Innovative Revenues for Infrastructure

Commercial Value Capture

The World Bank Group

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Abbreviations

AI	Artificial Intelligence
ATM	Automated Teller Machine
ACI	Airports Council International
B2B	Business to Business
BOT	Build, Operate and Transfer
CAG	Changi Airport Group
CAPEX	Capital Expenditures
CVC	Commercial Value Capture
DBFOT	Design Build Finance Operate Transfer
EAC	Energy Attribute Certificate
EIA	Environmental Impact Assessment
EV	Electric Vehicle
FAME	Faster Adoption and Manufacturing of Electric Vehicles
FSP	Floating Solar Photovoltaic
G2G	Government to Government
GHG	Greenhouse Gas
IoT	Internet of Things
IRI	Innovative Revenues for Infrastructure
JV	Joint Venture
KPI	key performance indicator
LED	Light-Emitting Diode
LSP	Logistics Service Providers
LRT	Light Rail Transit
LTA	Land Transport Authority
LVC	Land Value Capture
MRT	Mass Rapid Transit
MTRC	Hong Kong Mass Transit Railway
MWh	Megawatt Hour
MOF	Ministry of Finance
MOU	Memorandum of Understanding
NKTI	The National Kidney and Transplant Institute
NPV	Net Present Value
O&M	Operations and Maintenance
ODA	Official Development Assistance
PDA	Preservation and Development Authority
PV	Photovoltaic
PPP	Public Private Partnership
REC	Renewable Energy Certificates
RFP	Request for Proposal
SOE	State-Owned Enterprise
SMRT	SMRT Corporation
SPV	Special Purpose Vehicle
TCO	Total Cost of Ownership
TCH	Toronto Community Housing Corporation
USD	United States Dollar
WB	World Bank
WtE	Waste to Energy
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

Executive Summary

Increasingly, governments are looking for creative ways to pay for infrastructure, including through Land Value Capture (LVC) and Commercial Value Capture (CVC), as a means to go beyond the traditional "user pays' or "government pays' funding models. LVC has significant potential for providing alternative funding for infrastructure. The concepts surrounding, and implementation of, LVC is the subject of extensive analysis in the literature.[1] CVC is far less extensively considered, and therefore will be the primary focus of the Guidelines.

CVC can be a way for governments to increase revenues, to fund for example new projects, facility improvements, service expansion and/or improved asset maintenance, without increasing taxes or user fees. CVC revenues have, in many instances, proven to be successful in mobilizing additional funding for various infrastructure projects and help deliver better quality of public service.

Although CVC is most common and well-established in urban transit, it can be relevant for a number of sectors including but not limited to urban services, public housing, government offices, hospitals, schools, libraries, stadiums, street lighting, parking facilities, airports, telecom services, urban renewal projects, parks, wastewater treatment, solid waste treatment and conservation areas.

Governments play a critical role in maximizing CVC opportunities in infrastructure projects. By planning for spaces and places that create commercial opportunities and tapping into private sector expertise, governments will be in a far better position to explore and maximise the revenue generating potential of infrastructure. There is great value in engaging with the private sector in the early stages of project development, to get input on project design and assess CVC potential. Communities/stakeholders can play an active role in identifying and implementing CVC opportunities where they have the opportunity to voice their needs and have those needs incorporated in the project design.

Over-reliance on CVC revenues and excessive optimism in relation to demand increases over time can cause project delays or failures. For example, in some cases, projects rely heavily on CVC (in particular real estate driven) revenues. This can be a risky proposition, in particular where real estate values do not attain the levels expected, or where projected demand growth and improvements in footfall are not achieved. This drop in revenues, where CVC under-delivers, can undermine the financial viability of the project and lead to its failure. For this reason, thorough preparation of CVC is critical. These Guidelines will help mitigate these risks and deliver better CVC outcomes.

Opportunities for application of CVC are many. While such applications are increasing with time, this report showcases six, non-exhaustive, broad categories of CVC application: (i) commercial associated with core-services; (ii) commercial activities within the footprint of the infrastructure; (iii) asset and resource optimisation; (iv) leveraging green-house gas emissions reduction; (v) repurposing or adapting/reusing idle assets; and (vi) commercial activities outside of the footprint of the infrastructure . However, not all projects can or should mobilize CVC, a cost benefit analysis is critical to test whether CVC should be pursued, in each case. The cost benefit analysis is not just about commercial and financial viability, but should also consider legal and regulatory constraints to assess the extent to which CVC should be implementable.

In addition to the cost benefit analysis of possible CVC opportunities, a few key principles should be considered when assessing CVC potential:

- **Objectives** – Commercial revenues must never take the focus off infrastructure services. The provision of core services is the primary reason for investing in infrastructure development. Non-core services are meant to complement core services and improve the end-user experience. Project developers are easily distracted by non-core activities generating commercial revenues.

[1] World Bank, Finding Innovative Sources of Revenues for Infrastructure (2022), Financing Transit-Oriented Development with Land Value, Flood Protection and Land Value Creation (2015), Unlocking Land Values for Urban Infrastructure Finance (2021): International Experience (2013), The Municipal Public-Private Partnership Framework – Module 16: Harnessing Land Value Capture (2019)

- **Comprehensive planning** – Governments can apply a comprehensive planning approach that creates commercially-driven demand for integrated solutions by identifying the broader needs of users and beneficiaries within a community. Comprehensive planning looks at the infrastructure project in the context of other infrastructure sectors, local communities, national and local strategies and the dynamics of economic development. Through such models, CVC becomes a natural extension of community and national development, leveraging investments across the spectrum and providing commercial investment to further improve user experience and generate new cash flows to pay for infrastructure investments.

- **Impact on project design** – Increasing commercial activities may also increase infrastructure service requirements and the right balance must be achieved without compromising the service level of the core infrastructure, for example where retail services are to be delivered within the footprint of the infrastructure, this may result in higher footfall, more traffic, more need for parking, more restroom facilities, etc. These additional demands must be included in the design of the infrastructure, potentially increasing the footprint of the infrastructure. While this increase in demand creates something of virtuous circle, developers will need to be sure that space fo these additional services and financing for the increased infrastructure services are sufficient.

- **Demand-driven** – Similar to core services, the provision of CVC needs to be demand-driven. Like any other commercial investment, the design of CVC must follow consumer demand. CVC should not be designed based only on Government strategy or priorities only. There is always a risk when forecasting project fundamentals that demand will be exaggerated, undermining the sustainability of the project.

- **Ease of implementation** –CVC opportunities should enhance project implementation (e.g. improving user experience, providing better services for the community, creating job) by increasing buy-in from key stakeholders. While CVC is likely to increase project complexity (by adding additional scope of work to deliver), the developer should ideally avoid CVC making a project significantly more complex to the point that risk of failure of the project reaches unmanageable levels.
- **Co-benefits** –CVC can provide various co-benefits (economic growth, jobs, community development, climate mitigation, reduced subsidies), which should be encouraged. But these co-benefits may require additional investments and therefore cost more money. The project with CVC should be more financially viable than without CVC, even accounting for co-benefits.

Guidelines for applying CVC in infrastructure projects

Governments should consider CVC during early planning processes and later during the project preparation stage. Failure to engage early on CVC will limit opportunities and may undermine success of CVC opportunities. *The Guidelines for applying CVC in infrastructure projects* (henceforth referred to in this document as the 'Guidelines') have been designed to help and guide planning agencies and Project Owners in analysing key parameters to implement CVC across a portfolio of projects or for individual projects.

The Guidelines include six key steps as follows:

1. Identifying potential CVC for projects
2. Assessing readiness of enabling environment to support CVC
3. Conducting technical assessment of CVC
4. Assessing commercial feasibility of CVC
5. Planning for implementation of CVC
6. Assessing and mitigating CVC related risks

The Guidelines can be used in a flexible manner, to assess individual projects and for program-level assessment. The Guidelines may therefore be used differently by different parts of governments.

1 Introduction

The Guidelines are intended to be used by practitioners who are looking for innovative ways to address and reduce infrastructure funding gaps (and therefore fiscal contributions/liabilities), diversify revenue sources from user fees, and/or help build a better business case for infrastructure projects (commercial value capture or CVC). Such interested parties include:

1. Planning agencies
2. Ministries of Economy and Finance
3. Central agencies responsible for managing Public Private Partnership (PPP) programs or PPP Units
4. Project owner(s) ("Project Owner(s)") are defined for the purpose of this report as agencies or entities that have the right to develop and deliver public services including but not limited to:
    - Infrastructure line ministries or agencies (e.g. the Ministry of Transport, Department of Transport, etc.)
    - State-owned enterprises (SOEs)
    - Specialised agencies responsible for infrastructure development such as those responsible for asset recycling programs, or special economic zone development
    - Local governments
    - Private developers

The Guidelines aim to inspire governments and Project Owners to identify CVC opportunities, and to provide a framework to implement CVC opportunities. They are intended to be aspirational and operational rather than detailed and exhaustive. Governments and Project Owners are encouraged to be creative and develop solutions suitable to each country and project context.

Structure of the report

Section 1 provides a background to the report, its intended purpose, as well as the limitations of the report.

Section 2 introduces the reader to the context of and the need for CVC, the role and potential of CVC in closing the funding gap, the role of government in streamlining CVC, potential CVC opportunities in infrastructure projects, and core principles to consider when applying CVC in projects.

Section 3 provides practical guidance for implementing CVC at the program- and project-level, a roadmap to roll out CVC programmatically across a portfolio of projects and recommendations for including CVC as part of the pre-feasibility and feasibility study.

The report includes three Annexes to provide additional resources to help practitioners apply CVC.

- Annex 1 provides five generic Worked Examples which help demonstrate how The Guidelines can be applied to real-world projects. All Worked Examples presented in this report are hypothetically recreated solely for the purpose of demonstrating the concept of CVC.
- Annex 2 provides select case studies of CVC from international experiences (with references to additional publicly available case studies).
- Annex 3 provides references to external resources for municipal public private partnership projects.
- Annex 4 provides recommendations in drafting tors for pre-feasibility and feasibility studies.

2 Introduction to CVC

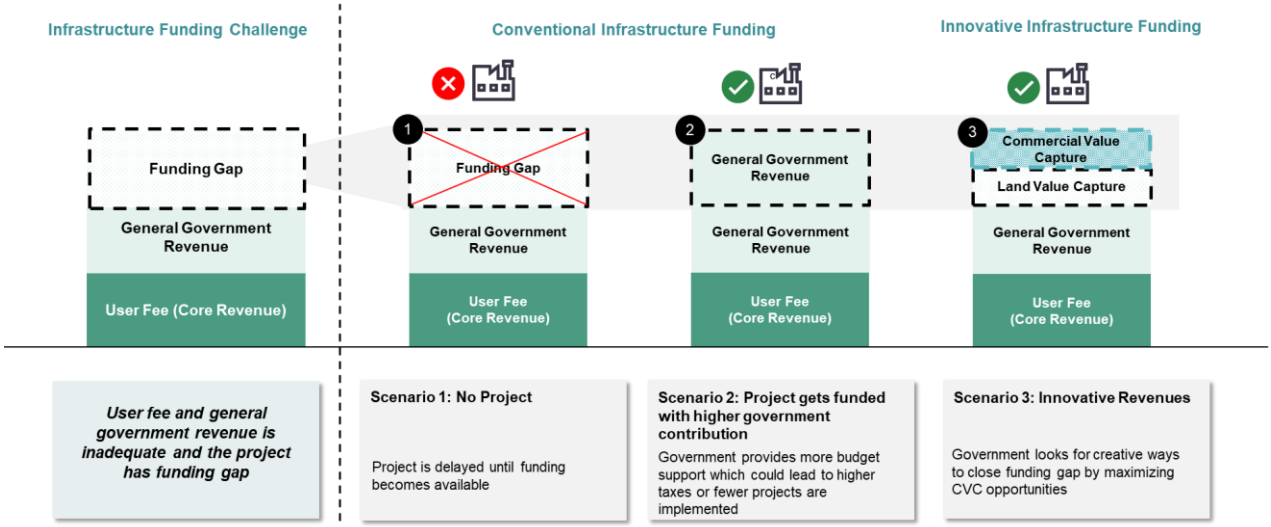
2.1 Maximizing revenue for funding infrastructure

Governments usually lay the burden of payments for infrastructure services on a narrow range of users with shortfalls funded by governments. Governments tend to look for revenues from infrastructure project users (e.g. water consumers, drivers, or light rail transit (LRT) passengers). If users cannot afford (or will not pay) tariffs or fees that are high enough to fund the infrastructure in question, the government makes up the difference through capital contributions for construction or availability payments during operations. This narrow focus misses various sources of funding (revenue) for infrastructure.

Conventional approaches to funding public infrastructure are not bringing in sufficient revenue. As illustrated in Figure 1, with tightening fiscal space in developing countries, revenues from user fees or tariffs (or core project revenue) and government funding (from general tax collection and other sources) are not sufficient to fund growing infrastructure gaps. Absent increased revenues, more infrastructure investment will require a larger allocation of Government budget (potentially funded by increased taxes and fees) and/or increased fiscal liabilities.

Alternatively, governments are looking for creative ways to pay for public infrastructure, including through Land Value Capture (LVC)[2] or Commercial Value Capture (CVC)[3]. LVC involves mobilizing some of the land value increases resulting from actions other than the landowner's, such as public investments in infrastructure or administrative changes in land use norms and regulations, for the benefit of the community at large. CVC involves mobilizing additional revenues through related commercial activities[4]. Box 1 notes the successful experience of Hong Kong metro, where CVC and LVC provide major contributions to funding public urban transport services.

Figure 1: Conventional vs. innovative infrastructure funding



[2] Module 16 – Harnessing Land Value Capture of the World Bank Municipal PPP Framework. https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/2020- 02/World%20Bank_Municipal%20PPP_Module%2017_Content.pdf

3 The concept of Commercial Value Capture was introduced in Module 17 – Capturing Commercial Value of the World Bank Municipal PPP Framework. https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/2020-02/World%20Bank_Municipal%20PPP_Module%2017_Content.pdf

[4] The concept of Commercial Value Capture was introduced in Module 17 – Capturing Commercial Value of the World Bank Municipal PPP Framework. https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/2020-02/World%20Bank_Municipal%20PPP_Module%2017_Content.pd

LVC has significant potential for providing alternative funding for infrastructure. The concepts surrounding and implementation of LVC is the subject of extensive analysis and literature.[5] CVC is far less extensively considered, and therefore will be the primary focus of the Guidelines.

While CVC offers an exciting opportunity for infrastructure development, commercial activities and the revenues associated with them are inherently risky. Project Owners need to be aware that optimism bias and over-reliance on commercial revenues can also result in project delays or failure. In case of Hyderabad metro (Box 2), heavy reliance on CVC revenues (real estate driven) in a public urban transport project led to financial challenges, projected demand growth and footfalls were not achieved and therefore CVC under-delivered.

Box 1: CVC successfully helped increase funding for mass transit in Hong Kong[6]

Case study: Hong Kong Mass Transit Railway

CVC contribution: The mass transit railway in Hong Kong is highly efficient without government subsidy. The Hong Kong Mass Transit Railway Corporation (MTRC), a government-owned corporation, is responsible for providing metro services. Real-estate development has provided an important contribution to MTRC's strong financial performance. MTRC purchases the development rights, for 50 years from the public administration, "to construct property above railway stations and depots, and land adjacent to the railway." Subsequently, the MTRC publicly tenders these development rights to private developers, with an additional land premium that takes into account the added value from the intended railway expansion. The private developers are responsible for the construction and commercialization of the residential and commercial properties that they develop. Revenues generated by the residential and commercial properties are shared between MTRC and the private developers.

Impact: MTRC is widely regarded as the gold standard for transit management worldwide. MTRC generated around USD 11 billion between 1998 – 2013. The project helped reduce the burden of public transportation investment on the Hong Kong government's fiscal position.

Challenges: The MTRC model is not easy to replicate due to unique characteristics of the city such as scarcity of land and very high traffic volume (4.5 million passengers per day).

Box 2: High reliance on commercial revenue and sharp drop in demand led to financial struggle for private urban transport operator[7]

Case study: Hyderabad Metro Rail

CVC contribution: The project was developed as a Design Build Finance Operate Transfer (DBFOT) public-private partnership (PPP) with a five-year construction period, 30-year operation period, and a 25-year potential extension. As part of the project agreement, the concessionaire had the right to develop 1.7 million square metres of land, such as the airspace above metro stations and terminals, integrating metro stations with intermodal transport connections and office, retail, and other services. In addition, 30% of the land at its three depots was allowed to be commercially developed. The commercial developments were to be used to generate rental revenue and not to be sold. 45% of project revenues were to be generated through these development activities, 5% from advertising and miscellaneous sources (e.g. parking), with the balance through passenger fares.

Impact: Using non-fare revenue sources from commercial development opportunities reduces reliance on public subsidies. The Hyderabad project received the award for the best urban mass transit project by the Indian Government in 2018 and improved transportation quality in the city.

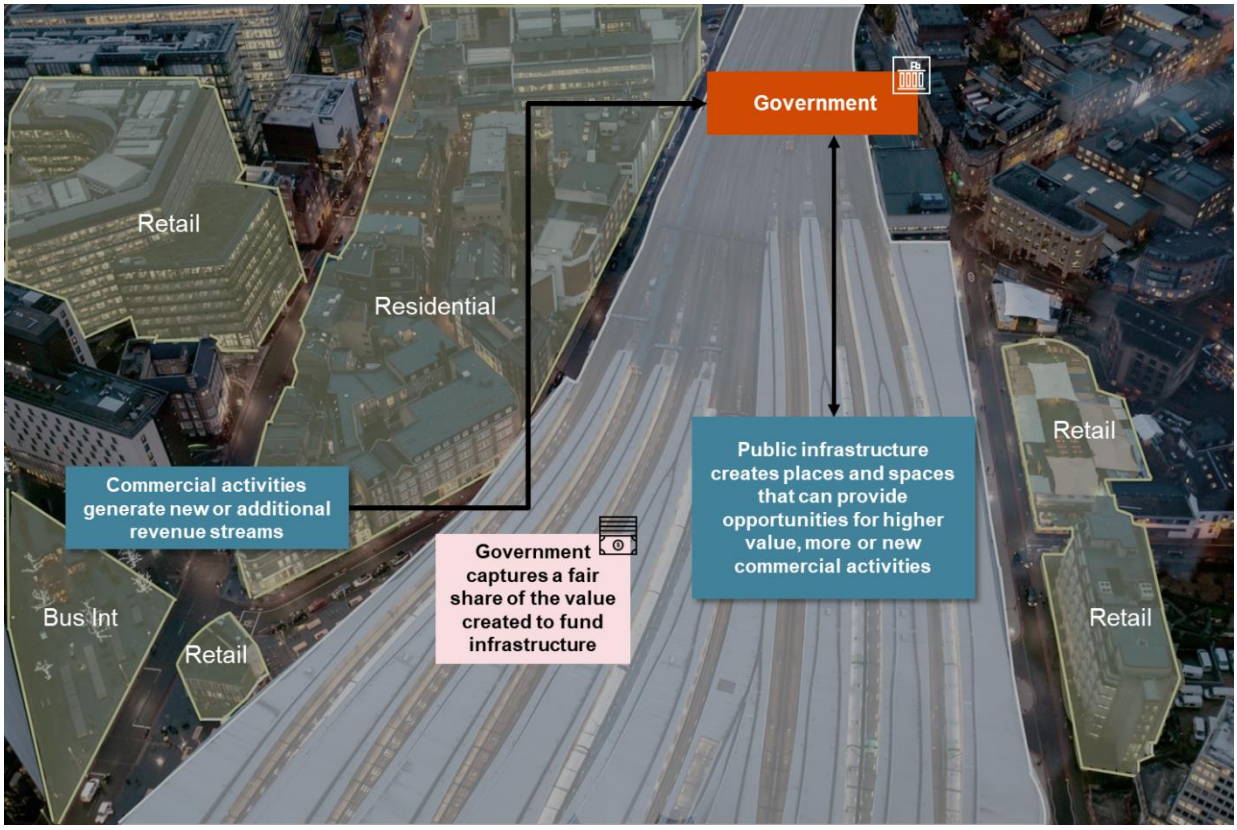
Challenges: Low ridership impacted on project revenue and the project company's ability to invest in commercial development as well as core services (planned transit network). Recently, the project has suffered huge losses due to low ridership, partly due to Covid-19, and received soft loans from the government to help reduce the debt burden. The government has also allowed the project company to monetize some of the land parcels handed over as part of the concession agreement to increase earnings.[8]

[5] World Bank, Finding Innovative Sources of Revenues for Infrastructure (2022), Financind Transit-Oriented Development with Land Value, Flood Protection and Land Value Creation (2015), Unlocking Land Values for Urban Infrastructure Finance (2021): International Experience (2013), The Municipal Public-Private Partnership Framework – Module 16: Harnessing Land Value Capture (2019)
[6] See Case 2. Hong Kong Mass Transit Railway Corporation, Hong Kong SAR, China from Project Summaries Part 1 Municipal Public-Private Partnership Framework.
[7] *Hyderabad Metro Rail* - Hyderabad Metro Rail - Improving Delivery Models. https://infrastructuredeliverymodels.gihub.org/case-studies/hyderabad-metro-rail/
[8] https://timesofindia.indiatimes.com/city/hyderabad/3k-cr-govt-loan-for-metro-to-recover-from-loss/articleshow/98192611.cms

2.2 What is Commercial Value Capture?

Public infrastructure often creates places and spaces that provide opportunities for more, higher value and new commercial activities that generate additional revenue. [9] Most often, it is the private sector that takes advantage of these opportunities and disproportionately profits from them. However, where government makes the investment that creates the places and spaces where commercial activities can occur, it should capture a fair share of the revenue created to fund the infrastructure that creates this value.

Figure 2: : CVC Concept



CVC can be a way for governments to increase revenues to fund facility improvements, expand services and/or asset maintenance without increasing fiscal liabilities or user fees. Governments can apply a comprehensive planning approach that creates commercially driven demand for integrated solutions by identifying the broader needs of users and beneficiaries as illustrated in Figure 3.

[9] Module 17 – Capturing Commercial Value of the World Bank Municipal PPP Framework. https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/2020- 02/World%20Bank_Municipal%20PPP_Module%2017_Content.pdf

Figure 3: Examples of commercial activities for an urban transit-oriented development project

CVC can provide financial and non-financial benefits to a project. While one of the main objectives of CVC is to help reduce the funding gap and improve financial viability of the project, CVC can also generate important non-financial benefits to the project. CVC can help address community needs by providing economic growth, jobs, diversification of commercial development, improved property values, and improved infrastructure user experience (which may increase demand). CVC can help revitalize a dilapidated neighbourhood, repurpose outdated cultural assets, and improve access to basic urban services such as low-income housing. It is important to take a comprehensive view of CVC and consider commercial, economic and social opportunities.

Although CVC is most common and well-established in urban transit (sometimes popularly known as 'transit-oriented development'), it is relevant for a number of sectors including urban services, public housing, government offices, hospitals, schools, libraries, stadiums, street lighting, parking facilities, airports, telecom services, urban renewal projects, parks, wastewater treatment, solid waste treatment and conservation areas. CVC opportunity is not confined to a specific sector but depends on project characteristics and the Project Owner's creativity in developing integrated solutions. For example, there are several CVC opportunities that can be considered in a wastewater project (See Worked Example 1 in Annex 1), such as sale of reclaimed water, sale of carbon credits, sale of biogas and electricity, sale of phosphorus as fertilisers, sale of biosolids as compost, etc.

Figure 4 shows some of the key sectors in which CVC can be adopted and Table 1 provides examples for reference. However, these are by no means an exhaustive list.

Figure 4: Sectors in which CVC can be adopted (non-exhaustive list)

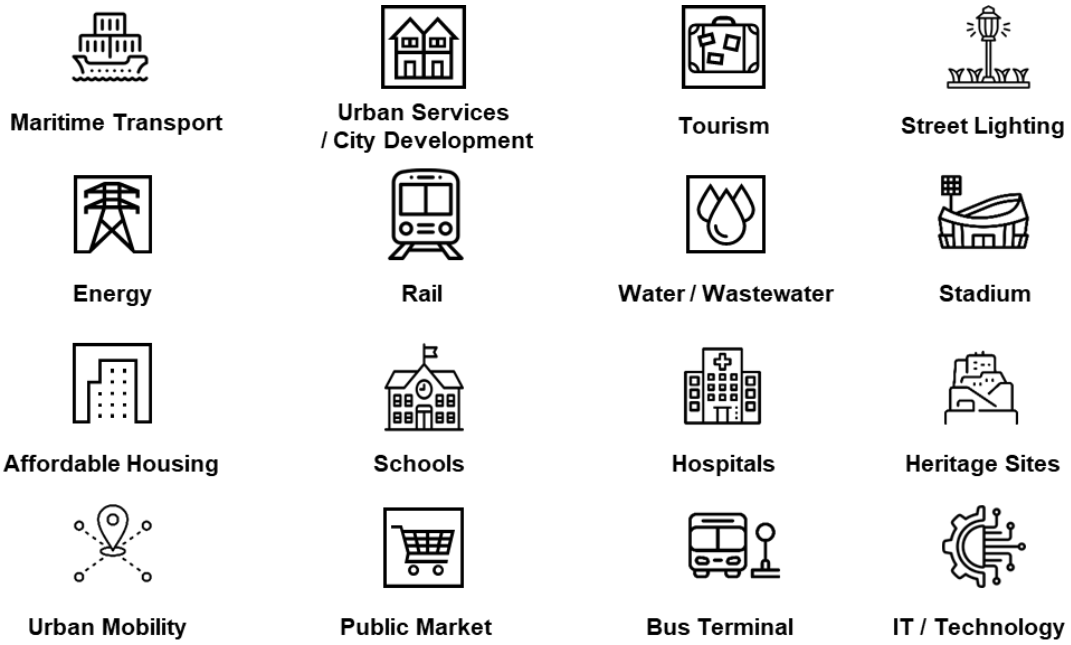


Table 1: Examples of projects in which CVC have been adopted for reference

Sector	Example	Source
Rail	Hong Kong Mass Transit Railway Corporation, Hong Kong SAR, China	Global Platform for Sustainable Cities https://www.thegpsc.org/content/hong-kong-mass-transit-railway-corporation-hong-kong-sar-china
School	Bundled Schools, Ireland	The Municipal Public-Private Partnership Framework - Project Summaries https://ppp.worldbank.org/public-private-partnership/library/municipal-public-private-partnership-framework-project-summaries
Hospital	Hemodialysis Center at the National Kidney and Transplant Institute, Quezon City, Manila, Philippines	The Municipal Public-Private Partnership Framework - Project Summaries https://ppp.worldbank.org/public-private-partnership/library/municipal-public-private-partnership-framework-project-summaries
Stadium	Sports Hub, Singapore	The Municipal Public-Private Partnership Framework - Project Summaries https://ppp.worldbank.org/public-private-partnership/library/municipal-public-private-partnership-framework-project-summaries
Affordable Housing	Regent Park Affordable Housing Project, Toronto, Canada	The Municipal Public-Private Partnership Framework - Project Summaries https://ppp.worldbank.org/public-private-partnership/library/municipal-public-private-partnership-framework-project-summaries
Street Lighting	Street Lighting Project, Nasik, Maharashtra, India	The Municipal Public-Private Partnership Framework - Project Summaries https://ppp.worldbank.org/public-private-partnership/library/municipal-public-private-partnership-framework-project-summaries

2.3 Role of governments

Governments play a critical role in maximizing CVC opportunities in public infrastructure projects. Government engages in planning, designs rights to be concessioned, provides financial support (subsidies and guarantees), provides regulatory approvals, and designs procurement processes which can allow and encourage innovative revenues through in-built procurement mechanisms (e.g. bid criteria and scoring).

By planning for spaces and places that create commercial opportunities and tap into private sector expertise, governments can be in a far better position to explore and maximise the revenue generating potential of the assets. Exploring innovative revenue generating sources (LVC, CVC etc.) is not a typical key performance indicator (KPI) of planning authorities, nor are these typical areas of expertise of line ministries/executing agencies and Project Owners. Governments often consider these additional revenue generating opportunities to be non-core activities, or worse to be relevant only to private investors and not something for consideration by government authorities. In doing so, these activities tend to be poorly or inadequately designed, unable to realise their full potential, with the likely revenue loss to both the private sector and the government. However, proactive planning for these commercial opportunities can mobilize more funding for infrastructure and deliver better economic advantages than from user fees (from core services) and government contributions alone.

Proactive planning will benefit from a good understanding of CVC amongst government and Project Owner staff, and institutional capacity for government oversight. Bringing together stakeholders, facilitating market sounding and cultivating knowledge exchange are all essential in developing a robust CVC framework.

Governments should ensure a conducive legal and regulatory framework to drive CVC initiatives. Some of the likely legal and regulatory issues that might impede such a framework include: lack of clear legal mandate of Project Owners to implement CVC, legal restrictions related to use of public land for commercial activities, and budgeting and fiscal rules limiting flexibility on management of CVC revenue. The institutional framework, for example the roles and mandates of various government entities, or program specific/project specific laws/ordinances, can empower Project Owners to take up more CVC or can significantly curtail opportunities.

The private sector (including professionally run state owned enterprises) is typically better placed to explore and deliver commercial activities, core as well as non-core, and especially in areas which converge around public infrastructure, like transport hubs, education hubs, healthcare hubs, innovation hubs, etc. The private sector is often engaged in later stages of the project cycle, e.g. at bidding stage (where private sector can include innovative revenues as part of their bids if incentivised or allowed to do so) or during operations stage. However, there is more value in engaging with the private sector in the earlier stages to get input on CVC potential in project design. Market feedback is critical to ensure demand for the identified CVC potential and to leverage the know-how and innovation of the private sector.

Communities/stakeholders can play an active role in identifying and implementing CVC opportunities. The roles of communities/stakeholders are traditionally limited to users of the infrastructure or persons affected by the infrastructure investment. For CVC, communities play an important role at the planning stage by voicing their needs to be incorporated in the project design or participating in providing commercial activities (shops and restaurants) in the project area. Communities and other stakeholders can also be a key source of demand (e.g. home buyers). Community feedback is critical to ensure demand for the identified potential CVC.

Box 3: Community played an integral role in creating commercial value from community-based tourism

To attract investment and ensure that tourism investment benefits local communities, protects natural resources, and fts with government strategy, PPPs can help create a clear agreement and partnership between the public and private sector with incentives in-built to protect investors, enable local staff and skill development, benefit local communities, and protect natural resources. The Jozini Tiger Lodge in South Africa is a partnership between the community, the government, and the private sector, which is responsible for the day-to-day management of the lodge. The community made land available and the government funded part of the initial working capital to ensure additional benefits for the local community, including a requirement that 80 percent of staff would be hired locally. Mobilization of community partnerships is key to rural tourism[10].

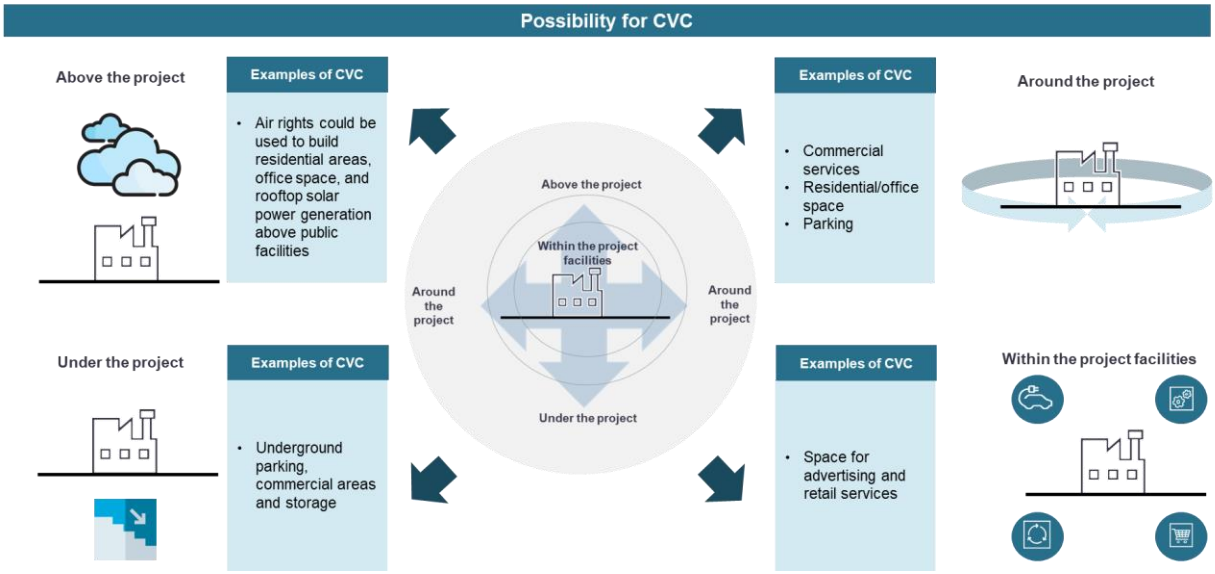
[10] See Case 62. Jozini Tiger Lodge, Jozini Municipality of KwaZulu-Natal, South Africa from Project Summaries Part 2 Municipal Public-Private Partnership Framework.

2.4 CVC opportunities in Infrastructure

Opportunities for innovative revenues and CVC are rich and diverse. This section will provide examples of CVC opportunities in infrastructure drawn from various resources such as the World Bank's Global Platform for Sustainable Cities[11], the World Bank's PPP Legal Resource Center[12], the Global Infrastructure Hub[13], local government websites, company websites, and case studies, as well as the Worked Examples in the Annexes of this report. This section will share insights and examples as to how governments should approach CVC. This section includes a broad but non-exhaustive set of CVC categories, to help the reader identify possible CVC models that might be relevant for a given project or portfolio of projects. It should be noted that not all of the examples and cases discussed and referenced here are successful cases, The Guidelines aim to provide a structured approach to apply success factors and lessons learned from other jurisdictions.

CVC arises under, above, around or within project facilities as shown in Figure 5. For example, air rights can be used to build residential areas, office space, and rooftop solar power generation above public facilities, under the project, may be opportunities for underground parking, commercial areas and storage, within project facilities may be space for advertising and retail services, around the project may be space for commercial services, residential/office space and parking. Project Owners and governments should be creative and open minded, to identify potential CVC opportunities, while being careful to identify risks, assess market demand, gathering market feedback and testing the viability of the CVC opportunity at program design and project feasibility stages.

Figure 5: Possibility for CVC



Source: World Bank[14]

The following section of this report showcases six non-exhaustive, broad categories of CVC. These categories include: (i) commercial associated with core-services; (ii) commercial activities within the footprint of the infrastructure; (iii) asset and resource optimisation; (iv) leveraging green-house gas emissions reductions; (v) repurposing or adapting/reusing idle assets; and (vi) commercial activities outside of the footprint of the infrastructure. For each category, a broad definition will be provided, followed by some examples and case studies. However, not all examples will be able to show similar potential for all similar projects and each opportunity needs to be understood through a detailed project

[11] https://www.thegpsc.org/
[12] https://ppp.worldbank.org/public-private-partnership/
[13] https://www.gihub.org/
[14] Module 17 – Capturing Commercial Value of the World Bank Municipal PPP Framework. https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/2020- 02/World%20Bank_Municipal%20PPP_Module%2017_Content.pdf

level assessment. Different examples may also require different supportive legal framework for the CVC opportunities to be implementable.

Commercial activities associated with core-services: Core services can be provided for commercial purpose with improved facilities and services. For example, a public hospital which has a strong reputation for medical staff and medical care can generate additional revenue by adding space for private clinics with shorter waiting time and improved facilities to attract middle- and high-income groups. This type of revenue, however, has to be carefully managed so that it will not adversely impact quality of core-services. Commercial services can help cross-subsidize services provided to serve public purpose. See Figure 6 for examples and case study.

Figure 6: CVC category - Commercial activities associated with core-services

Examples

- High or medium-income housing
- Medical tourists and high-end medical services (e.g., clinics, imaging, consultants, pharmacies, dentists)
- Boutique markets which also attract tourists
- High technology parking system

Case Studies

- A public hospital enters into a Joint Venture (JV) with a private partner to construct a new hospital which co-locates with the existing public hospital. The new hospital will focus on providing healthcare services to high-income patients with better facilities and shorter waiting time at higher medical fees. Additional revenue generated from the new hospital will help fund public services in the existing hospital .(See Worked Example 3 in Annex 1)

Commercial activities within the footprint of the infrastructure: The development of infrastructure asset creates public and virtual space that can be used for commercial purpose. See **Error! Reference source not found.** for examples and case studies.

Figure 7: CVC Category - Commercial activities within the footprint of the infrastructure

Examples

- Advertising and marketing, naming rights
- Retail and commercial services
- Residential and office space
- Parking (above and/or below ground)
- Hospitality and tourism (e.g. hotels, restaurants, cafes, catering)
- Vehicle services (e.g. petrol stations, garages, truck/bus parking)

Case Studies

- Advertising and marketing in Singapore MRT station contribute to high share of non-farebox revenue at over 40% of total revenue in Singapore (See Case 1 in Annex 2)
- Residential and commercial properties have been developed along railway line in Hong Kong. (See Project No.2 in Annex 3).
- Parking fees provide additional revenue for Transmilenio Bus Rapid Transit Project in Bogotá, Colombia. (See Project No.10 in Annex 3)

Asset and resource use optimisation: Commercial opportunities can arise from existing operational asset or resource which are underutilized or has untapped potential. See Figure 8 for examples and case studies.

Figure 8: CVC category - Asset and resource use optimisation

Examples

- Infrastructure sharing
- Using facilities during off-hours or off-seasons
- Installing rooftop solar solutions
- Leasing water for floating solar solutions
- Composting, methane capturing, recycling, rainwater collection
- Sale of reclaimed water

Case Studies

- A wastewater treatment plant project can find additional revenues from sale of reclaimed water (See Worked Example 1 in Annex 1)
- Renewable energy projects can provide governments with an additional source of revenue from leasing water bodies to developers for floating solar (See Case 10 in Annex 2)

Leveraging green-house gas emissions reduction: To meet global climate targets, infrastructure has an important role to play to contribute to emission reductions through adoption of green technology. Some of these efforts can deliver emissions reductions that generate carbon credits and an additional reveue stream for the project. See Figure 9 for examples and case studies.

Figure 9: CVC category - Leveraging green-house gas emissions reduction

Examples

- Adding renewable energy production in existing areas or buildings
- Energy efficiency in existing buildings
- Selling RECs
- Identifying cost-saving opportunities with energy efficient investments – refurbishments and upgrades
- Supporting EV ecosystems (eg EV charging stations, battery swap facilities)

Case Studies

- The Bhopal Smart City Development Corp. Ltd. (BSCDCL) awarded a PPP project to a developer to install smart poles across the city which will work as, among others, energy-efficient and remotely controllable LED streetlights, surveillance cameras, environmental sensors, Wi-Fi hotspots services, and electric vehicle charging points.
- A wastewater treatment plant project sells carbon credits from methane capture (See Worked Example 1 in Annex 1).

Repurposing or adapting/reusing idle assets: Some public assets can lie idle in city centre or areas with high economic value due to outdated use or lack of funding for renovation of the facilities. These assets can be repurposed or adapted for commercial use to respond to changing environments. See Figure 10 for examples and case studies.

Figure 10: CVC category - Repurposing or adapting/reusing idle assets

Examples

- Developing residential areas from historical sites, abandoned neighbourhood or idle assets
- Redeveloping waterfronts
- Commercial redevelopment of old buildings

Case Studies

- To refurbish the library and fire station, Washington D.C. awarded the bid to private partner by leveraging adjacent, privately controlled parcels along with the District-owned parcels, to deliver a new fire station and library, residential condominiums, retail space, and residential rental units affordable to households earning at or below median income on the fire station site. (See Project No. 73 in Annex 3)
- The municipal authority in Turkey granted a PPP to private developer to restore the Akaretler Row Houses, a cultural and historic structure in Istanbul. The PPP includes refurbishing and maintaining historical and cultural assets, while diversifying revenue streams from spaces above and around the historic site, such as office buildings, retail spaces, hotels, residential units and parking areas. (See Project No. 56 in Annex 3)

Commercial activities outside of the footprint of the infrastructure : CVC opportunities may be located some distance from the project footprint, for example where the activity requires too much land to be located near the project, where the CVC activity would be too loud or polluting, or where land is only available far from the project footprint.. See Figure 11 for examples and case studies.

Figure 11: CVC category - commercial activities outside of the footprint of the infrastructure

Examples

- Developing innovative districts to increase competitiveness
- Co-develop nearby land for commercial purposes
- Logistics facilities (e.g. cargo handling, warehousing), chillers, dry ports)

Case Studies

- Jurong Innovation District (JID), Singapore's first 600-hectare innovation hub, was built to spur innovation in areas such as robotics, advanced manufacturing, urban solutions, clean technologies, and intelligent logistics. (See Case 7 in Annex 2)
- To provide additional revenue to a private party to develop affordable housing, the local government provides additional land parcels as part of the contract for the private developer to generate revenue from retail and office space. (See Worked Example 4 in Annex 1)

2.5 Core principles for application of CVC in projects

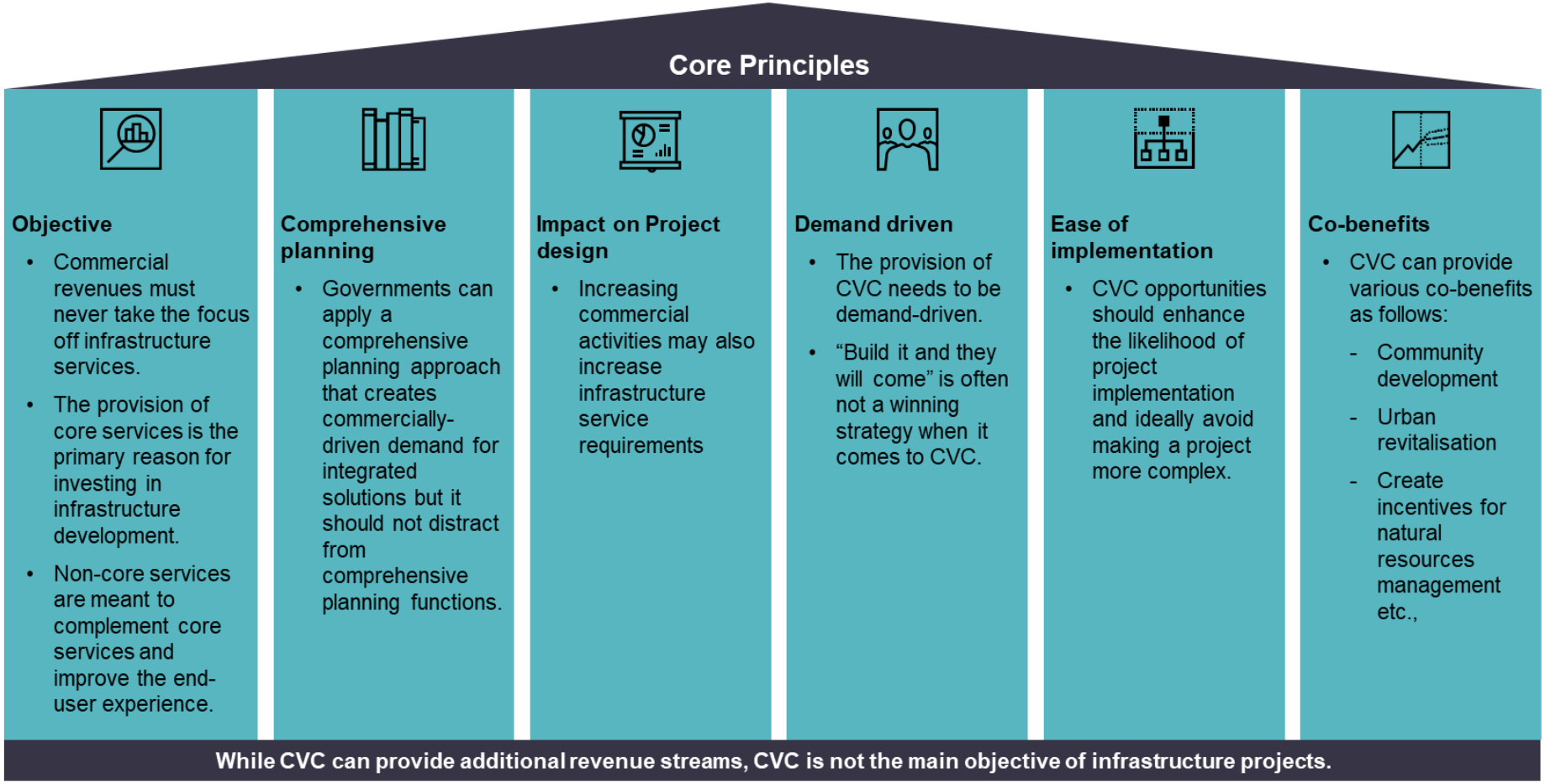
CVC is tricky, it can provide additional revenue streams, create new opportunities, economic development, jobs, but Project Owners must not lose perspective, CVC is not the main objective of an infrastructure project. To maintain balance, to improve the likelihood of success of the project and the CVC, Government should focus on the following core principles when incorporating CVC into a project:

- **Objectives** – Commercial revenues must never take the focus off infrastructure services[15]. The provision of core services is the primary reason for investing in infrastructure development. Non-core services are meant to complement core services and improve the end-user experience.
- **Comprehensive planning** – Governments should apply a comprehensive planning approach that creates commercially-driven demand for integrated solutions by identifying the broader needs of users and beneficiaries. CVC should not distract from comprehensive planning functions.
- **Impact on project design** – CVC may also increase infrastructure service requirements, for example parking facilities for a bus terminal may need to be expanded where CVC brings more patrons requiring more parking. The right balance must be achieved without compromising the service level of the core infrastructure.
- **Demand-driven** – Similar to core services, the provision of CVC needs to be demand-driven. "Build it and they will come" is often not a winning strategy when it comes to CVC. For example, providing for specialist medical services in a bus terminal may not reflect consumer demand, where specialist medical services may be best located near hospitals, clinics or other general healthcare facilities.
- **Ease of implementation** – CVC opportunities should enhance the likelihood of project implementation and ideally avoid making a project significantly more complex. For example, selling Renewable Energy Certificates (RECs) [16] can provide additional revenue. However, if REC certification is not available in the country, selling RECs can be too complicated or costly to implement.
- **Co-benefits** – In addition to providing additional revenue streams for infrastructure and reducing the need to increase taxes and fees, CVC can provide various co-benefits such as economic growth, jobs, reduced subsidies, community development, urban revitalisation, incentives for natural resource management, cultural heritage protection and climate improvements. Co-benefits should be considered as a core advantage of CVC and designed into the project indicators.

[15] Module 17 – Capturing Commercial Value of the World Bank Municipal PPP Framework. https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/2020- 02/World%20Bank_Municipal%20PPP_Module%2017_Content.pdf

[16] REC is a type of Energy Attribute Certificate (EAC) that represents the environmental attributes of the generation of a one-megawatt hour (MWh) of energy produced by renewable sources, according to the International REC Standard.

Figure 12: Core principles for application of CVC in projects



3 Guidelines for applying CVC in infrastructure projects

Governments should consider possible innovative funding opportunities during early planning processes (at program and project level) and project preparation stage (at the Pre-Feasibility Study or Outline Business Case stage), to make sure that planning does not unnecessarily limit, or fail to identify and capture CVC opportunities.

When making an early stage CVC assessment, a number of practical questions need to be raised on a preliminary basis to identify key demand, risk and challenges, and to avoid over-optimism. The Hyderabad Metro PPP project in India (more on this case in Box 2) is an example of a project that suffered from optimism biases, assuming more advantages from CVC than the project can deliver.

While early CVC assessment improves likelihood of success and value of CVC revenues, in practice, projects may require just-in-time design leaving little time for early CVC assessment. CVC may need to be incorporated in a project at different stages of project preparation or even during implementation. The timing for integrating CVC into a project can thus vary based on specific circumstances of each project.

Three potential scenarios for incorporating CVC are:

- **Scenario 1**: Early consideration of CVC in project planning and design.

  CVC opportunities can be identified at project planning and design stage. This scenario is ideal as CVC can be optimized at early design stage and the Project Owner has the flexibility to structure the contract that fits best with the project's characteristics and in a way that ensures effective coordination amongst project contracts.

- **Scenario 2**: Including CVC opportunities during the PPP process.

  In some cases, CVC opportunities might be identified after the concessionaire for the core service has been selected or when a PPP contract for core service has already been signed and the project is already under implementation, or may be proposed by a bidder where the Project Owner had not contemplated CVC. While not the most efficient manner to add CVC, this approach is often the most practical. The parties will need to amend the project contracts to allow for the CVC, regulate its delivery and share revenues.

- **Scenario 3**: Reverse engineering CVC into an existing project

  In some cases, the Project Owner may realize the potential for CVC opportunities after project works have already been completed. In such case, CVC can be incorporated in the project by reverse engineering CVC into the existing project design. This scenario will be easier if the identified CVC opportunity does not require major change to existing project design. As above, the parties will need to amend the project contract, regulate its delivery and share revenues.

Consideration should be given to whether to include commercial activities and core services in a single contract or separating them into two (or more) contracts. Having two operators in one project can benefit the Project Owner if the operator responsible for core services has strong technical expertise but limited experiences with commercial activities. A second operator would manage commercial activities under a CVC contract. However, this scenario can lead to lack of coordination or competing interests if the contractual terms for both contracts are not fully aligned. See Box 4 for an example where CVC is tendered as a separate contract from the contract of the core service operator.

Box 4: CVC contract is issued separately from core service

Background: Rest areas are an essential part of any Intercity Motorway. They are designed to enhance the convenience of motorway users, increase road safety, and provide employment and revenue generating opportunities for businesses, such as retail and food and beverage (F&B), which can benefit from a steady flow of demand from the traffic on the motorway.

Structuring of CVC in the project: The feasibility study report for the motorway was first conducted in 2003, during which opportunities for commercial rest areas were identified. The motorway was constructed with plots of land specifically allocated for future rest areas. The operation and maintenance of the motorway was tendered out as a PPP contract, the bidder with expertise in transport system operation was selected and a PPP contract signed during 2020-2021. At around the same time the PPP for core services was being prepared and tendered, the Project Owner conducted a separate feasibility study for the rest area component. The PPP for the rest area component is structured as a separate contract and expected to be tendered in 2024. The selection criteria for the rest area operator puts emphasis on commercial expertise.

Source: Department of Highways, Thailand[17]

The Guidelines for applying CVC in infrastructure projects (the 'Guidelines') have been designed to help planning agencies/MOF/PPP Unit and Project Owners to consider CVC across portfolio of projects or in individual projects.

Objectives: The Guidelines provide governments (national, regional and local) an approach to identify, consider and analyse potential CVC opportunities in infrastructure projects. The Guidelines intend to help answer simple questions:

1. Are CVC opportunities allowed to be included in the project? What would need to change to allow CVC?
2. Which CVC opportunities are potentially relevant?
3. How can CVC opportunities be included in the project?
4. Of those CVC opportunities, which are most technically, commercially and politically viable?
5. Is it commercially sensible to include CVC opportunities in the project? Would the benefit from CVC opportunities outweigh the cost?

How to use The Guidelines: The Guidelines include six key steps as shown in Figure 13 and each step is discussed in further details in the following section. These steps include:

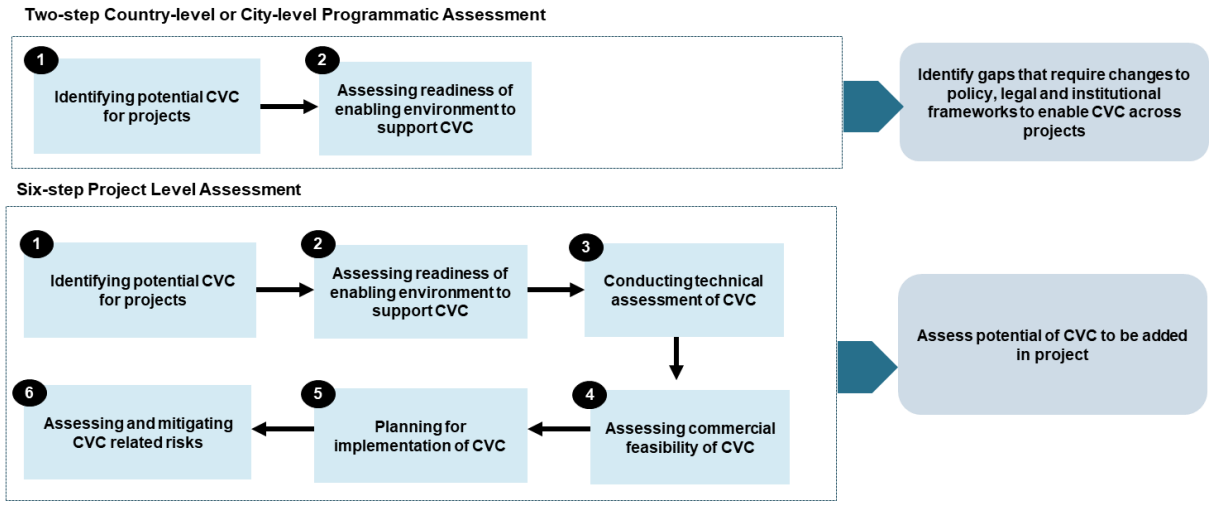
i. Identify potential CVC
ii. Assess readiness of enabling environment to support CVC
iii. Conduct technical assessment of CVC
iv. Assessing commercial feasibility of CVC
v. Planning for implementation of CVC
vi. Assessing and mitigating CVC related risks

The Guidelines can be used in a **flexible manner** as different parts of governments may have a different focus on CVC, for example:

[17] https://www.motorway-m6.com/en/%E0%B9%80%E0%B8%81%E0%B8%B5%E0%B9%88%E0%B8%A2%E0%B8%A7%E0%B8%81%E0%B8%B1%E0%B8%9A%E0%B9%82%E0%B8%84%E0%B8%A3%E0%B8%87%E0%B8%81%E0%B8%B2%E0%B8%A3
https://www.doh-motorway.com/wp-content/uploads/2021/07/PBK_BKX_MS_Present_071121.pdf

- For project-level assessment, if a Project Owner conducts step 1 and step 2 of the Guidelines and assesses that policy, legal and institutional preparedness suffers from specific short-comings, reforms to address those short-coming will need to be coordinated with project and CVC implementation, for example
    - short-comings may require the Project Owner to change the design of the CVC, possibly removing an element or changing its functionality;
    - other shortcomings are easier to resolve in a timely manner or are so fundamental to the project that they need to be resolved for the CVC to move forward. The Project Owner can resolve these shortcomings while the project is prepared. There is of course a risk that a delay in resolving the shortcomings might derail the CVC or the entire project. This risk of delay will need to be addressed in the CVC design and implementation;
    - Some short-comings are so fundamental and difficult that the whole CVC effort needs to be cancelled entirely or until the short-coming is resolved.
- Where the Guidelines are applied for project-level assessment, the Guidelines should help Project Owners answer two fundamental questions in a lucid manner:
    - Does CVC have **net commercial benefits**, and so maximise potential revenues from the project?
    - And if so, is the CVC mechanism potentially **implementable**?
- The Worked Examples in Annex 1 demonstrate how the Guidelines can be applied at the project level.
- The Guidelines are not a substitute for a detailed feasibility study and are best used to supplement the full feasibility study.
- The Guidelines only cover up to project preparation stage and do not include guidance on the bidding and implementation stages.

Figure 13: Six-step process to consider CVC in infrastructure projects



3.1 Identifying potential CVC for projects

CVC opportunities should be demand-driven and meet the wider needs of beneficiaries and stakeholders of the project. To identify potential CVC for projects, governments and Project Owners should consider linkages with core-services, mapping beneficiaries and stakeholder needs and analysing project characteristics with innovative thinking. A similar approach can be used to identify projects with high CVC potential for a program-level assessment.

1) **Conduct a beneficiary and stakeholder need mapping exercise** to comprehensively identify the needs of users and beneficiaries within the community that create commercially driven demand for integrated solutions. See Table 2.

Table 2: Example of how to identify CVC for an urban transit project based on beneficiary and stakeholder needs mapping exercise

Groups	Description	Needs	Commercial revenue opportunities
Users	Commuters who use the transit system	Improved connectivity, shorter travel time	Fare revenue
		Enhanced travellers' comfort and better user experience	Retail, banking, parking, transportation fee, leisure, entertainment, food and beverages
Beneficiaries	Residents living around the stations	Access to facilities and amenities	Retail, banking, leisure, entertainment, food and beverages, convenience store
Stakeholders	Residents in other areas wishing to move to the station areas with improved connectivity	Housing, office space	Residential, office space
	Corporations who want to reach target customers to advertise their products	Access to high-footfall traffic areas	Advertising, marketing

2) **Analyse project characteristics with innovative thinking** to identify the untapped commercial demand of the project. See Table 3.

Table 3: Example of how to analyse project characteristics to identify CVC opportunities (non-exhaustive list)

Project Characteristics	CVC Opportunities	Examples
Site or location	• Site or location of the project will impact CVC potential. E.g. the opportunity to include residential development will depend on the project's proximity to transport, job sources and general amenities. The opportunity for infrastructure sharing will depend on the proximity with other facilities which have demand for services in nearby areas.	• High footfall areas near to public transit are perfect locations to promote a product, service, or cause and are effective customer touchpoints for brands. SMRT Corporation Ltd. (SMRT), which is wholly owned by the Singaporean government, operates train, bus, taxi and private hire vehicle services. SMRT established a subsidiary company named Stellar Ace especially for managing advertising and marketing businesses. Stellar Ace leveraged the SMRT transportation network as prime location for advertising and marketing with over 240 million annual passengers which generated almost 5% of SMRT's total revenue.[18]

[18] World Bank, Finding innovative Sources of Revenues for Infrastructure, November 2022.

Project Characteristics	CVC Opportunities	Examples
Traffic/demand assessment	• One of the key advantages of public infrastructure is the volume of traffic (from users, staff, visitors, stakeholders) which offers strong commercial demand • Consider the number of users and staff working in the project facilities to assess the market size and commercial demand.	• The Norhtwestern Memorial Hospital (NHM) in Chicago is situated in a vibrant neighbourhood with nearly 67,000 residents. With high potential for retail businesses, NHM decided to incorporate retail space in its campus area focused on serving its patients, visitors, hospital employees and local neighbourhoods which generated around 5.6% of NHM's total revenue in 2021.[19]
Competitors	• The level of competition will impact the commercial potential of the project. E.g. a TOD concept needs to be done selectively and cannot be realistically considered for all stations • Demand and competitor assessment needs to be conducted to realistically assess market potential.	• Traffic at the Amritsar Bus Terminal, which served 1,800 to 2,000 bus arrivals per day, far exceeded the capacity of the available facilities and the existing terminal building was in poor condition. To address this problem, the Department of Transportation (DoT) of the Government of Punjab (GoP) decided to expand the Amritsar terminal using a PPP scheme. The project was awarded to a private operator. RRI's revenue comes from tariffs paid by buses for use of the terminal, commercial leases for shops, advertising, and parking fees. The contracting authority agreed not to develop any similar facilities within a 10-km radius during the concession period, to ensure there would be no competition that might hinder the private operator's effort to achieve the forecasted demand for the terminal. However, the project still faced problems as there is no monitoring or enforcement mechanism to ensure that all buses comply with non-compete clause.[20]
Technical characteristics or technology	• The demand profile (peak vs. off-peak, seasonality), capacity utilisation, by-product and technological innovation can be a source of commercial opportunity.	• Wembley Stadium is regularly used for English football games, including the FA Cup. However, during the off-season, the space hosts concerts and events of big entertainment acts that draw a high number of visitors from overseas who tend to extend their stay in England resulting in higher tourist spending associated with these events.[21]
Drive for efficiency and cost saving	• CVC opportunities can arise from the Project Owner's drive for efficiency and cost saving opportunities, for example, energy efficiency investments and infrastructure sharing.	• In the telecommunication industry, the rapid deployment and changes to technology can quickly render old telecommunication infrastructure obsolete and operators are required to spend a large amount of capital to build new infrastructure. National Telecom (NT) a state-owned company in Thailand can effectively reduce their cost of tower operations by up to 40% and create sustainable revenue streams by sharing their towers, submarine cables and fibre lines with three major mobile operators.[22]

[19] World Bank, Finding innovative Sources of Revenues for Infrastructure, November 2022.
cture: Retail in Northwestern Hospital, Chicago from Finding Innovative Sources of Revenues for Infrastructure in Annex 2.
[20]See Case 2. Challenging Case: Amritsar Intercity Bus Terminal, India from Project Summaries Part 1 Municipal Public-Private Partnership Framework.
[21] See Case 13 Usage of facilities during off-hours or off-seasons: Events in Wembley Stadium, UK from Finding Innovative Sources of Revenues for Infrastructure in Annex 2.
[22] See Case 8 Infrastructure sharing: Telecom infrastructure sharing in Thailand, Thailand from Finding Innovative Sources of Revenues for Infrastructure in Annex 2.

Project Characteristics	CVC Opportunities	Examples
Green infrastructure	• The Project Owner's vision to have green infrastructure assets and operations can also lead to CVC opportunities, for example: installation of renewable power for the site, revenue created from recycling or composting that achieves zero-waste and circular economy aspirations.	• EV production costs have been dropping over the past years along with a shift in demand for EV. The Government of India supports the EV industry through the Faster Adoption and Manufacturing of Electric Vehicles (FAME) policies which support the EV manufacturing and charging industry with financial and operational incentives. Tata power has signed an MOU with Ahmedabad Municipal Corporation under FAME to develop 5,000 EV charging point across Maharashtra City powered by renewable energy sources and the state will earn concession fees and lease payments in return.[23]
Branding and marketing	• Public infrastructure assets can be an iconic image (e.g., landmark train stations) which can create commercial value, for example, by offering naming rights and opportunities for positive brand association.	• In a similar way that advertising and marketing leverages high footfall areas, naming rights can leverage a city's or location's iconic image to connect with consumers. The Roads and Transport Authority (RTA) of Dubai has sold the naming rights packages of 23 out of 53 metro station which has generated additional revenue to RTA of around USD 545 million.[24]
Virtual spaces	• Infrastructure assets can create both physical and virtual spaces. Virtual spaces can be a source of CVC, for example, if the infrastructure assets are operated on a virtual platform. A virtual space can provide opportunities for eCommerce and advertising revenue.	• Changi Airport is a crucial component of Singapore government's strategy to become a regional commercial hub. Changi Airport is operated by Changi Airport Group (CAG) which is wholly-owned by the Singapore government. They have upgraded the existing infrastructure to accommodate non-travel services such as retail and restaurants to expand its base to non-travellers. The opening of Jewel, with its array of shops, restaurants, best-in class attractions and lush verdant landscaping, in April 2019 created a new revenue stream for the Group and was a key driver for the increase in CAG's revenue. When the pandemic hit in early 2020, the business turned its focus to the non-travelling domestic market. Tax and duty-free items such as wines and spirits are now available to non-travellers through iShopChangi, the airport's e-commerce platform, with over 40% off regular prices all year round. This product category has been popular among local consumers.[25]
Destination creation	• As the government strives to improve its competitiveness, its vision to create destinations in addition to providing public services can allow various innovative opportunities, for example, innovation districts or themed city developments	• Value creation in the control of real-estate development rights can be well illustrated by the development of innovation districts in Singapore. Jurong Innovation District (JID) is the first 600-hectare innovation hub that transformed a brownfield area of old industrial and low-productivity warehouse into a lively industrial park aimed at catalysing innovation. In 2020, JID generated around SDG 2.3 billion in rental income from land and buildings which flowed back to the Singaporean government as JID was one of the subsidiaries and wholly owned by the Singaporean state holding company.[26]
Using available and idle spaces	• Commercial opportunities can arise from making use of available and idle spaces especially in land-scarce urban areas.	• Increased volumes of online purchases and deliveries through e-commerce platforms have led to a higher number of delivery vehicles on the roads to residential areas. Courier hubs, which aim to enhance last-mile business-to-consumer delivery operations, and a nationwide parcel locker network are simple ideas for utilizing available and idle spaces such as residential car

[23] See Case 12 Leveraging climate opportunities: EV charging infrastructure, India from Finding Innovative Sources of Revenues for Infrastructure in Annex 2.
[24] See Case 3 Naming rights in stations and city icons, Dubai, United Arab Emirates from Finding innovative Sources of Revenues for Infrastructure in Annex 2.
[25] See Case 4 Commercial uses of physical places and virtual spaces created on the back of public infrastructure: Changi Airport, Singapore from Finding innovative Sources of Revenues for Infrastructure in Annex 2.
[26] See Case 7 Control of real estate development rights to enhance value: Jurong innovation district, Singapore in Annex 2.

Project Characteristics	CVC Opportunities	Examples
		parks which are usually empty during the day. Additional revenue from renting out these spaces to the logistics service providers demonstrate a low-hanging opportunity for commercial activities that can generate revenue for operations and maintenance of public housing buildings.[27]
Land	• The government can create commercial value from land and water, for example, leasing water for floating solar. • Consider CVC opportunities in unused or deserted land with no competing uses or existing assets with untapped potential.	• Floating solar photovoltaic (FPV) installations offer new opportunities for scaling up solar generating capacity, especially in countries with high population density and competing uses for available land. The Sembcorp Tengeh floating solar farm is a 60MW floating solar installed at Tengeh reservoir, Singapore in 2021 - one of the largest inland floating solar projects. Installing solar PV systems in the reservoir optimizes land use while enabling the Singaporean government to generate funding from leasing out spaces to developers.[28]
Network of assets	• The public sector has a large network of small and medium-scale assets and commercial opportunities. These infrastructure assets (e.g. waste sorting sites, public housing units, postal hubs) could be aggregated to achieve economies of scale and increase commercial potential.	• The Economic Development Board of Singapore's SolarNova program demonstrated how to aggregate demand by bringing together various government agencies. Under the program, the private developer won the tender to install more than 170,000 solar panels on the rooftops of more than 1,200 Housing and Development Board (HDB) blocks and 49 government sites. The government effectively aggregated public sector solar demand for private sector solar developers and ensured economies of scale. Solar leasing, in the form of a Power Purchase Agreement, provided a range of contract pricing structures that offered competitive rates, helping the government to save on electricity bills.[29]

3) **Check whether CVC opportunities align with core services** and do not dilute or impact them (as discussed in core principles of application of CVC in projects). See Box 5 for example of how CVC opportunities can affect quality of core services.

Box 5: The quality of core services should not be compromised by CVC

In some cases, increasing commercial activities also increases the requirements of public services. For example, a parking garage with office space developed above it will need to provide additional parking to address the needs of the tenants of the office space. A bus terminal offering additional commercial services might need to be designed for increased foot traffic, as passengers spend more time in the terminal to benefit from the commercial services and other customers visit the terminal who are not otherwise bus passengers. The Moncloa Transportation Exchanger in Madrid, Spain is an integrated multimodal transportation terminal equipped with commercial and office areas. It was expanded and improved in 2009 to cater for the increasing number of passengers. As a result, it was able to cater for 110,000 passengers in 2011, up from only 44,000 in 1995.[30]

4) **Draw inspiration from international case studies** for revenue opportunities that can be incorporated in projects with similar characteristics. Annexes 1–3 in this report provides rich resources of how CVC is applied in real-world projects. The opportunities in the case studies must be analysed in the specific context of the project being considered.

[27] See Case 6 Commercial uses of physical places and virtual spaces created on the back of public infrastructure: Pilot Courier Hubs and Lockers in Residential Areas, Singapore from Annex 2.
[28] See Case 10 Leveraging climate opportunities: Sembcorp Tengeh floating solar farm, Singapore from Annex 2.
[29] See Case 11 Leveraging climate opportunities: SolarNova rooftop solar program, Singapore from Annex 2.
[30] World Bank, Municipal Public-Private Partnership Framework: Module 17: Capturing Commercial Value, September 2019 .

3.2 Assessing readiness of enabling environment to support CVC

CVC is easier to implement and will be more impactful under a supportive policy, legal and institutional framework . This section identifies the typical challenges faced by governments and Project Owners when applying CVC. It provides recommendations to address the challenges and increase policy, legal and institutional readiness. It shows how to prioritize CVC opportunities that can be implemented in the existing frameworks as shown in Table 4. This exercise can be applied for both program-level assessment (enabling environment for applying CVC across a portfolio of projects) and project-level assessment (enabling environment for CVC opportunities in a project).[31]

Table 4: Typical policy, legal and institutional challenges and recommendations to address them

Typical Challenges	Recommendations
Policy Readiness	
• **Lack of clear understanding of CVC and its potential to help reduce fiscal commitments or liabilities (See Box 6).** • **Lack of clear policy guidance for Project Owners to fully consider CVC at the project level.** • **Lack of knowledge and skills to consider CVC opportunities proposed by line agencies leading to lack of policy support for the project.** • **Lack of clear policy framework and incentives to guide and encourage Project Owners to actively consider CVC in the early project stages, resulting in missed opportunities to incorporate CVC when developing new infrastructure projects.** • **Lack of political and public support for CVC due to general public perception that commercial interests can lead to conflicts of interest.**	• **Increase knowledge and understanding of CVC** and its potential to help projects get implemented with reduced fiscal commitments or liabilities among planning agencies and finance ministries through knowledge sharing of successful experiences. Governments can engage consultants with relevant experience to assist in sharing and disseminating knowledge and conducting market soundings. • **Provide clear policy direction** to encourage Project Owners to consider CVC when preparing new projects. This should include a review of the legal and regulatory (discussed in detail later) leeway available for implementing CVC, and developing a roadmap to resolve any such hurdles and overlaps. • **Adopt the Guidelines as a policy tool to guide Project Owners** to apply CVC**.** For example, planning agencies or approval authorities can consider mandating Project Owners to apply the Guidelines when preparing projects and reporting back to demonstrate that CVC has been fully considered. • **Communicate with the public and stakeholders** on the role of CVC and how it can be effectively used to balance public and commercial objectives. • **Policy agencies can require reporting on potential CVC** for any project implemented, including value for money assessment.
Legal Readiness	
• **Lack of or unclear legal mandate of Project Owners to implement CVC leading to the project owner not taking the risks of introducing CVC in the project. E.g. regulations are unclear as to which commercial activities can be undertaken by Project Owners)** • **Lack of clear legal route to implement CVC. For example, can CVC be implemented through PPP?**	• **Consider CVC opportunities if the Project Owner has a clear legal mandate and contractual authority** to implement CVC. • **Seek a legal or regulatory review** to address the legal issues identified. E.g. seek the legal opinion from a general counsel or the attorney general. The Project Owner may need to assess how complex

[31] For a general discussion of legal, regulatory and institutional framework for infrastructure investment, see Delmon, Jeffrey, Private Investment in Infrastructure: Project finance, PPP projects and PPP programs (2021).

• **Legal issues related to the use of public land for commercial activities. For example, in some cases, land appropriated for public infrastructure cannot be used for commercial purposes.** • **Legal issues around budgeting and fiscal management which might constrain how revenue from CVC will be managed. For example, in a PPP project, will revenue shared need to flow directly into the general budget or can it be ring-fenced to fund O&M expenses or other projects?** • **Lack of flexibility in legal framework to implement innovative solutions. For example, is there a flexibility in the legal framework to establish a new entity or design new contractual arrangements.**	the review process might be and if benefit will outweigh costs. • **Planning agencies can identify legal changes required,** analyse the cost and benefit of implementing such reforms and assess the political appetite to implement those reforms, if major legal constraints to CVC are found across projects.
Institutional Readiness	
• **Lack of well-defined roles and responsibilities of agencies involved which can lead to inaction. For example, where the Ministry of Transport is responsible for the project but the local government is responsible for some of the CVC activities and the provincial government is responsible for other CVC activities.** • **Lack of will, time and incentives of Project Owners to carefully assess risks and rewards which can lead to inaction.** • **Lack of creativity of Project Owner due to a fear of failure or fear of decision-making.** • **Lack of technical capacity in Project Owners (experience, skills, expertise) to carefully assess risks and rewards of CVC opportunities. For example, how to assess the commercial potential of CVC, how to commercially structure CVC, and how to integrate CVC in project design and services.** • **Lack of cross-agency coordination as implementing CVC might involve dealing with more than one agency. Potential coordination issues include land acquisition, services provision, asset ownership, benefit sharing, contractual arrangements and etc. (See Box 7)** • **Lack of private sector appetite to participate in public projects due to bureaucratic processes or complex regulations in general.**	• Clarify or define roles and responsibilities of planning agencies and Project Owners in considering CVC. • Provide the right incentives to Project Owners to maximise CVC. • Share international experiences from successful and unsuccessful cases to stimulate creativity. • Increase technical capacity and skills of and provide external technical support to Project Owners to analyse CVC opportunities. • Improve coordination with whole-of-government efforts through different measures such as using institutionalised platforms for coordination (e.g. committees chaired by a high-level authority), providing clear policy direction to the agencies involved and developing a benefit-sharing mechanism to incentivize relevant agencies to jointly develop projects. • Getting private sector's views to assess private sector appetite at early planning stages, address private sector's concerns early in the project structure, and screen out CVC ideas which are not commercially attractive.

Box 6: Unclear mandate can disincentivize Project Owner from considering CVC

While non-fare revenue provides significant contributions to urban transit projects in several countries (e.g., Singapore, Hong Kong), several governments still have a problem letting transport agencies or SOEs get involved in commercial activities due to lack of clarity about whether commercial activities can be considered under the purview of transport agencies.

In another example, there could be a debate about the introduction of a private clinic in a public hospital, whether the public health agency has the legal mandate to provide private medical services.

Box 7: Coordination issue can result in missed opportunity to implement CVC

A local government wishes to develop CVC in its transit project. However, the land around the potential new stations belongs to a national government agency. The local government faces difficulty in trying to acquire the land or the rights to use the land from the national agency. Also, it is not clear if the mandate of the national agency allows the land to be used for commercial purposes. Even if it is allowed, there needs to be a benefit-sharing mechanism with the national agency to incentivize the national agency to allow the local government to use the land for the project.

3.3 Conducting technical assessment of CVC

Once the CVC opportunities have been identified and it is assessed that there is policy, legal and institutional readiness to implement CVC, the next step will be to conduct technical assessment of CVC.

1) **Conduct a technical assessment** of the characteristics and requirements of CVC and **incorporate it in the technical design.**

   - The technical challenges of CVC need to be considered. For example, sales of reclaimed water can be identified as CVC. However, the technical feasibility will assess issues such as water standards, proximity from demand sources and a need for a separate pipeline from the main water supply.
   - To physically incorporate CVC into the technical design, some considerations for Project Owners are:
     - If physical space is required to implement CVC, comprehensive planning should be done at an early stage to ensure seamless integration between commercial activities and core services to provide a well-rounded user experience. For example, if advertising on urban railways is identified as CVC, incorporating CVC in the technical design will involve identifying which place or space can be allocated for advertisements (e.g. areas in the stations, train bodies, concrete pillars if the train is elevated system) and assessing whether the allocated space for advertisement will impact quality of core services, such as the safety of users.
     - If additional land is required to implement CVC, acquiring land for a project can be a complicated process that requires additional budget. Also, the project may face restrictions on how the land can be used, eg due to the limitations in the Project Owner's mandate, land title or zoning regulations.
     - If additional supporting facilities are required for CVC, it is important to ensure that facilities supporting core services are not adversely affected by the additional demands of non-core services. For example, increased traffic from commercial activities in the project area will require additional parking and utilities.

2) **Assess if CVC has any environmental or social concerns**

   - If the CVC opportunity has environmental or social concerns, include these in the risk register and prepare mitigation measures.
   - Engage and communicate with stakeholders and the community in the early stages and throughout the project's development to seek inputs, address community needs in the project design stage and build support to ensure that CVC is politically and socially feasible.
   - Social and environmental co-benefits should be considered as a core advantage of CVC and designed into the project indicators.
   - Assess GHG emissions from the project as they can be a source of CVC through sales of carbon credits and RECs.

3) **Assess if CVC is legally and institutionally feasible,** building on the assessment of policy, legal and institutional readiness of in Step 2.

   - Review that the policy framework is supportive of CVC.
   - Review laws and regulations related to CVC activities, land, the Project Owner's legal mandate and any other legal requirements that may impact CVC implementation.
   - Review institutional readiness of Project Owner and key regulators to implement the CVC opportunity.

- Assess market potential, investors' appetite and stakeholders' acceptance of the CVC opportunity.

4) **Summarize the overall technical, policy, legal, environmental and social feasibility** of the CVC opportunity before moving on to the next step.

3.4 Assessing commercial feasibility of CVC

After the Project Owner concludes that the CVC opportunities are technically, legally, institutionally, environmentally and socially feasible, the next step will be to analyse if the opportunity is commercially feasible, and if its benefits outweigh the costs and it provides value for money. This step and the previous steps can be iterative. Feedback from market sounding and preliminary financial analysis can provide new ideas for CVC opportunities and inputs to the technical design to further maximize CVC.

Proactively engage with the private sector. Market sounding should be conducted to seek inputs from the private sector and assess if there will be appetite from investors at the bidding stage. (See .

Box 8).

Box 8: Project Owners should conduct market sounding to seek private sector inputs on CVC

Objective of market sounding: The market sounding process involves reaching out to potential investors commercial banks, operators, developers, suppliers and other private parties to gather the private sector's views and inputs on commercial potential, commercial viability, bankability as well as other technical suggestions which can benefit project design.

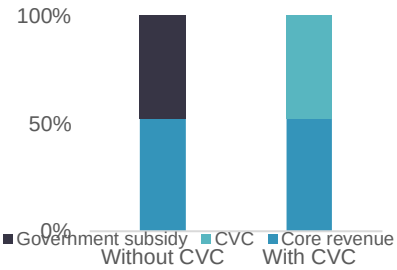
How to conduct market sounding: Market sounding can be done through public seminars, small group meetings and one-on-one meetings. It is important that market sounding is open and provides equal access to interested parties. To ensure that market sounding is effective, Project Owners should identify the players with potentials to participate in the project. The market sounding should be informative and provides essential information about the project, such as the project background, proposed project scope, initial project design, project timeline, initial financial assessment results, environmental and social assessment, risk assessment and a scope for private participation or risk allocation for a PPP project. It should also highlight any issues on which the Project Owner wishes to seek feedback from the participants. To encourage active participation, the materials should be shared with the participants in advance of the meeting to give them sufficient time to review. The event should provide enough time for a Q&A session to allow participants to share their thoughts about the project. The Project Owner can also use this opportunity to provide further clarification and address any concerns participants may have.
Comments and feedback received from the event should be analysed and incoporated into the feasibility study and final project structure.

1) **Quantify the potential net revenue contribution** based on key financial metrics. This will involve a financial assessment to quantify the cost of implementing the CVC opportunity and the revenue that is likely to be generated. This net revenue assessment, even if preliminary, will help to guide the planning process.
2)
3)

4) Box 9 provides an example of how a preliminary financial assessment can be carried out. The amount of additional revenue generated from CVC is not likely to be sufficient to fully fund public infrastructure projects, but it can usually make a material contribution to the overall project economics and increase the project's commercial viability.

Box 9: Preliminary financial assessment can indicate net revenue contribution of CVC to the project

Background: To meet with rising demand for affordable housing in a satellite city located near a capital city with growing economic activities, a local government wishes to develop a large-scale affordable housing PPP project. The project will include a CVC element to provide an additional source of revenue for the private developer and therefore reduce the need for the government to provide subsidy for low-income housing.
The government designs a project to include two residential complexes where one complex will serve low-income groups and another complex will serve middle-income groups. Also, the project includes key community infrastructure services and premium amenities such as healthcare centres, primary schools, shopping complexes, banks, and public institutions like post offices to attract residents and non-residents and generate additional revenues In addition, a separate piece of land adjacent to the project site will be allocated to the private developer to develop office space for IT industry, a thriving industry in the new satellite city, as part of the PPP concession.



CVC contribution: The preliminary financial assessment suggests that without CVC, the core revenue will provide 52% of total revenue required to exceed the hurdle rate and the project will require subsidy to fund the remaining 48% of total revenue required. If CVC is added to the project in the form of commercial use of physical space, infrastructure sharing and development of nearby IT office spacein an additional iece of land, CVC can generate additional revenue stream to cover the funding gap. With CVC, government subsidy will not be required for the project.
(See Worked Example 3 in Annex 1 for further details)

5) **Consider how CVC revenue can be allocated to support core services** (in cases where CVC generates additional revenue). CVC can generate additional revenue or reduce government subsidies for the project. See Box 10 for an example of how additional revenue from CVC is directed to support core services.

Box 10: Revenue from CVC directed back to support core services

Wembley Stadium hosts major football matches, including home matches of the England national football team and the FA Cup final. However, during the off-season, the space hosts concerts and entertainment events that draw a high number of visitors from overseas who tend to extend their stay in England resulting in tourist spending associated with these events.
During the 2017/18 season, the Football Association (FA) generated a record revenue of GBP 376m (USD 445.7m) from the Football Association Limited, Wembley National Stadium Limited, and the National Football Centre Limited. The FA has reinvested a record GBP 128m (USD 151.7m) [32] into football. For example, the FA's Full-Time mobile app has been a game-changer for grassroots football, helping to make the management of teams much more efficient and effective.
(See international case studies no. 13 in Annex 2 for further details)

3.5 Planning for implementation of CVC

If it is assessed that CVC has commercial potential and is likely to be commercially feasible, the next step will involve planning the implementation of CVC. It should be noted that this section is not a substitute for the overall implementation arrangement of the project but only focuses on how the CVC component of the project can be delivered under the project's implementation arrangement.

1) **Identify business model/commercial structure for CVC** by matching the complexity of the commercial structure with the capabilities of the government entity, i.e., do not over-stretch or over-complicate plans.

   - Consider if CVC can be delivered under the existing implementation arrangement of the project or if a new entity or structure needs to be set up, for example:

[32] https://www.thefa.com/news/2019/apr/12/2017-18-financial-results-120419

- If the project will be procured through PPP, can the identified commercial opportunity be added as part of the concession agreement?
- If the Project Owner is an SOE mainly responsible for delivering core services, should a new entity be set up to manage CVC (e.g. a wholly-owned subsidiary or JV) or should a dedicated team within the existing publicly owned company deliver CVC?

- Consider which commercial structure will be used for CVC. The commercial structure will need to clearly define how the government will share commercial risks and rewards such as revenue sharing, profit sharing, or guaranteed revenue, for example:
  - If CVC is delivered as part of a PPP contract, how will risk be allocated? Will the government share in the commercial risks and rewards through profit or revenue sharing? Or will the government allocate all commercial risks and rewards of CVC to the private sector and accept fixed benefit sharing?
  - Can the government capture the commercial revenue through a publicly owned company, for example, in the form of rental fees, advertising fees, naming rights fees, digital revenue and platform fees?
- Consider and plan the procurement process, for example:
  - If the project will be procured through PPP, the Project Owner will need to include CVC in the Request for Proposal (RFP) or tender documents. CVC should be included as one of the bid parameters and evaluation criteria. The Project Owner should also include commercial experience as one of the bidder's qualification criteria and require bidders to submit a business plan for CVC as part of the technical proposal.
  - Conduct Q&A sessions during the bidding stage to receive feedback on RFP and bid terms.
  - Reflect the commercial structure and risk allocation of the CVC element in the draft contract which will be negotiated with the preferred bidder.

2) Identify stakeholders involved and assess the complexity of stakeholder arrangement.

- Project Owners should identify and assess the stakeholders involved to assess if CVC will be implementable. Some CVC opportunities involve complex stakeholder arrangements. For example, recycling plastic waste to pave roads (see Worked Example 5 in Annex 1) involves many stakeholders (such as local government to agree to provide plastic waste for use in making the road, the private sector to provide the technology, communities and households to sort plastic waste and central/local government to agree to pave some of their roads with this recycled material). Thought should also be given to next steps, as replicating the model to a larger scale will require significant coordination to organize and engage stakeholders.
- Some CVC opportunities do not require significant involvement of external stakeholders and may be easier to implement. For example, for advertising fees, if a public transit company can set up a wholly owned subsidiary dedicated to overseeing the advertising business in its transit assets, the stakeholder arrangement should be more straightforward than those described above.

3) Assess internal capacity to deliver or manage CVC and identify support required

- Further to reviewing institutional capacity in Step 1, at this stage Project Owners should identify specific capacity required to implement the CVC opportunity and assess if external support is required to implement the opportunity. In addition to the expertise required to prepare a feasibility study, it is also important to have a team with expertise in the bidding and implementation stages - e.g. evaluating commercial proposal, negotiating contractual terms managing contract during construction and operation and maintenance (O&M).

- Project Owners should consider having a dedicated team to manage non-core commercial activities.. The dedicated team would have a clear mandate to deliver and grow non-core services and should have access to necessary technical expertise either in-house or by engaging consultants.

4) Assess overall ease of implementation

- CVC opportunities should enhance the likelihood of project implementation and avoid making a project significantly more complex. Project Owners should assess the feasibility of project implementation. A more complex commercial structure or additional stakeholders will require more staffing and budget for implementation.

3.6 Assessing and mitigating CVC related risks

If the CVC has high implementation readiness and resources are available to implement CVC, Project Owners should proceed to risk assessment and mitigation. This step is not a substitute for a full risk assessment of the project but should supplement normal project risk assessments and generation of a risk register. General risks which are not specific to CVC (e.g., political risks, force majeure risk, inflation risk, financing term risk, exchange rate risk) are not discussed under these Guidelines.[33]

1) Identify and assess additional risks that can arise from CVC. Table 5 provides an example of how to identify, assess and mitigate CVC related risks.

Table 5: Examples of how to identify, assess and mitigate CVC risks

Risk	Description	Mitigation Measures
Market and demand risk	Demand risk from core-services can impact revenue from CVC. For example, if ridership drops, demand for commercial services will also be impacted.	• The private sector has more expertise to manage commercial risks so this risk should be allocated to them. • Contracts should allow the private sector enough flexibility to manage commercial risks, e.g. to carry out promotional activities or upgrade/resize commercial space.
Political risk	Changes in central or local government policy, or material adverse government actions can impede CVC.	• Provide clear protection for Project Owner and investors where specified discretionary acts of government cause delays, increase costs or otherwise impede the CVC.
Finance risk	Investors will bear most financing risk, but some key issues may merit government support, for example exchange rate risk between the currency of debt and currency of revenues.	• Reflect finance risk based on risk appetite in the commercial structure between government and the private sector. Balance of finance risk will depend on market appetite and the cost of asking investors to bear more finance risk.
Design and construction risk	Design and construction of all works needs to be delivered on time and to the level of quality required, resulting in a series of risks normally born by the contractor. For example, the private sector may be incentivised to construct commercial component of the project with higher commercial return and delay construction of core service component with lower commercial return.	• Put in place contractual terms that both components of the contract will need to be developed in parallel.
Operational risk	Some CVC opportunities such as infrastructure sharing can lead to operational restrictions. For example, sharing telecom infrastructure may limit the types of services	• Review the contractual terms and operational limitations to ensure fair risk and reward for operators.

[33] For further discussion of risk allocation and mitigation for infrastructure projects, see Delmon, Jeffrey, Private Investment in Infrastructure: Project finance, PPP projects and PPP programs (2021).

Risk	Description	Mitigation Measures
	the operators can offer as they do not have the right to alter the infrastructure..	

2) **Reflect the risks and mitigation measures in the contractual terms.** At contract preparation stage, Project Owner should include contractual terms that properly reflect the risks associated with CVC, how risks are allocated between parties and the measures to mitigate the risks.

4 A roadmap for programmatic roll-out of CVC

4.1 Roll-out of CVC

Given the different contexts of each country, there are different scenarios for how CVC can be rolled out.

- In some countries, Project Owners need to be creative and take initiative to maximize CVC in individual projects without a highly structured approach or programmatic support by planning agencies. In these cases, the Guidelines can be applied in a few individual transactions to consider CVC opportunities in the feasibility studies. The lessons learned from pilot implementation can be used to help roll out CVC in other projects.
- In other countries, it is more effective to use a programmatic approach to apply CVC in infrastructure projects with planning agencies or a PPP unit playing a leading role. In these cases, the Guidelines (Steps 1 and 2) can be applied to assess the enabling environment and identify gaps to improve the enabling environment at the country level, identify projects with high potential for CVC and roll out CVC across projects with high CVC potential first.

The roadmap below (Figure 14) covers a scenario where planning agencies, MOF, PPP unit take a programmatic approach to roll out CVC across a portfolio of projects. The roadmap includes:

- Considering CVC as an integral part of infrastructure funding policy
- Guiding Project Owners to maximize CVC in individual projects at the project preparation stage (See Annex 4)
- Providing implementation support
- Monitoring and evaluating value-for-money from CVC post project implementation to ensure the policy objectives of CVC are achieved, including reducing infrastructure funding gaps and therefore fiscal support/commitment and liabilities as well as user fees.

Figure 14: A roadmap for programmatic roll-out of CVC