Universities, societal impact & sustainable development

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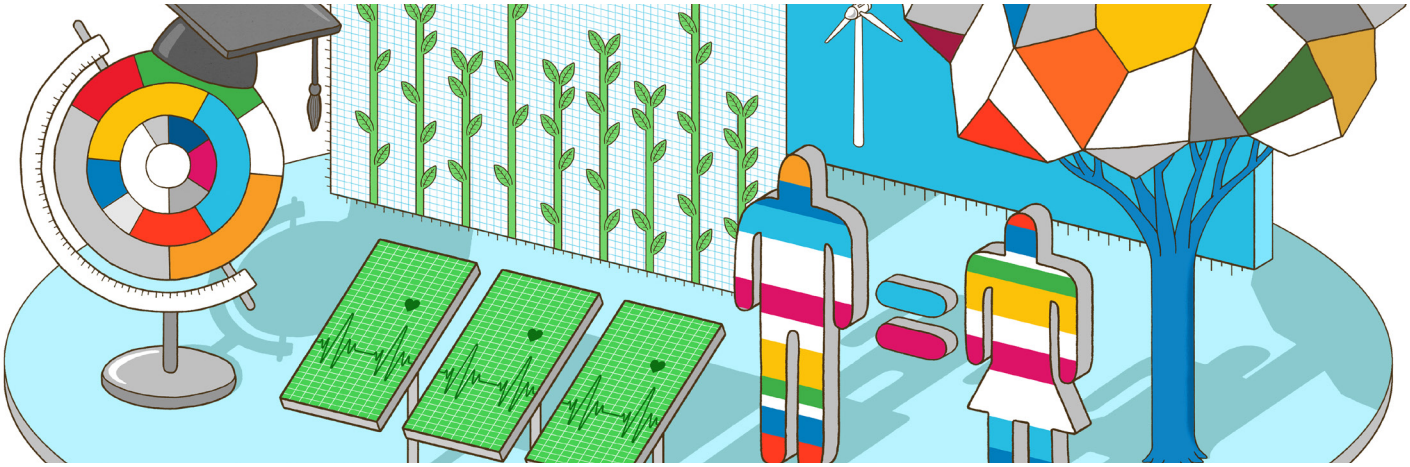
Web version: https://www.elsevier.com/research-intelligence/societal-impact-and-sdg-guide



What is societal impact?

"If I have seen further than others, it is by standing upon the shoulders of giants."
- Isaac Newton

In 1961, two researchers published articles:

- An unstable intermediate carrying information from genes to ribosomes for protein synthesis
- Unstable ribonucleic acid revealed by pulse labelling of Escherichia coli

about the discovery of messenger RNA (mRNA). While it took almost 60 years and many, many additional discoveries, those early breakthroughs drove the 2020 development of two SARS-CoV-2 vaccines – one from Moderna and the other from a partnership between Pfizer and BioNTech.

The researchers are standing on shoulders, building on a breakthrough finding with further discoveries until we can vaccinate the global population from succumbing to Covid-19. That is a lot of societal impact.

Increasingly, governments, funders, the community and more, are demanding to understand the value of university research. They want to know that the significant investment into research is going to help people.

Monk et al. (2017) articulated this sentiment well in the article, *Five Ways Universities are Organising Themselves to Increase Societal Impact*:

"For many, universities and higher educational institutions continue to be viewed as elitist and isolated institutions, with little connection to the society, communities and organisations around them. Indeed, universities are large, bureaucratic organisations, and many still operate in this stereotyped 'traditional' way. However, at a time when the challenges facing society are increasing in scale and complexity, traditional institutions, from banks to the public service to NGOs, have begun reviewing their roles, in an effort to be more collaborative. Universities are no different. (p. 1)"

From the Covid-19 vaccine example, it is evident that there needs to be a balance between what is known as "blue sky" research and applied and translational research. That is, we must strike a balance between fundamental discoveries – such as the existence of mRNA – and applied research – figuring out how to create a vaccine that will work.

Webinar: Government-University-Industry Research Roundtable

Learn more from the National Academies of Sciences, Engineering, and Medicine

Watch the replay.

In "Bye, bye blue sky: Part 1: A conversation with Lee Cronin," an episode of the Research 2030 podcast, Dr. Lesley Thompson, Vice President at Elsevier and former Programme Director at the Engineering and Physical Sciences Research Council (EPSRC), the largest of the seven UK research councils, asked Dr. Lee Cronin, Regius Chair of Chemistry, University of Glasgow:

"If you are running this very adventurous, speculative, serendipitous research lab, can you describe the relationship between that endeavor and the work that you do that leads to applied science?"

Listen to Dr. Cronin tell us about creating the "Chemputer" which he is using to produce new drugs and research the origin of life – blue sky and applied all in one.

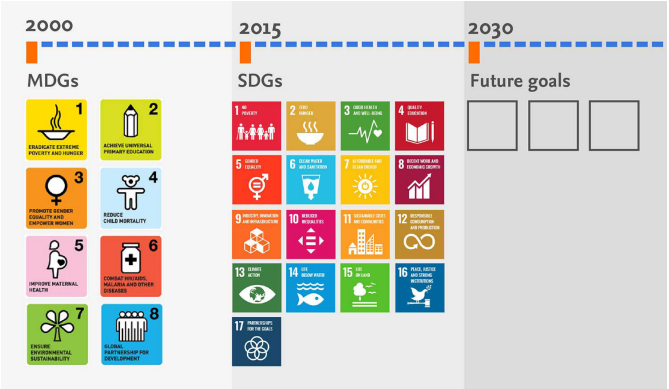
One of the driving forces behind doing research that leads to new drugs, new medical devices, new engineering feats, or more is when universities collaborate with industry partners. To learn more about this type of collaboration, you can read our University-industry collaboration guide.

Societal impact is a big topic that is spoken about and thought about in many different ways. For example,

- The United Nations Sustainable Development Goals (SDGs)
- University Grand Challenges
- "Moonshots"
- Times Higher Education (THE) Impact Rankings
- We will explore some of these topics.

What are the United Nations Sustainable Development Goals (SDGs)?

These are a new set of goals to finish work started in 2000 with the Millennium Development Goals (MDGs). The17 new goals are called Sustainable Development Goals or SDGs.



According to the United Nations:

"The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests."

Higher education did not play a significant role with the initial 2000 – 2015 Millennium Development Goals. However, that changed with the 2015 – 2030 Sustainable Development Goals. Now, universities everywhere are interested in achieving these ambitious goals.

How to demonstrate your societal impact.

There are a lot of ways a university can demonstrate societal impact. For example, when speaking about SDG 6: Clean Water and Sanitation, you have an impact by:

- Providing free drinking water to students, staff and visitors
- Promoting conscious water usage on campus and in the wider community
- Planting landscapes to minimize water usage

A significant way universities show commitment to sustainable development and societal impact is by using their powerful research capabilities in these critical areas.

You can also skip ahead to see how Scopus, Pure and SciVal can help you understand your societal and SDG research

Scopus® SciVal Pure

Click on SDG to see the research highlights.

1. No Poverty: End poverty in all its forms.
2. Zero Hunger: End hunger, achieve food security and nutrition and promote sustainable agriculture.
3. Good Health and Well-Being: Ensure healthy lives and promote well-being for all at all ages.
4. Quality Education: Ensure inclusive and equitable education and promote lifelong learning opportunities for all.
5. Gender Equality: Achieve gender equality and empower all women and girls.
6. Clean Water and Sanitation: Ensure availability and sustainable management of water and sanitation for all.

7. Affordable and Clean Energy: Ensure access to affordable, reliable, and modern energy for all.
8. Decent Work and Economic Growth: Promote sustained and sustainable economic growth, full and productive employment and decent work for all.
9. Industry, Innovation and Infrastructure: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
10. Reduced Inequalities: Reduce inequality in an among countries.
11. Sustainable Cities and Communities: Make cities and human settlements inclusive, safe, resilient and sustainable.
12. Responsible Consumption and Production: Ensure sustainable consumption and production patterns.
13. Climate Action: Take urgent to combat climate change and its impacts.
14. Life Below Water: Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15. Life on Land: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat deforestation, and halt and reverse land degradation and halt biodiversity loss.
16. Peace, Justice and Strong Institutions: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.
17. Partnership for the Goals: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Learn more about SDGs in the RELX Resource Center or by visiting our Sustainability Science Hub.

SDG Academic Hubs

In 2018 the UN established 17 individual SDG Academic Impact Hubs. For example, the University of Pretoria (South Africa) is the hub for SDG 2: Zero Hunger. According to the UN Academic Impact website, they selected the University of Pretoria (UP) because their long-term strategy, known as UP 2025:

[University of Pretoria] is centered on research that addresses societal problems and, in particular, problems faced by Africa as a developing region. It hosts a number of SDG2-related Institutes, Centers and collaborate widely with South African, African and international institutions.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

View all the latest SDG Academic Hubs here.

What are the Times Higher Education (THE) Impact Rankings?

According to the World Economic Forum, the Times Higher Education (THE) University Impact Rankings are the

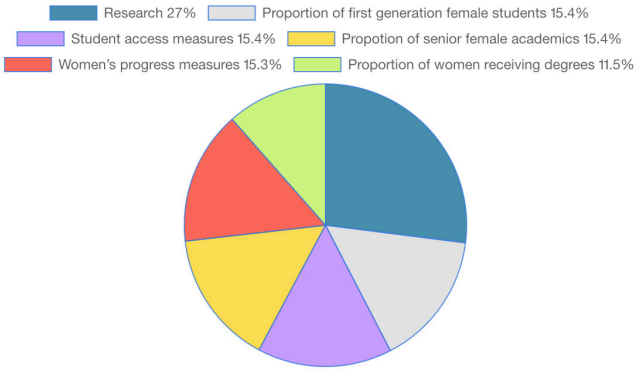
"World's first global attempt to document evidence of universities' impact on society, rather than just research and teaching performance."

The 2020 Impact Rankings included 768 universities from 85 countries.

NOTE: For more information about THE Rankings in general, please visit our rankings guide.

THE says that, "We use carefully calibrated indicators to provide comprehensive and balanced comparisons across four broad areas: **research**, **stewardship**, **outreach** and **teaching**." THE created different measurable objectives for each of the 17 SDGs.

For example, SDG 5: Gender Equality:



Caption: The elements that make up the decision for the impact ranking on SDG 5: Gender Equality

Some of the categories break down further. For example, the 27% Research portion breaks down into:

- Proportion of a university's total research output that is authored by women (10%)
- Proportion of papers on gender equality in the top 10 percent of journals as defined by Citescore (10%)
- Number of publications on gender equality (7%)

In 2020, La Trobe University was ranked #1 by THE for SDG 5. Many factors account for this ranking – as evidenced in the above chart. It is interesting to note that they are in the top 100 universities in gender-related research, mostly publishing on the topic of intimate partner violence.

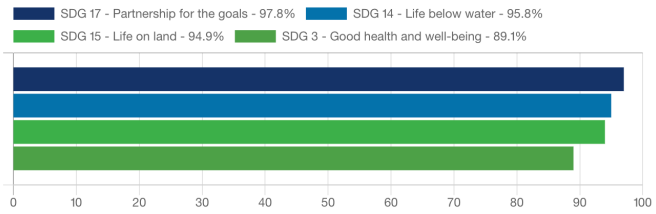
For a detailed look at all the factors that make up each SDG impact rank, please go here.

Overall Rank

THE also calculates an overall rank. THE calculates the overall rank based on an institution's top three SDGs plus SDG 17. Specifically, the weighting is:

- SDG 17 accounts for 22% of the overall score
- The other SDGs each carry a weight of 26%

In 2020, the University of Auckland had the highest overall rank.



The score was calculated as:

1. 26% of SDG 15 +
2. 26% of SDG 14 +
3. 26% of SDG 3 +
4. 22% of SDG 17.

However, THE goes on to say,

"The score from each SDG is scaled so that the highest score in each SDG in the overall calculation is 100. This is to adjust for minor differences in the scoring range in each SDG and to ensure that universities are treated equitably, whichever SDGs they have provided data for. It is these scaled scores that we use to determine which SDGs a university has performed most strongly in; they may not be the SDGs in which the university is ranked highest or has scored highest based on unscaled scores."

The Overall Impact Ranking has detractors. Can you add Gender Equality to Life Below Water? And then compare to another institution who is contributing to No Poverty and Zero Hunger?

In a piece written by Cesar Wazen, Director of International Affairs Office at Qatar University called, "Did the overall ranking mess it up?" he raises the point,

"Why would you include an overall ranking if you want to highlight the efforts on each SDG, especially as some universities, by the constitution, cannot tackle all #SDGs, or at least 4 as the ranking requires?"

Wazen proposes that the Impact Rankings Overall Rank be more akin to the Formula 1 racing point system.

1. 25 pts.
2. 18 pts.
3. 15 pts.
4. 12 pts.
5. 10 pts.
6. 8 pts.
7. 6 pts.
8. 4 pts.
9. 2 pts.
10. 1 pts.

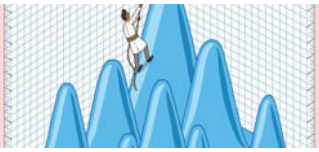
Wazen proposes that the Formula 1 style system rewards institutions that perform well in one SDG more than the current system. For example, a university with a great community connection and serves food to those in need, and does significant research into poverty reduction, is ranked high for SDG 2: Zero hunger. The high rank should carry more weight than a university with decent programs across the board, so their overall position is better. That is, Wazen says that high performers should get high benefits in the overall ranking system.

How can I rank in the THE Impact Rankings?

According to THE:

- The Impact ranking is open to any higher education institution in the world. THE states that they want this ranking to be as inclusive as possible.
- It is different from the THE World University Rankings, which includes a minimum publication volume as part of the eligibility criteria. There is no minimum here.
- If an institution does not provide any data, it will not be ranked.
- If you would like to take part in the impact rankings email, impact@timeshighereducation.com.
- There is no participation fee.

A university can participate in as many or as few of the SDGs as they want. If they submit only one (or two), THE will evaluate them for a position within that SDG, but not the overall rank.



For eligibility for the overall rank, a university must submit data on at least three SDGs plus SDG 17. If you provide data on more than three SDGs, THE will take the top three best scores for consideration in the overall rank.

Data collection on the SDGs is challenging for an institution. While Elsevier, via Scopus data, provides the research component for each SDG, it is up to the institution to provide the rest.

In "Societal Impact, SDG Research & Universities: A conversation with Professor Aluísio Segurado of University of São Paulo" an episode of the Research 2030 podcast, Fernanda Gusmao of Elsevier asked Professor Aluisio Segurado, Head of Research at the University of São Paulo in Brazil:

"Institutions need to provide evidence of the activities they developed that relate to SDGs. How did you gather such evidence? How many people were involved, and from which departments?"

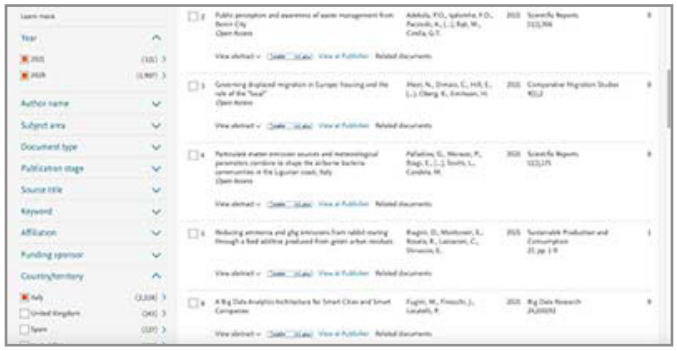
How does SDG research fit into the THE Impact Rankings Methodology?

Each SDG has a different methodology to capture the how an institution is contributing to the SDGs.

Here is a summary of the methodology for each THE SDG Impact Rank.

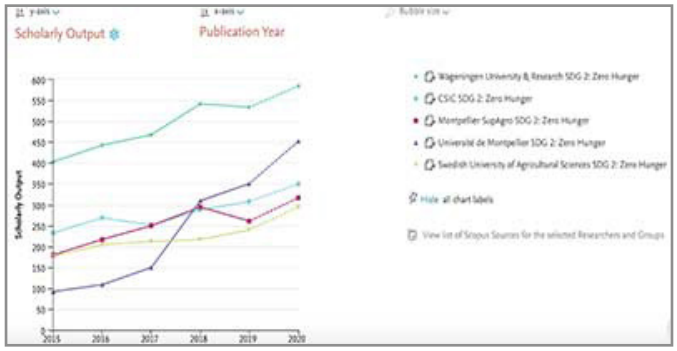
Conclusion

If you agree that understanding and analyzing SDG research is a good way to demonstrate societal impact, please follow our story to see how Scopus, Pure and SciVal can help.



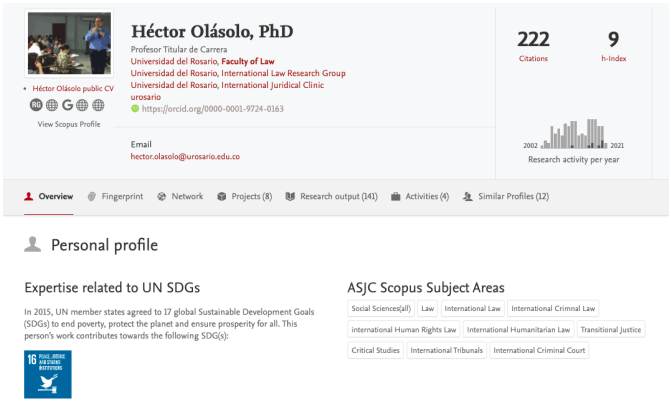
Italian authors from 2020 and 2021 about SDG 11: Sustainable Cities and Communities (per Scopus)

Learn more about Scopus



Benchmark the top 5 European institutions by scholarly output for SDG 2: Zero Hunger (per SciVal)

Learn more about SciVal



Filter the researchers by their associated SDGs to find potential partners and more.

Learn more about Pure

References

Monk, J., Rim, S. J., & Pulford, L. (2017). Five ways universities are organising themselves to increase societal impact (Rep.). Retrieved March 4, 2021, from Social Innovation Change website.

Chankseliani, M., & McCowan, T. (2021). Higher education and the Sustainable Development Goals. Higher Education,81, 1-8. doi:doi.org/10.1007/s10734-020-00652-w