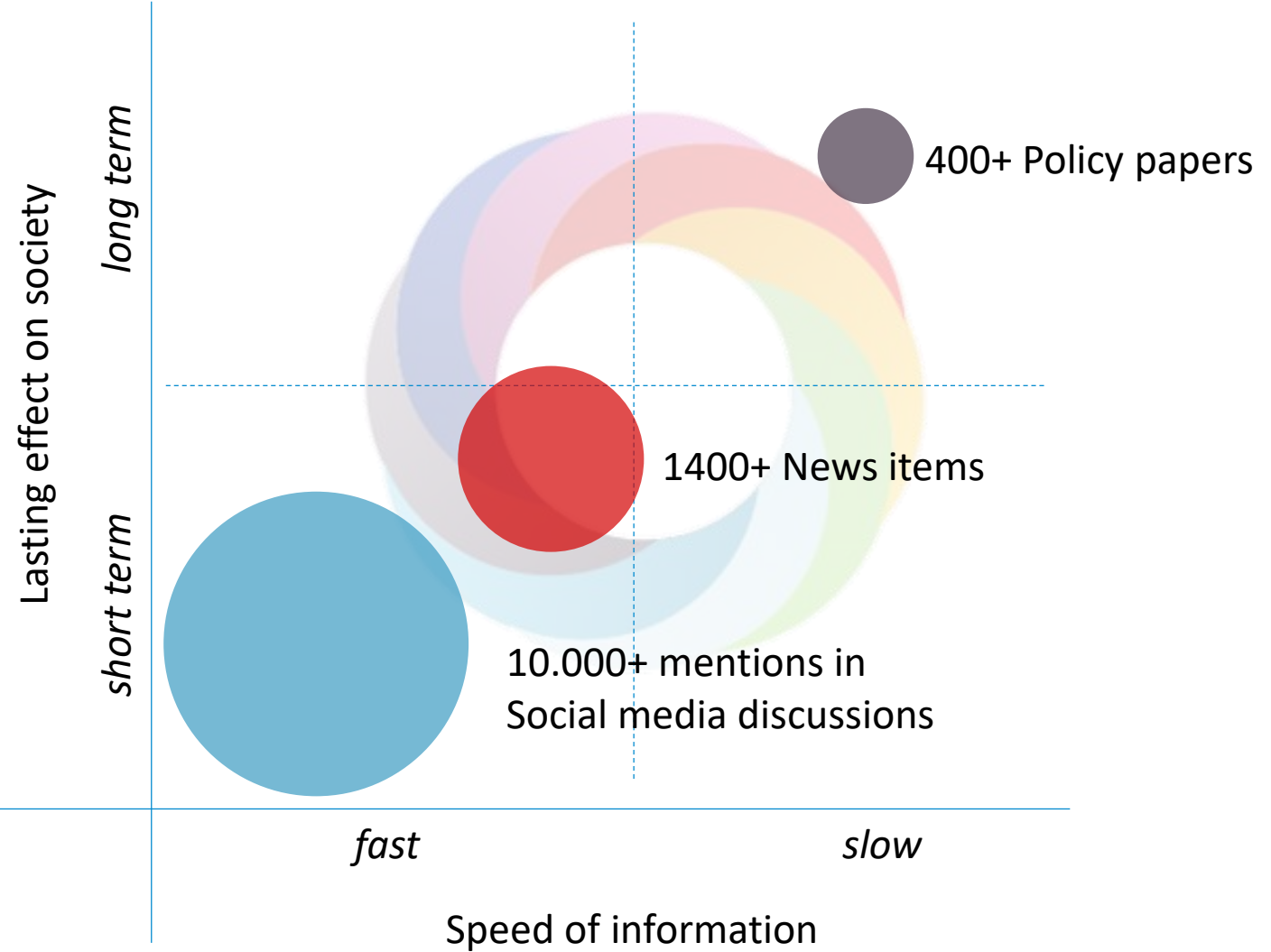
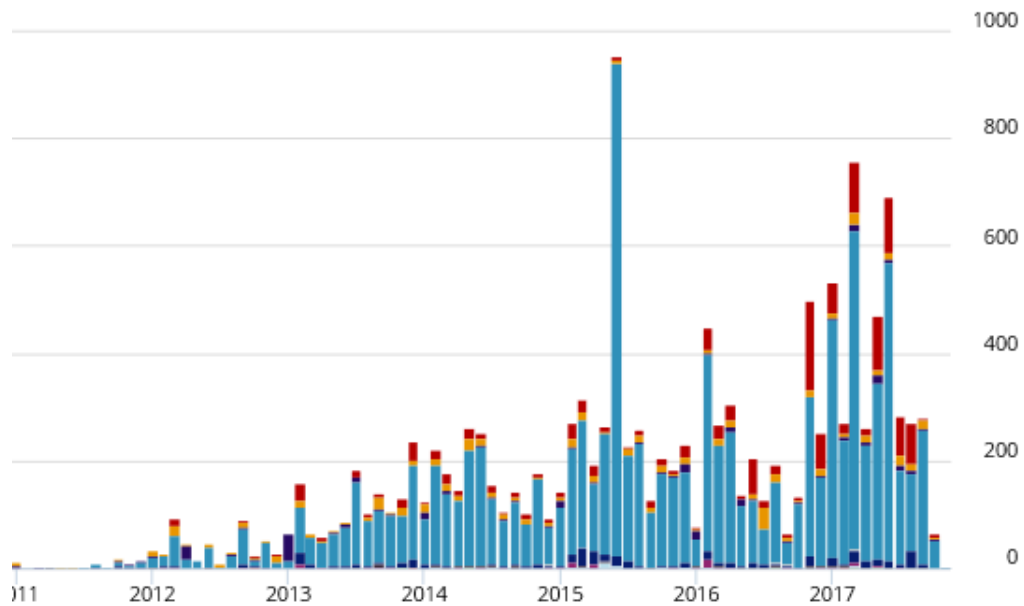
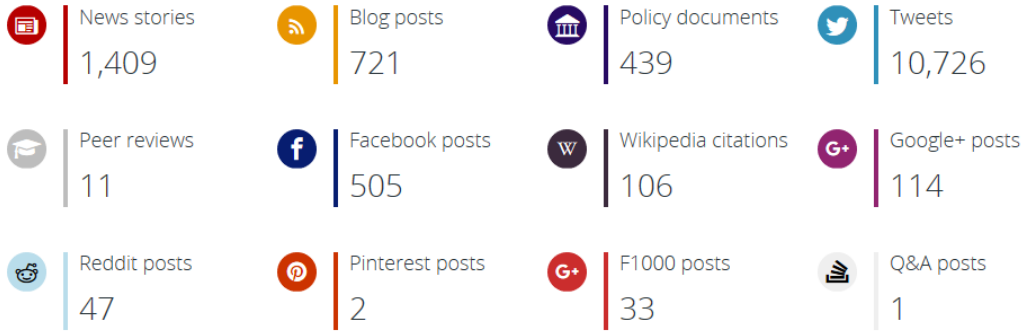


### The United Nations world water development report 4: managing water under uncertainty and risk, executive summary

Cited by UNESCO on 01 Jan 2012

The United Nations Organization for Education, Science and Culture (UNESCO) is a specialized agency of the United Nations which encourages international peace and universal respect for human rights by promoting collaboration among nations.

# SOCIETAL ATTENTION ON RESEARCH PAPERS: VU RESEARCH PAPERS ON CLIMATE CHANGE



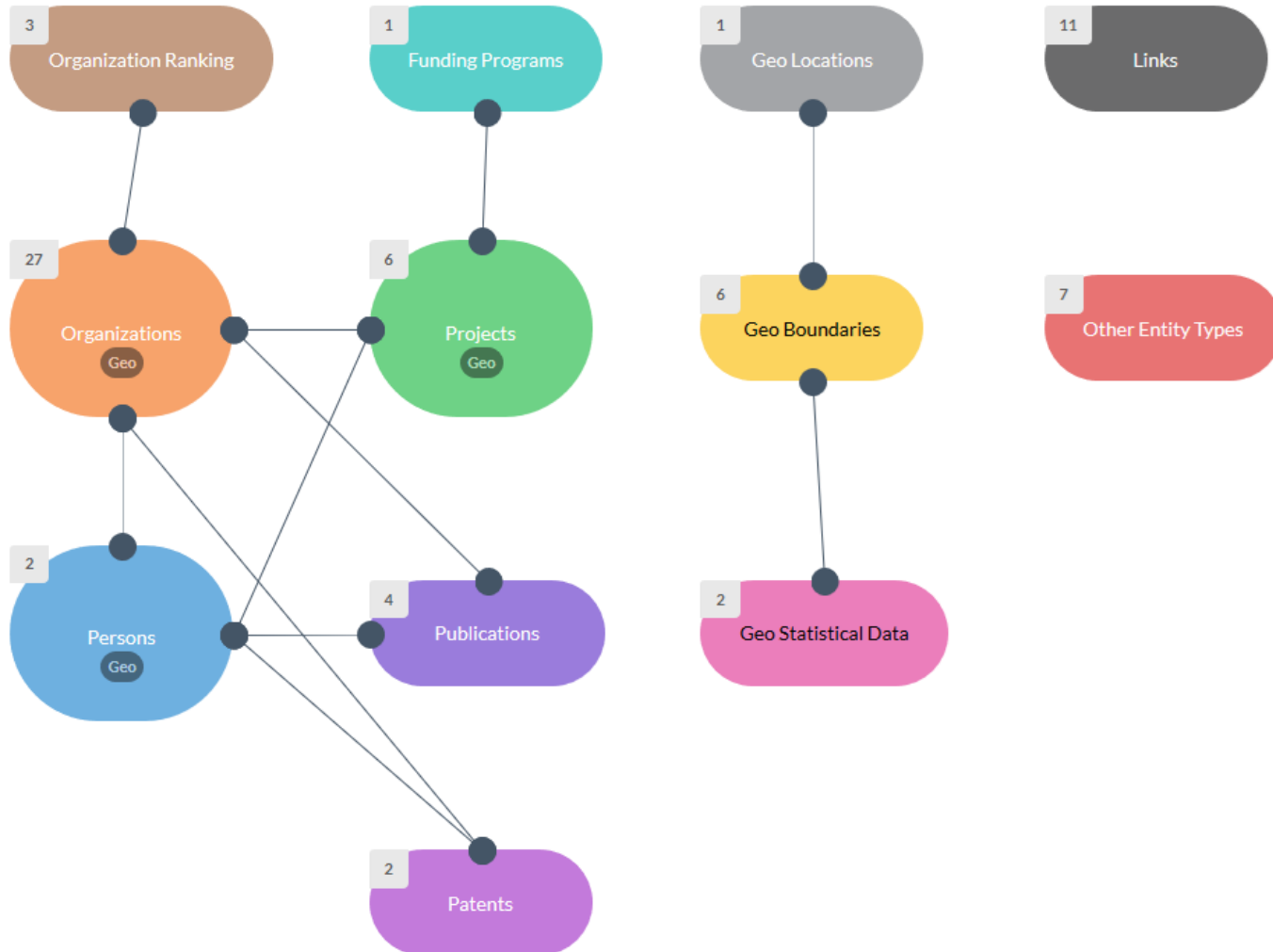
# SOCIETAL IMPACT OF RESEARCH ELEMENTS AS LINKED DATA



SMS Platform

Metadata Editor

Datasets



# RISIS

Research infrastructure for research and innovation policy studies

<https://risis.eu/>

# GROSS ACADEMIC VALUE AT VU | USING PURE IN MAKING ACADEMIC VALUE VISIBLE

Simplified example of GAV template; under discussion by VU researchers and HRM

## ACASI

AurorA Catalogue of Societal Impact

Level: Institute | Faculty | Department | Individual

Narrative: Motivation | Past | Future

Shaping academic character

Contribute to a better world

Immersing in society

Embracing diversity

Based on evidence:

Activities

Output

Impact

Pursuit of knowledge

Transfer of knowledge

Address complex (societal) problems

Enhance societal understanding of complex problems

Communal service in academia

Projects

Events

Conference Projects

Workshop

Seminar

Expert Meeting

- Activities
  - Lecture / Presentation
  - Editorial activity
  - Membership
  - Conference
  - Expert meeting
  - PhD thesis examination
  - Visiting an external aca
  - Peer-review
  - Workshop

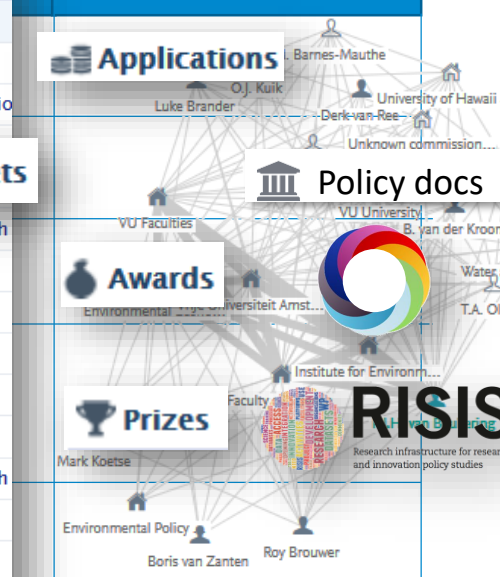
- Research output
  - Article
  - Chapter
  - Conference contribution
  - Repo
  - Book
  - PhD Thesis - Research
  - Book
  - Case note
  - Book editing
  - Working paper
  - Poster
  - PhD Thesis - Research
  - Abstract
  - Meeting Abstract
  - Web publication/site
  - Research external, gra
  - Paper

Applications

Policy docs

Awards

Prizes

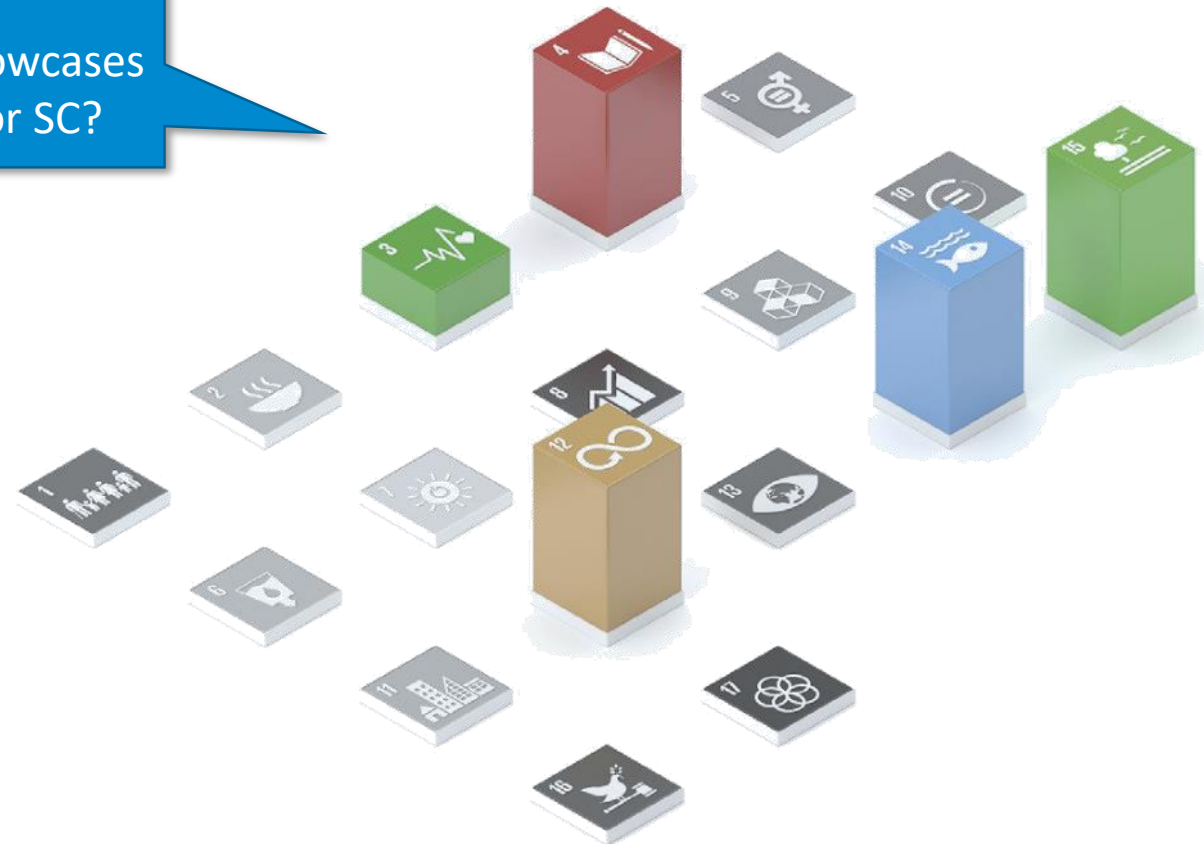




# AURORA CATALOGUE OF SOCIETAL IMPACT – SHOW CASES ON SOCIETAL RELEVANT THEMES

## ACASI

Differentiate showcases  
on each SDG or SC?



## QUESTIONS FOR SOCIETAL IMPACT COLLABORATION IN AURORA

1. Is the Gross Academic Value template a useful framework to use in the aurora catalogue of societal impact (ACASI)?
2. Is it an idea to differentiate the show cases on the SDG and SC topics?
3. Aurora institutions who use a RIS (eg. PURE), is it an idea to share the other elements (projects, activities, awards, etc.) that relate to a SDG/SC?
4. Present results in next AurorA SIRR meetup?

End of explanation 2