THE FUTURE OF GOVERNANCE IN THE ERA OF TECHNOLOGY

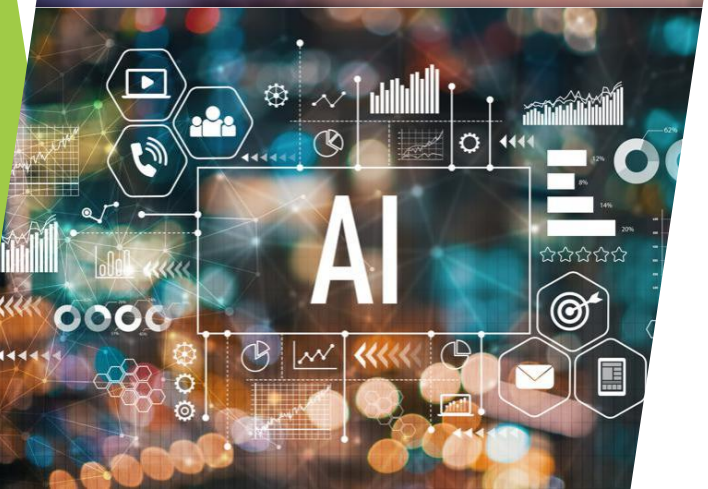


Chandrashekhar Rentala

SPL FC FOR AIS AND CCS OFFICERS
MCRHRDI, 27TH OCTOBER, 2026







New and Emerging Technologies

- Which are these technologies?
- Why are they so important?
- How are they transforming Governance?
- Opportunities and Examples
- Issues and Concerns
- Future Trends

New Technologies Driving Digital Disruption

- **AI, Generative AI, Machine Learning, Deep Learning**
- **Big Data analytics and cloud**: a smarter, more connected future
- **IoT, Wearables** and Connected Devices: Making the World Smarter
- **Robots, Drones, UAVs**: Automation on the rise
- **Social Media** – reshaping your personal world
- **Mobile** - getting smarter and smarter
- **Augmented/ Virtual/ Mixed Reality**
- **Natural Language Processing (NLP)**
- **Voice Interfaces & Chatbots**
- **5G**
- **Block Chain Technology**



The New Technologies Are Unique In Many Ways!

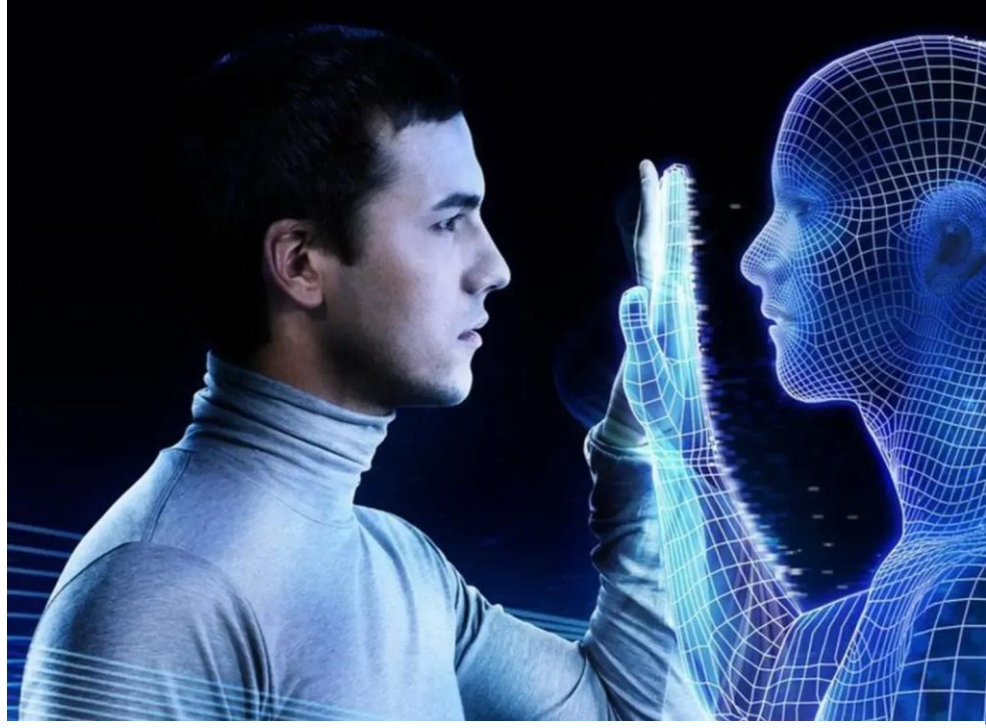
- Exceptionally powerful
- Infinitely scalable
- Personalization at scale
- Highly Affordable
- Easy to Use
- Quick Implementation

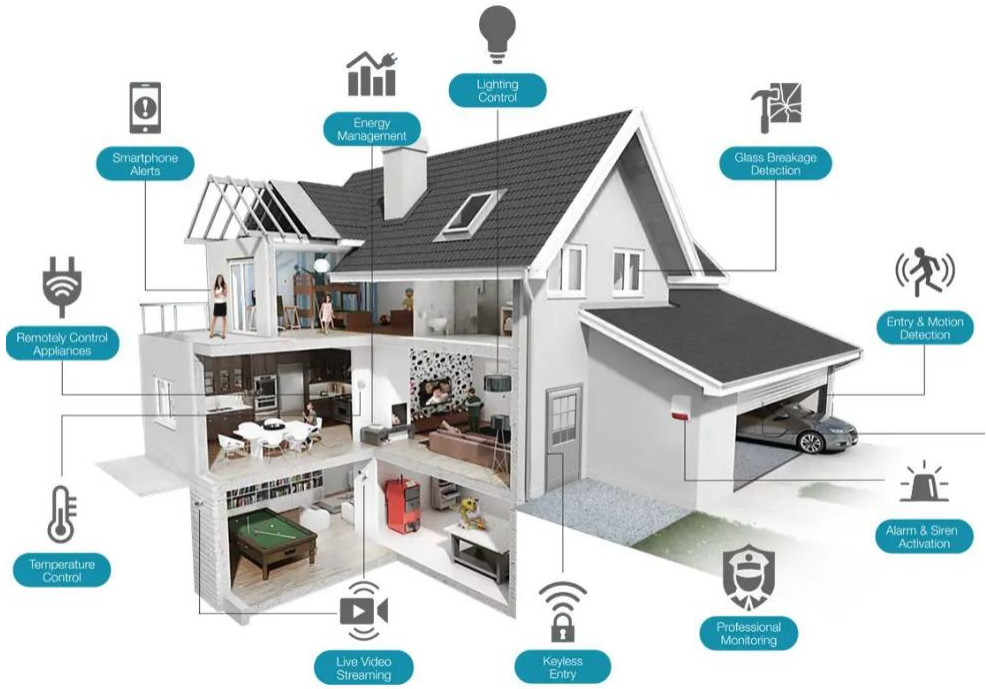


Making them particularly attractive from an India perspective

Other Technologies Gaining Traction

- Wearables and Augmented Humans
- Digital twins
- Computer Vision and Facial/ other Recognition
- Cybersecurity & Resilience
- CRISPR Gene Editing, Gene Therapy
- Starlink Satellites (LEOs) for Internet
- Nanotechnology
- Autonomous Vehicles
- Space Tourism
- Smart Cities, Smart Homes
- 3-D Printing





Emerging Technologies

- Artificial General Intelligence
- 6G
- Quantum Computing
- Neuralink & Brain Reading Robots
- Cubio or Q-bio
- Smell VR
- Xenotransplantation
- Wireless soft e-skin
- Adaptive Sensory Interface (ASI)
- Hydrogen Fuel Cells
- Hyperloop Trains
- Humanoid Robots
- Artificial wombs
- Solid State Batteries
- Fusion Power
- Lab Grown Meat



Digital Disruption Across Sectors/ Domains

- Retail
- Consumer
- Logistics
- Automotive
- Electricity
- Media
- Aviation & Travel



From Agriculture to Aircraft



- Healthcare
- Agriculture
- Advanced Analytics
- Oil & Gas
- Professional Services
- Telecommunications
- Mining and Metals

Disruptive Change – Many Dimensions

- Technology
- Business Environment and Practices
- People, Economy & Politics
- ***Digital Governance Trends & Imperatives***







Significant Global Trends

- Dominance of Platforms powered by Big Data and Analytics, IoT, AI, ML, Robotics, etc.
- Convergence of tech, domain, consulting & innovation – value at junction of tech & domain
- Tech sector now expected to deliver business value
- AI & ML (deep/ unsupervised learning) creates big opportunities but also poses challenges;
- Natural Language Processing (NLP) Speech-to-Speech – increasing integration into applications

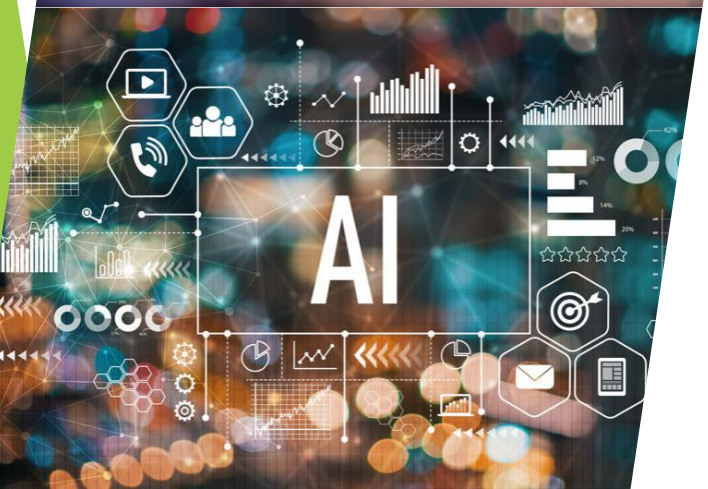


Fortuitous Confluence for India

- Characteristics of New Tech
- Huge IT industry, GCCs, talent
- Telecom Boom: BB, 5G, 6G (T)
- 2nd Largest Startup ecosystem
- Public Policy driving digitalization







India’s AI Opportunity

India’s AI Opportunity is in Apps on top of LLMs

- **Andrew Ng**



British-American tech entrepreneur focusing on AI & ML, cofounder and head of Google Brain, former Chief Scientist at Baidu, adjunct professor at Stanford University (formerly associate professor and Director of Stanford AI, cofounded Coursera and DeepLearning.AI.

Tech adoption by Government on Steroids

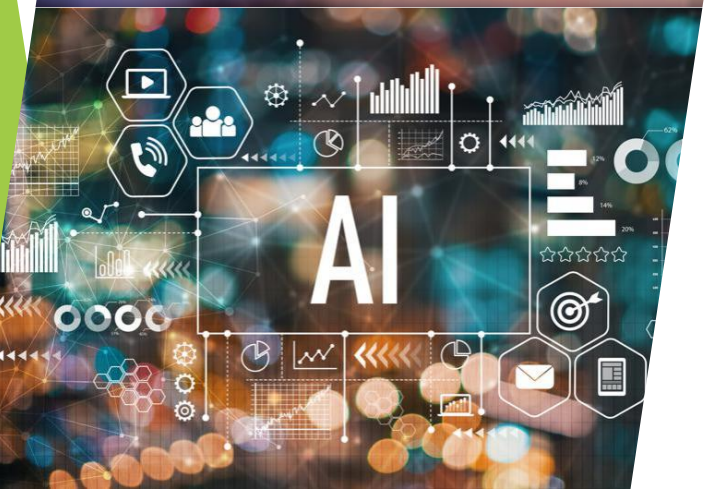


- Digital India (earlier NeGP, e-Kranti)
- Aadhaar
- MCA, Passports, Income Tax, etc.
- UPI, Digital Payments, DBT
- GSTN, CoWin, ONDC, Digiyatra
- NDHB, e-Agriculture, Digital Education
- Several State Govt. Initiatives
  - Land Records, Property Registration, Transportation, eSeva
- Senior Govt. functionaries on Social Media









India's AI Opportunity

"A Free Primary Care Physician for every Indian & a free tutor for every child within 5 years"



- **Vinod Khosla**

  Entrepreneur, investor and technologist. He is the founder of Khosla Ventures, a firm focused on assisting entrepreneurs to build impactful technology-based disruptive companies.

AI in Healthcare, Education, Agriculture, Revenue

- Use of AI/ML in Social Sector to predict
  - TB treatment dropouts
  - High risk pregnancies
  - ICU trauma – AIG's Code Blue
  - School dropouts
  - Agri - Pest Attack, precision agri services
- Early identification for GST
  - Fraudsters
  - Risky refund applications
  - Risky new registrants



Global Leadership in Digital Public Infrastructure

UNIFIED PAYMENTS INTERFACE

- DPIs like UPI, Aadhaar, GSTN, ONDC vs. Amazon, Flipkart
- Emerging DPIs in Health, Agriculture, Education
- Converge tech, domain, process & innovation at ecosystem level
- Boundary between Government and private sector is blurring
- Application Programming Interfaces (APIs), rapid prototyping, scaling successful POCs, agility at the periphery

Goods and Services Tax Network

Catalyzing, Leading or Enabling Private Services

But There Are Major Concerns

As digital becomes dominant, security threats mount

Bad/Fake news, extreme views spread fast, can disrupt



Profiling raises privacy, security concerns

Minimal/ zero response time

Services are omni-channel, so are threats; Integrated approach needed

Data has emerged as a major resource & a contentious issue



- Global Trend towards Data Localization
- Emerging Concepts of Data Sovereignty, Digital enclaves/ embassies

The power of AI – for Good & Bad

- Analyzing Big Data at an individual level
- Prediction of Individual Behavior – Commercial, Political, Social
- Manipulation of human behavior
  - Social media feed, news, other content
- AI ethics & biases
  - Bias in training Data
  - Bias in AI algorithm
- AI in Crime and Fraud
  - AI based fraud

AI for Good



Food For Thought
What's the Primary Goal?

Enhancing Government's

- Efficiency
- Access to Data/ Info
- Reach to Citizens



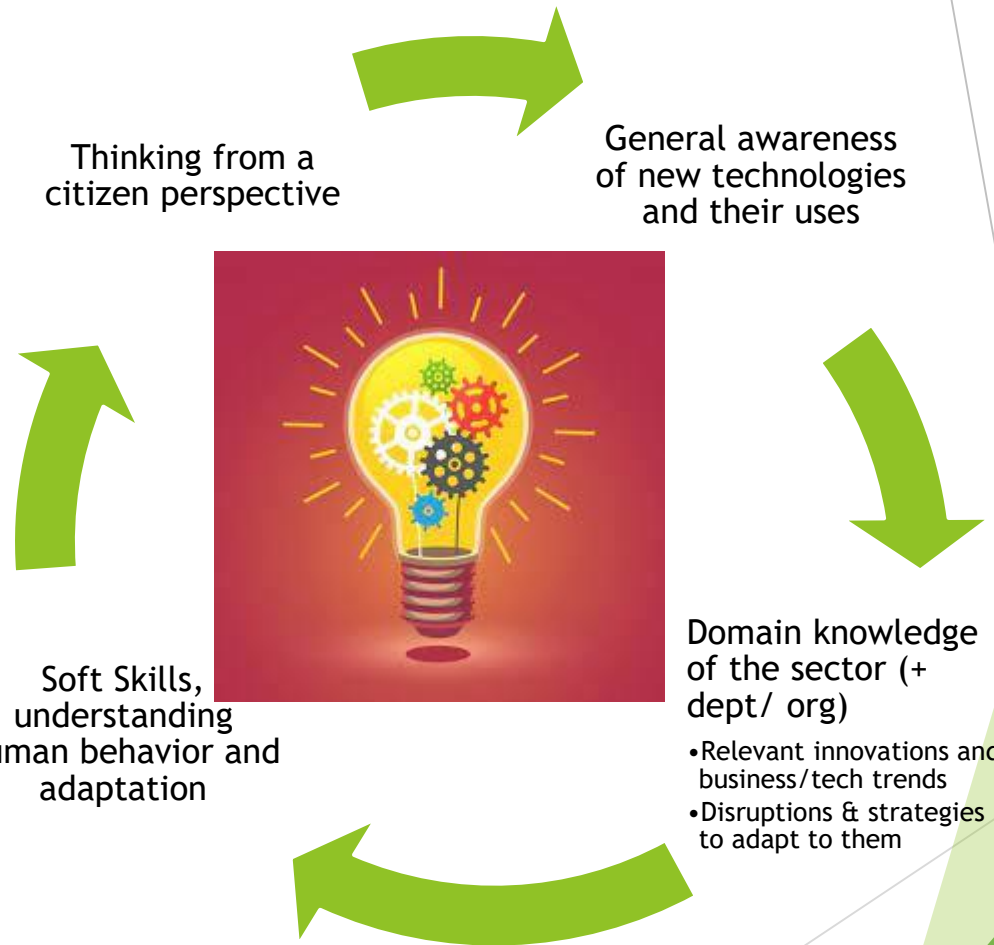
Enhancing Citizen's

- Ease of availing services
- Personalization
- Trust

2 Distinct Governance Transformation Philosophies

Conceptualization is Key

What you need to know to conceptualize New/ Emerging Tech Solutions



Must Have: Clarity regarding what outcome you want to achieve or at least what problem you want to solve (eg. MCA21)

Digital Government Services - Catalyzing & Mirroring Private Sector Best Practices

- Eco-system Level thinking from a citizen/business perspective
- Omni-channel services (mobile, Internet, call centres, SM, etc.)
- Personalized services, CRM
- APIs enable innovative private sector VAS services around core
- Enhancing Trust using block chain, encryption, 2FA, etc.

Two streams of Value in the Digital World

Commercial Benefits

- Tapped by Companies



Digital Information Flows

Societal & Political Benefits Tapped by

- Governments
- People

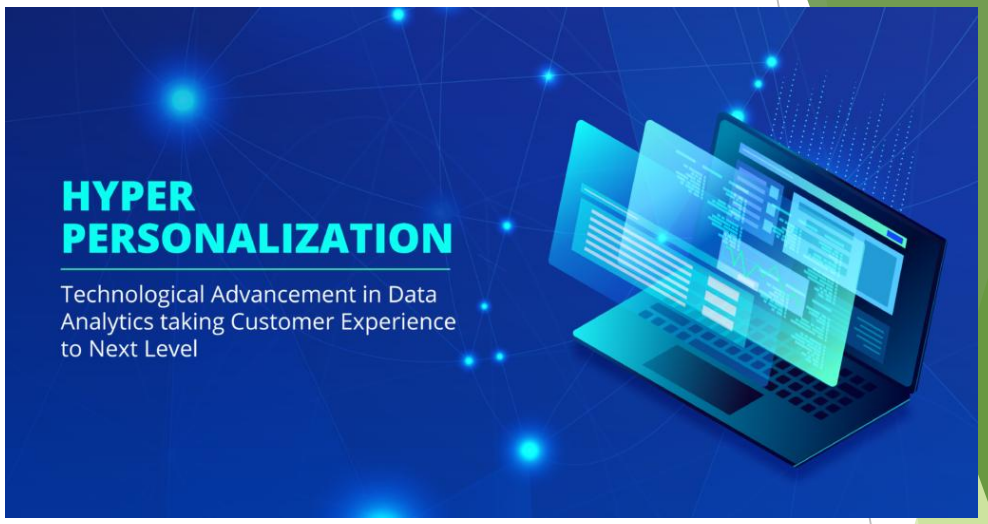
An AI-Enabled & Connected Future

- AI a constant companion for every worker
- If you can explain how a task is performed, AI will be able to do it better
- AI is not very good at tasks that involve dealing with human emotions and feelings
- Everything is connected, everything is tracked by some entity
  - Healthcare, education, agriculture, manufacturing
- Trust and reliability will become precious commodities
- Many creative tasks will also be performed by AI



Future Trends

1. Hyper-Personalized Public Services
   - AI-Driven Customization
   - Digital Assistants
2. Smart Governance
   - Data-Driven Decision Making
   - Predictive Governance
3. Enhanced Transparency and Accountability
   - Blockchain Technology
   - Open Data Initiatives
4. Smart Cities and Infrastructure
   - IoT-Enabled Smart Cities
   - Connected Transportation Systems





Future Trends … contd

5. Efficient Public Administration
   - AI and Automation
   - Digital Identity Systems
6. Cybersecurity and Privacy
   - Advanced Cybersecurity Measures
   - Privacy Protection
7. Increased Citizen Engagement
   - Digital Platforms for Civic Participation
   - Social Media Integration
8. Global Collaboration
   - International Cooperation
9. Innovative Public Services
   - AI-Powered Public Services
   - Virtual Government Services





Questions To Ponder



- How Do you Think Governance Is Changing As It Goes Digital?
- What Do you Think It Will Look Like When It Becomes Fully Digital, Fully Connected?
- How Should The Sector/Department You Serve Be Positioned For That Digital Future?

THANK YOU

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