

MRC Translational Research 2008-2018

Evaluation Report: Methodology (Annex A2.2)



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Annex A2.2: Methodology

This Annex sets out the overarching methodology for the evaluation of 10 years of MRC translational research. It specifies the approaches taken to collect data to inform the evaluation.

1 Design of research instruments

The research instruments were designed through a collaborative process between Ipsos MORI, Technopolis and MRC. The instruments were influenced by development of the theory of change ([Annex A2.1](#)) and literature review ([Annex A2.3](#)), as well as discussions within the project team. To provide a detailed picture of translational research maturation, the evaluation analysis was focused on the progress and follow-on outcomes of individual projects rather than a researcher's portfolio of work.

Three discussion guides (see [Annex A2.4](#)) were designed for the Principal Investigator interviews. They cover the following key lines of enquiry:

- Background:
 - The primary aim of the project at its outset, and what you hoped to achieve.
 - The preparations that were most important in designing the project.
 - How the project was delivered, the teams that were crucial to its delivery, and key steps involved.
- Project outcomes:
 - How far the project execution aligned with prior expectations – what went well and what didn't go well and why. What steps were taken to mitigate this?
 - The key findings and outcomes from the project.
 - How this MRC project contributed to the overall programme of work of the PI.
 - Further activities that are planned to progress this work in future. The interviewer will want to obtain evidence of any onward development e.g. follow-on funding, commercialisation activity (details of any intellectual property obtained, spin outs created etc.).
- Commercialisation and technology transfer:
 - The possible scenarios in which the underlying research concept is transferred from the academic to the commercial sector
 - How onward development of the research may be carried out (largely by a third party)
 - Exploring the cases where the production of research findings that could be commercialised
- Wider impacts/issues:
 - Details of the experience of MRC translational funding (positive and negative) e.g. whether the project helped train researchers in understanding how to do translation, whether the tacit knowledge has been taken up by others, or influenced ways of working at your institution
 - Wider programme of work – other projects applied for, and successfully funded
 - The Interviewee's perception of the support for translational research at the institution level and more widely in the UK (at the project level and over time).
 - Anything else that you think we should know that will help MRC to support translational research

As part of the fieldwork, a small pilot was conducted with members from the MRC's Expert Advisory Group, before conducting a larger pilot with the first 30 interviewees to test the questionnaire and whether the recruitment process was working. Interviewers also received a full briefing as well as

written instructions about the questionnaire and interview process, including relevant background research on the award.

A similar approach was adopted for the development of the stakeholder discussion guide (see [Annex A2.4](#)) which was drafted by Technopolis. The key lines of enquiry include the following:

- The translational research landscape, how it has changed over the past 10 years, and any gaps in the funding landscape
- The components of a successful translational research system, and the role of public funding within
- If you are familiar with the MRC's activities: The MRC's contributions to research translation, including direct contributions in the form of new drugs and technologies, as well as underpinning knowledge, tools and infrastructure
- If you are familiar with the MRC's funding schemes, we will ask you to comment on which schemes have had an impact on your institution's translational research activity and approach (and why), and your suggestions for future schemes.
- Barriers to, and enablers of, translational research, in the past, current, and going forward.
- We will ask you to comment on 2-3 aspects you consider most important, such as collaboration, skills, infrastructure, availability of funding, institutional support, or attitudes towards translational research/culture.
- Knowledge transfer, i.e. how new discoveries and knowledge are taken up by the various actors in the innovation ecosystem. We will ask you to comment on knowledge transfer to industry, policy, clinical research settings and clinical practice, and take up of innovations by investors.
- Examples in the UK and globally of lessons learned and best practice in supporting translational research

As part of the fieldwork, a pilot was conducted with a member of the MRC's Expert Advisory Group to test the questionnaire. Interviewers also received a full briefing as well as written instructions about the questionnaire and interview process.

2 Sampling: Principal Investigator interviews

To ensure a suitable mix across the three interview groups (directed translational, non-directed translational, and other awards) required a four-stage sampling process. First was to filter out any researchers already selected for stakeholder interviews (see [Annex 2.6](#)). Second was to determine existing evidence of translational outcomes, based on:

- Direct evidence of translational advancement via milestone/end of project reports (DPFS only)
- Evidence of progression from medical products reported via Researchfish®
- Evidence of other translationally-relevant outputs in Researchfish®, by virtue of at least one instance of spinouts, IP licencing, collaborations with the private sector, collaboration with hospitals/clinicians and/or further funding from the private sector.

Awards were flagged as either having evidence of translational outcomes or not (although it is important to note this should not be used as an indication of whether research objectives were met or other measures of research progress).

Once the ratio of awards with evidence of translational outcomes to those with no such evidence available was determined across the three interview groups, we randomly sampled awards across the groups based on the final sampling criteria, i.e. by different directed translational initiatives and principal Investigator diversity data (gender, ethnicity, and age at time of award). Lastly where random sampling resulted in imbalance against these criteria, blinded re-sampling (random selection

from a list of project codes) was conducted to achieve a final selection for interview that matched the profile of the overall MRC portfolio as closely as possible. In this way the overall approach was purposeful (but whenever there was a choice to add projects we randomly selected from a list of project codes), we aimed to achieve a representative mix of projects with previously reported translational outcomes (which we assumed will have made translational progress) and also projects with no previously reported translational outcomes (a subset of which we assumed would have failed to make any progress). We kept in mind the need to also balance our interviewed set in terms of the demographics of researcher, and additionally with our targets for coverage across each initiative. We regularly needed to monitor the number of researchers that had agreed to be interviewed in each subset to determine whether more projects should be added to the list of potential interviewees.

3 Achieved sample: Principal investigator interviews

Interviews were achieved with 250 Principal Investigators (PIs), split across the four groupings of the MRC portfolio. The response rate of 64%; a total of 390 PIs invited to participate in the study with a target of 250 interviews. Overall 190 interviews were conducted with PIs who received a directed translational award (including 20 interviews with project leaders who received Confidence in Concept funding), 49 interviews were conducted with PIs who received a non-directed translational award and 11 interviews were conducted with PIs who received awards contained in the 'other' portfolio. The tables below detail the achieved sample, the total number of grants (i.e. awards completed by 01 April 2018) the total number of eligible grants (i.e. our actual sampling population) after exclusion of researchers already selected for stakeholder interviews (see [Annex 2.6](#)), multiple awards to the same researcher and awards completed after 2016 (meaning all interviewed researchers would focus on awards completed for at least one year).

Table 1.1: Sample profile – Directed translational

	Projects with existing evidence of translational outcomes ¹	No evidence of translational outcomes	% Projects with evidenced translational outcomes	% Projects without evidenced translational outcomes	TOTAL
Total number of grants	445	162	73%	27%	607
Total number of eligible grants (sampling population)	256	156	62%	38%	412
Achieved sample	126	64	66%	34%	190

¹ Existing evidence of translational outcomes as determined in section 3 above.

Table 1.2: Sample profile – non-directed translational

	Projects with existing evidence of translational outcomes ²	No evidence of translational outcomes	% Projects with evidenced translational outcomes	% Projects without evidenced translational outcomes	TOTAL
Total number of grants	455	508	47%	53%	963
Total number of eligible grants (sampling population)	337	483	41%	59%	820
Achieved sample	25	24	51%	49%	49

Table 1.2: Sample profile – Other awards

	Projects with existing evidence of translational outcomes ³	No evidence of translational outcomes	% Projects with evidenced translational outcomes %	% Projects without evidenced translational outcomes	TOTAL
Total number of grants	929	1694	35%	65%	2623
Selected sample⁴	11	N/A	100%	N/A	11

² Existing evidence of translational outcomes as determined in section 3 above.

⁴ Given the size of the 'other' award portfolio and small number of interviews, rather than random sampling we selected 11 researchers with existing evidence from a range of award types (research grants, institute core programmes and fellowships) to interview.

The achieved sample was reflective of the gender profile of the population of all eligible PIs from the directed translational portfolios. This is shown in the table below.

Table 1.3: Sample by gender

Gender	% of all Principal Investigators linked to eligible grants (based on MRC data)	% of Achieved sample (Principal Investigator interviews)
Male	72%	73%
Female	25%	25%
Not disclosed	2%	1%
Unknown	1%	1%

The table below shows the achieved sample by age at time of award. The achieved sample partially reflects the profile of the population of all eligible PIs from the directed translational portfolio. However, the achieved sample slightly overrepresent PIs that were 40-60 years old at the time of award.

Table 1.4: Sample by age at time of award

Age at time of award	% of all Principal Investigators linked to eligible grants (based on MRC data)	% of Achieved sample (Principal Investigator interviews)
<40	16%	18%
40-60	69%	74%
>60	7%	6%
Not disclosed	0%	0%
Unknown	8%	1%

A breakdown of the sample by ethnic group shows that the achieved sample varied slightly from the population of all eligible PIs from the directed translational portfolio. The achieved sample slightly overrepresents PIs that identify as White. This is shown in the table below.

Table 1.5: Sample by ethnic group

Ethnicity Group	% of all Principal Investigators linked to eligible grants (based on MRC data)	% of Achieved sample (Principal Investigator interviews)
White	79%	84%
Not Disclosed	7%	5%
Asian & Asian British	5%	7%
Chinese or Other	3%	3%
Unknown	5%	0%
Mixed	1%	1%
Black & Black British	0%	0%

⁵ Due to limited demographic data for the whole MRC portfolio, the demographic profile is derived from the PI data for the directed translational grouping.

The study team weighted the data using raking weights⁶ comprised of several variables that might influence the likelihood of PIs reporting translational progress or uptake – to account for the differences observed between the achieved sample and the overall population of PIs linked to eligible grants. However, applying these weights did not significantly impact on any measures of translational progress (see the main report for a detailed discussion of these) – therefore it was decided not to weigh the interview data.

4 Fieldwork: Principal Investigator Interviews

A team of over twenty Ipsos MORI researchers and Technopolis consultants interviewed 250 Principal Investigators who were awarded funding by the MRC. The interviewers received a half day briefing, delivered by representatives from the MRC including programme managers and those directly involved in overseeing the Translational Research Portfolio.

The interviews were conducted via telephone/Skype/Webex and were recorded (with the interviewees consent) for analysis purposes. The fieldwork ran from 6 December 2018 to 18 March 2019. Interviews typically lasted between 45 minutes to an hour.

Principal Investigators were approached by the MRC via email and invited to take part in an interview. Those who responded positively to the invitation, or did not opt out at this stage, were then contacted by a recruitment consultant and sent a calendar invitation, including a summary document providing information of the interview questions and a reminder of the specific award of interest to enable participants to prepare adequately. It was sometimes the case that the Principal Investigator was unavailable or distant from the award in question. In these cases, an alternative participant was suggested by the Principal Investigator and subsequently, they were contacted and invited to take part in an interview.

Researchers and consultants who conducted the interviews spent time familiarising themselves with the project background, the Principal Investigator and the team involved in delivering the project. This involved a full review of the application form or proposal, reading relevant publications and reviewing reported project outcomes on Gateway to Research (<https://gtr.ukri.org/>) among other preparatory activities. This was so that the interview could commence with a sound understanding of the project objectives, project delivery (where it was possible to access milestone reports) and project outcomes, engagement and dissemination activities. In most cases the interviewer was able to provide an upfront summary of the project, before spending the majority of the interview exploring the outcomes and impacts.

Full versions of the discussion guides used for the interviews are presented in [Annex A2.4](#).

5 Analysis of Principal Investigator interviews

Recordings from interviews with Principal Investigators were transcribed by a specialist transcription agency, and then reviewed, sorted and coded (into Nvivo) against (respective) qualitative thematic framework matrices by Ipsos MORI. This involved a mapping exercise to identify key words and phrases across all the transcripts. The emerging key words and phrases were then used to develop the thematic framework. Alongside the research team also drew on the emerging topics from discussions between MRC, Ipsos MORI and Technopolis, the knowledge and expertise of the project team and the objectives of the evaluation.

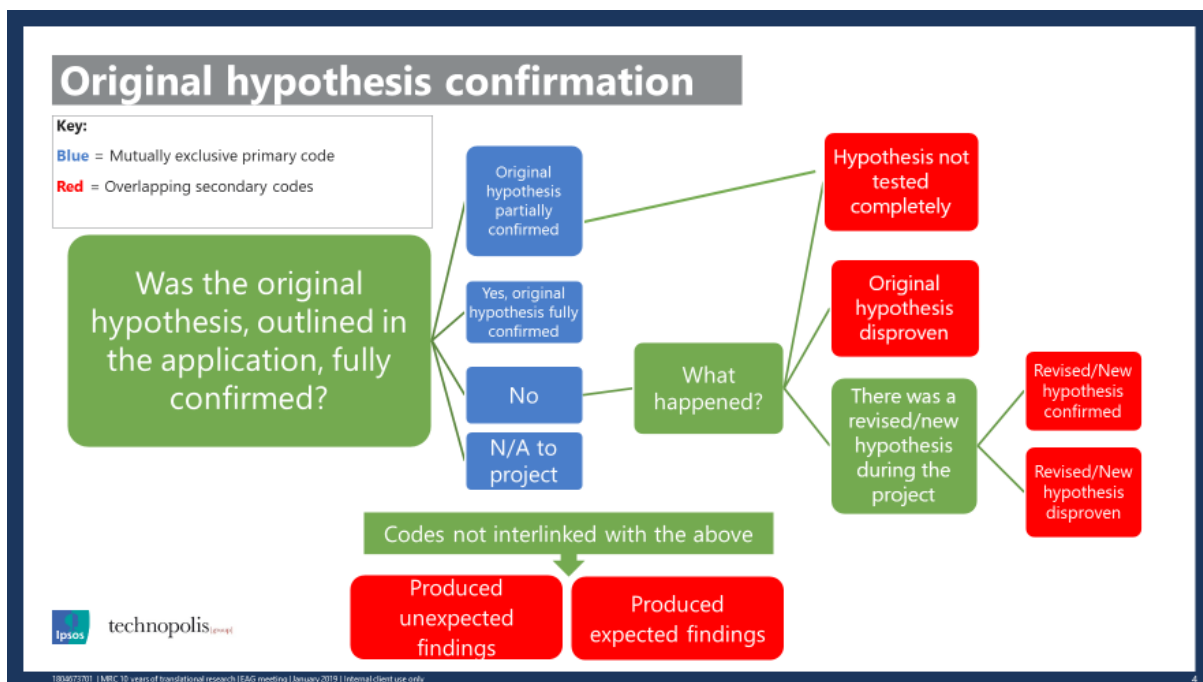
⁶ <https://www.pewresearch.org/methods/2018/01/26/how-different-weighting-methods-work/#raking>

The transcripts were then coded against the matrix. Each row of the matrix represents an interview, and each column a theme (e.g. barriers to translation). Each interview was coded for a broad range of variables that included themes, such as:

- Modality
- Status of Intellectual Property
- Development stage of core asset at beginning and end of project, as well as time of interview
- Whether the project generated evidence to support the hypothesis/disprove the hypothesis/hypothesis was adapted
- How the core asset of the project developed once the award had ended (i.e. Principal Investigator received further private/public funding to progress the core asset)
- Whether the award directly led to an outcome (i.e. spin-out, citation in NICE guidance, core asset adopted by industry).
- Barriers and lack of progress (e.g. lack of team resources or skills)
- Wider effects (e.g. award changed direction of Principal Investigator’s wider research)
- Collaboration during award / once award came to an end (e.g. evidence of private collaboration)

For quality assurance purposes, researchers used specially designed decision trees to assist with consistent coding of the data (see the Figure below). Researchers also held group meetings to manually quality assure all codes and come to a consensus (also drawing on external sources of evidence where appropriate).

Figure 1.2: Example of coding decision tree: hypothesis confirmation



Once validated, the data was analysed using Microsoft Excel to identify the key findings from the stakeholder groupings. This was combined with qualitative data from the interview transcripts using specific examples to highlight and emphasise key points/findings.

6 Sampling: Key stakeholder (KOL) interviews

The population of potential stakeholders (previously referred to as Key Opinion Leaders (KOL)) comprised 151 individuals categorised into six groups:

- Funding agencies (i.e. UK charitable organisations that fund translational research)
- International KOLs (i.e. researchers, consultants, head of research infrastructure/networks working overseas)
- Private sector representatives (i.e. individuals representing large pharm companies or active SMEs)
- Researchers/institutions funded by the MRC and active translators
- Technology Transfer Officers (i.e. knowledge exchange and technology transfer professions working with in UK university/research institutions)
- Venture capitalists working in the life sciences sector.

The sample was compiled based on known (and available) individuals the MRC wished to speak to, as well as input from Ipsos MORI and Technopolis on other individuals or representatives from venture capital, the private sector and the international setting who might provide a useful perspective.

The MRC took a purposive sampling approach to determine the quota for the sample seeking a wide range of views. For example, within the pool of researchers funded by the MRC we wished to have representatives from within London/Cambridge/Oxford and outside of these regions, within the pool of technology transfer organisations we wanted to have both large and small organisations represented.

Table 1.6: Sample for KOL interviews

Stakeholder categories	Pool
Funding agencies	8
International key opinion leaders	15
Private sector representatives	36
Researchers/institutions funded by the MRC and active translators	65
Venture capitalist active in life sciences sector	15
Technology Transfer	12
Grand Total	151

7 Achieved sample: Key Opinion Leaders (KOL) interviews

Interviews were achieved with 110 KOLs. This reflects 72% of the total number KOL contacts. Overall, five interviews were conducted with KOLs representing funding agencies, 11 interviews were conducted with International KOLs and 24 interviews were conducted with KOLs representing the private sector. A further 53 interviews were conducted with researchers/institutions funded by the MRC and active translators, eight interviews were conducted with venture capitalists active in life science sector and nine interviews were conducted with Technology Transfer Officers.

Table 1.7: Achieved sample

Stakeholder categories	Target	Achieved sample
Funding agencies	5	5
International key opinion leaders	11	11
Private sector representatives	26	24
Researchers/institutions funded by the MRC and active translators	54	53
Venture capitalist active in life sciences sector	10	8
Technology Transfer	13	9
Grand Total	119	110

8 Fieldwork: Key Opinion Leader (KOL) Interviews

A team of over twenty Ipsos MORI and Technopolis researchers interviewed 109 KOLs who had knowledge and/or experience of translational research. The interviews were conducted via telephone/Skype/Webex and were recorded (with the interviewees consent) for analysis purposes. The fieldwork ran from 11 February 2019 to 8 May 2019. Interviews typically lasted between 45 minutes to an hour.

KOLs were invited to take part by email sent to them by the MRC. Those who responded positively to the invitation were then contacted by a recruiter and sent a calendar invitation, including a summary document providing information of the interview questions. It was sometimes the case that the KOL was unavailable. In these cases, an alternative participant was suggested by the KOL and subsequently, they were contacted and invited to take part in an interview.

Full versions of the discussion guides used for the interviews are presented in [Annex A2.4](#).

9 Analysis of Key Opinion Leaders (KOL) interviews

Recordings from the KOL interviews were transcribed by a specialist transcription agency, and then reviewed, sorted and coded (into Nvivo) against (respective) thematic framework matrices by Technopolis. The involved a mapping exercise to identify key words and phrases across all the transcripts. The thematic framework was developed through a collaborative exercise involving discussions between MRC, Ipsos MORI and Technopolis, drawing on the knowledge and expertise of the project team, the objectives of the evaluation and a review of a sample of interview transcripts.

Each row of the matrices represents an interview, and each column a theme (e.g. barriers to translation). Once populated, each code was manually quality assured and, where appropriate or necessary, the coding was validated using additional data sources (e.g. mentions of NICE guidance citations were checked at the source to validate the statement).

Once validated, the data was analysed using Nvivo to identify the key findings from the portfolio groupings. This was combined with qualitative data from the interview transcripts using specific examples to highlight and emphasise key points/findings.