

**CRITICAL EYE**

# A smart business case for smart cities

Because they will require both public and private investment and yield both public and private benefits, the business case for smart cities must juggle a complex set of priorities, warns **Rupert Booth**.

**T**he first stage of the asset management lifecycle is asset creation and this requires a decision on whether to invest in the asset (an investment appraisal). A similar step is required when considering alternative options for asset refurbishment or enhancement.

An investment appraisal requires a whole-lifecycle view of the costs of the various options (including the option of doing nothing). For private investments, where the emphasis is on cash flows, it is normal practice to use a Discounted Cash Flow (DCF) approach, where future costs and revenues are discounted to reflect the “time value of money” (that is, money now is worth more than money later).

For public sector appraisals, similar approaches apply, but a key difference is that the appraisal does not restrict itself to cash flows: it considers the opportunity costs of a broad range of factors and includes social and environmental factors. Benefits are measured at market value or, if none exists, willingness to pay; however, discounting is still used to calculate the Net Present Value (NPV) for all the relevant benefits and costs (described in the UK Treasury’s Green Book, the primary reference text, as “the primary criterion for deciding whether government action can be justified”).

Typically public sector discount rates are lower than private, set at a level perhaps even a third of a typical private level. Pure cash flows are still considered relevant in public appraisals but the focus is on the affordability and funding of an intervention.

## “Competition for talent between rival cities requires smart infrastructure”

Despite the codified approaches to investment appraisal, the topic is becoming more demanding. Appraising investments in smart cities (see **Assets** November 2014 issue), for example, is especially complex.

Firstly these investments are likely to combine private and public funds. As noted above, these two sectors’ appraisal requirements for proposed investments differ in both method and scope, as well as the level of the discount rate; the diversity of funding sources may also lead to different methods and decision criteria for complementary investments.

Furthermore, smart cities are inherently cross-functional, combining master planning, communications, transport, energy, health and education to ultimately improve civic amenity

and governance – while maximising economic criteria such as income per capita. Despite this necessity for integration, many municipalities have yet to develop a strategic document against which an investment can be appraised, creating further obstacles to rational appraisal.

A further feature of investments in smart infrastructure is the wide array of implementation risks, including those associated with public IT implementations, the social and behavioural changes required and the misalignment of multiple stakeholders. Key numerical factors such as energy prices or carbon taxes may also be uncertain. The appraisal must account for these risks and their potential impact on costs, benefits and revenues.

## Diverting the flow

An additional computational complication is that any appraisal depends on metrics for quantifying non-monetary costs and benefits, yet standards for the computation of some metrics do not exist.

It is essential to overcome these obstacles to create a business case that circumvents these difficulties, in order to ease the investment in smart city initiatives in areas as diverse as energy, transport and assisted living. Not doing so will simply see investment funds flow to those cities where the full range of benefits has been identified and, in many cases, monetised into cash flows, allowing the investments to be made.

Increasingly, national competitiveness is determined by competition between rival cities for talent, which in turn requires smart infrastructure. Without investment, the problems of success, driven by increases in population, set the limits on future attainment, allowing competitors to draw ahead. Smart cities require smart business cases to pave the way for the mixed investments of private and public capital.

## Author’s biography

Dr Rupert Booth, MSc, MA, FRICS, FIET, FCMA, FCIS, PMP, CEng is the Chief Economist at Faithful+Gould, a global integrated project and programme management consultancy. He lives and works in the Middle East, seconded to the Ministry of Finance of a Gulf State, advising on public investment management.

