

Mobilizing the power of transformative research for addressing the Sustainable Development Goals

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Johan Schot

Professor of Global History and
Sustainability Transitions, Utrecht University Centre for Global
Challenges

Sustainable Development Goals

- The 17 Sustainable Development Goals (SDGs) set out in the United Nations 2030 Agenda create a space to stimulate thinking and action about long-term changes/transformations in our economy and society.
- This new transformative agenda invites deeper reflections about the choices and directions for knowledge production – need for interdisciplinary & transdisciplinary research.

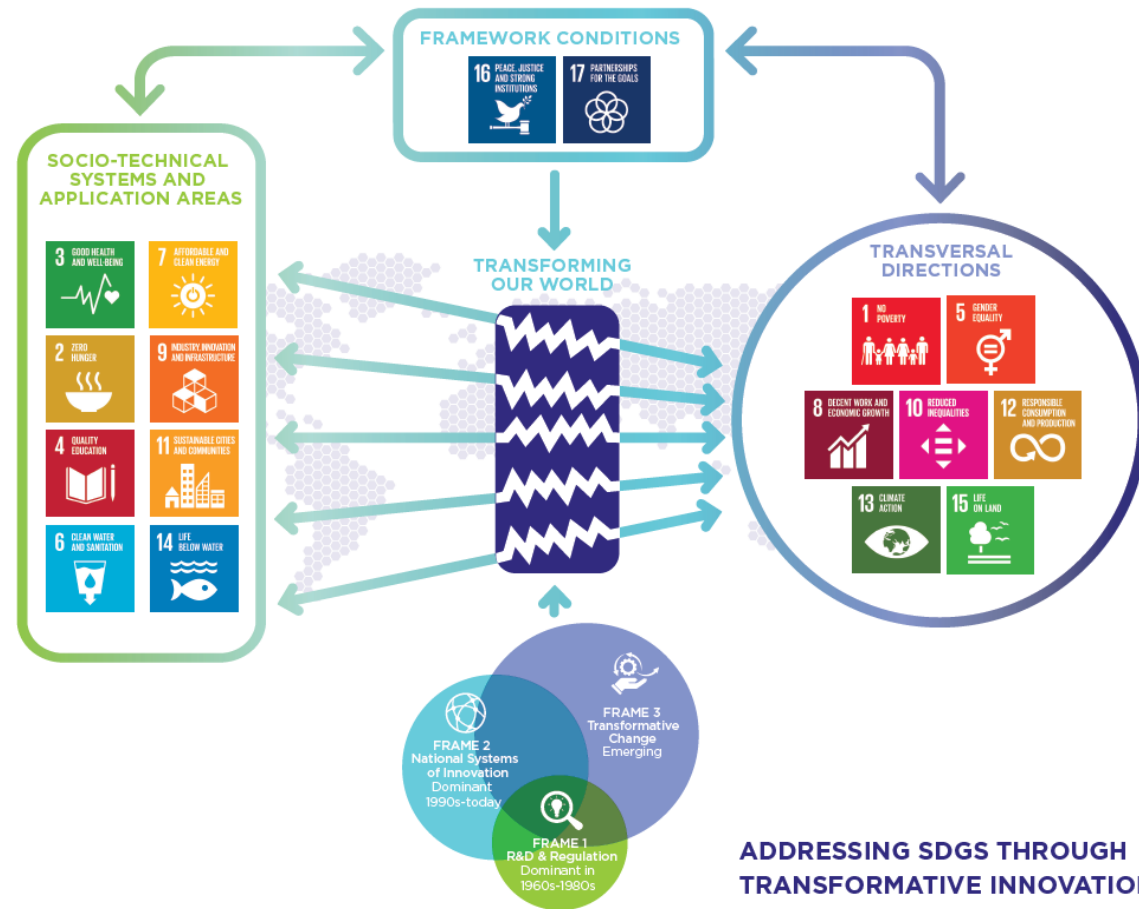




**SUSTAINABLE
DEVELOPMENT** **GOALS**

17 GOALS TO TRANSFORM OUR WORLD

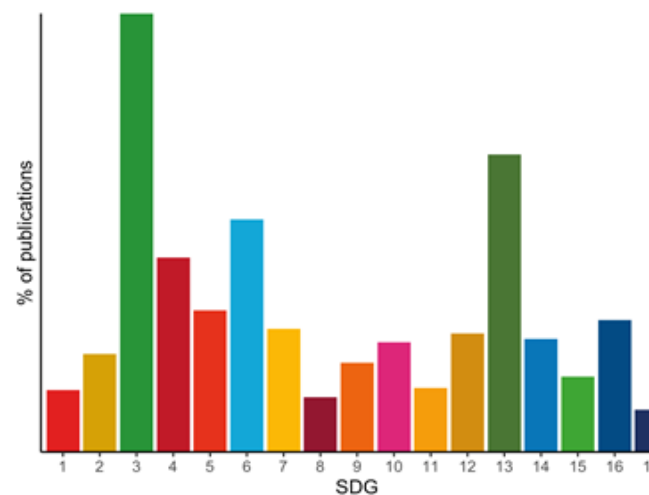
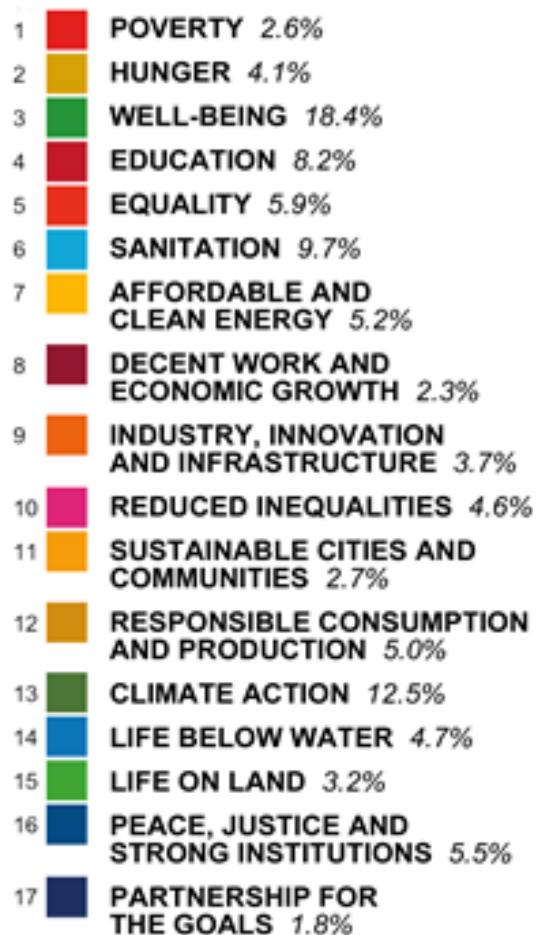
A transformation lens on SDGs Implementation



ADDRESSING SDGS THROUGH TRANSFORMATIVE INNOVATION POLICY

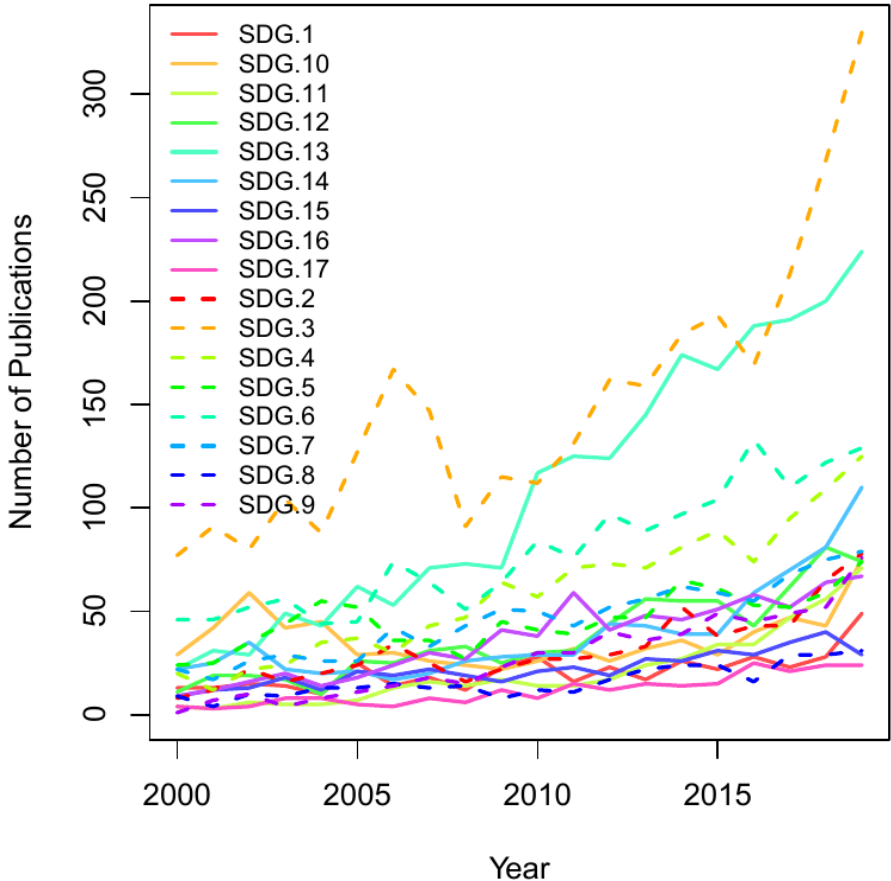
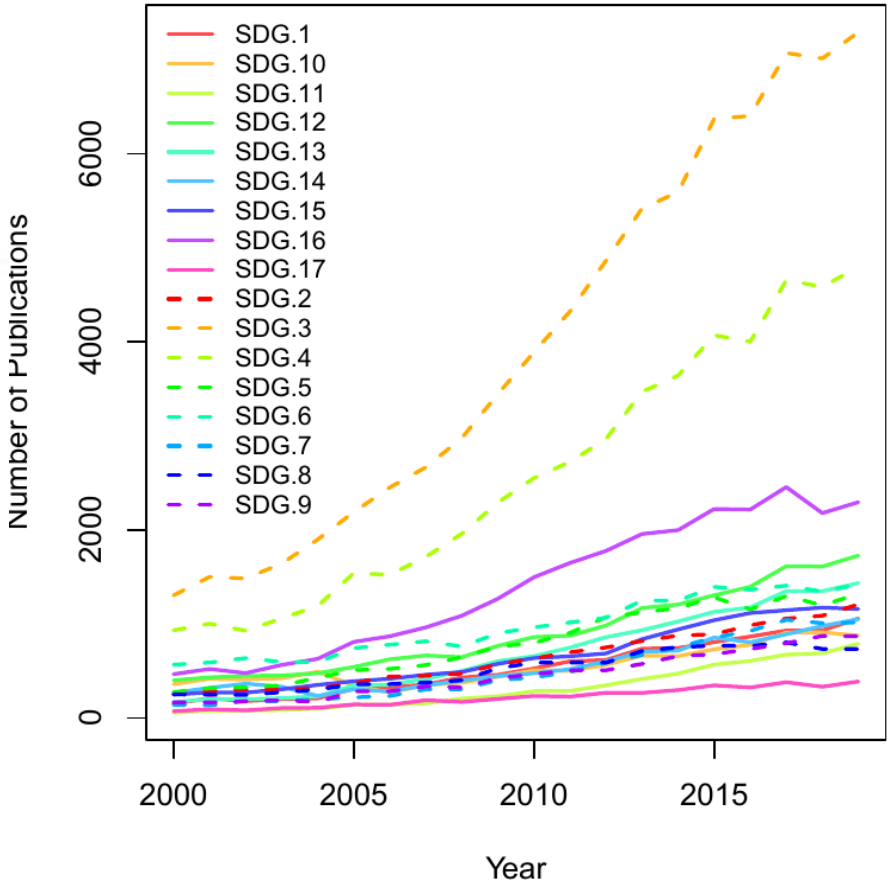
Schot, Boni, Ramirez, Steward 2018

Utrecht University SDG project results: Single SDGs overview (level 1)



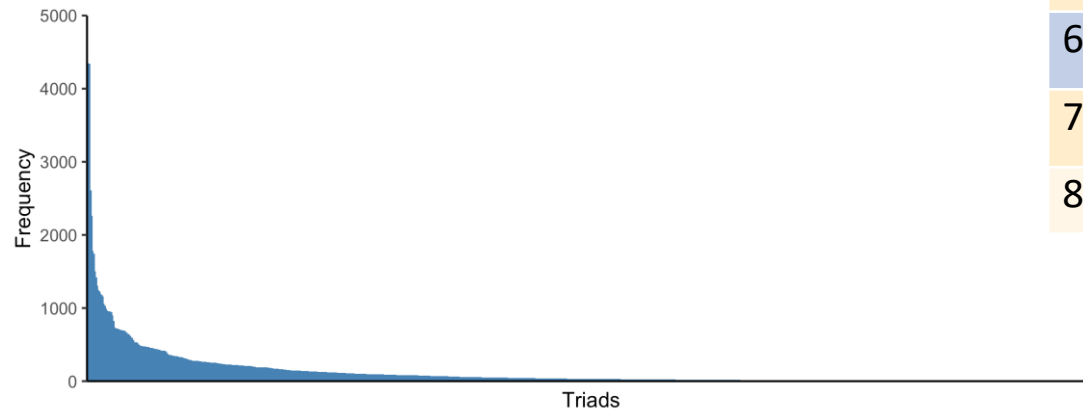
Utrecht University SDG project results: Temporal analysis

- 1 POVERTY
- 2 HUNGER
- 3 WELL-BEING
- 4 EDUCATION
- 5 EQUALITY
- 6 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 PARTNERSHIP FOR THE GOALS



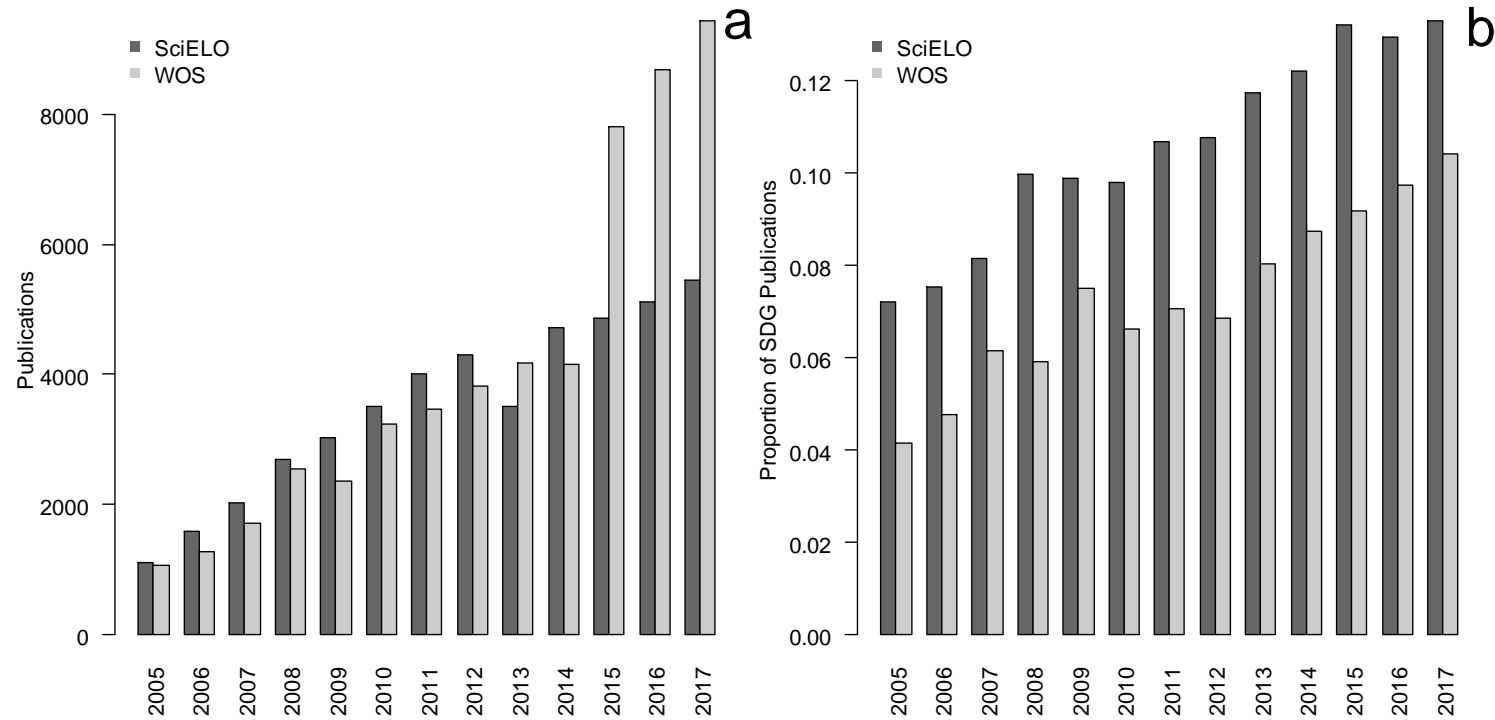
Relational dynamics of SDGs; transformational diversity

- Total number of SDG triadic combinations in the network: 682 of 926 possible triads.
- Total number of triads in network: 45 824
- The most frequent FC-ST-TD triad combination is: 13-17-6 (frequency = 87 (0.19%))



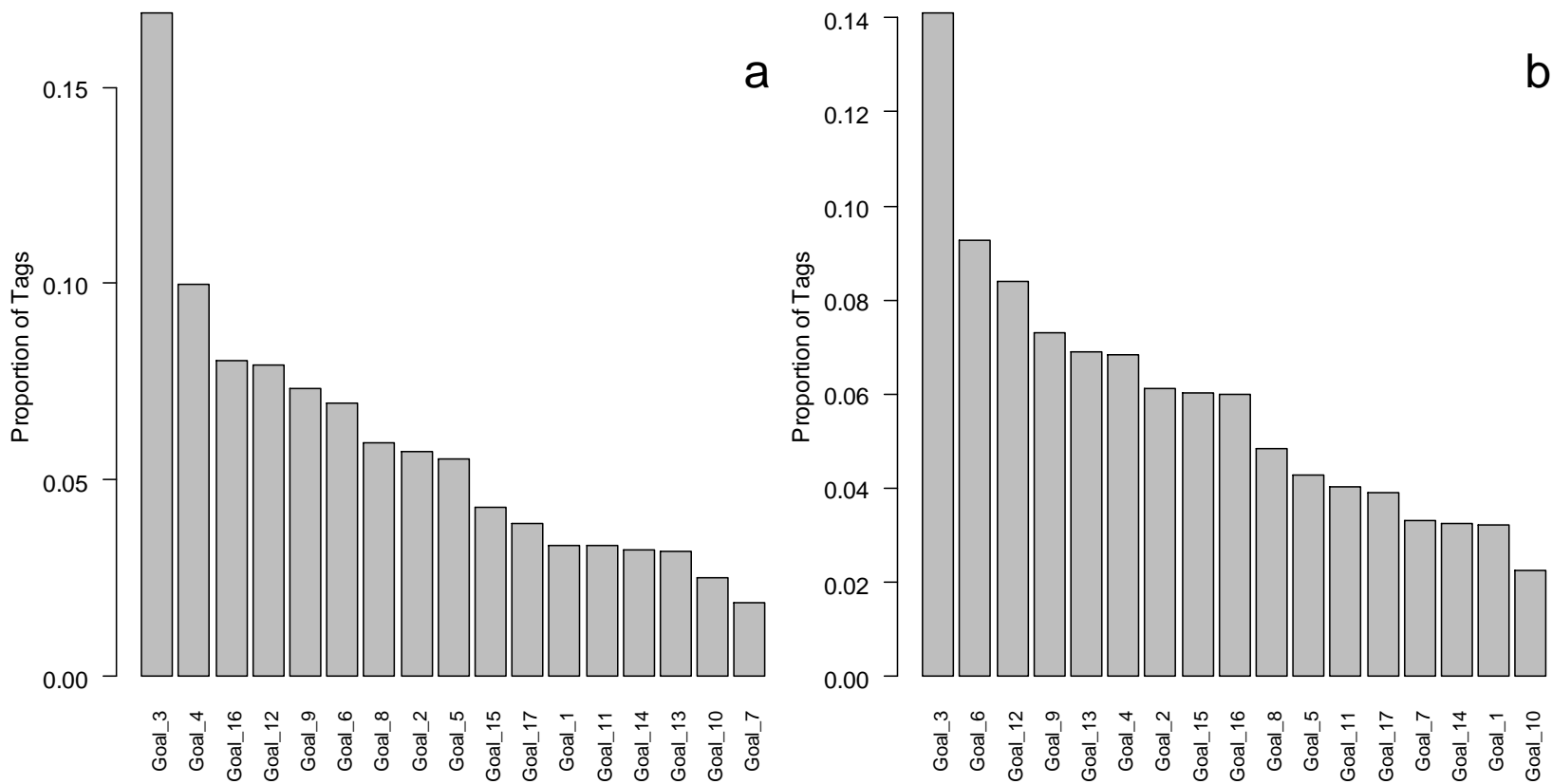
	Triad	Category	Frequency	Share
1	13-13-13	TD-TD-TD	4578	10.0%
2	13-6-6	ST-ST-TD	3417	7.5%
3	13-13-6	ST-TD-TD	3214	7.0%
4	3-3-3	ST-ST-ST	2012	4.4%
5	6-6-6	ST-ST-ST	1987	4.3%
6	13-13-14	ST-TD-TD	1793	3.9%
7	7-7-7	ST-ST-ST	1050	2.3%
8	11-3-3	ST-ST-ST	987	2.1%

Proportion of SDG publications



a) Publications developed by researchers with a Colombian affiliation. b) Proportion of publications in Colombia that are strongly associated to SDGs.

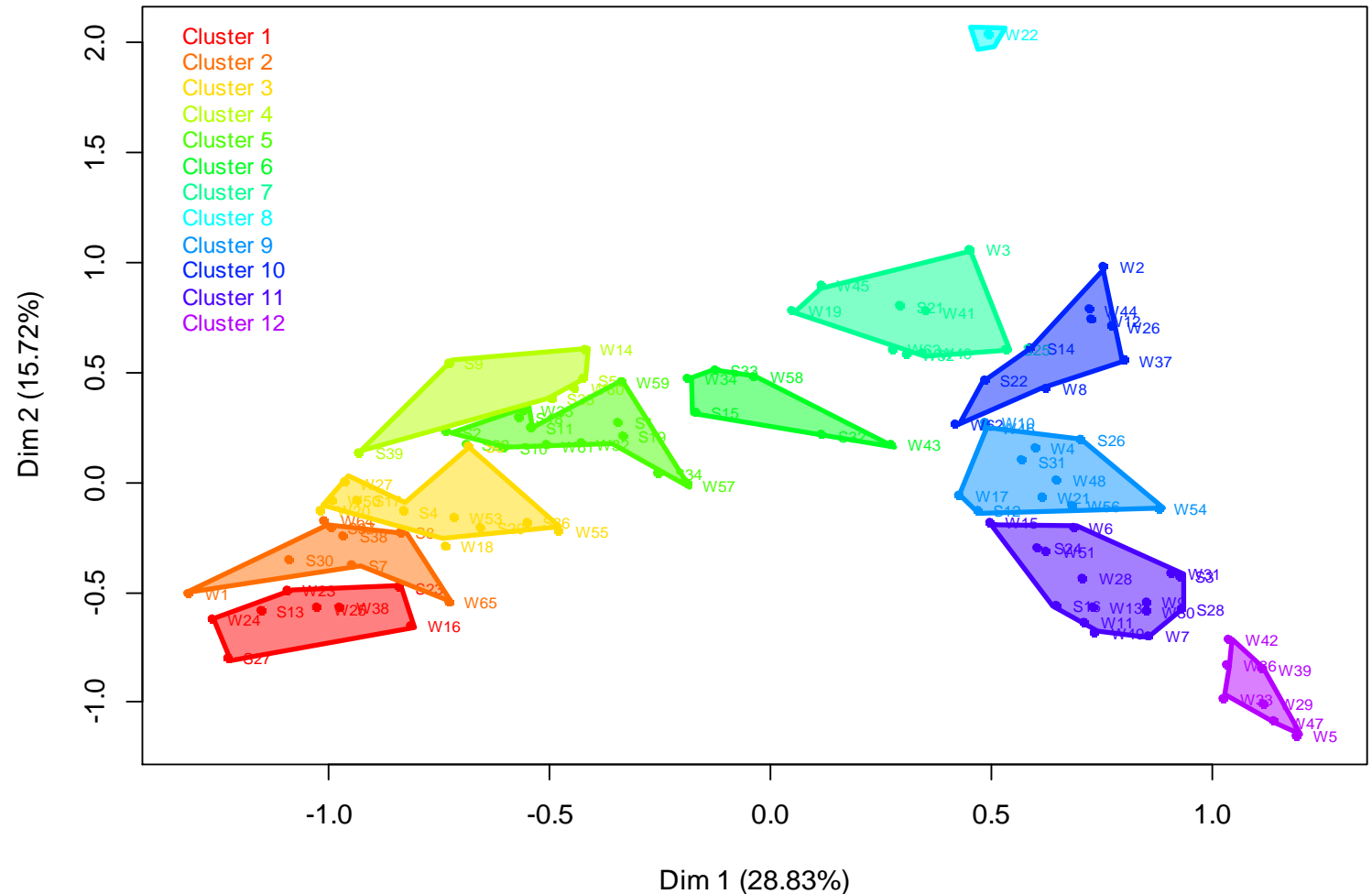
The most frequent SDGs researched in Colombia.



Proportion of SDG tags found in the bibliometric sources published between 2005 and 2017. Each proportion corresponds to the number of tags of one SDG with respect to the total number of tags. a) SDGs tagged in SciELO. b) SDGs tagged in WOS.

Characterization of Clusters identified

Cluster	Name	Research Communities	Research areas
1	Medicine 1 (n=684)	8	Transmissible (e.g. Dengue) and non-transmissible (e.g. cancer) diseases
2	Medicine 2 (n=775)	8	General diseases Health Policy
3	Public Health (n=795)	11	Mental health Health equity & promotion Quality of life
4	Education (n=1284)	6	Education for poverty, inequalities, and peace
5	Governance & Peace (n=2206)	13	Human rights on education, equity and, economy.
6	Systems Management (n=1041)	6	Governance of education, innovation and the environment
7	Pollution & Mitigation (n=628)	9	Economics and politics on clean and drinking water
8	Solar Energy (n=30)	1	Technologies for solar energy development
9	Water Cycle (n=569)	11	Socio-economics and socio-ecology of water usage
10	Water Treatment (n=594)	9	Technologies for water cleaning and sanitation
11	Ecological processes (n=870)	15	Effects of natural and human-driven variability on ecosystems and food security
12	Threat to Biodiversity (n=216)	7	Natural dynamics, Climate change, deforestation, and fire



Transformative innovation initiatives in Colombia

1. Biodiversity management in Colombia –work of Alexander von Humboldt Biological Resources Research Institute as part of National Policy for the Integral Management of Biodiversity and its Ecosystem services
2. Protection of Wetlands of Bogota, with role for scientific institutions (generating evidence about pollution and public health effects) and social movements working together, contributing to development of an adequate regulatory framework
3. Ban of single-use plastics in Iza, shows the local municipality together with the Dessert's Vendors Association search for local alternatives, they tested them and shared them with the community in a process aimed at eliminating plastics packaging
4. Emergence of speciality coffee, coffee farmers reorganising an important part of the productive sector and pay more attention to ecological and social conditions; they mobilize government support and funds, and scientific help.

Lessons from Transformative innovation initiatives in Colombia for STI policy

1. Transformative change is happening, the role of policy can be to help making ongoing change more transformative
2. These initiatives represent experiments with alternative practices, they have to transform dominant practices, we call them transformative niches
3. These initiatives are often not counted in the R&D statistics, while innovative knowledge is produced and developed
4. Universities are and should be involved in these initiatives, helping them to become more transformative

Proposal for a National and Regional Science, Technology and Innovation Program of Experimentation in Colombia

- Focus on four areas:
 1. Transforming Health systems, linking it to food, education, inequality, and poverty reduction
 2. Transforming Education system, linking it to poverty and inequality, and to peace
 3. Transforming Agriculture and Food production systems, linking it to climate change, peace, forest conservation, in equality and poverty reduction
 4. Transforming Water system, linking it to responsible production and consumption, conservation and preserving biodiversity
 - Supporting national and regional program of experimentation building transformative niches and engaging with wide range of actors, including civil society, firms, governments.
- Focus not only on building niches, but also connecting, and upscaling, this is role for new STI Ministry, but can also be taken up by universities themselves as is done in Colombia: [See Latin American Hub - TIPC \(tipconsortium.net\)](http://tipconsortium.net)

Looking forward to the discussion!

www.tipconsortium.org

@TIPConsortium

www.johanschot.com

@Johan_Schot



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