

MRC Translational Research 2008-2018

Evaluation Report: Discussion Guides (Annex A2.4)



Ipsos MORI

technopolis_[group]

Contents

ANNEX A2.4: DISCUSSION GUIDES	3
1 Principal investigator interviews: Medical products and interventions discussion guide ...	3
2 PI Interviews: Enabling research discussion guide	16
3 PI Interviews: Researcher-led discussion guide	26
4 Key stakeholder (KOL) discussion guide	39
5 Key stakeholder (KOL) interviews: Technology Transfer Officer discussion guide	48

Annex A2.4: Discussion guides

This Annex presents the discussion guides used to conduct principal investigator and stakeholder interviews. Discussion guides were produced to guide interviews with researchers leading projects focused on the development of a product, projects primarily aimed at enabling translational research, and projects in the non-directed portfolio (where translation or enabling translation may not be the primary objective). A different guide was produced for stakeholder interviews, and a further guide used for interviews with representatives of technology transfer offices. The process of developing the guides and map of the main points covered can be found in the methodology at [Annex A2.2](#).

1 Principal investigator interviews: Medical products and interventions discussion guide

BACKGROUND AND PREPARATION

- 1.1 Set up of the interview:** The interviewee has been selected as they lead an MRC funded project¹ ([NAME OF PROJECT] - “the project”), completed in the last ten years. They have agreed to be interviewed by IPSOS MORI/Technopolis on behalf of the MRC. The interviewee will have been sent a short outline of the interview points (Summary of interview structure document) and the statement about consenting to use of the feedback that they provide.
- 1.2 Purpose of the interview:** The purpose of this interview is to explore the applicants’ experience of undertaking the project, progressing its translational objectives, how this contributed to their wider research “programme” (the sum of other projects they manage, whether funded by the MRC or other research funders), and whether there have been any wider effects on academia/society/the economy. Claims of translational progress/outputs/impact should be evidenced by details and facts where possible.
- 1.3 Pre-interview preparation:** Prior to speaking to the project lead, the Ipsos/Technopolis researcher/consultant will need to analyse relevant project documentary evidence. This will include:
- Application form – interviewer to note a suggested starting TRL level for the work based on this information.
 - Reported outputs and outcomes (including Researchfish® and monitoring reports from milestone initiatives – Medical Research Council’s monitoring system) – interviewee to note potential evidence of progress, and possible current TRL level for the work
 - Relevant publications
 - PI MRC funding history and indications of other project outputs (using Gateway to Research)

Additionally, interviewers should prepare themselves by undertaking some background research into the disease area forming the focus of the project and the existing technologies or treatments available, and associated issues with their adequacy. There may also be some material available (e.g. academic and/or trade articles) describing the potential of the particular technology class being investigated which should be examined to develop an understanding of (1) the possible technical hazards associated with translation, (2) views on the potential of the technology resolve the address the underlying medical need

¹ There is potential for confusion to arise when using the term ‘**project**’. This term relates to the specific **award** made by the MRC which is the focus of this interview. “Programme” refers to the wider set of projects that the interviewee has funding to pursue (whether funded by the MRC or not), that were active at a similar time as the project.

and its potential advantages and disadvantages, and (3) competing technologies being developed by others.

THE INTERVIEW

2.0. Introduction (2.5 mins)

Introduce the context of the interview:

- these interviews are being undertaken as one of the components of an evaluation of the MRC's 10-year translational research programme.
- we are conducting 300 interviews with project leads, each lasting around an hour, to explore the applicants' experience of delivery of the translational components of their project as well as both the interim and long-term outputs and outcomes.

Mention that we have compiled information about their MRC funding history as well as that of other translationally active investigators.

- State that the project [NAME OF PROJECT] has been identified as an example of a [PROJECT TYPE]
- That we have received the application and output data about the project (reviewed in the pre-interview preparation).
- From this information, we know that the **project** has been funded under the [NAME OF FUNDING INITIATIVE/CALL] round and ran from [Month] [Year] to [Month] [Year].

3.0 Consent/confidentiality (2.5 mins)

It is essential that the interviewer asks for consent to record the interview and covers the bullets below.

State that the information that the interviewee provides will be treated in confidence by Ipsos MORI/Technopolis. The interview documentation, recording and notes will be securely deleted from Ipsos MORI/Technopolis files after publication of the evaluation report.

Factual data, opinions and views of participants gathered from the interviews may be used by the MRC for internal purposes. However, publication relating to the outcomes of the evaluation will only provide an aggregated and anonymised summary of participant feedback.

Can we have your permission to audio record the interview? The recording will be used to ensure that we transcribe details correctly, it will not be provided to anyone outside of Ipsos MORI/Technopolis and the MRC and will be destroyed as soon as we have completed analysis of the whole set of interviews.

To confirm, we would like to use your feedback and experience as an MRC grant recipient and request your permission for the following:

- To use the feedback you provide, together with any additional information you choose to disclose ("Information") for the evaluation study.
- We will share this information and any analysis we carry out as part of the evaluation study with the MRC, for its own internal purposes only.

- The MRC expect to publish aggregate, unattributed results from the study. An anonymised form of the interview, with all confidential information and personal data removed, may be included as part of a broader publication of the outcomes from the evaluation of the programme.

Once you have started the recording, please state the unique interviewee ID number (e.g. TReval003) and the grant reference number for the recording.

A - PROJECT BACKGROUND (10 mins)

This section seeks to establish the baseline position for the project at the point at which the MRC award was funded. The bullets indicate areas of information the interviewer should be looking to extract from the interview if applicable. While not suggested as questions to be asked they can be a guide for the areas to prompt further information from the PI.

Question 2 has importance in determining the position of the project along the translational pathway at the start of the project. The interviewer should use the appended table mapping the TRL scale to the specific research activities that typify each development as a means of probing responses.

A lot of background information can be obtained from documentation associated with the project – such as the application form, Researchfish® return and other monitoring reports. It is critical that interviews review this material in depth beforehand and adapt the following questions accordingly (e.g. to confirm aspects that are expressed in written documentation rather than to enquire) to focus the interview on gaps in MRC's knowledge about the project and outcomes.

1. Can you briefly describe the primary aim of the project, at its outset, and what you hoped to achieve?

You may wish to briefly state your understanding of the project's focus, aims and objectives based on the application – for validation. Points that are essential to capture as fully as possible:

- The type of development the project involved (e.g. a therapeutic, vaccine, biological, medical device, preventative intervention, disease management tool, support tool).
- How the work built on/sought to improve existing technologies or clinical practices.
- Who were/are the expected main beneficiaries/end users of the work?
- What was the progress that was expected to arise from the work, when the project was planned?

2. What preparations were most important in designing the project?

- Were there any competing technologies under development by others at the time of your application? At what stage of development were these competing programmes?
- In your preparations, did you identify any risks that could potentially undermine the success of the project?
- Had any considerations had been made regarding the commercial potential of the (potential) underlying technology (to note that the detail of actual progress in commercial exploitation will be covered later in the section on outputs).
- Was the status of any intellectual property related to the project aims clear? E.g. was IP licensed from others, was freedom to operate with materials/methods established? If so, please describe the nature of any property rights acquired – and whether this placed any constraints on what could be done in the project.
- What background research had been completed by the team that contributed to the design of the project? Did the underpinning science originate from the team or elsewhere?

- Did the team directly draw on research completed developed by others (either in academia or in the private sector)?
- Did these studies flag any possible threats or risks to the successful onward progression of the (potential) technology?

Interviewer note: *Establish/validate the starting TRL for the project using the information gathered here, if this was not clear from the project application.*

Note key issues considered by the team with relevance to translation (freedom to operate/intellectual property, background work, collaborations, key scientific challenges).

3. How was the project organised, which teams were crucial to its delivery?

- Who in the original project team came from different laboratories/institutions (including industry)?
- What were the roles of collaborators in the delivery of the project? What skills, assets, infrastructure or capabilities were they expected to contribute to the project?
- Were any new partners brought in to support the delivery of the project? How did these relationships form? What was the rationale for bringing in new collaborators? How were they expected to enhance project delivery (or make aspects of the project feasible)?
- Did you access advice concerning technology transfer in the design or delivery of the project? If so, how?

B - PROJECT OUTCOMES (30 mins)

Interviewer note: *Much of the information requested in the following questions – particularly around project design – are described in detail in the application form, and to some degree the probes below should be adapted to confirm understanding and update this information, rather than to extend the details already recorded. There needs to be some alertness to the possibility that the aims and objectives and/or the work programme may evolve in the course of project delivery and this may be imperfectly captured in the document. Interviewers should also familiarise themselves with the results of the project, as expressed in publications emerging from the project – these results can potentially be compared to any expectations expressed at the application stages to understand where the findings may have diverged from what was expected. Publications are listed with the Researchfish® data, but interviewers will need to be alert to the possibility that some (or in some cases many) of those will not be directly connected to the project, given the self-reported nature of this data. Projects may have many avenues of investigation; it is important to focus on the key elements of contributing to the translational aims of the programme.*

4. Could you describe the key elements executed within the work programme and how far this aligned with prior expectations?

- Were there any practical (project specific and external) challenges encountered in the delivery to the project (e.g. difficulties in recruitment of patients, access to specialised infrastructure or facilities, regulatory issues)? If so, why did these difficulties arise? Could adjustments have been made to the project design to overcome these difficulties/ what adjustments did you make?
- Did you encounter any gaps in fundamental understanding (or where the fundamental understanding was flawed – e.g. lack of reproducibility) that held up the execution of the work programme (e.g. availability of robust biomarkers, validated animal models, appropriate tools, methodologies)? Were these challenges anticipated at the start of the project? If not, why not? How were these challenges overcome (if at all)?

- Did inputs from collaborators meet expectations at the start of the project? What factors contributed to effective collaborative working on the project? What challenges were encountered in managing the inputs of collaborators?
- Did the execution of the project highlight that there were any critical skill, capability, or resource requirements that were not anticipated at the start of the project? What adjustments were made to the project to compensate for these gaps?
- What kind of support did you receive from your institution in the delivery of the project? How did this support facilitate (or obstruct) the delivery of the project?
- During the project did any new external parties (other academic teams, public, policy-makers, industry) take an interest in applying the results of your work?
- What were the nature of your engagement with these external parties?
- Did these engagements support the refinement of the (potential) underlying technology?

Responses to this section may depend on how long ago the project was completed.

5. What were the key findings of the project?

Interviewer note: *Establish/validate the TRL at the point of project completion using the information gathered here, if this was not clear from the project monitoring information.*

- How far did the actual outcomes of the project align with prior expectations?
- What was the main reasons for variance against expectations (where applicable)? What implications did these have for the (potential) underlying technology to meet the identified medical need?
- Were there any variations in the project milestones or deviations to the original project plan? Why was this?
- Did the findings of the project provide conclusive/sufficient data (or was there still a gap) to justify onward development to progress the underlying technology? If not, why not – probe here for issues/concerns regarding whether outcomes were not sufficient to justify risk/investment to the next step? This could also be due to outputs lacking in terms of validity of the target, the effectiveness of the technology in modulating the target (early signs of efficacy), toxicity concerns, off target effects, or other safety concerns, lack of sensitivity/specificity of the biomarker against gold standard?
- Were there any issues encountered in relation to the conclusiveness of the findings? Were there any aspects of the underlying research design that could have been altered to avoid these types of issue (e.g. did the research involve appropriate animal models / patient groups?)
- What were the key aspects of learning or knowledge generated from the project? How has this been disseminated?

Interviewer note: *Familiarity with the researcher's wider funding programme will help place the interviewees comments in the broader context of their work.*

6. How did this MRC funded project contribute to your overall programme of work?

- *In the absence of MRC funding/support how could this project have been taken forward?*
- *How could MRC funding further support you in the development of your translational activities?*

Interviewer note: *Here, the interviewer should consider the change of focus of the interview – moving from investigating the what happened/progress during the project to focus on what has happened/progress since the MRC-funded project was completed.*

7. Since completing the project, what attempts have you or others made to take forward the work programme or findings?

Clarification, we are seeking to establish what kind of outputs (if any), even if entirely unanticipated types of outputs have occurred – this could be that i) the knowledge has informed more discovery science, ii) there has been progress toward clinical utility and/or commercialisation iii) there has been no further progress.

If there has been no further progress this might be because the work was shelved, or because further resources to support onward progression could not be obtained. It is important to know if this has happened – why it has happened.

For those responding negatively – we would like to understand why this work was not progressed.

Probe for factors:

- Motivational factors associated with the PI or competing research priorities
- Gaps in fundamental knowledge/incorrect initial assumptions that prevent further development activities
- Intellectual property issues blocking further development of the underlying technology
- Gaps in institutional capabilities or skills to progress to larger scale programmes of activity
- Insufficiently conclusive results from development activity undertaken to date
- Concerns regarding the suitability/value of the underlying technology (e.g. safety and or efficacy issues, expected difficulties e.g. sensitivity or specificity of the biomarker not being able to meet gold standard, challenges with chemistry e.g. with solubility of candidate molecules, etc)
- Absence of complementary technologies required to support further development e.g. measurement technology for assay?
- Concerns regarding the potential costs of onward development activities
- Disengagement of critical collaborative partners
- Changes in the commercial context or competitive landscape – e.g. the emergence of a superior competing technology
- Adoption side issues – e.g. readiness or capacity of health systems to pay for/absorb the technology/absence of appropriate pathways to adoption/expected difficulties with procurement system

If the response is that there **has been progress**, quickly establish who was responsible for leading these attempts. If the interviewee has not led the work then they may not be best placed to comment, so determine the degree to which they are able respond to questions regarding the nature of any onward progression achieved. If it would be better to talk to other stakeholders can we contact them?

Interviewer note: Establish/validate the current TRL for the underlying technology taking into account the possibility that the medical product/intervention may have progressed beyond the life of the project. Use the information gathered through the interview, if this was not clear from the desk research on the outcomes.

8. What, if any, attempts were made to secure further academic, public, charitable, or private sources of funding to progress onward development of the underlying technology?

- Where are the impediments here? Or facilitators (e.g. TTO or RO assistance in locating VC's (to be explore on more detail later))?
- What types of funding sources were explored? Were attempts to secure follow-on funding successful? How much additional funding has been secured and from where?

- What difficulties were encountered in securing follow-on funding?
- How far were those difficulties related to scale of resources required to progress onward development activities?
- How far were any difficulties related to the level of progress achieved to date?
- How far did the development activity completed through the MRC funded project facilitate your attempts to obtain follow-on funding? In what ways?
- Note – if the interviewee highlights that they levered private resources through establishing a spin-out or via a licensing agreement, then stress that the interview will explore those experiences at a later stage, but we would like to focus on the evolution of the underlying technology in the interim

9. For those able to secure additional funding, or where there is good understanding of how other teams have taken this work forward - Can you describe the sequence of additional activities that have been completed (either by you or others) to progress the underlying technology?

- Have any practical challenges have been encountered in the delivering this programme of activity (e.g. difficulties in recruitment of patients, access to specialised infrastructure or facilities, regulatory issues)? If so, why did these difficulties arise? How have they been overcome?
- Has further development highlighted gaps/flaws in fundamental understanding that have caused hold-ups in the execution of the work programme? What are the nature of these gaps and what impact have had on your ability to progress the onward development of the underlying activities? What solutions have been found (and how)?
- Have you encountered any difficulties arising from skill, capability, or resource gaps within your institutions or wider networks? Or has progress been accelerated by these skills/resources being available? What impacts have these issues had on your ability to progress?
- What further support have you received from your institution in the delivery of this programme of further work? How did this support facilitate (or obstruct) the delivery of the project?
- How did the knowledge, skills (technical or non-technical), or relationships established through the MRC funded project help facilitate the delivery of this programme of work? Would this programme of work have been possible without the prior MRC funding?

10. How have collaborations evolved since the completion of the project?

- Have the relationships formed been sustained? Why/why not? Have any new collaborators become involved?
- How has the involvement of collaborators supported (or hindered) the progression of the project?
- What further interactions with clinicians, patients, policy maker, or industry partners not already forming the project collaboration have taken place? How have these activities supported the refinement of the underlying technology?

11. What have been the key results of this follow-on work?

- How far have findings to date confirmed the original idea driving the project?
- What revisions have been made? What implications does this have for scope for the (potential) underlying technology to meet the originally identified medical need?

- What further uncertainties regarding the onward development of the underlying technology have been resolved through this programme of on-going research (e.g. issues relating to validity of the target, GMP issues, etc)?
- Did the findings of the project provide conclusive data to justify further developmental research to progress the underlying technology? If not, why not – probe here for issues for concerns regarding the validity of the target, the effectiveness of the technology in modulating the target, toxicity concerns, off target effects, or other safety concerns?
- Are there ways in which the project developed your team skills or broader knowledge exchange?

12. What further activities are planned to progress this work in future?

- Are funds in place to resource these further translational activities?
- What are the timescales associated with these activities?
- Has this work resulted in more positions/researchers working in the area?
- What are you planning to do next, assuming this step is successful?

C - COMMERCIALISATION AND TECHNOLOGY TRANSFER

Interviewer note: This section of the topic guide focuses on possible scenarios in which the underlying technology concept is transferred from the academic to the commercial sector either via a licensing agreement (where onward development would be carried out largely by a third party) or a spin-out (where the university or research team establishes an external commercial vehicle to take forward development). **In both these cases, the PIs involvement may become more peripheral and some of these questions may be difficult for them to answer – particularly where the TTO played a prominent role. Researchfish® provides information on patenting and spin-out activity, but gives limited information on licensing agreements.**

It may therefore be most efficient to capture the contact details for the local TTO that can provide this information.

13. Has the project or on-going development activities led to any new knowledge that is potentially protectable with a patent or other forms of intellectual property rights (e.g. copyrights for software products)?

- If yes, has an application been made to register new intellectual property rights? If not, explore the possible reasons why not – e.g. relative costs and benefits of maintaining those rights, strategic considerations regarding the timing of patenting, level of support provided by academic institution/TTO/Translation Research Office
- Please describe the nature of the property rights have been acquired. Please describe the potential commercial value of what has been acquired (note here it is important to focus the interviewee on what others might gain from using the property right, rather than its technological properties/advantages).
- What was the underlying motivation for registering the intellectual property rights? Explore issues regarding the potential role of IP rights in blocking competing developing programmes, scope for licensing the technology, development of the asset base for a potential spin-out.

14. Have any attempts been made by your institution/TTO/Translational Research Office to enter into a licensing agreement with an industrial partner (note it is also possible that any spin-outs have sought to license the underlying technology)?

- How was interest from the industrial community in licensing the underlying generated? What role did the institution/TTO/Translation Research Office have in this process? What challenges were encountered?

- What impact did the originating MRC funded project have on the ability of the institution to generate interest in the industrial community? Why? Was the impact solely linked to technical development supported by the funding or were there properties associated with the funding that were important?
- Did the institution enter any negotiations with industrial partners to license the technology? What were the key factors that either held up or facilitated these negotiations?
- Did the institution successfully reach a licensing agreement with an industrial partner? Are you able to give the name of the licensee and/or the country in which they are domiciled?
- Can you describe the underlying motivations of the licensee? How did the technology align with their business plans? Were they seeking to develop the technology further or were their objectives defensive in nature (e.g. blocking the possible emergence of competing products)?
- Are you able to describe the key features associated with the agreement? E.g. what was the headline value of the agreement, how were the structure of payments linked to achievement of clinical milestones, how much income, has been generated to date, the nature of any restrictions on parallel exploitation of the technology?
- What pipeline agreements were agreed regarding future IP that might be developed by the research team? How have these agreements altered the direction and focus of your own research activities (if at all)?
- Do you have any knowledge of how the licensee has sought to progress the underlying technology? What further steps have been taken to progress the technology? What issues have arisen and how have they been resolved?
- What on-going interactions have you had with the licensee to help support the progression of the technology (if any)? How has this facilitated the onward progression of the technology?

Interviewer note: Before undertaking the interview, the interviewer should do the following research to explore the nature of any spin-out outcomes have been realised.

- *Researchfish® records capture details of spin-outs that have been reported in connection to the MRC funded research (including the name of the company).*
- *Interviewers should visit the company website to gather the following information:*
 - Details of the technologies under investigation by the spin-out. This will often be described in a section of the web-page labelled 'pipeline' – setting out the products under development and their current stage of development.
 - It is important to make a note of these technologies and determine to what degree the products under development can be connected to the research funded by the MRC. Also be aware that parallel technologies may have also have originated in MRC funded research.
 - Review the 'news' pages associated with the website which may reveal details of any major external equity investments made in the business (or in rare cases, acquisitions by other firms).
 - Enter the name of the company into Gateway to Research to determine if it has secured any funding from Innovate UK or the Research Councils.
 - There will be a small number of companies that have floated on the stock exchange through an initial public offering (IPO). In these cases, use Google to check the stock price history and look for large upswings or downswings in the stock price. These movements may be linked to the release of positive or disappointing findings from clinical trial or other activity – a secondary search for news articles relating to the company from the relevant period may highlight explanations.

The interviewer should also be alert to the following issues. Firstly, Researchfish® does not capture a comprehensive record of the spin-outs that have emerged from the research that has been funded, so the interview may determine that spin-outs have been established. Secondly, the Principal Investigator

may only have a limited role in the commercial management of the spin-out and may not be able to answer all the following questions in detail.

15. To what extent have you or others within your academic institution given active consideration to establishing a spin-out to progress onward development of the underlying technology?

- If not, explore the reasons why not – including readiness of the underlying technology, anticipated level of resources required to commercialise the technology, intellectual property considerations, commercial potential of the technology, motivations of researchers involved, or institutional barriers (e.g. level of support within the institution)
- If yes, have any attempts yet been made to establish a spin out? If not, why not? Establish any future plans to establish a spin out and the degree to which they are contingent on the achievement of additional development milestones.
- If yes, record the trading name of the spin-out and the year it was incorporated

16. If a spin-out has been established: Please describe the process through which the spin-out was established?

- Who was involved in the process of establishing the spin-out? What was your own role in establishing the spin-out? What equity stake did your institution take in the spin-out? How was the spin-out initially capitalised?
- What are the commercial objectives of the spin-out?
- What is the asset base for the spin-out? Does it license-in the underlying intellectual property from your institution? What is the structure of the licensing agreement? Is the spin-out also seeking to develop other underlying technologies that have been developed with MRC funding?
- What types of challenge were encountered in putting in place a commercial management team?
- What support was provided by your institution (e.g. the TTO or Translational Research Office) in establishing the spin-out? How did this facilitate (or obstruct) the process?
- What is your own (current) involvement in the activities of the spin-out? How much of your time do you dedicate to it?
- How did the MRC funded project facilitate these outcomes?

17. If a spin-out has been established: What further development of the underlying technology has been taken forward by the spin-out?

- How was this programme of work been funded? Have external equity investors (e.g. angel investors, VC funds) been brought on board? How much external funding has been raised to date? How much equity was raised in the spin-out's most recent funding round, and what share of equity was ceded to investors?
- What difficulties were encountered in raising further funds? What caused these difficulties? What impact has this had on the onward development of the underlying technology?
- In what ways did the MRC funded project help you attract private funding for the spin-out's activities? What contribution did it make in reducing the risk associated with developing the underlying technology? How important was this in attracting external investment? Did receiving MRC funding help in other ways?
- For those attracting external equity investors: To what degree have the presence of VC funds facilitated the delivery of the development programme? What have been the costs and benefits

of the involvement of external investors? How have they shaped the strategic direction of the spin-outs? What have been the positive and negative aspects of that influence?

- What are the future plans for the spin-outs? Is sufficient funding in place to continue on-going development of the underlying technology?

D - WIDER IMPACTS/ISSUES

18. How would you describe the skills and knowledge you were able to acquire through the delivery of the project?

- Probe for different categories of knowledge: e.g. fundamental biology, translational research process, regulatory frameworks, industrial processes and needs, clinical practice/needs of clinicians, healthcare system, patient needs, project management skills.
- How has this knowledge influenced the direction of your subsequent research priorities? To what degree did the project produce a greater interest or focus on translational research? Why?
- Have you initiated any subsequent programmes of research that have drawn directly on the knowledge acquired through the project? Please describe this research and how it was influenced by the project?
- Did the project influence your work in other ways – e.g. approach to research design, collaboration with industry or clinicians, project management, reputational impacts? Please provide examples of this influence.
- What formal knowledge outputs were produced as direct consequence of the project (including new methodologies or tools that could be re-used by others)? *Interviewer note: it is important to use this probe as an opportunity to validate which publications reported through Researchfish® can be directly attributed to the project.*

19. Has the tacit and/or formal knowledge generated by the project influenced/been taken up by others in the academic community, clinicians, private sector, or by policy makers?

- How was the knowledge transferred to these external groups, individuals, or organisations?
- Please give examples of how the results of the project have been used and/or influenced the design or delivery of parallel academic research projects delivered by others. Probe to determine if this influence is primarily in terms of influencing other programmes of translational research or in terms of stimulating further fundamental research. If possible, secure references to key publications that demonstrate that influence.
- Obtain examples of how the project has influenced the course of industrial research. Probe to determine the nature of these effects – e.g. by generating tools or methods that can be used to unlock parallel programmes of translational research, demonstrating that a particular novel technology is safe and/or effective, etc.
- Obtain examples of how the results of the project have influenced clinical practice. Determine whether this influence is primarily local in nature (e.g. improvements to private practice) or global (e.g. influence over clinical guidelines). In the latter case, capture the specific details of the guidelines claimed to be influenced to support follow-on/validatory desk research.
- Obtain examples of policy impact. It is important here to capture details of the specific policies thought to have been influenced, the nature of the influence, and where possible, other contributory factors to those changes.

20. Did the delivery of the project produce any wider improvements in the capacity of your institution to deliver, or influence the perception of engaging in, translational research?

- What broader skills and capabilities (including both human resource, physical and intangible capabilities) in translational research were built within the institution as direct result of the project?
- To what degree have those have had positive benefits for translational research within the institution, and how have these arisen (e.g. increased ability to attract further funding, deepened collaborative relationships with industry/investors/clinicians/patients/TTOs)?
- What is your perception of the culture within your institution towards translational research? Has the project resulted in any direct changes in the way that translational research is perceived In what ways have those changes manifested themselves overtime? How has the MRC played any role in shaping this?
- What is your perception of the culture within academia more broadly? Has this changed over time (if so, why)? Has the MRC played any role in shaping this?
- More broadly, to what degree in your view has MRC funding for translation research more broadly brought about changes in the way that translational research is supported in your institution?

21. Are there any other wider impacts that you can identify?

E - OTHER PROJECTS FUNDED / DECLINED FUNDING

Interviewer note: cover this section only if time allows.

Draft note: If there is interest in building an effective 'counterfactual' sample of declined projects to explore issues of the causal relationship between MRC funding and the outcomes explored above, then this would require a full repetition of the lines of enquiry above for those decline applications. The questions below provide a light touch means of allocating the project to the TRL scale at the start of the project and at the time of interviewer.

22. Please can you briefly tell me about other projects (or groups of related projects), if any, that you have received MRC funding for?

- Please give a brief overview of the types of background research that had been completed in advance of the application for funding.
- What subsequent progress has been made in taking forward the underlying technology? How have they progressed (e.g. have they lead to changes in TRL or contributed to translational support tools)?
- What enabled / inhibited this progression?

23. Can you tell me about other projects where you were declined funding by the MRC? Why were you declined?

- Please give a brief overview of the types of background research that had been completed in advance of the application for funding.
- Were you able to source funding from elsewhere? Please describe the source (e.g. funding organisation, amount).
- What subsequent progress has been made in taking forward the underlying technology? How have they progressed (e.g. have they lead to changes in TRL or contributed to translational support tools)?

- Where are they now? How have they progressed / impacted the translational process (e.g. have they lead to changes in TRL)?
- What enabled / inhibited this progression?

F - CLOSE / ROUND UP

27. Is there anything else you feel we should know to help MRC support translational research?

- Any questions for us about our work?

2 Principal investigator interviews: Enabling research discussion guide

BACKGROUND AND PREPARATION

Set up of the interview: The interviewee has been selected as they lead an MRC funded project² ([NAME OF PROJECT] – “the project”), completed in the last ten years. They have agreed to be interviewed by Ipsos MORI/Technopolis on behalf of the MRC. The interviewee will have been sent a short outline of the interview points (Summary of interview structure document) and the statement about consenting to use of the feedback that they provide.

Purpose of the interview: The purpose of this interview is to explore the applicants’ experience of undertaking the project, progressing its translational objectives, how this contributed to their wider research “programme” (the sum of other projects they manage, whether funded by the MRC or other research funders), and whether there have been any wider effects on academia/society/the economy. Claims of translational progress/outputs/impact should be evidenced by details and facts where possible.

Pre-interview preparation: Prior to speaking to the project lead, the Ipsos MORI/Technopolis researcher/consultant will need to analyse relevant project documentary evidence. This will include:

- Application form
- Reported outputs and outcomes (including Researchfish®) – *interviewee to note potential evidence of progress*
- Relevant publications
- PI MRC funding history and indications of other project outputs (using Gateway to Research)

Additionally, interviewers should prepare themselves by undertaking some background research into the disease areas forming the focus of the project and the existing science associated with the research area. There may be some material available (e.g. academic and/or trade articles) describing the potential of the particular scientific idea being investigated which should be examined to develop an understanding of (1) the possible technical hazards associated with translation, (2) views on the potential of the idea/area of research to address the underlying medical need and its potential advantages and disadvantages, and (3) competing ideas being developed by others.

THE INTERVIEW

2.0. Introduction (2.5 mins)

Introduce the context of the interview:

- These interviews are being undertaken as one of the components of an evaluation of the MRC’s 10-year translational research programme.

² There is potential for confusion to arise when using the term ‘**project**’. This term relates to the specific **award** made by the MRC which is the focus of this interview. “Programme” refers to the wider set of projects that the interviewee has funding to pursue (whether funded by the MRC or not), that were active at a similar time as the project.

Mention that we have compiled information about their MRC funding history as well as that of other translationally active investigators.

- State that the project [NAME OF PROJECT] has been identified as an example of a [PROJECT TYPE]
- that we have received the application and output data about the project (reviewed in the pre-interview preparation).
- From this information, we know that the **project** has been funded under the [NAME OF FUNDING INITIATIVE/CALL] round and ran from [Month] [Year] to [Month] [Year].

3.0. Consent/confidentiality (2.5 mins)

It is essential that the interviewer asks for consent to record the interview and covers the bullets below.

State that the information that the interviewee provides will be treated in confidence by Ipsos MORI/Technopolis. The interview documentation, recording and notes will be securely deleted from Ipsos MORI/Technopolis files after publication of the evaluation report.

Factual data, opinions and views of participants gathered from the interviews may be used by the MRC for internal purposes. However, publication relating to the outcomes of the evaluation will only provide an aggregated and anonymised summary of participant feedback.

Can we have your permission to audio record the interview? The recording will be used to ensure that we transcribe details correctly, it will not be provided to anyone outside of Ipsos MORI/Technopolis and the MRC and will be destroyed as soon as we have completed analysis of the whole set of interviews.

To confirm, we would like to use your feedback and experience as an MRC grant recipient and request your permission for the following:

- To use the feedback you provide, together with any additional information you choose to disclose (“Information”) for the evaluation study.
- We will share this information and any analysis we carry out as part of the evaluation study with the MRC, for its own internal purposes only.
- The MRC expect to publish aggregate, unattributed results from the study. An anonymised form of the interview, with all confidential information and personal data removed, may be included as part of a broader publication of the outcomes from the evaluation of the programme.

Once you have started the recording, please state the unique interviewee ID number (e.g. TReval003) and the grant reference number for the recording.

A – PROJECT BACKGROUND (10 mins)

This section seeks to establish the baseline position for the project at the point at which the MRC award was funded. The bullets indicate areas of information the interviewer should be looking to extract from

the interview if applicable. While not suggested as questions to be asked they can be a guide for the areas to prompt further information from the PI.

Projects in this part of the portfolio may not involve the prototypical product development pathway as described through the TRL scale. Instead, they aim to produce either knowledge in relation to basic understanding of disease biology (e.g. validation of animal models of disease) or the development of new tools (e.g. optimised clinical trial methodologies). As such, progress is more difficult to understand in terms of forwards progression through a sequence of well-defined development stages. However, these projects do result in knowledge based outputs that can be 'adopted' by users – e.g. use of new methodologies in clinical trials or application of validated animal models in pre-clinical research (in this sense, projects may progress straight from TRL 1/2 to TRL7).

A lot of background information can be obtained from documentation associated with the project – such as the application form, Researchfish® return and other monitoring reports. *It is critical that interviews review this material in depth beforehand and adapt the following questions accordingly (e.g. to confirm aspects that are expressed in written documentation rather than to enquire) to focus the interview on gaps in MRC's knowledge about the project and outcomes.*

1. Can you briefly describe the primary aim of the project, at its outset, and what you hoped to achieve?

You may wish to briefly state your understanding of the project's focus, aims and objectives based on the application – for validation. Points that are essential to capture as fully as possible:

- The type of research the project involved (e.g. research of scientific knowledge base; paper studies – development of ideas/hypotheses/experimental designs; data collection/analysis to test hypotheses; development of new/refinement of existing methodologies).
- How the work built on/sought to improve existing scientific knowledge
- How were the expected outputs of the project expected to be used more broadly in the translational research process? Who were the expected main beneficiaries/users of the work?

2. What preparations were most important in designing the project?

- What background research was completed that contributed to the design of the project? Did the underpinning science originate from the project team or elsewhere?
- Did the team directly draw on research developed by others (either in academia or in the private sector)?
- Was the status of any intellectual property related to the project aims clear (e.g. was IP licensed from others, was freedom to operate with materials/methods established)? If so, please describe the nature of any property rights acquired – and whether this placed any constraints on what could be done in the project.
- In your preparations, did you identify any risks that could potentially undermine the success of the project?

3. How was the project organised, which teams were crucial to its delivery?

- How many people in the original team came from different laboratories/institutions/organisations (including industry)? What essential skills were needed and why?
- What were the roles of collaborators in the delivery of the project? What skills, assets, infrastructure or capabilities were they expected to contribute to the project?

- Were any new partners brought in to support the delivery of the project? How did these relationships form? What was the rationale for bringing in new collaborators? How were they expected to enhance project delivery (or make aspects of the project feasible)?
- Did you access advice concerning technology transfer in the design or delivery of the project? If so, how?

Interviewer note: *This probe is likely to be relevant only in few cases given the nature of the projects under consideration.*

B - PROJECT OUTCOMES (30 mins)

Interviewer note: *Much of the information requested in the following questions – particularly around project design – are described in detail in the application form, and to some degree the probes below should be adapted to confirm understanding and update this information, rather than to extend the details already recorded. There needs to be some alertness to the possibility that the aims and objectives and/or the work programme may evolve in the course of project delivery and this may be imperfectly captured in the document. Interviewers should also familiarise themselves with the results of the project, as expressed in publications emerging from the project – these results can potentially be compared to any expectations expressed at the application stages to understand where the findings may have diverged from what was expected. Publications are listed with the Researchfish® data, but interviewers will need to be alert to the possibility that some (or in some cases many) of those will not be directly connected to the project, given the self-reported nature of this data. Projects may have many avenues of investigation; it is important to focus on the key elements of contributing to the translational aims of the programme.*

4. Could you describe the key elements executed within the work programme and how far this aligned with prior expectations?

- Were there any practical (project specific and external) challenges encountered in the delivery to the project? (If so): Why did these difficulties arise? Could adjustments have been made to the project design to overcome these difficulties/what adjustments did you make?
- Did you encounter any gaps in fundamental understanding (or where the fundamental understanding was flawed – e.g. lack or reproducibility) that held up the execution of the work programme? Were these challenges anticipated at the start of the project? If not, why not? How were these challenges overcome (if at all)?
- Did inputs from collaborators meet expectations at the start of the project? What factors contributed to effective collaborative working on the project? What challenges were encountered in managing the inputs of collaborators?
- Did the execution of the project highlight that there were any critical skill, capability, or resource requirements that were not anticipated at the start of the project? Why had they not been anticipated? What adjustments were made to the project to compensate for these gaps?
- What kind of support did you receive from your institution in the delivery of the project? How did this support facilitate (or obstruct) the delivery of the project?
- During the project did any new external parties (other academic teams, public, policy-makers, industry) take an interest in applying the results of your work?
- What was the nature of your engagement with these external parties?
- Did these engagements support the refinement of the research?

5. Was the project a success in its own terms? Was it delivered according to plan?

- (If successful): How do you define success? Did it achieve the project aims/objectives? What factors enabled the project to achieve these? Did it fulfil its scientific objectives? Did it meet its translational objectives? What enabled this?
- (If unsuccessful): How do you define unsuccessful? Operational failure – project took longer than anticipated; Scientific failure – e.g. good failure: project resulted in negative results/bad failure: research risks were not considered; lack of attention to implementation
- Did it fail to meet its project aims/objectives? What factors impeded the project achieving these (e.g. technical/methodological gap in knowledge)?
- (If not already covered) Was any part of the research aborted or did the focus change? What caused this change?
- What attempts were made/could have been made to overcome the challenges of delivering the project?

6. What were the key findings of the project?

- How far did the findings of the project align with prior expectations? Did findings confirm or disconfirm the original hypotheses?
- What was the main reasons for variance against expectations (where applicable)?
- What implications did these have in terms of the potential of the project to support its wider intended uses in the translational research process?
- What revisions to the original hypotheses were made during, or as a consequence of, the project? Why were these hypotheses revised? How did they differ from the original? Were these revised hypotheses explored through the project? What adjustments to the work programme were made to do this?

7. What were the potential wider uses or application of the findings?

- How could the findings inform or enhance wider programmes of translational research? Probe for different categories of users: e.g. policy makers, industrial community, academic community. Probe for potential types of use – e.g. development of new classes of therapy, design of clinical trials, informing clinical guidelines.
- If no potential application in translational research, probe for the reasons why not if not clear from preceding responses.
- Were the findings of the project sufficiently conclusive and/or complete to justify wider use or adoption?
- If not, what further development steps were needed?
- What, if any, attempts were made to secure further sources of funding (academic/charitable/private) to complete this further development? Were attempts to secure follow-on funding successful? What difficulties were encountered? How much additional funding has been secured and from where?
- Can you describe the sequence of additional activities that have been completed (either by you or others) to progress the research? What were the ultimate findings of this programme of research? What was the potential application of those findings in the translational research process?

***Interviewer note:** Familiarity with the researcher's wider funding programme will help place the interviewees comments in the broader context of their work.*

***Interviewer note:** Here, the interviewer should consider the change of focus of the interview – moving from investigating the what happened/progress during the project to focus on what has happened/progress since the MRC-funded project was completed.*

- 8. What formal outputs were produced as a direct consequence of the project (e.g. knowledge advancement, new methodologies or tools that could be re-used by others)?** *Interviewer note: it is important to use this probe as an opportunity to validate which publications or other outputs reported through Researchfish® can be attributed to the project.*

- *How have these outputs been made available to the wider translational research community?*
- *What efforts have been made to disseminate these outputs to the wider translational research community? Probe for both formal and informal dissemination mechanisms*
- *What efforts have been made to encourage the adoption or use of those outputs in wider programmes of translational research?*

- 9. Has the tacit and/or formal knowledge generated by the project influenced or been taken up by others in the academic community, clinicians, private sector, or by policy makers?** *Interviewer note: It is important to tailor the probes below to the anticipated or intended influence of the project in enabling programmes of wider translational research based on responses to the preceding questions. It is also important to obtain concrete evidence or examples of the influence achieved, rather than subjective perspectives. Researchers may not be fully aware of the degree to which their research has influenced others.*

- *Have the outputs of the project led to their anticipated (or potential) influence over the translational research community? Has the influence of the research been as widespread as expected? If not, why not?*
- *How has this influence been realised? What transmission/dissemination mechanisms have been most important in securing this influence?*
- *Please give examples of:*
 - *How the results of the project have been used and/or influenced the design or delivery of parallel **academic research** projects delivered by others. Probe to determine if this influence is primarily in terms of influencing other programmes of translational research or in terms of stimulating further fundamental research. If possible, secure references to key publications that demonstrate that influence.*
 - *Examples of how the project has influenced the course of **industrial research**. Probe to determine the nature of these effects – e.g. by generating tools or methods that can be used to unlock parallel programmes of translational research, supporting the development of new targets for therapies, filling gaps in fundamental understanding holding back translation efforts. Where possible, identify specific companies that have built on the knowledge acquired through the project.*
 - *Examples of how the results of the project have influenced **clinical practice**. Determine whether this influence is primarily local in nature (e.g. improvements to private practice) or global (e.g. influence over clinical guidelines). In the latter case, capture the specific details of the guidelines claimed to be influenced to support follow-on/validatory desk research.*
 - *Examples of **policy impact**. It is important here to capture details of the specific policies thought to have been influenced, the nature of the influence, and where possible, other contributory factors to those changes.*

- 10. How did this MRC funded project contribute to your overall programme of work?**

- *In the absence of MRC funding/support how could this project have been taken forward?*
- *How could MRC funding further support you in the development of your translational activities?*

C COMMERCIALISATION AND TECHNOLOGY TRANSFER

Interviewer note: *This section of the topic guide focuses on possible scenarios in which the underlying research concept is transferred from the academic to the commercial sector via a licensing agreement (where onward development may be carried out largely by a third party). It is anticipated that the following section will not be relevant for many of the projects being funded, but extensive probes are provided to help explore those cases which did lead onto the production of research findings that could be commercialised.*

In this case, the PIs involvement may become more peripheral and some of these questions may be difficult for them to answer – particularly where the TTO played a prominent role. Researchfish® provides information on patenting, but gives limited information on licensing agreements. It may therefore be most efficient to capture the contact details for the local TTO that can provide this information.

11. Has the project or on-going development activities led to any new knowledge that is potentially protectable with a patent or other forms of intellectual property rights (e.g. copyrights for software products)?

- Please describe the nature of the potentially protectable knowledge.
- If yes, has an application been made to register new intellectual property rights? If not, explore the possible reasons why not – e.g. relative costs and benefits of maintaining those rights, strategic considerations regarding the timing of patenting, level of support provided by academic institution/TTO/Translation Research Office
- Please describe the nature of the property rights have been acquired. Please describe the potential commercial value of what has been acquired (note here it is important to focus the interviewee on what others might gain from using the property right, rather than its technological properties/advantages).
- What was the underlying motivation for registering the intellectual property rights? Explore issues regarding the potential role of IP rights in blocking competing developing programmes, scope for licensing the translational concept.

12. Have any attempts been made by your institution/TTO/Translational Research Office to enter into a licensing agreement with an industrial partner?

- How was interest from the industrial community in licensing the underlying research concept generated? What role did the institution/TTO/Translation Research Office have in this process? What challenges were encountered?
- What impact did the originating MRC funded project have on the ability of the institution to generate interest in the industrial community? Why? Was the impact solely linked to technical development supported by the funding or were there properties associated with the funding that were important?
- Did the institution enter any negotiations with industrial partners to license the translational concept? What were the key factors that either held up or facilitated these negotiations?
- Did the institution successfully reach a licensing agreement with an industrial partner? Are you able to give the name of the licensee and/or the country in which they are domiciled?
- Can you describe the underlying motivations of the licensee? How did underlying research concept align with their business plans? Were they seeking to develop it further or were their objectives defensive in nature (e.g. blocking the possible emergence of competitors)?

- Are you able to describe the key features associated with the agreement? E.g. what was the headline value of the agreement, how were the structure of payments linked to achievement of milestones, how much income, has been generated to date, the nature of any restrictions on parallel exploitation of the translational concept?
 - What pipeline agreements were agreed regarding future IP that might be developed by the research team? How have these agreements altered the direction and focus of your own research activities (if at all)?
 - Do you have any knowledge of how the licensee has sought to progress the underlying research concept? What further steps have been taken to progress this? What issues have arisen and how have they been resolved?
 - What on-going interactions have you had with the licensee to help support the progression of the translational concept (if any)? How has this facilitated the onward progression of this?
- 13. To what extent have you or others within your academic institution given active consideration to establishing a spin-out to progress onward development of the translational concept?**
- If not, explore the reasons why not –, anticipated level of resources required to commercialise the translational concept, intellectual property considerations, commercial potential of the translational concept, motivations of researchers involved, or institutional barriers (e.g. level of support within the institution)
 - If yes, have any attempts yet been made to establish a spin out? If not, why not? Establish any future plans to establish a spin out.
 - If yes, record the trading name of the spin-out and the year it was incorporated
- 14. If a spin-out has been established: Please describe the process through which the spin-out was established?**
- Who was involved in the process of establishing the spin-out? What was your own role in establishing the spin-out? What equity stake did your institution take in the spin-out? How was the spin-out initially capitalised?
 - What are the commercial objectives of the spin-out?
 - What is the asset base for the spin-out? Does it license-in the underlying intellectual property from your institution? What is the structure of the licensing agreement? Is the spin-out also seeking to develop other underlying technologies that have been developed with MRC funding?
 - What types of challenge were encountered in putting in place a commercial management team?
 - What support was provided by your institution (e.g. the TTO or Translational Research Office) in establishing the spin-out? How did this facilitate (or obstruct) the process?
 - What is your own (current) involvement in the activities of the spin-out? How much of your time do you dedicate to it?
 - How did the MRC funded project facilitate these outcomes?
- 15. If a spin-out has been established: What further development of the translational concept has been taken forward by the spin-out?**
- How was this programme of work been funded? Have external equity investors (e.g. angel investors, VC funds) been brought on board? How much external funding has been raised to date? How much equity was raised in the spin-out's most recent funding round, and what share of equity was ceded to investors?

- What difficulties were encountered in raising further funds? What caused these difficulties? What impact has this had on the onward development of the translational concept?
- In what ways did the MRC funded project help you attract private funding for the spin-out's activities? What contribution did it make in reducing the risk associated with developing the translational concept? How important was this in attracting external investment? Did receiving MRC funding help in other ways?
- For those attracting external equity investors: To what degree have the presence of VC funds facilitated the delivery of the development programme? What have been the costs and benefits of the involvement of external investors? How have they shaped the strategic direction of the spin-outs? What have been the positive and negative aspects of that influence?
- What are the future plans for the spin-outs? Is sufficient funding in place to continue on-going development of the translational concept?

D - WIDER IMPACTS/ISSUES

16. How would you describe the wider skills and knowledge you were able to acquire through the delivery of the project?

- Probe for different categories of knowledge: e.g. fundamental biology, translational research process, regulatory frameworks, industrial processes and needs, clinical practice/needs of clinicians, healthcare system, patient needs, project management skills.
- How has this knowledge influenced the direction of your subsequent research priorities? To what degree did the project produce a greater interest or focus on translational research? Why?
- Have you initiated any subsequent programmes of research that have drawn directly on the knowledge acquired through the project? Please describe this research and how it was influenced by the project?
- Did the project influence your work in other ways – e.g. approach to research design, project management, reputational impacts? Please provide examples of this influence.

17. How have the collaborative relationships formed evolved since the completion of the project?

- What benefits did you derive from working in collaboration? Have the relationships formed been sustained?
- How has working in collaboration influenced your subsequent research priorities? How
- Have you initiated any subsequent programmes of research as a result of the collaborative relationships you formed? Please describe this research and how it was influenced by the project?

18. Did the delivery of the project produce any wider improvements in the capacity of your institution to deliver, or influence the perception of engaging in, translational research?

- What broader skills and capabilities (including both human resource, physical and intangible capabilities) in translational research were built within the institution as direct result of the project?
- To what degree have those have had positive benefits for translational research within the institution, and how have these arisen (e.g. increased ability to attract further funding, deepened collaborative relationships with industry/investors/clinicians/patients/TTOs)?
- What is your perception of the culture within your institution towards translational research? Has the project resulted in any direct changes in the way that translational research is perceived In what ways have those changes manifested themselves overtime? How has the MRC played any role in shaping this?

- What is your perception of the culture within academia more broadly? Has this changed over time (if so, why)? Has the MRC played any role in shaping this?
- More broadly, to what degree in your view has MRC funding for translation research more broadly brought about changes in the way that translational research is supported in your institution?

19. Are there any other wider impacts that you can identify?

E - OTHER PROJECTS FUNDED / DECLINED FUNDING

Interviewer note: cover this section only if time allows.

Draft note: If there is interest in building an effective 'counterfactual' sample of declined projects to explore issues of the causal relationship between MRC funding and the outcomes explored above, then this would require a full repetition of the lines of enquiry above for those decline applications. The questions below provide a light touch means of allocating the project to the TRL scale at the start of the project and at the time of interviewer.

20. Please can you briefly tell me about other projects (or groups of related projects), if any, that you have received MRC funding for?

- Please give a brief overview of the types of background research that had been completed in advance of the application for funding.
- What subsequent progress has been made in taking forward the research? How have they progressed (e.g. have they contributed to translational support tools)?
- What enabled / inhibited this progression?

21. Can you tell me about other projects where you were declined funding by the MRC? Why were you declined?

- Please give a brief overview of the types of background research that had been completed in advance of the application for funding.
- Were you able to source funding from elsewhere? Please describe the source (e.g. funding organisation, amount).
- What subsequent progress has been made in taking forward the research? How have they progressed (e.g. have they contributed to translational support tools)?
- Where are they now? How have they progressed / impacted the translational?
- What enabled / inhibited this progression?

F. Close / round up

22. Anything which you feel we should know to help MRC support translational research?

- Any questions for us about our work?

3 PI Interviews: Researcher-led discussion guide

BACKGROUND AND PREPARATION

1.1 Set up of the interview: The interviewee has been selected as they lead an MRC funded project³ ([NAME OF PROJECT] – “the project”), completed in the last ten years. They have agreed to be interviewed by Ipsos MORI/Technopolis on behalf of the MRC. The interviewee will have been sent a short outline of the interview points (Summary of interview structure document) and the statement about consenting to use of the feedback that they provide.

1.2 Purpose of the interview: The purpose of this interview is to explore the applicants’ experience of undertaking the project, the level of translational focus within the project (and progressing any translational objectives), how this contributed to their wider research “programme” (the sum of other projects they manage, whether funded by the MRC or other research funders), and whether there have been any wider effects on academia/society/the economy. Claims of translational progress/outputs/impact should be evidenced by details and facts where possible.

1.3 Pre-interview preparation: Prior to speaking to the project lead, the Ipsos MORI/Technopolis researcher/consultant will need to analyse relevant project documentary evidence. This will include:

- Application form
- Reported outputs and outcomes (including Researchfish®) – *interviewee to note potential evidence of progress*
- Relevant publications
- PI MRC funding history and indications of other project outputs (using Gateway to Research)

Additionally, interviewers should prepare themselves by undertaking some background research into the disease areas forming the focus of the project and the existing science associated with the research area. There may be some material available (e.g. academic and/or trade articles) describing the potential of the particular scientific idea being investigated which should be examined to develop an understanding of (1) the possible technical hazards associated with translation, (2) views on the potential of the idea/area of research to address the underlying medical need and its potential advantages and disadvantages, and (3) competing ideas being developed/research being conducted by others.

THE INTERVIEW

2.0. Introduction (2.5 mins)

Introduce the context of the interview:

- These interviews are being undertaken as one of the components of an evaluation of the MRC’s 10-year translational research programme.

³ There is potential for confusion to arise when using the term ‘**project**’. This term relates to the specific **award** made by the MRC which is the focus of this interview. “Programme” refers to the wider set of projects that the interviewee has funding to pursue (whether funded by the MRC or not), that were active at a similar time as the project.

Mention that we have compiled information about their MRC funding history as well as that of other translationally active investigators.

- State that the project [NAME OF PROJECT] has been identified as an example of a [PROJECT TYPE]
- That we have received the application and output data about the project (reviewed in the pre-interview preparation).
- From this information, we know that the **project** has been funded under the [NAME OF FUNDING INITIATIVE/CALL] round and ran from [Month] [Year] to [Month] [Year].

3.0. Consent/confidentiality (2.5 mins)

It is essential that the interviewer asks for consent to record the interview and covers the bullets below.

State that the information that the interviewee provides will be treated in confidence by Ipsos MORI/Technopolis. The interview documentation, recording and notes will be securely deleted from Ipsos MORI/Technopolis files after publication of the evaluation report.

Factual data, opinions and views of participants gathered from the interviews may be used by the MRC for internal purposes. However, publication relating to the outcomes of the evaluation will only provide an aggregated and anonymised summary of participant feedback.

Can we have your permission to audio record the interview? The recording will be used to ensure that we transcribe details correctly, it will not be provided to anyone outside of Ipsos MORI/Technopolis and the MRC and will be destroyed as soon as we have completed analysis of the whole set of interviews.

To confirm, we would like to use your feedback and experience as an MRC grant recipient and request your permission for the following:

- To use the feedback you provide, together with any additional information you choose to disclose (“Information”) for the evaluation study.
- We will share this information and any analysis we carry out as part of the evaluation study with the MRC, for its own internal purposes only.
- The MRC expect to publish aggregate, unattributed results from the study. An anonymised form of the interview, with all confidential information and personal data removed, may be included as part of a broader publication of the outcomes from the evaluation of the programme.

Once you have started the recording, please state the unique interviewee ID number (e.g. TReval003) and the grant reference number for the recording.

A – PROJECT BACKGROUND (10 mins)

This section seeks to establish the translational relevance of the project and its baseline position at the point at which the MRC award was funded. The bullets indicate areas of information the interviewer should be looking to extract from the interview if applicable. While not suggested as questions to be asked, they can be a guide for the areas to prompt further information from the PI.

These projects have been identified as translationally relevant due to translational objects stated in the grant abstract or the outputs that have been reported through Researchfish® (e.g. development of a medical product or a spin-out) and, therefore, the background information associated with the project (i.e. the application form) must be reviewed with a critical eye to

establish and understand the translational relevance of the project. It is essential that interviewers review this material in depth beforehand and adapt the following questions accordingly (e.g. to confirm the translational relevance of the project and other aspects that are expressed in written documentation rather than to enquire) to focus the interview on gaps in MRC's knowledge about the translational relevance of the project and any related outcomes.

1. ('Other' awards only): The following [CITE TRANSLATIONALLY RELEVANT OUTPUTS] were reported in connection with your MRC funded project in your Researchfish® returns.

- Can I confirm that the grant directly contributed to these outputs? If so, how?
- To what degree is it valid to infer from this that the research involved translational activities or otherwise produced results with the potential to benefit the translation process?

Interviewer note: You will need to draw a judgement here as to whether the interview should continue. If the reported outputs have no connection to the grant and/or had no translational relevance, then thank the interviewer and close.

2. (All awards – from now on): Can you briefly describe the primary aim of the project, at its outset, and what you hoped to achieve?

You may wish to briefly state your understanding of the project's focus, aims and objectives based on the application – for validation. Points that are essential to capture as fully as possible:

- The type of research the project involved.
- How the work built on/sought to improve existing scientific knowledge.

3. To what extent did the project involve a focus on translational activities (either direct translation of fundamental research into clinical practice or production of knowledge with potential to aid or enhance translation efforts on a broader basis)?

- Please describe the translational focus/objectives of the project? How did they relate to the wider project?
- How significant were these objectives in the context of the overall project?
- Was the translational focus of the projects planned from the outset? If not, how and why did the project develop a focus on translation? Did the focus on translation become more or less significant as the project progressed? If so, why?
- How were the translational activities of the project expected to be used more broadly in the translational research process (e.g. development of a new therapy, new tools, methodologies, identification of new targets for therapies)? Who were the expected main beneficiaries/users of the work? **Interviewer note:** The answer to this question should be used to steer the discussion – some projects may be following more of a product development route, and others more an 'enabling knowledge pathway'.
- What personal role did you have in the translational components of the research?

Interviewer note: You will again need to draw a judgement here as to whether the interview should continue. If the PI is unable to discuss the translational components of the research (perhaps because it was taken forward by a coinvestigator), there may be little value in taking the interview forward. Additionally, the interview should also be terminated if the project had no focus on translation (suggesting a 'false positive' in autocoding).

4. How were the translational components of the project organised, which teams were crucial to its delivery?

- How many people in the original team came from different laboratories/institutions/organisations (including industry)? What essential skills were needed and why?
- What were the roles of collaborators in the delivery of the project? What skills, assets, infrastructure or capabilities were they expected to contribute to the project?
- Were any new partners brought in to support the delivery of the project? How did these relationships form? What was the rationale for bringing in new collaborators? How were they expected to enhance project delivery (or make aspects of the project feasible)?
- Did you access advice concerning technology transfer in the design or delivery of the project? If so, how? **Interviewer note:** This probe is likely to be relevant only in few cases given the nature of the projects under consideration.

5. What preparations were most important in designing the translational component of the project?

- What background research was completed that contributed to the design of the project? Did the underpinning science originate from the project team or elsewhere?
- Did the team directly draw on research developed by others (either in academia or in the private sector)?
- Was the status of any intellectual property related to the project aims clear (e.g. was IP licensed from others, was freedom to operate with materials/methods established)? If so, please describe the nature of any property rights acquired – and whether this placed any constraints on what could be done in the project.
- In your preparations, did you identify any risks that could potentially undermine the success of the project?

Interviewer note: Establish/validate the starting activities for the project using the information gathered here, if this was not clear from the project application. Note key issues considered by the team with relevance to translation (freedom to operate/intellectual property, background work, collaborations, key scientific challenges).

B - PROJECT OUTCOMES (10 mins)

Interviewer note: Much of the information requested in the following questions – particularly around project design – are described in detail in the application form, and to some degree the probes below should be adapted to confirm understanding and update this information, rather than to extend the details already recorded. There needs to be some alertness to the possibility that the aims and objectives and/or the work programme may evolve in the course of project delivery and this may be imperfectly captured in the document. Interviewers should also familiarise themselves with the results of the project, as expressed in publications emerging from the project – these results can potentially be compared to any expectations expressed at the application stages to understand where the findings may have diverged from what was expected. Publications are listed with the Researchfish data, but interviewers will need to be alert to the possibility that some (or in some cases many) of those will not be directly connected to the project, given the self-reported nature of this data. Note that throughout - we want to focus on the translational component of the research rather than the project overall.

6. Could you describe the delivery of the translational component of the project?

- Were there any practical (project specific and external) challenges encountered in the delivery to the translational component of the project? (If so): Why did these difficulties arise? Could adjustments have been made to the project to overcome these difficulties/what adjustments did you make?
- Did you encounter any gaps in fundamental understanding (or where the fundamental understanding was flawed – e.g. lack or reproducibility) that held up the delivery of the translational component of the project? Were these challenges anticipated at the start of the project? If not, why not? How were these challenges overcome (if at all)?
- How (if at all) did inputs from collaborators support the development of the project's translational component? Was this anticipated at the start of the project? What factors contributed to effective collaborative working? What challenges were encountered in managing the inputs of collaborators?
- Did the development of the project's translational component highlight any critical skill, capability, or resource requirements that were not anticipated at the start of the project? Why had they not been anticipated? What adjustments were made to the project to compensate for these gaps?
- What kind of support did you receive from your institution in the delivery of the project's translational component? How did this support facilitate (or obstruct) delivery?
- During the project did any new external parties (other academic teams, public, policy-makers, industry) take an interest in applying the results of your work?
- What was the nature of your engagement with these external parties?
- Did these engagements support the refinement of the research?

7. Was the translational component of the project a success in its own terms?

- (If successful): How do you define success? Did it achieve its objective? What factors enabled this achievement? Did it fulfil its scientific objectives?
- (If unsuccessful): How do you define unsuccessful (operational failure – project took longer than anticipated; scientific failure – e.g. good failure: project resulted in negative results/bad failure: research risks were not considered; lack of attention to implementation)?
- Did it fail to meet its project aims/objectives? What factors impeded the project achieving these?
- Did it fail to develop/progress the translational concept? What barriers prevented this from happening (e.g. technical/methodological gap in knowledge)?
- (if not already covered) Was any part of the translational component of the research aborted or did the focus change? What caused this change?
- What attempts were made/could have been made to overcome the challenges of delivering the project?

8. What were the key findings of the project's translational component?

- How far did these findings align with prior expectations?
- Did the findings confirm or disconfirm the original hypotheses?
- What was the main reasons for variance against expectations (where applicable)?
- What implications did these have in terms of the potential of the project to support its wider intended uses in the translational research process?
- What revisions to the original hypotheses were made during, or as a consequence of, the project? Why were these hypotheses revised? How did they differ from the original? Were these revised hypotheses explored through the project? What adjustments to the work programme were made to do this?

***Interviewer note:** Familiarity with the researcher's wider funding programme will help place the interviewees comments in the broader context of their work.*

9. What were the potential wider uses or application of the findings from the translation component?

- How could the findings inform or enhance wider programmes of translational research? Probe for different categories of users: e.g. policy makers, industrial community, academic community. Probe for potential types of use – e.g. development of a medical product, development of new classes of therapy, design of clinical trials, informing clinical guidelines.
- If no potential application in translational research, probe for the reasons why not if not clear from preceding responses.
- Were these findings sufficiently conclusive and/or complete to justify wider use, adoption, or progression to further development activities (in the case of projects developing products)?
- At the end of the project, what further development steps were needed to achieve the potential translational impact of the underlying idea, concept or technology?

10. How did this MRC funded project contribute to your overall programme of work?

- In the absence of MRC funding/support how could this project have been taken forward?
- How could MRC funding further support you in the development of your translational activities?

***Interviewer note:** Here, the interviewer should consider the change of focus of the interview – moving from investigating the what happened/progress during the project to focus on what has happened/progress since the MRC-funded project was completed.*

C – POST-COMPLETION OUTCOMES (20 mins)

24. Since completing the project, what effect has the knowledge generated by the project had on progressing your programme of work and/or the work of other teams?

***Clarification,** we are seeking to establish what kind of outputs (if any), even if entirely unanticipated types of outputs have occurred – this could be that i) the knowledge has informed more discovery science, ii) there has been progress toward clinical utility and/or commercialisation iii) there has been no further progress.*

If there has been no further progress this might be because the work was shelved, or because further resources to support onward progression could not be obtained. It is important to know if this has happened – why it has happened.

***For those responding negatively** – we would like to understand why this work was not progressed.*

Probe for factors:

- Motivational factors associated with the PI or competing research priorities
- Gaps in fundamental knowledge/incorrect initial assumptions that prevent further development activities
- Intellectual property issues blocking further development of the underlying technology
- Gaps in institutional capabilities or skills to progress to larger scale programmes of activity

- Insufficiently conclusive results from development activity undertaken to date
- Concerns regarding the suitability/value of the underlying technology (e.g. safety and or efficacy issues, expected difficulties e.g. sensitivity or specificity of the biomarker not being able to meet gold standard, challenges with chemistry e.g. with solubility of candidate molecules, etc)
- Absence of complementary technologies required to support further development e.g. measurement technology for assay?
- Concerns regarding the potential costs of onward development activities
- Disengagement of critical collaborative partners
- Changes in the commercial context or competitive landscape – e.g. the emergence of a superior competing technology
- Adoption side issues – e.g. readiness or capacity of health systems to pay for/absorb the technology/absence of appropriate pathways to adoption/expected difficulties with procurement system

If the response is that there has been progress, quickly establish who was responsible for leading these attempts. If the interviewee has not led the work then they may not be best placed to comment, so determine the degree to which they are able respond to questions regarding the nature of any onward progression achieved. If it would be better to talk to other stakeholders can we contact them?

12. If interviewee signals further development work needed. What, if any, attempts were made to secure further academic, public, charitable, or private sources of funding to progress onward development of the translational component of the originating project?

- Where are the impediments here? Or facilitators (e.g. TTO or RO assistance in locating VC's (to be explored in more detail later))?
- What types of funding sources were explored? Were attempts to secure follow-on funding successful? How much additional funding has been secured and from where?
- What difficulties were encountered in securing follow-on funding?
- How far were those difficulties related to scale of resources required to progress onward development activities?
- How far were any difficulties related to the level of progress achieved to date?
- How far did the development activity completed through the MRC funded project facilitate your attempts to obtain follow-on funding? In what ways?
- Note – if the interviewee highlights that they levered private resources through establishing a spin-out or via a licensing agreement, then stress that the interview will explore those experiences at a later stage, but we would like to focus on the evolution of the underlying technology in the interim

13. For those able to secure additional funding, or where there is good understanding of how other teams have taken this work forward - can you describe the sequence of additional activities that have been completed (either by you or others) to progress the underlying translational concept, ideas or concept?

- Have any practical challenges have been encountered in the delivering this programme of activity (e.g. difficulties in recruitment of patients, access to specialised infrastructure or facilities, regulatory issues)? If so, why did these difficulties arise? How have they been overcome?
- Has further development highlighted gaps/flaws in fundamental understanding that have caused hold-ups in the execution of the work programme? What are the nature of these gaps and what

impact have had on your ability to progress the onward development of the underlying activities? What solutions have been found (and how)?

- Have you encountered any difficulties arising from skill, capability, or resource gaps within your institutions or wider networks? Or has progress been accelerated by these skills/resources being available? What impacts have these issues had on your ability to progress?
- What further support have you received from your institution in the delivery of this programme of further work? How did this support facilitate (or obstruct) the delivery of the project?
- How did the knowledge, skills (technical or non-technical), or relationships established through the MRC funded project help facilitate the delivery of this programme of work? Would this programme of work have been possible without the prior MRC funding?

14. How have collaborations evolved since the completion of the project?

- Have the relationships formed been sustained? Why/why not? Have any new collaborators become involved?
- How has the involvement of collaborators supported (or hindered) the progression of the project?
- What further interactions with clinicians, patients, policy maker, or industry partners not already forming the project collaboration have taken place? How have these activities supported the refinement of the underlying technology? What challenges were involved in securing the involvement of other collaborators?

15. What have been the key results of this follow-on work?

- How far have findings to date confirmed the original idea driving the project?
- What revisions have been made? What implications does this have for scope for the (potential) underlying technology to meet the originally identified medical need?
- What further uncertainties regarding the onward development of the underlying technology have been resolved through this programme of on-going research (e.g. issues relating to validity of the target, GMP issues, etc)?
- Did the findings of the project provide conclusive data to justify further developmental research to progress the underlying technology? If not, why not – probe here for issues for concerns regarding the validity of the target, the effectiveness of the technology in modulating the target, toxicity concerns, off target effects, or other safety concerns?
- Are there ways in which the project developed your team skills or broader knowledge exchange?

16. What further activities are planned to progress this work in future?

- Are funds in place to resource these further translational activities?
- What are the timescales associated with these activities?
- Has this work resulted in more positions/researchers working in the area?
- What are you planning to do next, assuming this step is successful?

D - COMMERCIALISATION AND TECHNOLOGY TRANSFER

Interviewer note: This section of the topic guide focuses on possible scenarios in which the underlying research concept is transferred from the academic to the commercial sector via a licensing agreement (where onward development would be carried out largely by a third party). It is anticipated that the following section will not be relevant for many of the projects being funded, but extensive probes are

provided to help explore those cases which did lead onto the production of research findings that could be commercialised.

In this case, the PIs involvement may become more peripheral and some of these questions may be difficult for them to answer – particularly where the TTO played a prominent role. Researchfish® provides information on patenting but gives limited information on licensing agreements. It may therefore be most efficient to capture the contact details for the local TTO that can provide this information.

17. Has the project or on-going development activities led to any new knowledge that is potentially protectable with a patent or other forms of intellectual property rights (e.g. copyrights for software products)?

- Please describe the nature of the potentially protectable knowledge.
- If yes, has an application been made to register new intellectual property rights? If not, explore the possible reasons why not – e.g. relative costs and benefits of maintaining those rights, strategic considerations regarding the timing of patenting, level of support provided by academic institution/TTO/Translation Research Office
- Please describe the nature of the property rights have been acquired. Please describe the potential commercial value of what has been acquired (note here it is important to focus the interviewee on what others might gain from using the property right, rather than its technological properties/advantages).
- What was the underlying motivation for registering the intellectual property rights? Explore issues regarding the potential role of IP rights in blocking competing developing programmes, scope for licensing the technology.

18. Have any attempts been made by your institution/TTO/Translational Research Office to enter into a licensing agreement with an industrial partner?

- How was interest from the industrial community in licensing the underlying research concept generated? What role did the institution/TTO/Translation Research Office have in this process? What challenges were encountered?
- What impact did the originating MRC funded project have on the ability of the institution to generate interest in the industrial community? Why? Was the impact solely linked to technical development supported by the funding or were there properties associated with the funding that were important?
- Did the institution enter any negotiations with industrial partners to license the technology? What were the key factors that either held up or facilitated these negotiations?
- Did the institution successfully reach a licensing agreement with an industrial partner? Are you able to give the name of the licensee and/or the country in which they are domiciled?
- Can you describe the underlying motivations of the licensee? How did underlying research concept align with their business plans? Were they seeking to develop it further or were their objectives defensive in nature (e.g. blocking the possible emergence of competitors)?
- Are you able to describe the key features associated with the agreement? E.g. what was the headline value of the agreement, how were the structure of payments linked to achievement of milestones, how much income, has been generated to date, the nature of any restrictions on parallel exploitation of the translational concept?
- What pipeline agreements were agreed regarding future IP that might be developed by the research team? How have these agreements altered the direction and focus of your own research activities (if at all)?

- Do you have any knowledge of how the licensee has sought to progress the underlying research concept? What further steps have been taken to progress this? What issues have arisen and how have they been resolved?
- What on-going interactions have you had with the licensee to help support the progression of the translational concept (if any)? How has this facilitated the onward progression of this?

19. To what extent have you or others within your academic institution given active consideration to establishing a spin-out to progress onward development of the project's translational component?

- If not, explore the reasons why not –, anticipated level of resources required to commercialise the component, intellectual property considerations, commercial potential of the component, motivations of researchers involved, or institutional barriers (e.g. level of support within the institution)
- If yes, have any attempts yet been made to establish a spin out? If not, why not? Establish any future plans to establish a spin out.
- If yes, record the trading name of the spin-out and the year it was incorporated

20. If a spin-out has been established: Please describe the process through which the spin-out was established?

- Who was involved in the process of establishing the spin-out? What was your own role in establishing the spin-out? What equity stake did your institution take in the spin-out? How was the spin-out initially capitalised?
- What are the commercial objectives of the spin-out?
- What is the asset base for the spin-out? Does it license-in the underlying intellectual property from your institution? What is the structure of the licensing agreement? Is the spin-out also seeking to develop other underlying technologies that have been developed with MRC funding?
- What types of challenge were encountered in putting in place a commercial management team?
- What support was provided by your institution (e.g. the TTO or Translational Research Office) in establishing the spin-out? How did this facilitate (or obstruct) the process?
- What is your own (current) involvement in the activities of the spin-out? How much of your time do you dedicate to it?
- How did the MRC funded project facilitate these outcomes?

21. If a spin-out has been established: What further development of the underlying technology has been taken forward by the spin-out?

- How was this programme of work been funded? Have external equity investors (e.g. angel investors, VC funds) been brought on board? How much external funding has been raised to date? How much equity was raised in the spin-out's most recent funding round, and what share of equity was ceded to investors?
- What difficulties were encountered in raising further funds? What caused these difficulties? What impact has this had on the onward development of the translational component?
- In what ways did the MRC funded project help you attract private funding for the spin-out's activities? What contribution did it make in reducing the risk associated with developing the project's translational component? How important was this in attracting external investment? Did receiving MRC funding help in other ways?
- For those attracting external equity investors: To what degree have the presence of VC funds facilitated the delivery of the development programme? What have been the costs and benefits of

the involvement of external investors? How have they shaped the strategic direction of the spin-outs? What have been the positive and negative aspects of that influence?

- What are the future plans for the spin-outs? Is sufficient funding in place to continue on-going development of the project's translational component?

E - WIDER IMPACTS (20 minutes)

22. What formal knowledge outputs were produced as direct consequence of the project's translational component (e.g. new methodologies or tools that could be re-used by others)
Interviewer note: it is important to use this probe as an opportunity to validate which outputs reported through Researchfish® can be directly attributed to the project.

- How have these outputs been made available to the wider translational research community?
- What efforts have been made to disseminate these outputs to the wider translational research community? Probe for both formal and informal dissemination mechanisms
- What efforts have been made to encourage the adoption or use of those outputs in wider programmes of translational research?

23. Has the tacit and/or formal knowledge generated by the project influenced or been taken up by others in the academic community, clinicians, private sector, or by policy makers?

Interviewer note: It is important to tailor the probes below to the anticipated or intended influence of the project based on responses to the preceding questions (i.e. was the translational component about enabling research or the development of a medical product). It is also important to obtain concrete evidence or examples of the influence achieved, rather than subjective perspectives. Researchers may not be fully aware of the degree to which their research has influenced others.

- Have the outputs of the project's translational component led to their anticipated (or potential) influence over the translational research community? Has the influence of the research been as widespread as expected? If not, why not?
- How has this influence been realised? What transmission/dissemination mechanisms have been most important in securing this influence?
- Please give examples of:
 - How the results of the project have been used and/or influenced the design or delivery of parallel **academic research** projects delivered by others. Probe to determine if this influence is primarily in terms of influencing other programmes of translational research or in terms of stimulating further fundamental research. If possible, secure references to key publications that demonstrate that influence.
 - Examples of how the project has influenced the course of **industrial research**. Probe to determine the nature of these effects – e.g. by generating tools or methods that can be used to unlock parallel programmes of translational research, supporting the development of new targets for therapies, filling gaps in fundamental understanding holding back translation efforts. Where possible, identify specific companies that have built on the knowledge acquired through the project.
 - Examples of how the results of the project have influenced **clinical practice**. Determine whether this influence is primarily local in nature (e.g. improvements to private practice) or global (e.g. influence over clinical guidelines). In the latter case, capture the specific details of the guidelines claimed to be influenced to support follow-on/validatory desk research.

- Examples of **policy impact**. It is important here to capture details of the specific policies thought to have been influenced, the nature of the influence, and where possible, other contributory factors to those changes.

24. How would you describe the wider skills and knowledge you were able to acquire through the delivery of the project?

- Probe for different categories of knowledge: e.g. fundamental biology, translational research process, regulatory frameworks, industrial processes and needs, clinical practice/needs of clinicians, healthcare system, patient needs, project management skills.
- How has this knowledge influenced the direction of your subsequent research priorities? To what degree did the project produce a greater interest or focus on translational research? Why?
- Have you initiated any subsequent programmes of research that have drawn directly on the knowledge acquired through the project? Please describe this research and how it was influenced by the project?
- Did the project influence your work in other ways – e.g. approach to research design, project management, reputational impacts? Please provide examples of this influence.

25. How have the collaborative relationships formed evolved since the completion of the project?

- What benefits did you derive from working in collaboration? Have the relationships formed been sustained?
- How has working in collaboration influenced your subsequent research priorities? How
- Have you initiated any subsequent programmes of research as a result of the collaborative relationships you formed? Please describe this research and how it was influenced by the project?

26. Did the delivery of the project produce any wider improvements in the capacity of your institution to deliver, or influence the perception of engaging in, translational research?

- What broader skills and capabilities (including both human resource, physical and intangible capabilities) in translational research were built within the institution as direct result of the project?
- To what degree have those have had positive benefits for translational research within the institution, and how have these arisen (e.g. increased ability to attract further funding, deepened collaborative relationships with industry/investors/clinicians/patients/TTOs)?
- What is your perception of the culture within your institution towards translational research? Has the project resulted in any direct changes in the way that translational research is perceived? In what ways have those changes manifested themselves overtime? How has the MRC played any role in shaping this?
- What is your perception of the culture within academia more broadly? Has this changed over time (if so, why)? Has the MRC played any role in shaping this?
- More broadly, to what degree in your view has MRC funding for translation research more broadly brought about changes in the way that translational research is supported in your institution?

27. Are there any other wider impacts that you can identify?

F - OTHER PROJECTS FUNDED / DECLINED FUNDING

Interviewer note: cover this section only if time allows.

Draft note: If there is interest in building an effective 'counterfactual' sample of declined projects to explore issues of the causal relationship between MRC funding and the outcomes explored above, then this would require a full repetition of the lines of enquiry above for those decline applications. The questions below provide a light touch means of allocating the project to the TRL scale at the start of the project and at the time of interviewer.

28. Please can you briefly tell me about other projects (or groups of related projects), if any, that you have received MRC funding for?

- Please give a brief overview of the types of background research that had been completed in advance of the application for funding.
- What subsequent progress has been made in taking forward the research? How have they progressed (e.g. have they contributed to translational support tools)?
- What enabled / inhibited this progression?

29. Can you tell me about other projects where you were declined funding by the MRC? Why were you declined?

- Please give a brief overview of the types of background research that had been completed in advance of the application for funding.
- Were you able to source funding from elsewhere? Please describe the source (e.g. funding organisation, amount).
- What subsequent progress has been made in taking forward the research? How have they progressed (e.g. have they contributed to translational support tools)?
- Where are they now? How have they progressed / impacted the translational?
- What enabled / inhibited this progression?

G - CLOSE / ROUND UP

30. Anything which you feel we should know to help MRC support translational research?

- Any questions for us about our work?

4 Key stakeholder (KOL) discussion guide

To note:

Some of the key stakeholders are active, very successful researchers. The interviewer needs to steer the interviewee away from talking about their own research field; rather, the interview should explore general, broad aspects of translational research landscape (and the role of the MRC/funders within).

Interviewers should spend some time to ascertain the interviewee's background and role, and determine which sections and sub-sections to cover. As the programme of interviews involves a broad range of stakeholders, some questions may need additional tailoring to individual interviewees.

The interviewer will need to enquire about three time periods:

- What was the situation 10 years ago
- What changed over the past 10 years and what is the situation now
- What can the interviewee see going forward / arising.

The time period to be commented on needs to be made clear during questioning.

The MRC are interested in specific examples supporting opinions expressed and illustrating any changes, barriers and enablers. Please try to capture these through your questions.

1.1 Introduction (5 min)

Introduce the context of the interview:

- These interviews are being undertaken as one of the components of an evaluation of the MRC's 10-year translational research programme.
- As you are aware, the MRC is a UK funding body, with the mission to improve human health through world-class medical research. MRC awards support basic and early translational research, including Phase I and early Phase II clinical trials.
- In a parallel interview programme, we are talking to researchers about specific MRC-funded research projects, to hear about their experience of undertaking the project and progress made.

In this interview, we would like to ask about your experience and views on:

- the MRC's contributions to the broader UK system of support for translational research
- current barriers to and enablers of research translation, as well as examples of best practice you may be aware of, in the UK and elsewhere
- potential future strategies and funding approaches that would further improve research translation.

Consent/confidentiality:

It is essential that the interviewer asks for consent to record the interview and covers the bullets below.

Do we have your permission to audio record the interview? The recording will be only used to ensure that we transcribe details correctly, it will not be provided to anyone outside of Ipsos MORI/Technopolis, and will be destroyed as soon as we have completed analysis of the whole set of interviews.

To confirm, we would like to request your permission for the following:

- May we use the feedback you provide, together with any additional information you choose to disclose, for the evaluation study?
- May we share this information and any analysis we carry out as part of the evaluation study with the MRC, for its own internal purposes only?
- The MRC expect to publish aggregate, unattributed results from the study. An anonymised form of the interview, with all confidential information and personal data removed, may be included as part of a broader publication of the outcomes from the evaluation of the programme. Is this OK with you?

Once you have started the recording, please state the unique interviewee ID number (e.g. KOL_003) for the recording.

Definition of translational research:

Before we start, I would like to define the term 'translational research':

The aim of the MRC's translational strategy is to drive innovation, facilitate the transfer of best ideas into new interventions, and improve the return on investment in fundamental research.

For this study, translational research is defined as: "The principle of turning fundamental discoveries into improvements in human health and economic benefit."

While this is the long-term objective for activities funded by the MRC, most of the supported research takes place in the early stages of the innovation pipeline. This can include direct contributions, through discovery and development of new interventions and technologies, as well as broader contributions, such as underpinning knowledge, tools, and infrastructure which are then employed by other actors in the translational research ecosystem.

1.2 Interviewee background (3 min)

[Short; interviewers to prepare ahead of the interview]

- Could I confirm your current role(s): You are currently [...] at [...]
- Could you briefly describe your involvement with and expertise in relation to translational research?
- Have you worked with the MRC in the past? If yes, could you outline how?

1.3 The Translational Research landscape and the role of public funding (10 min)

[Setting the scene – research landscape]

- Could you describe the main changes over the last 10 years in the [UK/your country's/global] translational research landscape? e.g.
 - Type of R&D activity in different sectors, along translational pathway
 - Levels of investment; sources of funding
 - Impact of R&D for patients
 - Policy changes, such as developments in public health policy / NICE guidelines
- What were the key drivers for these changes [in the UK/in your country/globally]?
 - Research developments, e.g. new technologies / modalities in the R&D pipeline

- - Economic developments, e.g. 2008 downturn and effect on company R&D; industrial researchers move to academia to set up “translational drug discovery centres” when big pharma downsized; market failure for antibiotics, vaccines and treatment for certain rare diseases
- Changes in government policy
- Changes in culture / attitude:
 - in the research community
 - in industry / the investor community
 - Pre-competitive collaboration platforms (IMI, Lilly’s Open Innovation Drug Discovery platform, GSK’s Discovery Partnerships with Academia (DPAc))
- Other

[role of public funders]

- How would you summarise the key ingredients of a ‘successful translational research landscape’?
- What do you consider the role of public funding in translational research?
 - Generation of underpinning knowledge
 - Bridging funding gap between discovery science funding and VC funding
 - De-risking new areas for the private sector to step in
 - Addressing health needs and innovation of limited interest to the private sector
 - Independent expert advice

[impact of MRC / public funders - overview]

- Over the last 10 years, what role has [MRC/public funding] played in driving and enabling translational research?
 - What have been the main areas of impact [the MRC / public funders] achieved / contributed to?
 - Can you provide examples?
- Can you identify any gaps in the current funding landscape? How do other funders complement the MRC’s funding activities?
- Looking ahead, are there any gaps or risks you can see arising?
- Overall, do you think [the UK / your country’s] research community is better equipped for translational research now than it was 10 years ago? Please explain.
 - What have been the key improvements over the past 10 years?
- Are there specific measures by [the MRC/public funders] you think were essential to this? (e.g. impact statements, funding dedicated to translational research, brokering relationships with industry and NHS through partnership)

For funders only [remaining barriers /gaps / enablers – overview (this will be covered in detail with award recipients and stakeholders in later sections)]

- What do you consider the main barriers from discovery to impact?
- What are the key enablers overcoming barriers to research translation?

- Could gaps/barriers be addressed by [the MRC / public funders], or by others in the translational research landscape? What are some measures not currently taken (or insufficiently so) that would have significant impact on supporting research translation?
- Why do you think these measures have not been taken? (E.g. not aware, gap in responsibilities within funding landscape, insufficient budget, objectives not fully aligned, high risk of attrition, lack of leadership and coordination)

1.4 The MRC's translational research schemes (10 min)

- Which of the MRC's funding schemes have had a strong impact?
[on your institution's level of translational research activity / on translational research activity in the UK] – for research institutions/organisations
[on your organisation's interaction with and uptake of MRC-funded research] – for stakeholders
 - What were the effects?
 - Were there specific aspects of the funding scheme that were crucial to its positive impact? (E.g. call text, pathway to impact statements, DPFS milestones, selection process, support provided during the proposal preparation and project lifetime)
- Do you have suggestions for:
 - How to improve existing schemes?
 - The focus or nature of future schemes?

Only interviewees familiar with NIHR/MRC:

- How do MRC and NIHR funding streams and activities complement each other?
 - How do the funded activities interface?
 - Are there any issues?
- Have there been any changes over the past 10 years? If yes, please explain.

1.5 Barriers and enablers to translational research and the MRC's impact (15 min)

Operational and economic barriers can occur along all stages of the translational research pathway. Some of the barriers to and enablers for translational research are: collaboration, skills, infrastructure, availability of funding, institutional support and attitudes/culture. There are of course others.

In the interest of time, could you let me know which 2 – 3 aspects you consider the most important, which we will then focus on?

1) Collaboration:

lack of communication/collaboration between academic researchers and clinicians and industry; distrust between collaborating partners incl. unresolved differences in aims/ research practice

- How important was this barrier 10 years ago; how important is it now?
 - What were the main drivers of change?
- To what extent has the MRC contributed to overcoming this barrier over the past 10 years? What were the key measures taken?
 - What has been the effect? E.g. deepened collaborative relationships between researchers and industry/ clinicians/patients, follow-on funding, enhanced information exchange, skills?

- What could the MRC do to improve the situation further?

2) Skills:

E.g. knowledge gaps in academic research teams, e.g. in how to tailor / validate research projects for progression to later stages of development; knowledge gap in industry research teams on underlying biological mechanisms; knowledge gap and/or capacity issues in universities support function, e.g. TTO

- How important was this barrier 10 years ago; how important is it now?
 - What were the main drivers of change?
- To what extent has the MRC contributed to overcoming this barrier over the past 10 years? What were the key measures taken?
- What skills did this build at your institution / organisation / in the community?
- What has been the effect in relation to translational research?
- • What could the MRC do to improve the situation further?

3) Infrastructure:

lack of underpinning infrastructure such as access to compound libraries, high-throughput screening, preclinical ADME, safety and efficacy testing, GMP facilities; data capabilities, access to patients, advanced trial design

- How important was this barrier 10 years ago; how important is it now?
 - What were the main drivers of change?
- To what extent has the MRC contributed to overcoming this barrier over the past 10 years? What were the key measures taken?
 - What have / are other funders contributing? e.g. is MRC-funded translational research drawing on BRU/BRCs, AHSNs, EPSRC-funded centres, industry partners?
 - What essential infrastructure is now in place that was not there 10 years / 5 years ago? Examples
- What other infrastructure should be prioritised and established to drive forward translational research?

4) Funding:

e.g. lack of funds for translational research in academia; lack of gap funding between grants; lack of follow-on funding (public or private)

- How important was this barrier 10 years ago; how important is it now?
 - What were the main drivers of change?
- To what extent has the MRC contributed to overcoming this barrier over the past 10 years? What were the key measures taken?
 - What has been the effect?
- What could the MRC do to improve the situation further?

5) Institutional support:

insufficient support, e.g. for regulatory process, IP and contracts, quality assurance, ethics; requirements of academic institution not conducive to industry collaboration

- What measures has [your institution / have institutions in the UK] established over the past 10 years to support translational research?
 - How is this helping your work?
 - What were the main drivers of change?
- To what extent has the MRC contributed to this, and through which measures?
 - What has been the effect? e.g. increased ability to attract further funding, fewer 'knowledge & skills' failures, easier partnering
- What could the MRC do to improve the situation further?

6) Incentives and culture:

e.g. translational research outputs and team-work not aligned with academic career progression; research translation not valued by academic researcher / academic institutions (such as intellectual property rights, data sharing)

- How important was this barrier 10 years ago; how important is it now?
 - What were the main drivers of change?
- Has the MRC's funding resulted in any direct changes in the way that translational research is perceived at your institutions? Has your institution changed in the way it values and promotes translational research?
 - How does this manifest itself?
 - What has been the effect?
- In the wider UK academic community: Do you think there has been a change in attitude and culture vis-a-vis translational research over the past 10 years?
 - How does this manifest itself?
 - Are there differences across institutions, research areas, geographic location (e.g. within innovation clusters), career stage, gender? If yes, could you describe these differences? Why might this be the case?
- What could the MRC do to improve the situation further?

7) Other:

- Are there any other barriers or enablers you would want to highlight?
- How important was this barrier / enabler 10 years ago; how important is it now?
 - What were the main drivers of change?
- To what extent has the MRC contributed to overcoming this barrier / establishing this enabler over the past 10 years? What were the key measures taken?
- What other measures could the MRC take to improve the situation further?

1.6 Knowledge transfer in the translational research ecosystem (8 min)

Discoveries and knowledge need to 'flow' through the translational research landscape to achieve impact. This section explores where and how MRC-funded research findings are disseminated and transferred, how [the MRC / public funders] has enabled this, whether there are current barriers to knowledge transfer, and how these might be addressed.

[select interfaces relevant to interviewee]

Where interviewees are not familiar with the MRC's activities and discoveries, the interviewer will generalise to 'academic' or 'publicly-funded' research.

Interviewees may only want to comment on one or two KT interfaces, depending on their expertise, experience, and interview time remaining.

Knowledge transfer – industry:

- By which mechanism does the private sector access [MRC / academic discoveries]? *e.g. scientific literature, established collaborator networks with academia, interaction with university TTO/TRO, conferences/meetings, open innovation platforms*
- Have there been any changes in the nature and importance of these access mechanisms over the past 10 years? If yes, how has [the MRC / public funders] contributed to this?
- Are there any barriers to movement of knowledge and innovations between the academic research environment and industry? *e.g. limited reproducibility, lack of communication and awareness [may have been covered above]*
- How could knowledge transfer to industry be improved?
 - Are there any 'lessons learned' you could share with me?
 - Is there any best practice you are aware of not currently widely used? *E.g. involve industry stakeholders from start of project; invest in project management staff*
- How could barriers be addressed, by the MRC or other funders?

[for industry representatives involved in funding academic research]:

- Does your company fund research at academic research institutions?
 - If yes, please describe.
 - If no, why not?

If yes:

- Why did your company decide to fund research at academic research institutions? How does this fit with your wider R&D strategy?
 - How did you select institutions/groups you fund, or funding streams you co-fund?
- What have been the main effects for your company?
- Are there any key lessons you could share with us, positive and negative?

Knowledge transfer – clinical research and practice:

- How are (relevant) [MRC / university] discoveries taken up into further clinical research and into clinical practice?
- Have there been any changes over the past 10 years, and if yes, how has the MRC contributed to this?
- Are there barriers to movement between the academic research environment and clinical research and practice? *e.g. research not sufficiently informed by clinical need; lack of professional awareness of the state of the art of biomedical sciences; lack of infrastructure (e.g. IT) or professionals' skills; resistance to change in the health system; barriers to market access, e.g. entry of innovations into the health system is difficult to achieve and roll-out is slow*
- How could knowledge transfer to clinical research and practice be improved?

- Are there any 'lessons learned' you could share with me?
- Is there any best practice you are aware of not currently widely used? E.g. research projects based on identified clinical needs; involvement of clinical researchers on advisory committees etc.
- How could barriers be addressed by the [MRC / public funders]?

Knowledge transfer – policy:

- How are (relevant) [MRC / academic] discoveries taken up and used by policy makers?
- Have there been any changes over the past 10 years, and if yes, how has [the MRC / public funders] contributed to this?
- Are there barriers to movement between the academic research environment and policy? *e.g. lack of awareness of policy makers; researchers not aware of policy needs; research does not address policy needs; presentation format of research findings not suitable for policy audience*
- How could knowledge transfer to policy be improved?
 - Are there any 'lessons learned' you could share with me?
 - Is there any best practice you are aware of not currently being used? E.g. research projects based on identified clinical needs; involvement of clinical researchers on advisory committees etc.
- How could barriers be addressed by [the MRC / public funders]?

Knowledge transfer – investors:

- Have there been any changes in the level and type of investment into discoveries made by academic research institutions (in the medical sciences) over the past 10 years?
- Has there been a change in the volume and type of 'investable discoveries' emerging from academic institutions over the past 10 years?
 - If yes, how has [the MRC / public funders] contributed to this?
- What are the key positive or negative signals when deciding whether to invest in a technology? How do investors identify suitable research projects and technologies?
- Are there barriers for investors? *e.g. negotiations with TTOs; differences in expectations of academic innovator; incomplete skill set within innovator's team; innovations too risky, e.g. too early in development, business model*
- How could these be addressed by [the MRC / public funders]?

1.7 Other funders of translational research: measuring impact and key lessons learned (15 min)

- Could you provide an overview of the translational research portfolio you fund?
 - Do you fund programmes specifically targeted at translational research? Please outline the remit of your funding, e.g. to phase III trials, implementation etc.
- How do you plan and coordinate your activities with those of other funders in [the UK, such as the MRC / your country]?
 - Do you think there are gaps in the funding landscape?
- How do you monitor and measure progress of your Translational Research programmes?
 - What indicators do you use?
 - Are there any evaluation reports and evaluation frameworks you could share with us?

- What have been key insights from your experience supporting translational research?
 - What measures have been highly successful, and why?
 - What have been the key barriers to translation, and how are you addressing these?

1.8 Best practice (5-10 min)

- Are there translational research programmes, in the UK or elsewhere, that you think have been particularly successful?
- Why do you think some programmes / countries are more successful than others?
- Why are some regions/institutions more successful than others? (clustering)
 - Is this an issue?
- How could the UK / MRC respond?

1.9 Closing (4 min)

- Do you have any other questions or comments?

5 Key stakeholder (KOL) interviews: Technology Transfer Officer discussion guide

To note:

Interviewers should spend some time to ascertain the interviewee's background and role, e.g. how long the interviewee has worked in TTOs, whether they have a background in academic research or the private sector, and whether they have worked at a range of universities (e.g. inside and outside the Golden Triangle; position abroad). This information will help understand the individual's views and aid the analysis. Depending on this information, questions should be tailored to explore specific aspects.

The interviewer will need to enquire about the following:

- What changed over the past 10 years and what is the situation now regarding protection of IP rights at their organisation
- What can the interviewee see going forward / arising regarding technology transfer.

The MRC are interested in specific examples supporting opinions expressed and illustrating any changes, issues and enablers. Please try to capture these through your questions.

1.1 Introduction (5 min)

Introduce the context of the interview:

These interviews are being undertaken as one of the components of an evaluation of the MRC's 10-year translational research programme. As you are aware, the MRC is a UK funding body, with the mission to improve human health through world-class medical research. MRC awards support basic and early translational research, including Phase I and early Phase II clinical trials. In a parallel interview programme, we are talking to researchers about specific MRC-funded research projects, to hear about their experience of undertaking the project and progress made.

In this interview, we would like to ask about your experience and views on:

- how the knowledge transfer and technology transfer (TT) landscape and activities have developed over the past 10 years, and any past, current, and future constraints / enablers TTOs are experiencing
- what works and what does not for research translation, with an emphasis on knowledge transfer and IP, as well as examples of best practice you may be aware of, in the UK and elsewhere
- potential future strategies and funding approaches that would further improve research translation and knowledge transfer, and how the MRC might be able to support these

Consent/confidentiality:

It is essential that the interviewer asks for consent to record the interview and covers the bullets below.

Do we have your permission to audio record the interview? The recording will be only used to ensure that we transcribe details correctly, it will not be provided to anyone outside of Ipsos MORI/Technopolis, and will be destroyed as soon as we have completed analysis of the whole set of interviews.

To confirm, we would like to request your permission for the following:

- May we use the feedback you provide, together with any additional information you choose to disclose, for the evaluation study?
- May we share this information and any analysis we carry out as part of the evaluation study with the MRC, for its own internal purposes only?
- The MRC expect to publish aggregate, unattributed results from the study. An anonymised form of the interview, with all confidential information and personal data removed, may be included as part of a broader publication of the outcomes from the evaluation of the programme. Is this OK with you?

Once you have started the recording, please state the unique interviewee ID number (e.g. TTO003) for the recording.

Definition of translational research:

Before we start, I would like to define the term 'translational research':

The aim of the MRC's translational strategy is to drive innovation, facilitate the transfer of best ideas into new interventions, and improve the return on investment in fundamental research.

For this study, translational research is defined as: "The principle of turning fundamental discoveries into improvements in human health and economic benefit."

1.2 Interviewee background (3 min)

- Could I confirm your current role(s): You are currently [...] at [...]
- Could you briefly describe your background and career to date? e.g. How long have you been involved in technology transfer? Have you held positions outside academic institutions/ privates sector?

1.3 Broader tech transfer landscape (10 min)

- How has the UK's TT landscape and activity developed over the past 10 years? What has driven these developments?
- Overall, what aspects have improved in terms of technology transfer and the support TTO's can provide? How do these differ from practices and support in the past? What do you see changing going forward?
- Overall, what are the main operational issues or constraints TT is experiencing? Do these differ between universities?
- How do you think these issues will develop going forward? Do you see new challenges emerging?

1.4 Tech transfer at your institution (20 min)

Resources

- What resources and level of specialisation are available within your TTO?
 - How many FTE support exclusively on life sciences/medical/biotech research? How has this changed over the past 10 years?
 - What is the level of specialisation in the team? (i.e. staff with previous VC experience, staff with previous experience in IP teams of big pharma/ life sciences start-ups, staff that help to validate business case and business strategy for spinoffs, expert networks to bring in advice on a case-by-case basis)

- What are the main issues and constraints your TTO is experiencing? (e.g. limited TTO budget; lack of skilled workforce; lack of access to expertise; lack of interest of academic researchers; lack of engagement by industry)
 - How do these differ from issues encountered in the past?
 - How do you think these will develop going forward?
- Do you feel your institution is more strongly focussed on research translation now than it was 10 years ago? How would you describe your institution's translational culture, now and 10 years ago?
- Overall, how has the "appetite" and interest at your university changed regarding IP protection and commercialisation?

Researcher engagement

- How does your institution incentivise researchers to engage in translational research? (e.g. shared ownership of IP, career rewards, internal funding/CiC)
- How do you engage with researchers at your institution?
- Has the level and nature of engagement changed over the past 10 years? If yes, what are the reasons for this?
- What are your main issues in engaging and working with researchers?
- What is the current attitude and behaviour of researchers toward IP protection and commercialisation, and how have these changed over the years?

Specific questions on life sciences/medical/biotech research

- Has there been a change in the volume and type of 'exploitable life science ideas' from academic researchers emerging from your/academic institutions over the past 10 years? If yes, how has the MRC contributed to this?
- How do you decide which ideas to follow up? How do you decide which ideas to protect?
- Is your approach to look for licensing deals and try and keep IP in house, or are you more likely to support and encourage spin off activities? What are the main decision criteria?
- Of those ideas that you protect, do they progress to commercialisation?
 - Has there been a change in licensing activity?
 - Has there been a change in spin-out activity?
- What are the key positive or negative signals when investors decide whether to invest in a technology?
- Can you share additional data and information regarding how much of the ideas are related to life science and what share is linked to MRC funding?

Private sector / investor engagement

- How do you engage with industry stakeholders and investors?
- Has the level and nature of engagement changed over the past 10 years? If yes, what are the reasons for this?
- What are your main issues in engaging and/or working with industry and investors? (e.g. differences in expectations of academic innovator and private sector on valuation of the asset; incomplete skill set within innovator's team; innovations too risky, e.g. too early in development, business model)
 - What are the main issues to licensing technology your office encounters?
 - What are the main issues to spin-out formation your office encounters?

1.5 The MRC's translational research schemes (5 min)

- From the point of view of a TTO, have any of the MRC's funding schemes had a strong impact on your institution's:
 - Level of translational research activity?
 - Level of researcher engagement in knowledge transfer?
 - Level and nature of interaction with the private sector?
 - Level and nature of interaction with investors?
- What were the effects? Were there specific aspects of the funding scheme that were crucial to these effects? E.g. call text, pathway to impact statements, DPFS milestones, selection process, support provided during the proposal preparation and project lifetime, flexibility of CiC grants
- Do you have suggestions for how to improve existing MRC schemes to further support knowledge transfer?

1.6 Knowledge transfer in the translational research ecosystem (10 min)

Knowledge transfer – industry/ investors:

- By which mechanism does the industry and/or investors identify and access academic discoveries? e.g. brokered interaction through your office (TTO), or TRO; scientific literature and conference presentations; established collaborator networks with academia; open innovation platforms
- Have there been any changes in the nature and importance of these access mechanisms over the past 10 years? If yes, has the MRC contributed to this?
- Are there any issues related to transfer of knowledge and innovations between the academic research environment and industry? e.g. limited reproducibility, lack of communication and awareness, differences in expectations and requirements
- How could the level of knowledge transfer to industry be improved?

1.7 Best practice (5 min)

- Are there any tech transfer practices elsewhere that you think have been particularly successful?
 - Why are some regions/institutions more successful than others?
 - Why do you think some countries are more successful than others?
 - How could the UK / MRC respond?

1.8 Closing (2 min)

- Do you have any other questions or comments?