Business Models and Local Infrastructure: Financing, Value Creation and Governance

iBUILD Working Paper No. 12

December 2014

John R. Bryson, Rachel Mulhall and Meng Song

The development, management and maintenance of local infrastructure is increasingly challenging given the scale of financing and funding required. Existing business models developed to fund and finance local infrastructure are being challenged. National and local governments are trying to identify new business models based on alternative forms of finance and funding. There are two issues here. First the distinction between funding and finance and second the characteristics of a business model.

Funding and Financing

Funding is the primary stream of revenue required to offset costs or to support leveraging options. Finance is the mechanism by which the primary revenue streams are manipulated to make funds available when required or to reduce the costs of borrowing. A source of funding must be available to support the financing of an infrastructural development. Funding for infrastructure is ultimately provided by the community either directly via user fees or access charges or indirectly via taxation. Infrastructure that is completely funded through indirect taxation without the support of a revenue stream reflects a long-term or continual government investment or financial commitment. This is not a financial investment, but reflects a societal investment related to improvements in lifestyle or economic growth. The difficulty in identifying funding sources has led to significant under-investment in infrastructure. Infrastructure funding provides revenue to cover the cost of borrowed capital, but also must include management and running costs and an allocation to establish a maintenance fund. Indirect funding of local infrastructure through taxation reflects an opportunity cost that is the outcome of a political decision; a capital investment in local infrastructure will have long-term revenue implications that will need to be covered by taxation.

Infrastructure may be financed by the public or private sector or through some combination. It can also be provided by local communities through various forms of community-led not-for-profit social enterprises or community share schemes. Community-led local infrastructure schemes involving physical assets are unusual. They are small scale interventions that reflect specific place-based infrastructural difficulties. Public sector financing of infrastructure is either provided through the creation of a budget surplus that is allocated to finance infrastructure development and maintenance or through debt financing. Debt financing of infrastructure should be considered where the infrastructure makes a significant contribution to enhancing local economic growth and thus increases tax revenues, or where user charging provides the funding to cover the debt financing package.

The private sector has a long history of investing in infrastructure. This type of investment meets the criteria of private sector companies that invest over long time periods, for example, pension funds. It is worth noting that infrastructure as an investment asset class has a number of special characteristics that complicates private sector investment decisions. These characteristics make it difficult, time consuming and expensive to undertake commercial, financial, tax and engineering due diligence. Accessing private sector finance requires the development of infrastructure that is supported by a business model that is suitable for private financing. This includes the stability and sustainability of the project's long-term revenue stream. There are other barriers to private-sector financing of local infrastructure including the limited supply of suitable projects and size constraints. Superannuation funds have an optimal investment size range. This means that the transaction costs of investing in infrastructure will only be covered by large schemes. There are alternatives to private financing including infrastructure bonds that could be designed to be attractive to individual investors, infrastructure funds and the establishment of an infrastructure bank.

Infrastructure Business Models

A 'business model' describes the ways in which a firm engages in business activities or describes the processes by which firms try to create value. A business model contains many different elements, these include: governance, a set of products and services, the resources and capabilities of a firm, the organisation of a firm and its activities, the revenue generation model, the investment model, customer engagement, value delivery, target market segments and monetisation or the value proposition that is provided or offered to customers, the firm's network with external organisations that support value creation and the organisation's strategy including motivations.

The development of local infrastructure requires the creation of alternative and established business models. An alternative infrastructure business model involves developing an approach that includes different ways of capturing value (funding), different types of financing and value network. The value network is based on the value proposition or the unique contribution a firm plays in the business models value creation process. The value network comes from the value proposition; a network of partners with complementary skills, capabilities and resources are required to mobile the assets to create value through the provision of value-added services, user sales, and other approaches to enhance revenue. The concept of a value network highlights the potential to bundle different but co-located infrastructures together to create additional value.

Figure 1: Developing and Infrastructure Business Model

(A) Defining the need

- Drivers (Whitehall grant competition, available source of capital or a need for a solution)

(B) Ownership

- Actors
- Leadership and responsibility for developing a solution
- Controls or ownship of an asset

(C) Financial model

- Capital Source (Financing)
- Value creation (Funding)
- Governance

(D) Solution

- Politically acceptable
- 'In place' solution (e.g. a building asset)

Infrastructure development and management requires multiple actors, networks, funding and financing arrangements to successfully plan, build and operate a service and/or asset. A decision to develop new local infrastructure requires a process that leads to a business model and a solution to meet a specified need. This requires the initial identification of a need and a scoping study to develop and evaluate the business model that may provide a solution (Figure 1). This is a complex process that involves many different public, private and community organisations. The scoping study involves identifying the funding and financial model and the supporting governance structure. The final solution may not completely meet the need as originally defined, but may reflect a political solution or the constraints imposed by the business model.

The local infrastructure business model is developed by selecting from a series of available options (Table 1). Different combinations of options will create conventional or alternative business models. The starting point of this process reflects the nature of the defined need and its ownership. Thus, local infrastructure that is financed and funded indirectly through taxation will have a more conventional business model. Every infrastructure business model needs to take into consideration long-term revenue sustainability, access to suitable sources of financing at an appropriate cost, political risks, engineering risks including cost overruns and delays and obsolescence risks including maintenance, replacement and decommissioning costs.

Alternative infrastructure business models will emerge through developing different combinations of partners involved in the value network, bundling infrastructure in to new packages that creates additional revenue generation opportunities whilst spreading financing costs across infrastructures and developing and combining different or alternative funding or revenue sources. Disruptive infrastructure business models will emerge that provide alternatives to established infrastructure models and this will eventually become conventional approaches.

Table 1: Infrastructure Business models: Ownership, Financing and Funding

(1) Ownership and management of asset: Public -private - third sector- community

Public-Private Partnerships (PPP)	Service **funded and operated** through a partnership between government and private business
Public	Public **finance and management** of asset/service
Private	Privately **financed and operated** asset/service
Community Ownership	Organisation **owned and managed** by its members. Profits shared with members.
Third Sector	Third sector **ownership of asset**
Trusts	**Independent** local group of statutes (no ownership or shareholders) and surplus **revenues reinvested** in the trust
Mutual	**Employee** has role in **operation and ownership**

(2) Capital sources: Upfront Financing

Tax payer	**Government** funded (includes **grants, borrowing or transfer of asset**)
End user	**Private sector** raise capital for private development
Fiscal decentralisation	Additional **capture of local tax income** from central government
Community shares	Sale of **share to community member** in return for service and ownership of asset
Sponsorship	**Private sponsor** of service
Philanthropic donations	Donations from an **individual** to support specific infrastructure development.
Differential rent	**Value of land increases** from proposed development and is sold to a **private developer**
Crowdfunding	Raising funds from a **large number of individuals** (both potential users and non-users)
Social impact bond (Sib)	Provide upfront **capital from private investors to voluntary organisations** to fund initiatives not already provided by the local authority for **social benefit**. Payment by Results (PBR) supported by government, provides a return to the investor.

(3) Value creation: Funding the Operation of the Service (Revenue)

User charge and rental	Payment by **service user** (either one-off or rental charge)
Public subsidy	Ongoing finance to **support private operation** of infrastructure
Revenue from another asset	Income from another **asset used to support service**
Revolving loan fund	Revenue from **loan repayments**
Third sector resource	**Capability** of organisation to deliver service to community
Revenue streams from additional services	Additional revenue from **multiple service provision** from single asset
Advertisement revenue	Revenue from **advertisement** on asset
Collective management	Combined management to **reduce operation costs**