

CREATING A SUSTAINABLE DIGITAL ECOSYSTEM

towards

Building A Smarter City For The Rakyat

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what are smart cities?

a city that **intuitively** adapts and responds to the **needs of its Rakyat**

Technology are merely enablers, rakyat's needs come first

SMART CITY CONSIDERATIONS

Sustainability of a smart city anchors on needs and inclusion of surrounding stakeholders

WHAT
PROBLEMS
ARE WE
SOLVING?

WHOSE
PERSONA
ARE WE
ADDRESSING?

HOW CAN THE
SMART CITY BE
SUSTAINED?

WHO ARE THE PLAYERS WITHIN THE **EXISTING**
ECOSYSTEM THAT WE CAN LEVERAGE ON?

WHAT **TECHNOLOGY** CAN ADDRESS ALL OF THE
ABOVE CONSIDERATIONS?

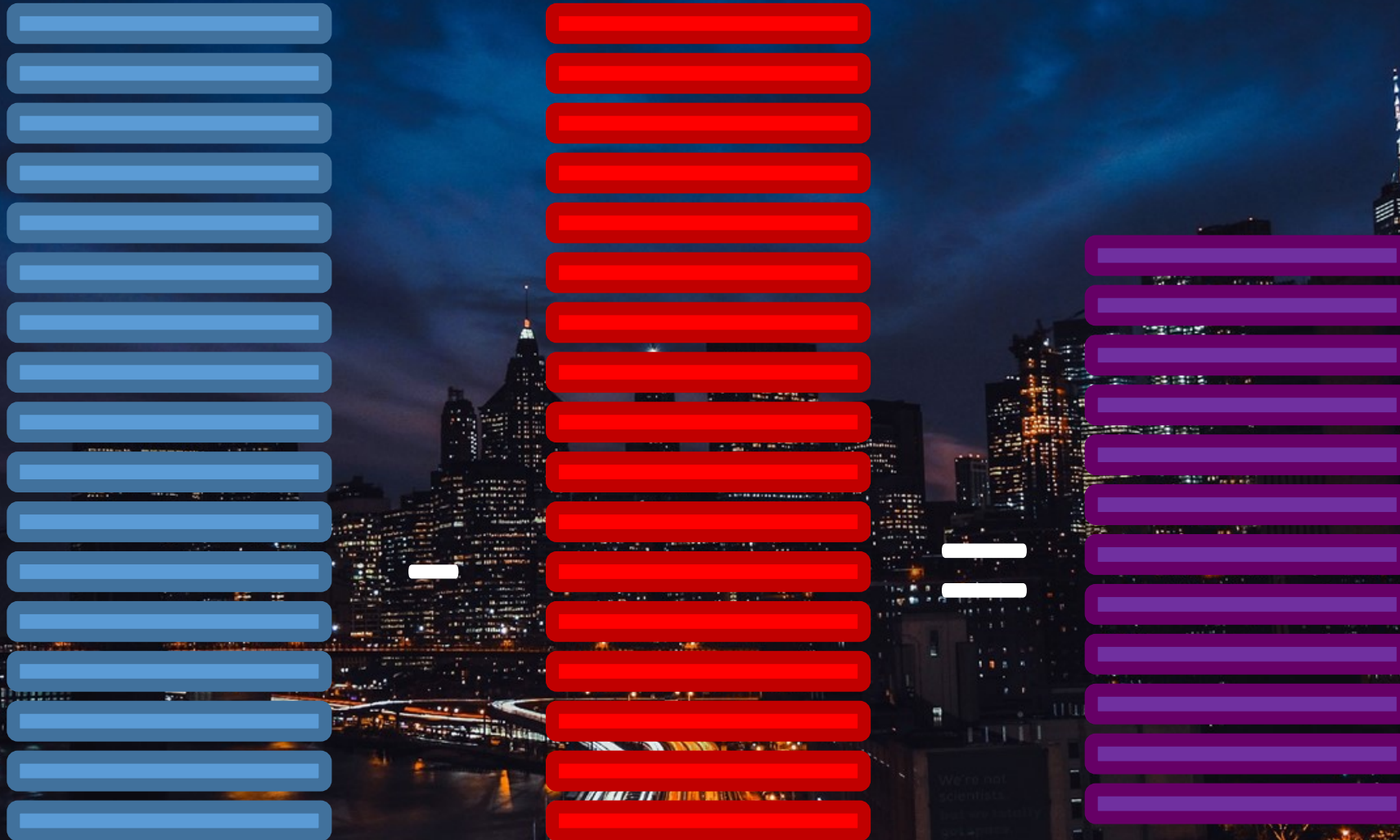
Rakyat's needs is first consideration.
The more the smart city addresses
relevant needs, the easier it is to
sustain

Empowering existing players will
increase the **ecosystem's** sustainability

Technology is merely an enabler for the
smart city to
adapt and respond

SOMETIMES ALL IT TAKES IS JUST TO GO BACK TO BASICS..

Increase income, and/or reduce or repurpose cost



INFLOW

OUTFLOW

SURPLUS

SOMETIMES ALL IT TAKES IS JUST TO GO BACK TO BASICS..

*It goes back to the basic question of dollars and cents – **economic sustainability**!*

$$\text{Sustainability}_{\text{city}} = \sum_s^F \text{Inflow}_{\text{city}} - \sum_{\infty} \text{Outflow}_{\text{city}}$$

F = Funding from higher bodies
s = income from city services

step 1

identify income sources and cost levers

step 2

identify interventions for improvement opportunities

step 3

identify other incremental non-financial benefits to the city that it wish to achieve (towards meeting the rakyat's needs)

step 4

identify business models that can address the points identified in steps 1-3

STEP 1: IDENTIFY SOURCES OF REVENUE AND COST

In addition to regular fund injection from a higher body, cities generally have its own revenue sources

INFLOW

Funding from higher bodies
(e.g. central government funding, grants from UN)

This source of funding is usually fixed, and challenging to increase

+

License & Permit
Payment to be allowed to do something

Service Fees
Payment for services rendered

Fines
Payment to deter untoward behaviour

Taxes
Payment imposed on owners, usually not involving any specific services from the Gov

Identify potential opportunity to increase any of these levers

Asset Monetization
Payment to use any of the city assets

OUTFLOW

CAPEX

- Purchase of vehicle
- Purchase of buildings
- Purchase of machineries & equipment

OPEX

- Maintenance of machineries and equipment
- Upkeep and repair of civil infra (roads, drainage etc)
- Out payment to 3rd party service providers
- Electricity charges
- Water bills
- Connectivity charges

*Cost can either be **reduced** or **repurposed***

STEP 2: IDENTIFY IMPROVEMENT OPPORTUNITIES - REVENUE

Several interventions can be initiated to improve revenue

Intervention	License & Permit	Service Fees	Fines	Taxes	Asset Monetisation
Charge More	Market price	Increase pricing based on benchmarks or associated cost to serve			
	Value added benefits	Fast lane processing	Special customized services	-	Priority booking
	Revise price-model based on unique factors of each category				
	Differentiated levels	Size of business, location of bazaar, ratio of renovation	Area to be served	Time taken to settle the fines	Property value Time when asset is being used (peak/mid/low)
Increase number of transactions	Increase location of licensed business	Increase frequency of service	Introduce tighter enforcement	Step up collection initiatives	Increase awareness of facilities offered
Improve administrative efficiency (e.g. collection, billing, enforcement)	Increase enforcement to monitor licensable activities	Improve accessibility of pay-points	Manage leakages via better collection	Improve accessibility of pay-points	Increase asset management efficiency (e.g. better scheduling, less)
Introduce new revenue levers	New types of licenses	New types of services	New regulations	New taxes	

STEP 2: IDENTIFY IMPROVEMENT OPPORTUNITIES - COST

Cost can either be reduced, or repurposed

Intervention	Elements to be considered
REDUCE	What are costs that are necessary and cannot be removed? Can we use less of these elements? e.g. Energy, Water,
REPURPOSE	What are elements that are necessary, but can be replaced by another element? e.g. Bills – replace sending out physical bills with emails (repurpose budget allocated for postage to budget for email system) Security guards – replace guards with centralized monitoring system (repurpose budget allocated for guards' salary to budget for CCTV system)
REMOVE	What are cost elements that can be removed without impacting the public? e.g. Paper Forms Number of physical counters / buildings / vehicles

STEP 3: IDENTIFY OTHER NON-FINANCIAL FACTORS

Irrespective of the financial outcome, outcome should be towards better service / experience for the rakyat

Dimensions		Factors	Potential Benefits
1	Social acceptance	Visibility	Is the change being introduced significant? Is it visible to the rakyat / businesses?
		Public Benefit	Does it encourage positive behavior or any other public benefits?
		Comparison with benchmarks	Is the new fees higher / lower to similar services in peer cities?
2	Economic impact	Impact on city P&L	What will be the impact to city finances?
		Impact on inflation	How will it impact city inflation?
		Impact on competitiveness	Will the new fees affect the city's attractiveness to investors / stakeholders?
3	Ease of implementation	Technical readiness	Is the city technically ready to introduce the new service?
		Resources requirements	What kind of other resources does the program require?
		Alignment with bigger agenda	Is it aligned to other federal / ministerial / etc agenda?

STEP 4: IDENTIFY ALTERNATIVE OUTCOMES

Different ways of engaging stakeholders could produce more beneficial outcomes

Pay-Per-Use

Paying service providers only for services used, instead of CAPEX investment



Revenue Share

Allowing 3rd party operators to operate a service in return for a cut in the revenue



Cross Subsidization

Engaging a 3rd party for 2 or more city services, where losses incurred from improvement of one service can be recouped from increased revenue from another service



Concession

Appointing a 3rd party to invest in infrastructure for a new service, in return for exclusivity to run the service for an agreed number of years



Irrespective of the financial outcome, in each model, outcome will be towards better service / experience for the rakyat

CHALLENGES WITH SMART CITY IMPLEMENTATION

*Don't fall into the trap of implementing new fads just for the sake of fads – **that is not technologically sustainable!***

- Smart City Services often need multiple other tech for them to work optimally
- e.g. connectivity, AI, machine learning, advanced data aggregation

**DO YOU NEED
ADDITIONAL TECH?**

- Often the problem can be solved with other (sometimes simpler) technology
- e.g. using smart phones can often achieve same results as hand-held LPR readers for parking authorities

IS IT YOUR PRIORITY?

- Smart City Service may solve the problem, but sometimes the cost to deploy the solution does not justify the benefits
- e.g. cost to deploy LED lights may not commensurate with the energy savings' economic benefits

COST vs BENEFITS?

TM's APPROACH TO SMART CITIES

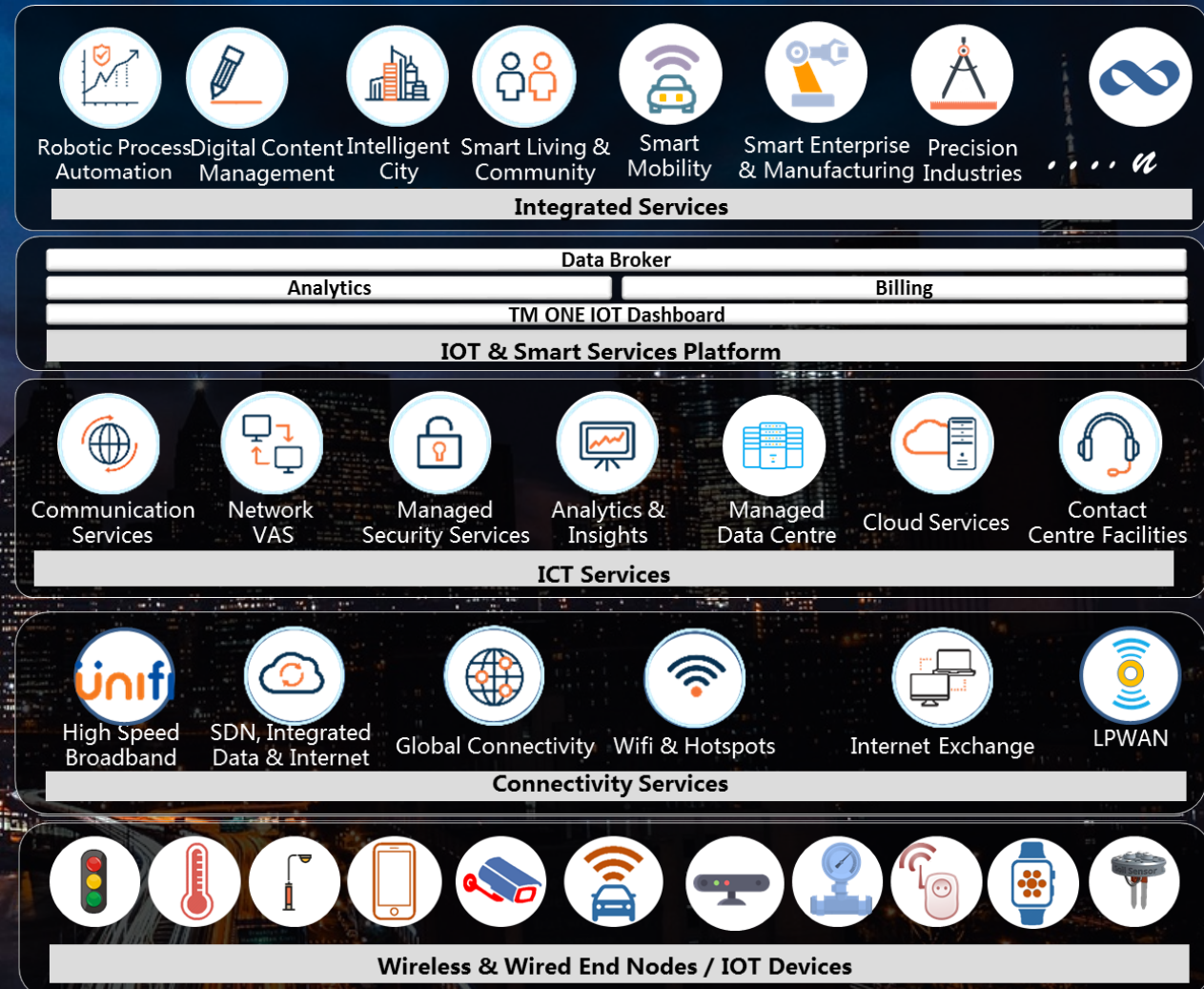
TM is an enabler for the smart service ecosystem through a platform strategy; technology & device agnostic

Identified selected smart services to be offered as TM product. For other smart services, to work together with other smart service providers

TM's primary smart service offering is the IOT Platform, which will be the enabler for the whole smart service ecosystem

The platform leverages on TM's traditional assets and strengths in ICT and connectivity

TM will not play in the device space; will instead leverage on existing ecosystem



“There are too many smart city players working in silos, hindering smart city development as a whole”

*Tun Dr Mahathir Mohamad
Cities 4.0 Conference and Exhibition 2019
23 September 2019*



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