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**Intellect Design Arena** | Design Thinking, Design Centre and Government eMarketplace

**3i Infotech** | Electronic Taxation and Revenue

**Infosys Limited** | India GSTN Program Overview

Next Steps and Vote of Thanks
TECH MAHINDRA
SMART CITIES AND PUBLIC SECTOR COLLABORATION

GOVERNMENT INTEGRATION
SMART OPERATIONS
CITIZEN CENTRIC SERVICES
DRIVEN TRANSFORMATION

Mahindra Rise.

$20 bn Revenue
100+ Countries
200,000+ Associates

Tech Mahindra

$4.7 bn Revenue
90 Countries
115,200 Associates
GIS AND MOBILITY SOLUTIONS FOR SINGAPORE LAND AUTHORITY

- The Singapore Land Authority (SLA) is a statutory board under the Ministry of Law in Singapore. Their main focus is on land resource optimisation. This is a critical role in Singapore, where land is used for a wide range of activities.
- Development → New GeoApps built on GeoSpace application
- Maintenance and Support → GeoSpace (Clearinghouse for SG-SPACE) and INLIS (Integrated Land Information System)
- Engaged in development/maintenance of several marquee projects such as CGS, GDMS, Wireless@SG, LandNet, INLIS and GeoSpace
- Active implementers of GIS technology and mobility solutions
- Winner of most prestigious GIS awards across the globe

AIRPORTS OF THAILAND – INTEGRATED FLIGHTS INFORMATION MANAGEMENT

- TechM stood out as a partner of choice by AOT. TechM has been extended the required support to AOT with a complete Airport Data Model & Effective Monitoring System. The accuracy of information for passengers and operational staff was maintained in real-time due to high availability of robust solution supported by TechM.
- In order to cater expanded number of tourists visiting Thailand, this was completely a new set of Systems and Integrations with Airport Operational Database, ERP and other Airport-wide systems for Information Sharing.
- TechM helped AOT in improving their passenger experience by delivering real-time schedule, flights, gate, baggage claims information to various subscribers and ensuring consistency of information amongst all stakeholders at the airport.
CRIME AND CRIMINAL TRACKING & NETWORK SYSTEM

- The Ministry of Home Affairs has conceptualized the Crime & Criminals Tracking Network and Systems (CCTNS) project as a Mission Mode Project under the National e-Governance Plan (NeGP).
- CCTNS will enable end-to-end Crime and Criminal tracking.
- Enable online registration of Complaints, FIR Registration, Investigation and Prosecution.
- Enables connectivity at:
  - 182 Police Stations
  - 276 Higher Offices, Units including 16 Training centres
- CCTNS will enable sharing of data between states through central database maintained at NCRB.

ANALYTICS SOLUTION FOR A LARGE US RAIL ROAD COMPANY

- Tech Mahindra provided an analytic solution, which estimated monthly traffic through the corridor using SPSS suite of products after a study of traffic volumes, optimized distribution and logistics over a period of 6 months.
- The company was suffering losses on excessive payment of toll on some of the corridors it was using.
- The toll had to be paid in advance based on estimated monthly traffic through the corridor and the method of estimation was not fact based.
- SPSS was the technology that was recommended for the customer.
- Reduced the reconciliation difference to less than 5% thereby leading to an approx saving of $3 million.
SMART CITY EXPERIENCE

Lucknow

- Design & Implementation of Surveillance network comprising of IP CCTVs, ANPR, Video Analytics, Mobile Surveillance system, Command & Control Centre & Data Centre
- 280 High resolution cameras installed at 70 strategic locations. 40 of these are with ANPR technology
- Command & Control centre implanted with a capacity of 6 operators & 2 supervisors on 24X7 basis with provision for scalability till 20 operators

Mumbai

- Citizen centric governance for Smart Cities –
  - Mobile App & Web Portal development
  - Provide Single touch point to citizens for multiple services of Smart Governance
  - Multiple channels supported – Mobile App/ Web App/ IVR/ SMS/ Email/ USSD
  - Unified approach to G2C/ G2G/ G2B services
  - Provide Single window for managing SLA
  - 33000 man-days saving due to ease of access of information
  - Improves Citizen Communication
  - Improved Emergency Alert and Response
  - 6.5 lakhs Employees Covered

Delhi

- Developed Enterprise Management System consisting 70 applications for various MCD Departments, Citizen Services Bureaus and Citizens. The applications are integrated with existing legacy Applications, Payment Gateway, SMS Gateway and Biometric data
- Provide Single Window services” to citizens on any time, any where basis
- Increase the efficiency and productivity of organization and “better monitoring and transparency”
- Develop a “single and integrated view of MCD information system” across all departments and offices in the MCD
- Provide “timely & reliable management information” relating to municipal administration for effective decision making

Singapore

- Enabled 70 govt. agencies to discover, share & analyze 360+ layers of Geospatial data provided by 34 Govt. depts.
- Saved US$9 million in application development costs and US$2.5 million in annual maintenance costs, by deploying SOA to take advantage of reusable data
- Enabled Agencies to make changes to applications 30% faster than before due to GeoSpace’s robust SOA framework
- Ensured Up-to-date geospatial information is always available for agency staff to analyze, by updating it daily rather than quarterly
Reimagining Governance
Tata Group: 150 Years of Trust, Ethical Practices and Business Excellence

$100B+ Revenue
63% International Revenue
7 Sectors
100 Countries
581,000+ Employees

...and the World’s Go-To Partner!: 63% of revenues from outside of India

- Tata Motors
  - 2008 Jaguar/Land Rover
  - 2004 Daewoo Commercial Vehicles

- Tata Global Beverages
  - 2012 Starbucks Coffee
  - 2006 8 O’clock Coffee

- Tata Chemicals
  - 2008 General Chemical Industrial Products
  - 2006 Brunner Mond Group

- Indian Hotels (Taj Hotels)
  - 2007 Compton Palace Hotel, San Francisco
  - 2006 Ritz Carlton, Boston

- Tata Steel
  - 2007 Corus Steel
  - 2006 Millennium Steel, Thailand

- TCS
  - 2008 Citigroup Global Services Ltd
  - 2010 BT group’ (BT) Mosaic Business

- TATA Communications
  - 2008

Passionate commitment to developing the communities in which we operate
TCS: 3rd Largest IT company Globally by Market Value

- 50 years in business
- $17.58B revenue FY17
- 400,000+ employees
- 55 countries present
- 130 nationalities
- 97.4% revenue from repeat customers

TCS recognized as one of the Top 3 Brands in IT Services - Brand Finance
Government Engagements: Global Footprint

Countries:
- Canada
- United States
- Mexico
- Colombia
- United Kingdom
- European Union
- Saudi Arabia
- Hungary
- Switzerland
- Bahrain
- Uganda
- India
- Singapore
- China
- Singapore
- Malaysia
- Zambia
- Australia

Governments:
- Federal Government
- State Government
- Local Government
- Multi-lateral Agencies
Experience: Across Tiers – Federal; State; Local

Postal Services
- Digital Post Office
- 1500+ post offices in India

Social Development
- Rural Employment Scheme Digitization
- Registration to Payments tracking

Taxes
- Income Tax Filing is run on TCS Platform
- VAT Implemented in India and overseas

Defense and Homeland Security
- State CCTNS
- WAN Setup; Inventory management;
- Confidential projects

Immigration
- End to End tracking of migrant Blue Collared workers
- 100% Traceability

Healthcare
- Smart Hospital management systems for 203 Secondary Hospitals and 1600 Primary Health Centers

Company Affairs
- End to End Digital Transformation.
- Led to India’s Business ranking going up

IOT
- Smart Energy Management
- TCS Proprietary Planform “Connected universe” serves as Backbone for IOT driven business

Innovation Collaboration: The SMU–TCS iCity Lab (iCity Lab), a Singapore Management University (SMU) and Tata Consultancy Services (TCS) joint venture focused on research and development of intelligent city solutions with IoT focus.
Impacting Lives: Touching every 2nd citizen in India through our solutions

- Banking Solutions: 850m Bank Accounts
- Telecom: 450m Customers
- Infrastructure: ~40m Users
- Corporate Registration & Filing: 1.85m e-filings
- Disaster Management: 400m across coastal belt
- Passports: ~55m Passports issued
- Income Tax: ~62m Registered tax payers
- Social Services: 38.1m Beneficiaries
- Citizen Services: 2.75m Users every month
- Health: 3.5m people screened

*The numbers depicted refer to India*
Passport Seva Project, INDIA: Transformation Delivered

THEN

- 55+ Million Applications
- 50+ Million Passports Issued
- 150 PSKs across 68 cities
- 183 Missions overseas
- 18 Million daily online hits
- 0.7 Million Transactions / Day

NOW

- 50,000+ daily footfall
- 50,000 daily SMSs
- 99.5 % Citizen satisfaction
- 99.99 % System Availability
- 17,000 daily calls to call center
- 95 Million records migrated

Accessibility
Transparency
Amenities
Processes
Efficiency
Uncertainty
Efiling Income tax, INDIA: Transformation Delivered

**THEN**
- Only ITRs
- Frequent system crashes
- 90% paper filing
- Paper filing mostly at kiosks
- Navigation was not intuitive
- Refund process not transparent
- No proper redressal mechanism

**NOW**
- Total 55 Forms (ITRs, Audit & TDS Forms)
- Enhances user experience
- 85% online filing
- Anytime, anywhere e-filing
- Easy and flexible navigation
- Transparent process with status availability to users
- Systematic grievance redressal mechanism

Enhances user experience, 85% online filing, Anytime, anywhere e-filing, Easy and flexible navigation, Transparent process with status availability to users, Systematic grievance redressal mechanism.
TCS has built the CKYCR and member Institutions have commenced updating Customer details. Unique CKYC number is generated and shared with the Institution and Customer.

Government and Statutory Authorities
1. Centralized data base of all investors, customers
2. Ability to have a trail of the institutions which were responsible for the KYC of the customer.
3. Strengthen the Anti Money Laundering Initiatives

Financial Institutions
1. Obviates need to collect KYC documents repeatedly, for KYC Compliant registered users
2. Easy access for registered financial institutions
3. Facilitates inter-usability of the KYC records across financial institutions

Customers
1. Quick Start of relationship with new institution
2. Avoid repeated submission of eKYC documents
Thank You
DIGITAL TRANSFORMATION PARTNERSHIP

MINISTRY OF DIGITAL ECONOMY & SOCIETY THAILAND

March 28, 2018
FULL SPECTRUM SOLUTIONS
DESIGNED FOR DIGITAL

Digital Product Powerhouse
Consumer Banking, Central Banking, Risk, Treasury & Markets, Transaction Banking, Insurance

Total Digital 360
with Digital OUT, the experience driver, and Digital IN, the operational excellence driver

4000+
Intellect solution architects, domain and tech specialists

136 million dollar

FinTech 8012
Digital Design
Centers Real-time digital visioning and experience design

25 years
of singular focus in BFSI

D-3 OTIF
Consistent delivery 3 days ahead of schedule and in full

Trusted partner
Over 200 customers worldwide

Established in 24 countries

Omnichannel
Apps-based Customer Engagement Platform

Uniquely customer centric design
A few highlights…

Reserve Bank of India
- Progressive modernization
- Digital Payments
- Digital Currency
- Aadhar based payments
- Portal for Central bank, Government & Citizens

UTKARSH Small Finance Bank
- Core banking on Cloud
- Financial Inclusion initiative to extend loans to remote areas
- Microfinance institution transformation to Small Finance Bank
- Joint Liability Group creation

NABARD
- Rural lending for agricultural, small scale and allied economic activities
- Lending life cycle management
- Automation at enterprise and branch level with centralized data repository

AMFI
- Unique identity for investors through Common Account Number (CAN)
- Trading across multiple funds by multiple Asset Management Companies
- Common Account Statements (CAS) across fund investments

APCOB
- Group lending
- Retail Lending
- Rural Banking
- Centralized core banking deployment allowing independent multi-entity access by cooperative banks and state units

Association of Mutual Funds in India

GeM
- Transparent G2B Portal for all procurement
- Standardized procurement
- Aggregation of requirements
- Ease of payment to vendors
- Data Analytics & Business Intelligence
PROGRESSIVE MODERNIZATION – RESERVE BANK OF INDIA

Client Overview:
14,000+ Staff | 26 Offices | 1100 Clearing Houses | 4400 Currency Chests Support 12 departments and 30 Governments (Central + State)

Key Highlights & Business Impact
- Complete transformation done in 17 months
- 14+ applications from 7 vendors converted to 1 single INTELLECT application
- 6+ complex systems reduced to single INTELLECT QCBS

Operational Efficiencies
- Reduction of IT infra by 70%
- Elimination of reconciliation for 30K+ transactions across 29 regional offices
- Single fund for 200+ commercial banks across India

Risk reduction
- Automated from 5 systems to 1; over 95% ops risk reduced

Simplification
- Weekly statement to Parliament - Reduced from 3 days to real time
- Annual Financial Statement – reduced from 10 days to online (2 minutes)
- Real time info to Senior Mgmt Team

Benchmarked to support 100 MM transactions / day; 24 x 7 Mission Critical Support; NO Recon; Real-time Accounting; Near DR & Far DR

PRODUCT
Intellect Quantum Banking

INTELLECT SOLUTION
1. Enterprise General Ledger
2. Integrated Core Banking Solution for Central Banks
3. Complete Depository Solution
4. Comprehensive Govt. Services
5. Public Debt Management Solution
6. Currency in Circulation Management
7. Market Operations
8. National Payment System for Gross and Net Settlements
9. Three Dimensional Central Bank Portal (Online Banking Services) for Banking & FIs, Governments and Citizens
Client Overview:
The Ministry of Commerce & Industry, Government of India envisaged the Government e-Commerce Marketplace (GeM) to be implemented for online end-to-end transparent procurement system for Government buyers. The objective of this initiative is to bring transparency, speed, efficiency and ease of doing business. Apart from commonly used products/goods, GeM would also cater to service needs of the government organizations.

Challenge & Requirement
- A mindset change from paper to digital
- Aggregation of product requirements
- Contract, logistics and inspection/testing
- Social Media management

Key Highlights & Business Impact
- Buyer & Seller Management Services including registration
- Product Specification Management
- Catalogue Management
- Contract Management
- Logistics, dispatch and delivery
- E-Procurement including tendering, reverse auction, forward auction, L1 buy, demand aggregation

3500 specific items, 155 categories, reduced transaction cost by 8%

INTELLECT SOLUTION
1. Transition the existing GeM 2.0 system, Operation and Maintenance, enhancement and upgrade to next phase of GeM 3.0
   1. Contact Centre Management
   2. Helpdesk
   3. Business Intelligence
   4. Data Analytics
   5. Trend Prediction
CIBC chose Intellect Digital Payment Hub over global competition.

Top American bank chose Intellect for Transaction Risk Management.

A leading Middle Eastern bank implemented CBX & RBX, enhanced Retail & Corporate customer base.

Sveriges Riksbank, the Swedish Central Bank, chose Intellect Central Banking Core.

Mashreq Bank implemented complete Digital Global Transaction Banking Platform.

Intellec Mutual Funds exchange launched for Association of Mutual Funds of India (AMFI).

Reserve Bank of India extended the Intellect platform for Treasury and all Citizen Payments.
WE HAVE THE DESIGN EDGE

World’s first design center for financial institutions opened in 2013. FinTech 8012 Design Center, Chennai.

FinTech 8012 Design Center, Mumbai opened in 2014 for digital design sessions

Business, Technology & Operations Space at FinTech 8012

Understanding Requirements
- Stated
- Felt
- Unstated

Observing Patterns

Connecting the dots

Unearthing Blind spots

THE SINGLE MOST POWERFUL COMPETITIVE DIFFERENTIATOR FOR FINANCIAL INSTITUTIONS
DIGITAL TRANSFORMATION PARTNERSHIP

MINISTRY OF DIGITAL ECONOMY & SOCIETY THAILAND

March 28, 2018
Improving water supply system by means of making it available in sufficient quantity, ensuring its quality is an important mission of Govt. of India. This calls for empowering utility companies with tools to ensure timely and accurate revenue collection, minimization of non-revenue water.

A large state in India is implementing a billing system that will in turn interface with IoT system for water consumption data collection, billing and analysis. The system will also interface with legacy manual meters. Moreover internal workflow automation will ensure water quality assessment, new connection approval and other important tasks.

- To cover over 8 major cities and over 2.5 Million consumers
- Self service portal will allow to find billing data and make payment online

Electronic access of common services by citizens is an important Mission Mode project in India. Through this system Kiosks set up across geographic spread of multiple states in India enables citizen, business to apply for services and receive digitally signed document within a clearly defined timeline. No more need to travel to distant offices, waste work hour.

- Around 18 services provided online
- External services e.g. phone bill, electricity bill payment integrated
- End-to-end implementation and management transparency
- Multi-level authentication ensure cash reaches electronically to the bank acct. of right beneficiary
HOW WE CAN PARTNER WITH THAILAND

01 Unique experience of Consulting and Implementation – Capability to study insights of eGovernance transformation initiative

02 Ready to use solution framework for quick turnaround in Citizen / Business service delivery project implementation – OpenSource solution that is already deployed in multiple projects

03 Expertise in delivering cutting edge solutions involving Cloud Computing, Mobility, User Experience Design, Analytics, Business Intelligence, Block Chain – Fully integrated suite of solutions

04 Extensive experience in Government domain and specifically experience key sectors that are thrust areas of Thailand’s eGov plan – Tested solution framework

Can help maximize eGov project outcome through BPR and Implementation

Our solution will minimize cost of sustenance by using license free base products

Ensure outreach, Outcome of solution, Predict scenarios for decision support

We use understanding of Best Practices, Solutions, Strategy to maximize outcome
3i INFOTECH IN ELECTRONIC TAXATION AND REVENUE

Value Added Tax
Remained among top revenue source for govt.

Goods and Service Tax
Revised sales and services tax replacing VAT for most commodities

Stamp Duty
Stamp Duty is collected for all revenue transactions

Challenge
• VAT remained among top revenue sources for Govt. India.
• Legacy manual/semi-automatic process lacked easy access for return submission, application
• Non-streamlined process made reconciliation and audit difficult, causing revenue leak

Solution
• Designed VAT automation system for THREE states in India
• Developed VAT system for multiple states in India
• Implemented and Managed Inter-state trade taxation management system

Challenge
GST has recently replaced Sales and Service Tax earlier processed through VAT for most commodities in India
Complex process for reconciliation, adjustments and stringent compliance requirement caused immense pain for business

Solution
• 3i Infotech’s Integrated GST management solution take care of GST calculation, reconciliation and return filing that is being used multiple business houses in India

Challenge
Stamp duty is charged in all revenue transaction between parties
Paper based Stamp duty instrument witnessed logistics issue leading to non-availability, duplication leading to revenue leakage
Electronic Stamp Duty instrument plugs all above

Solution
Designed Electronic Management System processes and managed implementation in a large state in India
Improving Quality of Living for citizens
Improving safety
Developing effective emergency management
Improving healthcare
Monitor environment
Decentralized access common services

Challenge
- Water supply is a highly subsidized service in Indian cities, thus utilities starve for fund to invest in improvement
- Collection of revenue is poor and no mechanism to identify defaulters easily.
- Bill Payment process is cumbersome

Solution
- 3i Infotech is implementing a highly intuitive self-service portal that will facilitate citizens to access services of water utility with ease
- Meter data collection automation will improve compliance on bill payment
- Back-end automation will enable timely delivery of services

Enabling cities to cope up with rapid influx of population
Accessible and connected transport
Improving water supply
Efficient power supply and revenue
Efficient traffic management

Challenge
- Different agencies involved in citizen service delivery have developed automated system and portals that work in silo
- Back-end system most often not integrated and automated causing non-compliance in service delivery
- Cit

Solution
- 3i Infotech has developed ready to implement portal design framework that can integrate various city subsystems and provide a singular view of all services
- The back-end process automation for smooth and timely execution of business functions tasks

Challenge
- In smart city Information and Communication Technology plays the enabler role to help achieve its goals
- Holistic ICT planning and Designing is critical for optimized implementation of solutions and also help in making the implementation sustainable

Solution
- 3i Infotech is providing ICT consultancy services to an old and historically important city in India
- Design of core ICT infrastructure to handle the overall project scope, designing safety and surveillance system, traffic management system are key components of the engagement

Designing Smart City solutions
## Infosys: Corporate Overview

<table>
<thead>
<tr>
<th>Corporate</th>
<th>People</th>
<th>Learning</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Founded in Pune, India in 1981</td>
<td>2,000,000+ employees globally</td>
<td>World’s largest corporate university</td>
<td>Use advances in technology to amplify human potential</td>
</tr>
<tr>
<td>US$10 billion in revenues</td>
<td>35% women employees</td>
<td>135,000+ employees trained in Design Thinking</td>
<td>$500 million innovation fund</td>
</tr>
<tr>
<td>1,191 clients</td>
<td>Automation repurposed 11,000 people’s effort into more valuable tasks</td>
<td>17,435 engineers trained in 3+ programming languages</td>
<td>98.3% business is repeat business</td>
</tr>
<tr>
<td>Clients in over 45 countries</td>
<td>35% women employees</td>
<td>15,000+ employees trained in new technologies &amp; platforms</td>
<td>2% of avg. net profits over 3 fiscals to Infosys Foundation</td>
</tr>
<tr>
<td>84 offices and 116 development centers</td>
<td>Zero Bench for sustained engagement of employees</td>
<td>967 employees mentored in executive leadership</td>
<td>Award winning sustainable delivery centers</td>
</tr>
<tr>
<td></td>
<td>15,000 projects driven by employees innovating through Zero Distance</td>
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We embrace the strategy of **RENEW** & **NEW**

Digital Transformation
Design Thinking | AI | Automation
Agile & intelligent IT: The new normal to deliver mission outcomes

Build NEW capabilities

RENEW core capabilities

Public Sector IT System

Intelligent
Modular
Modern
Agile
Scalable
Connected

Business Imperatives
Amazon like UI | Self-service
Multi-channel service delivery

Technology Imperatives
Digital | Cloud | Analytics | AI/
RPA | Mobility | IoT

Constraints
Workforce | Budget | Operational Complexity | Diverse Stakeholders | Legacy Systems

Infosys be more
India GST - Project Overview

GST Overview

- Goods and Services Tax (GST) is a single system of taxation across India that subsumes most of the Indirect Taxes from the earlier VAT regime.
- These taxes comprise approx. 42%-45% of Central Govt Tax Revenue (Direct & Indirect) and 70%-75% of State Revenue.

Objectives
- One Nation One tax
- Tax on supply of Goods and Services
- Tax on value addition at each stage
- Comprehensive and continuous chain of benefit of taxes paid
- Minimal cascading impact of Taxes

PRESENT REGIME

Present Tax Structure
[5 Important Constituents]

- Excise Duty: Taxable Event is Manufacture
- Service Tax: Taxable Event is Provision of Service
- VAT/ CST: Taxable Event is Sale
- Customs Duty: Taxable Event is Import & Export
- Entry Tax/ Entertainment Tax: Taxable Event is Entertainment & Entry of Goods

GST Regime

- Intra-State Transaction
- Inter-State Transaction

GST Tax Structure

- SGST + CGST
- IGST

Taxable Event is Supply or Advance
GST Solution – Scale and Volumes

1. Built on an Open-Source platform using agile development methodology
2. Distributed technologies that enable massive scalability - session management, caching, messaging and computing framework
3. Adopted horizontal scalability even at the data persistence layer
4. 8.5 Million Dealers, 500 invoices per dealer per month, 50% filing on the last day
5. ~1.2 Billion invoices on the last day

**High Concurrency & Data Volume**
- 25,000 concurrent users
- 50,000 invoice uploads per second
- 3.5 TB of data per day

**Performance**
- Response Time of 2 seconds of 30-100 KB pages
- Peak CPU usage not to exceed 70

**Scalability**
- 2x load on Portal (50,000)
- 5x load on API (2,500,000 per sec)
- Horizontal scalability on commodity hardware

**Availability**
- ZERO RPO
  - 30 minute RTO
  - Availability 99.9%
  - Maximum downtime of 15 minutes
What we do within our Smart Campus in Mysore...

350 Acres

12 million sq. ft. built-up area

Capacity to host 15k+ residing trainees, 8K+ employees and 1,000s of contractors
What we do within our Smart Campus in Mysore...

**Smart for the Environment**
- Smart and sustainable by design
- Highest rated green building/campus design
- Green powered campus
- Zero waste to landfills practice
- Harvest 100% of rain water on site
- Promoting Biodiversity

**Smart Infrastructure & Operations**
- Smart buildings
- Smart water metering
- Smart irrigation for landscape
- Smart waste collection bins
- Integrated security and surveillance
- Smart street lighting systems
- Smart visitor management system
- Integration of weather forecast with operations

**Smart User Experience**
- Personalized control for comfort in buildings
- Smart cards for logical and physical access
- Cashless transactions within campus
- Reverse vending machines to manage waste
- Smart parking management system
- Pollution watch for environmental awareness
- Smart store and kiosks
- Integrated in-house facilities like banking, retail, food courts, laundries, recreational facilities
- Smart transport
- On-the-go handheld access