Emerging Technologies Frontiers & Ever Changing Landscape In Public Administration

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Life is Getting Better

- Early Independence: Roti, Kapda (basic needs)
- Mid-70s onwards: Sadak, Bijli, Pani (infrastructure, utilities)
- Mid-90s: Bandwidth, connectivity, low STD rates, rural electrification
- From 2020s: Low internet costs, low interest rates, tackling unemployment

History of the Sub-continent

- Seventeen years of Nehru's leadership provided foundation to Institutions.
- During the first 25 years Pakistan had a Military coup twice.
- Later Mrs. Gandhi, who was Information and Broadcasting Minister under Lal Bahadur Shastri became P.M. She Established IIMC (Indian Institute of Mass Communication).
- Later when she became PM, she focused on the spread of institutions.
- 100 low power transmitters installed in 100 days- record.
- She lost power when she imposed censorship on the media, during emergency.

Why Nations Fail : *Daren Acemoglu & James Robinson*

- Living standards between Nations differ based on their Institutional Differences.
- A single event at a critical juncture makes a tremendous difference. Like Black Plague in Europe.
- Possible to break out of poverty: requires Inclusive Economic Institutions not extractive Institutions. Also, if Politics of the Nation can be Inclusive with Pluralism.
- The Economic landscape gets defined by: Public Services, Property laws and Access to Financing.

Third World: Institutions & State Capacity

- Institutions don’t develop under dictators.
- Institutions require an educated middle class, to provide professional support.
- The legacy institutions in the African continent are not similar, between Anglophone and Francophone nations.
- African countries have numerous languages, a Lingua Franca to bind the Nation and to be adapted in Administration and Courts doesn't necessarily exist.

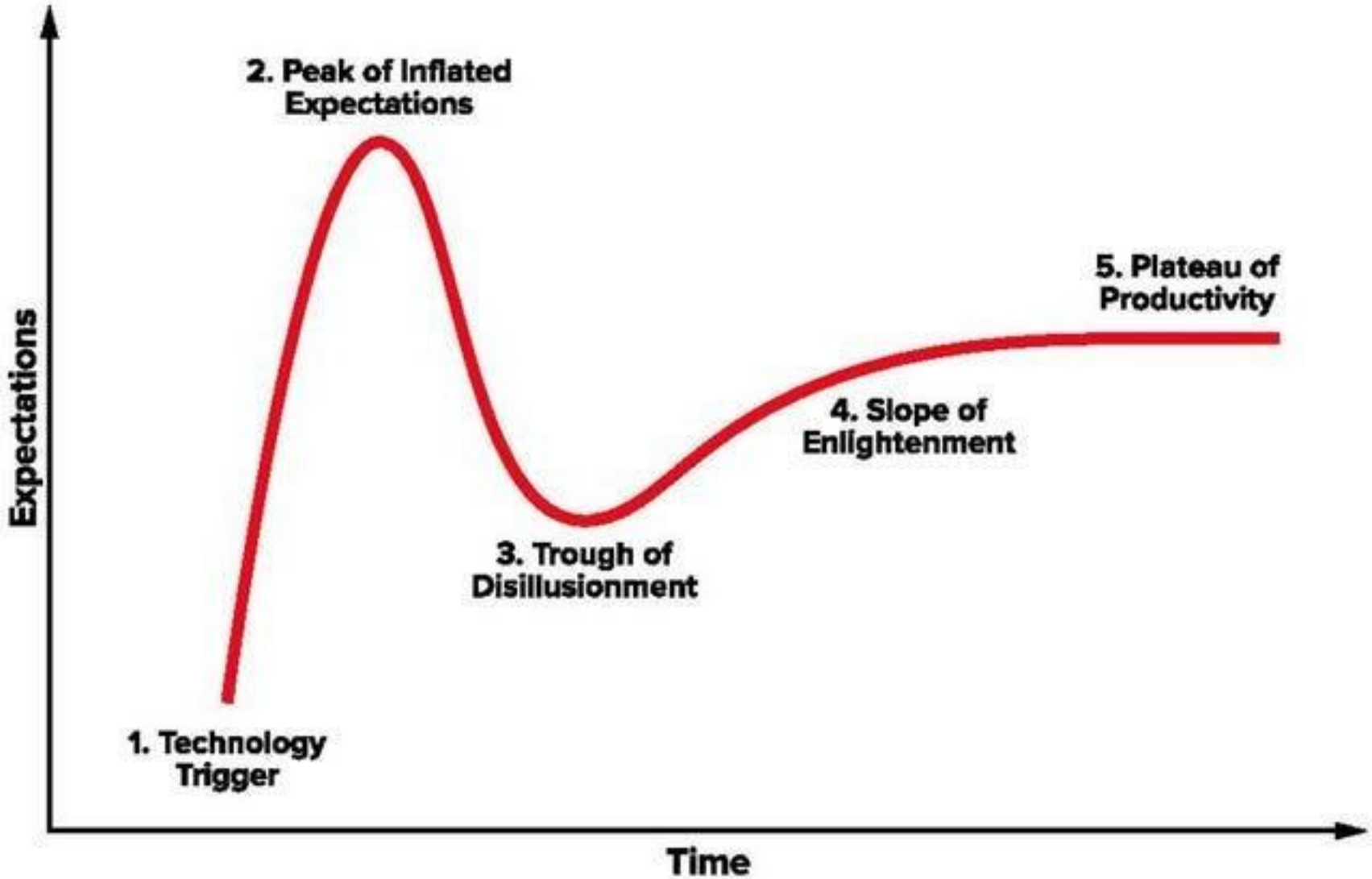
Evolving Technologies:

- Internet is the greatest democratic force.

- Real time access to information became a reality thanks to falling costs of smart mobiles, improvement in communication speeds, falling telecom hardware costs. Needless to say Media proliferated post internet.

- WhatsApp and Facebook and Instagram brought people together, in real time.

Gartner Hype Cycle



American Domination: Data, Cloud & AI

- With email, internet, web browsers and now big five companies pouring money in Cloud infrastructure and AI, ‘Data’ became the central point to debate on.

  - **MAGFA**- Microsoft, Amazon, Google, Facebook, Alphabet pour 90% of funds into AI and cloud.
  - Slide of Investments.
  - Slide of Gartner Technology Hypecycle.
  - Judiciary as an Institution lags in disposing cases.

- Judiciary in the Third World is not adept at adjudicating technical matter.

- Such as the case: United States vs Microsoft. Microsoft bundled a web browser along with windows software, abusing its Monopoly power. Netscape suffered.



WE INVENTED THE CONCEPT OF
POSTING BULLSHIT ON OUR WALLS
FACEBOOK JUST STOLE OUR IDEA

Regulatory Frameworks & Institutions Didn't Keep Pace:

- Doordarshan had monopoly for a long time.
- Now there is proliferation of channels, 16 Telugu channels.
- Information is under domain of MeITY.
- Broadcasting and Media are under domain of Information and Broadcasting Ministry.
- The old Telegraph Act became the backbone of Information flow.
- India had an Indian Information Service since 1960 (Originally CIS).
- One wonders how many countries in the world have similar structures.
- India had an Indian Telecom Service since 1965.

Way Forward to Third World

- ✓ Two days ago the High Court of Karnataka rejected X CORP.'s plea against takedown orders.

- ✓ The court said "unregulated speech under the guise of Liberty becomes a Licence for Lawlessness". "Liberty is yoked with responsibility"

GDPR: A Rights-Based Data Protection Framework

- GDPR-European Union is primarily governed by the General Data Protection Regulation (GDPR), a comprehensive law that establishes a uniform framework for data privacy and strengthens individuals' rights regarding their personal data.

- Data protection is recognized as a fundamental human right within the EU, enshrined in the EU Charter of Fundamental Rights. Any organization that offers goods or services to individuals in the EU or monitors their behavior must comply with the regulation, regardless of their location.

Political Corruption & Regulatory Capture

- Most of the Third World countries draw upon the expertise of **Political corruption** in the Third World leads to '**Regulatory Capture'.** Telecom companies bribe officials, politicians and regulatory institutions, which stifles **'Fair Price Discovery'** for services.

- Loss making companies knock on the doors of the Government.

- Customers/Consumers end up underwriting the losses of companies.

Example: Vodafone-Idea.

Social Media and Its Influence

- Ian Russell "Instagram Helped Kill My daughter" BBC interview, toxic influence of Social Media Platform.

- Sixty four percent of all extremist group joins are due to our recommendation tools. Nothing is someone else's problem. (facebook Internal Communication). Facebook generally didn't enforce its own rules against hate, Rosen Acknowledged, that was by design.

- 2014, a hardline Buddhist monk posted a false claim on facebook that a Rohingya man had raped a Buddhist woman, a provocation which ignited clashes.Ethnic Cleansing began, 25,00 people were killed by the military and Buddhist vigilante groups., 700,00 were forced to flee homes. Anti- Rohingya hate and falsehoods from Burmese military, firebrand monks, on social media aggravated the situation

- Donald Trump is adept at using Social Platforms to influence the followers. "Stop the Steal" phrase saw a surge, Trump supporters gathered in Washington DC.

- Social media helps dangerous actors peddle dangerous ideas.

- During COVID misinformation crisis, just 5% were producing half of all posts.

- For the youth of Nepal consuming social media for over three hours was the main activity and engagement.

- When social media was banned, they came on to roads, leading to insurgency. Lead to Change in Government.
- Nepal Insurgency, on account of Govt. stopping Social Media.
- 25% of the population is under 25 years of age.
- Unemployment in the 17 to 35 age group in Nepal is higher (20% plus).

Transformations in the 2020s

- AI & Biotechnology: new drugs, fight degenerative diseases
- Greater access: free internet, open information for all
- Poor working less compared to earlier generations
- Renewable energy: cheap, accessible, enabling new opportunities
- Skewed wealth distribution: top 5% control 95% of internet traffic
- Positive feedback loop: Education, healthcare, sanitation, democracy

Tech Acceleration & the Future

- API costs dropped by 97% in 2 years → wider access
- Price of storage falling rapidly
- Speed of computation increasing
- Communication costs falling
- Usable data volumes increasing multifold
- Growing investor confidence → more funding
- Human brain: ~10^{16} operations/sec
- Supercomputers: ~10^{18} operations/sec
- AI empowering human intelligence → path to Singularity

Technological Changes In Govt Sector … Recap

1. Rajiv Gandhi Era

- Creation of Centre For Development Of Telematics (CDoT), the brainchild of Sam Pitorda
- Beginning of Subscriber Trunk Dialling (STD) in Metropolitan cities
- Support to Light Combat Aircraft (LCA) Tejas

2. PV Narasimha Rao Era

- STD spreads to District Headquarters level
- Liberalization made bureaucrats to be facilitators, not regulators

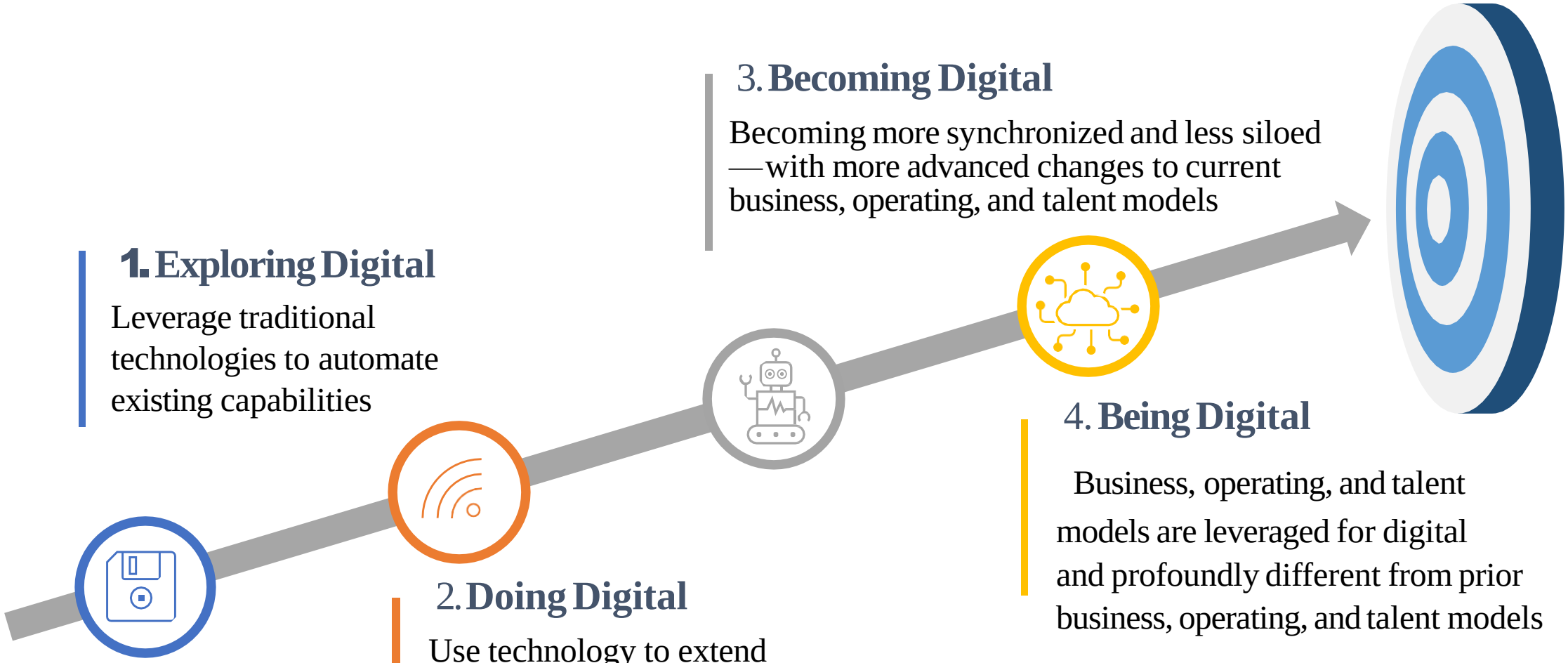
3. Digital Era in Government

- Adoption of Internet Technologies in Govt - 2006 onwards under National e-Governance Plan
- Alan Turing published his concept paper "Computing Machinery and Intelligence" in 1950, but work on ML and AI started in earnest in late 2000's
- Emerging technologies are accelerating the flow of information, transforming governance, business, economy, and society alike.

Digital Journey- From Automation To Computer Intelligence

- ERP Systems (1990s): Streamlined business functions like finance, HR, and supply chains across enterprises
- Data Mining & Warehousing (2000s): Enabled storage, retrieval, and pattern recognition in large datasets
- Predictive Analytics (2010s): Shifted from descriptive analysis to forecasting future trends and outcomes
- Late 2010s–2020s – Artificial Intelligence: machines that learn, adapt, and interact autonomously.

The Digital Maturity Spectrum



1. Exploring Digital

Leverage traditional technologies to automate existing capabilities

2. Doing Digital

Use technology to extend capabilities, but still largely focused on current business, operating, and talent models

3. Becoming Digital

Becoming more synchronized and less siloed —with more advanced changes to current business, operating, and talent models

4. Being Digital

Business, operating, and talent models are leveraged for digital and profoundly different from prior business, operating, and talent models

Public Governance Milestones In Technology (2024–2025)

- EU AI Act’s first phase (Feb 2025) bans biometric categorisation & emotion-recognition in public spaces; high-risk compliance due 2026
- IndiaAI Mission (₹10,300 Cr) launching national AI compute with 18,693 GPUs; 17,000+ operational by June 2025
- Open Network for Digital Commerce (ONDC) processed 14.45 M transactions in Nov 2024, mainstreaming open digital trade for SMEs
- White House directive (Apr 2025) orders U.S. agencies to name Chief AI Officers & craft AI risk frameworks within six months
- Generative AI pilots in public sector (2025) now inform urban-planning, policy design & citizen services (Deloitte 2025)

Global Governance Tech Trends

- EU AI Act (2025): bans biometric categorisation in public spaces
- USA: Chief AI Officers mandated in all federal agencies
- Singapore: AI-driven traffic management & predictive governance
- Estonia: Blockchain-based land records
- Africa: National digital ID programs scaling citizen inclusion

India’s Digital Public Infrastructure

- Aadhaar: Biometric identity for 1.3B citizens
- UPI: 8.7B+ monthly transactions (2025)
  - ❑ Unified Payments Interface (2016 launch)
  - ❑ 350M+ active users, 8.7B+ transactions/month (2025)
  - ❑ Reduced cash dependency, boosted small merchants
  - ❑ Replicated by global economies as IndiaStack model
  - ❑ Symbol of how digital public infrastructure reshapes governance
- DigiLocker: 250M+ users storing verified documents
- CoWIN: Vaccination platform, now repurposed for health
- ONDC: 14.45M transactions in Nov 2024, boosting SMEs
- IndiaAI Mission: ₹10,300 Cr, 18,693 GPUs operational by 2025

Civil Servants' Focus For 2025–2030

- Ethical & responsible AI adoption in governance
- Cybersecurity as a core governance mandate
- Balancing efficiency with inclusivity
- Constant upskilling in digital tools
- Anticipating regulatory & tech policy shifts

Leadership In A Time Of Change

- The primary objective of quality leadership is to harness capability, resources, talent and energy of team members
- Technological advancements aid in this process, increasing productivity and innovation
- Leaders in administration should adapt and respond effectively to the changing nature of governance, remaining cognizant to the vital role of technological development in this process
- Leaders should create an environment of trust, boosting employee performance