

Annex D Example data collection methods and relevant uses.

Method	Uses
Contribution analysis	Often combines both qualitative and quantitative research and analysis methods. The analysis is often iterative: the process can identify potential knowledge data and evidence gaps which can inform and improve the depth of assessment. It assesses the extent to which observed outcomes are the consequence of a particular project or programme.
Case studies	Focusing in depth on a subset of an impact population, often recipients, beneficiaries or close observers of the investment and its outcomes of impacts. A case study can provide greater insight than is possible when focussing on a population at large
Establishing impact through the use of statistical techniques	These have the power to provide a robust method of quantifying impact if appropriately constructed control groups have been included in the design of the programme evaluation approach. Such techniques include the use of randomised controlled trials, propensity score matching, regression discontinuity design, difference in difference, and trend analysis.
Expert and expert advised peer review evaluation	Expert peer review evaluation involves using sector experts to steer or produce an evidence-based assessment of the investment process and/or its impact. The results of the expert review panel should draw upon the full range of evidence gathered, and clearly assess the investment's process and/or its observed impact against each of the agreed objectives.
Bibliometric analysis	This is the application of top-down quantitative analysis and statistics to publications such as journal articles and their accompanying citation counts. Such analyses enable us to evaluate the impact of research schemes or programmes by assessing the productivity and influence of the research papers emerging from them, and how these have changed over time. Through benchmarking, we can also assess the relative citation impact of research papers relative to, for example, their research field or expected citation rate.
Analysis of UKRI data	Evaluations of research and innovation investments will often involve 'desk-based' analysis of monitoring data revealing outputs and outcomes of the investment. UKRI's Councils collect data from award-holders on the outputs and outcomes of their research and innovation activities including publications, spin-outs, policy influences, collaborators and funders, intellectual property and more.
Interviews, focus groups and surveys.	These methods are best used when targeted towards key participants of a project or programme. This will usually include direct users, potential or target beneficiaries, those undertaking research, and the wider community within relevant research areas. Surveys are useful when seeking to quantify an outcome, or attitudes, such as trying to establish the number

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	<p>of employees with a certain level of training, or to assess attitudes on a standardised numerical scale (such as the Likert scale).</p> <p>Interviews and focus groups may be more appropriate when the objective is to explore in greater depth decisions that have been taken or attitudes that have changed. Interviews and focus groups may be used as a follow-up to a survey, to better understand why a company has chosen to increase the number of employees with a certain qualification or why attitudes have changed over time.</p> <p>It should be noted that surveys and interviews take considerable time and expertise.</p>
Network analysis	<p>Network analysis is an emerging evaluation technique that is valuable for understanding the relationships and collaborations between different researchers, institutions and businesses, and how they evolve over time. Data held on collaborations can effectively be 'mapped', with nodes corresponding to individuals or organisations, connected by edges that are assigned a weight depending on the strength (or frequency) of the connection. This allows evaluators to identify new connections and changes to the strength and density of existing connections over time, which facilitates an evaluation of the health and growth of networks. Such analyses can help us to identify and attribute the impact of an intervention aimed at facilitating, for example, inter-disciplinary research – and can help us to better understand the spread of new ideas</p>
Economic evaluation	<p>Economic evaluation is principally concerned with quantifying the benefits (or outcomes) and costs of an intervention to assess whether the policy provided value for money. The most complete approach to this is a cost-benefit analysis (CBA), which quantifies both direct and indirect costs and benefits. Direct costs and benefits are, quite simply, the costs of implementing and delivering a policy, and the accrued benefits arising from increases in revenue or cashable savings from implementation. In addition to these direct costs and benefits, CBAs quantify as many of the indirect costs and benefits as possible, such as the wider social and environmental impacts. This may include, for example, changes to crime, air pollution and traffic, in addition to the costs/savings of staff time and associated overhead costs.</p> <p>Where indirect benefits cannot feasibly be quantified, a cost-effective analysis (CEA) is a useful, if less complete, way to assess whether an intervention has provided value for money. A CEA values the costs of implementing and delivering a policy and relates this cost to the total quantity of outcome generated. This facilitates a cost per unit of outcome estimate, such as the cost per additional highly-skilled job created.</p>