

Digitalization and Artificial Intelligence (D&AI) for SDG 13



By Shivam Gupta

With the 2015 Paris Agreement on Climate Change, 197 countries committed themselves to ambitious efforts of combating climate change, adapting to its effects, and providing enhanced support to other countries. In 2015 UN member countries also adopted the 2030 Agenda for Sustainable Development—a comprehensive global action plan for “people, planet, and prosperity” incorporating 17 Sustainable Development Goals (SDGs) and 169 Targets, together with Goal 13 on Climate Action.

D&AI for SDG 13 Indicators and Interlinkages

These agreements aspire for transformative change requiring actions that cut across multiple domains, stakeholders, and regions. Great potential exists in collaboration mechanisms and partnerships to bring together actors while breaking down siloes for cohesive action. The multidisciplinary collaboration affairs have not been widely transversed, highlighting the complexities and challenges which require further investigation. Digitalization and Artificial intelligence (D&AI) is a strategic tool that is stimulating major transformations globally in this respect. The nexus between D&AI and sustainable development is perceived as a remarkable combination, offering possibilities within and across domains, regions, and organizations by filling the information void. However, the nexus remains scarcely explored, and limited information exists about the extent to which D&AI could contribute or curb the progress towards the Agenda 2030. Therefore, responsible and systemic quantifiable and multidisciplinary perspectives are highly desired for collective and cohesive action.

In the digitainable thinkathon, we contemplated the status of interpretation among diverse experts working on the cross-section of D&AI and sustainability to bring forth the complexities concerning relationships between SDGs and D&AI. We focused on the SDG 13 indicators during the discussion aided by Digitalisation-Sustainability Matrix (DSM), which we developed to analyze a body of evidence and knowledge addressing two intersecting questions: (1) Can the progress of the indicator be affected by D&AI ? and (2) Are there any synergies or trade-offs between the indicators and technologies? The matrix below highlights the rich responses from the experts.

The anatomy of digitalization for SDG 13- Take urgent action to combat climate change and its impacts

		Data Driven			Analytics Driven			Design Driven		
		Mobile internet technologies/App	Block chain	Internet of Things Digital twin technologies	Big data	Cloud computing Edge computing	AI Machine learning Deep learning	Virtual/augmented reality	Adaptive manufacturing 3D printing	
SDG13 Indicators										
13.1.1	Persons directly affected attributed to disasters									
13.1.2	Adoption and implementation of disaster risk strategies by countries									
13.1.3	Adoption and implementation of local disaster risk strategies by local governments									
13.2.1	Establishment or operationalization of an integrated policy/strategy/plan by countries									
13.3.1	Integrating mitigation, adaptation, impact reduction and early warning in education curricula									
13.3.2	Capacity-building to implement adaptation, mitigation and technology transfer									
13.a.1	Mobilized funds per year between 2020 -25 towards the commitment									
13.b.1	Support least developed countries /island/states that are receiving specialized support									

What did we learn from the detailed discussion?

Positive Relevance (referring to some of the green marks in the DSM)

Mobile technology: “But mobile analytics could be used to track refugee streams related to climate change and natural disasters.”

AI: “I am currently using AI for SDGs, for example, SDG 17. There are examples of healthcare data tracking in East Africa for COVID-19. Optimistic yes, as for covid-19, it provides a tool for rapid response for the crisis.”

Mobile technology: “with mobile phone data, you can use triangle analytics to know how many people are gathered in a certain area. ”

Mobile technology: “also for disaster response in connection with SDG 17. How support supply chains should look like, considering the systems are already operating. It is very user-centered. It can be applied to design the supply chain focusing on the current immediate needs, such as shelter, food, sanitation. Based on the collected data from phones.”

Mobile technology: “There is also data tracking in farming in the US. Smartphones are being used to analyze the land, how to optimize agriculture and the water supply. So far, the results are very positive.”

AI: “75% of the targets are positively affected by AI, and 15% are negatively affected, as stated in this paper. It is a valuable framework for these interlinkages.”

AI: “as we can see, according to this paper, AI has an 80% positive impact on SDG 13 targets and 100% impact on SDG 11 (sustainable cities).”

AI: “AI can be very useful to optimize efficiency in heating and electricity in the city scale.”

AI: “the office for international affairs and global sustainability, so digitalization is a big potential for sustainability as we can optimize itineraries, for example, also self-driving vehicles.”

D&AI: “Technology will help us be faster and more efficient but has to be driven by people.”

AI: “AI can be a game-changer. In communities, it can connect the dots in isolated systems.”

Block Chain: “Blockchain technology in the manufacturing companies most relevant issues for climate change. Therefore, it helps a lot for the public government to manage.”

AI: “We have to involve people working on AI as well. How to deploy certain applications helps with the social aspect of acceptance. Very important to bring developers in the discussion.”

D&AI: “Daring cities conference is going to be online, so maybe this is an opportunity to insert digitalization into climate discussions, between governmental level and also to the next COP 26 when it happens next year.”

Negative Relevance (referring to some of the red or yellow marks in the DSM)

D&AI: “It is applicable to track from location A to location B but needs to be more specified for SDG 13 circumstances. If the indicator is not defined enough, it is still too abstract to apply in many cases. We have to specify what disaster within the climate change context we are talking about.”

Mobile and AI: “We have to be careful that what is doing now will open precedence regarding levels of privacy in the future.”

Mobile and Big Data: “companies already have projects to track house data in Africa, and there was no data protection on that. There is a philosophical discussion of data protection that will be discussed in the next five years. All the issues with data protection, security, and related elements.”

Mobile technology: “A very important point in this conversation is about energy access. Mobile technologies are really dependent on energy sources. We have to consider the availability of electricity, especially in the case of a disaster. Technologies use a lot of energy.”

D&AI/Big data: “when it comes to a pool, for example, considering the public opinion, people tend to be skeptical and careful with new technologies. ”

AI: “negative impacts of AI in climate change is the energy aspect, as AI will require a lot of energy as was mentioned, certainly a negative impact on climate change.”

Big Data/Cloud Computing/AI: “If we have data centers for technology that cannot build in an efficient way, then will be for nothing. So In cities, there also many other situations to be discussed that this applies, such as relating to autonomous cars, for example, and others. It is expected that electricity for data computing worldwide will increase in the future.”

AI: “Another very important point is how people will feel threatened by AI in their territories, about losing their jobs, their democratic rights, being observed. It is important to analyze community acceptance.”

D&AI: “Digitalization, for example, is not very present in these international conversations about climate change.”

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