
Enabling Smart Planning with Digitalisation

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 URBAN
REDEVELOPMENT
AUTHORITY

 urbex

BALANCING NEEDS



	Singapore	Estonia
Land Area	733 km ²	45,339 km ²
Population	5.5 million	1.3 million
Density	7,804 persons/km ²	31 persons/km ²

LAND NEEDS



SEA NEEDS



SUSTAINABILITY, FLEXIBILITY & RESILIENCE



+ **FLEXIBILITY**
RESILIENCE

ECONOMIC

Sustain a robust and vibrant economy

SOCIAL

Provide a good quality of living and a sense of well-being for all

ENVIRONMENT

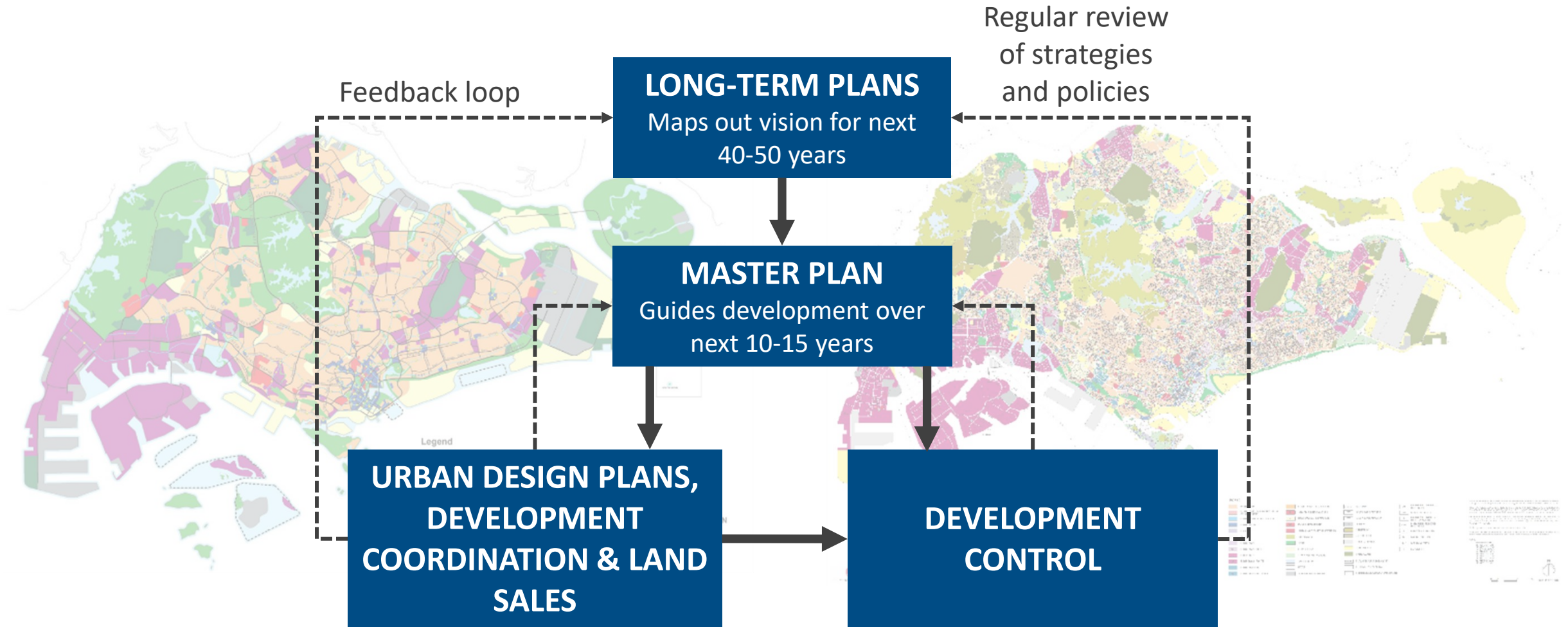
Develop in an environmentally responsible manner

LAND & SEA

Optimise our limited land and sea space

Need to also plan for greater flexibility and resilience given the rise of disruptive technology, unanticipated uncertainties, and the effects of climate change

OUR PLANNING FRAMEWORK





Electronic submissions and use of GIS system (1990s -)

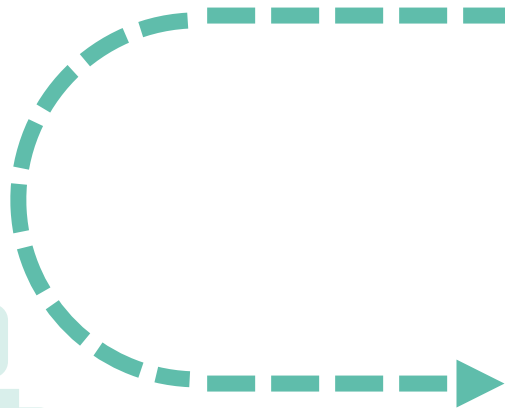
Created new Geospatial Department (2012)

Developed digital planning tools (2013 -)

Formed Digital Planning Lab (2014)

3 year Digitalisation Plan (2015 - 2018)

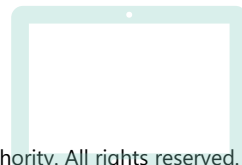
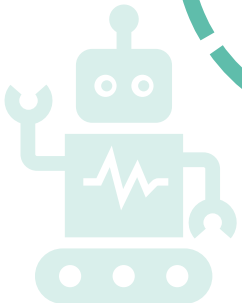
URA's DIGITALISATION JOURNEY



DPL designated as URBEX, Centre of Excellence for Urban Planning and Design Technologies (2022)

Expanded to Design & Planning Lab (2021)

Digitalisation 2.0 Roadmap (2018 -)



URA's KEY THRUSTS FOR DIGITALISATION



1. URA to be more data-informed & productive

- Access and analyse data, and build internal analytics capabilities



2. Whole-of-Government planning

- Collaborate and level up capabilities of agency partners



3. Support industry productivity gain & value creation

- Provide industry with better services and shared insights



Enabled by Digital Technologies



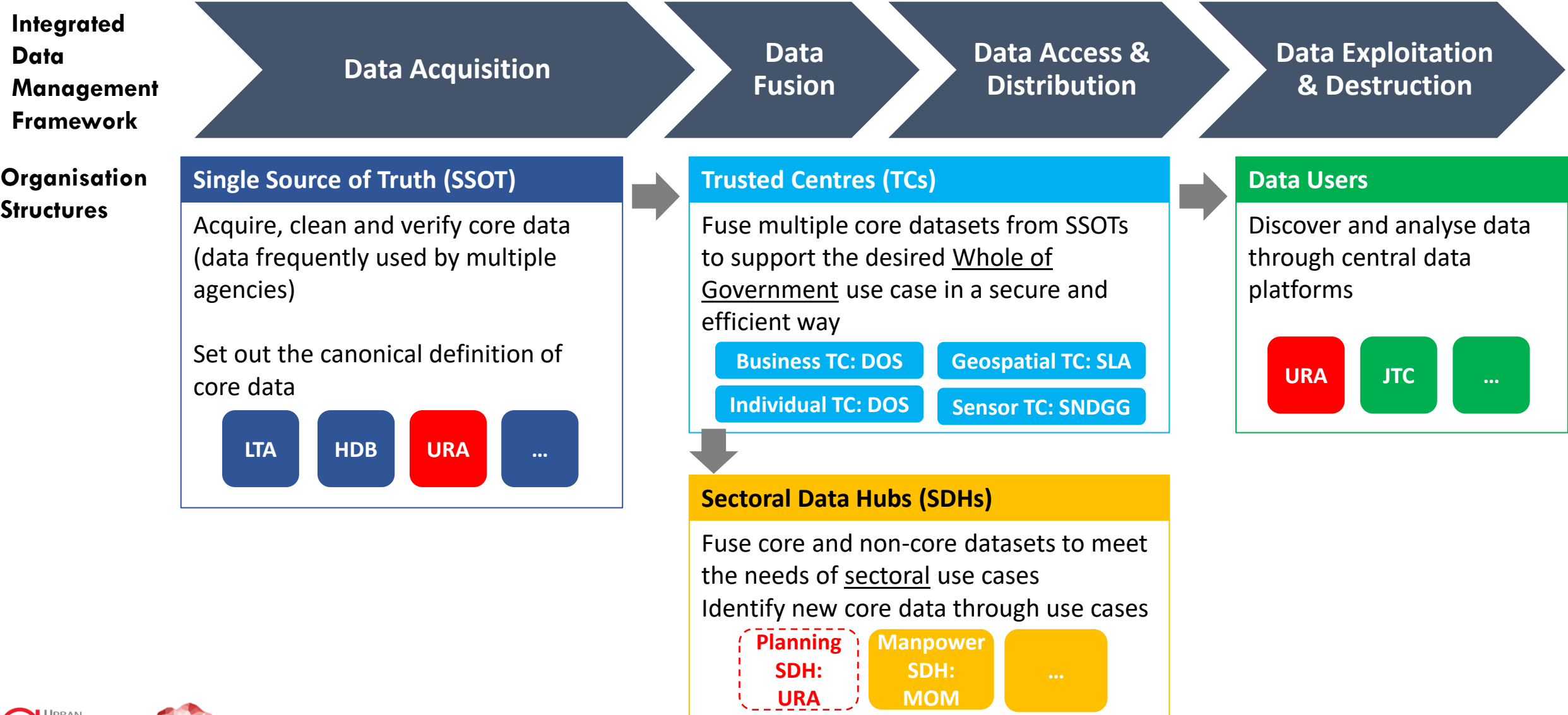
Think Big, Start Small, Act Fast



Data → Insights → Action

Data is a key building block for
More responsive and efficient planning process
More precise and targeted planning solutions

OUR GOVERNMENT DATA ARCHITECTURE



URA's DATA STRATEGY



COLLECT & FUSE GOOD QUALITY DATA

Systematic data collection, integration and inter-operability allows us to generate richer analysis and measure the Pulse of our City. It also puts Singapore in a competitive position to attract companies to test-bed new solutions in our living labs.

Sensing information

E.g. sensor data, feedback data



Unit information

E.g. energy and water consumption data



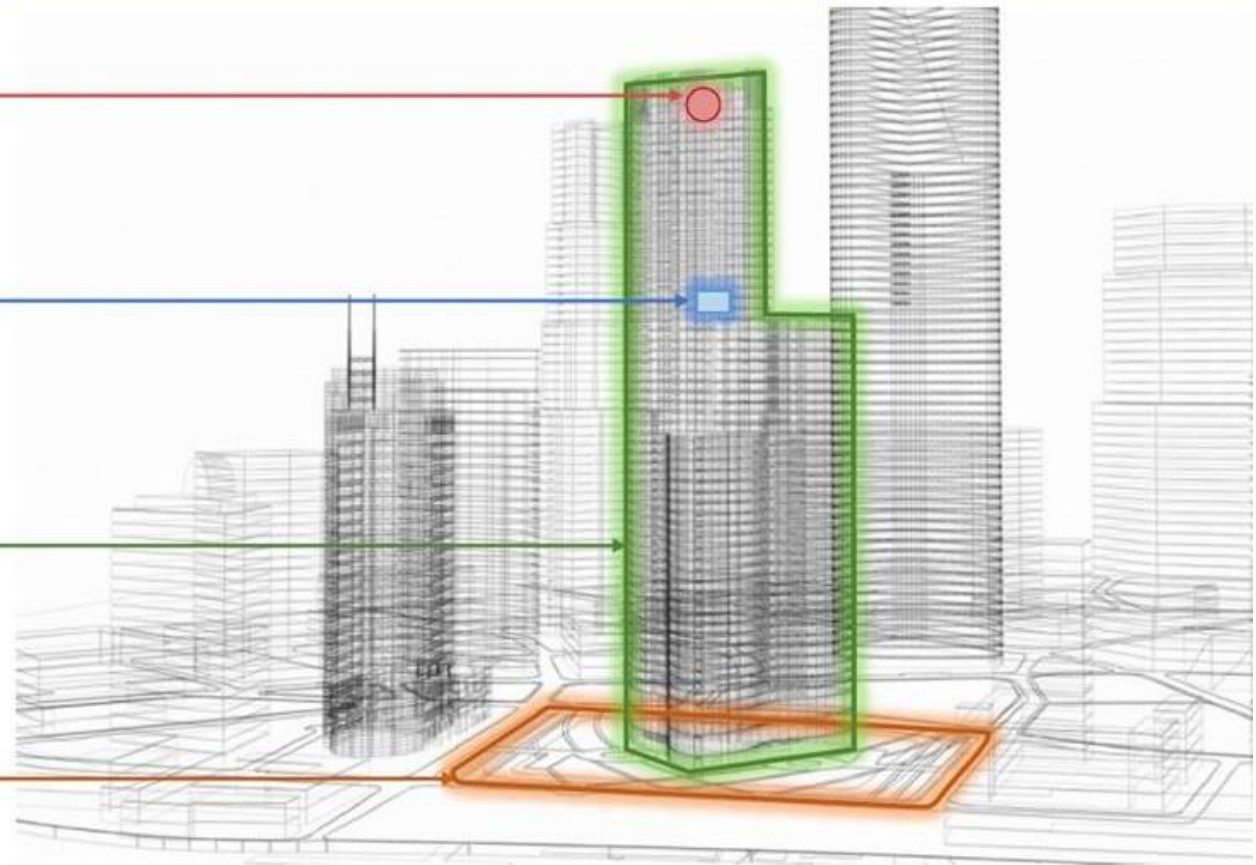
Building information

E.g. digital 3D model, Building Information Modelling

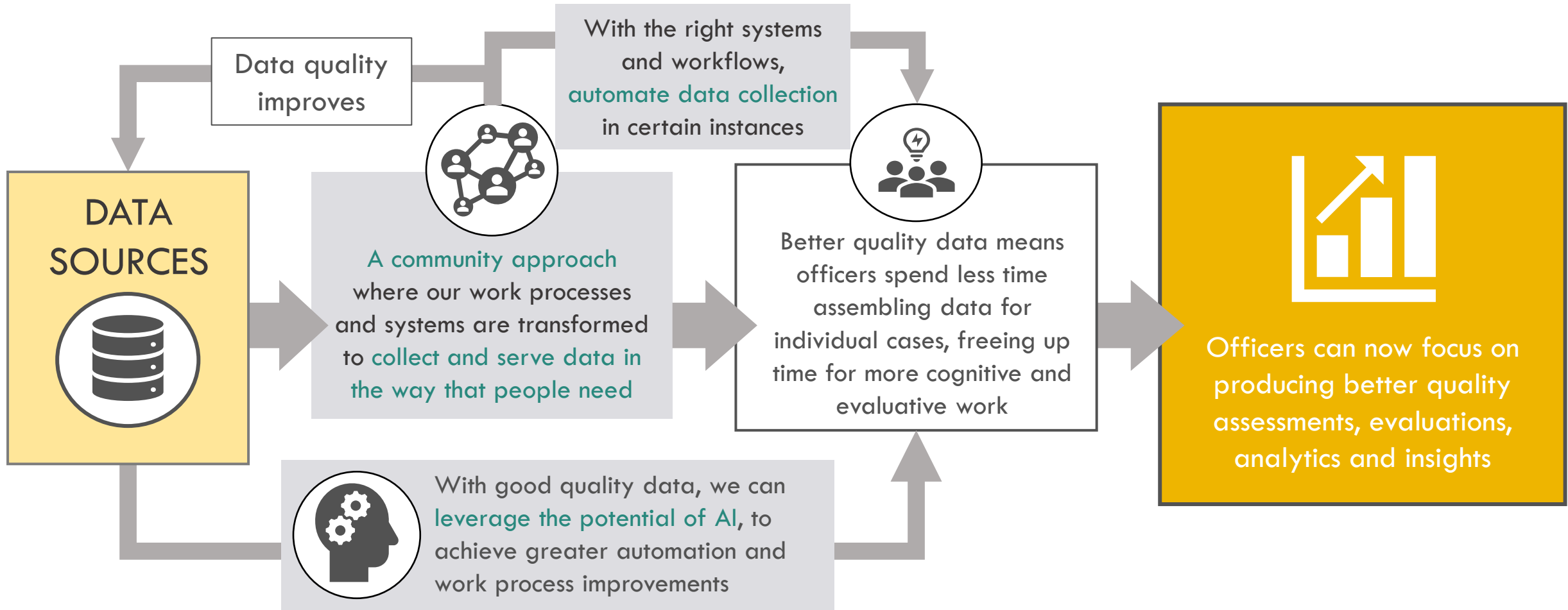


Land use and planning information

E.g. Land use plans and inventory



BETTER DATA-WORKFLOW INTEGRATION



STREAMLINE WORKFLOWS WITH DIGITAL TOOLS

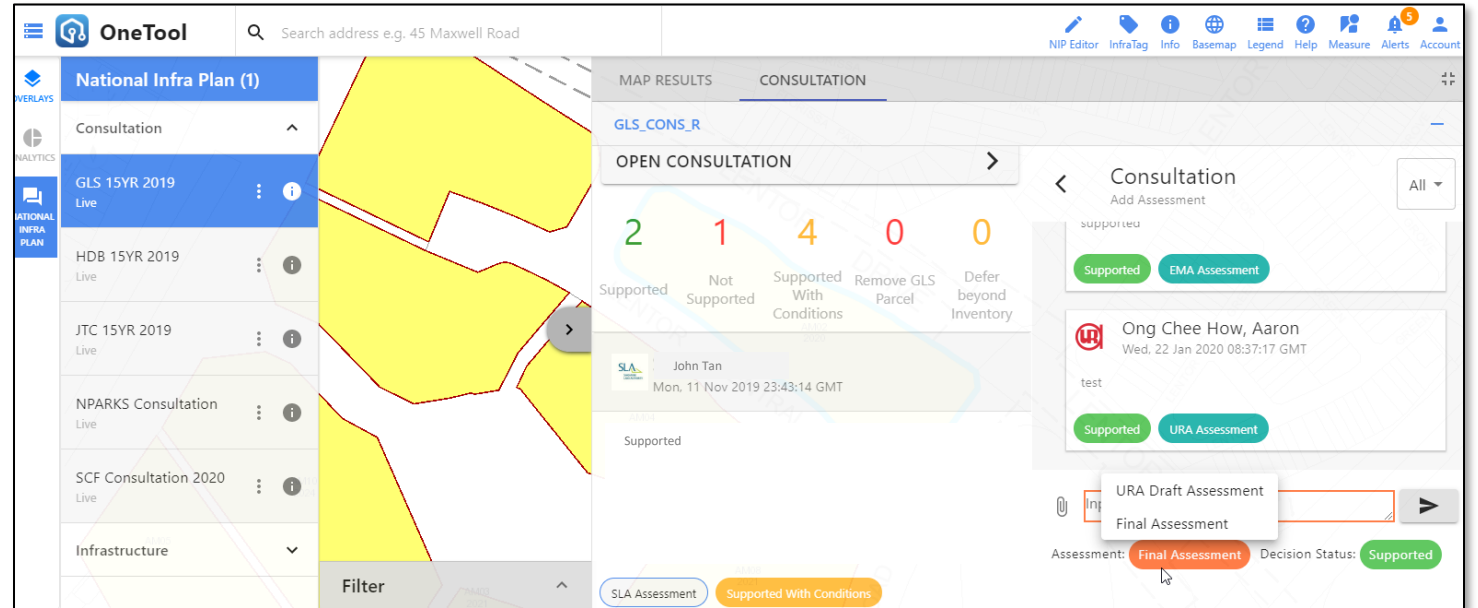
OneTool

Scenario and inventory planning platform to support inter-agency coordination

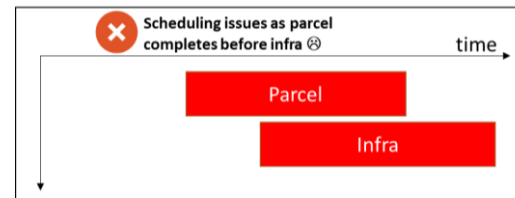


Multi-agency consultations for development inventory planning done via emails and Excel sheets, which are difficult to track

Agencies can **review plans holistically**, as multiple development inventories and other agencies' comments are on same platform



Dashboard to track consultation progress



Tag interdependencies of supporting infrastructure to better detect scheduling conflicts

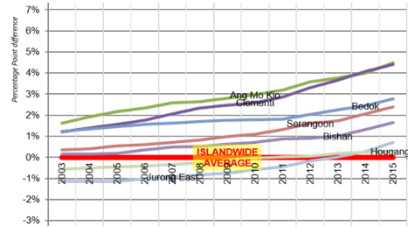
ENABLE DATA-INFORMED PLANNING & DESIGN

Apply data analytics for more evidence-based planning

POPULATION

Town demographic analysis enabled more targeted rejuvenation strategies and plans for social facilities

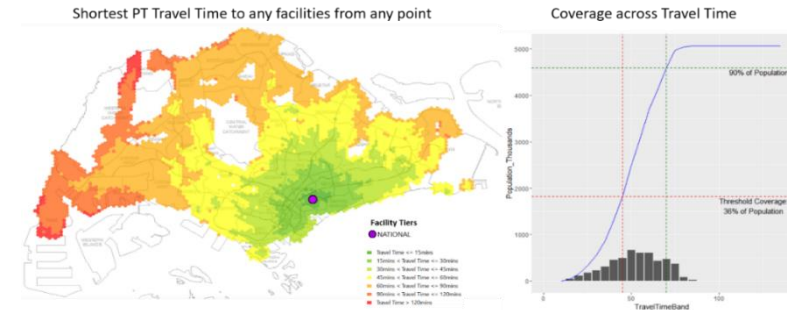
Relative % of elderly residents by Planning Area
(for PA with >5k population in 2015)



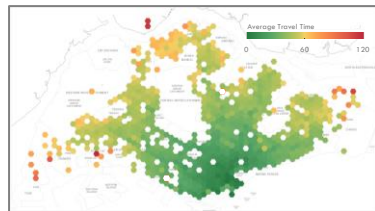
Category 1 Youngster Haven	Category 2 Grey Tide	Category 3 Silver Tsunami	Category 4 Youthful Remix
Less elderly than national average	More elderly than national average, but relatively stable	More elderly than national average, and becoming even more old	More elderly than national average, but getting younger
Outlying areas	Mainly Central Region	Fringe of Central Region	--

AMENITIES

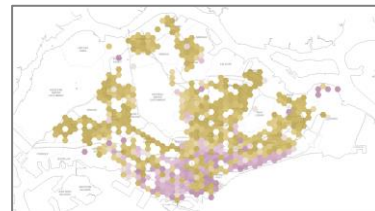
Measured spatial coverage of amenities within target accessibility distance to optimize distribution



MOBILITY



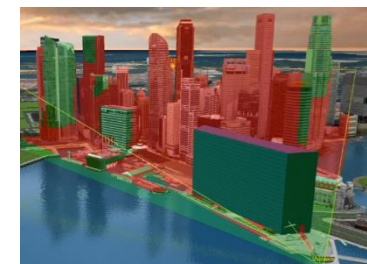
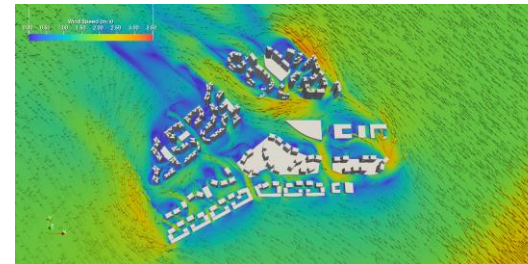
Average travel time taken to CBD



PT Mode Share: Bus vs Train & Mixed

Analysis of mobility and activity patterns informs strategies to promote walk, cycle and ride

URBAN DESIGN



Using simulation and modelling to predict potential design outcomes

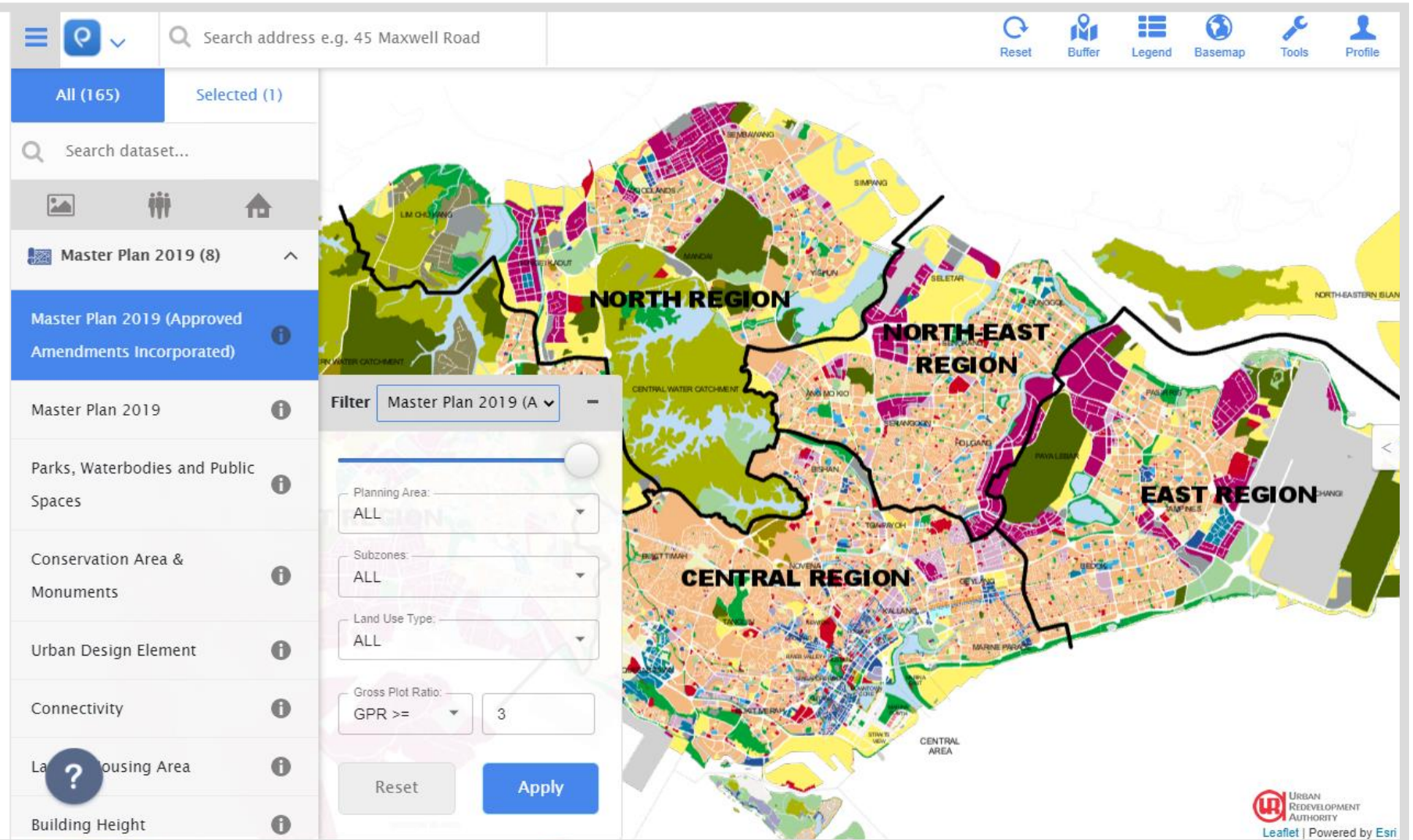
DEMOCRATISE DATA ANALYTICS WITH DIGITAL TOOLS

ePlanner

Quick visualisation and analysis of planning data

Easy, multi-scale insights for each area and various key domains e.g.

- Population
- Social facilities
- Public feedback
- Planning approvals
- Land use
- Mobility
- Parking



ENABLE BETTER SERVICE DELIVERY TO INDUSTRY AND PUBLIC

Development eRegister

allows the public to access past approvals instantly at no cost

The screenshot shows the Development eRegister web application. At the top, there is a search bar with the text "Enter address, MK/TS Lot". Below the search bar is a navigation menu with categories like "Land Use Plans", "Property Use and Approval", "Conservation Areas and Buildings", "Urban Design Guidelines", "Car Parks", and "Private Residential Properties". A map is displayed in the center, showing a street layout with a red pin indicating a location. A pop-up window titled "Planning Decisions" is overlaid on the map, displaying details for a specific decision: Decision No: P120710-18E2-2000, Decision Date: 27-AUG-2010, Decision Type: Written Permission, Application Type: Addition/Alteration to Conservation Buildings within Historic District & Residential Historic Districts, Address: unsefned, MK/TS Lot No: TS23 99616V, and a link for "Request for Decision Notice". To the right of the map, there is a "Planning Decisions (1)" section with filters for "Application Type" (All) and "Decision Date" (Since 2000). Below the filters, it lists "Planning decisions for current site(s):" with a description: "PROPOSED ADDITIONS AND ALTERATIONS TO EXISTING 2-STORY RESIDENTIAL BUILDING WITH ADDITION OF AN ATTIC ON LOT 99616V TS 23 AT 22 BLAIR ROAD (Written Permission - 27-AUG-2010)". At the bottom of the page, there is a "Search Development Register (Planning Decision)" section with a "Step 1" indicator and an "Information" section stating: "1. This e-service allows you to download the past approvals ('Written Permission') or refusals ('Refusal of Written Permission') that URA has given to a site in terms of its development and use from year 2000 onwards." Below this, there is a "Selected Planning Decision" section with fields for "Decision Number" (P120710-18E2-2000), "Address" (22 BLAIR ROAD), and "Proposal Description" (PROPOSED ADDITIONS AND ALTERATIONS TO EXISTING 2-STORY RESIDENTIAL BUILDING WITH ADDITION OF AN ATTIC ON LOT 99616V TS 23 AT 22 BLAIR ROAD). The page also features the URA logo and the Singapore Government logo.

Change of Use e-Advisor

provides shophouse owners with information on the permissible uses for their properties

The screenshot shows the Change of Use e-Advisor web application. At the top, there is a search bar with the text "32 EMERALD HILL ROAD EMER.". Below the search bar, there is a red banner with the text "EMERALD HILL CONSERVATION AREA" and "Allowable Use for Shophouses". Below the banner, there is a "LAST UPDATED" section with the date "19 March 2019". Below this, there is a "SERVICE TYPE" section with a dropdown menu showing "Shop, Office and Service". Below the "SERVICE TYPE" section, there is a "STOREY" section with a dropdown menu showing "1st Storey". Below the "STOREY" section, there are two buttons: "Subject to Evaluation" (with a blue question mark icon) and "Submit for Evaluation >". Below these buttons, there is a "Not Supported" section with a red 'X' icon and a "Find out why >" link. Below the "Find out why >" link, there are two images: "Shop" and "Office". To the right of the application, there is a map showing the location of the property. The map is titled "Allowable Use for Shophouses" and shows a street layout with a blue pin indicating the location. The map also shows various landmarks, including "The Heeren", "Chatsworth International School", "Starhub Centre", "Centrepoint", and "Somerset (NSL)". The map includes a scale bar (50 m, 100 ft) and a compass rose.

DESIGN & PLANNING LAB

A CATALYST TO:



ACCELERATE

2

Insights, Transformation through analytical studies and digital tools



3

INSPIRE



Innovations through public- and private-sector partnerships

1

INCUBATE



Skills, Ideas through capability building and knowledge sharing

Data is a Team Sport

Ensure good data **quality** in a **sustainable** way is possible by adopting a **COMMUNITY APPROACH** to transform our **systems & work processes** for collecting, managing and using data

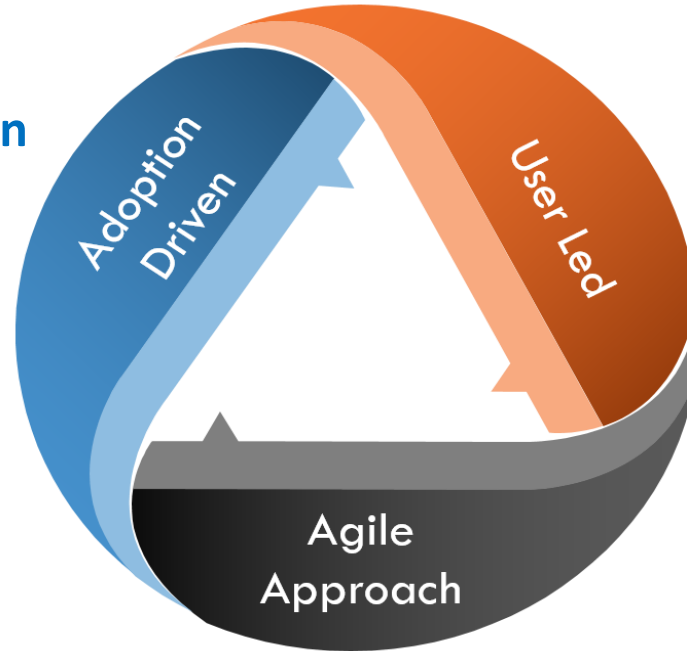


GROW OPS x TECH CAPABILITIES

Build up strong ops-tech teams to drive digitalization and use data analytics in planning

Empower officers to drive digitalisation & adoption of analytics for planning

- Incorporate in key planning exercises
- Integrate apps to streamline user experience
- Conduct regular training
- Engage partner agencies



Build up more officers with cross-domain knowledge

- Identify insights /outcomes needed
- Re-design planning / work process

Accelerate transformation of work process re-design

- Core in-house team consist of Planners & System Analysts
- Collaborate with external domain experts

BUILD UP CAPABILITIES OF OUR PEOPLE



KNOWLEDGE EXCHANGE



Communities of Practices (CoP)



DPXΔ (DP Exchange)



ANALYTICS IMMERSION PROGRAMME #AIM

EXECUTIVE ANALYTICS PROGRAMME

TRAINING



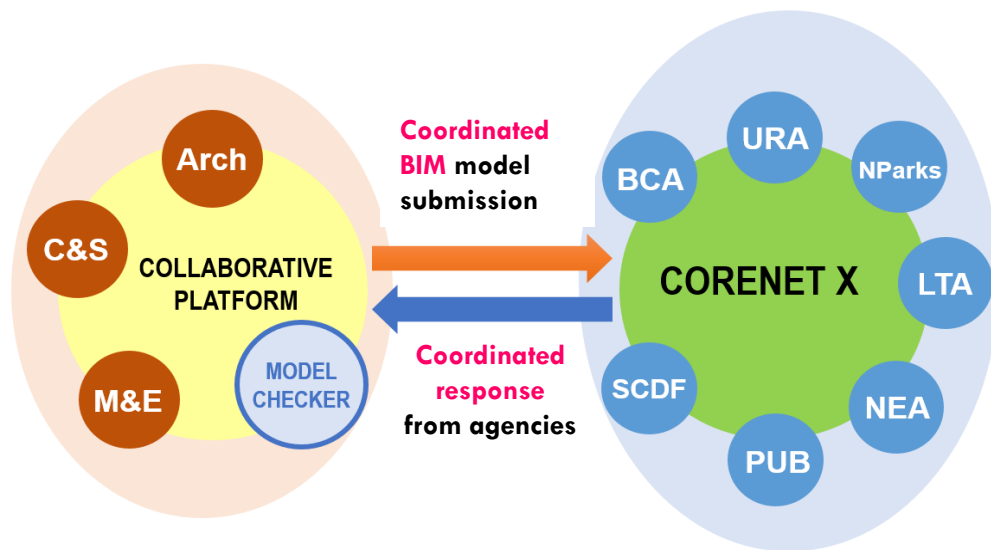
Data Management Course



NEXT STEPS FOR URA'S DIGITALISATION JOURNEY

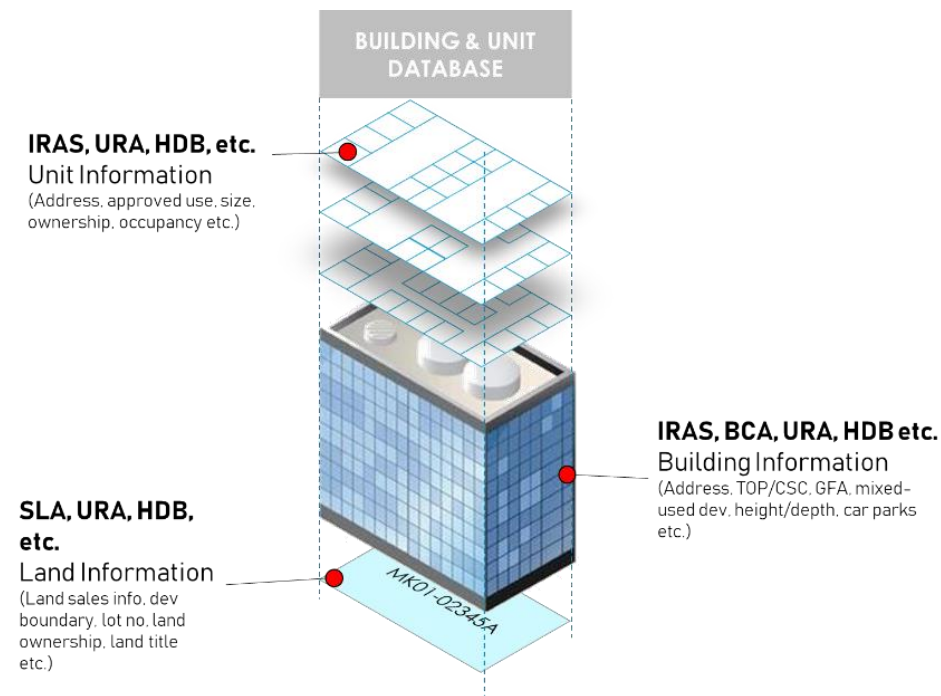
CORENET-X

One-stop portal for consultants to submit a coordinated BIM model to multiple agencies, and for agencies to deconflict any regulatory requirements. Model checker built in to auto-detect adherence to urban design rules



MyUnit Info

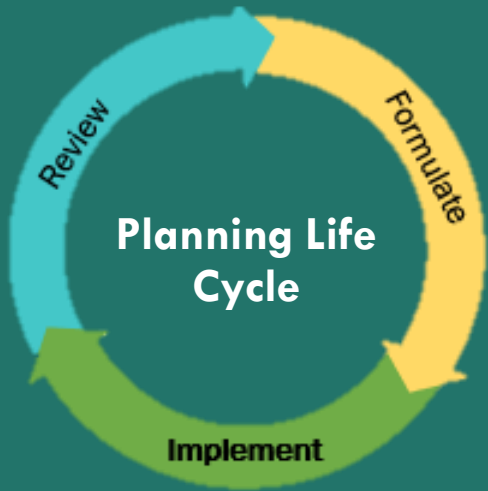
Central repository for building and unit data collected across multiple agencies



CHARTING THE FUTURE: PLAN AI

Harness AI to transform Singapore's urban planning system and processes for better outcomes

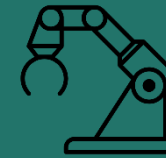
Planning Cycle + Artificial Intelligence = Outcomes



Data Strategy

System Design

People Upskill




Do Less

Cut down time spent on routine tasks
Targeted stakeholder communications



Do Better

Generate options to support decision making
Enable pattern detection of big data



**“Start by doing the necessary,
then the possible,
and suddenly you are doing the
IMPOSSIBLE.”**

Thank you.