Robotics and AI Trends in India

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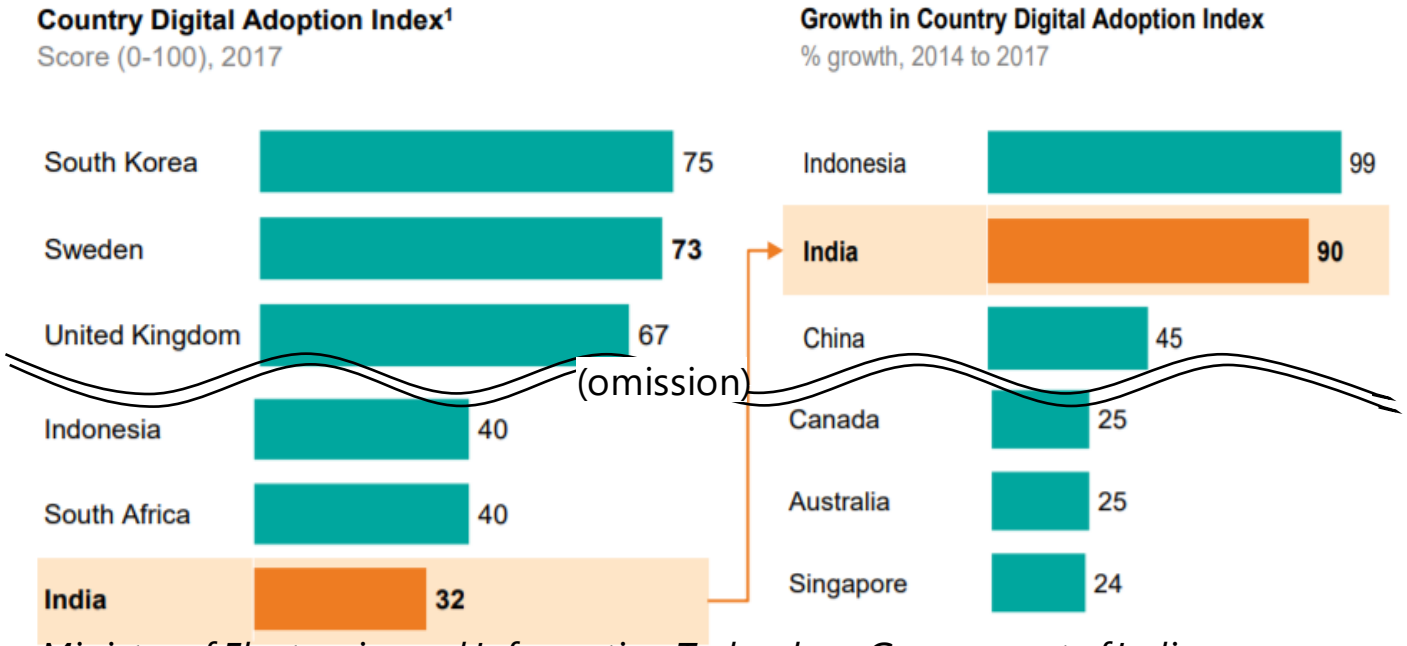
Innovation Ecosystem in India

- **Established innovation ecosystem with a focus on digital**
  - The number of unicorn companies originating from India is 45 (until December 2020), making it the 3rd largest unicorn market in the world.
  - Start-ups are accelerating due to the rise in internet penetration in the 2010s (from 21% in 2014, to 57% in 2020) and the increase in investors (from 363 in 2014, to 1114 in 2020).
  - "Aadhar," a personal identification number system that uses biometric data (fingerprints and irises), and "India Stack," which uses this data to enable face-to-face-less, paperless and cashless procedures, are also in place.
  - By opening up their APIs, the private sector can participate in the business related to the user interface.



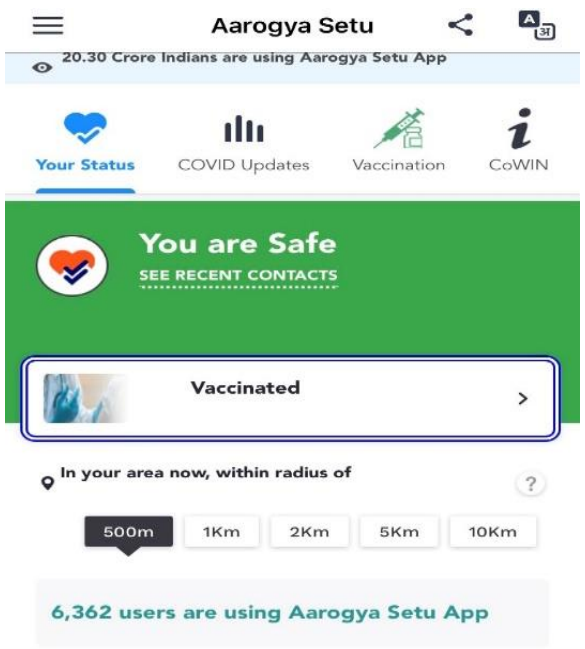
Ministry of Electronics and Information Technology Government of India

CEOs from India

Microsoft CEO / Mr. Satya Nadella
Google CEO / Mr. Sundar Pichai
Adobe CEO / Mr. Shantanu Narayen
Sun Microsystems co-founder / Mr. Vinod Khosla
MasterCard CEO / Mr. Ajaypal Singh Banga

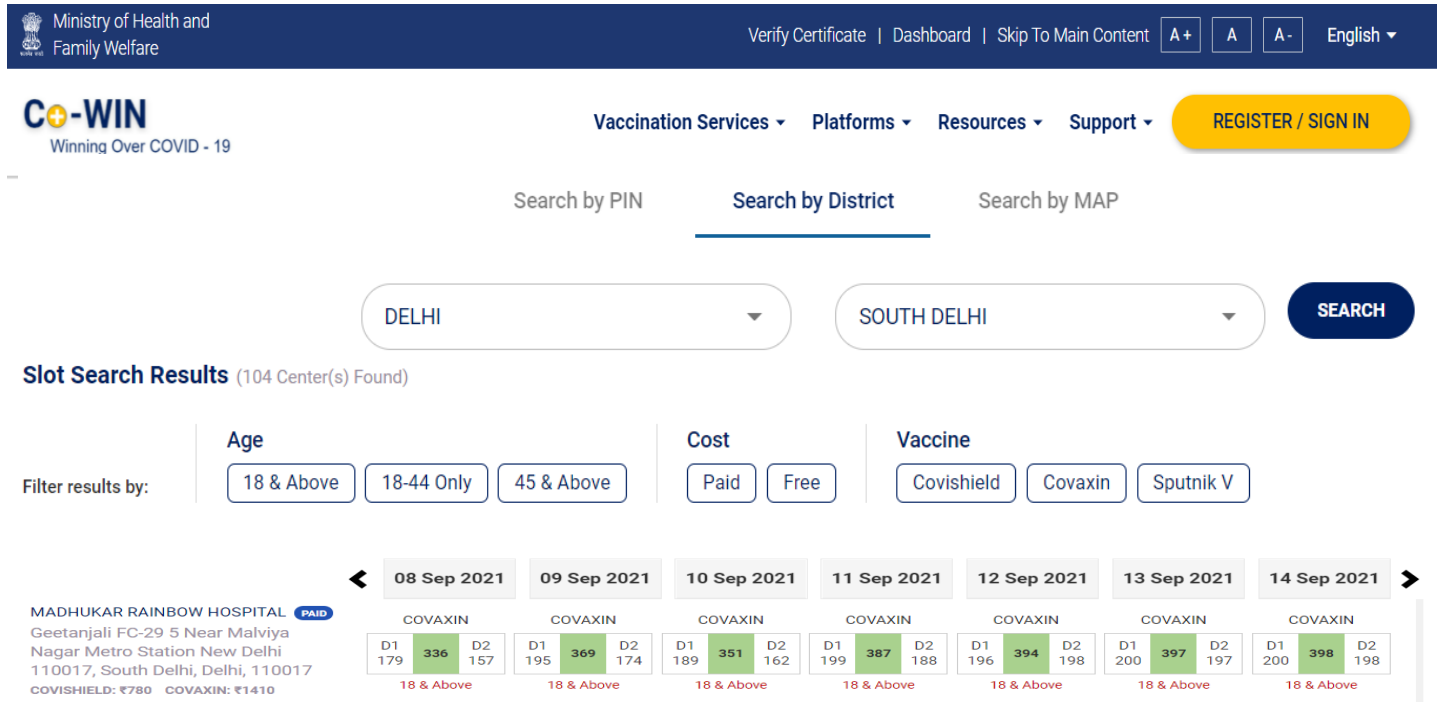
Fight Corona with Digital Technology

- **Contact tracking app "Aarogya Setu"**
  ("Bridge to Healthcare" in Hindi)
  - Ministry of Electronics and IT released in April 2020.
  - Tracks contact history with people infected with Corona.
  - Linked to Co-WIN.



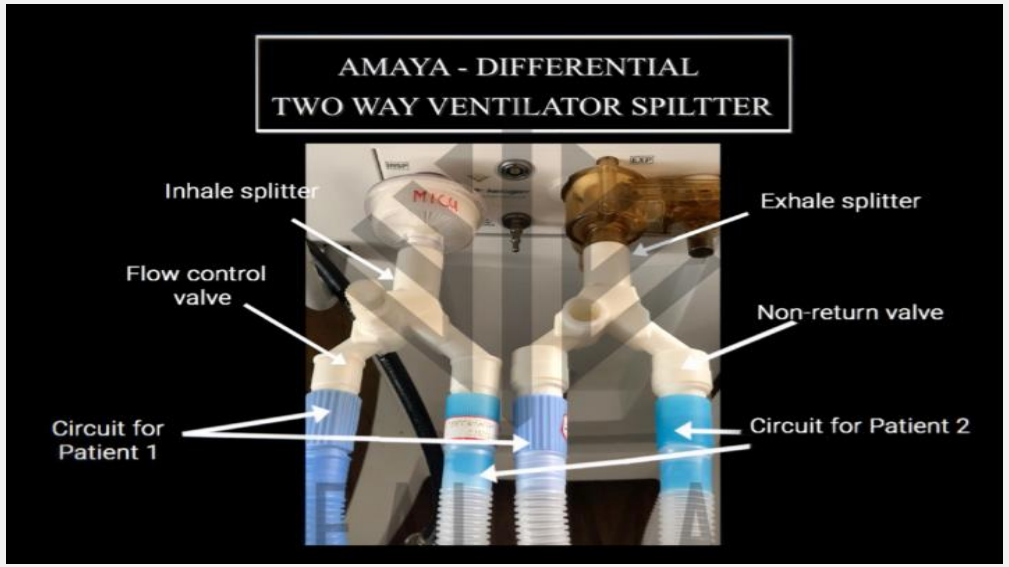
https://www.aarogyasetu.gov.in/

- **Vaccination portal "Co-WIN"**
  - The entire booking process is paperless. Easy booking by PC or smartphone.
  - Vaccination certificate (digital) issued after vaccination.
  - It is also linked to the Aarogya Setu.



https://www.cowin.gov.in/

Ethereal Machines



https://www.etherealmachines.com/

- **Ethereal Machines has designed a two-way ventilator splitter "AMAYA" that splits the air flow from a single ventilator to support two patients.**
- **A typical splitter supplies oxygen at a ratio of 50:50, but this splitter can supply oxygen at a ratio of 30:70 or 40:60.**
- **30,000 pieces of AMAYA are manufactured.**

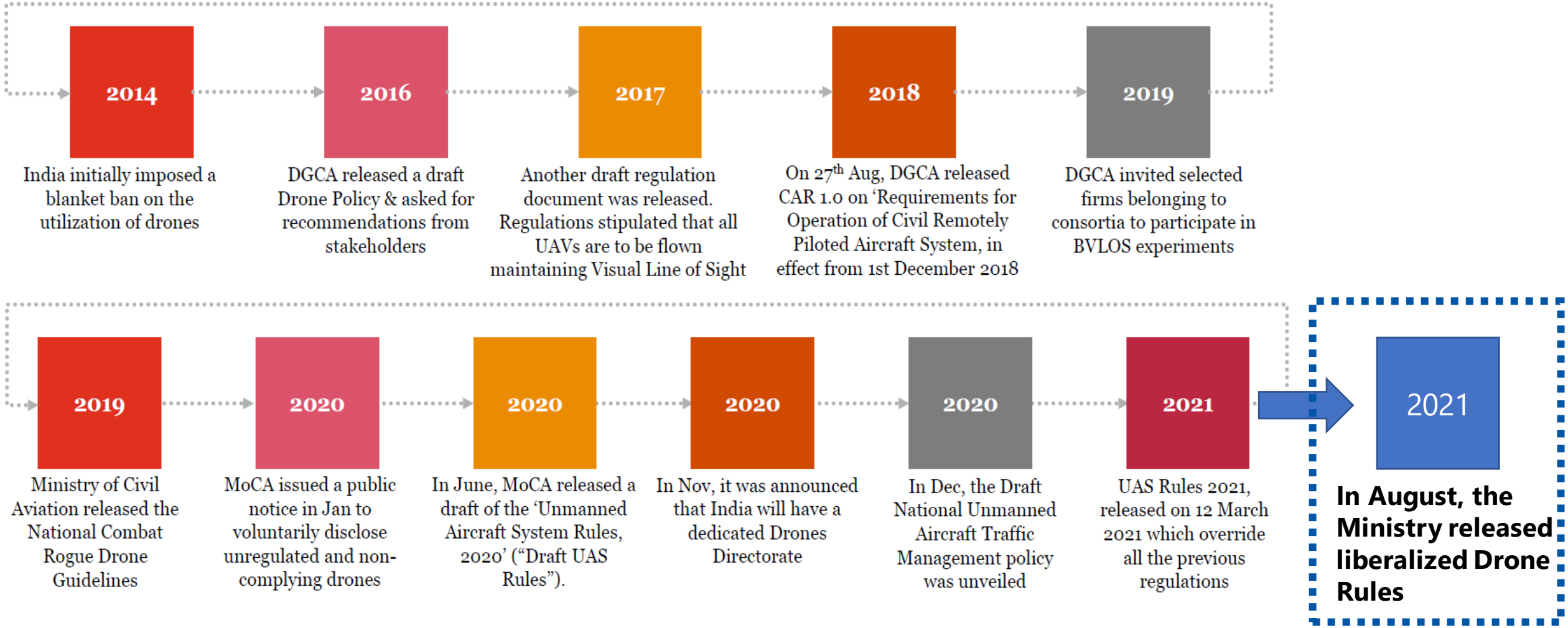
AgVa Healthcare

https://www.agvahealthcare.com/

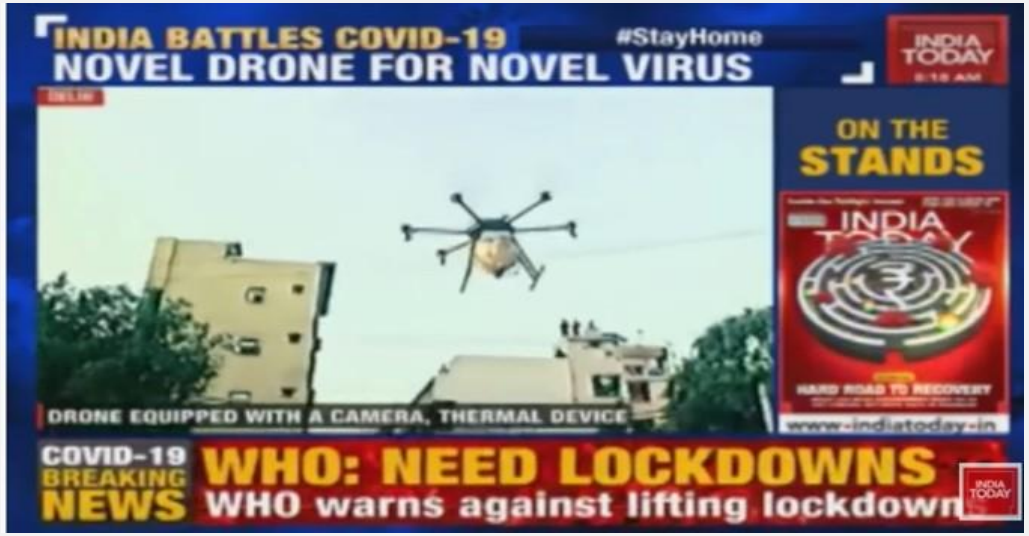
- **A low-cost ventilator the size of a toaster weighing only 3.5 kg. It runs on room air, without the need for compressed medical air.**
- **The price is 150,000 rupees($2055), compared to 400,000~500,000 rupees ($5481~6851) for a traditional ventilator.**
- **AgVa Healthcare (in collaboration with Maruti Suzuki Limited) who were given an order for 10,000 ventilators by the Indian government.**

India's Drone policy

- **Ministry of Civil Aviation notifies liberalised Drone Rules, 2021**



Indian Robotics Solution



INDIA TODAY, 11 APRIL 2020, https://www.youtube.com/watch?v=SMyjQ6w1XPA
https://indianroboticssolution.com/

- **A spraying aerial vehicle equipped with geofencing and has inbuild carrier capacity of 10Litres (expandable)**
- **It tracks people with a thermal camera from 15 to 20 metres and screen them (remote temperature check).**
- **It is sanitizing several areas in Delhi and NCR (National Capital Region).**

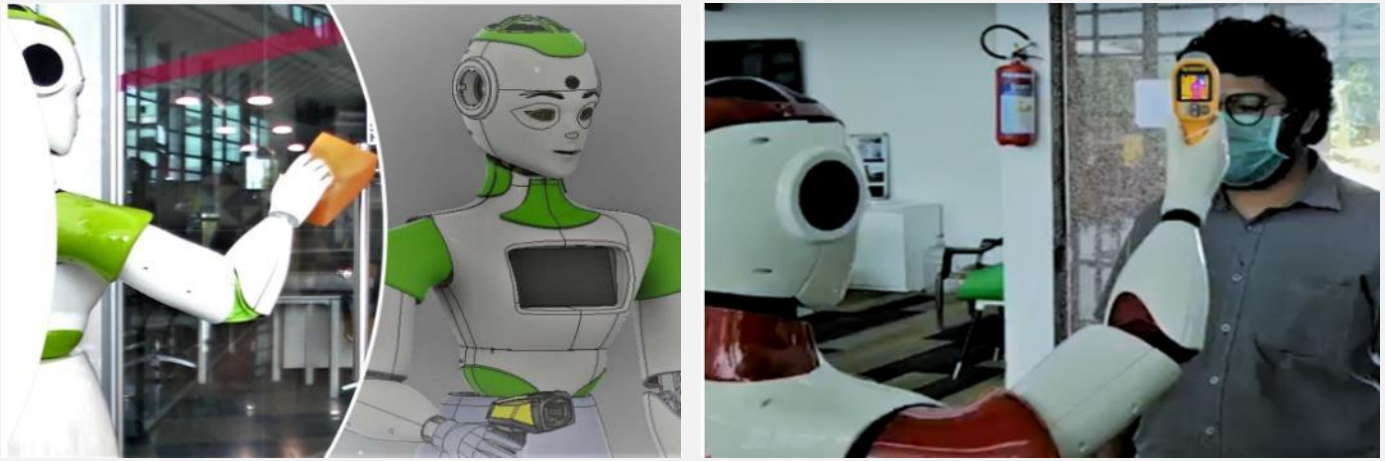
Throttle Aerospace Systems

https://dronedeliveryindia.com/

- **Conducted a drone delivery trial in Gauribidanur, 80 km from Bangalore,**
  - completing 100 hours of beyond visual line of sight (BVLOS) flying with medical supplies
  - collecting about 10,056 MB of actionable data from 100 hours of flying out of sight
  - delivering more than 454 load
  - Traveling around 2,105km

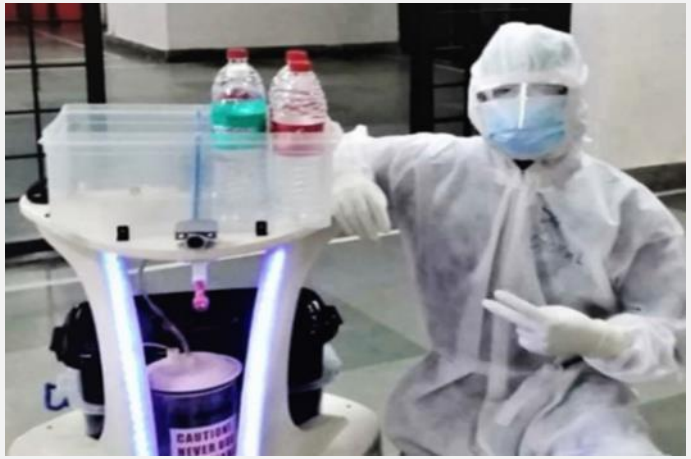
Asimov Robotics

SAYABOT



https://www.asimovrobotics.com/index.php

KARMI-Bot

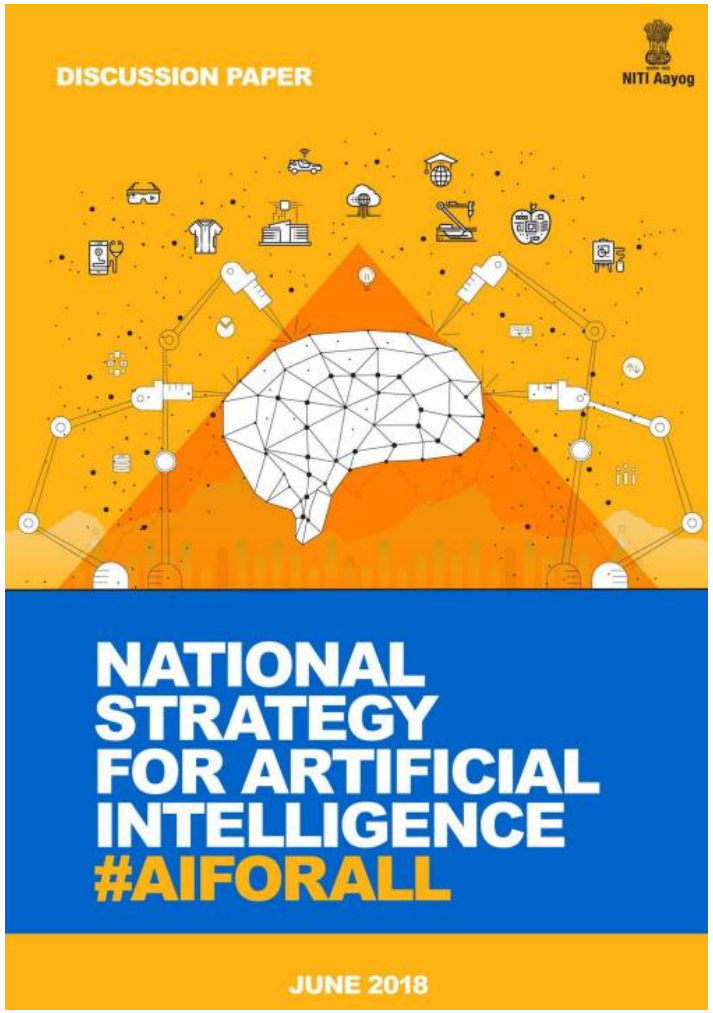


https://www.asimovrobotics.com/index.php

- **Installed in workplaces and public places to;**
  - Take the temperature of visitors, advising them to consult a doctor if they develop a high temperature or corona-related symptoms, and sending a report to the authorities.
  - Detect whether masks are being worn correctly.
  - Spray a disinfectant when a visitor places their hands under the robot's palm.

- **Installed in hospitals to;**
  - Move autonomously through the isolation ward, delivering food and medical supplies for the patients.
  - Make telemedicine calls between patients and human caregivers from a remote location.
  - Disinfect used items during their return to the home station.

India's AI policy -#AIforALL -



https://www.niti.gov.in/

- **National Strategy for Artificial Intelligence**
  - The policy think-tank NITI Aayog released its National Strategy on AI, #AIforAll, in 2018.
  - It focuses on research and development in five main areas:
    (1) Healthcare, (2) Agriculture, (3) Education,
    (4) Smart Cities and Infrastructure, and
    (5) Smart mobility and Transportation.

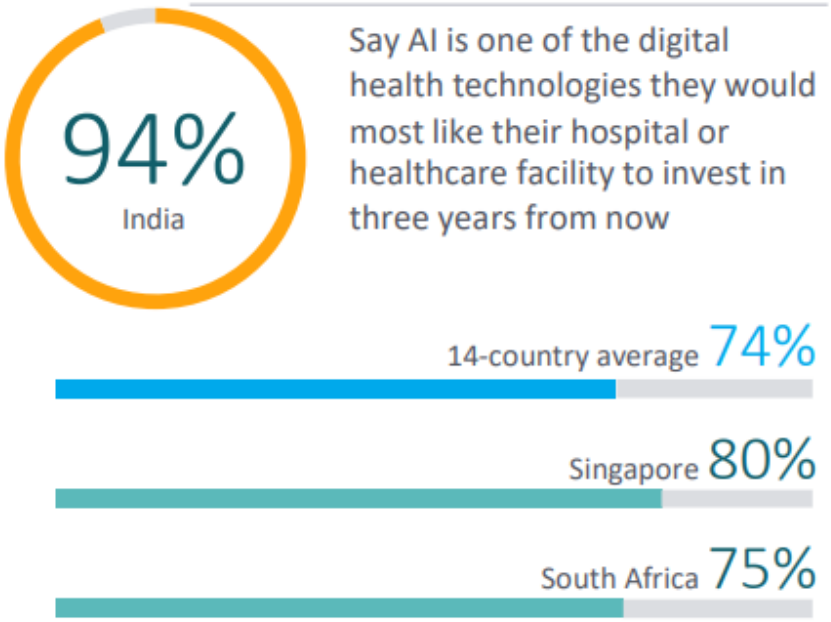
- **National Education Plan (NEP2020)**
  - The Ministry of Education revised its education policy in July 2021, for the first time in 34 years.
  - The policy lays profound emphasis on the need to impart the necessary technical knowledge at all levels of education.
    - ➢ School children will be exposed to crucial skills such as digital literacy, coding and computational thinking from a young age, through the teaching of contemporary subjects such as AI and Design Thinking.

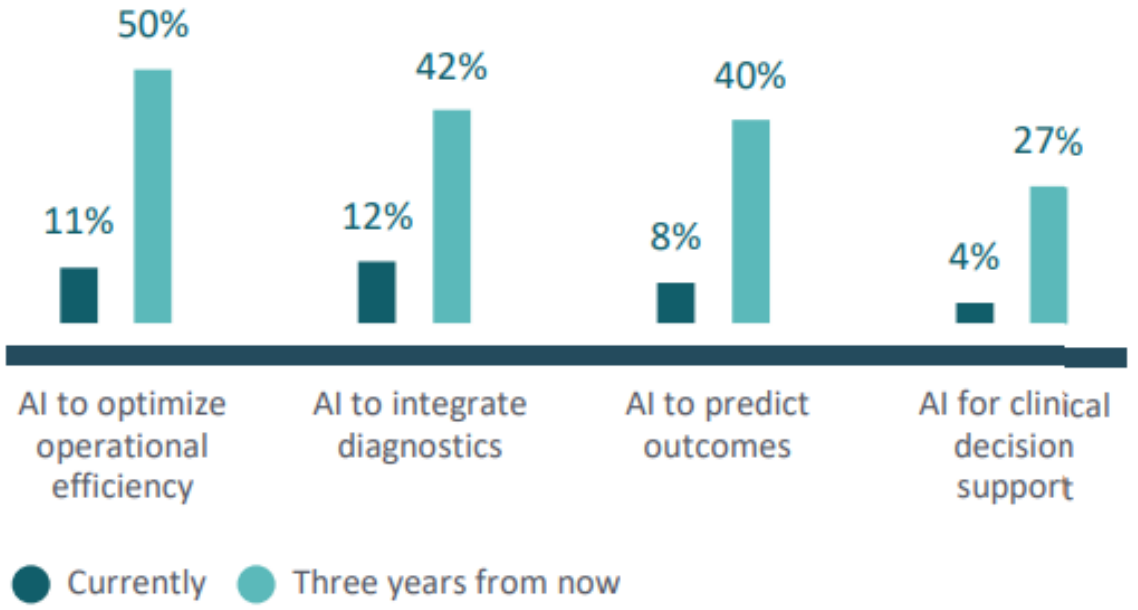
https://indiaai.gov.in/article/how-india-is-integrating-ai-in-the-new-education-policy

Interests in AI by Healthcare Leaders

- According to **PHILIPS's The Future Health Index 2021 India report(*)**, 94% of Indian healthcare leaders would most like their hospital or healthcare facility to invest in AI technologies in near future.

(*)The report is based on proprietary research over responses from almost 3,000 healthcare leaders and across 14 countries such as Australia, Brazil, China, France, Germany, India, Italy, Netherlands, Poland, Russia, Saudi Arabia, Singapore, South Africa and United States.





The Future Health Index 2021 India report
https://www.philips.co.in/a-w/about/news/future-health-index/reports/2021/healthcare-leaders-look-beyond-the-crisis

Use of AI technology

MAX Healthcare

https://www.maxhealthcare.in/

- **Max Healthcare**, one of India's largest hospital groups in India, together with **My Health care**, a digital health solutions provider, has launched a remote patient monitoring service using an app that integrates AI-powered devices.
- Patients can use the **Max My Health+ app**, built jointly by Max Healthcare and My Health care, to monitor their own vitals using medical devices integrated into the app, and seamlessly transfer clinical data from the devices to the app and to their electronic health records. The Max My Health+ app integrates blood pressure monitors, ECG (electrocardiogram) and heart rate devices, and blood glucose monitoring devices.

Thank you for your attention!

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