

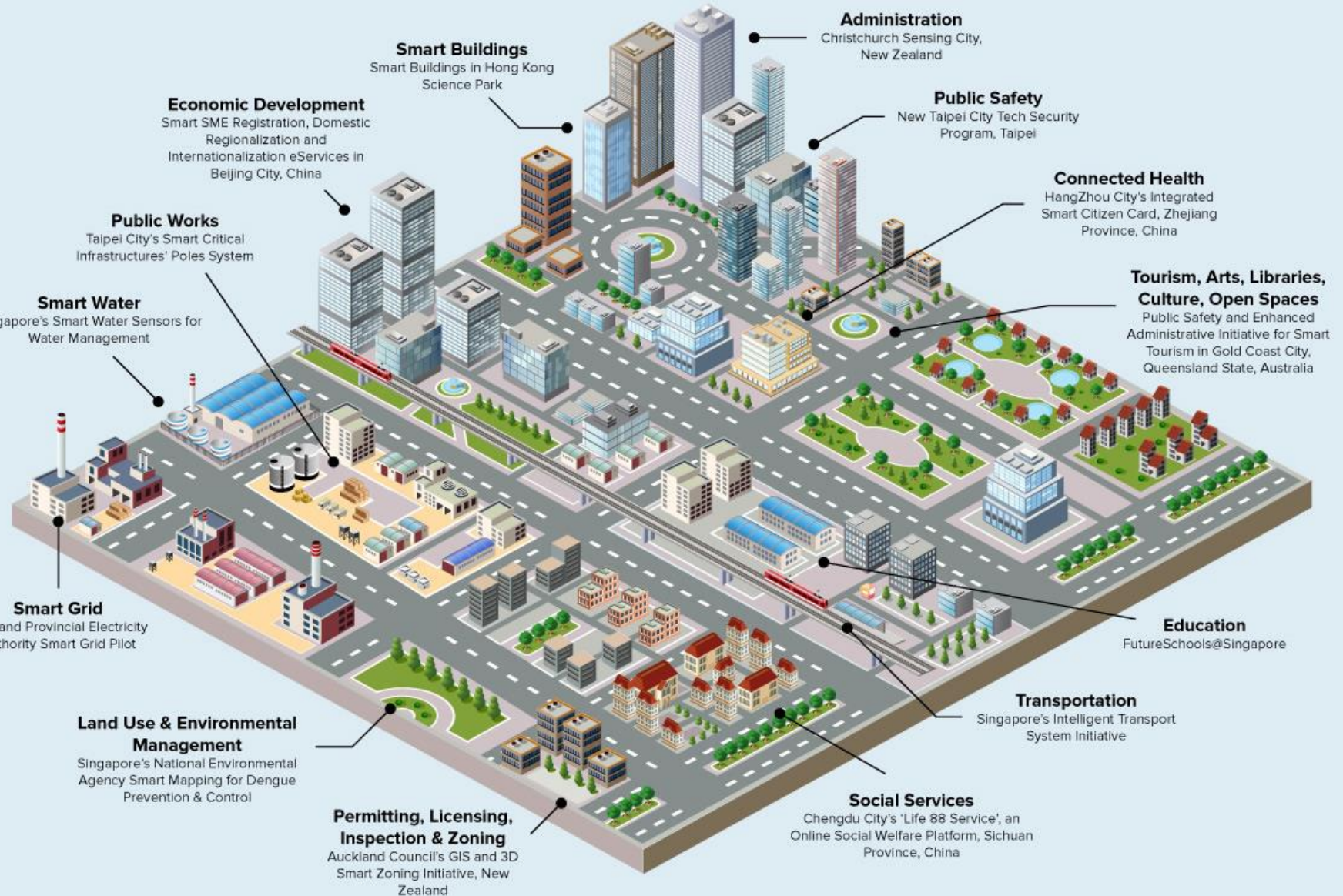


Developing a digitized

● *'connected'* ●

Intelligent Village

Concept of Connected



Key strategies Required

Monitoring, Tracking and Evaluation of various development activities as well as the administrative activities - Advancement in technology - **raw data** directly from the source to **-effective decision** making in implementation;

Digitization of all economy activities in a district creates benefits and efficiencies; as digital technologies drive innovation and fuel job opportunities and economic growth;

Accountability, Efficiency, Efficacy and Transparency in government;

Provide **e-Government services** to facilitate quality, efficient and effective Government Services ;

Need for **automation of all processes** at District Levels; and

Business / Functional processes or Operational/ Support Processes to be automated to develop a true digitized '**connected**' District.



Touch points

Real time tracking of vehicle movements in the district;

Real time monitoring of the State Excise in the district;

Near real time monitoring of Goods and Services Tax(GST) collections;

Tracking the use of fertiliser and other key Agriculture items;

Movements of grains/ crops/ vegetables etc;

CCTV feeds from various vantage points;

Predict outbreak of violence or chaos in the district;

Information on growth of crops, transportation, tribal issues ;

Primary Health center(PHC) monitoring including patients visited and treated;

Near real time identification of fraudsters;

Outbreak of natural calamities;

Monitoring of rain / temperature etc at various touch points of the district;

Random monitoring of hill areas and other key vantage points;

Real time grievance redressal system including use of Augmented/virtual reality;

Inputs of Panchayat related activities;

Real-time sample auditing across all activities in district;

Real time monitoring of all School Meals Related Activities;

Real time monitoring of all Rural Development and Panchayat Raj activities;

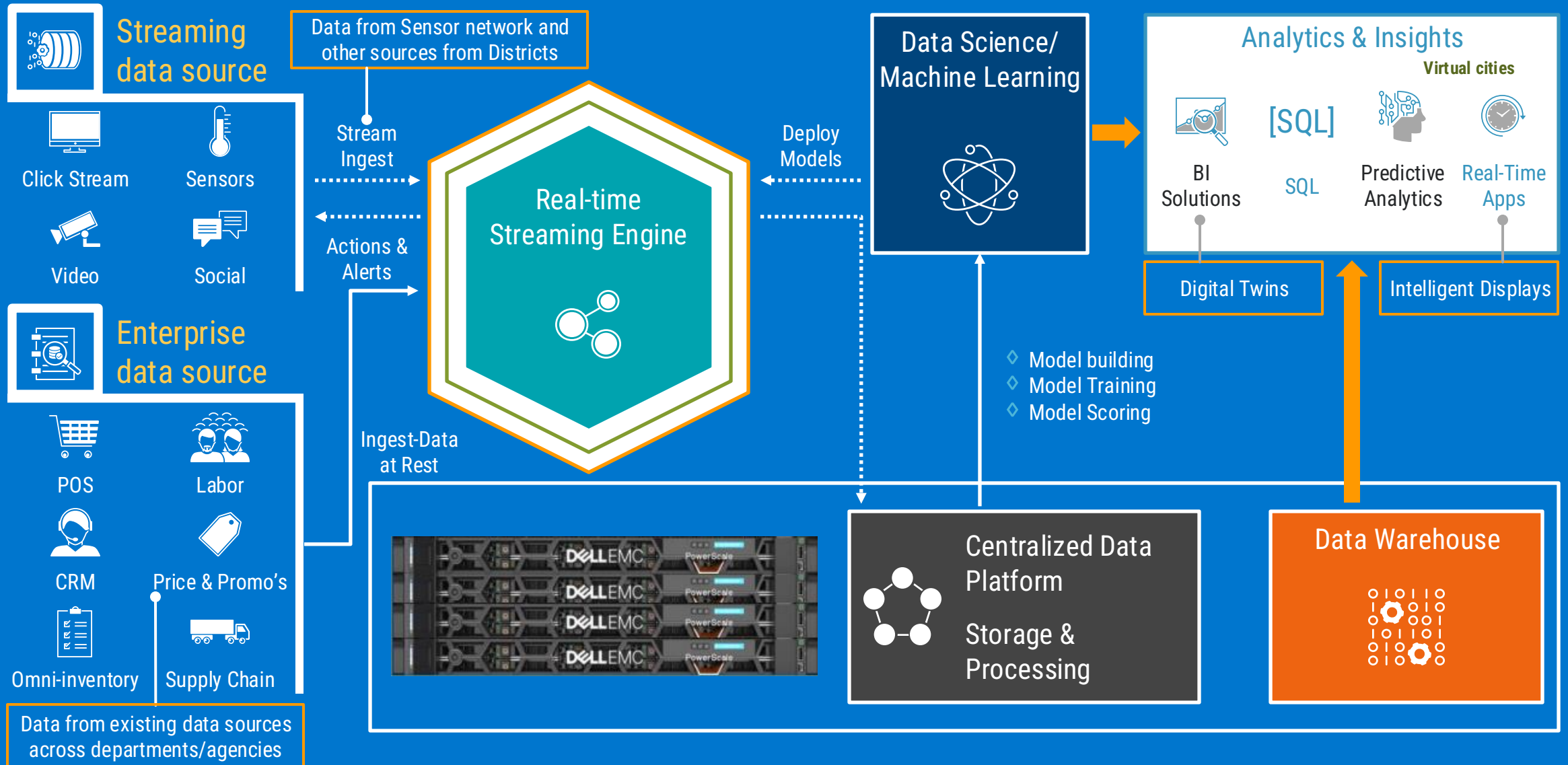
Real time monitoring of savings schemes of citizens;

Central and state project monitoring;

Near real-time monitoring of Public Distribution System/ Civil Supplies;

Land transactions

Smart District Architecture



Objectives



Create a **central database** of all departments / districts - information of all related data



Provide seamless **Big data analytic** facility to all District and Departments [covering Citizens complaints, Tax collections, crime control, Public Distribution System(PDS) etc]



Create a **Citizen portal** - for addressing all citizen activities - irrespective of the location , including frauds, crime, payments, grievances, citizen services, employments, benefits; real time platform for addressing consumer grievance



Provide relevant **APIs** access



Provide a database of seamless data collected using **IoT**s and **other sensors**



Create **digital twins**, using real-time big data obtained through IoT and other sensors; -recreate physical space in cyberspace



Creation of five **Virtual cities** - that will provide citizens details of various activities like congestion levels in train / bus / roads; crop pattern levels ; rain fall patterns ; wind patterns etc.,



Develop **AI stack** and the common AI platform for the State



Deploy **sensors / drones / micro robots** at data collection points- for ten villages;



Trigger usage of **next-generation power systems** to citizens and make districts self reliant;



Develop suitable **data eco-systems** and creation of open data platforms for seamless transfer of data; and



Create a **single point access** to various department/ village/ agencies across the State.

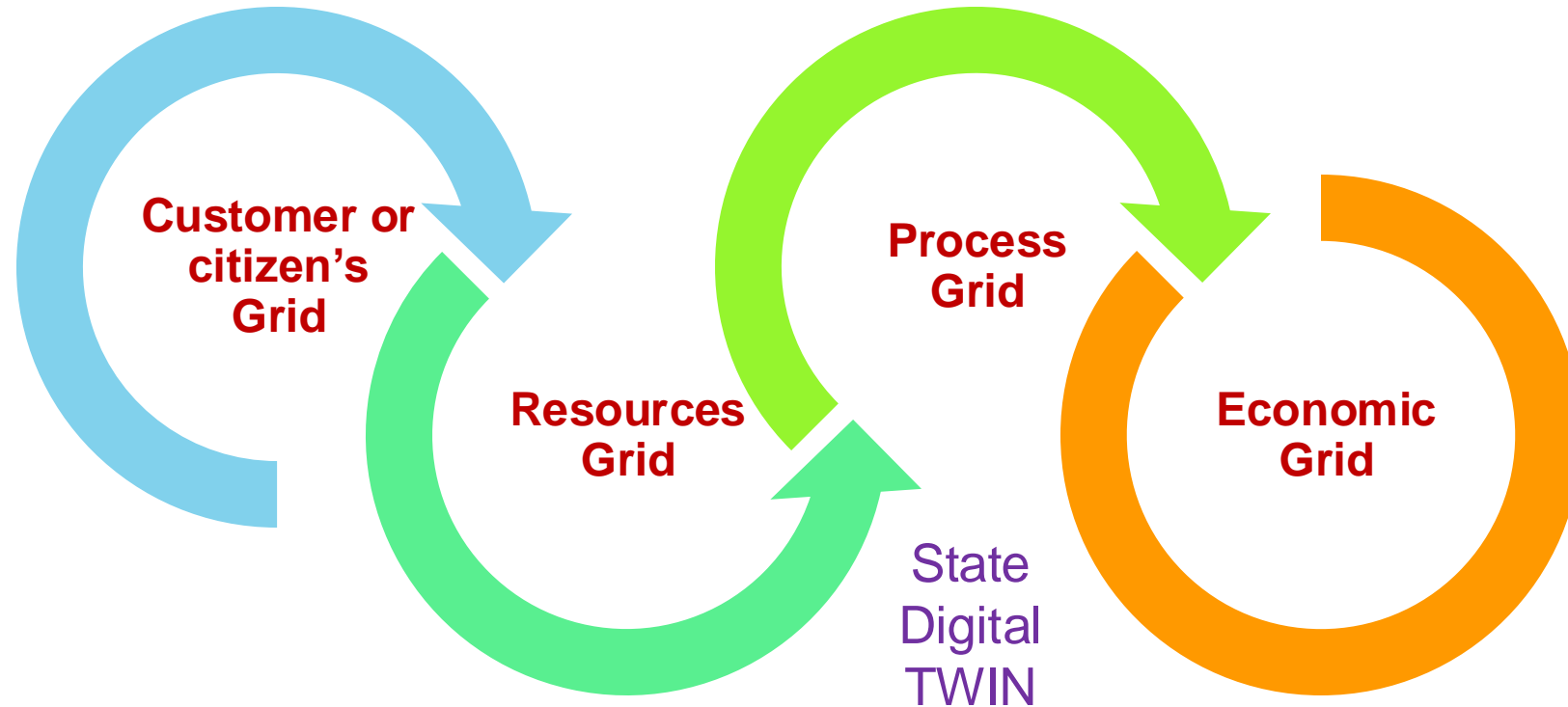


Sharing of information and Coordination with all departments for enforcement and remedial action

Need to... Develop a State Digital Twin

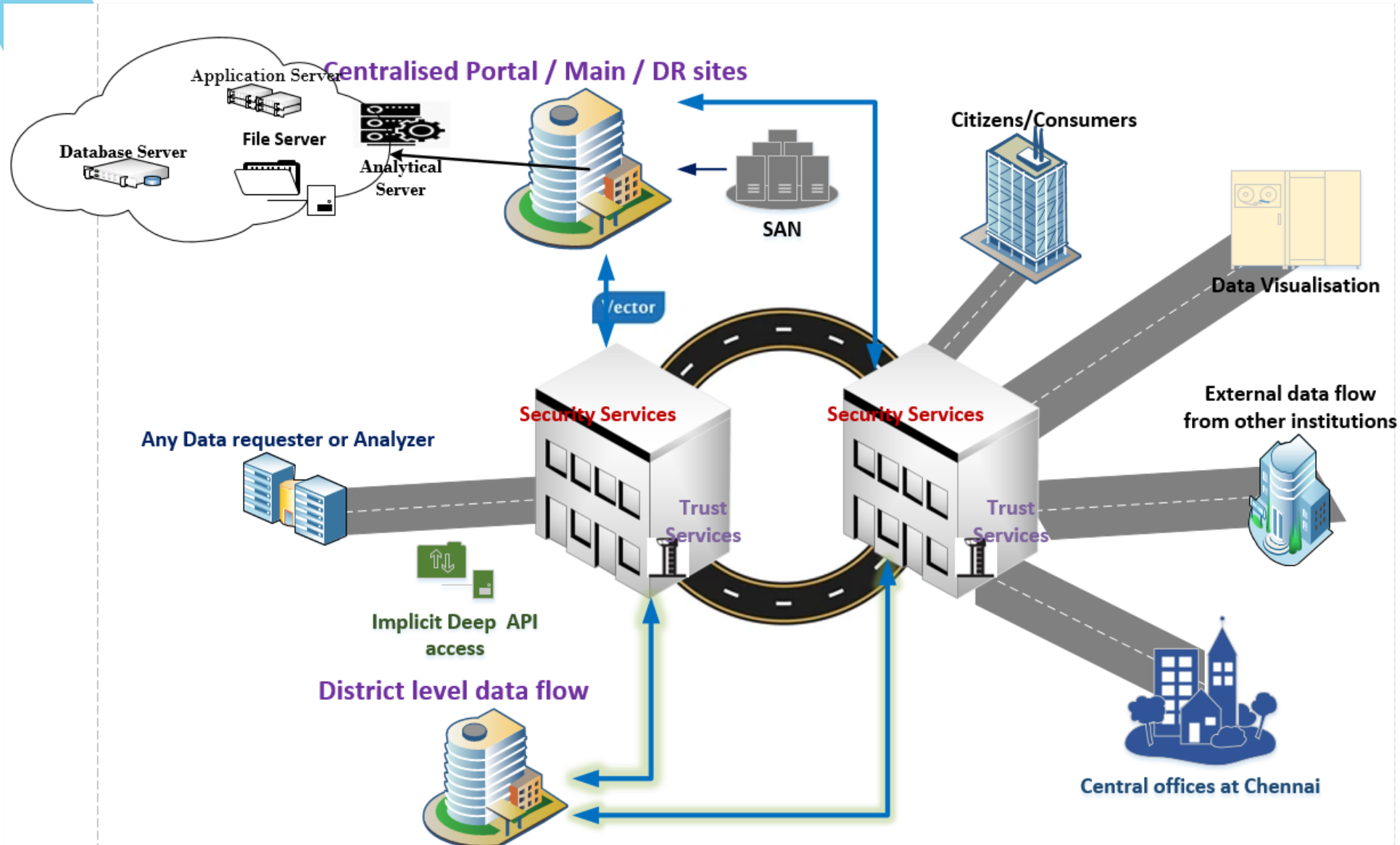
- » As departments evolve into becoming more **digitized** entities – Digital Twin model becomes essential -data, structure and KPI calculations
 - » Findings could be fed into **AI Data Model** to use it as a basis for digital twins;
 - » Digital twins used for the effective management of **Govt schemes; Tax collections; Law and Order; Curbing frauds and crimes; customer-process** etc
- » Various departments can use a **variety of different tools** for modelling, planning, simulation, deployment, orchestration and identifying key process or ways; and
 - » A digital twin's **AI/ML capabilities** can plot patterns, identify anomalies, predict faults, and take corrective actions dynamically.

Digital Twin : Developing a GRID



' Development of INFOSTRUCTURE'

DTNU DLT Architecture



Digital Villages

Mobility

- Roads data
- Vehicles
- Traffic Data

Infrastructure

- Buildings
- Airports
- Ports

Agriculture

- Farm data
- Subsidies
- Sales

Health

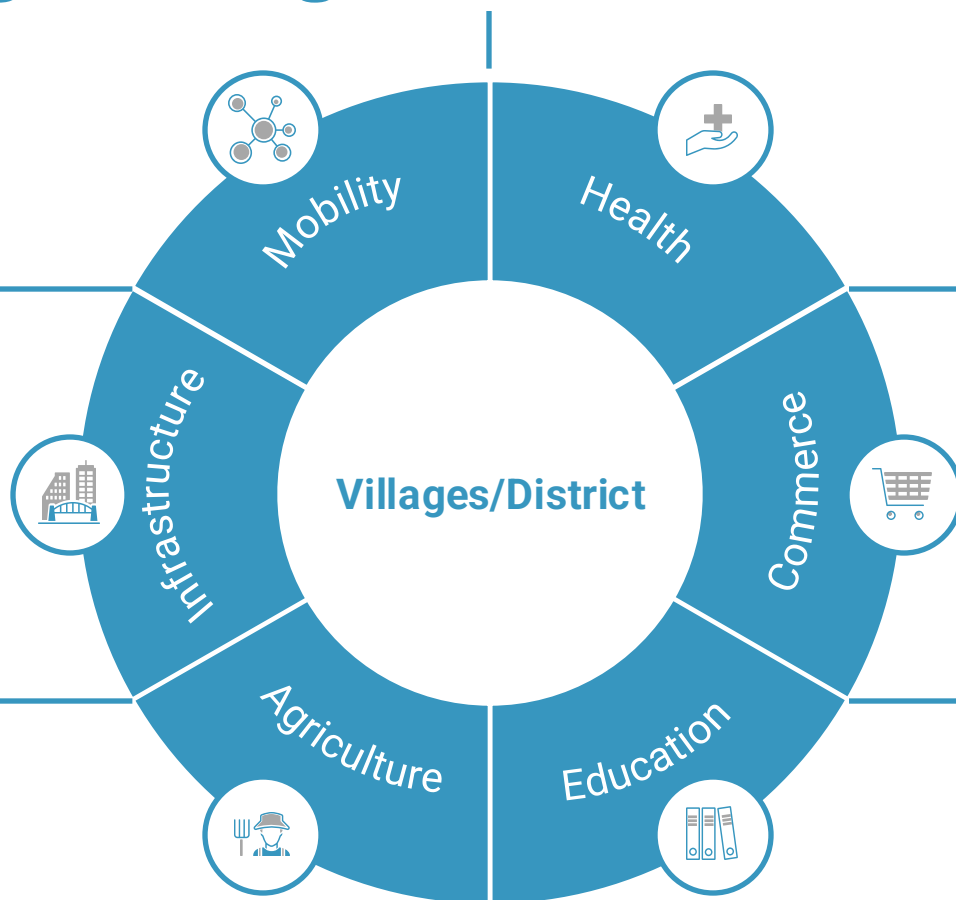
- Personal Health
- Hospital Stats
- Medicine Sales
- Insurance Stats

Commerce

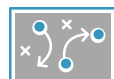
- Payments
- Taxes & Sales
- Inventory
- Logistics

Education

- Personal Education Records
- Competitive Exams



Place sensors around the city

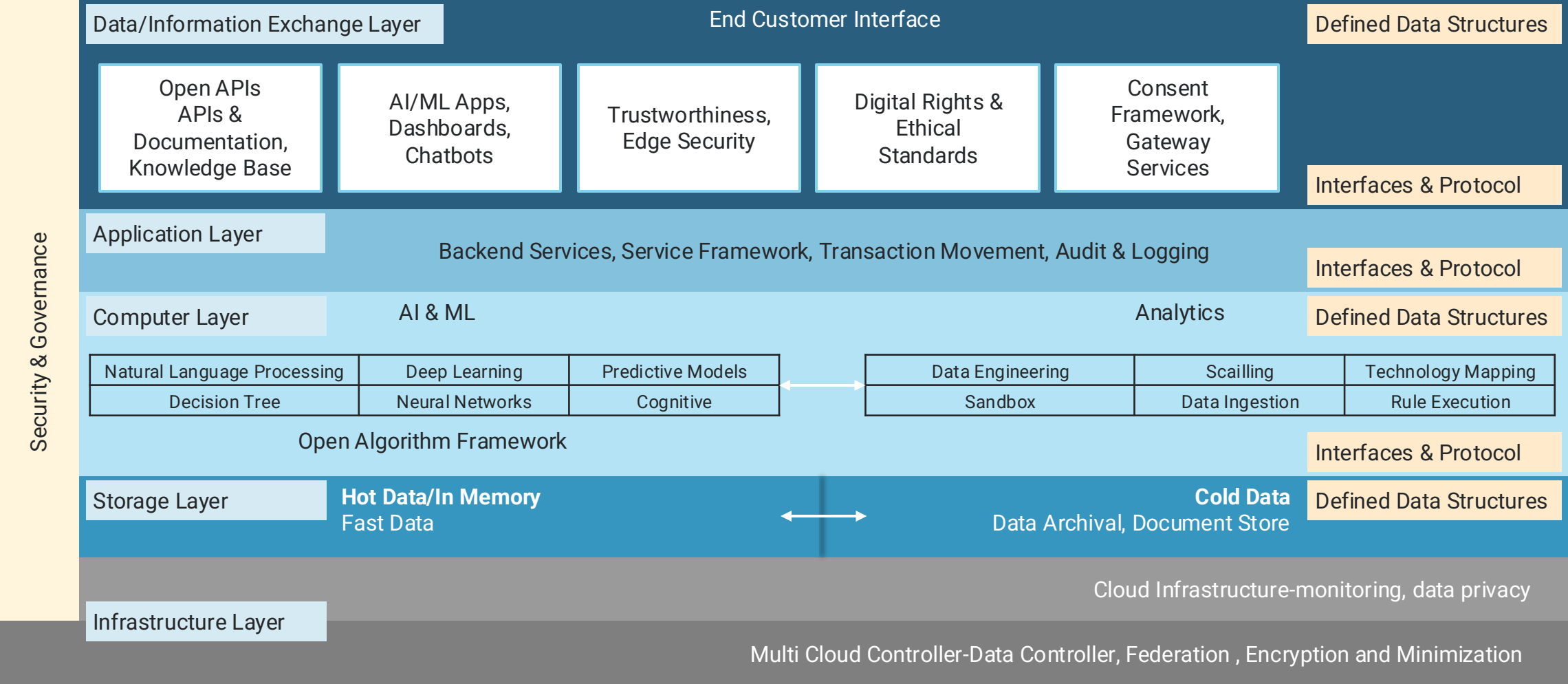


Build a simulation model
Disaster alert service; Weather pattern; Crime Analysis etc



Provide a disaster risk map and
Disaster alert service; Weather pattern; Crime Analysis etc

Artificial Intelligence Stack – the platform



Secured Distributed Ledger

Network Firewall



Intrusion Protection



Web App Firewall



State Portal District Portal

AADHAAR based Authentication

Decentralized Identity Registry on Blockchain

Consent Framework Credential Framework

Blockchain Service Network Management APIs

State Service Delivery Gateway

Decentralized Workflow of Departmental Services

Smart Contracts for Registries and Certificate Notarization

State Wide Area Network (SWAN) PoP

State Wide Area Network (SWAP)

State Data Center

Decentralized Department Nodes Off-chain DB E-District Databases

Decentralized Storage of Hot Data, Cold Data and Warm Data



Orchestration Engine



Analytic Engine



Dashboard & Reports

Secured Distributed Ledger

Network Firewall



Intrusion Protection



Web App Firewall



- Setup of DLT Node Infrastructure and Node Operation Toolkits;
- Customization of DLT Nodes as per the Data Management Lifecycle;
- Deployment of DLT Nodes across selected Districts and Departments;
- Development and Deployment of Common Smart Contract Modules;
- Development and Deployment of Domain Specific Smart Contracts;
- Creation of APIs and Services integrated to the Smart Contracts;
- Deployment of a LTSN Portal; and
- LTSN Integration with Domain Specific Apps

Orchestration Engine



Analytic Engine



Dashboard & Reports



Ledger function

Central management of information on data storage locations and formats



Librarian function

Provision of processed data in a usable format upon a request



Power usage

Medical information

Location data

Purchase histories

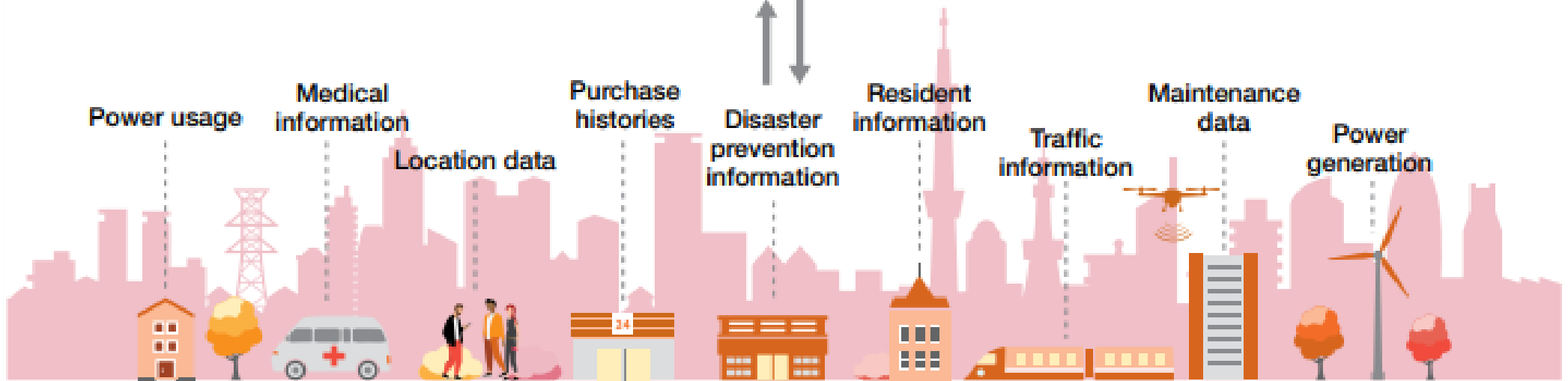
Disaster prevention information

Resident information









Traffic information

Maintenance data

Power generation



Digital Profiling

Digital Profile Area	Description
 Health	Digital Health Profile will have personal health-related data as well as treatment infrastructure, financing, and medicine sales-centric data sets.
 Education	Education will have datasets from schools, assessments, job placement data, as well as infrastructure.
 Agriculture	This will have farm-centric data sets, produce-related data, trade, as well as stock-centric data sets.
 Commerce	Sales and financial transaction data, Consumption Analytics, B2B data, Trade Infrastructure data, etc.
 Security	This will have data from CCTV cameras, police stations, Crime data sets, etc.
 Infrastructure	Building's data aided by sensors, roads data, and data from any other infrastructure asset.
 Mobility	Traffic-centric data from various traffic cameras & GPS, railway as well as airports data constitute mobility digital profile.
 Environment	Satellite data feeds, atmospheric data sensors, rainfall-centric data, etc.

AI ENGINE



AI Service

Simulation of Disaster and other services

Digital Twin for city planning

Create virtual cities and help in planning- reduced traffic congestion

Flood Mapping

Identification of disaster locations at the earliest
Disaster Prevention planning

3D Mapping

For natural environment, climate pattern, road congestion, etc.

Automated infra inspection

Energy efficient infrastructure Operation
Advanced Inspection techniques

MaaS

Overall Mobility Optimization
Regional Movement

Drone Delivery

Improved satisfaction with urban logistics – revitalized economics

Data will be collected and stored in database; Collected data will be stored in the AI platform; Data will be suitably displayed – data visualization (using Julias, etc.) over intelligent displays



THANKS!
Any questions?

