CBI Insight

Innovative approaches to harnessing private finance in UK infrastructure

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Growing need for private capital

The current economic environment has only increased the need for private capital, but barriers remain to unlocking investment

With this new insight document, we aim to demonstrate the potential which exists for deploying some of the existing private finance models and schemes to secure long-lasting infrastructure. This, we believe, will bring not only financial, but also economic and social benefits.

Reaching net zero, levelling up, growth rates at around 1.3 - 1.7% for coming years, as well as energy and material prices rocketing will make public funds stretched, projects delayed, and budgets expanded. Against this backdrop, private capital has an ever more pivotal role to play in narrowing the gap between the level of public funds committed and the 'infrastructure revolution' the UK requires.

The need for substantial investment in the UK's infrastructure is acknowledged by business, political parties, stakeholders, and commentators. Private capital is available, and both banks and pension funds remain keen to increase their exposure to UK infrastructure assets. Feedback from CBI members also suggests that the availability of private capital for infrastructure generally remains high. However, there is difficulty in attracting the mid to the long-term attention of lenders. As the CBI's Investing in Infrastructure paper laid out, this is due to a number of factors including current regulatory frameworks, political uncertainty about the delivery of projects, a lack of clarity around the National Infrastructure Pipeline, and uncertainty about funding models. The latter of these is the focus of this paper.

Despite these challenges, businesses remain keen to explore how more private finance could be applied to a range of infrastructure projects through a variety of funding models. This paper brings together this thinking by outlining current examples of best practice in infrastructure financing and how these could be applied more widely. This includes an overview of:

- Regulated Asset Base models
- Land Value Capture
- Joint Ventures
- Contracts for Difference
- Concessions
- Alternative funding models.

Summary of key recommendations

To bring together the insights in this briefing paper, the CBI spoke with experts across industry from investors and lawyers to contractors and infrastructure consultants, along with major public sector clients. This paper finds that there is a broad range of opportunities for greater private capital to be deployed with government action.

To stimulate this investment, the government should focus on:

1. Publishing a CfD model for hydrogen and explore whether this can be expanded to other green technology, such as floating offshore wind, CCUS, and sustainable aviation fuels (SAF).
2. Working with industry by setting up a working group between DfT, HMT and business, to explore the extension of an adapted RAB model to rail and road infrastructure.
3. Working with investors and regional stakeholders to identify opportunities for private capital to complement the Integrated Rail Plan.
4. Considering Land Value Capture and Joint Venture financing for building train stations, bus stations and other smaller infrastructure projects which are key to an improved passenger experience.
5. Undertaking, in line with the Levelling Up White Paper, a review into opportunities to crowd in more private capital across different regions.
6. Collaborating more with the private sector in seeking to solve issues around emerging, promising yet untested models such as the Inverted Bid Model.

Taking a tailored approach to funding and financing

Whereas financing is about meeting the upfront costs of building infrastructure, funding concerns the more fundamental question of *how* we pay for infrastructure over its lifecycle. Without a clear funding stream, it is in principle difficult to access the upfront cash needed to construct new infrastructure. The funding available to the lifecycle of a project is critical if private finance is sought to meet the upfront costs of building the infrastructure. Energy infrastructure such as an electricity power plant has high upfront costs and long construction periods, meaning investors need to take on considerable risk, which leads to a high financing cost.

Regulated Asset Base

The RAB has been one of the most frequently mentioned models in the CBI's conversations with members. In RAB models, private companies typically act as the infrastructure manager, owning, investing in, and operating infrastructure assets. The infrastructure manager receives revenue from users and/or subsidies to fund its operations and recoup investment costs.

However, it is important to note that the RAB model can be made to operate similarly to a Public-Private Partnership model. This can be achieved through implementing the risk allocation with fewer fixed price contracts and a flowthrough of costs against an agreed rate of return.

Businesses have suggested the extension of the usage of the RAB model in existing infrastructure sectors, such as in the energy sector for new nuclear generation, and in sectors previously not associated with RAB, such as road and rail, would constitute a positive step. There is a particular opportunity to support the UK's plans for new nuclear construction using the RAB model to help balance the risks associated with such capital-intensive projects. The government should take care to communicate the virtues of the model to ensure it commands investor confidence over the long term.

Name of model	**Regulated Asset Base Model (RAB)**
Overview	• Covers design, build, operations, maintenance • Private capital is incentivised to operate the infrastructure asset efficiently through economic regulation of the prices charged for the services produced, to avoid it acting as a natural monopoly • Can be done through a 'building block approach'
Benefits	• Access to cheap debt and equity to support significant capital investment for the benefit of consumers • The Thames Tideway Tunnel demonstrates what can be achieved when the public and private sectors work together to address project risks and adopt best-practice solutions • Can be structured to allow for a rate of return during construction
Challenges	• Its application might lead to excessive capital expenditures, to strategically inflate the base on which the return is being calculated • Difficulty of market testing the cost of capital • Lack of incentives for achieving least whole-life-of-asset costs through choice of suitable asset design and maintenance regime • Not suitable for all asset classes – needs to be underpinned by a relatively complex regulatory regime which allows costs to be passed on to an end user.
Best practice examples	• Common for brownfield infrastructure assets and in the water sector, but also greenfield assets • Deployed to build the £4.3 billion construction of Heathrow Terminal 5

	○ T5 caters for approximately 30 million passengers a year and provides additional terminal and aircraft packing capacity ○ T5 features a world-class transport interchange connecting road, rail and air transport • Thames Tideway Tunnel (TTT) ○ Thames Tideway Tunnel demonstrates what can be achieved when the public and private sectors work together to address project risks and adopt best-practice solutions ○ TTT resulted in a lower cost of capital and an increase in consumer bills of £13 – £25 per year, considerably lower than the original estimates of £70 – £80 per year • Network industries such as transport, water, and electricity, EV charging
Potential use cases	• Nuclear power station – Sizewell C ○ The Nuclear Energy (Financing) Bill introduces a RAB model as an option to fund future nuclear projects • Preferred funding model in the long-term for CCUS transportation and storage • Potential for road and rail: managing highway infrastructure as a network, however this would need significant regulatory changes to work in practice • Potentially third Heathrow runway as Heathrow is already subject to RAB-based regulation • Rail (covering single asset or system options such as tunnels or stations, groups of assets such as a tunnel combined with track, or complete railway infrastructure options and new railways) • Considered for low-carbon hydrogen

The **Revenue, Incentives, Innovation, Outputs (RIIO)** is a RAB adaptation for electricity and gas transmission and distribution, with revenues set by Ofgem. The model offers energy companies incentives for securing investment and driving innovation so they can develop sustainable energy networks and system operation services at the right cost for current and future consumers.

Another adaptation of the RAB model is the **Regulated Infrastructure Investment (RII)**. It represents a more 'enterprise-based' approach to investment, providing a structure through which risks can be shared between the supply-side (including investors, contractors, and the developer), consumers, and the taxpayer to incentivise efficient delivery of investment at the best overall value for money. The structure can enable a low cost of capital to be achieved, which means that the premium over the government's own cost of finance is more likely to be seen as acceptable and good value for money.

Land Value Capture (LVC) models

LVC models monetise the increase in land values as a result of public infrastructure projects. Investment in transportation infrastructure, including highways, freeways, light rail, heavy rail, subways, and bus routes, results in measurable increases in the surrounding property values. Therefore, a land tax that captures some portion of the increased value of this infrastructure can be a useful way of funding the investment. Given societal challenges such as rapid urbanisation, deteriorating infrastructure, and climate change, the use of LVC models is only expected to grow.

Successful implementation of LVC does, however, require a thorough understanding of the intricate and complex factors at play. This includes the maturity of land markets, land use regulations, investment policies, enabling legal frameworks, fiscal and governance structures, as well as local circumstances and rooted traditions regarding land rights. Equally, LVC is not always appropriate as not all regional bodies have the power to charge business levies and not all types of infrastructure generate gains to the same extent. Gains are likely to be higher in urban and wealthier areas. This section covers three types of LVC – standard LVC, Development Rights Auction Model (DRAM) and Tax Incremental Finance (TIF).

Name of model	**Land Value Capture (LVC)**
Overview	• Mechanisms such as Business Rates and the Community Infrastructure Levy are used to contribute significant funds towards major infrastructure projects • Those benefitting from the development contribute towards it
Benefits	• Experience shows that transportation infrastructure, especially railways, can transform a location's relationship with its wider geography and, in turn, its economic possibilities • When used in conjunction with good governance and urban planning principles, land value capture can be an integral tool to help governments advance positive fiscal, social, and environmental outcomes • LVC approaches have a wider role to play in supporting efficient planning and urban management systems
Challenges	• Bearing in mind the government's agenda involving levelling up, there is uncertainty about how replicable it is in all parts of the country where the value uplift will be substantial enough to cover the costs of a project • Negotiations may deter development, with complex viability tests and evasion
Best practice	• Freiburg, Germany: extensions to the city's tramways and with extensive greenery and community facilities such as shops and schools ○ Reasons for success: The municipality 'pooled' the land and resold serviced sites to either the previous owners or small-scale developers, unless the landowner was able

	to undertake the agreed upon plan themselves and within a certain timeframe ○ Sites for housing were made available to building groups, which enabled a much greater diversity of designs and a more rapid rate of development to be achieved than relying on private developers.
Potential use cases	• Metro mayors from across the North believe that LVC could fill the gaps of the Integrated Rail Plan (IRP): ○ Regions could contribute to the cost of rail improvements by "capturing" increased land values brought about by new stations and lines (this wouldn't be a tax increase on residents) ○ The idea behind Northern Powerhouse Rail including Bradford was that land values would increase in the city centre, giving powers at a local level to capture that value to help pay for the infrastructure ▪ LVC should therefore be considered as a means of creating a more sustainable commercial model for the railway moving forward

Name of model	**Development Rights Auction Model (DRAM)**
Overview	• More coordinated and more controlled • Based on the concept of land pooling • The procuring authority arranges an auction of this aggregated property for third-party developers with a minimum reserve auction price, which should broadly reflect the value of the property in the absence of the infrastructure development • New transport investment and coordinated master-planning should mean that the value of the pooled land would be higher than the value of individual land holdings before assembly
Benefits	• Offers an innovative, market-based tool that can help cities to recover land value for public benefit • Advantage for public authorities that it would not require land acquisition and could potentially to accelerate receipts from new development • Profits can be reinvested back into the transport network to enable extensions, increasing connectivity and unlocking new housing sites, as well as attracting further investment • Regeneration tool: if the local authority and its partners can capture the uplift in value, it can also reap benefits for communities by stimulating further regeneration
Challenges	• There need to be proper safeguards that any land coming forward does not have significant environmental or amenity value, and that choice is not distorted by either ownership or existence of development options

	• Implementing the DRAM will depend upon the appetite and capacity of government for legislative change • If landowners do not choose to participate in the DRAM, then this will add to upfront costs (via CPO) and/or result in no development/sub-optimal development

Best practice	• Used successfully by public authorities in Germany and the Netherlands to plan urban extensions, providing local housing and infrastructure
	  ○ Since the authority does all the legwork and the land assembly risk is removed, it was attractive for developers and landowners
	  ○ It worked because the ownership of the land gives the municipalities significant control over the types of housing constructed, proportion of affordable or social housing and even timescales of delivery

Potential use cases	• Levelling up angle: clear opportunities for authorities to capture the uplifts that will be created by Crossrail 2 and HS2 • HS2 will bring these issues into sharp focus for authorities across the country – up to now, land value capture has primarily gained traction in London where new housing and the supporting transport infrastructure is continually under scrutiny

Name of model	**Tax Incremental Finance (TIF)**
Overview	• Type of LVC • Funding mechanism that enables public spending backed by future growth in tax revenues • Utilising the tax revenues expected to arise from projects e.g. via the increase in land values and future developments • TIF allows local governments to invest in public infrastructure and other improvements up-front. Local governments can then pay later for those investments ○ They can do so by capturing the future anticipated increase in tax revenues generated by the project • TIF should be used to fund urban infrastructure only in limited cases where taxes from new development can support its cost
Benefits	• Use of the TIF model in diverse political contexts suggests that it may be used more widely in the future • The use of TIF revenues for public transport enhances vertical equity to the extent that public transit users are likely to have lower incomes than auto users • US experience: setting aside TIF funds for affordable housing, job training, and relocation and rehabilitation can help reduce vertical inequities

Challenges	• It requires significant consultation in the project area and public body investment • In buoyant property markets in leading cities, and especially in areas such as London and South East, TIF can accelerate urban investments at a local level • Lack of TIF deals funded by external (i.e. non public sector) debt - contrast position in the US • Risk of shortfall between tax revenues and project cost and how this is deal with/allocated

Best practice	• US: TIF helped develop rail projects
	• Used to fund land acquisition, sewer and water upgrades, environmental remediation, construction of parks, and road construction
	• London funded the Northern Line Extension through a combination of TIF and developer contributions
	  ○ The growth associated with successful projects is likely to boost local property values, which in turn can boost property tax receipts
	• Used by the City of Chicago to promote public and private investment across the city
	  ○ Funds are used to build and repair roads and infrastructure, clean polluted land and put vacant properties back to productive use, usually in conjunction with private development projects

Potential use cases	• The use of TIF revenues for public transport would enhance vertical equity to the extent that public transit users are likely to have lower incomes than auto users

Joint Ventures

JVs are commercial arrangements between two or more participants who agree to co-operate to achieve a particular objective. JVs cover a wide range of collaborative business arrangements which involve differing degrees of integration, and which may be for a fixed or indefinite duration. Given that there is no distinct legal form for a joint venture in the UK, each JV relationship can take the form which is best suited to its own circumstances and specific purpose. The economic rebound we are seeing as we emerge from the coronavirus pandemic is already contributing to a rise in the formation of JVs.

Name of model	**Joint Ventures funding arrangement**
Overview	• There are various joint venture structures, such joint ownership in company limited by shares, contractual venture constituting an unincorporated partnership, limited liability partnership, and general partnership/limited partnership.
Benefits	• Develop coalitions of the best capabilities to deliver efficiently over the long-term • Promote collaboration, synergy, openness and trust between the parties in an otherwise adversarial prone construction industry • Flexible model that can be adapted in many different ways in order to allow a public authority and the private sector to enter into a joint venture to develop infrastructure
Challenges	• Does not in and of itself lead to finance • No fixed model or pattern, so would need to be developed afresh for each transaction • Large infrastructure projects are diverse and can change at any time, which is why it is crucial that the JV structure has the flexibility to deal with that • Management of both parties needs to understand mutual values and culture early on in the process

Best practice	• Newcastle Helix:
	  ○ £350m collaboration; JV among Newcastle University, Newcastle City Council and Legal & General (2017)
	  ○ Urban regeneration of a former coal mine and later brewery
	  ○ Now: Centre of world-leading research and technological advances
	  ○ On completion:
	  ▪ 500,000 sq ft of office and research space
	  ▪ 450 homes
	  ▪ 4,000 jobs
	• The Skanska, Costain and STRABAG (SCS) JV
	  ○ Working together to deliver HS2 along the final 26.4km of HS2's journey to its southern terminus in Euston
	• Consortium including Macquarie's Green Investment Group (GIG), TotalEnergies and RIDG, a Scottish developer in offshore

	wind, has successfully secured rights in the N1 area to develop a 2 GW offshore windfarm project in the ScotWind leasing round. ○ As part of this development, the partners will unlock a £140m initiative to support the development of the local supply chain, including the enhancement of ports and harbour infrastructure in Orkney and Caithness
Potential use cases	• Cases where a public sector entity and a private sector partner are looking to jointly develop surplus/unused public sector land • Railways: ○ Railway stations ○ Exploring different modes of PPP including for creation of infrastructure, operations and maintenance, and monetisation of operating assets ○ In case of adequate risk-reward balancing, private sector participation can help unlock funding options • Developing excess land, such as closed hospital sites

Contracts for Difference

Being more of a scheme rather than a model, a contract for difference (CfD) is an agreement between two parties whereby one party agrees to pay the other party the difference between the actual value of a commodity at a point in time – the market price – and a value which the parties agreed at the point the CfD was entered into – the strike price. Unlike stocks, bonds, and other financial instruments where traders must physically own the securities, CfD traders do not hold any tangible asset. Instead, they trade on margin with units that are attached to a given security's price depending on the market value of the security in question.

CfDs are commonly used as a means of providing price support to emerging technologies and to encourage certain behaviours, such as investment by industry in more sustainable production methods. By providing predictability of future revenue streams, they encourage investment in new technologies and methods which might otherwise take many years to be made or might not occur at all if solely reliant on market prices.

From a UK infrastructure perspective, CfDs were a central feature of the UK's drive to increase the proportion of renewable electricity in its energy mix in 2014, with the award of a number of so-called 'investment contracts' to the developers of a number of offshore wind and biomass projects. CfDs have been extremely effective in encouraging the growth of low carbon electricity generation in the UK. They have played a critical role in encouraging developers to invest in complex and challenging projects, using technologies which were novel or required market intervention at the time the CfDs were issued, such as offshore wind. The success of the CfD model in supporting a huge increase in renewables in the last decade has been seized upon by the UK government and CfDs are now at the heart of emerging business models for other industries and technologies, from electricity generation with Carbon Capture, Usage and Storage (CCUS), to low carbon hydrogen production.

Name of model	Contracts for Difference (CfD)
Overview	• Incentivising investments in new low-carbon electricity generation • Parameters have recently been announced for the biggest-ever CfD Allocation Round • Technology: As the balance of different generating technologies changes to deliver the power sector's contribution to net zero, it is important that electricity markets and any support arrangements reflect wider system costs and benefits ○ For example, as offshore wind projects were bigger in size and lower in cost compared to other technologies, a new third 'pot' has been introduced for offshore wind projects.
Benefits	• Significantly increased share of offshore wind, which made up over 20% share of the awarded technologies in terms of number of projects in the last three allocation rounds • Flexibility
Challenges	• CfDs can be risky due to low industry regulation, potential lack of liquidity, and the need to maintain an adequate margin due to leveraged losses • If the provider is unable to meet these obligations, then the value of the underlying asset is no longer relevant • Emerging technologies may become more economically viable upon reaching a more advanced stage • Unexpected information, changes in market conditions and government policy can result in quick changes. ○ Due to the nature of CfDs, small changes may have a big impact on returns • CfD rounds mean that projects are sporadic and come in batches, rather than are evenly spread over time
Best practice	• Solar and offshore wind sectors
Potential use cases	• Potential to expand the support for floating offshore wind within the CfD • Sustainable Aviation Fuels (SAF) • Low-carbon hydrogen: In order to unlock the private sector investment necessary to deliver 5GW of low-carbon hydrogen, business not only needs a business model that provides revenue certainty, but also clarity on the frequency that contracts will be awarded. ○ Owing to the fact that low-carbon hydrogen remains a nascent market, it is expected that early projects will be of smaller scale with high production costs. • CCUS

Build Britain Model

Pension capital deployed at scale has an overwhelming incentive to build for tomorrow, not just for today. This model is based on the presumption that funds with significant global experience in delivering large infrastructure projects should be governments' natural equity partner in the building, operating, and maintaining of national and local infrastructure. IFM Investors developed the new Build Britain Model which sets out a roadmap for creating partnerships between government and pension capital to jointly design, permit, procure, construct, and, eventually, operate significant new economic infrastructure.

Name of model	**Build Britain Model**
Overview	• Pension funds (acting collectively to achieve diversification) are required to provide meaningful balance sheet equity upfront • As investors, they make their returns through optimal long-term operation performance and asset management, rather than through high upfront fees and a planned post-completion sell down of equity

Benefits	• A flexible and transparent approach to risk management
	• It would limit both windfall gains and excessive losses and ensure any severe cost overruns or delays to the project timetable are flagged well in advance
	• An appropriate capital structure with an equity cushion
	  ○ Enables genuine long-term risk transfer to the private sector at a capital cost that accounts for risk and balanced returns to ultimate investors
	  ○ Ensures willingness on the part of the equity sponsor to accept package interface and program related risks due to their early involvement in the design of the project
	  ○ This means that long-term equity partners are aligned with governments to deliver projects on time and on budget, and to proactively address project risks as they arise
	• More collaboration upfront on design and engineering, reducing problems down the track
	• More efficient procurement processes (i.e. lower bid costs and unbundling procurement, rather than a single unwieldly contract with a large contractor contingency
	• Greater opportunity to optimise user charges and value capture arrangements by integrating design outcomes and financing arrangements at an early stage of the project's development
	• Tendering a greater number of smaller projects would also provide opportunities for smaller local Tier 2 contractors to participate in large projects, supporting the growth and depth of the UK contractor market

Challenges	• Consistent and regular dialogue is key

	○ Recently this has proved tricky as investors feel they are not always invited to have a genuine discussion with the government
Best practice	• **Manchester Airports Group:** substantial example of government-pension capital partnership with IFM's co-owners being the councils of Manchester City and nine Greater Manchester authorities ○ IFM became a co-owner in 2013, and together the owners are currently undertaking a £1bn Manchester Airport Transformation Programme to enhance the airport's attractiveness to airlines, business, and recreational travellers in line with the shared commitment to enhancing the long-term value of the assets IFM Investors own • **Brisbane Airport Runway**: Completed in 2020, the $1.1 billion privately funded runway is the largest completed aviation project in Australia, ultimately delivered on time and under the original project budget of $1.3bn after eight years of construction ○ During construction, the runway project involved more than 3,740 people and 324 different subcontractors, with a peak of 650 people on site in mid-2019 ○ The new runway is 3.3km long, 60m wide, and has more than 12km of new taxiways ○ It provides Brisbane with the most efficient runway system in Australia, offering the additional capacity necessary to support the long-term growth of passenger volumes (estimated to reach 50 million passengers a year by 2035)
Potential use cases	• Large water infrastructure projects, nuclear plants, airport runways

Concessions

Concessions are a particularly attractive way of carrying out projects in the public interest when state or local authorities need to mobilise private capital and know-how to supplement public resources. Elsewhere in Europe, it is common that concessionaires, the companies carrying out concession contracts for the government, build and manage motorways, construct energy infrastructure, provide airport services, or operate water distribution networks. Concessions give a private concessionaire responsibility not only for the operation and maintenance of the assets, but also for financing and managing all required investment. They take on many rights and risks associated with the project over its lifetime, which creates an incentive to have a genuine interest in making sure that the project does well.

Name of model	**Concessions model**
Overview	• Form of public-private partnership

Benefits	• This model allows direct revenue flow from the general public, who are the users of the public service, to the operator-concessionaire
	  ○ These usage fees cover the operational costs plus the extremely large debts leveraged to plan, build, and run the infrastructure or service
	  ○ This essentially negates the cost for the state, while at the same time, the government ultimately retains asset ownership, with control moving back into its hands at the end of the project term
	• Public authorities may leverage private sector expertise and for-profit efficiency, potentially reducing the overall cost of the project
	• The model benefits the state is by making further development and expansion projects far easier to organize and finance
	  ○ Rather than building a new project vehicle, an existing one can be extended
	• Concessions make necessary sustainable energy infrastructure development more feasible
	• Greater levels of competition through the possibility for well-regulated competitive tender processes

Challenges	• Complex to implement and administer • Negotiation between parties and finally making a project deal may be time-consuming • Following the move away from the UK rail franchising system to a concessions model, government (local, devolved or central) will quickly have to act to change and manage fares to deal with demand
Best practice	• Offshore wind farms, social infrastructure across Europe • Network Rail is seeking private sector investment in its trackside fibre optic cable network in a deal that would enable performance, safety and connectivity benefits for passengers

	○ Secure the funding necessary to upgrade telecoms infrastructure along the rail network in an innovative way without relying on subsidies from government or passengers ○ Over 16,000km of data cables next to the railway, carrying information essential to running the railway (signalling for trains, trackside sensors, CCTV, and internet for trains, railway depots and offices), are due to be upgraded ○ This project represents an innovative way to meet demand for improved fibre connectivity across the country • High Speed 1 (HS1): 30-year concession to operate and manage the railway between St Pancras and the Channel Tunnel

Alternative funding models

There is no one-size-fits-all approach the government nor the private sector should be applying to infrastructure investment at this stage. Increasing government budget to fund infrastructure projects may not always be feasible, and at the same time, in some cases, end-user charges simply are not sufficient to fund certain proposals. Therefore, looking outside this paradigm, approaches already taken on urban-transportation projects around the world provide insights into the benefits and challenges of some alternative funding models. **Property developers**, for example, **may fund an infrastructure project** because they expect the project to boost the commercial value of their own property. Local UK authorities often use this approach, as statutory planning powers allow them to set such conditions. This final section includes the Inverted Bid Model, land development managed by infrastructure providers, and crowdfunding for transport/real estate.

Name of model	**Inverted Bid Model**
Overview	• The objective is to align incentives better by having long-term equity invested from drawing board stage through whole lifecycle of an asset, to align incentives, ensure genuine risk transfer, and reduce expensive debt financing
Benefits	• Although unknown so far, there are similarities with joint ventures and pre-development agreement model
Challenges	• Still untested, questions around costs savings and risk allocations • Largely based on donations • Doesn't fully address the need for a consistent pipeline of infrastructure projects to support investment
Best practice	• Not tested yet, but significantly explored in Australia ○ Being refined for application in the Australian infrastructure market

Potential use cases	• Larger projects, such as in transport or nuclear, water projects (projects related to net zero, for instance) • Greenfield infrastructure projects

Name of model	**Land development managed by the infrastructure provider**
Benefits	• This approach can lead to the development of infrastructure that is largely self-funding in the long term
Challenges	• Assumes infrastructure provider has sufficient land bank to implement which will not always be the case • Hard to implement: robust market demand, property-development expertise and a long period of time are required to realise returns ○ The authority or private entity responsible for the project needs to acquire enough property at prices that are low enough so that marginal profits are sufficient to fund the associated infrastructure

Best practice	• Successful land capture: The Hong Kong Mass Transit Railway (MTR) system:
	  ○ MTR is both a transportation provider and a developer of the property it holds in and around the railway system, cooperating with other developers
	  ○ The model keeps fares cheap and allows Hong Kong's public transport company to be self-financing
	  ○ The MTR makes just as much profit above ground, from property developments, as it does from rail operations, making it one of the most profitable metro operators in the world

Potential use cases	• Public transport systems

Name of model	**Crowdfunding for transport infrastructure and real estate**
Overview	• Source of financing rather than a funding model • Crowdfunding and tokenisation remain marginal as methods to finance public infrastructure • They are mainly used for last mile needs and are largely based on donations • Nonetheless, progress in using alternative financing schemes to develop transport power, water projects, and real estate could set the stage for broader usage of these platforms in general public infrastructure financing in the coming years

Benefits	• Can provide innovative channels to fill gaps in infrastructure funding • Alternative mechanisms are emerging that harness digital technologies (Fintech) to fund infrastructure • Such platforms, including crowdfunding and tokenisation, can help transcend the limits of traditional banks, providing a lower entry cost for retail investors • They can also indicate community support, sending a reassuring signal to larger institutional investors
Challenges	• Largely based on donations

Best practice	• Improving water quality in an Aboriginal community in West Australia
	  ○ Purchasing and installation of a solar-powered deep well pump, water storage, and distribution system
	• Water purification in Colorado, US
	  ○ Purchasing and installation of water filtration system
	• The Pitak Project, Northern Philippines
	  ○ Purchasing and installation of a solar-powered deep well pump, water storage, and distribution system

Potential use cases	• Progress in using such alternative financing schemes to develop real estate, transport, power and water projects could set the stage for broader usage of these platforms in general public infrastructure financing in the coming years

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