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Artificial Intelligence

The unspoken issues

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Issues with AI

Energy Consumption & GHG Emissions

Increasing Electronic Waste

Triggering Overconsumption and Overproduction

Biodiversity Loss and Water Consumption

Noisy Data

Traveling Data Sets

Biases in Hiring, HR procedures, Algorithms & Models

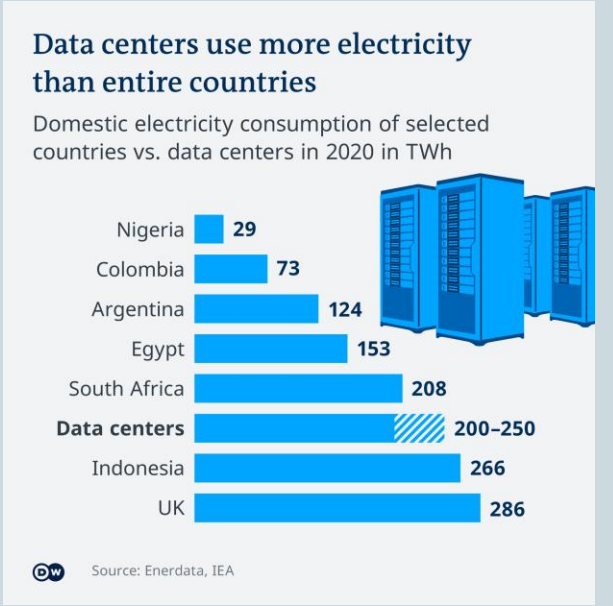
High energy Consumption and GHG Emissions

Issue

Data centres that host AI models require massive amounts of energy, leading to GHG emissions.

Solution

- Optimize AI algorithms to reduce the computational power needed
- Transition to energy-efficient hardware (e.g., low-power chips)
- Invest in renewable energy sources (e.g., solar, wind, hydrogen) to power data centres
- Design energy-efficient hardware



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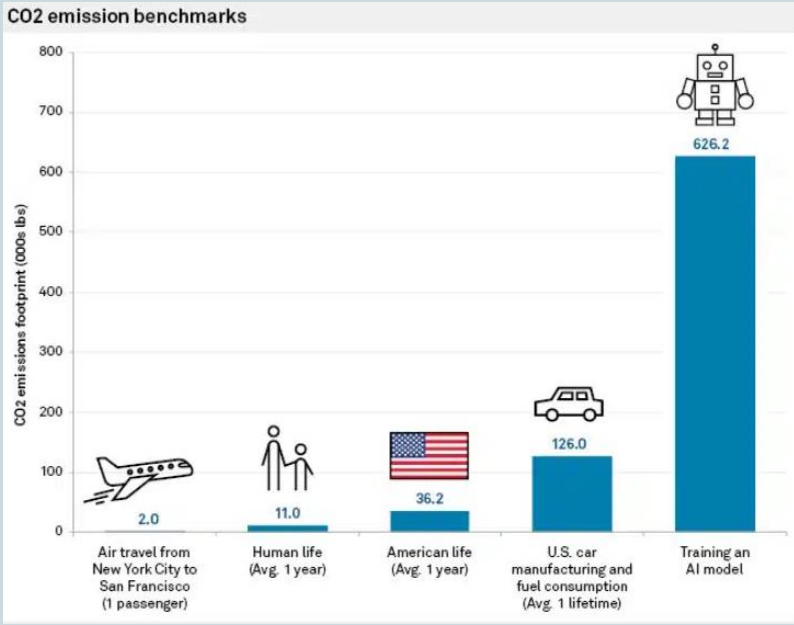

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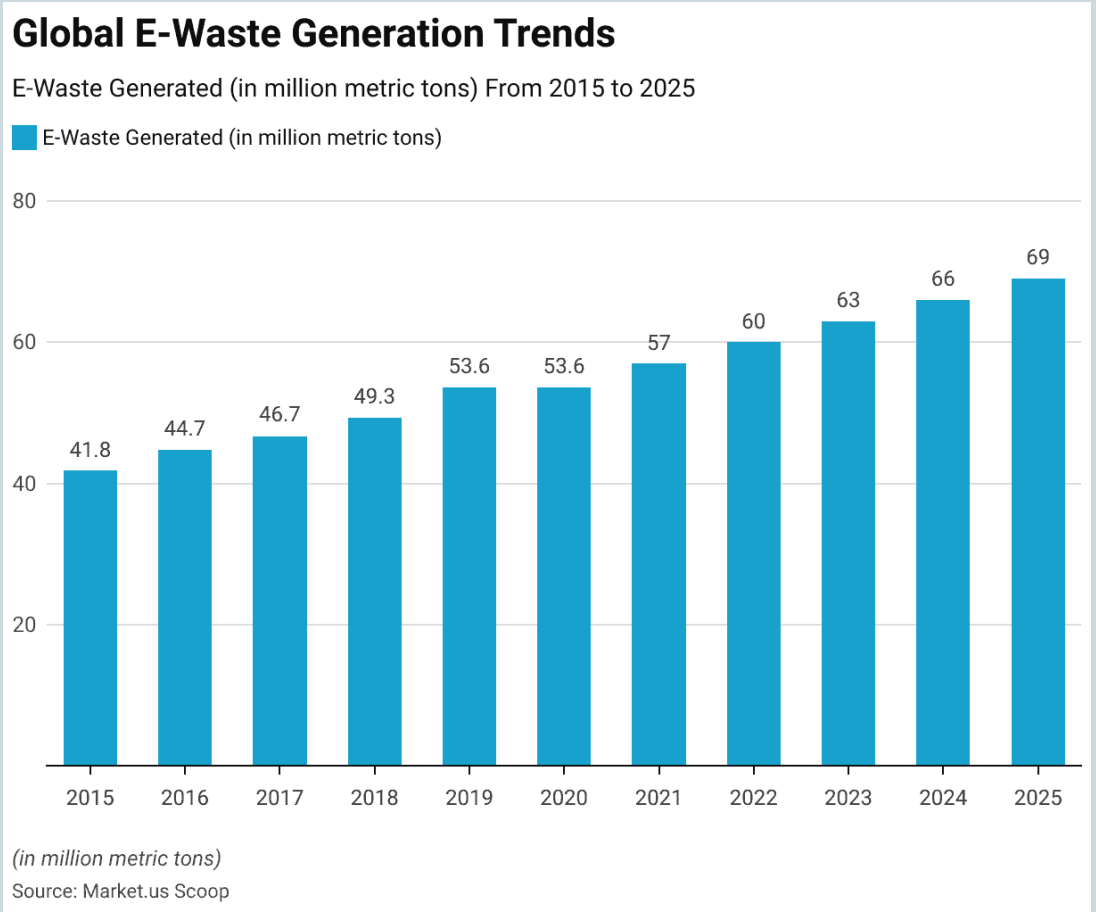
Increasing Electronic Waste

Issue

The environmental footprint of manufacturing and using specialized AI hardware (e.g., GPUs) is significant. Generative AI could account for up to 5 million metric tons of e-waste by 2030, according to a new study.

Solution

- Invest in sustainable manufacturing practices for AI hardware
- Design hardware with a longer lifespan to reduce e-waste
- Recycle and repurpose older hardware to minimize waste



Source

Triggering Overconsumption and Overproduction

Issue

AI enhances platforms' ability to predict consumer preferences, offering personalized benefits but also creating an information imbalance. Platforms gain deep insights into consumer attraction ("glossiness") and can exploit vulnerabilities like impulse buying.

Solution

- Implement sustainability metrics in optimization algorithms
- Focus on reducing waste through better demand forecasting
- Incorporate circular economy principles into AI-driven production processes

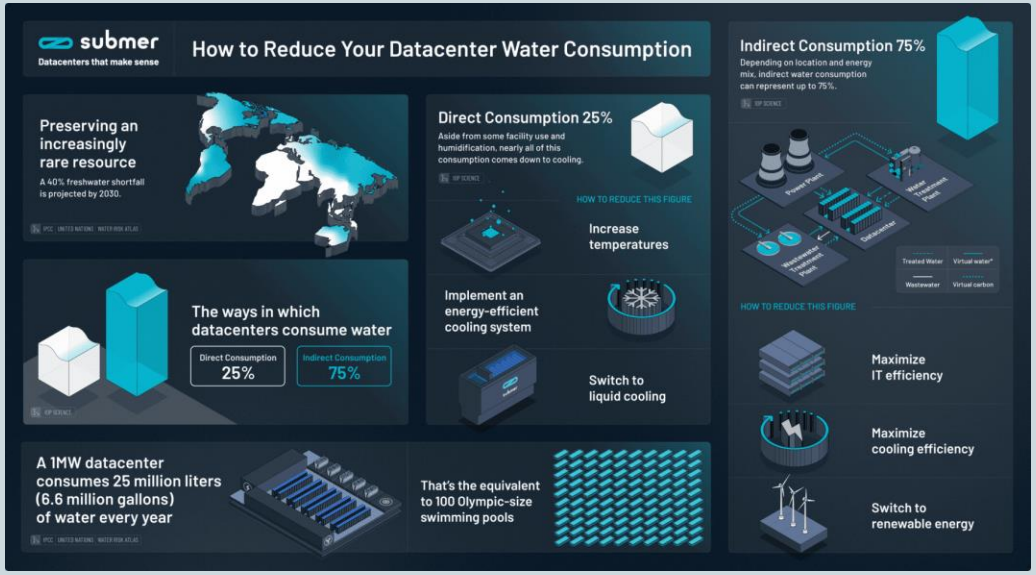
Biodiversity Loss and Water Consumption

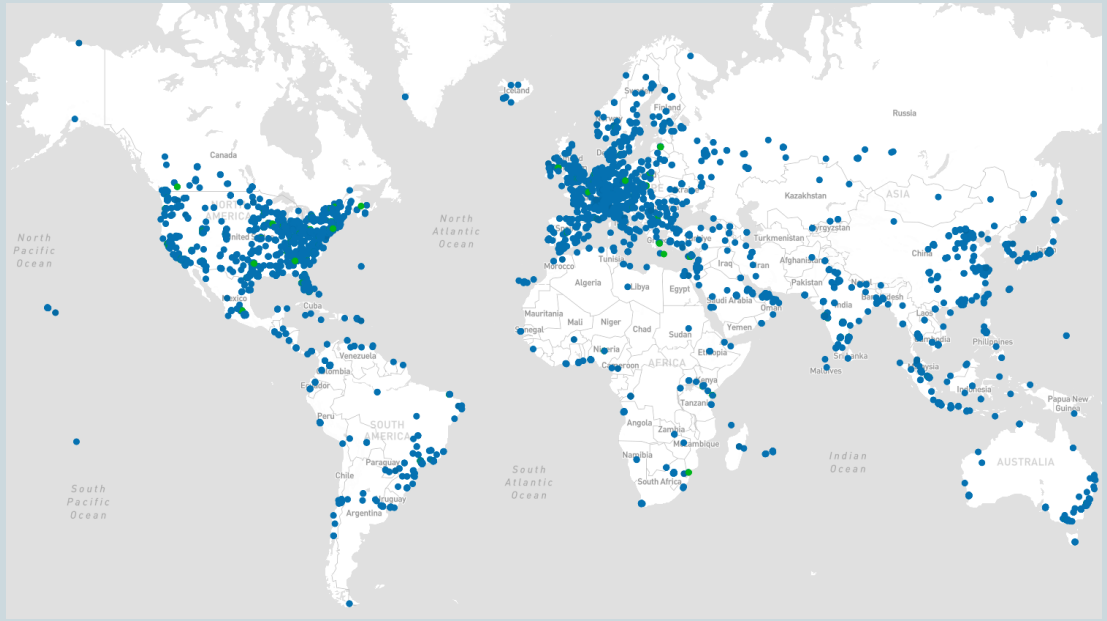
Issue

Increased demand for online services and generative AI has driven tech giants to significantly increase water usage for cooling data centres.

Solution

- Understand the location of where you place the data centre, i.e., in areas of water stress or areas that could impact species
- Collaborate with other data hosts to perform impact and risk assessment on biodiversity impacts and risks
- Measure water consumption and mitigate the impact





Source

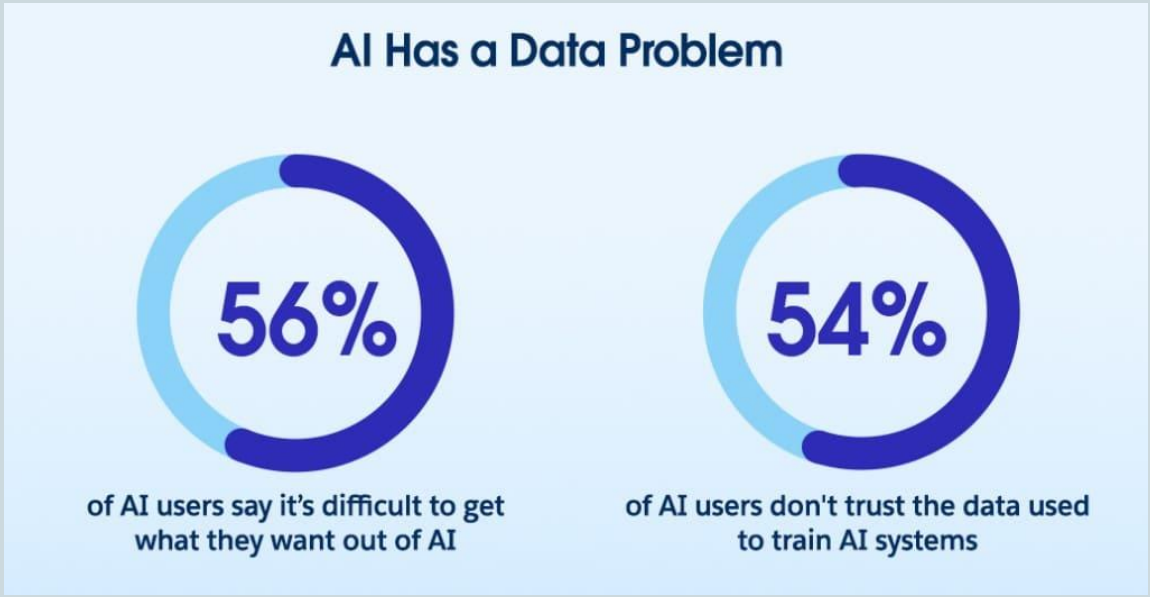
Noisy data

Issue

The obstacle of messy data leads to poor insights, wasted resources, and lost opportunities. Conversely, data standardization and quality are crucial for reliable predictions.

Solution

- Implement better data-cleaning techniques to remove inconsistencies
- Use advanced filtering algorithms to handle noisy data
- Employ data validation protocols to ensure high-quality input data



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Traveling data sets harming the integrity of people

Issue

Transferring and storing large datasets can be costly and inefficient, and certain datasets have privacy concerns

Solution

- Adopt federated learning, where data stays at the source, minimizing transfer
- Use Data Statements, data fairness audits.

Duke researcher apologizes for exposing student images to Chinese military

A database containing images of 2,000 students has now been used by organizations around the world, including two Chinese military research academies.

Duke MTMC Dataset

Algorithm and model biases in loan applicants and hiring processes

Issue

AI models can perpetuate biases if not properly trained, leading to unfair or discriminatory outcomes i.e, Loan application and unfair hiring practices

Solution

- Use diverse and representative datasets during training to reduce bias
- Regularly test algorithms for bias and retrain them with diverse datasets
- Include human oversight in the hiring process to mitigate bias. Incorporate fairness-aware AI frameworks to ensure equitable decision-making

Source

Reducing the environmental footprint and avoid biases

Collect environmental data: energy consumption, GHG emissions, waste, water

Understand the company's impact on biodiversity

Understand the company impact on water, conduct water assessment of water-stressed areas

Scope mapping and set up data management processed

Collect social data on workforce, value chain workers, communities, and users

Assessing the impact of data use and training on users

Risk analysis on the use of data and training impacting consumers and end users

Human rights impact assessment and establishing unbiased recruiting processes

Thank you!

Contact

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We have bespoke solutions for your AI development