Digging Once for Road Transport Decarbonization

Toolkit and case for Bangladesh motorway EV charging development

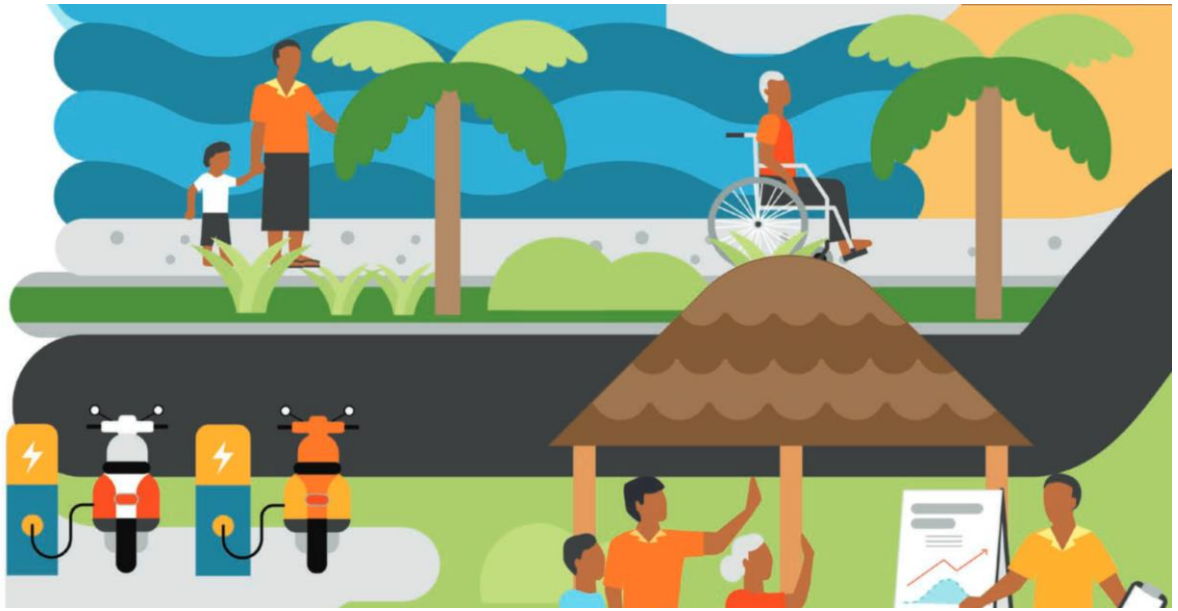
ADB Green Roads Toolkit Webinar
4 July 2024

ABEL

On our way to the roads of the future

Clean and connected: how to decarbonize our road transport systems?

- Roads of the future are….



Inclusive	Efficient	**Resilient**	**Clean**	**Intelligent and connected**
●	●	●	●	●

See for example https://www.adb.org/publications/future-transport-across-asia-pacific

1. Avoid (reduce transport demand and distance)	**2. Shift (to more environment friendly and lower carbon modes of transport)**	3. Resilient transport (systems, infrastructure and vehicles; *impacts for adaption*)
4. Improve land transport (substitute fuels with electricity and improve vehicle, fuel, and operational efficiencies to decrease emissions of unavoidable travel)	5. Improve shipping (technology, operation and fuel efficiency)	6. Improve aviation efficiency and reduce the carbon intensity of aviation fuels

https://unfccc.int/sites/default/files/resource/Transport_ActionTable_2.1.pdf

Cost and disruption of (retro)fitting

Efficient integration of road transport decarbonization into BAU approaches

- "One of the key obstacles is the cost and disruption associated with (retro)fitting existing roads and energy networks to accommodate charging infrastructure."

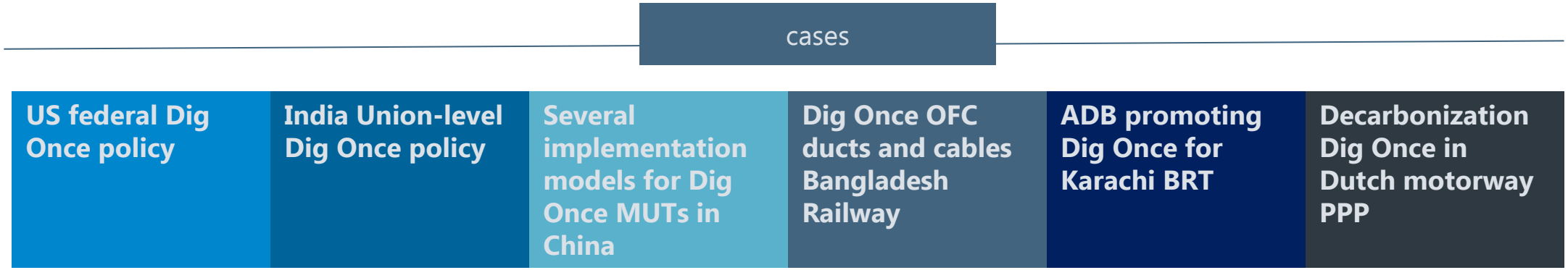
Regional
Dig Once Toolkit for Road Transport Decarbonization

Bangladesh
Roadmap for EV charging pilots through Dig Once development

The art of Digging Once

Dig Once to avoid additional construction costs and asset use disruptions

1. Installation of conduits/ducts, cables and surrounding infrastructure as well as spatial reservations during the development or major maintenance of road infrastructure, ..
2. .. utilized for electric power transmission, clean power solutions and services and/or other interventions related to energy systems, telecommunications, etc. that contribute to futureproofing road transport.

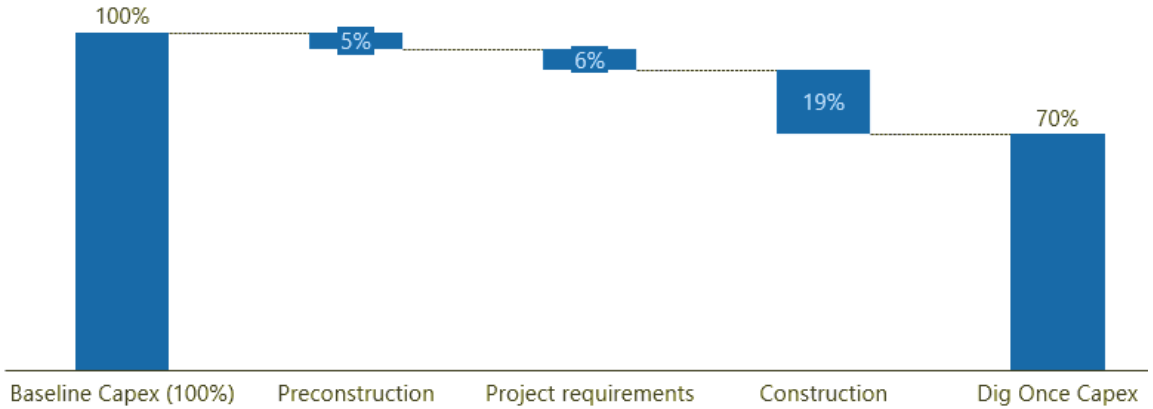


The art of Digging Once

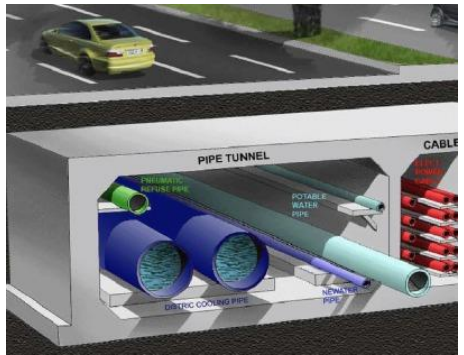
Dig Once to avoid additional construction costs and asset use disruptions

Benefits = Reduction in development costs
- Construction
- Project requirements
- Preconstruction

Costs = Underutilization + Extra risks



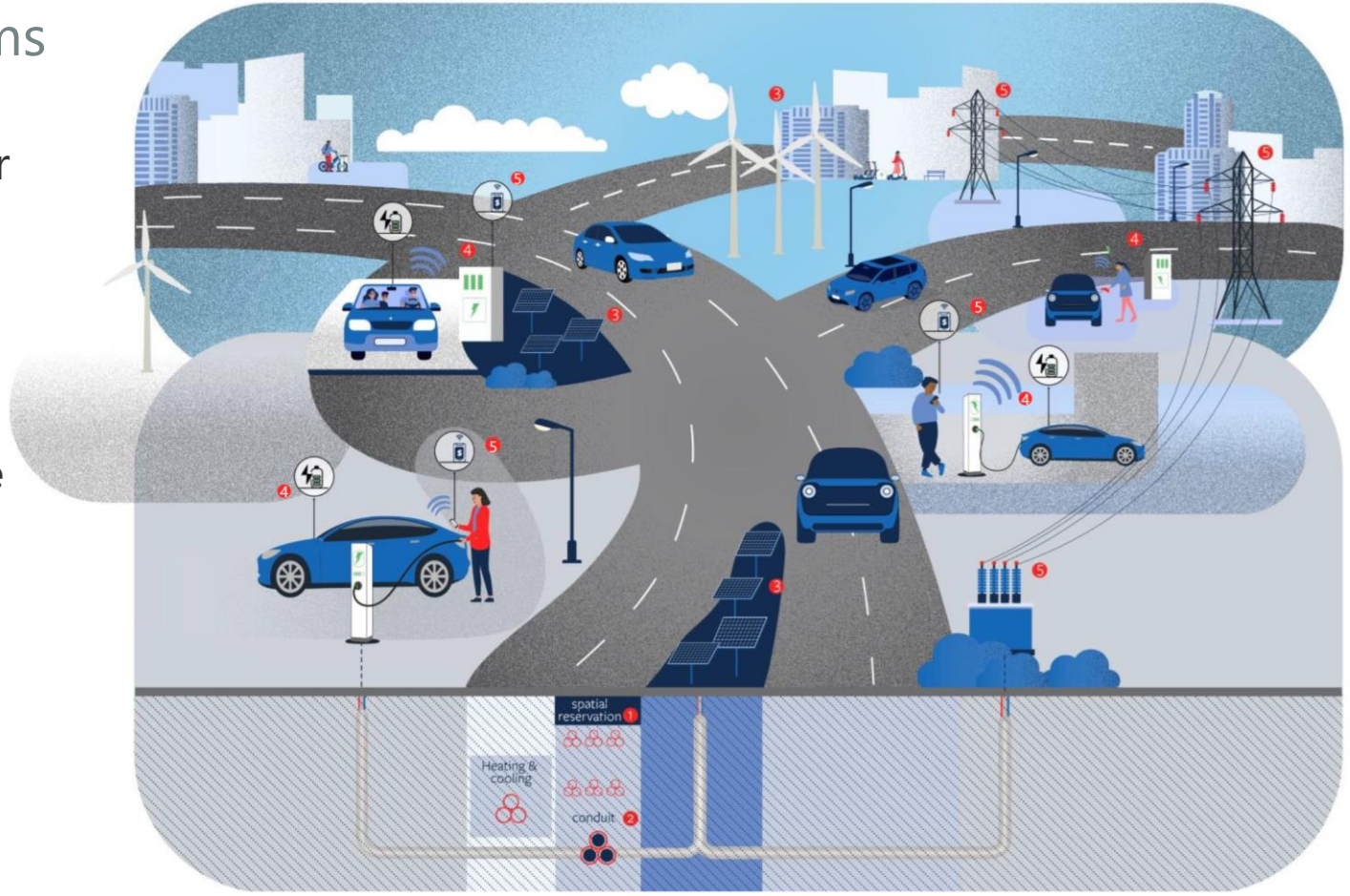
Breakdown of benefits gained from Dig Once | Source: A Blueprint for Transformative US Infrastructure, 2022)



Road transport decarbonization

Focus on integrating energy systems

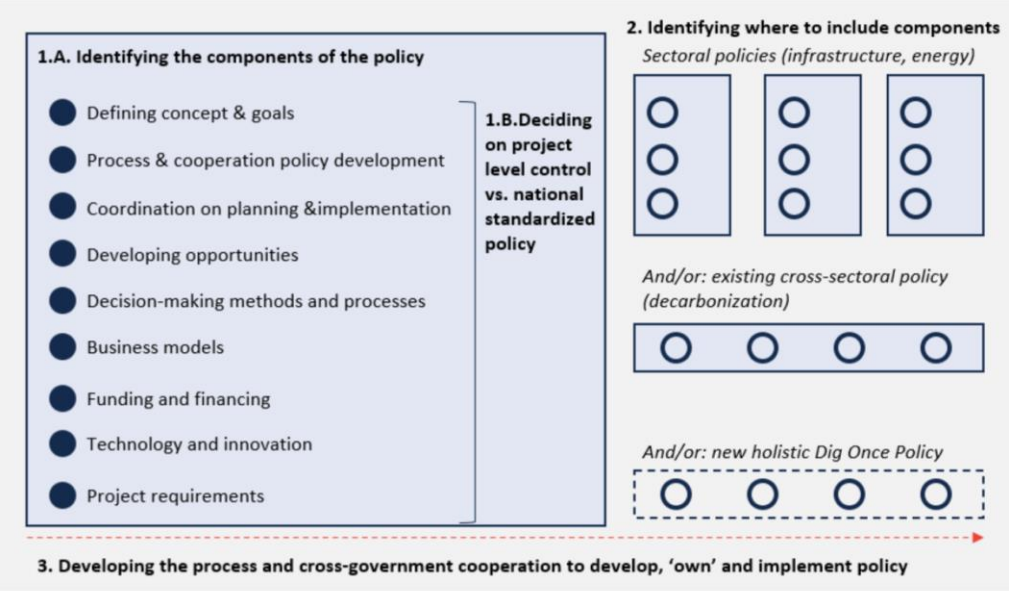
- Transport decarbonization elements for Dig Once:
  - Electric power and clean fuels transmission and distribution infrastructure;
  - Integration of EV charging into roadside infrastructure and service areas;
  - Grid connectivity as well as off-grid generation and feed-in e.g., from PV in and around the corridor right-of-way; and
  - Future innovations (e.g. roadside induction charging and/or induction charging integrated into 'main' road. infrastructure).



Road transport decarbonization

Toolkit for policy and implementation

- Dig Once for Transport Decarbonization **Toolkit**



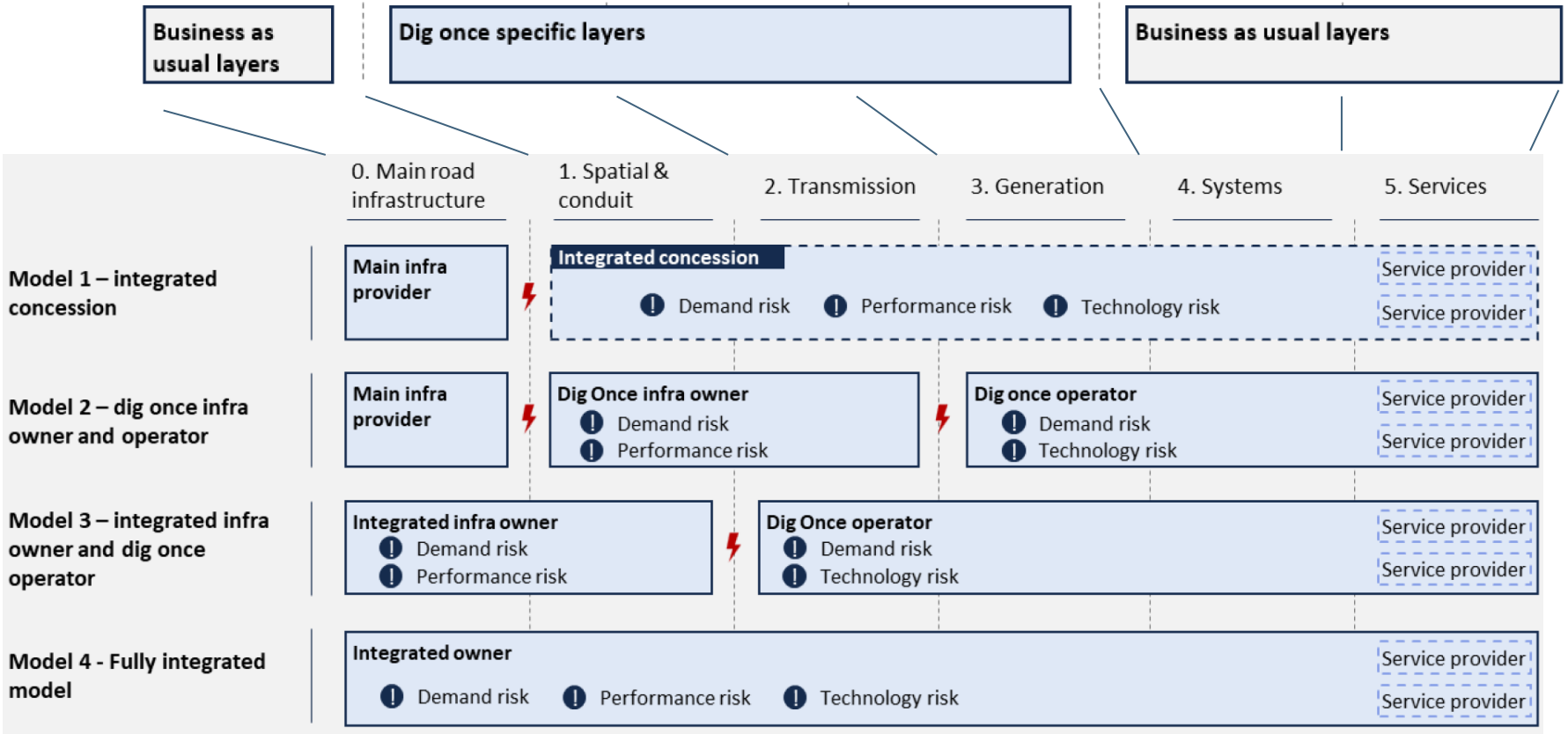
0 Main road infrastructure
1 Spatial reservation and conduit
2 Transmission cables
3 Generation
4 Systems layer
5 Services layer

Road transport decarbonization

Laying the pieces of the puzzle into a logical business model approach

- Different business models using different approaches to packaging 'layers' of the project:

Business models



A roadmap for Bangladesh

Developing policy, governance and regulatory context, capacity and (pilot) projects

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	Policy development	Institutional and governance development	Legal and regulatory development	Capacity development	Project developme
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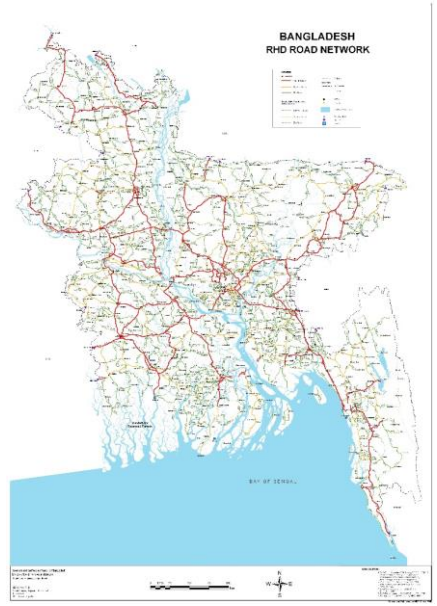

A roadmap for Bangladesh

Developing policy, governance and regulatory context, capacity and (pilot) projects

Getting set up

1

- ✓ Pilot project identification **by MRTB/RHD e.g. first motorway fast-charging centre**
- ✓ Outline of possible business models **by stakeholder group**

- ✓ Outline of possible procurement approaches **by RHD** and early market sounding of approaches

Learning and progressing

2

- ✓ Pilot project implementation of **first motorway fast-charging EV centre by RHD**
- ✓ First generation / low-hanging fruit Dig Once projects identification **by MRTB/RHD** and preparation of PPP structure (see previous section) accordingly: **e.g. integration of fast-charging and solar PV assets in multiple upcoming road projects**
- ✓ Project- and/or contract-specific task teams **by RHD**
- ✓ Clearly defined possible business models **by stakeholder group**
- ✓ Design of asset management system and processes for Dig Once-relevant projects and assets **by RHD**
- ✓ Design of best practice manual **by RHD**
- ✓ Design of possible procurement approaches **by stakeholder group**

Professionalized roll-out

3

- ✓ First generation / low-hanging fruit Dig Once projects (**e.g. integration of fast-charging and solar PV assets in multiple upcoming road projects**) implementation **by RHD**
- ✓ Dig Once full project program design **by stakeholder group**
- ✓ Implement (or expand) asset management system and processes for Dig Once-relevant projects and assets **by RHD**
- ✓ Implementation of best practice manual **by RHD**
- ✓ Projects include energy solutions for road infrastructure **by RHD**

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