DATE: 9 NOVEMBER 2026

1 Physical AI (Source: The Indian Express)

Physical AI

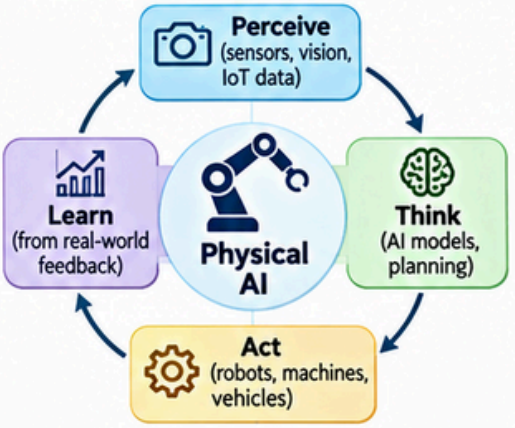
AI systems that perceive, learn, reason and act in the real, physical world through embodied machines (e.g., robots, autonomous vehicles, drones, smart machines).



Key Features

- **Perception** – understands real-world surroundings (vision, sensors, etc.).
- **Reasoning & Learning** – makes decisions and improves from experience.
- **Action** – performs physical tasks (movement, manipulation, control).
- **Embodiment** – integrated with a physical body (robot, vehicle, device).

How It Works



Key Applications



Manufacturing
(automated & adaptive production)



Mobility
(self-driving vehicles, logistics, drones)



Agriculture
(precision farming, crop monitoring)



Healthcare
(assistive & surgical robots)



Disaster Management
(search, rescue and hazard response)

Enabling Technologies

- **Advanced AI models** (e.g., large multimodal models)
- **Robotics & actuators** (movement, manipulation)
- **Sensing technologies** (vision, LiDAR, IoT)
- **Edge/real-time computing** (fast, on-device decisions)
- **Energy systems** (batteries, efficient power)

Significance

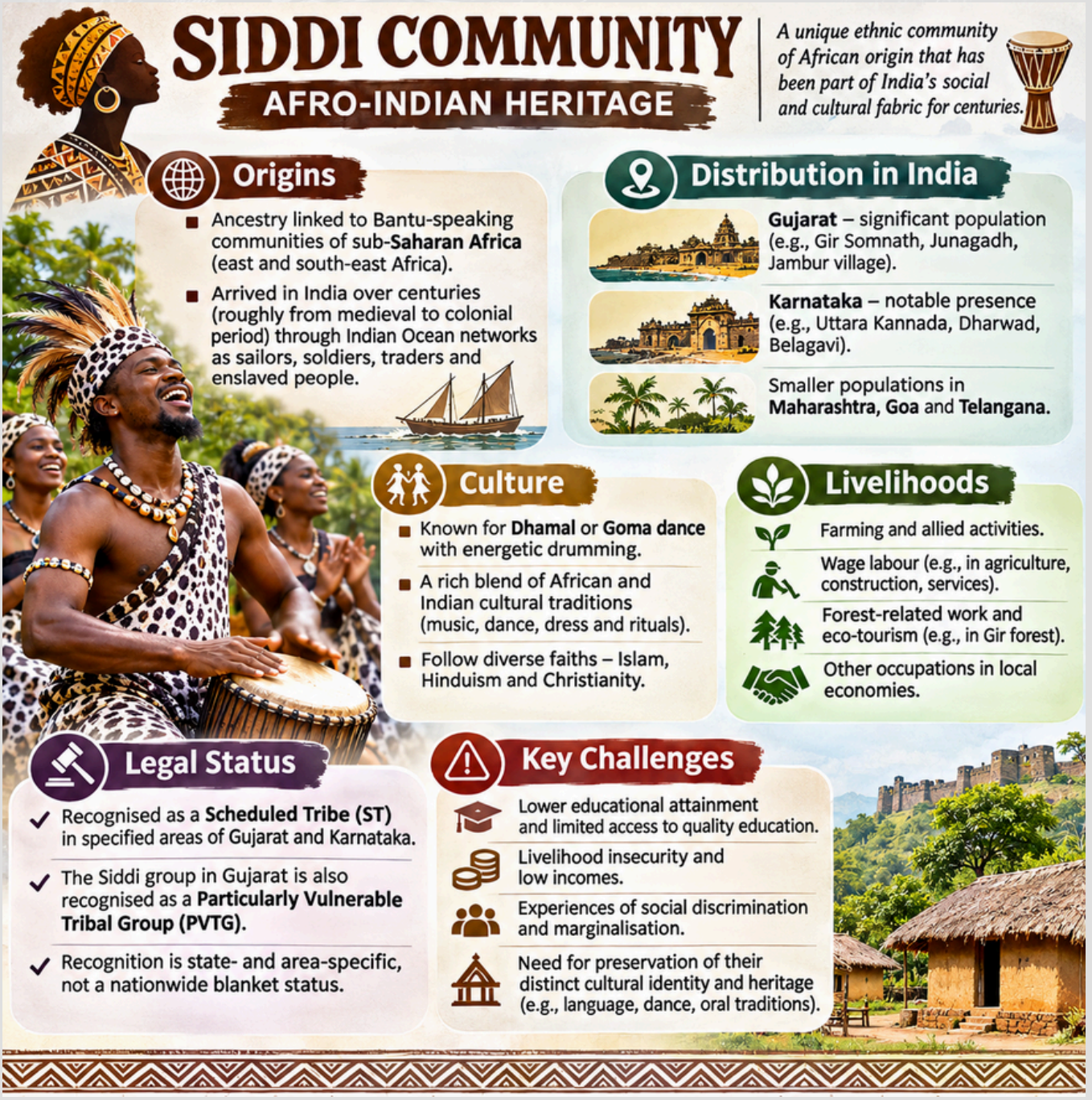
- Bridges AI and the real economy (automation beyond software).
- Enhances productivity and efficiency across sectors.
- Improves safety in hazardous and repetitive tasks.
- Supports sustainable development (smart farming, resource efficiency).
- Addresses labour shortages and ageing population needs.

Associated Challenges

- Safety and reliability in real-world use.
- Ethical and legal issues (liability, human oversight).
- Security risks (hacking, misuse).
- High cost and infrastructure needs.
- Impact on jobs and workforce transition.

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2 Siddi Tribe (Source: The Indian Express)



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3 Mandate at COP 31 of UNFCCC (Source: The Indian Express)

