HARNESSING THE DIGITAL REVOLUTION FOR SUSTAINABLE DEVELOPMENT.
A NEW CHALLENGE FOR THE 2030 AGENDA

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INTRODUCTION

- The 2030 Agenda is a challenge that concerns all countries of the world. The last Sustainable Development Report 2019 includes the six broad transformation that are necessary to implement. This is the fourth annual edition of the Report that analyses the performance of the countries in the 17 Sustainable Development Goals (SDG). This year's report includes a number of new figures and it takes as a starting point The World in 2050 (TWI2050) Initiative. New indicators have been included to refine the measurement of the international spill over effects and the living no one behind principle.

- One of the most crucial challenges facing humanity is how to obtain the benefits of global economic and social development within a safe and fair operating space of a stable land system.

- There is significant inequality within and among societies, with millions of people relegated or forgotten and overwhelming evidence of increasing global risks due to increasing human pressures on the planet.

- To guarantee future sustainable development worldwide, economic development will need to improve human well-being and, at the same time, preserve the resilience of social systems.

- The approach in the present study, takes as a reference the Global Report 2019 and focus on one of the six fundamental pillars that support the proposed transformations: The Digital Revolution for Sustainable Development .

- According to the new analysis perspective, the SDGs will be operational through six transformations:

1. Education, Gender and Inequality.

2. Health, Wellbeing and Demography.

3. Energy decarbonization and sustainable industry.

4. Sustainable food, land, water and oceans.

5. Sustainable cities and communities.

6. Digital Revolution for Sustainable Development.

- These six transformations are guided by the principles of leaving no one behind "leaving no one behind", and circularity and decoupling.

- As noted in previous lines, this work will focus on "the Digital Revolution for Sustainable Development". If managed well, digital technologies, such as artificial intelligence and modern communication technologies can make major contributions toward to virtually all SDGs.

- Of the 17 SDGs recognized by the 2030 Agenda, 12 of them are linked to the Digital Revolution. That is, SDG 1: Non-poverty; SDG 2: Zero hunger; SDG 3: Good health and wellbeing; SDG 4: Quality education; SDG 7: Affordable and clean energy; SDG 8: Decent work and economic growth; SDG 9: Industry, innovation and infrastructure; SDG 10: Reduction of inequalities; SDG 11: Sustainable cities and communities; SDG 12: Responsible Consumption and Production; SDG 13: Climate action; SDG 17: Partnerships for objectives.

THE 2019 SDG INDEX AND DASHBOARDS

New characteristics. Changes in the methodology

The SDG Index and Dashboards summarizes countries' current performance and trends on the 17 SDGs. This year the Global Report includes 162 countries. Since the indicators, data and methodology have been revised for the new publication, the rankings and scores are not comparable with previous editions. Therefore, a change in a country's ranking does not necessarily signify a change in its SDG performance. For that reason, our multicriteria analysis takes into account, for each disaggregated objective, the levels of behavior and the thresholds between which can be each value. In 2015, the international community decided to consider the same weight for all the SDGs. The Dashboards highlight the strengths and the weaknesses of each country in all the 17 SDG. In the present edition, the dashboards include weighted averages for the population of the different regions.

The value of the SDG Global Index for each country indicates the performance of the countries with respect to each SDG to identify priorities for action. The traffic light color scheme (green, yellow, orange and red) indicates how much a country lacks to reach the particular goal.

- The SDG Trends are elaborated in order to estimate how fast a country has been progressing towards an SDG and determine whether, in future perspective, this pace will be sufficient to achieve the SDG by 2030. The progress towards the achievement each objective is described using a four arrows system.

The international spillover effects

In an interdependent world, countries' action can have positive or negative effects on other countries' ability to achieve the SDGs. Theses international spillover effects are widespread, and we appreciate an accelerated growth of them that, in some countries, they exceed the growth in world gross product .

Positive and negative spillovers must be understood and measure, and carefully managed since countries cannot achieve the SDGs if others do not do their part. We can distinguish three groups:

- Environment spillover: they can be generated in two ways: a) transboundary effects embodied in trade; b) direct cross-border flows in air and water.
- Spillover related to the economy, finance, and governance: cover international development finance, unfair tax competition, baking secrecy, and international labor standards.
- Security spillovers: include negative externalities, such as the trade in arms and organized international crime. Among the positive spillovers are investments in conflict prevention and peacekeeping.

High-income countries generate larger spillover effects than the rest of the countries and they are and impediment for them to move towards the SDG achievement.

At present, it exists an important difference among countries with equal per capita income. The 2019 Global Inform includes the spillover index in the countries' profiles.

Table 1 shows the spillover index for OECD countries and countries ranking in relation with it. Small countries with large trade intensity – such as Luxembourg and Switzerland – generate the highest negative spillovers:

Spillover Index score (from 0 "worst" to 100 "best")	Spillover Score	Spillover Rank	SDG Index	PROMETHEE Ranking	OCDE	Ranking
Germany	67.8	20	81.1	9		5º-6º
Australia	61.2	29	73.9	19		32
Austria	63.2	25	81.1	10		5º-6º
Belgium	58.5	30	78.9	15		12º-13º
Canada	73.4	10	77.9	18		20
Chile	97.4	1	75.6	34		28
Korea, Republic of	72.3	12	78.3	11		18
Denmark	76	9	85.2	2		1
Slovenia	70	19	79.4	16		12º-13º
Spain	70.1	18	77.8	22		21
United states	51.1	32	74.5	28		31
Estonia	82.9	5	80.2	26		10
Finland	67.1	22	82.2	3		3
France	61.5	28	81.5	17		4
Greece	64.4	24	71.4	33		34
Hungary	81.9	6	76.9	29		23
Ireland	61.6	27	78.2	12		19
Island	70.4	17	79.2	6		14
Israel	62	26	71.5	21		33
Italia	65.6	23	75.8	27		27
Japan	72.1	13	78.9	7		15º-16º
Latvia	71.9	14	77.1	31		22
Lithuania	73.1	11	75.1	32		29
Luxembourg	41.6	35	74.8	25		30
Mexico	93.3	2	68.5	36		35º-36º
Norway	53.4	31	80.7	4		7º-8º
New Zealand	78.1	8	79.5	14		11
Netherlands	49.6	34	80.4	5		9
Poland	84.9	4	75.9	23		26
Portugal	70.9	16	76.4	24		24
United Kingdom	50.7	33	79.4	13		12º-13º
Czech Republic	79.8	7	80.7	20		7º-8º
Slovak Republic	71.4	15	76.2	30		25
Sweden	67.7	21	85	1		2
Switzerland	32.7	36	78.8	8		17
Turkey	90.8	3	68.5	35		35º-36º

MULTICRITERIA DECISION MAKING MODEL: DIGITAL REVOLUTION FOR SUSTAINABLE DEVELOPMENT IN OECD COUNTRIES

- Perhaps the greatest single enabler of sustainable development in the coming years would be the digital revolution, constituted by ongoing advances in Artificial Intelligent, connectivity, digitalization of information, additive manufacturing, virtual reality, Internet of things, machine learning, block chain, robotic, quantum computing and synthetic biology. The digital revolution rivals the steam engine, internal combustion engine, and electrification for the pervasive effects on all parts of the economy and society.

- The digital revolution will have even deeper impacts on our societies, creating a next generation of sustainability challenges.

- The digital transformation calls for a comprehensive set of regulatory standards and normative frameworks, physical infrastructure, and digital systems, to capture the benefits of the digital revolution while avoiding the many potential downsides. An essential priority should be to develop science, technology and innovation roadmaps to understand better the potential benefits and dangers of digitalization.

- The SDG affected by digital revolution are SDG 1, SDG 2, SDG 3, SDG 4, SDG 7, SDG 8, SDG 9, SDG 10, SDG 11, SDG 12, SDG 13 and SDG 17. These 12 general objectives are, at the same time, subdivided. For that reason, our multicriteria model have 81 decision criteria in total.

- The alternatives are the 36 OECD member countries, as shows Table 2.

Alternatives	OECD countries	Alternatives	OECD countries
A_1	Germany	A_{19}	Israel
A_2	Australia	A_{20}	Italia
A_3	Austria	A_{21}	Japan
A_4	Belgium	A_{22}	Latvia
A_5	Canada	A_{23}	Lithuania
A_6	Chile	A_{24}	Luxemburg
A_7	Korea, Rep.	A_{25}	Mexico
A_8	Denmark	A_{26}	Norway
A_9	Slovenia	A_{27}	New Zealand
A_{10}	Spain	A_{28}	Netherland
A_{11}	Unites States	A_{29}	Poland
A_{12}	Estonia	A_{30}	Portugal
A_{13}	Finland	A_{31}	United Kingdom
A_{14}	France	A_{32}	Czech Rep.
A_{15}	Greece	A_{33}	Slovak Rep.
A_{16}	Hungary	A_{34}	Sweden
A_{17}	Ireland	A_{35}	Switzerland
A_{18}	Island	A_{36}	Turkey

- The detail of the composition of the SDGs, our decision criteria, appears in Table 3.

ODS	Description/labels
ODS 1	**NO POVERTY**
ODS 1.1	Poverty headcount ratio at $1.90/day (% population).
ODS 1.2	Poverty headcount ratio at $3.20/day (% population).
ODS 1.3	Poverty rate after taxes and transfers. Poverty line 50% (% population).
ODS 2	**ZERO HUNGER**
ODS 2.1	Prevalence of undernourishment (% population).
ODS 2.2	Prevalence of stunting (low height-for-age) in children under 5 years of age (%).
ODS 2.3	Prevalence of wasting in children under 5 years of age (%).
ODS 2.4	Prevalence of obesity, BMI ≥ 30 (% adult population).
ODS 2.5	Cereal yield (t/ha).
ODS 2.6	Sustainable Nitrogen Management Index.
ODS 2.7	Yield gap closure (%).
ODS 2.8	Human Tropic Level (best 2 – 3 worst).
ODS 3	**GOOD HEALTH AND WELL-BEING**
ODS 3.1	Maternal mortality rate (per 100,000 live births).
ODS 3.2	Neonatal mortality rate (per 1,000 live births).
ODS 3.3	Mortality rate, under – 5 (per 1,000 live births).
ODS 3.4	Incidence of tuberculosis (per 100,000 population).
ODS 3.5	New HIV infections (per 1,000).
ODS 3.6	Age-standardised death rate due to cardiovascular disease, cancer, diabetes, and chronic respiratory disease in population age 30 – 70 years (per 100,000 population).
ODS 3.7	Age-standardised death rate attributable to household air pollution and ambient pollution (per 100,000 population).

ODS 3.8	Traffic deaths rate (per 100,000 population).
ODS 3.9	Life Expectancy at birth (years).
ODS 3.10	Adolescent fertility rate (births per 1,000 women ages 15 − 19).
ODS 3.11	Births attended by skilled health personnel (%).
ODS 3.12	Percentage of surviving infants who received 2 WHO-recommended vaccines (%).
ODS 3.13	Universal Health Coverage Tracer Index (0-100).
ODS 3.14	Subjective Wellbeing (average ladder score, 0-10).
ODS 3.15	Gap in life expectancy at birth among regions (years).
ODS 3.16	Gap in self-reported health by income (0-100).
ODS 3.17	Daily smokers (% population age 15+).
ODS 4	**QUALITY EDUCATION**
ODS 4.1	Net primary enrolment (%).
ODS 4.2	Low secondary completion rate (%).
ODS 4.3	Literacy rate of 15-24 year olds, both sexes (%).
ODS 4.4	Enrolment in early childhood learning program (%, ages 4 − 6).
ODS 4.5	Population age 25-64 with tertiary education (%).
ODS 4.6	PISA score (0-600).
ODS 4.7	Percentage of variation in science performance explained by students' socio-eco status.
ODS 4.8	Students performing below level 2 in science (%).
ODS 4.9	Resilient students (%).
ODS 7	**AFFORDABLE AND CLEAN ENERGY**
ODS 7.1	Access to electricity (% population).
ODS 7.2	Access to clean fuels & technology for cooking (% population).
ODS 7.3	CO_2 emissions from fuel combustion / electricity output ($MtCO_2$/TWh).
ODS 7.4	Share of renewable energy in total final energy consumption (%).
ODS 8	**DECENT WORK AND ECONOMIC GROWTH**
ODS 8.1	Adjusted Growth (%).
ODS 8.2	Prevalence of Modern Slavery (victims per 1,000 population).
ODS 8.3	Adults (15 years and older) with an account at a bank or other financial institution o a mobile-money-service provider (%).
ODS 8.4	Unemployment rate (% total labour force).
ODS 8.5	Fatal work-related accidents embodied in imports (deaths per 100,000).
ODS 8.6	Employment-to-Population ratio (%).
ODS 8.7	Youth not in employment, education or training (NEET) (%).
ODS 9	**INDUSTRY, INNOVATION AND INFRAESTRUCTURE**
ODS 9.1	Population using internet (%).
ODS 9.2	Mobile broadband subscription (per 100 inhabitants).
ODS 9.3	Logistic performance index: Quality of trade and transport-related infrastructure (1 to 5 = high)
ODS 9.4	The times Higher Education Universities Ranking: Average score of top 3 universitie 100).
ODS 9.5	Number of scientific and technical journal articles (per 1,000 population).
ODS 9.6	Research and development expenditure (% GDP).
ODS 9.7	Research and development researchers (per 1,000 employed).
ODS 9.8	Triadic Patent Families filed (per million population).
ODS 9.9	Gap in internet access by income (%).
ODS 9.10	Women in science and engineering (%).

ODS 10	**REDUCED INEQUALITIES**
ODS 10.1	Gini Coefficient adjusted for top income (0-100).
ODS 10.2	Palma ratio.
ODS 10.3	Elderly Poverty Rate (%).
ODS 11	**SUSTAINABLE CITIES AND COMMUNITIES**
ODS 11.1	Annual mean concentration of particulate matter of less than 2.5 microns of dia (PM2.5) (μ/m^3).
ODS 11.2	Improved water source, piped (% urban population with access).
ODS 11.3	Satisfaction with public transport (%).
ODS 11.4	Rent overburden rate (%).
ODS 12	**RESPONSIBLE CONSUMPTION AND PRODUCTION**
ODS 12.1	Municipal Solid Waste ((kg/year/capita).
ODS 12.2	E-waste generate (kg/capita).
ODS 12.3	Production-based SO_2 emissions (kg/capita).
ODS 12.4	Imported SO_2 emissions (kg/capita).
ODS 12.5	Nitrogen production footprint (kg/capita).
ODS 12.6	Net imported emissions of reactive nitrogen (kg/capita).
ODS 12.7	Non-Recycled Municipal Solid Waste (MSW in kg/person/year times recycling rate).
ODS 13	**CLIMATE ACTION**
ODS 13.1	Energy-related CO_2 emissions per capita (tCO_2/capita).
ODS 13.2	Imported CO_2 emissions, technology-adjusted (tCO_2/capita).
ODS 13.3	People affected by climate-related disasters (per 100,000 population).
ODS 13.4	CO_2 emissions embodied in fossil fuel exports (kg/capita).
ODS 13.5	Effective Carbon Rate from all non-road energy, excluding emissions from bio ($€/tCO_2$).
ODS 17	**PARTNERSHIPS FOR THE GOALS**
ODS 17.1	Government Health and Education spending (% GDP).
ODS 17.2	For high-income and all OECD DAC countries: International concessional public fir including official development assistance (% GNI).
ODS 17.3	Other countries: Government Revenue excluding Grants (% PIB).
ODS 17.4	Tax Haven score (best 0 – 5 worst).
ODS 17.5	Financial secrecy Score (best 0 – 100 worst).

- The character of each criterion, maximum or minimum, was defined considering the description that appears in the 2019 Global Report. Likewise, the assignment of preference functions (generalized criteria) was made as required by the PROMETHEE methodology, taking as a reference point, the SDG development guidelines.

- The weights are the same for all the criteria, so that, there are no preference among them. In that case, we follow the same rules as the 2019 Global Report.

- The SDG Dashboard, with its different colors and the Trend Dashboard with colored arrows oriented in different directions, are very valuable tools to consider in the analysis. Table 4 shows the SDG Dashboard which indicates according to the color (green, Yellow, orange or red) of each country in a specific SDG, what is the current scope of this objective. Table 5 shows the Trend Dashboard, each arrow indicates, according to its color and direction, if the objective is or not in the correct path to reach the desired level in 2030.

Pais	S1 (OD)	S2 (OD)	S3 (OD)	S4 (OD)	S7 (OD)	S8 (OD)	S9 (OD)	ODS10	ODS11	ODS12	ODS13	ODS17
Germany	yellow	orange	yellow	yellow	yellow	orange	orange	yellow	yellow	red	red	orange
Australia	yellow	red	green	yellow	red	orange	orange	yellow	yellow	red	red	orange
Austria	green	orange	yellow	orange	yellow	orange	orange	yellow	yellow	red	red	red
Belgium	green	orange	yellow	orange	orange	orange	orange	yellow	yellow	red	red	red
Canada	yellow	orange	orange	green	green	yellow	yellow	orange	orange	red	red	orange
Chile	yellow	red	orange	red	yellow	red	red	orange	orange	orange	orange	orange
Korea, R.	yellow	orange	orange	yellow	orange	yellow	yellow	yellow	orange	red	red	red
Denmark	green	orange	yellow	yellow	yellow	yellow	green	orange	orange	red	orange	yellow
Slovenia	green	red	yellow	yellow	green	yellow	yellow	orange	orange	red	red	orange
Spain	yellow	red	yellow	yellow	yellow	orange	red	orange	orange	orange	orange	orange
EE UU	orange	orange	yellow	yellow	yellow	yellow	red	orange	yellow	red	red	orange
Estonia	yellow	orange	yellow	yellow	yellow	yellow	red	orange	yellow	red	red	orange
Finland	green	orange	yellow	green	green	yellow	orange	green	orange	red	red	orange
France	green	orange	yellow	orange	orange	yellow	orange	orange	orange	red	red	orange
Greece	yellow	orange	orange	red	orange	orange	orange	orange	orange	red	red	red
Hungary	yellow	orange	orange	red	orange	yellow	red	yellow	yellow	orange	red	orange
Ireland	green	orange	green	yellow	yellow	orange	orange	green	orange	red	red	orange
Island	green	orange	yellow	yellow	green	yellow	yellow	green	orange	red	red	orange
Israel	orange	red	green	red	yellow	yellow	yellow	red	orange	red	red	orange
Italia	yellow	orange	green	orange	yellow	yellow	red	orange	orange	red	red	orange
Japan	yellow	orange	yellow	green	yellow	yellow	green	orange	orange	red	red	red
Latvia	orange	red	orange	yellow	yellow	yellow	red	yellow	yellow	red	orange	red
Lithuania	orange	red	orange	yellow	yellow	yellow	red	orange	orange	orange	red	red
Luxemburg	yellow	orange	green	orange	red	orange	orange	yellow	yellow	red	red	red
Mexico	orange	red	orange	red	orange	orange	orange	orange	orange	orange	orange	orange
Norway	green	red	green	orange	green	orange	orange	green	orange	red	red	yellow
N. Zealand	yellow	red	yellow	yellow	green	yellow	orange	orange	orange	red	red	red
Netherland	green	red	yellow	yellow	orange	orange	yellow	yellow	orange	red	orange	yellow
Poland	yellow	red	yellow	yellow	orange	orange	red	orange	orange	red	red	red
Portugal	yellow	orange	yellow	orange	green	orange	orange	orange	orange	red	red	orange
U K	yellow	orange	orange	orange	orange	orange	orange	yellow	yellow	red	red	orange
Czech, R.	green	orange	orange	orange	orange	yellow	yellow	yellow	yellow	orange	red	orange
Slovak, R	green	orange	yellow	red	orange	orange	red	yellow	yellow	orange	red	orange
Sweden	green	orange	green	yellow	green	yellow	orange	orange	orange	red	red	yellow
Switzerland	green	orange	yellow	orange	green	orange	orange	orange	orange	red	orange	orange
Turkey	orange	red	orange	red	orange	orange	red	orange	orange	red	red	orange

ountry	DS1	DS2	DS3	DS4	DS7	DS8	DS9	DS10	DS11	DS12	DS13	DS17
ermany	↗↑	↗	↗	↗	↑	↑	↑	→	↗		→	↑
ustralia		→	↑	→	↗	↑	↗	↗	↗		→	→
ustria	↑	↗	↑	↗	↗	↗	↑	↗			→	↗
elgium	↑	↗	↗	↑	↗	↑	↑	↑	↗		→	→
anada	↗	↗	↑	↗	↗	↑	↗	→			→	→
hile	↑	↗	↗	↑	↑	↗	→		↑		↓	
orea Rep.	↗	↗	↑	↗	↗	↑	↑	↗			↓	→
enmark	↑	↗	↗	↗	↗	↗	↑	↑			↗	↑
lovenia	↑	↗	↑	↗	↑	↗	↗	↑	↗		→	↗
pain	↗	↗	↑	↑	↑	↑	↗	→	↗		→	→
E UU	↗	↗	↗↑	↑	↗	↑	↑	→	↗		→	→
stonia	↗	↗		↗	↗	↑	↗	→	↗		→	
inland	↑	↗	↗	↑	↑	↗	↑	↑	↗		↗	↗
rance	↑	↗	↑	↑	↗	↗	↑	↑	↗		→	→
reece	↗	↗	↗	↗	↑	↗	↑	→	↗		↗	↓
ungary	↗	↗	↗	→	↗	↑	↗	↓	↑			
reland	↑	↗	↑	↗	↗	↑	↗	↗			↓	↓
sland	↑	↗	↗	↑	↑	↑	↗	↑	↑		↓	→
srael		↗	↗	↑	↗	↑	↑	→	→		→	↗
talia		↗	↑	↗	↑	↗	↗	→	↗		↗	↗
apan		↗	↗	↑	↗	↑	↑	↓			→	↗
atvia		↗	↗	↗	↗	↑	↗	→	↗		→	→
ithuania	↗	↗	↗	↑	↗	↑	↗	↓			↓	↓
uxemburg		↗	↑	↑	↗	↑	↗		↑		↗	
exico	↑	↗	↗	↗	↗	↗	→	→	↑		→	↑
orway	↑	↗	↑	↑	↑	↑	↗	↑	↗		→	↑

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PROMETHEE Methodology: analysis of the results

The first step consists of analyze the partial and total preorders. Incomparability appears between two alternatives due to positive and negative flows disagreement. Figures 1 and 2 allow us to appreciate which are the countries that occupy the first positions in the ranking, as well as those that are in the last places.
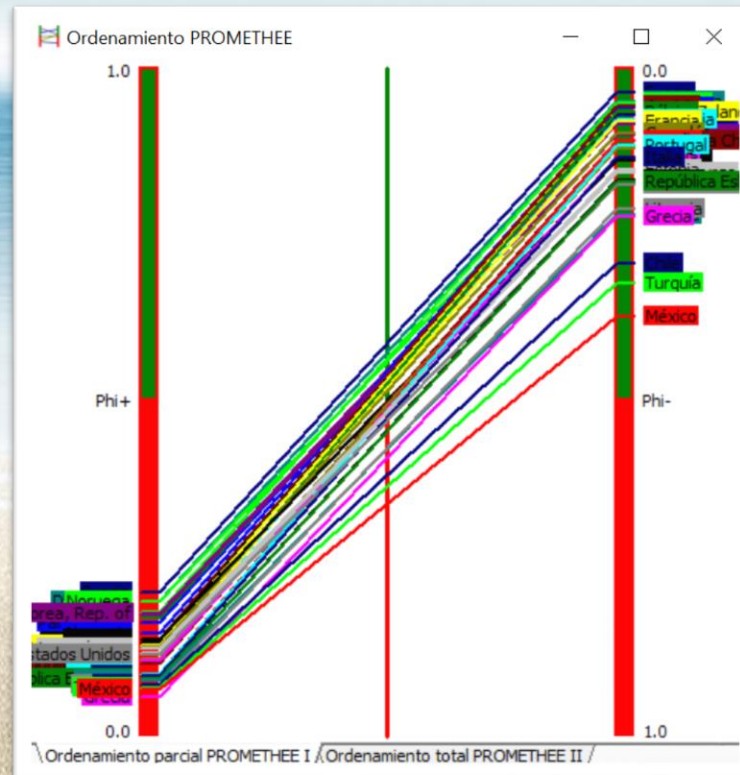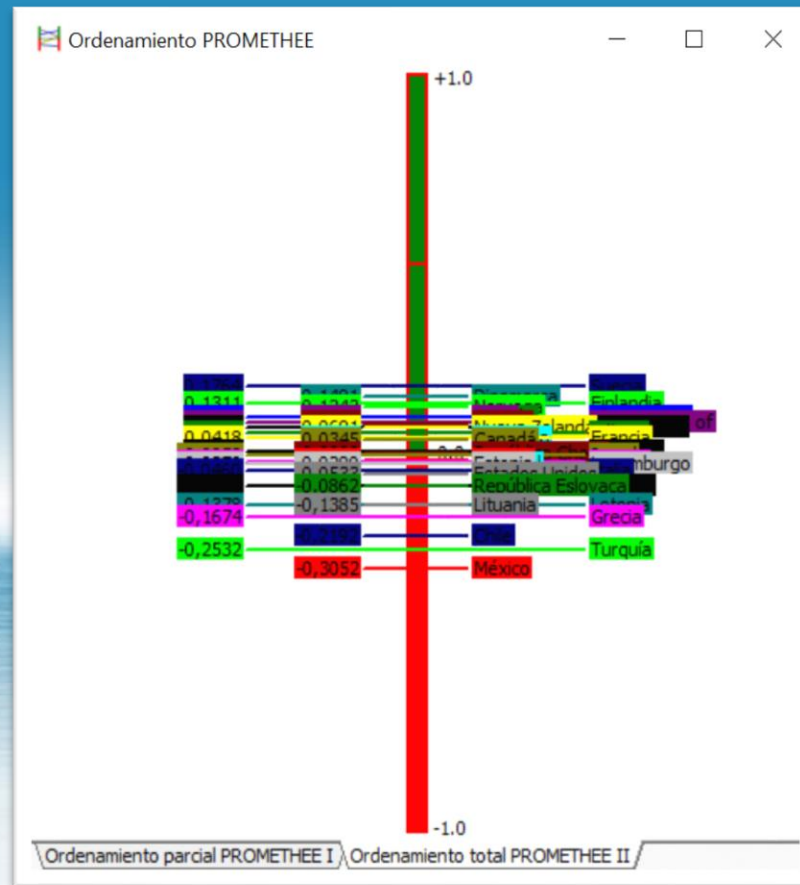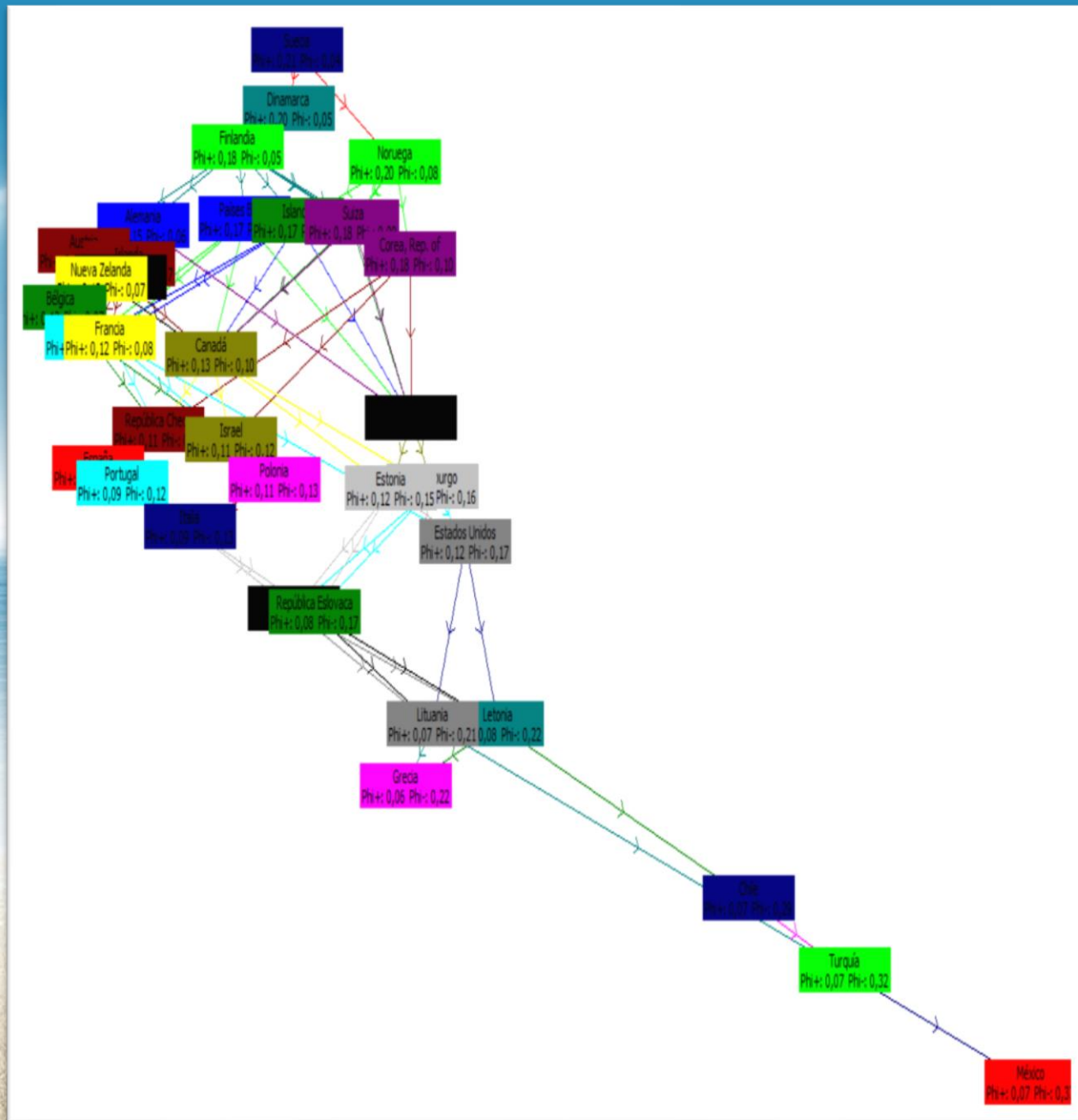
Figure 1. Partial Preorder (PROMETHEE I)

Figure 2. Complete Preorder (PROMETHEE II)

A clearer vision is in Figure 3, which shows PROMETHEE Network.

Table 6. Positive, Negative and Net Flows

Rang	alternativa		Phi	Phi+	Phi-
1	Suecia	◆	0,1764	0,2139	0,0374
2	Dinamarca	■	0,1491	0,1991	0,0500
3	Finlandia	■	0,1311	0,1835	0,0524
4	Noruega	●	0,1243	0,2005	0,0762
5	Países Bajos	●	0,0975	0,1677	0,0701
6	Islandia	●	0,0968	0,1742	0,0774
7	Japón	●	0,0961	0,1807	0,0845
8	Suiza	◆	0,0957	0,1808	0,0850
9	Alemania	■	0,0943	0,1530	0,0587
10	Austria	■	0,0830	0,1396	0,0566
11	Corea, Rep. of	■	0,0815	0,1810	0,0995
12	Irlanda	●	0,0768	0,1424	0,0655
13	Reino Unido	◆	0,0704	0,1381	0,0677
14	Nueva Zelanda	●	0,0691	0,1349	0,0658
15	Bélgica	■	0,0564	0,1233	0,0669
16	Eslovenia	■	0,0425	0,1203	0,0778
17	Francia	■	0,0418	0,1224	0,0806
18	Canadá	■	0,0345	0,1317	0,0973
19	Australia	■	0,0044	0,1425	0,1381
20	República Checa	◆	-0,0009	0,1074	0,1082
21	Israel	●	-0,0058	0,1143	0,1200
22	España	■	-0,0186	0,0906	0,1093
23	Polonia	●	-0,0241	0,1107	0,1348
24	Portugal	●	-0,0259	0,0901	0,1161
25	Luxemburgo	●	-0,0270	0,1296	0,1567
26	Estonia	■	-0,0280	0,1238	0,1518
27	Italia	●	-0,0460	0,0889	0,1349
28	Estados Unidos	■	-0,0533	0,1208	0,1741
29	Hungría	●	-0,0846	0,0830	0,1676
30	República Eslovaca	◆	-0,0862	0,0849	0,1711
31	Letonia	●	-0,1378	0,0827	0,2205
32	Lituania	●	-0,1385	0,0739	0,2125
33	Grecia	■	-0,1674	0,0560	0,2235
34	Chile	■	-0,2192	0,0744	0,2936
35	Turquía	◆	-0,2532	0,0698	0,3231
36	México	●	-0,3052	0,0678	0,3731

- When analyzing together, the ranking of the countries, the SDG Dashboard and the Trends Dashboard, we can prove that countries in the "top ten" are Sweden, Denmark, Finland, Norway, Netherlands, Ireland, Japan, Switzerland, Germany and Austria. However, in the colour dashboard, none of the countries has reached a sufficient level in achieving the objectives analyzed. In the Trends Dashboard, countries as Netherlands, Ireland and Japan, have objectives in which the arrow moves in the wrong direction.

- The SDG in which many of the 36 countries studied have a satisfactory situation at present and a promising future trend are SDG 1, SDG 3, SDG 4, SDG 7, SDG 8 and SDG 9. The rest of the SDG requires that measures be taken as soon as possible in order to reach the desired level by 2030.

- Table 7 shows the total average value of each of the SDGs, the rankings according to PROMETHEE and according to the Global Report, and the last column reflects the difference in positions between both rankings. When the difference is positive, it means that the country is in better position in our study and, when it is negative, that its place is lower than the classification published in the Global Report.

Alternatives	SDG Index	Ranking PROMETHEE	Ranking OCDE	Difference
Germany	81.1	9	5º-6º	-4
Australia	73.9	19	32	+23
Austria	81.1	10	5º-6º	-5
Belgium	78.9	15	12º-13º	-3
Canada	77.9	18	20	+2
Chile	75.6	34	28	-6
Korea, Rep. of	78.3	11	18	+7
Denmark	85.2	2	1	-1
Slovenia	79.4	16	12º-13º	-4
Spain	77.8	22	21	-1
EEUU	74.5	28	31	+3
Estonia	80.2	26	10	-16
Finland	82.2	3	3	Equal
France	81.5	17	4	-13
Greece	71.4	33	34	+1
Hungary	76.9	29	23	-6
Ireland	78.2	12	19	+7
Island	79.2	6	14	+8
Israel	71.5	21	33	+12
Italia	75.8	27	27	Equal
Japan	78.9	7	15º-16º	+8
Latvia	77.1	31	22	-9
Lithuania	75.1	32	29	-3
Luxemburg	74.8	25	30	+5
México	68.5	36	35º-36º	-1
Norway	80.7	4	7º-8º	+3
New Zealand	79.5	14	11	-3
Netherlands	80.4	5	9	+4
Poland	75.9	23	26	+3
Portugal	76.4	24	24	Equal
United Kingdom	79.4	13	12º-13º	-1
Czech, Rep.	80.7	20	7º-8º	-13
Slovak, Rep.	76.2	30	25	-5
Sweden	85	1	2	+1
Switzerland	78.8	8	17	+8
Turkey	68.5	35	35º-36º	Equal

- If we analyze Table 6, the most surprising cases are those of Australia and Israel, which according to our study greatly improve their position; by the contrary, countries that are getting worse are Estonia, France and Czech Republic. We consider that results when applying PROMETHEE are more solid as we had into account the goals desegregation, the thresholds and the preference functions (generalized criteria). In the Global Report only appears the average values.

- The GAIA Plane is in Figure 4. It allows us to visualize the position of the alternatives in relation with the red decision axe π, PROMETHEE decision axe, the criteria, their direction and the discriminator power, and the decision maker freedom space. This powerful visual tool has great utility since it allows the decision maker to be oriented towards the alternatives that are best compromise solutions.

Figure 4. GAIA Plane. Decision Maker Freedom Space

- In order to analyze the robustness of the decision model proposed we calculate the SDG's Weight Stability Intervals. Table 8 shows the Weight Stability Intervals for a complete stability and it can be proved that all the intervals are bounded on both sides. For this reason, the model is perfectly robust and can be used to make future forecasts for the 2030 horizon.

Table 8. Weight Stability Intervals

ODS	Intervalos Estabilidad
ODS1	[3'61 – 3'77]
ODS2	[9'36 – 10'41]
ODS3	[20'75 – 21'72]
ODS4	[10'96 – 11'32]
ODS7	[4'76 – 5'73]
ODS8	[7'00 – 7'77]
ODS9	[11'76 – 12'66]
ODS10	[3'47 – 4'18]
ODS11	[4'63– 5'03]
ODS12	[8'49 – 8'83]
ODS13	[5'56 – 6'50]
ODS17	[6'01 – 6'46]

CONCLUSIONS

- Four years after the adoption of the SDGs and the Paris Agreement, no country is on track to meeting all the goals.

- Young people around the world are taking to the street to protest the lack of environmental action by governments and business.

- At the same time inequalities are rising around, driving call for deep changes in the policies for developed and developing countries.

- Gradual progress and policy changes are not enough – the world needs deep transformation to achieve the SDGs and the Paris Clime Agreement. Direct transformations are needed to develop the technologies, promote the public and private investments, and ensure adequate governance mechanisms needed to achieve the time-bound goals.

- The 2019 Global Report presents the SDG Index and Dashboards and frames the implementation of the Sustainable Development Goals (SDGs) in term of six boar transformations. One of these transformations is the "Digital Revolution for Sustainable Development". There is an urgent need to bring the sustainability and the digital and technology communities together to align the direction of change with the 2030 Agenda and a sustainable future beyond this year.

THANK YOU

FOR YOUR

ATTENTION