# Trend Scanner

Disruptive Trends for Global Sustainability

Using the most important and rapid changes to support global sustainability with 21st century tools

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cmv: 0.13095899

Diagnosing cassava disease with smartphone app. Photo: IITA
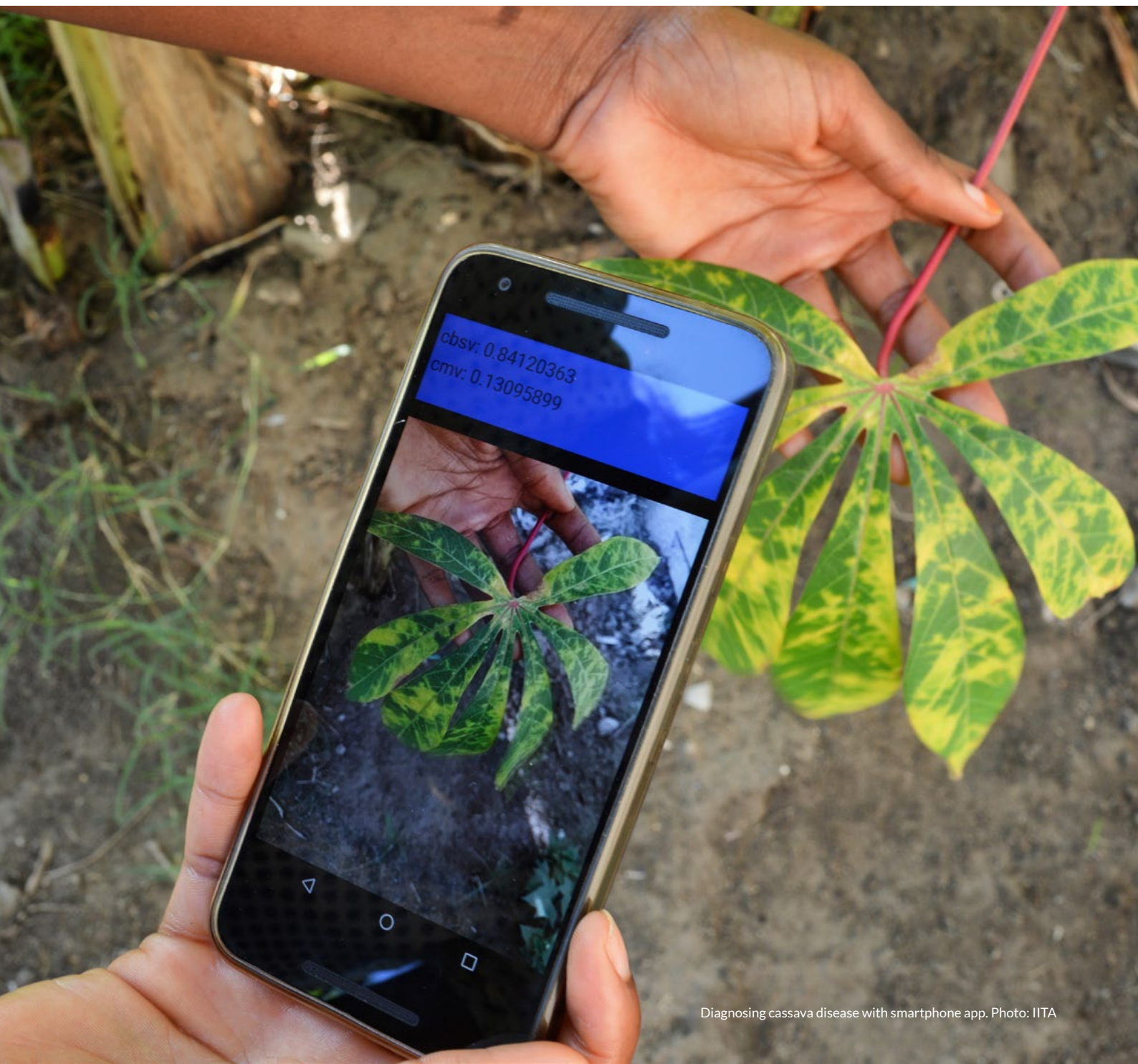
This project explores different ways of identifying and understanding disruptive trends, so that they can be used to deliver on global sustainability, starting with the Sustainable Development Goals (SDGs): the 17 global goals set by the United Nations.

Rapid changes in society triggered by disruptive trends, including rapid technological development, new business models and shifting values, provide a window of opportunity for a platform that explores how these disruptive trends are understood; and how they can be leveraged to accelerate progress towards global sustainability goals.

Disruptive trends are becoming increasingly important as the pace of change in society is increasing and many of technologies underpinning them are more powerful and interlinked than ever. By better understanding different disruptive trends, including their likely impacts, probabilities, uncertainties, links to each other, time horizons, etc, we can support strategic decisions that can help deliver on our global sustainability goals.

The project will initially identify the potentially disruptive trends and their relation to the SDGs by analyzing leading trend assessments. In a second phase AI/machine learning will be used to gather additional information about potential disruptive trends.

New ways to visualize, collect and process information, as well as tools that allow for interaction with large data sets, make it possible to present complex information in ways that can be understood and used by more stakeholders, eg they can be tailor-made for different users depending on need.

In summary, in order to ensure global sustainability there is an urgent need to ensure that disruptive trends can be used strategically by all relevant stakeholders.

The Sustainable
Development
Goals (SDGs)
set by the
United Nations

1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND 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 PARTNERSHIPS FOR THE GOALS	SUSTAINABLE DEVELOPMENT GOALS

Assumptions

1 **Disruptive trends have the potential to deliver sustainable solutions, but they could also accelerate unsustainable trends**

Rapid changes in society, including global sustainability challenges, combined with rapid technological development, new business models and shifting values, have created a situation where trend assessments that are science based (ie using a systematic methodology based on evidence) could play an important role.

During the 20th century, industrialization tended to improve in incremental steps. It was possible for companies and governments to have plans for decades ahead, based on assumptions that only minor changes would happen. The urgency to deliver over-ambitious sustainable results, including rapid reductions of greenhouse gases over the next decades, eliminating extreme poverty, and ensuring that socio-economic progress leaves no-one behind, combined with disruptive trends requires a new approach. If trend assessment used to be more of an inspirational part of strategic decision making, it is now a matter of survival for many.

2 **Innovative tools can provide tailor-made guidance based on complex information**

Global trends are complex, with different time-horizons, mixed impacts, undisclosed probabilities, and unstructured uncertainties, making it difficult to use many of the trend assessments in a development context. The fact that different trend studies use very different methodologies and terminologies only makes things more challenging. However, new ways to collect, process and present data allow for meta trend assessments that use multiple trend studies. Such assessments can be tailor-made in order to enable the use of trends as drivers for innovation and strategic decision-making.

3 **New innovative partnerships are needed to deliver more than incremental improvement in existing systems**

Achieving the ambitious targets of the 2030 Agenda requires a revitalized and enhanced global partnership that brings together governments, civil society, the private sector, the United Nations system and other actors; and the mobilization of all available resources. Enhancing support to developing countries, in particular the least developed countries and the small island developing states, is fundamental to ensuring equitable progress for all.

The need for innovative partnerships to deliver on the global sustainability goals is recognized as such a priority that there is even a specific global goal for partnerships (SDG17).
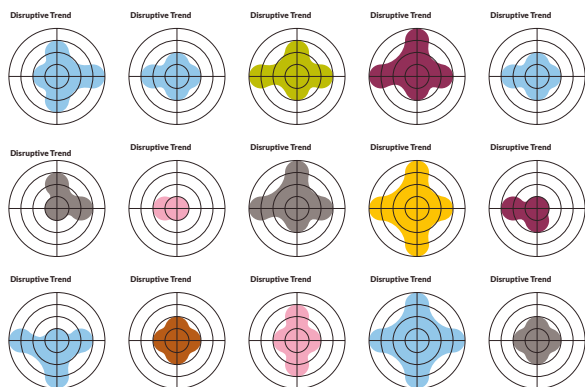
Disruptive Trends

1 NO POVERTY

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

6 CLEAN WATER AND 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 PARTNERSHIPS FOR THE GOALS

Terminology

Trend Capacity

In this work, the main focus is on potentially disruptive trends: these are trends that have the potential to drive fast and comprehensive changes in society.

Many of those potentially disruptive trends have not yet been applied on any significant scale in society, so little data is available on how they actually will impact society. The fact that there is a significant likelihood that some of these trends, especially as they converge, will have a significant impact is however close to undisputed. In the text these potentially disruptive trends, are often called disruptive trends for short, or even just trends. To better understand the disruptive trends potential impacts, other trends that key stakeholders see as important, will also be included. Many of these trends are more long-term trends where large data series exists.

Aims

1 Provide an opportunity to understand how different disruptive trends and key trends assessments are – or under which conditions can be – linked to the global SDGs, with the help of an online web-based platform.

2 Make it easier to identify disruptive trends with low probability high-impact characteristics.

3 Allow companies, the public sector, and other stakeholders to turn trend assessments into drivers for sustainable and scalable innovation, including by catalyzing opportunities for public-private partnerships.

4 Support decision-makers to develop, deploy and accelerate the uptake of solutions to sustainable development challenges with the help of disruptive trends. The support will focus both on direct delivery and indirect delivery through improved policy frameworks.

5 Encourage providers of trend assessments to include possibilities to deliver on the SDGs in their reports.

AI / Machine learning

1

2

3

4

5

The project will explore how AI / machine learning can be used to enhance trend assessment by integrating the following through the platform:

Multifunctional assessment where sentiments analysis and other innovative data techniques can be applied

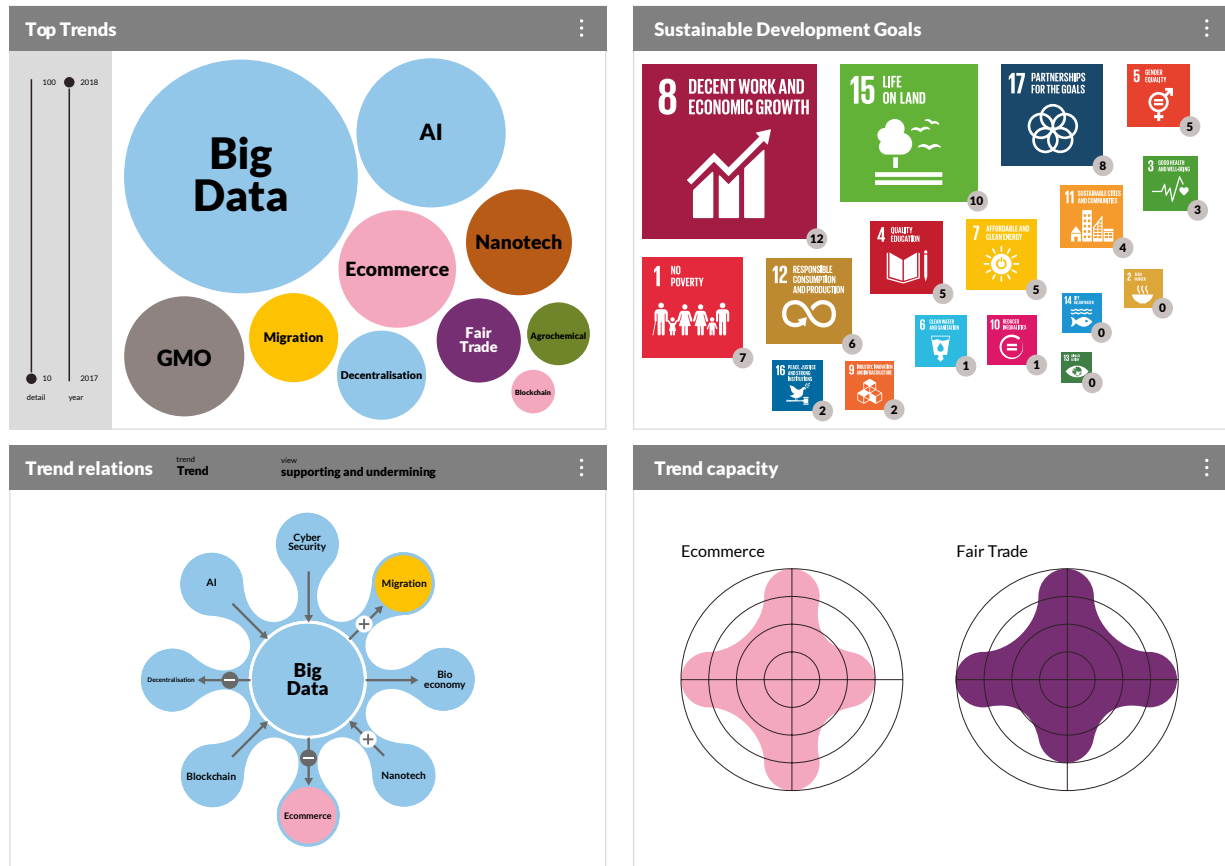**More complex relations between trends and between trends and sustainability**

Fast trend changes

Specific scientific/credible sources

More sources in general

Deliverables

prototype of web based platform

1 A web-based platform

The data will be presented on a web platform that allow users to search and sort information in intuitive and interactive ways. By providing information about specific interests and areas of work, the platform will be able to provide a tailor-made overview of relevant trends and their linkages to Sustainable Development Goals.

Initially the platform will only include mapping the SDGs and trend assessments, but will expand and use AI/machine learning to access a broader set of sources as well as allow for more sophisticated assessment of the data.

The platform will be based on graphic representation of trends and the different aspects associated with the trends. It will be developed based on user feedback, but the plan is to include both direct guidance for different stakeholders as well as suggestions for what kind of policy framework might be needed to ensure that the trend assessments can be used in optimal ways to design solutions for the SDGs.

2 Reports

Initially an annual report will be published. The tentative structure contains three parts. First, a meta assessment of the trends and input from trend experts and users of trend assessments. Second, an assessment of how science and standardized approaches are used in leading trend assessments. Third, a collection of best practices on how disruptive trends can help deliver on the sustainable development objectives. Depending on interest among users other papers and reports can also be produced.

Process

Phase 1

February 2018 – July 2018

Launch of the UNDP-RISE trend scanning initiative @ HLPF 2018

Aim: Highlight the current relation between leading trend assessments and the SDGs. Initiate a process to close the gap between trend assessments done by leading key stakeholders with high credibility and the SDGs

Begin systematic collection of feedback for the user development process

Phase 2

July 2018 – January 2019

Follow-up of the launch and development of the first full trend scanning platform where AI / machine learning will be a key part

Aim: Identify best practices where possibilities to use key trends to deliver on the SDGs and engage key stakeholders that can help

Phase 3

Q1 2019 or HLPF 2019

Launch of the trend scanning platform 1.0

Aim: To increase the understanding of which key trends support the delivery on the SDGs and how to make strategic use of these trends

Phase 4

Q1 2019-Q1 2010

Follow-up of the launch of the first full trend scanning platform and evaluation of phase 3 and 4

Aim: TBD

Appendix 1: Preliminary Structure of the Platform

Basic categorization

The framework will allow the trends to be categorized and analyzed in a structured and graphical way. The headings and explanations below are only indicative. The structure will be developed in dialogue with trend experts and future users of the platform/reports.

1   Trend area(s)
There are many kinds of trends with different impacts and interlinkages. Some examples of trend areas where disruptive trends can be found are: technology, economy, politics, geopolitics, business models, values/ethics

2   Sectors affected
The trends will be linked to different sectors, products and services depending on how they affect them and sorted both based on existing sectors and based on needs in society. Eg users can see how different experts estimate how the financial, utility, or energy sectors can be affected by different trends. But users can also see how different trends are estimated to affect key services in society.

Service
spaces, mobility, nutrition, consumption/production Art/Science

Sector (Stock markets)
financials, utilities, consumer discretionary, consumer staples, energy, health care, industrials, technology, telecom, materials, etc

3   Knowledge stakeholders.
The platform will list those who are the thought leaders for different trends. These will be sorted under the stakeholder group they belong to eg Business, Politics, Academia, Think-tanks/NGOs

4   Implementation stakeholders
The platform will provide information about the stakeholders who are at the forefront when it comes to implementing projects related to different trends. These will be sorted under the stakeholder group they belong to eg Business, Politics, Academia, Think-tanks/NGOs

5   Implementation places (Geographic hotspot)
The platform will provide information about where in the world, countries and cities, the trends are turned into reality, and where plans for implementation exists.

6   Scope
Where possible the platform will provide estimates of economic and human impacts at different years.

Time	Economic	Human
Next year	>Trillion €	All humans
Next five years	> Billion €	> 1 billion
<2050	< Billion €	> 100 million
>2050	Unknown	< 100 million
Unknown		Unknown

7   Dependence on other factors
What is driving the trend and how can it be influenced (strengthened or weakened).

8   Relation to global goals
In order to identify possible links to the SDGs the trend assessments will be categorized based on what disruptive trends they link to delivery of the SDGs and what relation they assume.
a   SDGs in general
    Supports, Undermine, Neutral or Unknown
b   Specific SDGs
    Supports, Undermine, Neutral, Unknown

Underlying categorization

To provide a more comprehensive classification of trend assessments, the platform will also include information about underlying aspects of the trends. This allow users to filter the trends in different ways, not only based on the kind of trend, but also how the trend was assessed and what rigor that was used to identify and analyze the trend.

1   Data sources
The platform will provide information about the sources for the trends, so users themselves can select which kind of source they want to include, eg a large number of peer reviewed reports (including leading journals/publications), a few peer reviewed reports (not including leading journals/publications), a single report, patents, interviews/polls, own assessment with methodology, or if it is a 'Black box', ie unknown sources.

2   Probability assessment
The platform will also provide probability data for the trends where that is available.

3   Uncertainty assessment
One of the most important aspects when it comes to trends is to understand the different uncertainties. What technologies are assumed to work, what regulations must be in place and/or removed, what changes in values/behaviors are assumed, etc. Not all trend assessment provides information about the uncertainties, but regardless the way uncertainties are addressed will be included for the trends.
    Yes/No, If yes what uncertainty

4   Falsification criteria
A key aspect in science is to have falsification criteria.
    Yes/No, If yes, what criteria

5   Future focus
There are different ways to scan and present trends based on what kind of future the studies are based on.
Eg possible futures, reasonable futures, probable futures, wanted futures, or the future can be unknown/undisclosed.

Appendix 2: Sources

Below is an initial set of sources based on what leading governments, companies and international organizations use as sources for disruptive trends. Additional sources will be added based on feedback from users. During phase two AI/Machine learning will be used to scan deeper and wider among possible sources as well as provide new functionalities.

The Big Three:
The world's three largest strategy consulting firms

1   **McKinsey**
    McKinsey Quarterly
2   **BCG**
    Megatrends
3   **Bain and company**
    Macro trends

The Big Four:
The four largest professional services networks

4   **Deloitte**
    Tech Trends
5   **PWC**
    Technology Trends
6   **EY**
    Megatrends
7   **KPMG**
    Top trends and predictions

Major international organizations

8   **OECD**
     Science, Technology and Innovation Outlook
9   **WIPO**
     World Intellectual Property Indicators
10   **IMF**
     IMF Blog
11   **World Bank**
     Global Monitoring Report
     World Development Indicators
12   **UN Population division**
     World Population Prospects
13   **ILO**
     World Employment and Social Outlook
14   **UNCTAD**
     World Investment Report
15   **UNICEF**
     The State of Food Security and Nutrition
     in the World (SOFI)
16   **EU**
     Top Ten Disruptive Technology Trends

Major experts/consultants

17   **WEF**
     8 Predictions for the world in 2030
     Top 10 emerging technologies
18   **Gartner**
     Top Trends in the hype curve
19   **Pew Research Center**
     Global Attitudes
20   **Accenture**
     Tech Vision 2017
21   **Frost & Sullivan**
     Top 50 Emerging Technologies 2017
22   **Morgan Stanley**
     5 Big disruptive trends
23   **Corum**
     Top Ten Disruptive Technology Trends

Major media outlets

24   **The Economist**
     The world in 2017
25   **BBC**
     10 grand challenges we'll face by 2050
26   **Wired**
     Next List 2017
27   **Bloomberg**
     Fifty most influential
28   **MIT Technology Review**
     10 Breakthrough Technolog s
29   **Fortune**
     Trends—And Risks
30   **Fast Company**
     The Most Important Tech Trends
31   **Thomson Reuters**
     Disruptive trends: Threat or opportunity?

UNDP's Bureau for Policy and Programme Support

UNDP works in about 170 countries and territories, helping to achieve the eradication of poverty, and the reduction of inequalities and exclusion. We help countries to develop policies, leadership skills, partnering abilities, institutional capabilities and build resilience in order to sustain development results.

The Bureau for Policy and Programme Support (BPPS). The Bureau brings together our policy work across all regions and all levels, and ensures that risk awareness and crisis prevention and recovery are fully integrated into our development work. We have increased our focus on country support, moving a larger number of our experts to our regional hubs and making sure that our policy-related work is directly relevant to country-level results.

RISE

RISE vision is to be an internationally leading partner for innovation by

- Supporting the creation of innovative, sustainable solutions to global grand challenges

- Creating powerful innovation infrastructure for industry and society

- Strengthening existing and new industry clusters

- Supporting SMEs

- Increasing both our own and our partners international presence and competitiveness

For more information

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