Digital technologies to empirically measure the underpinning of public goods in each locality

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The invitation to contribute to the IATT report reached me on 24 March. On 25 March I gave my title and on 31 March I submitted my contribution.

This speed of scientific exchange is unfortunately the exception, despite all the digital possibilities. For example, a study on the implementation of the UN goals appeared in *Nature Communications* on 1 February 2022. (1) The paper has been submitted on 19 January. 2021. One year earlier.

Figure 1.

It was around the year 1530 when Copernicus completed his work on the rotation of celestial bodies. After another thirteen years he found a publisher in Andreas Osiander from Nuremberg. On 24 May 1543, the printed work arrived at Kopernikus. He died on the same day. As late as 1616, 73 years later, his work was still on the index of forbidden writings.

In the end, it took more than two hundred years, i.e. eight generations, for the so-called "Copernican turn" to take place via Galileo and Kepler.

Global thinking has a long tradition in all religions. As the universal Creator, God was the first global actor. Nevertheless, it was not until 1945 that the UN Charter (7) gave rise to a first attempt at a global codex. This was updated in 1972 with the report of the Club of Rome, in 2000 with the Millennium Goals and in 2015 with the Sustainable Development Goals.

You do not have to be a prophet to realize that there will be another update in 2030.

Since no one is researching the interrelationships between the 17 UN goals, it became established in science, politics, the media and business to select single goals fitting with your agenda.

This has the undeniable advantage that you always automatically serve "the SDGs", whatever you do or what they are. The choice between 17 destinations is just too tempting. So, nobody is 'left behind'.

In 2020, we published a synopsis of five leading SDG reports (2). As a result, crucial goals such as peace, clean energy and biodiversity did not appear at the top. They are not driven by a business model behind – and neither is 'social inclusion', a subject least highlighted in the SDG reports.

Figure 2. Leaving Biodiversity, Peace and Social Inclusion behind - SDG preferences in the World's five major SDG reports 2019

SDG Topic	Rank	Average Rank
Health	1	3,2
Energy Climate Water	2	4,0
Education	3	4,6
Poverty	4	6,2
Food	5	7,6
Economic Growth	6	8,6
Technology	7	8,8
Inequality	8	9,2
Gender Equality	9	10,0
Hunger	10	10,6
Justice	11	10,8
Governance	12	11,6
Decent Work	13	12,2
Peace	14	12,4
Clean Energy	15	12,6
Life on Land	16	14,4
Life below Water	17	15,0
Social Inclusion	18	16,4

Source: Basel Institute of Commons and Economics, 2020.

Of course, none of the authors of these reports will claim to be against peace, biodiversity and social inclusion. But how, for example, could global goal number 1, health, be implemented in a country where there is war?

The UNESCO Science Report 2021 (3) informs on the contribution of research to the implementation of the UN goals in 758 pages. Between the lines, the report provides evidence that in several countries more than half of the public research budget is spend on the military.

According to the OECD Statistics between 1981 and 2004 (4), the public expenditures for research and development in the field of social sciences and humanities were between 2.54 per cent (USA 1981) and 8.92 per cent (China 1998) of all expenditures.

Can we assume that nuclear powers invest more money in military research than in any other research? That 'promising research solutions' there consist of drones and special anti-missile weapons? That 'cyber security' is not about protecting consumer data, but about military intelligence and communication?

May we assume that the almost two trillion dollars spent annually on the military, according to SIPRI ($ 1981 in 2020), have no socio-economic impact on the 17 UN goals?

It is worth taking a look at the interactions between 17 UN goals even if one would assess them differently:

Figure 3. The United Nations Goals Impact Matrix

Goals	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	x	HI	HI	MI	MI	HI	MI	MI	LI	MI	MI	HI	MI	LI	LI	LI	LI
2	LI	x	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI
3	LI	MI	x	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI
4	MI	MI	MI	x	HI	MI	MI	MI	HI	MI	MI	HI	HI	MI	MI	MI	HI
5	LI	LI	MI	MI	x	LI	LI	MI	LI	HI	LI	LI	LI	LI	LI	MI	LI
6	LI	MI	HI	LI	LI	x	LI	LI	MI	LI	HI	HI	MI	HI	HI	LI	LI
7	MI	MI	MI	LI	LI	MI	x	HI	HI	LI	HI	HI	HI	HI	HI	MI	MI
8	MI	MI	MI	MI	MI	LI	LI	x	MI	LI	LI	LI	LI	LI	LI	LI	LI
9	MI	MI	LI	HI	MI	MI	MI	HI	x	LI	HI	HI	HI	HI	HI	LI	LI
10	MI	MI	MI	MI	HI	MI	MI	MI	MI	x	HI	HI	HI	HI	HI	HI	HI
11	HI	HI	HI	HI	MI	HI	HI	MI	HI	MI	x	HI	HI	HI	HI	HI	HI
12	LI	LI	LI	LI	LI	MI	MI	LI	HI	LI	HI	x	HI	HI	HI	LI	LI
13	LI	LI	LI	LI	LI	MI	HI	LI	HI	LI	HI	HI	x	HI	HI	LI	MI
14	LI	HI	HI	LI	LI	HI	LI	LI	MI	LI	MI	HI	HI	x	HI	LI	LI
15	LI	MI	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI	LI	x	LI	LI
16	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	x	HI
17	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	x

LI LOW IMPACT - MI MIDDLE IMPACT - HI HIGH IMPACT SOURCE: BASEL INSTITUTE OF COMMONS AND ECONOMICS 2018

Source: Basel Institute of Commons and Economics 2018.

If we now consider the UN goals to represent mostly public goods (by the way: please insert 'SDG public good' in the Google search), since they must be financed mainly by states and their citizens' taxes, then the interactions take on a fiscal value: **which of the goals have the greatest effect on all goals with the least amount of resources?** Do health and energy bring peace and justice as well? This is no rhetorical but a pragmatic question.

In economics, we may call this a *Transaction Costs Economy.* (5)

If the UN in general, UNDESA in special, would have been under pressure to present a return-on-invest (ROI), the business case would be to lower the transaction costs of societies.

According to the UNESCO Science Report 2021 (3), research for the military plays a leading role in the development of frontier technologies-

From the perspective of a *Transaction Costs Economy* these expenditures are transaction costs.

Why that? They are only spent with the estimate that a peaceful existence of a country cannot be ensured by diplomatic, societal and economic measures.

Some of the richest countries of the World nevertheless show the opposite.

So how can we distinguish frontier technologies developed for the military from civil ones? Let's create a small overview on some frontier technologies and how they are financed and applied:

Table 1. Sources of finance and applications of frontier technologies

Frontier Technology	Source of Finance	Application
Artifical Intelligence (AI)	80 per cent by governments E-Commerce	Drones, defence systems, recognition, identification Advertising Language/translations
Robotics	Mostly financed by Industry	Industrial automatization autonomous weapons
Hydrogen technologies	Mostly financed by Industry Strong governmental funding e.g., in Japan and China	Solar Hydrogen for Electricity Fuel Cell for cars
Biotechnology	Mostly private. In the case of COVID and Vaccination public Estimate: 50 per cent public since 2020	Medicine Vaccines Herbicides Agriculture
Nanomaterials	50 per cent by governments	Manufacturing Aircraft Space Energy
Nuclear Energy	100 per cent by governments In Radiology 90 per cent through public healthcare	Nuclear Weapons Nuclear Power Plants Radiology
Digital technologies	Mostly financed and owned by industry and private investors	Internet Mobile Communication Gaming/Entertainment/Media

New technologies: social engineering through social inclusion

While the World's only Global surveys, the Gallup World Poll (GWP), and the World Values Survey (WVS), currently build the base of indices such as the "World Happiness Report" or the "Wellcome Global Monitor" still work with representative National panels, mobile technology allows to gather results down to the smallest villages with five participants only.

That would enable to get empirical data from around 2 million places worldwide instead of 140+ countries featured in the data of the National Statistics Offices, that build the "Human Development Report" of the UN and that feed the GWP and the WVS.

The *Nature* publication on the implementation of the 17 goals reclaims: "When designing and delivering partnerships for the SDGs, it is important to use approaches that enable local people to participate in the process." (1)

Measuring the local impact of the 17 SDGs

The system of measuring SDG progress only through a government-to-government process by the use of data from National Statistics offices gives neither motivation nor opportunity for local stakeholders to support the SDGs process.

The SDGs process therefore is not inclusive yet.

In order to assessing the distribution and impact of the 17 goals in developing regions, an open access questionnaire has been developed, the SDGs Monitor:

https://trustyourplace.com/sdgsmonitor

The tool allows to score the local impact of each of the goals on a ladder between 10 (high) and 1 (low). Here is a significant result from Zimbabwe.

post_code:
town: Harare
first_name: Meesspert Simon
last_name: Bere
email: simonsbere@gmail.com
country: Zimbabwe
institution: SEMEDS Environment and Development
function: Chief Environmental Engineer and Scientist
say: The goals miss STATEGY. They have no indication on capabilities require to implement them and a model methodology for their implementation.
no_poverty: 1
zero_hunger: 2
good_health_well_being: 3
quality_education: 2

gender_equality: 3
clean_water_sanitation: 4
affordable_clean_energy: 5
decent_work_economic_growth: 4
industry_innovation_infrastructure: 3
deduced_inequalities: 3
sustainable_cities_communities: 3
responsible_production_consumption: 3
climate_action: 3
life_below_water: 3
life_on_land: 4
peace_governance_stronginstitutions: 3
goals_partnerships: 4
score_anonymously: no
score_again_6_months: yes
ip: 197.221.252.15
time: 2022-02-11 12:35:42

The results may appear surprising to many ODA organizations that focus on addressing hunger, health and education. Affordable clean energy is the most important goal in this score, followed by decent work, water, biodiversity and the goals partnerships.

But the most important lesson from this contribution from Zimbabwe is the qualitative comment:

'The goals miss STATEGY. They have no indication on capabilities require to implement them and a model methodology for their implementation.'

The tool offers to keep the score anonymous as well. On good reason: in many IGO, NGO and governments you may face troubles when you comment on the SDGs, their distribution, their interactions, their costs and their implementation.

Measuring local social goods to accelerate the 17 SDGs

It was in 2014, when the Student of Informatics, Shah Saquib, from Munich's Technical University developed a first multi-lingual platform to assess local perceptions worldwide.

The platform became the technical base of the UN SDG Partnership, the World Social Capital Monitor, that is – according to the study published in *Nature* – among the Global top ten projects of 5330 UN Partnerships for the implementation of the SDGs. (1)

In difference to software solutions such as *Surveymonkey* and *Google Forms that* are mostly used for electronic surveys, the software allows to switch between 50 languages and to define a local place.

The score appears directly on the desk. The software as well allows entire open access and does not require any registration or download.

As a result, thousands of Cities in 140 countries have been scored by a few but crucial local social goods such as:

- Mutual trust
- The willingness to co-finance public goods
- The willingness to invest in local SME
- Local helpfulness

In 2021, results for 300 Cities including 500 qualitative comments were published in the UN SDG Partnerships on 61 printer-friendly pages. (6)

The application can be tested without any download or registration in two steps on any device:

1) Choose one of 50 languages and score your town: https://trustyourplace.com/

2) Insert your town in the search field: https://trustyourplace.com/search-score

You will immediately find your score and comment

Policy recommendations

- Stakeholders of the SDGs process should start to consider and include empirical data collected inclusive by open access such as the digital data presented here
- Stakeholders of the SDGs process should not report on single goals without assessing the impact on the other goals in parallel.
- Governments should regard expenditures for military as transaction costs that damage the SDGs process. They have to assess measures to replace military by civil action.
- In Article 62 of the Charter of the United Nations ( ) it is said:

  '*1. The Economic and Social Council may make or initiate studies and reports with respect to international economic, social, cultural, educational, health, and related matters and may make recommendations with respect to any such matters to the General Assembly, to the Members of the United Nations, and to the specialized agencies concerned.'*

  We recommend to the UN Agencies of the IATT to make and initiate studies on the interaction between the goals, on local differences in the prioritisation of the goals and on the local acceptance and distribution of the social goods needed to achieve the 17 SDGs.

We therefore offer our platform to the UN Agencies that can add further questions and items to explore.

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