

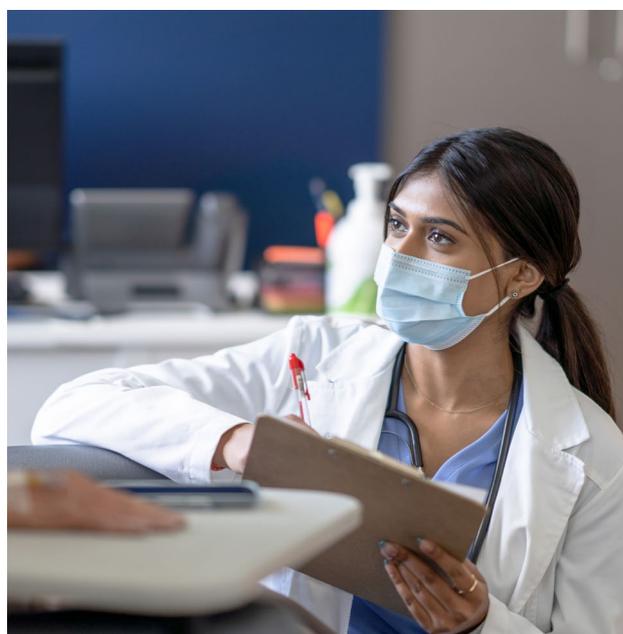
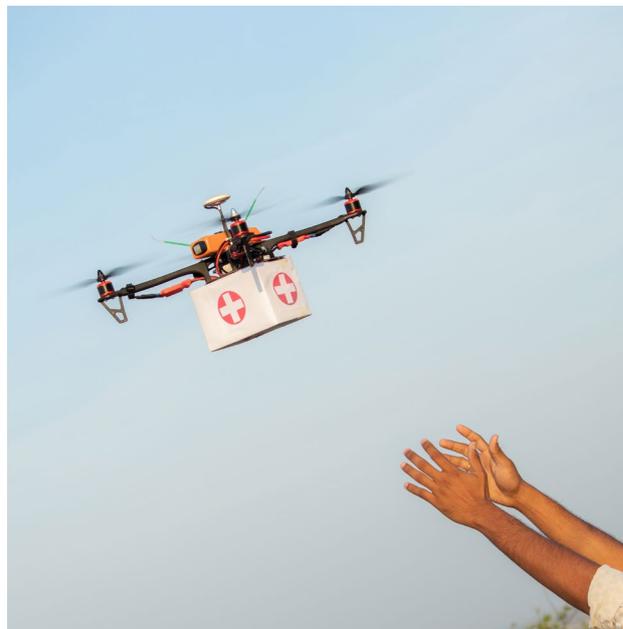
Four Years of the Centre for the Fourth Industrial Revolution India

JANUARY 2023



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Foreword



Jeremy Jurgens
Managing Director,
World Economic Forum



Viraj Mehta
Head, Regional Agenda, India
and South Asia; Member of
the Executive Committee,
World Economic Forum



Purushottam Kaushik
Head, Centre for Fourth
Industrial Revolution, India at
World Economic Forum

In the coming decade new and emerging technologies will disrupt industries, transform economies and influence the way we live, work and communicate with one another. In order to maximize the benefits of this wave of technologies for the economy and society, while mitigating the risks, it is critical that we work together in shaping the future we want to live in.

The Centre for the Fourth Industrial Revolution India was launched in October 2018 by the Prime Minister of India as a hub for multistakeholder collaboration and the co-design of solutions in this new era.

Over the last four years, the centre has brought together experts from government, the private sector, civil society and academia to address challenges and seize opportunities presented by the Fourth Industrial Revolution. Together, they have worked on initiatives that are driving positive change and shaping responsible governance around emerging technologies.

The centre has pursued a twin-pillared approach of technology governance – with initiatives on responsible AI, data governance and drones for social good – and sectoral transformation, with initiatives on agriculture, urban transformation, healthcare and education. This report provides a summary of our impact so far. It highlights the efforts made towards sustainable economic growth, social inclusivity and environmental sustainability and provides an insight into the challenges and opportunities that lie ahead.

The next decade will likely see India become a major player in the global economy and society, driven by the adoption and integration of Fourth Industrial Revolution technologies. The centre will play a critical role in fostering the development and application of new technologies in a way that encourages collaboration between diverse stakeholders in the shaping of our collective future.

The foundation

The vision

Solve for India, solve for the world



As the world's largest democracy embarking on a massive digital transformation, India is a key political, social and economic player that will shape the course of the Fourth Industrial Revolution

Narendra Modi, Prime Minister of India at the launch of the Centre for Fourth Industrial Revolution in India (October 2018)



In the end, it all comes down to people and values. We need to shape a future that works for all of us by putting people first and empowering them. In its most pessimistic, dehumanized form, the Fourth Industrial Revolution may indeed have the potential to “robotize” humanity and thus deprive us of our heart and soul. But as a complement to the best parts of human nature – creativity, empathy, stewardship – it can also lift humanity into a new collective and moral consciousness based on a shared sense of destiny. It is incumbent on us all to make sure the latter prevails.

Klaus Schwab, Founder and Executive Chairman, World Economic Forum



Strategic overview

The Centre for the Fourth Industrial Revolution India was launched in October 2018 by the prime minister of India with the aim of driving the adoption and responsible deployment of emerging technologies in India. The launch of the centre is part of the World Economic Forum's global network of centres for the Fourth Industrial Revolution, which are aimed at fostering collaboration and dialogue on the ethical and responsible deployment of emerging technologies. The centre is based in Mumbai has completed its four year journey engaging stakeholders from the public and private sectors, as well as academia, to develop and implement projects that address societal challenges and promote economic growth.

The Fourth Industrial Revolution presents significant opportunities for India. With its large and youthful population, India has the potential to become a leader in emerging technologies such as artificial intelligence, bioengineering, quantum computing, drones and advanced energies. Fourth Industrial Revolution technologies also have the potential to improve various sectors in India, such as healthcare, education and agriculture, by increasing efficiency and accessibility. However exponential

and disruptive nature of Fourth Industrial Revolution technologies demand upstream and long-term decision-making to ensure they are governed in a way that maximizes societal benefit whilst minimizing potential misuse or harm. Through its work, the centre aims to facilitate the development of responsible policies and practices that will help India to realize the full potential of the Fourth Industrial Revolution.

The Centre for the Fourth Industrial Revolution India's journey, with twin-pillared approach towards technology governance and sectoral transformation, started in 2019 in partnership with NITI Aayog and focused on technology governance initiatives ([Responsible AI](#) and [Medicine from Sky](#)) providing expertise-rich platforms driving multistakeholder engagements across government, industries and a diverse community of innovative start-ups disrupting the status quo and delivering unique insights. The initiative on [data policy](#) and digital assets was launched subsequently in 2020 and has been scaling a horizontal effort across all the initiatives with policy narratives and pilots in action in domain of agriculture, urban transformation and cancer care.



NITI Aayog is government host institution for the Centre for the Fourth Industrial Revolution India. This partnership over three years has demonstrated great impact towards enabling Fourth Industrial Revolution technologies for India's key sectors of agriculture, health, education and urban transformation. Enabling public private partnership frameworks for leveraging technologies will be key focus as we step into G20 Presidency for 2023.

Parameswaran Iyer, Chief Executive Officer, NITI Aayog



The Centre for the Fourth Industrial Revolution was inaugurated by the Honorable Prime Minister in October 2018 with the objective of enabling a platform for government, industries and other stakeholders to accelerate the journey of Fourth Industrial Revolution technologies in India. RIL, as founding partner of the centre, is delighted with the successful four year journey enabling significant impact across agriculture, health, urban transformation and education. The centre has enabled a multistakeholder platform engaging more than 200 institutions across industries, start-ups and has partnered with central and state governments. The centre has pursued impact through public-private partnerships now being tested with population scale pilots in different states. We are looking forward to our partnership with the centre as it expands into new domains of advanced energy, manufacturing and emerging technologies.

Akash Ambani, Chairman, Reliance Jio

In March 2020, in consultation with industry partners and NITI Aayog, the centre expanded its approach towards sectoral transformation with focus on agriculture, healthcare, urban transformation and education. [AI for Agriculture Innovation \(AI4AI\)](#) was launched in March 2020 in partnership with Ministry of Agriculture and Telangana state. In November 2020, the centre launched urban transformation initiative in partnership with Smart Cities Mission with an [insight study](#) on Pandemic recovery in smart cities and expanded through [G20 Global smart cities alliance](#) programme adding ten Indian cities into alliance. [FIRST Health](#) (Fourth Industrial Revolution for Sustainable Transformation of Healthcare) was launched in January 2021 with the Ministry of Health and a core group of industry partners and subsequently expanded into [FIRST Cancer Care](#) in April 2022 with Meghalaya state as partner. The sectoral focus was further strengthened with the [Education 4.0](#) initiative launched in partnership with UNICEF and the Ministry of Education in April 2021, multiple state governments and more than 60 industry and education not-for-profit institutions.

In last four years of its journey, the centre has taken a three-pillared approach across its initiatives for enabling impact. The first pillar is constituting a multistakeholder community and engaging them for dialogs around challenges through steering committee and working groups meetings.

The second pillar is enabling insight reports, frameworks, toolkits for providing strategic intelligence or identifying pathways to action. The third important pillar is to help design, pilot and scale targeted solutions by enabling the multistakeholder partner ecosystems driving change within their systems and evidence learning for scaling.

The centre has been prioritizing impact through public-private partnership and the same is evident through flagship initiatives AI4AI, Medicine from Sky, FIRST Cancer Care, Data Policy and Digital Assets. The initiatives have scaled significantly nationally and globally with adoption of multiple state governments adopting the policy frameworks for population scale implementations through public-private partnerships. The centre has been an exemplary success globally and an inspiration for many other affiliate centres across Brazil, the United Arab Emirates, Saudi Arabia, Turkey, South Africa and more and has been helping collaboration of stakeholders across the centres.

The centre adapted a fully virtual approach on account of COVID-19 restrictions between 2020 and 2022, and, in spite of challenges, has been able to create an excellent team from the industry across multiple domains with expertise in Fourth Industrial Revolution technologies. The team is additionally supported by project and platform fellows from industry partners including Tech Mahindra, Reliance Industries Limited (RIL) and the Telangana government, who have been bringing learnings and capacity from industry. The initiatives have also been further supported by knowledge partners, including Deloitte, KPMG, EY and PwC and UNICEF, who have helped build insights and capturing learnings from the community engagements.

Looking ahead, the centre is well positioned to scale the ongoing initiatives and to diversify into domains like advanced manufacturing, advanced energies, quantum computing and the metaverse. The operational philosophy of the Centre for the Fourth Industrial Revolution India is to “think big, start small, scale fast”.





Our partnership with the Centre for Fourth Industrial Revolution India is focusing on leveraging Fourth Industrial Revolution technologies for critical challenges on health, education, smart cities and agriculture. As a part of this initiative, Meghalaya has launched pilot for FIRST Cancer Care along with Apollo Health in East Khasi Hills district and will be the first state in the country to demonstrate the impact of technologies in cancer care. We look forward to the partnership with World Economic Forum.

Conrad Sangma, Chief Minister of Meghalaya



Our partnership with the Centre for the Fourth Industrial Revolution India began with the Centre for Responsible Deployment of Emerging Technologies with a focus on agriculture (AI4AI) and health (FIRST Cancer Care) and Medicine from Sky. These flagship programmes evolved in Telangana and have scaled now at national scale. We feel pride in this partnership and look forward to scale the partnership ahead enabling Telangana to be the gateway for adoption of exponential technologies.

K. T. Rama Rao, Minister of Municipal Administration and Urban Development of Telangana



The foundation of our partnership with the centre was laid in Davos in 2020 when we established the Centre for Internet of Ethical Things in partnership with the Forum. Over last three years, the centre has been partnering with Karnataka state for scaling responsible adoption of Fourth Industrial Revolution technologies for the transformation of agriculture, healthcare and urban transformation. We look forward to scaling this collaboration ahead.

Ashwath Narayana, Minister of Electronics, Information Technology, Biotechnology, Science and Technology, Higher Education, Skill Development, Entrepreneurship and Livelihood, Government of Karnataka



NASSCOM's partnership with the Centre for Fourth Industrial Revolution India for various initiatives has helped build an excellent platform for industries, government, start-ups to help build path towards absorbing Fourth Industrial Revolution technologies for key challenges in agriculture, healthcare and urban transformation. We look forward to working with the Forum for shaping the future with exponential technologies.

Debjani Ghosh, President, NASSCOM



Mahindra's partnership with the Centre for the Fourth Industrial Revolution, World Economic Forum India over last three years has been exciting and promising. The centre's initiatives AI4AI, FIRST Healthcare and Data for Common Purpose Initiative (DCPI) have been able to drive significant action across all stake holders. We look forward to this journey with the Centre for the Fourth Industrial Revolution India to shape the transformation journey of the country leveraged by Fourth Industrial Revolution technologies.

Mohit Kapur, Group Chief Technology Officer, Mahindra and Tech Mahindra

Engagement opportunities

The Centre for the Fourth Industrial Revolution India is working to help India realize the full potential of the Fourth Industrial Revolution, while also ensuring that the adoption of these technologies is guided by ethical and responsible practices.

The Centre for the Fourth Industrial Revolution India has taken a three-pillared approach to its initiatives, which includes constituting a multistakeholder community, enabling insight reports and frameworks and helping to design, pilot, and scale

targeted solutions. It has also prioritized impact through its initiatives by working with partners to design and scale solutions that address specific challenges, and by collecting and sharing evidence to inform decision-making and policy development.



Centre for the Fourth Industrial Revolution Steering Groups

CXO leadership of regional partners providing strategic guidance and defining action-oriented roadmaps for Centre for the Fourth Industrial Revolution India initiatives in agriculture, health and education



Centre for the Fourth Industrial Revolution Working Groups

Multistakeholder network engaging to drive a responsible digital transformation and get the world excited about its future frontiers

16 Working groups: agriculture (four), cancer (four), smart cities (two), education (four), data policy (two)

200+ members engaged in working groups in total



Digital Transformation Core Group

Community of digital transformation leaders of regional partners providing guidance on frameworks for technology governance initiatives



Global Innovators

The world's most promising start-ups and scale-ups that are at the forefront of technological and business model innovation



Centre for the Fourth Industrial Revolution Fellows

Senior experts and executives from partners who champion and lead strategic projects in collaboration with the Centre for the Fourth Industrial Revolution



Initiatives in India

Sectoral transformation



Agriculture: AI4AI

Leveraging Fourth Industrial Revolution technologies for 130 million smallholder and women farmers. Access to finance, sustainable agriculture practices and efficient value chains.

7,000+

Chilli growing farmers in Khammam district in Telangana are adapting bouquet of digital solutions transforming value chains through public private partnership approach. AI4AI framework is now being scaled across multiple states in India.



Urban transformation: IUT

India Hub for Urban Transformation in partnership with Smart City Mission (Ministry of Urban Affairs) and ten cities for enabling emerging technologies in future sustainable cities.



Education 4.0

In partnership with UNICEF, an implementation roadmap for foundation literacy and numeracy, Teacher professional development, school to work transition, connecting the unconnected.

700,000+

residents of East Khasi Hills in Meghalaya will be impacted through the FIRST Cancer Care initiative. AI-based early detection of cancer, AR and VR based capacity building of health functionaries and oncology data models based innovations will be rolled out in this district, which has the highest incidence of cancer in the country.



Healthcare: FIRST Health

Fourth Industrial Revolution for Sustainable Transformation of Cancer Care, in partnership with Ministry of Health and Family Welfare, Government of India and Government of Meghalaya.

Technology governance



Data and digital trust

- **Enabling public policies:** Telangana state agriculture data management policy and Karnataka state personal data consent framework
- **Pilots and frameworks:** Telangana agriculture data exchange
- **Community commitment:** Global Agri Data Alliance

7 million+

smallholder and women farmers in rural Karnataka will access digital services for financing, insurance, farm-based advisories for sustainable farming and farm-to-market access through responsible data sharing with industry and start-ups.

300+

Using drones, the Medicine from the Sky initiative has successfully completed over 300 vaccine delivery trials in remote regions in India.



Drones for Social Impact

- **Medicine from Sky:** India became the first country in Asia to deliver vaccines by drones
- **Agriculture:** Drones for improving yield and powering up the rural agrarian economy
- **Public policy:** Drones-as-a-service framework



Artificial intelligence

- **AI Ethics Framework:** In partnership with NITI Aayog
- **Centre for Internet of Ethical Things (CoIET):** In partnership with Karnataka state for responsible use of AI and internet of things
- **AI Playbook for Smart Cities**

Find out more
about the initiatives



Agriculture

AI4AI and Food Innovation Hub

Mission:

Advancing the national agenda of digital agriculture and food innovation through scale up of emerging technologies by unlocking public private partnerships



India's agriculture sector is at a critical juncture and is expected to rapidly transform to provide food security for more than 1.3 billion people while sustaining livelihood for more than 130 million smallholder and women farmers. AI has the potential to greatly benefit agriculture in India and enable \$70 billion incremental opportunity in India. It can be used for precision farming, crop yield prediction, pest and disease detection, irrigation optimization, and supply chain management. This could lead to increased crop yields, reduced waste and increased efficiency and profitability for farming operations. This transformation requires the agriculture sector to move to a more agile and data-driven system.

To achieve this, AI4AI, along with the Food Innovation Hub initiative, are operating at three levels: policy enablement, ecosystem development and evidence generation. At policy

level, the Forum is working with Ministry of Agriculture and Farmer Welfare, Government of India to shape public-private partnerships (PPP) framework for scaling digital and hi-tech agriculture while to generate evidence it is supporting state government adopt and implement the PPP framework for specific use cases. Telangana became the first state in India to adopt the framework, with project "Saagu Baagu", which aims to introduce 100,000 farmers to different agritech solution. By November 2022, more than 7,000 farmers have been on-boarded on the project. The Forum is engaging extensively with a community of more than 150 stakeholders through workshops, discussions and consultations to facilitate convergence and collaborations on scaling Fourth Industrial Revolution. Moving forward, the vision is to scale AI4AI's PPP network at national level with at least five states and globally through network of Fourth Industrial Revolution centres.

Challenges and opportunities

130 million

smallholder farmers and women farmers depend on agriculture to earn a livelihood. 70% of farmers do not have access to organized finance

40%

post-harvest produce gets wasted or lost due to supply chain inefficiencies

\$65 billion

opportunity through digital agriculture
>15% productivity improvement

55%

of farmers depend on rain for irrigation, continued soil degradation due to access use of fertilizers and pesticides

550+

start-ups offer Fourth Industrial Revolution agritech solutions in India



The Ministry of Agriculture and Farmer Welfare has been partnering with World Economic Forum for exploring public-private partnerships for digital agriculture. Engaging industry, start-ups and bringing global best practices have been excellent contributions and we look forward to driving action and impact ahead with the Forum as India takes leadership role in G20 programme.

Manoj Ahuja, Secretary, Department of Agriculture and Farmers Welfare

Objectives

Inclusive

Ensuring economic and social inclusion for all food system actors, especially smallerholders, women and youth

Sustainable

Minimizing negative environmental impacts, conserving scarce natural resources and strengthening resilience against future shocks

Efficient

Enabling efficiency in value chains to reduce crop and food loss and enhanced income for farmers

Nutritious and healthy

Promoting consumption of a diverse range of healthy, nutritious and safe foods

Twin-pillared strategy

Public-private partnerships

Accelerate system level change through the activation of key enablers: scaling partnerships, promoting evidence-based policy and unlocking innovative capital.

Fourth Industrial Revolution technologies

Adoption of agriculture data exchange(s) and emerging technologies for scaled deployment, enabling innovation and research



We are solving for agri-fintech with the power of data and AI. Data from remote sensing and government published APIs can solve for financial inclusion at scale. The Forum's credible attempts at policy advocacy and public-private partnerships are critical for technology adoption by institutions.

Prateep Basu, Chief Executive Officer, Satsure



The swift adoption of deep-tech solutions is guiding India's agricultural revolution, the Centre for the Fourth Industrial Revolution India's role as a policy advocate and facilitator of public-private partnerships is critical to unlock scale.

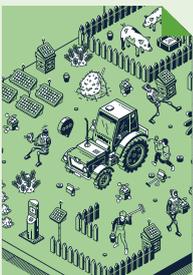
Taranjeet Singh Bamra, Chief Executive Officer, Agnext



Financial inclusion of Indian smallholder farmers has always been an issue. The Forum is making a credible effort to bring together key stakeholders to solve for ease of rural lending. We hope to create a systemic change together.

Arindom Datta, Executive Director, Rabobank

Knowledge products



Artificial Intelligence for Agriculture Innovation

Community paper
MARCH 2021



Using Technology to Improve a Billion Livelihoods

Insight report
OCTOBER 2022



National Workshop on public-private partnership for Digital Agriculture

Framework
11 JULY 2022



Extending globally

Centre for the Fourth Industrial Revolution Network

Knowledge sharing and framework adoption by Fourth Industrial Revolution centres in India, San Francisco, Japan, Saudi Arabia, Israel, Brazil, Colombia, Azerbaijan, South Africa and Rwanda

Food Action Alliance

Knowledge sharing and framework adoption by Columbia, Vietnam, Kenya. Global digital and data coalition.



Actions on the ground

Ministry of Agriculture and Farmer Welfare, Government of India

The Ministry of Agriculture and Farmer Welfare signed to the centre in April 2022 as engagement partner for the development of public-private partnership frameworks under the Digital Agriculture Mission.

Madhya Pradesh Food Innovation Hub

“The World Economic Forum is bringing together a network called ‘Food Innovation Hubs’, to strengthen local innovation ecosystems and achieve self-sufficiency in food production through public-private partnerships (PPP).”
(The Hindu BusinessLine, 2022)

Telangana state government

Saagu Bagu pilot: The Saagu-Baagu project is the first-of-its-kind public-private initiative for agritech in India, to unlock ease of doing innovation in agriculture and horticulture. It is aimed at bringing value addition with mainstreaming of innovative new age technologies in agriculture. The objective is to increase farmers’ income, saving environment and also enhancing trust and transparency.

Agricultural Data Exchange: The platform will go live in 2023.

Maharashtra state government

Mahila Arthik Vikas Mahamandal (MAVIM), a self help group of 1.8 million women farmers in Maharashtra state, signed a partnership with the Centre for Fourth Industrial Revolution India for leveraging Fourth Industrial Revolution technologies for digital agriculture.



📍 Government of Telangana’s project ‘Smart Nutrient Management of Soil’ was awarded the Gold Icon Award at the Digital India Awards 2022



We established the Centre for Responsible Deployment of Emerging Technologies in partnership with the centre in 2020 and the digital agriculture initiative AI4AI is the first of its kind in the country which is leveraging Fourth Industrial Revolution technologies for transforming the lives of smallholding and women farmers. We have also been awarded a Gold Icon Award by the President of India.

Rama Devi, Director, Emerging Technologies, Telangana Government

Milestones

NOVEMBER 2020

Milestones achieved



PPP for digital agriculture

Ministry of Agriculture and Farmer Welfare signed to the centre in April 2022 as engagement partner for the development of public-private partnership frameworks under the Digital Agriculture Mission.



Saagu Baagu project initiated

- Telangana is first state to adopt PPP framework
- Expected impact: 100,000 farmers



Food Innovation Hub India launched

- Scaling validated innovations through PPPs based on stakeholder consultations.
- MoU with Madhya Pradesh



Data-sharing policy notified by Karnataka

- Consent-based sharing of agricultural data
- Five proposals from the community

NOVEMBER 2022

Milestones planned



C-suite executive engagement platforms

- Engagement platform for public and private stakeholder on access to finance, advisories and markets
- Establishing sandbox
- Facilitate ecosystem convergence to scale public data platforms



Agriculture data

- Global standard for interchange of agricultural data, to support a wide range of digital services and innovation
- Agricultural Data Exchange launch



Adoption in India

- Framework adopted by state governments
- At least five states in India
- National adoption of agriculture data management policies



Adoption globally

Global scaling of digital agriculture through public private partnership models by sharing knowledge, frameworks and evidence learnings

SEPTEMBER 2023

5 million farmers to be impacted

Impact



Partner-driven on-ground impact

Case study: AI-based pest advisory for cotton crop implemented by Wadhvani AI

67,000

farmers in states of Telangana, Karnataka, Maharashtra

+17% better yield

+8% better price to farmer



FIRST Health

Fourth Industrial Revolution for Sustainable Transformation of Healthcare

Mission:

Shaping the future of
healthcare with Fourth Industrial
Revolution technologies

FIRST Health

The FIRST healthcare strategy aims to enable Fourth Industrial Revolution for Sustainable Transformation (FIRST) in the healthcare sector. Under the strategy, 18 themes along the three streams of preventive care, curative care and governance have been identified based on inputs from the ministries of health, information technology (IT) and biotechnology, as well as industry partners (IT, pharma, etc.).

The initiative aims to leverage Fourth Industrial Revolution technologies to increase early detection rates of the identified ailments by 10%, ensure 100% digital health records in line with Ayushman Bharat Digital Health Mission, simultaneously ensuring complete continuum of care.

FIRST Cancer Care

Cancer care is the first amongst the 18 themes, which begun as an initiative in 2021. During phase one of the initiative, more than 25 stakeholders from academia, industry, government, clinics, civil society organizations and start-ups put forward a detailed gap analysis and set of technological solutions. This resulted in the publishing of [FIRST Cancer Care: Leveraging Fourth Industrial Revolution technologies for cancer care](#) white paper at the National Roundtable chaired by the joint secretary of Ministry of Health and Family Welfare.

In phase two, three recommended technological interventions – early detection and diagnosis, capacity building and oncology data model are being implemented as pilots under the public-private partnership mode in East Khasi Hills, Meghalaya. The Apollo Foundation is a project implementation partner, which will reach out to a target population of 700,000 in 18 months to target oral, breast, cervical, lung and oesophageal cancers.

Objectives and challenges

Accessibility

154th

India ranked 154th in the ranking of healthcare access and quality amongst 195 countries*

*Global Burden of Disease Studies

Affordability

70%

of healthcare expenses are out of pocket due to which about 7% population is pushed below the poverty line every year.*

*Ministry of Health and Family Welfare, Government of India

Equitability

66%

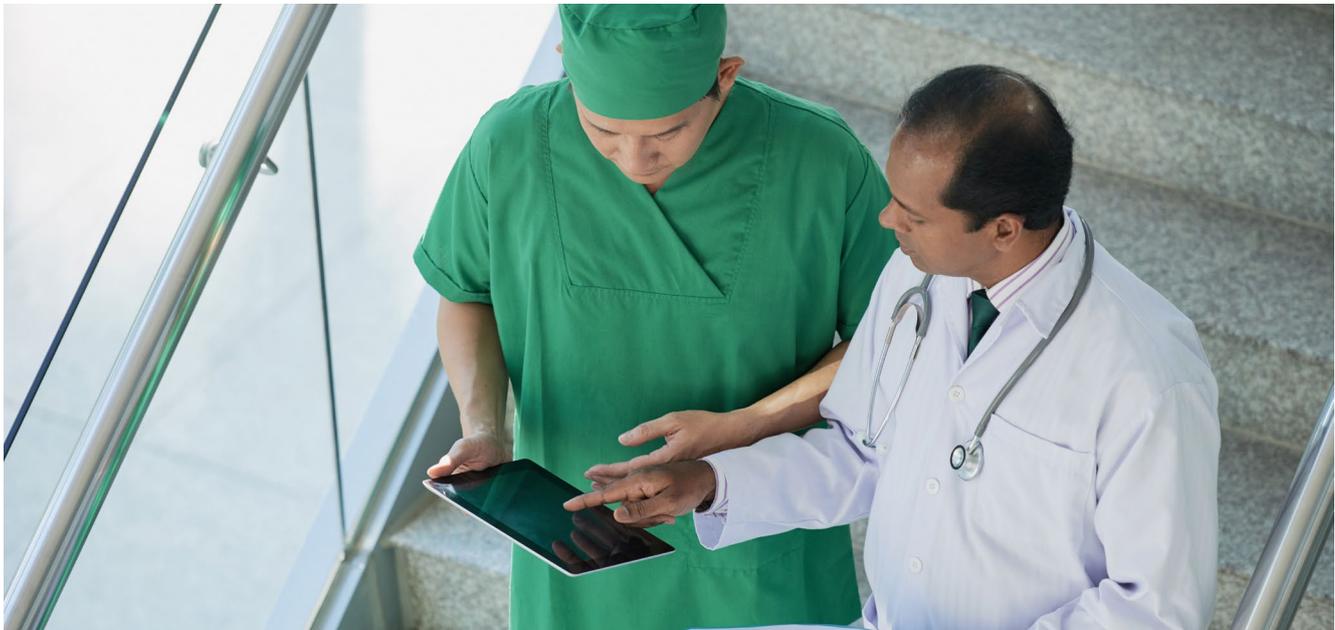
of the population resides in rural areas that have only 33% of doctors.*

*PwC analysis, World Bank data (2017)



FIRST Cancer Care, designed and developed in collaboration with the Health Department of the state of Meghalaya and other stakeholders, such as the World Economic Forum, is of paramount importance in the context of steadily increasing global incidence of cancer. The Apollo Telemedicine Networking Foundation (ATNF) while helping implement the pilot project in the East Khasi Hills, Meghalaya will leverage its immense experience in delivering clinical excellence, digital techniques and hybrid telemedicine practices to enhance rural healthcare delivery. ATNF will screen patients, track outcomes, use AI-based devices, upskill government doctors and nurses, and build community awareness as a part of this innovative programme. We look forward to engaging with more organizations and agencies, both in the private and public sector, to co-create such programmes for community cancer management across India and the world.

Shobana Kamineni, Executive Vice-Chairperson,
Apollo Hospitals Enterprise Limited

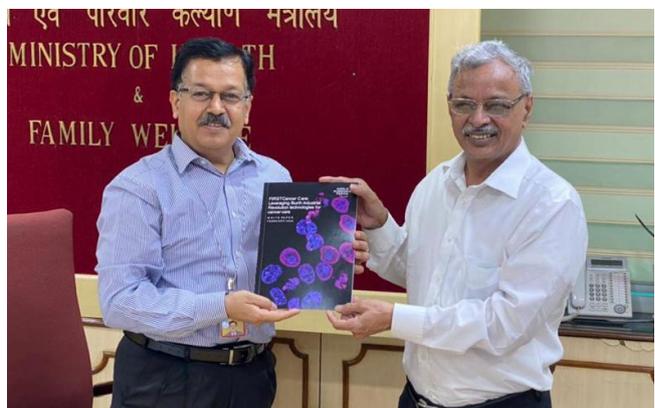


Target impact

 Increase early detection rate by 10% of the identified ailment through use of Fourth Industrial Revolution technologies

 Ensure 100% digital health records in line with Ayushman Bharat Digital Mission (ABDM)

 Ensure complete continuum of care in the diagnosed cases



 Launching the FIRST Cancer Care report along with Secretary, Ministry of Health and Family Welfare, Government of India

Strategic initiatives

Public-private partnership

Create a unique institutional culture to accelerate system-level changes with the foremost political, business, cultural and other leaders of society.

Pilot deployments

Encouraging adoption of Fourth Industrial Revolution technology pilots and scaled deployment with data modes in health systems.



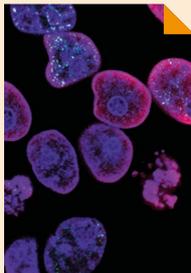
The Centre for the Fourth Industrial Revolution India's partnership with Roche India towards enabling adoption and helping solve governance challenges of Fourth Industrial Revolution technologies for health has been very promising. FIRST Cancer Care initiative has been a great example of how industry, academia and government can partner with each other to address critical challenges and leverage Fourth Industrial Revolution technologies for bringing useful impact in cancer patients' lives. Looking forward to partnering with the Centre for the Fourth Industrial Revolution India in true sense of Roche's motto of doing what patients need next!

V. Simpson Emmanuel, Chief Executive Officer and Managing Director, Roche India

Knowledge products



FIRST Cancer Care
RFP, Meghalaya
AUGUST 2022



FIRST Cancer Care
Technology Landscape
White paper
FEBRUARY 2022



3 ways AI can help in the
global battle of cancer
Article
FEBRUARY 2021

Additional products: Blogs published with [Microsoft](#), [Indian Cancer Society](#), [global experts](#)

Milestones

APRIL 2020

Milestones achieved



FIRST Health strategy published

Ministry of Health, Department of
Aayush, NITI Aayog



FIRST Cancer Care white paper

- 25+ partners
- 50+ meetings



20 agenda blogs published

With partners and larger community
on health and development

MARCH 2022

Milestones planned



Pilot execution FIRST Cancer Care

- Three interventions
- Awareness and screening,
capacity building, data model



Next phase of FIRST Healthcare

Supporting Global Digital
Health Initiative under G20
presidency of India



Publications

- Impact report on FIRST
Cancer Care
- Two white papers
- 20 agenda blogs

SEPTEMBER 2023

1 million

population to
be impacted

FIRST Cancer Care

Mission: Launched in 2021, The FIRST Cancer Care initiative is a community-led effort to enable the scale-up of innovative emerging technologies to transform the healthcare domain in close collaboration with government, tech and clinical experts.

Why start with cancer?

High impact potential

Create a unique institutional culture to accelerate system-level changes with the foremost political, business, cultural and other leaders of society

+28% in India's crude cancer incidence rate in 20 years

>80% detected in advance stages, when it is too late

Fourth Industrial Revolution opportunity

Encouraging adoption of Fourth Industrial Revolution technology pilots and scaled deployment with data modes in health systems

250 startups in India use Fourth Industrial Revolution tech for preventive care, curative care and governance



The Centre for the Fourth Industrial Revolution India has been a great partner over last few years to Dell towards enabling technology adoption and helping solve governance and social challenges with Fourth Industrial Revolution technologies. Dell was actively engaged in the health, education, smart cities and data economy tracks. The centre has played a great role by bringing all stakeholders together to help address some critical challenges on policies through public-private partnership frameworks. The FIRST Cancer Care initiative has been a great example of how industries and government can converge to develop models for end-to-end cancer care at scale leveraging technology. Looking forward to the partnership with the World Economic Forum ahead.

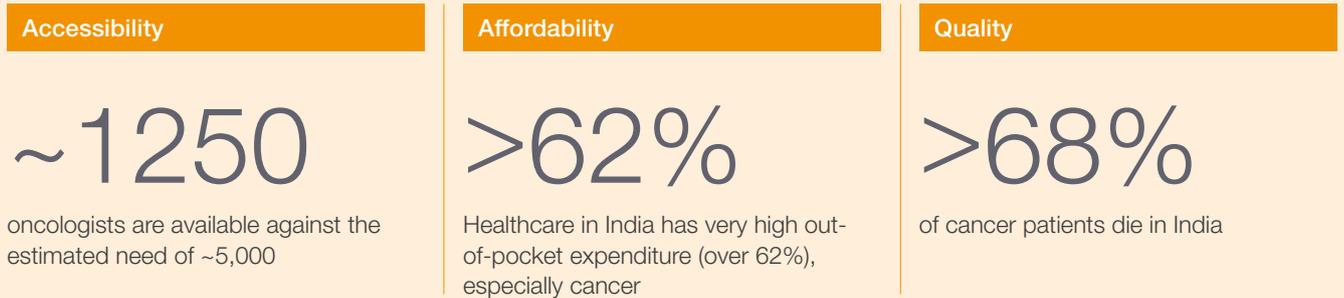
Sunita Nadhamuni, Head, Global Social Innovation, Dell Technologies



The Centre for the Fourth Industrial Revolution India, World Economic Forum has been a strong partner with MSD in enabling adoption and helping solve governance challenges of Fourth Industrial Revolution technologies for health. FIRST Cancer Care initiative has been a great example of how industries and government can partner and solve critical challenges and leverage technologies for impact.

Rehan A. Khan, Managing Director, MSD India Region

Objectives: Leveraging the Fourth Industrial Revolution for...



Oncology Data Model (ODM)

ODM to support an ecosystem of interoperable cancer care apps by adopting an API-based architecture.

Applications include: paperless automatic registry, among others.

Impact deployment: Meghalaya

East Khasi Hill district has the highest cancer incidence in the country



FIRST Cancer Care

The state government of Meghalaya signed a cancer care agreement with Apollo Telehealth Foundation adopting the framework for FIRST Cancer Care on 12 December, 2022.

Speaking at the occasion, Meghalaya Chief Minister Conrad K Sangma said “FIRST Cancer Care is first in the country leveraging Fourth Industrial Revolution technologies for cancer. This is not only important for Meghalaya but it could be a model for the country to follow and replicate. With the involvement of partners like the World Economic Forum and Apollo healthcare, this will prove to be path breaking not only in Meghalaya where cancer is high but also for the rest of the country.”

Drones for Social Impact (DSI)

Mission:

Applications of drones cut across sectors like agriculture, healthcare, mining, disaster management, construction, energy and utilities, telecommunications, oil and gas, and others. The objective is to build fully functional drone microcosms in agriculture and health that can be templated and replicated globally



What's the challenge?

Last-mile delivery is a problem in developing countries where remote areas can take hours to reach by land and medical supplies often get damaged, stranded or lost en route. The COVID-19 crisis highlighted the challenge in reaching rural and isolated communities, as well as the role that emerging technologies such as drones could play in improving access to healthcare and medical supply chains.

Drones have tremendous potential to deliver vital goods to vulnerable populations, overcoming access barriers and enabling faster delivery of lifesaving medicine.

However, concerns about privacy, safety and security have overshadowed the potential of drones to transform legacy industries and systems.

In India, most of its 1.4 billion citizens are served by roughly 30,000 government-run primary healthcare centres, but at least 5-10% of them are inaccessible to medical suppliers. Drone regulations issued in 2018 did not allow cargo delivery or flights beyond the visual line of sight, but new rules issued in 2021 enabled through industry consultations enabled by the centre indicate a departure from the earlier approach.



We have decided to make the optimum use of drones in areas like healthcare, agriculture and disaster management in collaboration with the World Economic Forum. Given the hilly terrain and the challenge of transporting medical supplies by road, the Medicine from the Sky project will give a much needed boost to our healthcare deliveries.

Pema Khandu, Chief Minister of Arunachal Pradesh

The approach

The World Economic Forum's Medicine from the Sky is addressing gaps in healthcare distributions systems and developing frameworks to assist decision-makers and health systems in analysing the opportunities and challenges of drone delivery, as well as competing delivery models and technologies.

A policy discussion for further liberalization of drone rules in India has opened new avenues for use across healthcare. In partnership with the southern state of Telangana, Apollo Hospitals and think tank NITI Aayog, the World Economic Forum launched in 2019 the Medicine from the Sky project to deliver vaccines to rural communities.

The project has completed more than 300 vaccine delivery trials in Telangana to very remote areas, making it the first ever instance in Asia where vaccines are delivered using drones beyond the visual range. The trials were a culmination of efforts inaugurated by Indian Minister for Civil Aviation, Jyotiraditya Scindia.

The initiative is now expanding to other parts of the region, particularly the Himalayan belt in states Arunachal Pradesh, Meghalaya where isolated communities will be served using drones. Medicine from the Sky was instrumental not just in paving the way for last-mile drone projects in India, but also for the greater liberalization of aviation policy in the region.

Knowledge products



Drones in India – A model for cooperative federalism

Article

JULY 2021



Medicine from the Sky, India

Insight report

MAY 2022



Using Technology to Improve a Billion Livelihoods

Insight report

OCTOBER 2022

Medicine from the Sky: high impact use cases



Blood stock

- Decrease maternal mortality
- Decrease infant mortality



Long-tail medic

- Reduce mortality caused by snakebites or rabies
- On-demand access

67%

Drone systems resulted in a 67% reduction in blood wastage in the country ([Zipline](#))



Vaccine stock

- Improve immunization rates



Diagnostic specimens

- Widespread screening in remote areas
- Improve turnaround time for some tests

99%

reduction in delivery carbon emissions compared to using vans



The Centre for the Fourth Industrial Revolution India has enabled excellent multistakeholder ecosystems across industries, start-ups and government institutions for accelerating the adoption of Fourth Industrial Revolution technologies for larger social good. The civil aviation sector holds huge potential in shaping the future of the country leveraging frontier technologies and as we step into G20 Presidency, we look forward to strengthening our collaboration with the Forum.

Rajiv Bansal, Secretary, Ministry of Civil Aviation



The World Economic Forum's Medicine from the Sky initiative used drones to deliver vaccines and medicine to remote areas in India.

Anurag Thakur, Minister of Youth Affairs and Sports of India

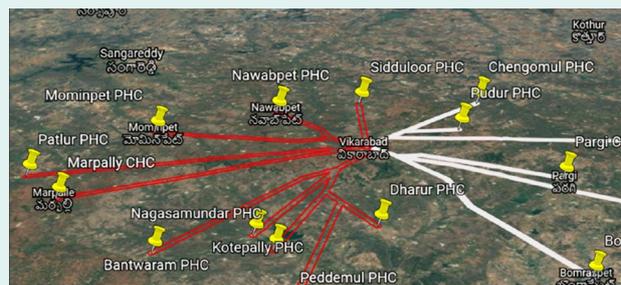
CASE STUDY

First-ever long-range delivery of vaccines using drones in Asia Telangana, India

Successfully completed 300+ vaccine delivery trials in remote regions.

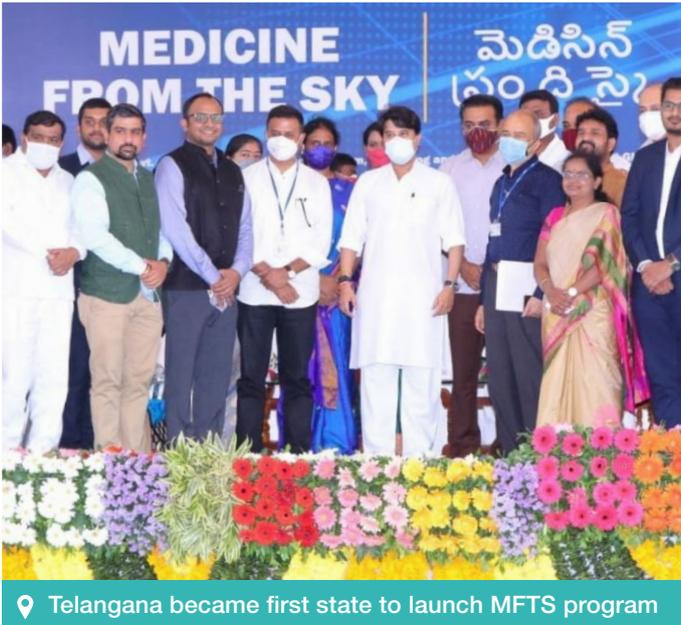
Eight different consortia where each consortium includes:

- Drone Operator
- UTM Service Provider
- Healthcare Expert
- Cold Chain Expert
- Safety Consultant



↑ Corridors earmarked in Vikarabad district for the 45-day drone programme

On-the-ground impact



📍 Telangana became first state to launch MFTS program



Medicine from the Sky initiative has demonstrated how the country can successfully make use of cutting-edge drone technology to ensure no one is left behind in terms of access to primary healthcare. We are hopeful that subsequent phases of this initiative will mainstream drones in healthcare.

Jyotiraditya Scindia, Union Minister of Civil Aviation of India



📍 Telangana



Drones can solve for universal health coverage for remote and inaccessible communities. Medicine from the Sky project has brought together key stakeholders and we wish to co-develop scalable models and policies going forward.

Anshul Sharma, Co-Founder, Redwing Labs



📍 Arunachal

India Hub for Urban Transformation (IUT)

Mission:

To deliver sustainable and inclusive infrastructure and services to urban environments by leveraging innovation, technology and new business and financing models.



India's urban population will increase to 675 million in 2035, up from 483 million in 2020. This rapid urbanization will put immense pressure on existing infrastructure and resources, such as water, air and land especially in cities.

Solutions must be sustainable and adaptable to this evolving landscape. Fourth Industrial Revolution technologies (AI,

internet of things, etc.) play an enormous role in finding comprehensive solutions: economic, social, financial, environmental and health. Further, as the Fourth Industrial Revolution expands in deployment and application, massive amount of data continues to be generated. There is a need for a global framework for ethical and sustainable use of data for digital governance.

Initiatives

The India G20 Smart Cities Alliance works with city data officers, city CEOs in smart cities on data related matters such as data collection, data sharing, data storage, data use, and more. This work is being carried out at the national level with a focus on leveraging Fourth Industrial Revolution solutions and at the global level through design of model policies where Indian cities can inform the global narrative and best practices.

India Hub for Urban Transformation (IUT), in collaboration with Smart Cities Mission, Ministry of Housing and Urban Affairs is working to adopt, deploy smarter Fourth Industrial Revolution solutions in cities across sectors such as public safety and security, mobility, water and waste water management, solid waste management and more. The objective is to create an ecosystem where the Fourth Industrial Revolution is a primary tool for better technological and digital governance.



The Centre for the Fourth Industrial Revolution India has been collaborating with us over last three years. Establishing the India Hub for Urban Transformation, the AI playbook for cities, the G20 pioneer cities programme and net-zero carbon cities have been some amazing successes. We look forward to shaping journey of smart and sustainable cities ahead with World Economic Forum.

Kunal Kumar, Joint Secretary and Mission Director, Smart Cities Mission

The problem

As the Fourth Industrial Revolution continues and mass amounts of data continue to be generated every second, there is no global framework or set of rules in place for how sensor data collected in public spaces can be used.

Objectives



Advance how technology is used in public places and promote core principles including transparency, privacy and security



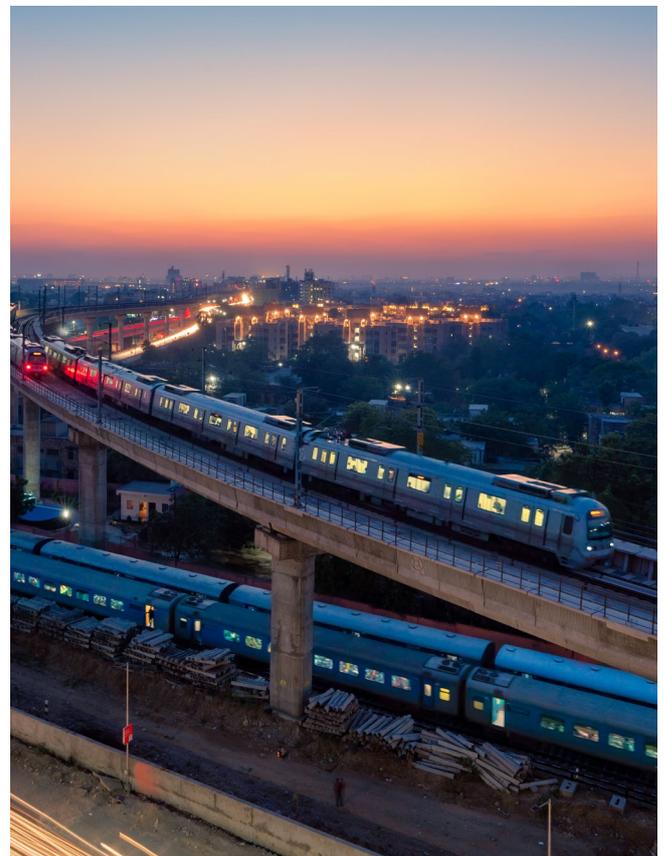
Building a scalable process for developing data governance frameworks and a multistakeholder ecosystem of value addition and improved service delivery in cities



Strategy and framework for deployment of AI in smart cities



Leveraging innovation, technology and new business and financing models to facilitate the delivery of sustainable and inclusive infrastructure and services to urban environments

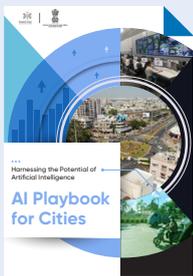




Launch of India Virtual Hub for Urban Transformation in partnership between the Smart Cities Mission and the World Economic Forum Inaugurated by Union Minister, Shri Hardeep Singh Puri

To solve complex urban challenges, cities require collaborative action across governments, industry, academia and civil society – both national and international. The Smart Cities Mission and World Economic Forum have joined hands to setup a virtual hub for collaboration on urban transformations. The hub will leverage emerging technologies and innovations to transform Indian cities into centres of sustainable, inclusive and resilient growth.

Knowledge products



AI Playbook for Cities
2022



AI Use Case Compendium
2022



Technology and Data Governance in Cities: Indian Cities at the Forefront of the Fight Against COVID-19

Insight report
DECEMBER 2020



Launch of AI Playbook for cities

The AI Playbook is a guidebook for implementation of artificial intelligence solutions that cities can deploy to solve complex urban issues. Further, a compendium of AI use cases that have successfully been implemented in urban domain was also released at the event. These resources will be extremely useful, not only to the 100 smart cities, but can also be adopted by other cities across the country, making the Smart Cities Mission to Movement.

Smart Cities Mission, Ministry of Housing and Urban Affairs





Deloitte has been collaborating with the Centre for the Fourth Industrial Revolution India, World Economic Forum over the last three years on multiple initiatives across agriculture and smart cities/urban transformation. The centre has facilitated creation of a multistakeholder ecosystem for adoption of low-cost innovative technologies in these sectors, together with supportive policies and business models. Deloitte sector/functional experts have been an integral part of these initiatives, which have led to some amazing outcomes and global publications, many of which are being adopted by government institutions and businesses. We look forward to strengthening this collaboration further as frontier technologies take centre stage in shaping India's future.

Arindam Guha, Partner, Government and Public Services Leader Deloitte

AI use case verticals for cities



Policy and governance challenges being explored



Data governance



Ethical use of technology



Tracking adoption and usage

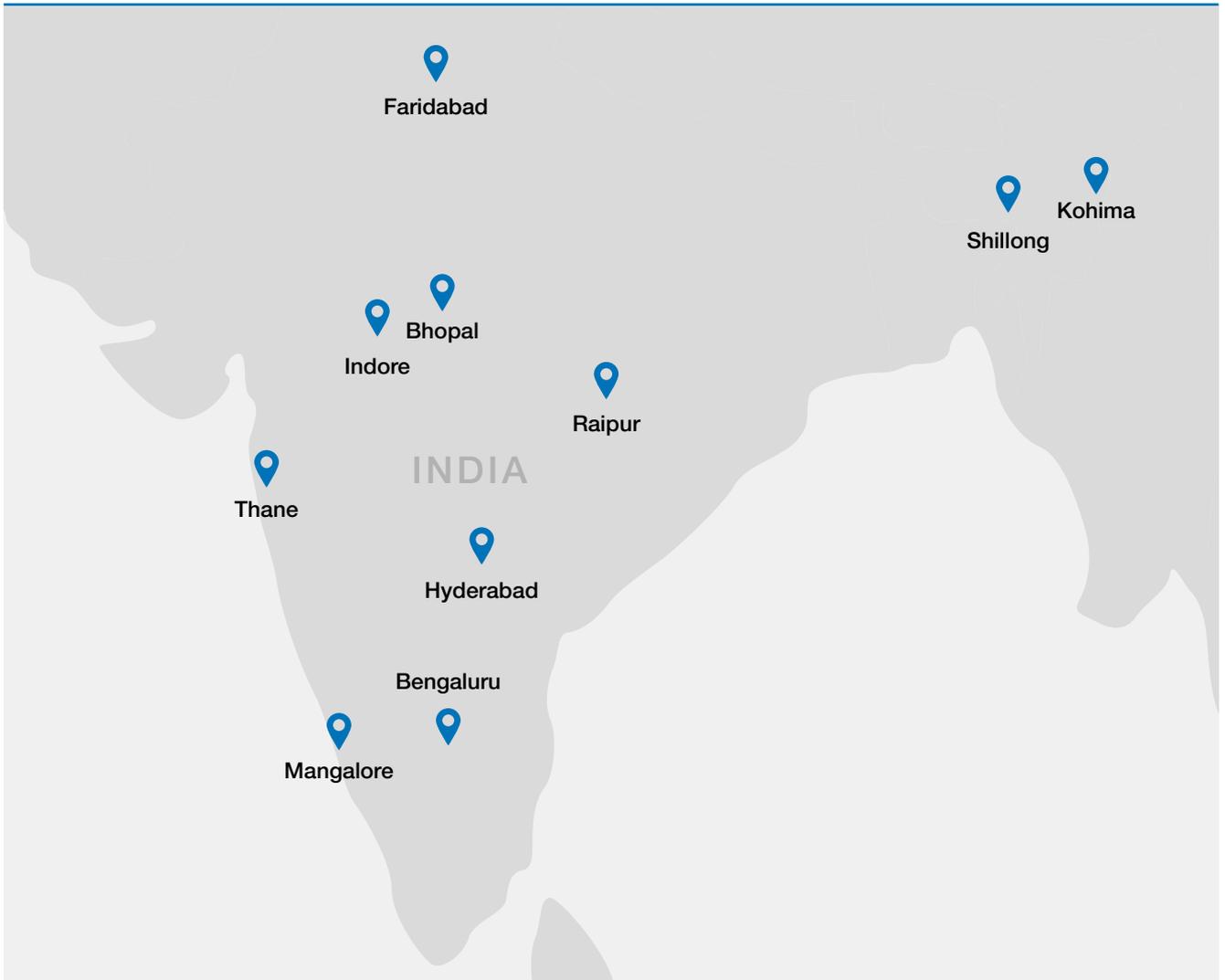


Private sector collaboration



Role of city, state and the government of India

India G20 Smart Cities Alliance



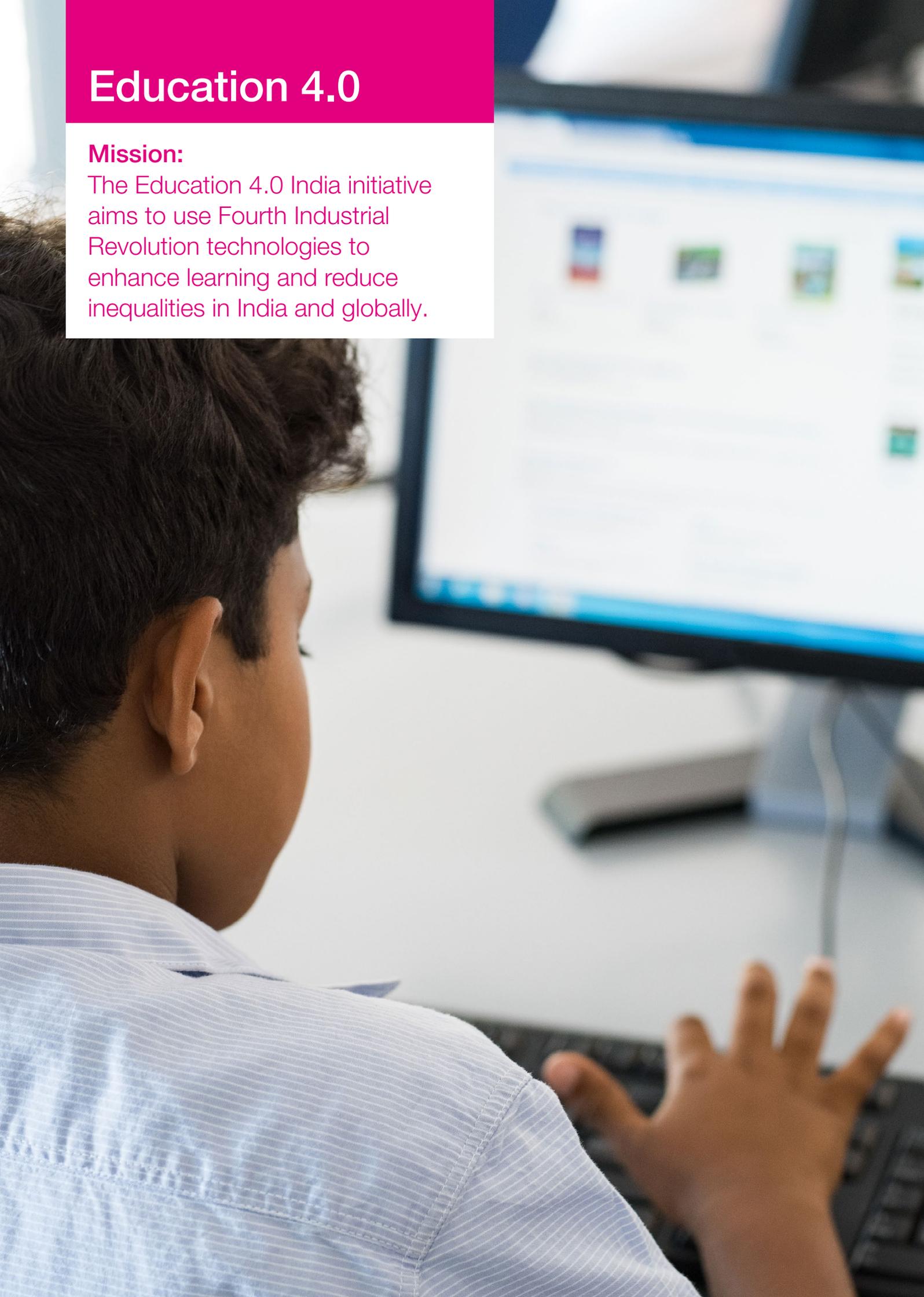
It has been great to partner with the Centre for Fourth Industrial Revolution India especially in evolving the AI for Cities agenda in Indian smart cities along with the Ministry of Housing and Urban Affairs. The Tata Trusts appreciates the role the Forum is playing in shaping the path of adoption of Fourth Industrial Revolution technologies across sectors for larger social good.

Poornima Dore, Director, Analytics, Insights and Impact TATA Trusts

Education 4.0

Mission:

The Education 4.0 India initiative aims to use Fourth Industrial Revolution technologies to enhance learning and reduce inequalities in India and globally.



Education 4.0 India is an initiative between the World Economic Forum's Centre for the Fourth Industrial Revolution India, UNICEF and YuWaah (Generation Unlimited India), which is aimed at wielding Fourth Industrial Revolution technologies to enhance learning and reduce inequalities in access to education among schoolchildren in India.

The COVID-19 pandemic exposed and exacerbated existing challenges in the Indian education sector, widening gaps in learning for children and educators alike and intensifying the challenge of creating a society where quality education can be accessed easily by all. The Education 4.0 India initiative aims to use digital learning to address these disparities and empower India's youth by engaging them as changemakers.

The initiative convened a multistakeholder group of over 40 partners functioning in the education sector, including representatives from education technology, government, academic and start-up communities. This multistakeholder group identified four priority themes, namely, foundational literacy and numeracy (FLN), teachers' professional development, school-to-work transition, and connecting the unconnected. The deliberations of the multistakeholder group were captured in the Education 4.0 India Report, which was launched in October 2022. The report presents a framework

for the development of scalable pilots that can be implemented together with state governments and ecosystem partners, with a view to providing best practices that can augment the existing education ecosystem and be useful for a wide range of stakeholders in the education sector. The report is aimed at building a robust strategy that can be widely implemented, while being cost-effective and sustainable. The Education 4.0 India initiative aims to empower public-private partnerships in digital learning within the state context.

Knowledge products



Education 4.0 India

Insight report

OCTOBER 2022

Additional products: Blogs



YuWaah (Generation Unlimited India) at UNICEF is proud to collaborate with the Centre for the Fourth Industrial Revolution India on digital education in the first country-level partnership between the Forum and UNICEF. Our long-standing partnership with the Forum has convened multistakeholder communities and created thought leadership. We look forward to continuing our collaboration with the centre to bolster the adoption of emerging technologies, especially for adolescent and youth development and participation in India.

Dhuwarakha Sriram, Chief, Generation Unlimited,
Adolescent/Youth Development and Partnerships, UNICEF

Building blocks of Education 4.0



Curriculum

- Capacity building curriculum
- FLN/Competency-based education/STEM
- 21st century skills



Content

- Content standards
- Content life cycle management
- Content translation and contextualization



Capacity

- Competency framework
- Training-needs analysis
- Training and training dissemination



Community

- Volunteering
- Crowdsourcing
- Self-sustainability



Digital

- Devices and hardware
- Connectivity solutions
- Data, AI and machine learning

Milestones

JUNE 2021

Milestones achieved



UNICEF partnership signed

Statement of Intent signed with UNICEF India

Community scoping of 60+ partners



KINDLE constituted under the initiative

- Six steering committee sessions
- 45+ working group meetings
- Nine pilot frameworks



Education 4.0 India report launch

Call to action to stakeholders for implementation of pilot designs proposed in report

NOVEMBER 2022



To address the disparities in the Indian education sector and empower India's youth by engaging them as changemakers, the World Economic Forum and UNICEF joined forces to create the Education 4.0 India initiative. The Forum's Centre for the Fourth Industrial Revolution India co-designs and pilots projects aimed at facilitating the country's digital transformation.

B.V.R. Mohan Reddy, Founder Chairman and Board Member, Cyient



EY shares a long and fruitful partnership with the Centre for the Fourth Industrial Revolution India on various workstreams including education. We are happy to work with a trusted platform like the Forum to contribute to national and global dialogues on using Fourth Industrial Revolution technologies for development.

Siva Moorthy, Partner, EY



Shaping the Future of Data Policy and Digital Assets

Mission:

Unlocking access to data for
responsible innovation



With the aim of addressing the challenges of inclusivity, sustainability and efficiency in the agriculture value chain, the Data Economy Initiative in the agriculture sector has the mission to unlock the \$70 billion potential of data and AI for responsible innovation through enabling accessibility to high-value datasets, ensuring responsible innovation through policy development and empowering data agency.

The initiative was shaped by multistakeholder and diverse working groups comprising agriculture and data experts who deliberated on nuanced aspects of a responsible data exchange ecosystem. The discussions resulted in a data exchange ecosystem framework with a focus on the technical architecture, governance aspects as well as incentivization mechanisms for data sharing. The aforesaid framework has been adopted by a state government in India, whereby

the first government-led agriculture data exchange is being piloted. In collaboration with the public-private stakeholders, the said state government also released India's first draft agriculture management policy to enable digital agriculture and responsible access to data. Led by the Centre for the Fourth Industrial Revolution India and in collaboration with the Forum's Data Policy Platform and Food Systems initiative, the data exchange ecosystem framework will be scaled to other jurisdictions through the development of an Alliance for Shaping the Data Decade of Agriculture.

Through agile policy development, open-source technology stacks and effective collaborations, the data economy initiative in the agriculture sector will have an impact on millions of smallholder and marginal farmers, enabling them to access digital agriculture services.



India has an opportunity to create a trillion-dollar digital economy by 2025, benefiting all sectors and people. For this, both data and technology will be key enablers. Steps we take today will determine the trajectory of the data economy.

Ajay Prakash Sawhney, Former Secretary, Ministry of Electronics and Information Technology of India (2017-2022)

Objectives and challenges

What's the challenge?

New technologies such as AI and the metaverse demand data as the foundational resource for solving systemic challenges like agriculture, healthcare, urban transformation

and education. Yet, despite an abundance of both supply and demand, the evolution from data to insight still presents many challenges. For instance, the type of governance needed to assure proper oversight, transparency and accountability by those using data is still being understood.

Enable access

Fragmented and siloed data systems impede the realization of \$500 billion to the Indian economy

Data agency

Lack of robust frameworks to strengthen data agency and empower users

Forge partnerships

Insufficient incentives to develop scalable and sustainable business models for responsible innovation

The approach

Launched in 2021, this data policy initiative focuses on enhancing access and usability of high value datasets for provision of digital services and research innovation through policy frameworks, pilots and application development.

Focused on interoperability, data governance and scaling sustainable business models, the Centre for the Fourth Industrial Revolution initiative aims to shape the data decade by building collaborations.

Target impact



Unlock and enable access to datasets for government and private sector



Ensure responsible innovation through policy development on data agency



Bring together key stakeholders to build effective partnerships for a robust data ecosystem

Strategic initiatives

Agriculture Data Exchange (ADEx)

Enable access to high value datasets for policy-making, provision of digital services to farmers and research/innovation through policy frameworks, pilots and application development

Global Alliance for Shaping the Data Decade

Focused on interoperability, data governance and scaling sustainable business models, the Centre for the Fourth Industrial Revolution India's network-led global alliance aims to shape the data decade of agriculture by building collaboration on issues relating to food security, climate change and global trade.

Knowledge products



Towards a Data Economy: An Enabling Framework

White paper
AUGUST 2021



E-Sehamathi (Consent Manager) Guidelines in Karnataka's Policy

FEBRUARY 2022

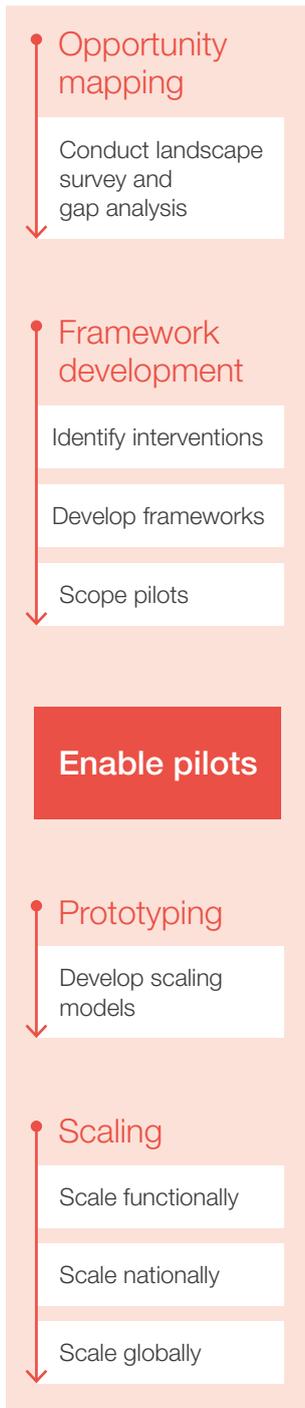


Draft agriculture data management policy in Telangana

JULY 2022

Additional products: Blogs on [enterprise NFTs](#) and [equitable data economy](#)

Milestones



NOVEMBER 2020 Milestones achieved



White paper publication

Published white paper on enabling data economy through multistakeholder consultation



Data-sharing guidelines Notified by Karnataka

Supported draft of *E-Sehamathi Guidelines*, enabling use of consent manager for data access and collaborating with the private sector



ADEX Consultation and ADMP

Expert group consultations on ADEX platform and draft agriculture data management policy

MARCH 2022 Milestones planned



Toolkits

- ADEX Toolkit
- Data enablement
 - Data governance



ADEX platform and policy

- ADEX launch
- 100+ member ADEX community network



Global alliance

Launch of the Centre for the Fourth Industrial Revolution India network-led Global Alliance for Shaping the Data Decade of Agriculture

SEPTEMBER 2023

\$500 billion

Enabling \$500 billion opportunity



Data offers immense potential to benefit people, industries and governments. Towards unlocking the value from data, exchanges/ marketplaces that aggregate data from the public and private sector can be important enablers. Appropriate data governance frameworks, economic incentives and an environment of trust amongst the multiple stakeholders are of paramount importance in a data economy.

Rohini Srivathsa, National Technology Officer, Microsoft India

Join the community

AAI	GMR	Max Foundation	Quality Council of India (QCI)
ADL	Google	M-cril	Quantela
Agnext	Government of Arunachal	Microsoft	Qure.ai
Amrita Vishwa Vidyapeetham	Government of Madhya Pradesh	Ministry of Agriculture	Rabo Bank
Apollo Hospitals	Government of Meghalaya	Ministry of Civil Aviation	Redwing
AWS	Government of Shillong	Ministry of Education	Reliance
Bain & Co.	Government of Telangana	Ministry of Electronics and IT	Roche
Bayer	Graymatics	Ministry of Health and Family Welfare	Room to Read
Bharat Krishi Samajh	Honeywell	Ministry of Heavy Industries	Sampark
Bhopal smart city	HPE	Ministry of Housing and Urban Affairs	SAP
BMGF	Hyderabad City	MSD	Satsure
BYJUs	IBM	NABARD	Settlemint
Cargill	ICAR	NABVentures	Smart Cites Mission
CBSE	IDC	NASSCOM	Swoop Aero
CDAC	IDFC Institute	National Institute of Urban Affairs	TATA
Central Square Foundation	IFFCO	NCDEX	Tata Advanced Systems
CIFF	IGNUS	NeML	Tata Trusts
CII	IIITD	NHA	TCS
Cisco	India Flying Labs	NIMS	Tech Mahindra
Clinton Health Access initiative	Indian Cancer Society	Nishith Desai Associates	technoserve
Cyient	Indore smart city	NITI Aayog	Temasek
Dawex	Infosys	Novartis	Thane Smart City
Dell	Intel	NPCI	UN Habitat
Deloitte	International Air Transport Association	NSDC	UNESCO
DGCA	IUDX	Omnivore	UNICEF
Digital Green	Jodo Gyan	ONDC	Videonetics
Drone Federation of India	Karnataka	PHFI	Vikramshila
DSCI	KoineArth	PJTSAU (AgHub)	Visa
Ek Step foundation	KPMG	Plaksha	Wadhvani AI
ERNET	Lilavati Hospital	Pratham	Welspun
EY	Language Learning Foundation	PSA Office	Wingcopter
Faridabad smart city	Mahindra	PwC	World Bank
Flipkart	Mastercard	Qualcomm	Xylem
			Yara
			Zipline

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IMPROVING THE STATE
OF THE WORLD

The World Economic Forum, committed to improving the state of the world, is the International Organization for Public-Private Cooperation.

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