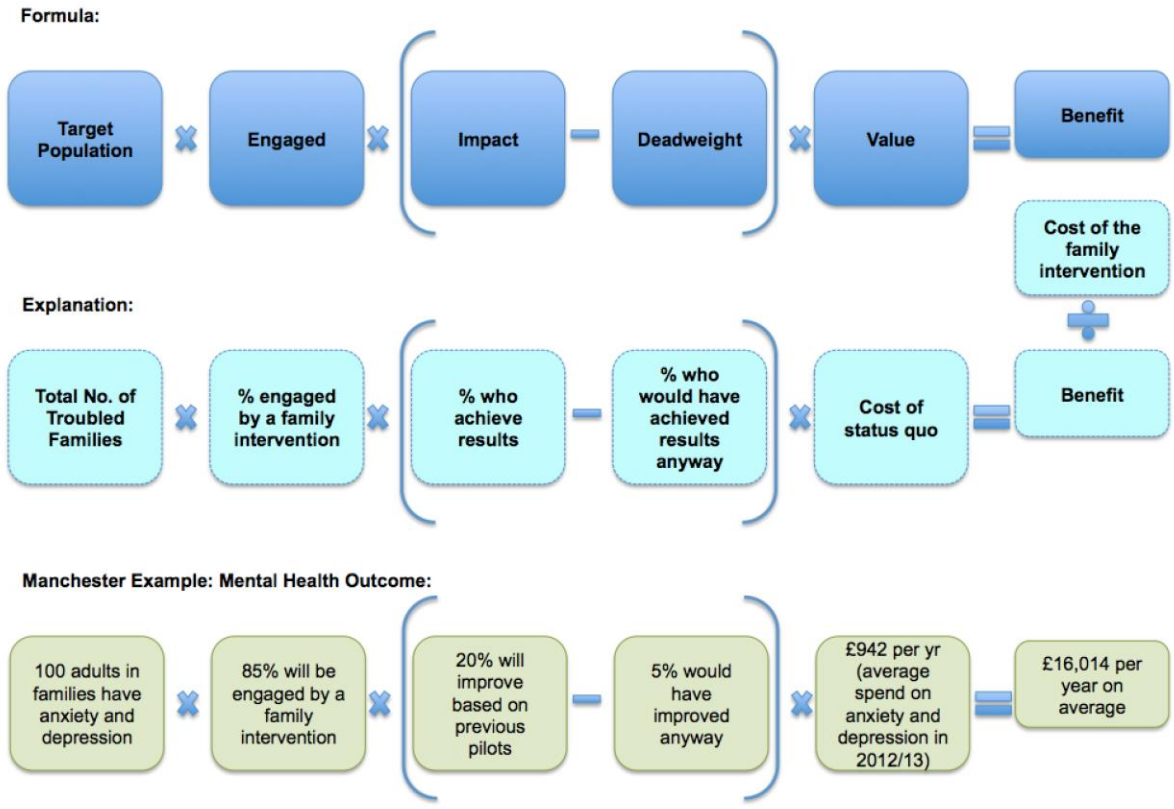
Making an Early Intervention Business Case: Checklist and recommendations for cost-benefit analysis

This document provides criteria to help local commissioners and finance leads assess the robustness of their early intervention cost-benefit analysis (CBA). It also provides guidance for how to increase the robustness where any gaps or limitations in the analysis have been identified.

Basic modelling framework for cost-benefit analysis

The figure below, developed by New Economy Manchester and Greater Manchester, provides a general illustration of the thought process that might be involved when attempting to map out a CBA (particularly an appraisal). This process is particularly helpful when trying to calculate the potential cost savings or benefits associated with a particular programme or intervention, but it also generalises to broader propositions involving reforms to systems and working practices.

Figure 1. Greater Manchester framework for cost-benefit analysis



Source: DCLG (2013), *The Cost of Troubled Families*.

How robust is your cost-benefit analysis and how can it be improved?

The matrix in Table 1 provides more detail on the specific questions that should be asked to assess the robustness of a cost-benefit analysis (CBA). Alongside these questions are suggested features of a 'gold standard' robust CBA; comparing existing business case practice against these criteria gives a picture of how far towards this standard an existing business case is and where additional improvements can be made. While incorporating these suggested features may require additional investment itself (in terms analytical capacity), it can ensure business cases meet the highest technical standards and stand up to stringent internal and external scrutiny.

Table 1. Issues and recommendations in producing robust cost-benefit analysis

	Issues to consider	Features of a robust business case
Mapping out the status quo	What are the existing services in operation?	• Review of all relevant services currently delivered • Understanding of customer journey and service process • 'Deep dive' exercise with case studies of specific people or families

	How much do they cost to operate? Which agencies currently bear the cost?	• Use of local finance outturn data for concrete cost estimates
		• Understanding of specific structure of costs for a service:
		  ○ Fixed costs
		  ○ Staff costs
		  ○ Costs of each process involved in service delivery
		  ○ Procurement arrangements
		• Use of documented cost estimates from elsewhere if local cost information unavailable
		  ○ Application of optimism bias adjustment (see below)
		• 'Deep dive' exercise with case studies to understand how services are used
		• Tracing of each service and process back to agency that funds it

	What outcomes do they achieve?	• Local performance monitoring data systems aligned to capture processes and outcomes of interest • Views taken from children, young people and families on the services and outcomes that they want
Identifying a new service model	What are the key innovations in the new model?	• Develop a logic model or theory of change, stating the inputs, processes, outputs and outcomes that should be expected to arise
	Which limitations in the existing model does it address?	• State how the new model will improve upon the existing one, e.g. through more effective programmes or more efficient processes
Costing the new model	Where will resources – both existing and new – come from?	• Map out which agencies will be involved in the new model, and how/where they will be involved
	What are the likely unit costs for it?	• Use existing cost information for existing services to be reused or reallocated • Identify plausible estimates for new services based on 'bottom-up' costing, starting with costs of each constituent process

		○ Application of optimism bias adjustment for cost figures from elsewhere (see below)
	How many people will the new model reach? How many will be eligible for it and engage with it?	• Understanding of local population characteristics and service need • Careful projection of size of each cohort to come into contact with new system in future years • Clear assumptions around cohort size, eligibility for service and engagement with service
	How many referrals to/from other services will be involved?	• Understanding of how proposed service will impact upon other co-existing services, and resulting cost implications
Assessing the outcomes the new model will achieve	What are the outcomes that the new service will result in?	• Identify the outputs of the proposed service and indicators that capture successful outcomes • Understanding of services for which less need/demand will result
	What kind of success rates will be seen for those who engage with the new service?	• Clear assumptions around rate of completion of services, and likelihood of successful outcome (or likelihood of prevented negative outcome) • Use of pilot/local tracking data to inform likely achievable outcomes • Informed judgement based on experience of proposed service/programme elsewhere
Calculating the impact of the new model	What kind of success rates would have been seen anyway? How much deadweight is estimated?	• Use of comparison data to assess successful outcomes under business as usual model • Use of existing impact evaluation evidence, if available • Use of national data to provide benchmark
	How long does the additional impact generated take to feed through? How long does it last?	• Use of existing impact evaluation evidence, if available • Clear assumptions around timing of impact, based on logic model and service processes • Clear assumptions around rate of drop-off
	Have all relevant impacts been accounted for?	• Consideration of potential wider impacts and whether they are within scope • Consideration of any unintended costs or harmful effects of the proposal
Monetising the benefits	What is the time horizon over which the costs and benefits are assessed?	• Clear statement of relevant time frame for analysis • Measurement of costs and benefits over same time period
	What are the service costs associated with the improved outcomes arising from the new model?	• Application of unit costs for services impacted by the new model ○ Application of optimism bias adjustment for cost figures from elsewhere (see below)
	Which agencies are those costs associated with?	• Itemisation of each benefit and cost saving according to relevant organisation
	How cashable are the savings?	• Careful consideration of cost structure for relevant services ○ Specific commissioning and contractual arrangements ○ Relative importance of fixed and marginal costs ○ Whether decommissioning is necessary to release savings • Careful consideration of whether reductions in service demands among target population are likely to be offset by additional unmet demand from elsewhere:

		○ Waiting lists/backlogs ○ Additional undetected cases in wider population (e.g. crime) • Feasibility of decommissioning service or reducing service provision • Consideration of which agencies cost savings are associated with – commissioning authority, local partners or central government
Presentation of cost-benefit conclusions	Are cost and benefits expressed correctly?	• Correct and consistent use of inflation indices • Correct use of discount rate (3.5% above inflation)
	Is the new model fiscally or socially desirable?	• Calculation of social/fiscal benefit-cost ratio • Calculation of net social/fiscal benefits • Projected flow of costs and benefits each year in the future ○ Identification if payback period
Uncertainty and sensitivity analysis	How robust are the cost-benefit conclusions to different scenarios around the scale, costs and effectiveness of the new model?	• Redo analysis under a range of assumptions regarding: ○ Number of caseloads and extent of engagement ○ Amount of deadweight ○ Duration of impact (drop-off) ○ Unit costs for proposed and existing services ○ Degree of cashability • Identification of which scenarios are required for the proposal to only break even (costs being equal to benefits), and assessment of how likely those scenarios are
Performance monitoring and management	How will the outcomes and activities of the proposal be tracked? If such information is collected, how will it be used?	• Consider which information management systems are in place and whether new systems are required • Identify an outcomes framework that can be used to provide real-time performance monitoring information and also be used as a basis for impact evaluation • Consider data-sharing arrangements in order to ensure such information is available across relevant agencies
	Does the business case propose how to measure impact and value for money?	• Build in a strategy for robust impact evaluation of the proposal once it has been implemented • Explain how the findings of such an evaluation will be used to support further policy development
Quality assurance	How transparent is the analysis?	• Provision of sources and assumptions for all estimated figures • Supplementary appendix containing full detail of all calculations
	Have government guidance and standards been followed?	• Demonstration of adherence to best practice standards, e.g. HM Treasury Green Book • Reflection of specific departmental cost-benefit analysis guidance (e.g. BIS or DWP) where relevant
	Has external/independent economic advice been sought?	• Feedback on cost-benefit analysis methodology from a technical advisory group • Engagement with external experts

Guidance for applying 'optimism bias'

Optimism bias is the phenomenon whereby the costs of a new programme tend to be understated in a business case, while the benefits tend to be overstated. To correct for this, an adjustment is usually desirable – the lower the reliability of the estimates, the greater the adjustment. The Greater Manchester Cost Benefit Tool contains useful guidance on how to adjust the estimated costs and benefits of a proposed new programme, reproduced below.

Note that these are figures are suggestive and provided only as an *example* of specific practice; the values of the adjustments per se are not as important the underlying process of establishing the degree of confidence that can be placed in the estimated costs and benefits. This process is ideally what determines the kind of correction that is necessary: depending on the user's context and the specific nature of their CBA, corrections of a different size may be more suitable. This is a matter for users of this guidance to determine themselves.

Optimism bias adjustment for cost estimates

For CBAs involving appraisal, where the proposed services and programmes have not been delivered yet, it is likely that an optimism bias adjustment of +15% is advisable (reflecting a confidence grade of 4); an adjustment is not necessary for the cost of the status quo service model if accurate local cost information exists (see Table 2).

Table 2. Possible corrections to apply to cost estimates

Confidence grade	Colour coding	Data source	Optimism bias correction
1		Independently audited cost data	0%
2		Formal service delivery contract costs	+5%
3		Practitioner monitored costs	+10%
4		Costs developed from ready reckoners	+15%
5			+25%
6		Uncorroborated expert judgement	+40%

Source: New Economy Manchester (2013), *Greater Manchester Cost Benefit Analysis: Technical Specification*.
Notes: Figures are suggestive and an example of specific practice. Depending on the user's context and the specific nature of their CBA, corrections of a different size may be more suitable; this requires understanding the variability related to the proposal in question.

Optimism bias adjustment for benefit estimates

For the estimated impacts of the programme, an optimism bias adjustment is required if the programme is new and cannot draw upon local or national robust impact evidence. For well-established programmes backed by high-quality research elsewhere, a small adjustment of -5% to the estimated impacts and benefits may suffice. The less robust the evidence base for the proposal in the business case, the greater the range of adjustments required. Where only secondary data meeting lower evidence standards – such as descriptive statistical analysis – from abroad is available, then an adjustment of -25% is helpful (see Table 3).

Table 3. Possible corrections to apply to impact and benefit estimates

Confidence grade	Colour coding	Source of outcome data	Evidence for impact	Optimism bias correction
1		Figures taken from agency data systems	Randomised Control Trial in UK	0%
2		Figures derived from local stats	International Randomised Control Trial	-5%
3		Figures based on national analysis in similar areas	Independent monitoring of outcomes with a robust evaluation plan	-10%
4		Figures based on generic national analysis	Practitioner monitoring of outcomes with a robust evaluation plan	-15%
5		Figures based on international analysis	Secondary evidence from a similar type of intervention	-25%
6		Uncorroborated expert judgement	Uncorroborated expert judgement	-40%

Source: New Economy Manchester (2013), *Greater Manchester Cost Benefit Analysis: Technical Specification*.
Notes: Figures are suggestive and an example of specific practice. Depending on the user's context and the specific nature of their CBA, corrections of a different size may be more suitable; this requires understanding the variability related to the proposal in question.

To make use of these figures, the cost-benefit calculations should be repeated after these corrections have been applied to the estimated costs and benefits of the new proposal. Users should then check to see how much this impacts on the final assessment of the proposal's viability and likely success – for example, does it still deliver net benefits or savings? If not, that should be communicated and borne in mind as a risk to the success of the proposal.

Sometimes the amount of variability in estimated costs and benefits caused by these corrections can make it very difficult to say with a high degree of confidence that the proposal under consideration will be successful. It is also a good idea to invest in identifying more accurate sources of cost and benefit information, in order to reduce the amount of correction necessary and construct a CBA with less uncertainty attached to it.