Response to the OSET's Opportunity Scan

IT for Change

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Part 1: General views on AI

1. In the next 3 years, compared to the last 3 months, do you expect the pace of technical change in AI (e.g. development / release of new models) to:

a. Substantially decelerate
b. Decelerate
c. Remain the same
d. Accelerate
e. Substantially accelerate
f. Don't know / No opinion

2. In the next 3 years, compared to the last 3 months, do you expect the pace of adoption and application of AI (e.g. new uses of AI in business / government) to:

a. Substantially decelerate
b. Decelerate
c. Remain the same
d. Accelerate
e. Substantially accelerate
f. Don't know / No opinion

3. For the next 3 years, when you think about the worldwide balance between potential positive impacts (opportunities) and potential negative impacts (risks) from AI, are you:

a. **Much more concerned** than excited
b. **More concerned** than excited
c. **Equally** concerned and excited
d. **More excited** than concerned
e. **Much more excited** than concerned
f. Don't know / No opinion

4. In the next 3 years, to what degree do you *generally* agree that AI will enable increased economic activity?

g. Strongly disagree
h. Disagree
i. Neither agree nor disagree
j. Agree

[1] This response was drafted by IT for Change's Executive Director Anita Gurumurthy and Research Associate Merrin Muhammad Ashraf. To know more about IT for Change's work visit www.itforchange.net.

k. Strongly agree
l. Don’t know / No opinion

5. In the next 3 years, to what degree do you *generally* agree that AI will enable accelerated scientific discoveries?

m. Strongly disagree
n. Disagree
o. Neither agree nor disagree
p. Agree
q. Strongly agree
r. Don’t know / No opinion

6. In the next 3 years, to what degree do you *generally* agree that AI will enable progress on the Sustainable Development Goals?

Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree
Don’t know / No opinion

PART 3: AI Impact in Lower-middle/low-income Countries

14. To what degree are you aware of specific examples of AI currently making or having recently made direct contributions to generally increasing economic activity in lower-middle/low-income countries?

1. Don't believe AI is causing any positive impact
2. Aware of AI causing minor positive impact
3. Aware of AI causing positive impact
4. Aware of AI causing major positive impact
5. Aware of AI causing transformative positive impact
6. Don’t know / No opinion

To what degree are you aware of these specific examples causing increased economic activity through any of the following mechanisms?

Topics	Don't believe AI is causing any positive impact	Aware of AI causing minor positive impact	Aware of AI causing positive impact	Aware of AI causing major positive impact	Aware of AI causing transformative positive impact	Don't know / No opinion
Increasing efficiency		☑				
Increasing innovation		☑				
Creating new jobs		☑				
Helping start-ups &small/me dium enterprises		☑				
Improving resource managem ent	☑					
Improving manufactu ring	☑					
Improving government services	☑					

Please elaborate on concrete examples of impact with case studies, names of organizations / contact information, data, or links to relevant publications. (The examples do not need to be restricted to only the mechanisms listed above)

To create a system-wide and sustained impact of technology in India and other developing countries, it is crucial to significantly increase public investment. This should be coupled with localized approaches and foundational AI models that address the specific contextual needs of different regions. The gig economy has further exacerbated informality in the labor market, with labor rights progressing slowly and inadequate support for large public sector systems to foster innovation. A deterministic approach often dominates, with sub-national governments overlooking the opportunity costs for the population in celebrated partnerships, such as Microsoft's data centers in Telangana. A model of building public digital infrastructure is Kerala Food Platform which highlight the potential for innovation at the local level. The Kerala Food Platform serves as a customizable public digital infrastructure that can be adapted by local agricultural ecosystems, including cooperatives and farmer producer organizations. It offers end-to-end traceability and supports data transparency throughout the supply chain. Some concrete examples of positive use cases of AI are:

1. Nebula's MATT technology uses machine learning and deep learning to test quality of food grain https://www.indiatimes.com/technology/news/this-startup-built-an-ai-based-grain-anal yser-that-will-tell-farmers-exact-quality-of-the-crop-355901.html
2. Vassar Labs predicts groundwater rich areas and the rate of groundwater depletion using data from sensors and satellite as inputs to local governments. This gives real-time visibility into

water storage and leverages actionable insights for key decision makers.
https://www.linkedin.com/posts/vassar-labs_wris-waterresources-technology-activity-6839550361921953793-8iSV/

3. Aarghyam's Participatory Groundwater Management (PGWM) platform has recently adopted digital technologies including AI and data analytics to map groundwater resources, predict water availability, and monitor usage patterns.
https://www.indiawaterportal.org/articles/arghyam-praxis-regenerating-groundwater-civilisation ; https://www.isdm.org.in/pdf/tmi-reports/arghyam.pdf
4. World Economic Forum is also engaged in supporting India's agricultural transformation by driving the use of AI and related technologies for agricultural advancements. Its Saagu Baagu pilot project in collaboration with state government of Telangana substantially improved the chili value chain for more than 7,000 farmers. https://www.weforum.org/impact/ai-for-agriculture-in-india/ . However, in projects like these, we will need social and environment impact studies to understand the ripple effects of such projects on local ecology and environment.
5. In manufacturing, Tata Steel in India uses AI for predictive maintenance, reducing downtime and enhancing production efficiency. AI-driven analytics anticipate equipment failures and schedule maintenance proactively.
6. Indian Railways has launched the 'Ideal Train Profile' initiative to optimize capacity utilization and boost revenue in reserved mail express trains by continuously analyzing the demand patterns of each train. This AI-driven program has, for the first time, allocated vacant berths across more than 200 trains, reducing the number of passengers who leave without a confirmed ticket. Developed by the Railways' in-house software team, the Centre for Railway Information Systems (CRIS), this AI module, known as Ideal Train Profile, was programmed with data such as booking patterns of millions of passengers, popular and unpopular origin-destination pairs at different times of the year, and details of which seats remained unoccupied during various parts of a journey.
https://theprint.in/economy/indian-railways-introduces-ideal-train-profile-to-maximise-the-capacity-utilisation/1330162/
7. IT for Change's project has implemented an AI-driven software to support English language teachers in the public school system burdened with high teacher-pupil ratios. The software aids them in oral assessments, provides actionable recommendations, and enables them to monitor learners' progress over time. The software potentially enables inclusion as students acquire English competencies to support their learning and socio-economic mobility.
https://itforchange.net/open-decentralized-ai-based-assessments-for-english-government-school-teachers
8. This report maps the AI's potential for tech-enabled micro, small, and medium enterprises in India:
https://nasscom.in/ai/ai-enablement/pdf/enablement-of-ai-for-msme-whitepaper.pdf

In the examples above, what actors are playing a role in developing, applying or enabling these opportunities? Select all that apply

1. Domestic private sector / industry
2. Foreign private sector / industry
3. Domestic public sector / government
4. Domestic civil society
5. Domestic academia
6. Other foreign actors
7. International organizations
8. Other (Please specify)

To what degree are you aware of specific examples of AI *currently* or *having recently* directly contributed to progress on each SDG in lower-middle/low-income countries?

Please consider direct impacts from AI only (e.g. please do not consider indirect effects of general increased economic activity on Education when assigning your rating for SDG 4). However, please do consider potential from scientific research to directly contribute to a goal. For each SDG answered other than 'Don't believe AI is causing any positive impact', if possible, please provide concrete examples with case studies, names of organizations / contact information, data, or links to relevant publications. Examples could be from governments, academia, industry, civil society, or any combination.
If you are not in a position to have an informed opinion on a specific SDG, please select 'Don't know / No opinion'
(If you know of examples of AI causing positive impact, and different examples of AI causing negative impact / harm, please consider only the positive examples in your response. For this specific research question, we are looking to isolate examples of positive AI impact, not determine whether AI is "net" positive overall. This is not to imply that harms from AI are not occurring.)
(N.B. as noted previously, the list intentionally does not contain SDGs 8, 9 and 17) (You may need to scroll to left/right to see all 6 response options)

SDG 4 Quality education: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
To what degree are you aware of specific examples of AI currently or having recently directly contributed to progress on each SDG in lower-middle/low-income countries?

1. Don't believe AI is causing any positive impact
2. Aware of AI causing minor positive impact
3. Aware of AI causing positive impact
4. Aware of AI causing major positive impact
5. Aware of AI causing transformative positive impact
6. Don't know / No opinion

Please elaborate on examples

Research shows that the lack of investment in public education and neglect of adult education is at the base of poor adoption of technology in general in education. If anything, in the absence of critical thinking about AI, applications of AI like Chat GPT are destabilizing learning processes including assessment. However, there are some initiatives that are attempting to build AI tools for education in a bottom-up manner:

- IT for Change's project has implemented an AI-driven software to support English language teachers in the public school system burdened with high teacher-pupil ratios. The software aids them in oral assessments, provides actionable recommendations, and enables them to monitor learners' progress over time. The software potentially enables inclusion as students acquire English competencies to support their learning and socio-economic mobility.

- The software promotes collaborative innovation and evolution because it is implemented as Free and Open Source Software. It avoids problems of similar proprietary Ed-Tech AI offerings - vendor lock-ins, price increases, opaque data practices (constituting surveillance) and closed algorithms. With a decentralized architecture, the software can function on school desktops, and without internet, thereby promoting inclusivity and the ability to scale and sustain; unlike Ed-Tech models with centralized deployments on resource-intensive servers that require reliable internet connectivity.
  https://itforchange.net/open-decentralized-ai-based-assessments-for-english-govern ment-school-teachers

- Kerala Information and Technology Education (KITE) is developing an AI engine, a first-of-its-kind in the country for a state education department, to ensure students receive validated and unbiased information. Kerala is also set to become the first state in India where all teachers will have got training in artificial intelligence (AI).
  https://www.newindianexpress.com/states/kerala/2024/Jun/01/kite-pioneers-ai-engine-to-combat-misinformation-among-students ;
  https://www.thehindu.com/news/national/kerala/kerala-to-become-first-state-where-all-teachers-will-get-ai-training-minister/article68139927.ece

What actors do you expect to play a role in developing, applying or enabling these opportunities for SDG 4 Quality education? Select all that apply

1. Domestic private sector / industry
2. Foreign private sector / industry
3. Domestic public sector / government
4. Domestic civil society
5. Domestic academia
6. Other foreign actors
7. International organizations
8. Other (Please specify)

SDG 5 Gender equality: Achieve gender equality and empower all women and girls

To what degree are you aware of specific examples of AI currently or having recently directly

contributed to progress on each SDG in lower-middle/low-income countries?

1. Don't believe AI is causing any positive impact
2. Aware of AI causing minor positive impact
3. Aware of AI causing positive impact
4. Aware of AI causing major positive impact
5. Aware of AI causing transformative positive impact
6. Don't know / No opinion

Please elaborate on examples

- Fixing the bAIs Campaign: Using AI to Correct Gender Bias in AI campaign uses AI-generated images to address representational bias in AI image generators. Through gender-intentional text prompting of existing AI image generators, the campaigners have built an image database of representations of women in positions of expertise and high skill segments of the labour market. These images have been added to the public stock/pool of training data on open licensing terms (royalty and rights-free).

  The initiative is by MullenLowe MENA for Aurora 50 and is implemented in the UAE, https://fixingthebais.com/

- The Mitigating Bias in Artificial Intelligence: An Equity Fluent Leadership Playbook provides business leaders with essential information on bias in AI systems and offers strategic plays to address and mitigate these biases. This playbook is suitable for different sized organisations. It offers 7 strategic "plays" to embed a gender perspective into AI development, embracing aspects such as responsible data management and algorithm development, corporate responsibility, and a culture of ethics.

  The initiative is by The Center for Equity, Gender and Leadership at the Haas School of Business (University of California, Berkeley), https://haas.berkeley.edu/equity/resources/playbooks/mitigating-bias-in-ai/#:~:text=By%20mitigating%20bias%20in%20AI,execute%207%20strategic%20%27plays

- Online gender-based violence against gender and sexual minorities and misogyny results in offline harm and results in people receding from online spaces. Uli is a browser plug-in tool that allows us to filter out offensive words/phrases, archive problematic content and call out for support. The machine learning feature uses pattern recognition drawing from previously tagged oGBV posts to detect and hide problematic posts from a user's feed.

  Uli was born from the collective labour of journalists, activists, community influencers, and writers engaged in the struggle against the interwoven caste, religion, gender and sexuality-based violence both online and offline. In its second year, Uli is evolving as a user-facing tool; as well as a set of resources that researchers, Trust and Safety teams and professionals, and journalists can use in their workflows.

https://uli.tattle.co.in/

What actors do you expect to play a role in developing, applying or enabling these opportunities for SDG 5 Gender equality? Select all that apply

1. Domestic private sector / industry
2. Foreign private sector / industry
3. Domestic public sector / government
4. Domestic civil society
5. Domestic academia
6. Other foreign actors
7. International organizations
8. Other (Please specify)

SDG 10 Reduced inequalities: Reduce inequality within and among countries

To what degree are you aware of specific examples of AI currently or having recently directly contributed to progress on each SDG in lower-middle/low-income countries?

1. Don't believe AI is causing any positive impact
2. Aware of AI causing minor positive impact
3. Aware of AI causing positive impact
4. Aware of AI causing major positive impact
5. Aware of AI causing transformative positive impact
6. Don't know / No opinion

Please elaborate on examples

- The Deep Learning Indaba is a grassroots movement whose mission is to strengthen African Machine Learning through annual meetings of the African machine learning and AI community with the mission to Strengthen African AI. The intent is that Africans should not merely be observers and receivers of the ongoing advancements in AI, but active shapers and owners of these technological developments. The word "indaba" is a Zulu word that means "gathering" or "meeting" and is a way for people to come together to engage in a week-long event of learning, research, exchange, ideation, and debate around the state of the art in machine learning and artificial intelligence. https://deeplearningindaba.com/2023/

- PUEDA is a comprehensive awareness-raising project that seeks, through different actions, to advocate digital accessibility as a universal right, particularly focusing on people with disabilities and those with limited digital literacy. The main objective of the initiative is to disseminate key concepts and good practices of digital accessibility to actors from state agencies, civil society, academia and the private and technical sectors. The starting point of PUEDA - For An Accessible Digital Environment was the investigation Access to information and communication services and people with disabilities - An exploratory study carried out

in the Southern Cone region (2019) - which was carried out by the Association for Civil Rights (ADC) together with the Observatory of Disability of the University of Quilmes for a regional diagnosis on the state of digital accessibility in Argentina, Chile and Uruguay. https://accesibilidad-digital.adc.org.ar/pueda

What actors do you expect to play a role in developing, applying or enabling these opportunities for SDG 10 Reduced Inequalities? Select all that apply

1. Domestic private sector / industry
2. Foreign private sector / industry
3. Domestic public sector / government
4. Domestic civil society
5. Domestic academia
6. Other foreign actors
7. International organizations
8. Other (Please specify)

By when do you expect it is likely (50%+ chance) that AI will cause a major positive impact towards progress on the SDGs in lower-middle/low-income countries?

1. Already occurring
2. Within next 18 months
3. Within next 3 years
4. Within next 10 years
5. Longer than 10 years / never
6. Don't know / No opinion

How important do you consider the below factors in causing additional difficulty for lower-middle/low-income countries (compared to high/upper-middle-income countries) in harnessing AI to drive additional economic activity and progress on the SDGs?

Our goal is to understand the factors that might exacerbate an "AI Divide" between countries, so please consider the incremental degree to which these factors specifically limit low/lower-middle-income countries more than high/upper-middle-income countries. E.g. if a factor equally limits all countries, select 'Not important'