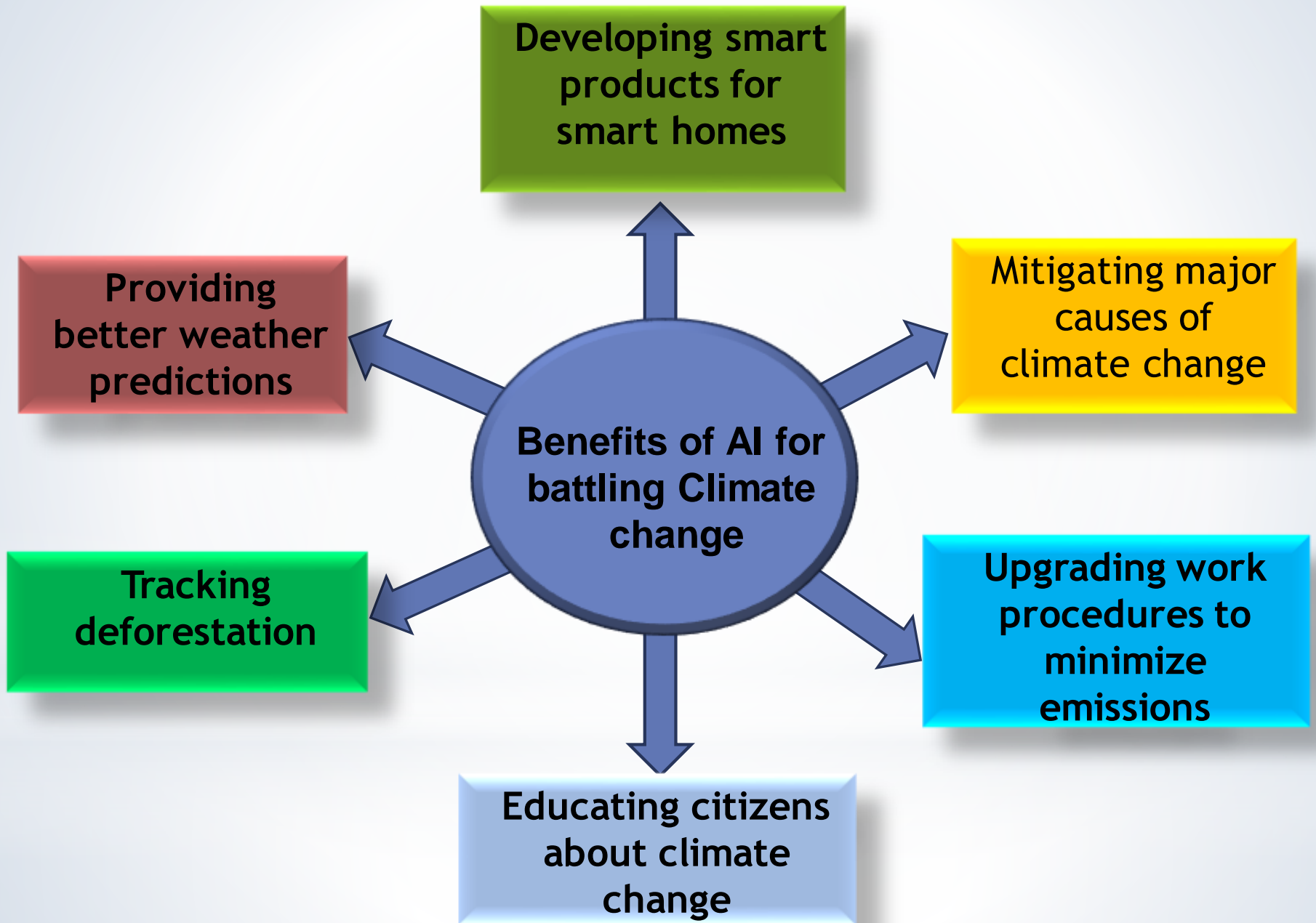


Applications of AI for climate change adaptation and the contributions of the African AI Research Center (ARCAI)

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AI applications for climate Change mitigation and adaptation

Gathering information

- ▶ AI can help obtain estimates for some of information by analyzing large amounts of raw data (such as geospatial imagery, text documents, or sensor data).
- ▶ AI can be applied to satellite imagery to help pinpoint sources of greenhouse gas emissions, gather information about building efficiency characteristics, and track deforestation

Forecasting

- ▶ AI can help provide forecasts of quantities such as wind power production, transportation demand, and extreme events by analyzing patterns in historical data.
- ▶ forecasts can in turn provide much-needed foresight in contexts such as power system optimization, infrastructure planning, and disaster management.

Improving operational efficiency

- ▶ AI can help improve the efficiency of real-world systems by improving how these systems are optimized.
- ▶ Managing industrial heating and cooling systems, consolidating freight shipments, and reducing waste in the food industry.

AI applications for climate Change mitigation and adaptation cont..

Predictive maintenance

- ▶ By detecting faults early, AI can help increase infrastructure safety, drive down costs, and increase the energy efficiency of systems.
- ▶ AI has been used to detect leaks in natural gas pipelines, identify anomalies in solar panel outputs, and forecast faults in infrastructure or industrial equipment.

Accelerating scientific experimentation

- ▶ AI can help accelerate the process of scientific discovery, e.g., by learning from past experiments in order to suggest future experiments that are more likely to be successful
- ▶ AI can help accelerate the development of clean technologies such as batteries or next-generation solar cells.

Approximating time-intensive simulations

- ▶ AI can help speed up computationally intensive simulations that are used to model climate physics or in engineering systems.
- ▶ AI can help approximate portions of climate models and power system optimization models, and is already being used to speed up city planning tools to aid real-time decision-making.

Policy levers to leverage AI for climate adaption in Africa



- ▶ Advancing the technical readiness of AI applications for climate change mitigation and adaptation, through research, development, and demonstration (RD&D) programs.

- ▶ ARCAI will play a fundamental role in this respect

- ▶ Regulating the impacts of AI-driven technologies that are emerging or already in use across many sectors of the economy

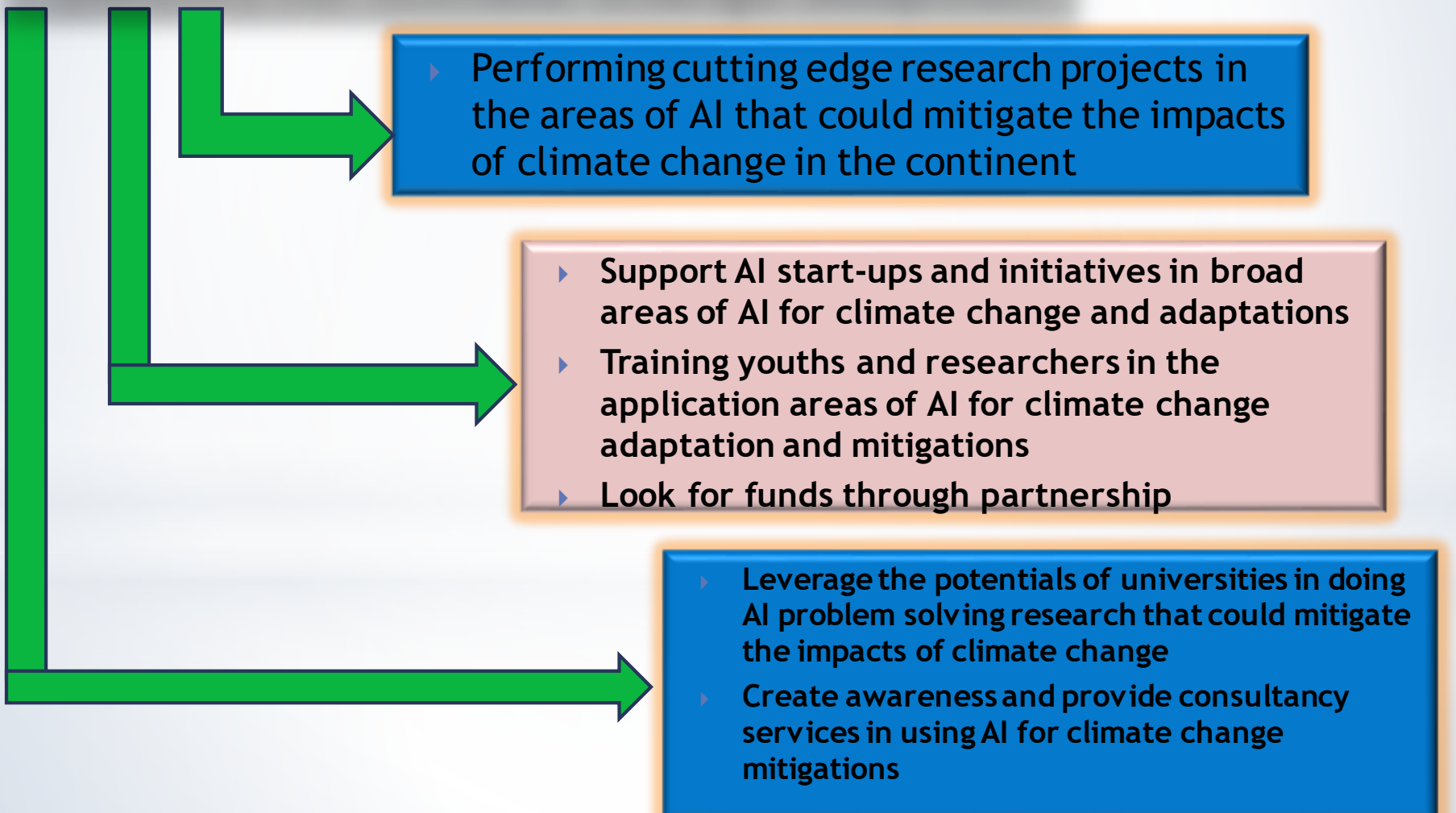
- ▶ Bringing AI technologies on board for climate change adaption

- ▶ increasing public sector capacity for regulation and innovation at the intersection of AI and climate change

- ▶ Where applicable, mandate transparency and reporting of greenhouse gas emissions or energy consumption impacts of AI, including life-cycle impacts and externalities.

- ▶ Reduce regulatory hurdles to the deployment of AI technologies in sectors and industries relevant to climate change mitigation and adaptation (such as the electricity sector).

Contributions of the African Research Center for Artificial Intelligence (ARCAI) for climate change adaption

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- ▶ Performing cutting edge research projects in the areas of AI that could mitigate the impacts of climate change in the continent

- ▶ Support AI start-ups and initiatives in broad areas of AI for climate change and adaptations
- ▶ Training youths and researchers in the application areas of AI for climate change adaptation and mitigations
- ▶ Look for funds through partnership

- ▶ Leverage the potentials of universities in doing AI problem solving research that could mitigate the impacts of climate change
- ▶ Create awareness and provide consultancy services in using AI for climate change mitigations

Thanks