Towards a “SMART” Dhaka City

World Bank Group Korea Office BBL Series
Data Platforms for Smart Cities: Experiences and Lessons from Korea
Wednesday, Nov 21, 2018

Hyoung Gun Wang
Senior Economist, Lead of Smart Cities KSB

Image Credits (CC@Flickr): United Nations Photo, Rajesh Pamnani, Masud Ananda

Initiation: Strategic Action Planning for Dhaka Smart City

Assessment & Analysis

- Prioritize Quick Wins by assessing the current status and readiness levels
- Establish the directions for improvement

Definition of Smart City Solutions and Architecture

- Vision and Strategy for Dhaka "Smart City"
- Recommendation of Appropriate Smart City Solutions
- Define Architecture in consideration of HW, SW, NW components

Action Planning

- Drafting of action plan based Road-Map
- Estimation of necessary Budget
- Renovation of Smart City Governance

Phase 1: Assessing and Evaluating the Situation

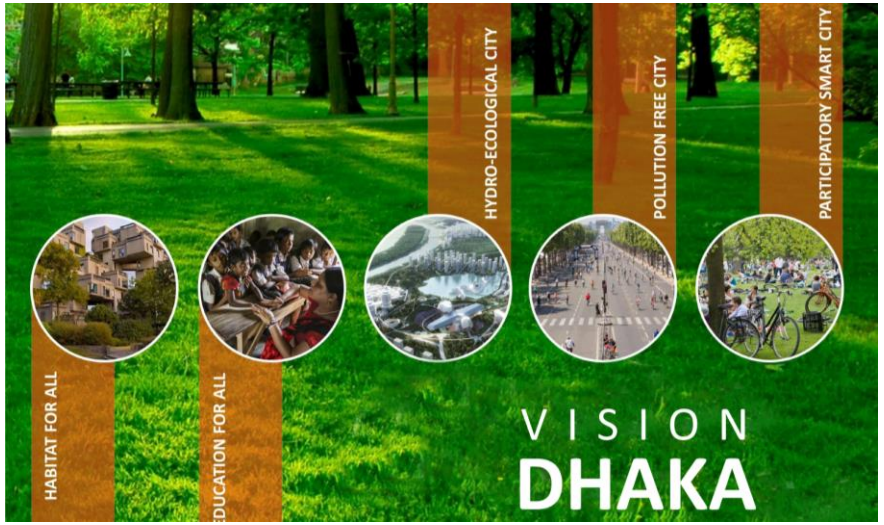
General Evaluation and Assessment of Current Situation

Setting of Strategic Direction

Identification and Prioritization of Services

General Roadmap for implementation

- Project preparation and implementation
- Stocktaking of current situation
- Formulating activities from overall vision
- Prioritization of different services
- Planning/sourcing of resources
- Formalizing results of project



Phase 2: Preparation for Implementation

Selection of Smart City Solutions and Components	Analyzing and mapping current processes → BPR	Designing and Contextualizing ICT Solutions	Developing the Implementation Plan

- Project preparation and implementation
- Analysis and mapping of current processes
- Identification of requirements and needs
- Planning/sourcing of resources
- Identification of funding source
- Drafting of technical and administrative documents
- Hiring of relevant staff/consultants for project management

Specific Scope of Work: Tasks and Deliverables

	Target	Tasks/Activities		Deliverables	
"What needs to be Improved?"	**Business Processes of DNCC & DSCC:** ***[Analyzing the Current Activities]***	• Conduct BPR on the current business processes - Organization (A1) - Current Process Maps (A2) -Re-Engineering (A-3)	ToR Scope A (A1 - A3)	• As-Is Map of Current Processes	DPR
"How are we going to use ICTs for improvement?"	**Modules for Dhaka City's E-Gov. Services:** ***[Designing and Contextualizing the Solutions]***	• Design the "To-Be" Process maps (B1,B2) • Develop Tech. Architecture (B3) • Common Modules (B4) • Evaluate Latest Tech (B5) • Develop Technical Specification (B6) • Prepare Detailed Budget (B7) • Determine Critical Requirements (B8)	ToR Scope B (B1 – B9)	• System Requirement Specifications for each of the modules • Detailed Project Report - System Integration Scope - Budget Estimate - Systems Architecture - H/W, S/W, N/W Specifications - BPR Results including To-Be Process Map	DPR and SRS contents
"How are we going to implement the ICT Solutions?"	**DNCC & DSCC Project Plans** ***[Developing the Implementation Plans]***	• Design Integrated Architecture (C1) • Mid and long term planning (C2) • Integration Plans for Control Room (C3) • GIS Plan C4) • Draft Project Plan (D1) • Clarify Project Scope (D2)	ToR Scope C (C1-C4) ToR Scope D (D1-D2)	• SRS components • Bidding Documents including RFP	SRS and Bid Docs

Selected Smart City Components

Dhaka North City Corporation (DNCC)		Dhaka South City Corporation (DSCC)	
GIS	✓ Base-Map Implementation ✓ Taxation Integration	**GIS**	✓ Base-Map Upgrade ✓ Road + Traffic Management ✓ *Revenue enhancement(Holding Tax)*
Trade license	✓ Online Registration and Renewal ✓ E-Certificate	**One-Stop service center**	✓ One-Stop Center for Citizen ✓ Interface with internal system (Birth certificate, Trade license, inheritance, etc.)
E-Governance (Internal process)	✓ Inventory Management ✓ Estate Management	**E-Governance (Internal process)**	✓ *Road-cutting management* ✓ *Community center management* ✓ *Burial area management*

Draft Implementation Schedule (DSCC)

One-stop Service Center

4 months

Activities	M	M+1	M+2	M+3	M+4	M+5	M+6	M+7	M+8	M+9	M+10	M+11
System analysis												
System/layout design												
Development/solution customization												
Testing												
System open												

GIS(Base-map upgrade)

11 months + 8 months for traffic management

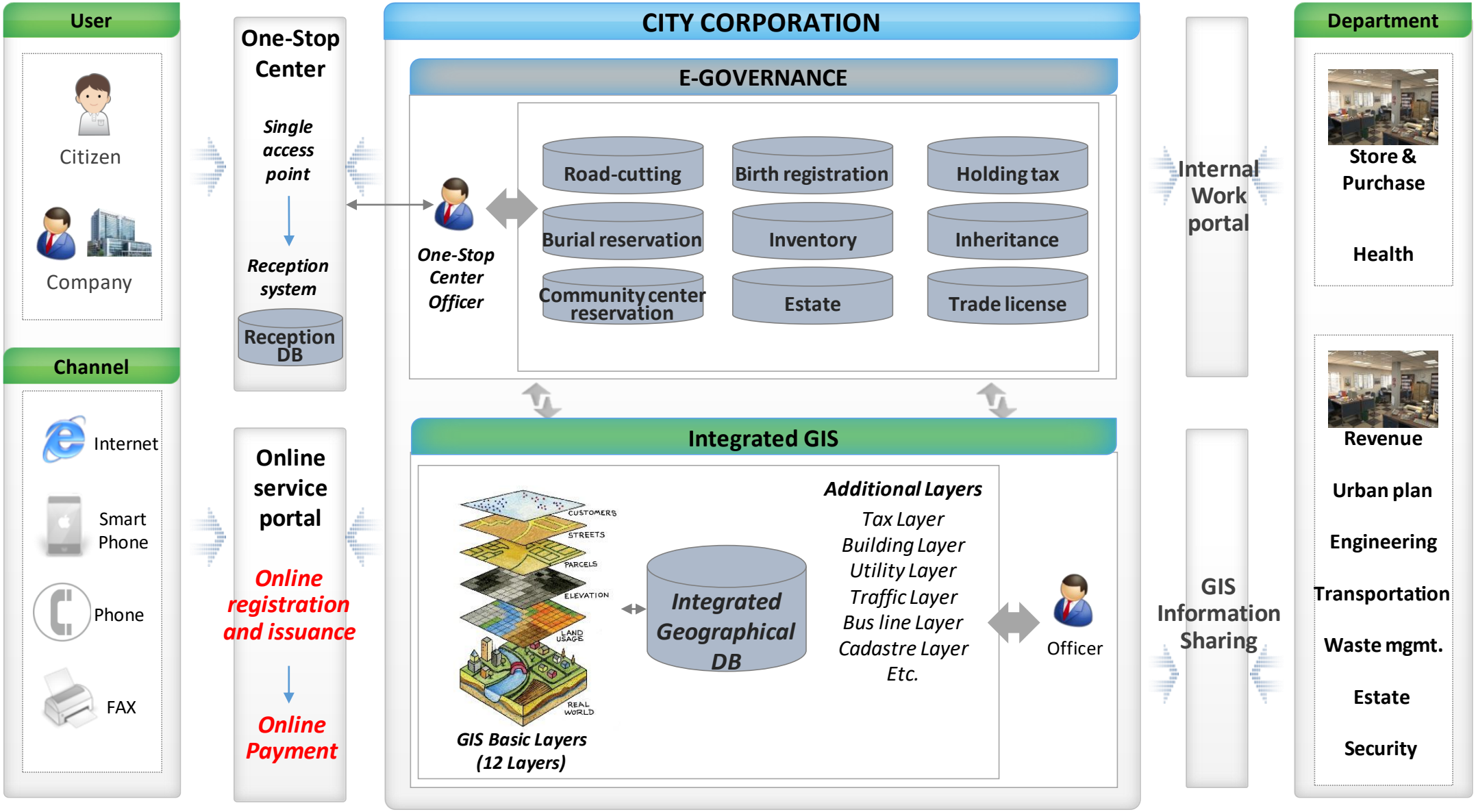
Activities	M	M+1	M+2	M+3	M+4	M+5	M+6	M+7	M+8	M+9	M+10	M+11
System analysis												
System design												
Development(Programming)												
Database creation/migration												
Testing												
System open												

E-Governance module

6 months

Activities	M	M+1	M+2	M+3	M+4	M+5	M+6	M+7	M+8	M+9	M+10	M+11
System analysis												
System design												
Development(Programming)												
Database creation/migration												
Testing												
System open												

Smart City Model for Dhaka City Corporation (DSCC)



GIS Basemap Development

- Update current GIS database
- Implement base-map with 12 layers (based on cost-effectiveness, and utility)
- Utilize base-map for other departments, urban planning, construction, water management, traffic monitoring, taxation, etc.
- Increase capability to manage GIS data

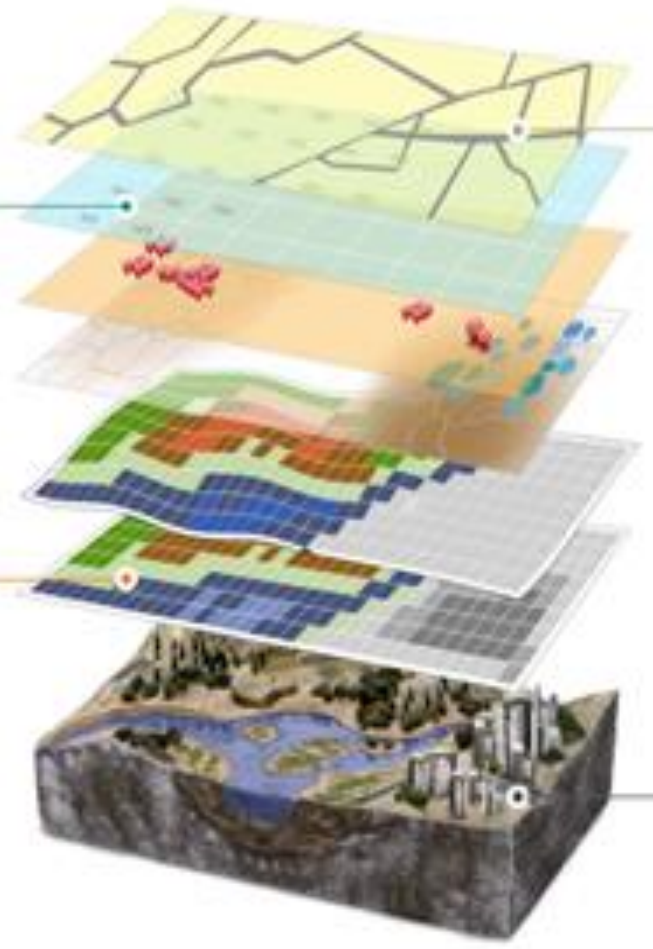
GIS Basemap: 12 Main Layers

Urban Infra Data

- Control Points (GPS)
- Main infra facilities (bridges, file brigade facilities, etc.)

Base Data

- Road/Rail
- Building
- Water and Stream
- Land Use
- Contour



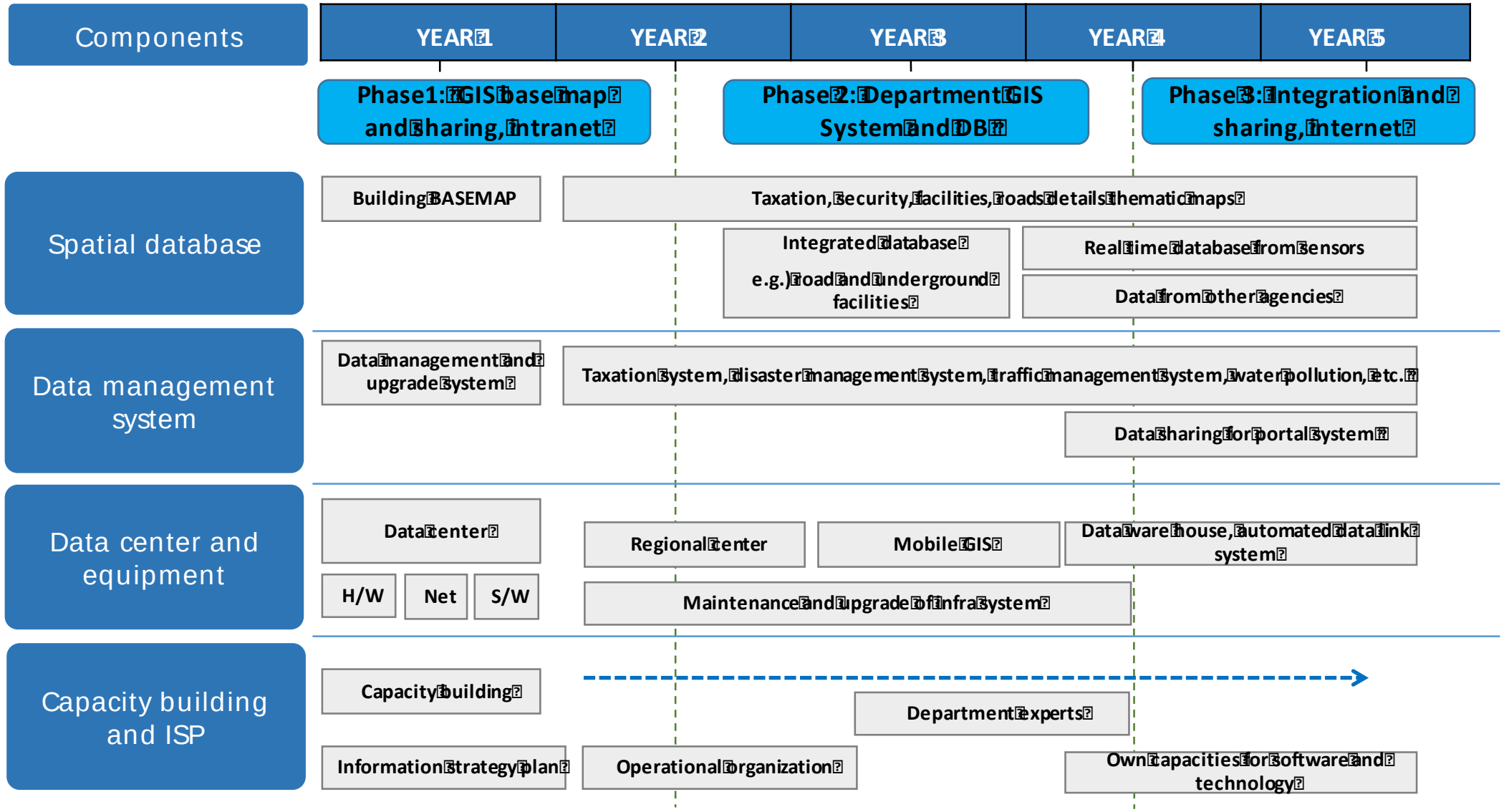
Administrative data

- Parcel and Mouza
- Administrative Boundaries
- Zone and Planning

DEM and Orthophoto

- Digital Elevation Model
- High Resolution Orthophoto imagery

GIS Basemap: Five-year implementation schedule



Lessons Learned

Image: mariusz kluzniak (CC) Flickr

Challenges in Smart City Planning and Implementation

Administrative Cycle (5 years)

- Rapidness (Speed) of project VS. Impact and/or Quality of Project
- Visibility (Front-end) VS. Functionality (Back-end)

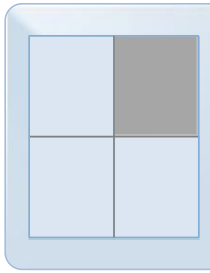
Multiple Stakeholders

- Project Coverage Gaps VS. Project Coverage Duplication
- Specialized benefit for one department VS. Small but general benefits for all

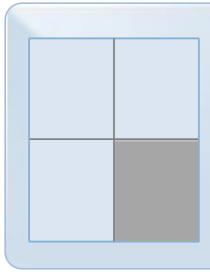
Funding and Sustainability

- Internal Funding VS. External Funding
- Outsourcing VS. Internal Operations

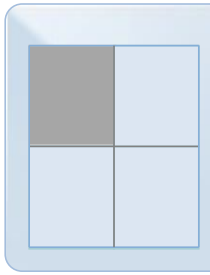
Strategic Decisions on Smart City Projects



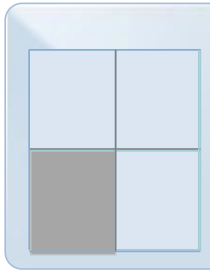
- High strategic value
- Easy to implement



- High strategic value
- High effect
- You should be investing



- Easy to implement
- Effective for a short time
- Low Strategic Value
- Not urgent



- Difficult to implement
- If resources are limited, the project should be postponed/ canceled

What Can Go Wrong?

PROCESS

1. Delays in key decision making
2. Delay of approvals (from funding source due to lack of compliance, not enough administrative preparation etc.)

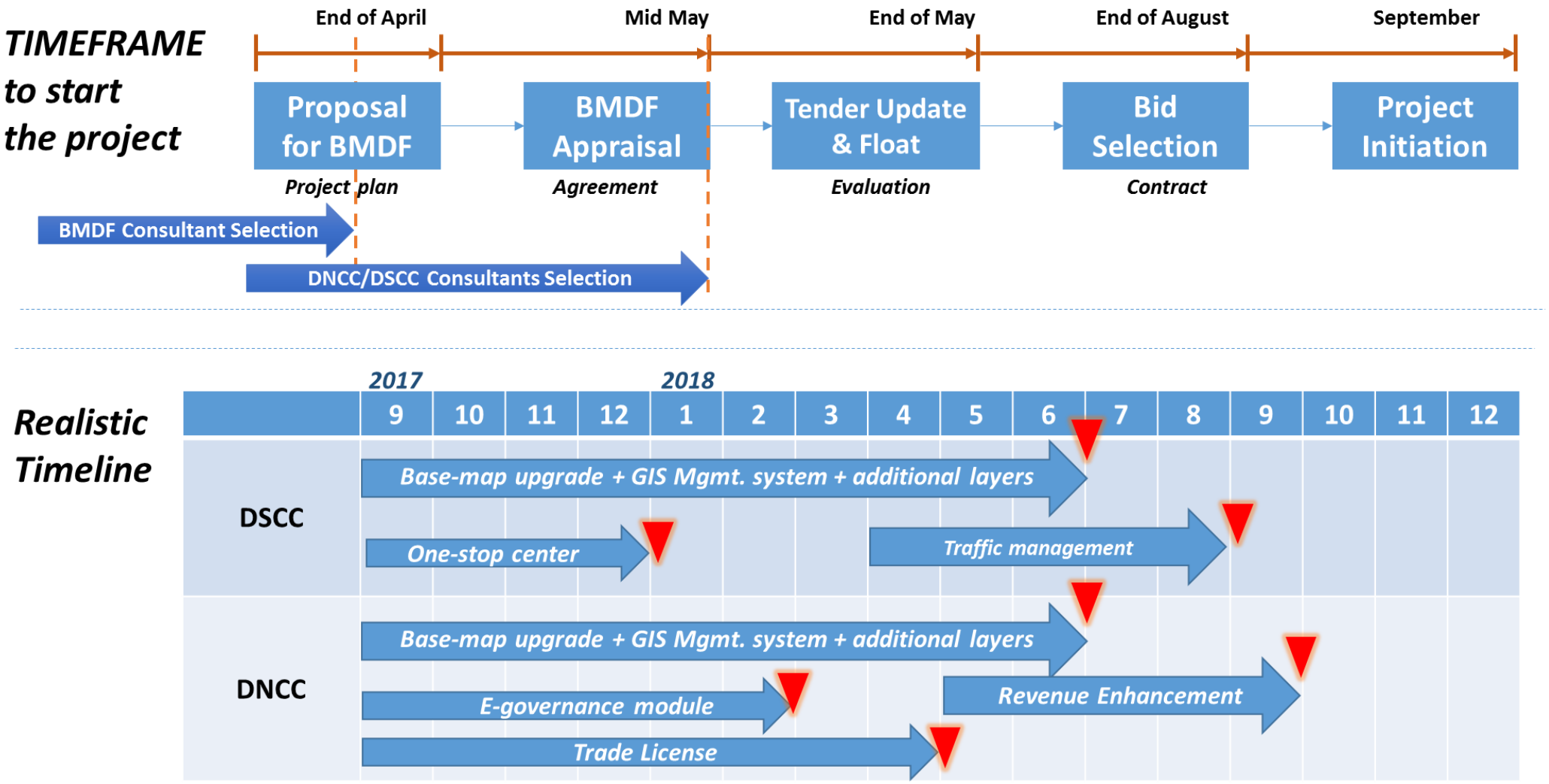
PEOPLE

1. Lack of capability to operate and maintain systems
2. Insufficient engagement for system implementation

TECHNICAL

1. High dependence on specific vendor
2. Insufficient standardization for integration
3. Technology acceptance risk (improper contextualization)

Risks of Cascading Delays



Issues Identified during Project Implementation

- Time is of the essence: 3 years left in Mayor's term, and time is ticking
  → Acceleration of project needed

- Project planning/implementation delays, quality issues
  → Lack of local capacity

- New jobs/different combination of qualifications, lack of local experience
  → Difficulties and delays in procuring relevant experts

- Interoperability (GIS/traffic etc.) issues
  → Coordination between cities needed

Smart City and the World Bank – Gaps to Overcome

Scarce use of smart (data-based) solutions as integral part of city development strategy or key components of urban projects

Absence of strategic and comprehensive assistance to cities via integrated and interconnected digital solutions that can cut across sectors and functions of a city

Gaps to Overcome:

- City governance & leadership
- Collaboration among different levels of government
- Bridge administration silos
- Assess, adapt emerging technologies
- Plan, implement & management change
- Finance, PPP for investment, O&M
- Citizen engagement and consultation

Global Smart City Partnership Program of the World Bank

- **Korea-WB Smart City Partnership Program (P166893)**
  - 2nd subtask (ASA) under Smart Cities PA (P160290)
  - Support activities agreed on the **MOU Action Plan**
    - Signed by GSURR Management and Korean Ministry of Land, Infrastructure and Transport (MOLIT) on Sep 6, 2017
  - Smart city partnership
    - **Korea** – Provide financial & technical contributions
    - **WB** – Convene global experts and connect clients
  - Completion FY2020

- **Lead GP:** GSURR
  - TTL: Hyoung Gun Wang, Senior Economist (GSU12)
- **Contributing GPs:**
  - Digital Development
  - Transport
  - Governance
  - Competitive & Innovation

Global Smart City Partnership Program of the World Bank

Objective:

Enhance the capacity of planning and implementing Smart City projects, building on best practices and networks of global Smart City practitioners and experts

Component 1:
Just-in-time Technical Assistance and operational support

Support for project preparation and implementation

- Provide just-in-time technical support to WB teams and clients
- Create smart city components in Bank projects

Component 2:
Knowledge sharing and dissemination

Support for business development

- Provide an online hub for networking and learning
- Offer cross-sectoral knowledge resources
- Support strategic knowledge and learning activities
- Promote peer-to-peer learning opportunities

"We are just in the beginning stages of thinking about **disruptive technologies for development** and what we want is for everyone in the World Bank Group to be asking those questions and take an idea, a technology, and move it into practice."

- President Jim Yong Kim