Appendix A Data collection checklist

The Place of Science in Policy Formation

Questionnaire and data collection checklist

Note for the interviewer: Here is a set of questions to guide the interviews plus a list of data requirements. Please write up the interviews using the same numbering system as the questions so that we can cross-analyse.

Note the data requirements and try to ensure access to these materials.

N.B: Italics denote questions that should have short, max 1-sentence answers, and may be publicly available information that does not necessarily need to be gathered through interviews.

Our interview partner

- *Name, coordinates and job title. Briefly describe their job and responsibilities*
- *Briefly outline the organisation chart of the ministry.*
- *[Attach the organisation chart to the interview notes if it is available, otherwise write a 3-4 line description]*

Context

1. *Which groups/organisational units in the ministry are the focal point/s for collecting research-based evidence to support policymaking, such as scientific literature, commissioned reports?*
2. Can you describe the relationship between them and other groups in the ministry charged more directly with policymaking functions?
3. Is there an internal or external advisory committee or council or other types of intermediaries whose job is to advise the ministry (or the government) on policy relevant to your ministry? If so, what is its role in requesting and collecting research-based evidence?
4. Does your ministry have one or more 'government labs'/research institutions? What are the respective roles of the ministry and the labs/research institutions in identifying and collecting research-based evidence? What role does the evidence they provide play in the policy process?

5. Does your ministry have any other formal agreements with public or private research institutions/consultancies/individual researchers/experts etc to provide research based evidence? If so what role does the evidence they provide play in the policy process?

6. In general, how do you see the salience, credibility and legitimacy of various sources of evidence for policymaking – including but not limited to research-based evidence?

The demand for evidence

7. *Can you estimate how many people in the ministry work full-time or predominantly on collecting and analysing research-based evidence?*

8. *Does your ministry have a budget for acquiring research-based evidence? How much is it this year?*

9. How do you make priorities and how flexible can the funds for research and evidence collection in your budget be used? Do you give it out as core funding/block funding? Or are you able to use it in relation to specific policy initiatives?

10. Please give me a general account of the level of interest in the ministry for using *research-based* evidence and the degree to which the ministry actually makes use of such evidence?

11. Do factors other than technocratic and efficiency-driven considerations from within the ministry trigger demand for evidence, for instance the political level, civil society and media, personal interest and initiative of individuals in the ministry?

12. How has the demand for and use of research-based evidence changed in the past 5-10 years? What has caused the changes?

13. Is there a difference in the demand for and use of evidence between matters where your ministry works alone and issues that cut across multiple ministries?

Content and sources of evidence

14. When do you look for or generate evidence externally, and when do you generate it internally?

15. We are interested in whether evidence from some sources is more attractive or seen as more reliable than others: Please explain how the reliability and legitimacy of evidence from different sources compare, eg:

    - scientific literature,

- reports from external research organisations or think tanks,
- government labs,
- evidence generated internally in the ministry, etc.

[Can you rank these in general or would the ranking differ case by case?]

16. Who are the main providers of research-based evidence that you use? Can you name the leading providers that supply evidence to you (so organisations, centres, individuals, research groups)?

17. What is the role of evidence from abroad and from international organisations (eg EU / EU-Commission, OECD, IPCC ..)?

18. We want to get some sense of the content of evidence that is high in demand: can you please rate the following types of evidence in terms of demand that exists for them in the ministry? Highly in demand, occasionally in demand and rarely or never in demand will do:

	Rarely/ never	Occasional demand	High demand
Public attitudes			
Legal implications			
Moral and ethical aspects			
Factual & technical information			
Financing			
Policy and programme evaluations			

Reliability, quality and barriers

19. We are also interested in your general satisfaction with the availability of research-based evidence and your ministry's ability to access it: Do you see any barriers to the use of research-based evidence by your ministry that remain to be overcome?

- As prompts, if not noted: How do you tackle the fact that relevant evidence may not be available in a timely way?
- How do you cope with the fact that research based evidence may be available, but you just don't it or do not have the resources or time to search for it?

20. How do you assure the quality and reliability of evidence that you use or that you take account of? Is this different for evidence you collect or commission yourself compared with evidence from external groups (eg lobby-groups)?

21. How do you avoid selective use of evidence?

22. Is there any internal or external quality control on evidence, eg internal networks, scientific committee, supervisory committee, parliamentary committee?

Absorptive capacity

23. What is the overall educational level of people working in analysis or evidence functions in the ministry?

24. How widespread is the ability to identify and generate research-based evidence at the policymaking level in your ministry?

25. Has the proportion of people at policymaking level in the ministry who are able to acquire and use research-based evidence changed in recent years? How?

26. Does the ministry assume any kind of responsibility for making sure that there is a 'supply side' (externally or internally) able to provide needed research-based evidence?

27. If so, how do the ministry maintain a dialogue with the supply-side? Please, describe the ways you interact and how many resources / efforts your organisation put into this dialogue?

Evidence and the policy cycle

28. Is there a formal policy cycle, process or set of guidelines/ handbook that sets out the steps needed in order to launch, manage and monitor a policy initiative?

29. Is there a handbook or set of processes that deals with the production and use of evidence?

30. How well does the handbook match the real process of making policy?

31. Are there certain points in the policy cycle/ policymaking process where research-based evidence is considered as an important input?

32. Are different types of evidence considered important at different points in the policy-cycle/ policymaking process?

33. Does the ministry publish the reports that it commission from public or private research institutions/consultancies? At which stages in the policy cycle is this most often done?

Finally

34. How do you think the use of research-based evidence for policymaking in your ministry compares with international best practice? How would you improve it?

35. Can you give me one successful example of making evidence-based policy and one example where policymaking was hampered by lack of evidence or failure to look for or use research-based evidence?

Data collection

36. A list of evidence reports or publications for the last 2 years

37. A URL or other means of accessing these reports

38. Documentation of the policy cycle, eg handbook

39. Copy of any handbook or written "rules"/procedures etc documenting how to produce and use evidence

Appendix B Interviewee details

We targeted individuals at the highest possible level responsible for strategy and/or evidence in relation to policymaking and relied on our interview partners' view of whether those we initially targeted could provide adequate information about the ministry. Where they recommended talking to a second person, we did so. The full list of interviewees is presented in the following sections. This table summarises the positions held by interviewees per polity.

Polity	Positions of interviewees
UK	• Chief Scientific Advisors • Deputy Chief Scientific advisors • Heads/ deputy head of directorates • Heads of analysis units • Heads of policy units
Netherlands	• Advisors/ Senior advisors on research, knowledge and policy • Heads of department • Research coordinators
Finland	• Government/ ministerial advisers • Directors of research, heads of unit • R&D Managers
EC	• Heads of unit • Deputy heads of unit • Policy officers

B.1 UK

Ministry	Interviewee	Position	Interview date
Education: **Department for Education (DfE)**	Vicky Petrie	Head of Research (Lead social researcher)	19-03-2015
Environment: **Department of Environment, Food and Rural Affairs (DEFRA)**	Prof. Ian Boyd	Chief Scientific Adviser	02-02-2015
	Stuart Wainwright	Deputy Chief Scientific Adviser	30-01-2015
Foreign: **Foreign and Commonwealth Office (FCO)**	Anne McNess	Senior Principal Research Analyst, Europe Directorate	12-02-2015
	Patrick Bragoli	Head, Chief Scientific Adviser's Office and Team Leader, Science, Innovation and Climate	05-02-2015

		Department, Prosperity Directorate	
	Emma Hennessey	Deputy Head, Science and Innovation	05-02-2015
Health: **Department of Health (DoH)**	Becky Henderson	Senior Economist, Office of the Chief Analyst	10-02-2015
	Peter Howitt	Deputy Director of legislation and policy	06-02-2015
Industry: **Department of Business, Innovation and Skills (BIS)**	Frank Bowley	Deputy Director of Skills Policy Analysis, Vocational Education Directorate	03-02-2015
Transport: **Department for Transport (DfT)**	Miles Elsden	Chief Scientific Adviser (acting) & Chief Scientist	05-02-2015

B.2 Netherlands

Ministry	Interviewee	Position	Interview date
The Ministry of Education, Culture and Science	Rosa van der Tas	Policy advisor and knowledge coordinator, Directorate Knowledge	17-02-2015
	Jiska Riphagen	Policy advisor and research coordinator, Directorate Primary & Secondary Education	17-02-2015
The Ministry of Infrastructure and Environment	Gert-Jan de Maagd	Senior Policy advisor in the Directorate Knowledge, Innovation, Strategy	16-02-2015
The Ministry of Foreign Affairs	Geert Geut	Acting Director, Policy and Operations, Evaluation Department	27-02-2015
	Jochem Wiers	Head of the Department Strategic Advising	TBD
The Ministry of Health, Welfare and Sports	Cees Vos	Senior advisor knowledge in the department for strategy	16-02-2015
	Robert Segaar	Policy advisor and research coordinator in the department curative care	16-02-2015
The Ministry of Finance	Jedid-Jah Jonker	Head of the Department Strategy Analysis	17-02-2015

B.3 Finland

Ministry	Interviewee	Position	Interview date
Ministry of Education and Culture	Ilkka Turunen	Special Government Adviser	23-02-2015
Ministry of the Environment	Laura Höijer	Research Director	19-02-2915
Ministry for Foreign Affairs	Petri Hakkarainen	Acting Director for Policy Planning and Research	27-02-2015
Ministry of Social Affairs and Health	Saara Leppinen	Ministerial Adviser	27-02-2015
Ministry of Employment and the Economy	Kirsti Vilen	Ministerial Adviser	05-03-2015
Ministry of Transport and Communications	Olli-Pekka Rantala	Head of Unit	25-02-2015
	Anne Miettinen	R&D manager	03-03-2015
Prime Minister's Office	Kaisa Lähteemäki-Smith	Science Adviser	24-02-2015

B.4 European Commission

Ministry	Interviewee	Position	Interview date
DG Education and Culture (EAC)	Lene Mejer	Deputy Head of Unit, Studies, Impact Assessments, Analysis and Statistics	12-03-2015
	Peter Baur	Policy Officer, Innovation in Education, EIT and MSCA	17-03-2015
DG Environment (Env)	Bernhard Berger	Deputy Head of Unit, Knowledge, Risks and Urban Environment	24-03-2015
Foreign Policy Instruments (FPI)	N/A	-	-
DG Health and Food Safety (Sante)	Michel Pletschette	Head of Unit, Evaluation and Strategic Analysis	09-03-2015
	Giulio Gallo	Policy Officer, Health Information and Scientific Committees	09-03-2015
DG Research and Innovation (RTD)	Nikos Kastrinos	Team Leader, Foresight R&I Policy	06-03-2015
	Sean O'Reagain	Deputy Head of Evaluation Unit	10-03-2015
DG Mobility and Transport (DG Mov)	N/A (no willing interviewees)	-	-

Appendix C Country report: UK

This section provides an overview and analysis of the current state-of-play of evidence use in policymaking in the UK. The data used for this report consists of desk research as well as a series of 45-60 minute interviews with key actors in policymaking and evidence use across six UK ministries:

- The Department for Education (DfE)
- The Department of Environment, Food and Rural Affairs (DERFA)
- The Foreign and Commonwealth Office (FCO)
- The Department of Health (DoH)
- The Department for Business, Innovation and Skills (BIS)
- The Department for Transport (DfT)

The structure of this report broadly reflects that of the interview tool used for the data collection: context, providers and sources of evidence, barriers and quality control, demand for evidence and absorptive capacity, as well as codifying of evidence use and publication of evidence are all key areas this report will assess. Alongside this, we also highlight broader conclusions that cut across these areas, as well as issues where we find similar patterns across ministries, and issues on which there is notable divergence.

C.1 Overview and key issues

The election of the New Labour government under Tony Blair in 1997 is considered to be a watershed with regard to evidence use in policymaking. The 1997 Labour Party manifesto's emblematic phrase, 'What counts is what works'[4] is still referred to as embodying a drive to greater evidence use in policymaking, and is explicitly situated in opposition to ideology as a key driver for policy decisions.

Overall, our interviewees across UK ministries note that over the past decade there have been considerable improvements in evidence use, and of the overall understanding and role of evidence in policymaking. Whilst there is some variation in the extent to which the use of evidence as a basis for policymaking is regarded as a

[4] http://www.labour-party.org.uk/manifestos/1997/1997-labour-manifesto.shtml

centrally important practice, there is a clear sense of overall progression towards a policymaking culture that is strongly predicated on evidence.

Recently, the context and resources for evidence use in policy have changed somewhat: the austerity and spending cuts of the current coalition government have presented some challenges for ministries. Whilst the science budget funding university research and innovation has been protected from cuts, the departmental research budgets have been substantially reduced in recent years. At the same time, pressure on public finances has effectively heightened the demand for evidence use in policy: benefits and likely positive outcomes have to be demonstrated, so that waste of resources on poorly thought out policies is minimised.

These two consequences of the past few years' economic and political climate have therefore triggered needs across departments to gather evidence more efficiently than ever. As such, the UK has been an especially fruitful country to study, given the many subtle transformations occurring at this particular time.

C.1.1 Context and structure

The UK has 24 ministerial departments of varying size, each hosting between 2 and 50 agencies and public bodies.[5] Ministries are typically divided into thematic directorates, and further sub-divided into policy teams. Individuals charged with evidence collection and analysis typically make up around 10% of overall staff – though this varies considerably between departments (details in section C.2) – and these are found at a number of different levels:

- The majority of analysts are situated at the level of policy teams and operate in close proximity to them, with the extent of distribution dependent to a large extent on the number and breadth of directorates and policy teams within the departments. Most often, our interviews highlighted that some minimum distance between analysts and policymakers is desirable but that day-to-day interaction and physical proximity is viewed as good practice.
- Above this level, there is in some cases a cross-directory science and analysis unit, typically dealing with wider issues that cut across the ministry. These appear to be especially significant in DoH, whilst other departments tend to rely more on separate advisory committees for cross-ministry functions, though this is not an absolute rule.

[5] https://www.gov.uk/government/organisations

- All UK ministries furthermore have a Chief Scientific Adviser (CSA), who is usually acknowledged as part of the top-level management of the ministry alongside ministers and secretary of state. This is a critical position in the UK context, and one that is often found in Anglo-Saxon countries, although other countries (eg Mexico, Indonesia, Japan) have equivalent positions.

Since 1964 the UK government has had a general Chief Scientific Adviser (GCSA), to advise the government (ie the prime minister and the cabinet) on any policy issues related to science and technology. The GCSA runs the 80-strong Government Office for Science and acts as a visible scientific expert at the centre of government.

In 2011, an expansion of CSAs was complete, with every ministry having its own CSA, in addition to the cross-government GCSA. A deputy, one official and a personal assistant normally support a ministry CSA. Our interviews highlight that it is not so much the CSA's particular structural position in the ministry as their expertise and presence in both science and policy circles that is critical to their ability to fulfil their role: to act as a bridge between the scientific and the policymaking community. Specifically noted as key attributes to fulfil this role are

- A broad range of scientific expertise, rather than narrow specialism. This is important in order quickly to be able to synthesise existing scientific knowledge, should policy needs demand this at short notice.

- Regular presence in the ministry in order to have both an in-depth knowledge of the political and policy context, as well as personal connections to the individuals who seek advice.

The ministry-level CSAs have a network, which meets periodically to discuss cross-government issues. In many cases, 'Science' in the UK context tends to refer specifically to the natural sciences. However, the CSA's area of expertise depends to a large extent on the remit of the ministry: in DEFRA, as well as for example ministries of energy, health or transport, a strong natural science or engineering background is typical, whilst in ministries more focused on social, cultural or economic issues, the CSA's background is centred more on social science and economics.

Whilst the majority of evidence collection in UK governments happens within ministries – some interviewees noted that UK government has a strongly departmentalised culture – there are also many instances of cross-departmental work. Generally, this is unproblematic where only two departments collaborate on an issue that is relevant to both. On wider cross-departmental projects, there were several admissions that this is a challenging task, owing to the different interests and approaches that different departments bring to the table. In response to this, the Cabinet Office has set up 'What Works' centres in various locations (outside of departments) on specific cross-cutting issues and grand challenges, where many

ministries have some level of involvement. Unfortunately none of our interviewees had much direct involvement with any of these centres, but there is a sense that widely cross-cutting issues tend to require interventions of this type from cross-cutting bodies, rather than relying on ministries' ability to self-coordinate.

C.1.2 The importance of agency

More generally, our data highlights that skills, qualifications and abilities of individuals are a critical area of interest when assessing the state-of-play in evidence based policymaking in the UK. At the more structural level – the place of analysts in the departmental structure, the type and extent of guidance and codification of evidence use, the preferred organisations used as sources of evidence – there is considerable variation between ministries (see for example sections C.3.2 and C.6.1). However, there is little evidence that some approaches are better or worse than others where such structural properties of evidence use are concerned. It is far more the issue of what skills are possessed by the individuals operating within those structures that have a determinant effect on how well evidence is used. The CSA is perhaps the clearest example of this: the position is not directly tied to particular directorates or closely delineated functions; instead, the quality of being literate in both science and policy, and of being seen as a reliable, approachable and non-partisan adviser is essential for the CSA to enable greater understanding, awareness and analysis of research and evidence in the department's activities. Our interviews highlight several areas where individuals' abilities are critical factors in the success or failure of suitable evidence use:

- When commissioning research, the ability to be an 'intelligent customer', i.e. being able to ask the correct research questions and identify researchers or organisations best suited to provide answers, depends on the individual's prior knowledge and understanding of the research communities and of the substantive issues at hand
- Quality control of evidence gathered relies on internal expertise and the ability to decide rapidly whether a piece of evidence is fit for use
- Policy teams' understanding of the role and importance of evidence is essential in order to ensure a functioning relationship between them and the analysts
- Some degree of dialogue and interaction with academics producing research for the departments is seen as desirable in order to explain the policy context of the research to such 'outsiders'. The ability to communicate and forge these informal relationships is an increasingly essential skill
- At the higher level, ministers' interest in evidence use and competence in understanding the importance and implications of evidence for political decisions

is often noted as critical. Our interviews identify greatly varying experience in this respect.

Whilst structural features of evidence use will therefore be presented and analysed in depth in this report, it is important to keep in mind that the ability of individuals to assess sources, outcomes, quality and scope of evidence, as well as to maintain close ties with even distant providers of evidence are at least equally significant. Though qualitative investigation as conducted here does not allow for representative conclusions, there is nevertheless a sense that calls for more systematised processes, guidelines and prescriptive structures tend to appear in areas where this individual capability is relatively low, whilst they are seen as a burden in areas where highly connected, qualified and knowledgeable people operate. We stress again that this is not an absolute rule, but certainly a factor at play on the question of how much or how little structural prescription is necessary to ensure adequate evidence use in policymaking. Recruitment criteria, internal training and capacity building, formalised opportunities to interact with research and evidence-gathering communities are consequently areas that become important points of consideration.

C.1.3 Operational vs strategic evidence

Whilst we will outline in detail below what kinds of evidence are used by policymakers, where these are sourced from, as well as what triggers the demand, there is a fundamental divide alluded to in some form by all interviewees, which is worth highlighting here at the outset:

- Evidence relating to immediate policy decisions: often entailing evaluation, options assessment or any other evidence that is intended to inform immediate policy needs and requires a detailed understanding of policies already in place or the context in which policies need to be implemented or modified in the short to medium term
- Evidence of a wider strategic scope: this refers to foresight exercises, identification and analysis of key issues that might require policy engagement in the future, overall appraisal and analysis of wider areas of policy

Whilst the distinction between these two broad types of evidence is not especially codified in the UK, interviewees all make this distinction at some level. Several factors discussed below affect these two types of evidence differently, most notably the selection of sources, and the extent to which procedures for evidence collection are codified.

C.2 Details of Ministries

The tables below present brief overviews of the six UK government departments considered for this this study.

Table 2: Overview – UK: Department for Education

Department for Education (DfE)			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• Around 1550 core staff at the London site (excl. agencies, etc)	• 5-10% estimated (270 'badged' analysts across ministry and agencies, 600 working more generally in analysis in some form)	• Around £14m (split around 50/50 between central budget and policy unit budgets) • More flexibility at central level, less at unit level
Presence of analysis staff	'Badged' analysts are categorised as operational researchers, social researchers, economists or statisticians. In the past analysts were separate from policy teams, now they are embedded: whilst there is a horizontal analysis/ research unit, analysts are mainly embedded in topic-specific policy teams, working alongside policymakers.		
Main sources of evidence	• DfE is a major player in 2 Cross-cutting 'What Works' centres: – Education Endowment Foundation (Strong Focus on Randomised Control Trials) – Early Intervention Foundation • Significant amount of commissioning to academics or research organisations (includes evaluations & longitudinal studies) • Interaction and workshops with stakeholder organisations, eg: – Institute of Education – Nuffield Foundation • Framework of associate academics: individual experts providing small ad-hoc studies and information • International organisations, especially OECD		
Main trends and characteristics	• Evidence tends to come from commissioning of studies, networks of expert associates, stakeholder engagement or cross-cutting What Works centres • Types of evidence include statistical data, evaluations, academic research, but also cohort studies and randomised control trials (RCTs). More generally, there is a particular challenge to get reliable evidence from classrooms on schools (especially on teaching methods that work/ do not work) • OECD is the most important international source • Ministerial/ political level is a significant trigger (as well as challenge) for evidence collection and use • High level of absorptive capacity: a lot of exchange with outside experts and internal capacity building through mentoring/ internal training. Some onus on staff to identify evidence needs. • In-house capability acknowledged as a central way to tackle time constraints. Associate experts have a similar function. • Research Priority papers identify gaps and evidence needs, help structure evidence use.		
Main documents	• DfE's Research priority papers: https://www.gov.uk/government/collections/research-priorities-for-education-and-childrens-services • HM Treasury Magenta book; used for evaluation guidance: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220542/magenta_book_combined.pdf • HM Treasury Green Book: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf • DfE Publications – research and analysis:		

	https://www.gov.uk/government/publications?keywords=&publication_filter_option=research-and-analysis&topics[]=all&departments[]=department-for-education&official_document_status=all&world_locations[]=all&from_date=&to_date

Table 3: Overview – UK: Department of Environment, Food and Rural Affairs

Department for Environment, Food and Rural Affairs (DEFRA)			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• ~21,000 incl. agencies, etc; • ~2500 ministry only	• ~3,000 incl. agencies, etc; • ~250 ministry only (includes only designated 'analysts', number of staff who are science, research and evidence estimated at 50%)	• Departmental research budget estimated at £80m, though this has dropped from around £160m 4-5 years ago • Approximately 1/3 of this is estimated to be flexible
Presence of analysis staff	Aside from the CSA's team, there is an overall analysis team that has been shrunk in recent years, now comprising around 30 people. All remaining analysts have been devolved into the individual policy teams, with the explicit aim to bring policy teams and evidence/ analysis closer together.		
Main sources of evidence	• Explicitly broad focus in terms of where/ how evidence is sources • Several advisory councils, who either provide evidence or connect to outside experts • Open procurement of studies • 3 captive labs for specific issues: – AHVLA for animal disease – CFAS for marine issues – FERA for plant health and food • DEFRA's Agencies, eg environment agency, the forestry commission		
Main trends and characteristics	• Strong culture of evidence use, efforts to further integrate evidence use in all departmental activities • Shrinking research budget means new solutions are required to source evidence. Building more formal and informal links with the academic community is seen as essential • Many different types of evidence are used. Two areas are seen as needing greater focus: – Evaluation evidence of policies and programme – Wider strategic evidence to ensure better anticipation of future policy needs. This area is especially vulnerable to budget cuts • Utilising knowledge transfer and the 'impact' dimension of the UK's research funding system is bringing academics closer to the department • Little use of a formal policy cycle; the reality of policymaking is acknowledged as needing a more dynamic and responsive approach to evidence use		
Main documents	• DEFRA publications portal: https://www.gov.uk/government/publications?keywords=&publication_filter_option=all&topics%5B%5D=all&departments%5B%5D=department-for-environment-food-rural-affairs&official_document_status=all&world_locations%5B%5D=all&from_date=&to_date • HM Treasury Magenta book; used for evaluation guidance: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220542/magenta_book_combined.pdf		

	• DEFRA Evidence Strategy 2014: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/318610/evidence-strategy-defra.pdf

Table 4: Overview – UK: Foreign and Commonwealth Office

Foreign and Commonwealth Office (FCO)			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• ~14,000 staff worldwide • Around 3-4000 staff at the ministry itself	• ~50 formally designated analysts • Most staff have some degree of evidence use in their remit	• Small budgets earmarked for research, covering mainly travel for staff and outside experts • ~£20,000 for the research group on Europe; higher budget for others, given higher travel costs
Presence of analysis staff	FCO has several research groups, which are divided geographically and thematically. Analysts sit within or very close to policy teams. This is a recent development: in the past there was a clearer demarcation between the two, including analysts having a separate building.		
Main sources of evidence	• No captive institutes and hardly any long-term formal agreements with outside institutions • Evidence collection often has the character of 'intelligence' • Reliance on personal knowledge and expertise of analysts, as well as strong networks of in-country experts • Some additional use of in-country organisations (eg think tanks) • Some use of UK-based think tanks (eg Chatham House)		
Main trends and characteristics	• Scope of 'Policy' in FCO differs from other departments: often involves gathering intelligence and facilitating greater international collaboration, rather than implementing substantive policies/ programmes/ tools. Science diplomacy and advocacy is a key component of evidence-related activities in FCO • Increased significance of evidence use over the past 10 years, driven in part by the Diplomatic Excellence agenda • Little use of guidelines such as HM Treasury's Green or Magenta books • High overall standard of education: intimate knowledge of relevant geographical areas is encouraged, and expected, as is interaction with key academic centres that can provide further expertise (eg London School of Economics and Social Science) • A substantial portion of FCO evidence is classified, though non-classified evidence is available on the gov.uk portal		
Main documents	• FCO Research and Analysis publication portal: https://www.gov.uk/government/publications?keywords=&publication_filter_option=research-and-analysis&topics%5B%5D=all&departments%5B%5D=foreign-commonwealth-office&official_document_status=all&world_locations%5B%5D=all&from_date=&to_date • Briefing on Diplomatic Excellence: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/253590/Dip_Ex_MFA_briefing_Oct_13_finalv1_2.pdf • FCO Open Data Strategy: https://www.gov.uk/government/publications/open-data-strategy-refresh		

Table 5: Overview – UK: Department of Health

Department of Health (DoH)			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• 2,160	• Around 70 analysts; • Policy officials also spend considerable time using or appraising evidence	• DoH has an overall external research budget of around £1bn, though most of this is spent on R&D. • No known allocation for purely internal evidence collection • Rough estimate for policy-related evidence commissioning is £40m, though this figure should be treated with extreme caution
Presence of analysis staff	There is a cross-directorate analysis team under the department's Chief Analyst, but the majority of analysts are devolved into directorates and sit alongside policy teams. Alongside more general policymaking civil servants, 'analysts' comprise individuals with specialisms in eg social research, behavioural research, economics or statistics. The Chief Analyst's office acts as an advisory committee where such a function is necessary		
Main sources of evidence	• No captive labs or research institutes • DoH has around 9 'research Units': groups of researchers across the UK, specialising in certain key areas of interest to the ministry. Around £35m of research is commissioned through these annually. These units also have some 'call-off' time for unforeseen and urgent evidence needs • The department has the capacity to conduct systematic reviews internally, sometimes at short notice. • Where evidence needs go beyond the scope of internal capacity or the research units, evidence needs are advertised, resulting in a open and competitive tendering process • The National Institute of Health Research (NIHR), as well as the UK research councils are additional sources of evidence, though this often goes beyond the policy domain		
Main trends and characteristics	• Acknowledgement that evidence use in the department has become significantly more sophisticated in the last 10 years, following especially poor results in a capability review (2006-07). Efforts to raise the standard of evidence use are on-going • All policymakers are made aware of the need to consider evidence in all policymaking. However, absorptive capacity among policy teams is judged to require improvement • Drivers for greater awareness and use of evidence is often triggered by key individuals in leading positions with personal interest in evidence use • Time constraints are addressed by trying to create a more responsive department with internal capacity as well as closely connected external experts to assess or develop evidence rapidly where possible. Systematic reviews are seen as a particularly important tool • Impact assessments are a further important tool • Internal library facilities, as well as lectures/ presentations to departmental staff are used to increase responsiveness and absorptive capacity • Some use of HM Treasury Green book amongst analysts, but overall little use of formal guidelines on policy development/ policy cycle • Drive to keep the principles and merits of evaluation/ cost-benefit analysis, but ensure they are not all-pervasive and hinder communication and efficient policymaking		
Main	• DoH Research and Analysis publication portal:		

documents	https://www.gov.uk/government/publications?keywords=&publication_filter_option=research-and-analysis&topics%5B%5D=all&departments%5B%5D=department-of-health&official_document_status=all&world_locations%5B%5D=all&from_date=&to_date • HM Treasury Green Book: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf

Table 6: Overview – UK: Department for Business, Innovation and Skills

Department for Business, Innovation and Skills (BIS)			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• 2,500 in offices across the UK • Around 1,400 in the London offices • a further 14,000 in executive agencies	• Around 200-250	• Estimated budget for evidence collection: £5-6m, highly unevenly distributed across directorates. Some of this is fixed for certain purposes (eg Office of National Statistics), though directorates with greater funding have flexibility.
Presence of analysis staff	Devolved model of evidence specialists. There is a very close relationship between analysts and policymakers, with physical proximity the norm. Statisticians tend to have more distance from policymakers, economists are especially closely involved.		
Main sources of evidence	• An academic panel meets several times a year to identify key areas of evidence needs and upcoming issues • No captive labs or institutes, though BIS is setting up a research centre at present, most likely with LSE • A large portion of evidence is collected through calls for tender and competitive bidding processes. This work is then variously carried out by academics, universities and consultancies • Some work is also conducted together with the research councils, which are part of BIS. They also help the formulation of research strategies, outlining key areas of evidence collection.		
Main trends and characteristics	• Strong presence of statistics and economic analysis, reflecting the remit of the department • Big Data is seen as a key new area of interest, allowing depth of quantitative analysis not previously possible • Evaluation evidence, systematised through HM Treasury Magenta Book, is acknowledged as especially important. BIS also owns the National Audit Office, which is a driver behind the UK's evaluation culture • Drive towards savings and efficiency has driven evidence-demand, especially in relation to evaluation and cost-benefit analysis • Research strategy and a large amount of evidence already generated highlights the need to better identify evidence gaps and an understanding of what evidence already exists • Evaluation is highly prescribed, but in other areas an overly prescriptive approach to evidence does not appear to be needed		
Main documents	• BIS Research Strategy 2014-15: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/357021/BIS_14_1065_BIS_Research_Strategy_2014-2015.pdf • HM Treasury Magenta book; used for evaluation guidance: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220542/magenta_b		

	ook_combined.pdf • BIS Research and analysis publications portal: https://www.gov.uk/government/publications?keywords=&publication_filter_option=research-and-analysis&topics%5B%5D=all&departments%5B%5D=department-for-business-innovation-skills&official_document_status=all&world_locations%5B%5D=all&from_date=&to_date

Table 7: Overview – UK: Department for Transport

Department for Transport (DfT)			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• 18,245 staff UK-wide, including agencies. No estimate available for London offices, but likely comparable to other UK departments (ie ~2,000)	• Teams of around 10 people in each modally based directorate, so around 60-80	• No clear estimate available, though non-R&D specifically for policy-related evidence likely <£25m • Flexibility exists within directorates, but cross-directorate re-allocation is problematic
Presence of analysis staff	Research/ analysis staff are based in modal directorates (eg rail, roads, etc). Though these are strongly embedded, they most often act as project managers of evidence collection projects conducted elsewhere.		
Main sources of evidence	• No captive labs or research institutes • The vast majority of evidence is sourced from the market, including universities, research groups and consultancies (both large management consultancies as well as smaller technical/ specialist consultancies) • Some evidence sourcing projects are individually advertised for a competitive tendering process • A lot is organised through framework contracts, where a number of different providers are under a larger umbrella agreement and can be called off for specific projects • DfT has several advisory panels, including a Science advisory panel (set up within the last year), as well as economics and social science advisers • GoScience (the Government Scientists advisory portal), as well as the Royal Academy are noted as additional sources		
Main trends and characteristics	• Strongly evidence-driven department, due to its perceived contribution to economic growth, the research budget has remained largely stable, and cost-benefit analyses are especially significant • Environmental impacts, social benefits are also acknowledged as important. DfT has a strong multi-disciplinary array of evidence use, comprising both natural science/ engineering as well as social science/ economic evidence • Push to be an 'Intelligent Customer', i.e. creating a better understanding of the work that already exists and widespread ability to identify gaps, correct research questions and best providers of evidence • The 'impact' dimension of the UK's funding system for universities is acknowledged to steer researchers towards the department and create closer ties • Creating greater absorptive capacity, i.e. having more science literate individuals in policymaking positions is an issue of interest • Interest in knowledge sharing with other departments and governments (open publication of evidence is viewed as a facilitator of this)		

	• Policy cycle is well defined, HM Treasury's Green and Magenta Books are in use. A standard appraisal tool is also in use (WebTag)
Main documents	• An overview of research undertaken by DfT: https://www.gov.uk/government/organisations/department-for-transport/about/research • DfT Research and Analysis publication portal: https://www.gov.uk/government/publications?keywords=&publication_filter_option=research-and-analysis&topics%5B%5D=all&departments%5B%5D=department-for-transport&official_document_status=all&world_locations%5B%5D=all&from_date=&to_date • HM Treasury Green book: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf • HM Treasury Magenta book: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220542/magenta_book_combined.pdf • WebTag Appraisal tool: https://www.gov.uk/transport-analysis-guidance-webtag • DfT Appraisal process: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/370529/webtag-tag-transport-appraisal-process.pdf

C.3 Sources and content

C.3.1 External and internal evidence

Overall, our findings show that ministries gather evidence from a wide range of different sources, with many interviewees explicitly noting that no limitations and few preferences are placed on where evidence comes from. Prior to approaching the field, three distinct levels of distance from the policymaking process were considered:

- Evidence generated internally in the ministry
- Evidence generated by laboratories or research institutes captive to the ministry
- Evidence generated externally, by groups with contractual, semi-formal or informal links to the department

In the UK, there is a clear split between the first and third of these levels. Captive laboratories or research institutes have a very low presence in terms of evidence use for policy. The overall number of captive institutes has decreased considerably in the past two decades, as many have been privatised or moved away from government by other means. Whilst those that do still exist tend to fulfil some key monitoring functions, they are little acknowledged as providers of evidence for policy. In cases where captive institutes still exist, they are used only for narrow areas of evidence

provision (DEFRA is the most notable example). But even in these rare cases, some of the remaining institutes are assumed to be moving outside of the department in the future, triggering plans to source the evidence provided by them from elsewhere.

Given that this halfway-point between internally and externally sourced evidence is not a major player in the UK, our data highlight a key divide between these two approaches, with questions of whether internal or external sourcing of evidence is preferable.

Across the board, respondents note there is a trade-off: internally generated evidence is likely fully to suit the immediate policy needs for which the evidence is collected, but will also have lower perceived legitimacy by wider audiences. External evidence, especially if generated by academics in universities, has significantly more standing and salience with wider audiences, and is thus likely to go further in legitimising policy decisions. However, greater distance from the policymaking process also means that it will likely be less functional, i.e. less clearly relevant to the specific needs of the given policy context.

How to strike this balance is a source of considerable difficulty. In the first instance, whether to source externally or internally is highly dependent on the particularities of a given evidence-need. However, a general tendency exists more confidently to outsource evidence collection that is not meant to serve immediate policy needs. Policy and programme evaluations present a special case: these are generally commissioned externally, as legitimacy here is particularly important, and the need for independent evaluations is codified in the Magenta Book, the Treasury's cross-departmental guidance for evaluation.[6]

External sources of evidence

In the relative absence of captive institutions (DEFRA has three, the others have either one or none at all), there is a wide range of different providers of external evidence:

- There are MOUs with certain research groups in or across universities, where there is known expertise in a relevant field of interest. In some cases these groups already existed independently prior to involvement of ministries, in others a ministry took a proactive role in putting these groups together

[6] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220542/magenta_book_combined.pdf

- There are regular interactions with think tanks with relevant expertise. This is usually based on informal or semi-formal interactions
- There is a large amount of external procurement, where research questions are tendered publicly and the provider is chosen through a competitive bidding process. Universities, other research groups and consultancies typically participate in these – including large management consultancies as well as small consultancies with technical specialisms
- Ministries may have a pre-selection of evidence providers in the form of a framework contract, so that a series of projects can be commissioned without a separate procurement process for each one
- Key individuals with particular expertise are occasionally identified and asked to provide input, either by assisting in wider evidence gathering activities, or through direct dialogue or presentation to the departments
- As departments' research budgets are cut, they additionally look to external providers who are willing to provide evidence free of charge. This can be due to academics' own personal interests and passions, but there is also some evidence to suggest that the 'Impact' dimension of the UK's research funding system steers academics closer towards policymakers.

Internally generated evidence

There is some variation in terms of how much evidence for policymaking is generated and analysed within ministries. In DfT analysts tend predominantly to act as managers of external research projects, or may have some part in analysis of data but not in the collection. In others there is more evidence to show considerable collection and analysis taking place internally, for example internally conducted systematic reviews in DoH, or statistical research conducted by BIS. Whether there is fundamentally an overall preference for internal or external evidence sourcing is unclear. However, some interview data highlight that if time constraints are severe and an immediate policy context needs to be addressed, the internal option is generally favoured. Cost is an additional consideration that tends to favour internal sourcing. Beyond this, capacity to carry out the evidence collection and analysis is a key factor: larger scale projects tend to be outsourced, as they cannot realistically be conducted internally. Analyses of existing statistical data (particularly noted in BIS), or systematic reviews (particularly noted in DoH) are typically conducted internally where possible.

More significantly, our interviews in several ministries highlighted a changing nature of internal evidence collection: driven on one hand by the need for efficiency and on the other by a strongly matured culture of evidence use, there is an increased concern about duplication of research, i.e. ministries commissioning or conducting

research that has already been done. Across departments, there are calls for better access to and knowledge of existing sources of evidence. Our research highlighted especially advanced systems for this in DoH, where a substantial online library, access to academic journals and automated notifications on newly emerging research are delivered to individuals in personalised form (i.e. tailored to their interests/ specialisms).

More generally, the interviews highlight a desire to build greater absorptive capacity, as well as greater intelligence on the wealth of information and research that already exists. On one occasion, the policy to publish all or most research conducted by the ministry was also highlighted as a way of actively contributing to the stocks of knowledge that policymakers elsewhere might draw on.

Evidence from abroad

Interviewees across the board agree that the majority of their evidence is sourced from within the UK, with the slight exception of FCO, which draws a lot on country experts. However, there is growing openness to utilising international sources as well. Evidence from abroad has a similar legitimising function as externally sourced evidence more generally, though international dimensions do not appear to augment this legitimising notion any further. Most often, activities occur in other English-speaking countries, though the presence of English as the common academic language mitigates this somewhat. The OECD is acknowledged by several interviewees as an important source of evidence and collaboration, as is the EC/EU.

C.3.2 Types of evidence

The details of types and content of evidence are an area where there are significant differences between departments. To give just some examples:

- DoH has particular emphasis on academic literature and systematic reviews
- FCO strongly emphasises expert opinion and country experts, akin in a sense to 'intelligence' as well as 'evidence'
- BIS has a strong emphasis on statistics and economic analysis
- DEFRA draws on considerable scientific and environmental monitoring data
- DfT similarly emphasises engineering and hard science, though social statistics and behavioural work also features.

These are of course general tendencies and emphases rather than absolutes: all ministries draw on a broad mix of different types of evidence. These distinctions do however highlight that ministries have different remits that are related to different disciplines and subject areas, resulting in diverging preferences for the types of

evidence that are commonly used. DEFRA and DfT have a stronger presence of natural scientists and the remit of these ministries is such that natural scientific disciplines and engineering have a bigger role. Conversely, BIS has a strong cadre of economists, once again reflecting the remit of the ministry and resulting in a strong emphasis of economic and statistical evidence collection. These differences have some implications for the structural properties of ministries, eg well-established access to scientific literature in DoH, strong personal networks of country experts in FCO or a stronger presence of science advisory councils in DEFRA and DfT.

There are some types of evidence that are acknowledged as important across ministries, and these relate mostly to focused and programmatic elements: evaluations and cost-benefit analyses. Especially as the Treasury's spending reviews periodically demand justification of policy decisions, these focused evidence presentations are used across all departments, and are codified in the Treasury's Green[7] and Magenta[8] Books.

The interviews also highlighted two relatively new types of evidence: the big data revolution has opened up possibilities for new types of detailed quantitative data, which are only just beginning to be explored. BIS has recently published one of the first major studies using big data, in this case on the effects of further education on labour market returns.[9]

There is also a drive towards greater use of randomised control trails, led by DfE.[10]

C.4 Barriers, quality and reliability

C.4.1 Overview of barriers

Whilst we find many instances of good practice, as well as impressive responsiveness to recent challenges, changes and developments in the UK context, our research also identified several key barriers to more widespread, effective and high-quality evidence use in policymaking.

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[7] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf

[8] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220542/magenta_book_combined.pdf

[9] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/383646/Estimation_of_the_labour_market_returns_to_qualifications_gained_in_English_Further_Education_-_Final_-_November_2014.pdf

[10] https://quarterly.blog.gov.uk/2015/01/27/what-works-the-rise-of-experimental-government/

Time constraints are noted across the board as a significant barrier: often policy decisions need to be made quickly and the time needed to produce robust results is not necessarily given. In some cases, this leads to frustrating results. However, the interviews also yielded key ways of mitigating this barrier:

- Internal capacity was identified as critical in DoH. The technological resources and personal ability to swiftly conduct systematic reviews means that in many cases a rapid response is possible, at least in policy contexts where prior research and information exists.
- Greater use of foresight and wider strategic studies was noted by DEFRA as a useful way of ensuring more prepared and readily responsive policymaking, resulting in fewer last-minute evidence needs. However, cuts to ministerial research budgets tend to mean that wider strategic studies are especially hard to justify.
- Where memoranda of understanding or some form of contractual arrangement exists with outside experts, some departments integrate a small component of 'call-off' time, intended for 'evidence emergencies' rather than specific planned evidence gathering projects

The political level was noted as a barrier to successful evidence use across the interviews. In some cases this related to the absorptive capacity of politicians, which was seen as variable, but also to the time constraints faced by politicians, which are then relayed to the policy and analysis domain, creating the difficulties discussed above. Interviewees could point to many instances where evidence was ignored. Especially when it challenged either general political orthodoxies or the particular preferences of a politician.

Generally, a greater understanding of evidence use both at the political level as well as within the ministries and policy teams are viewed as desirable goals to help overcome these barriers. Greater foresight and capacity rapidly to respond to evidence needs, both through internal capacity as well as external networks of relationships are viewed as useful approaches.

C.4.2 Organic quality and selection control

Ensuring the quality of evidence used for policymaking is a critical function. Most interviewees noted acute awareness that there are many examples of poor quality research, or research submitted by groups representing specific interests, and that research that is biased, selective or otherwise of low quality needs reliably to be identified.

Despite consistent comments on this, there is little presence of formalised quality control processes – save for evaluations and cost-benefit analyses, as well as the issue of misuse of official statistics by ministers and senior policymakers, which is

monitored by the Statistical Authority. Instead, there is in all departments, and specifically within analysis teams, a culture of critical engagement with evidence. This leads to a somewhat organic process of quality control. In some cases this is characterised as a semi-formal internal peer review system, but more often revolves around the informal judgement of the analysts. Though there were some qualifications, for the most part interviewees found this to be a system that works. However, it rests on the qualifications, skills and ability of the analysts themselves. This is an area where it is most clearly not the structural properties of the ministries, but the experience and skills of the individuals operating in them, which determine whether or not standards of evidence use are adequate.

C.5 Demand for evidence and Absorptive capacity

Respondents' answers on sources of evidence, commissioning and generating research, point towards a profound change in the role of government ministries. Rather than acting as bodies that are relatively separate from the rest of society, with particularly closely attached or captive research centres through which to draw intelligence and information, we find that almost all ministries are engaged in processes of becoming embedded in the wider national and international research and knowledge system.

As the ministries themselves shrink (research budgets are reduced, government labs privatised), but demands for evidence increase, ministries are trying to become proactive in engaging with the wider academic community and actively forge links and help create semi-independent centres to draw on. At the same time, needs emerge for individuals within the ministries to have a better understanding of both the possible providers of research and evidence, as well as of the state-of-play of evidence that already exists. The range of sources ministries draw on, as well as their geographical locations and details of attachment (or lack thereof) to the ministries is broad and relatively indiscriminate. Likewise, relatively open publication policies mean that ministries are also providers of evidence to the wider world.

Additionally, interviewees note that research conducted by external providers who have no experience at all of the policy context for which the research is intended tend not to be especially helpful. As such, there are many calls in our interviews for analysts and policymakers to forge more informal links with external researchers, so that they can remain at arms' length, but can establish some degree of understanding of policy, ideally resulting in evidence that has the authority and legitimacy of an external source, but the functionality required for the eventual policy context. Conversely, due in part to the UK's research funding system for universities, which distributes institutional funding in part based on the social or economic impact of research, policy has also created drivers and incentives to direct researchers towards the policy sphere.

This notion of ministries becoming increasingly 'embedded' in the wider knowledge-generating system rather than viewing themselves primarily as detached and closed entities is a significant development and much of the UK experience needs to be understood in the context of these developments.

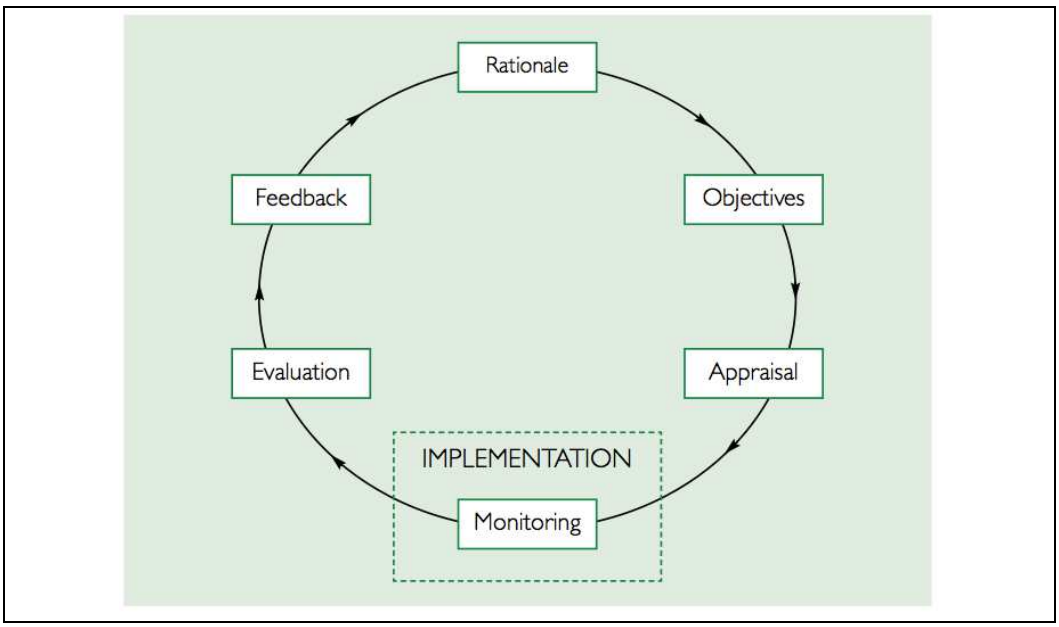
These developments categorically heighten the need for absorptive capacity, and the broad consensus is that whilst the connection between ministries and the wider research and evidence community is strengthening, there is still some room for improvement. Some key points on absorptive capacity include:

- Training and required qualifications of civil servants is critical: more can be done to ensure even non-analysts have a background in evidence use or relevant natural or social scientific disciplines
- Organising regular seminars by external evidence providers or internal analysts can help foster greater culture and awareness of evidence use
- Aside from required qualifications, internal provision of training can create greater capacity for ministries to become 'intelligent customers'
- Some capacity building and greater understanding of evidence use may also be necessary at the political level

C.6 Documentation and publication

C.6.1 Documentation and guidelines

Our research highlights some disagreement regarding the desired level and prevalence of guidelines and codified evidence use. Even prior to evidence use itself, the overall policymaking process is codified by HM Treasury's Green Book, including also the idea of the policy cycle, consisting of identifying a rationale for a policy, setting objectives, appraising options, then monitoring the policy during implementation, followed by evaluation and feedback, which in turn triggers new policy questions.



source: HM Treasury Green Book

Whilst some interviewees noted that this is used as a reference point, and consequently as a trigger for evidence collection, most noted that the policy cycle is no longer being used, as policymaking simply does not follow this neat progression in reality, and that hence there is a need for ministries and analysts to be more responsive to a host of different evidence requirements, potentially at unexpected points.

Likewise, with some exceptions, there were doubts as to whether rules around the collection and analysis of evidence itself should be codified to any significant extent. Whilst there was agreement that consultation of evidence should always be at least one key element in any policy decision, more detailed prescriptiveness was often also seen as a hindrance. Especially where analysts are charged with 'form filling' around evaluations and cost-benefit analyses, there is a danger that they are seen as a hindrance rather than as an asset to effective and efficient policymaking, resulting in reluctance of policy teams to interact with analysis teams.

But whilst at this procedural level the presence of codified guidelines was generally not viewed as especially desirable, enshrining evidence use, and especially a broad scope of evidence planning and collection, was considered overall more positive:

In DoH it was pointed out that consideration of evidence in any policy decision is codified. Evidence for DEFRA points to a concerted effort to set clearer standards for

evidence collection, as well as ensure that strategic evidence collection is clearly planned and anticipated. This is detailed in DEFRA's recent evidence strategy.[11]

C.6.2 Publication

With the exception of FCO, where a relatively large proportion of evidence gathered is classified, there is strong consensus that where possible, all research and analysis compiled by ministries should be published. Interviewees were generally confident that there were very few cases where public availability of evidence was not possible. Aside from normative reasons such as transparent government and citizen's rights, two additional, more functional reasons for this publication behaviour were noted:

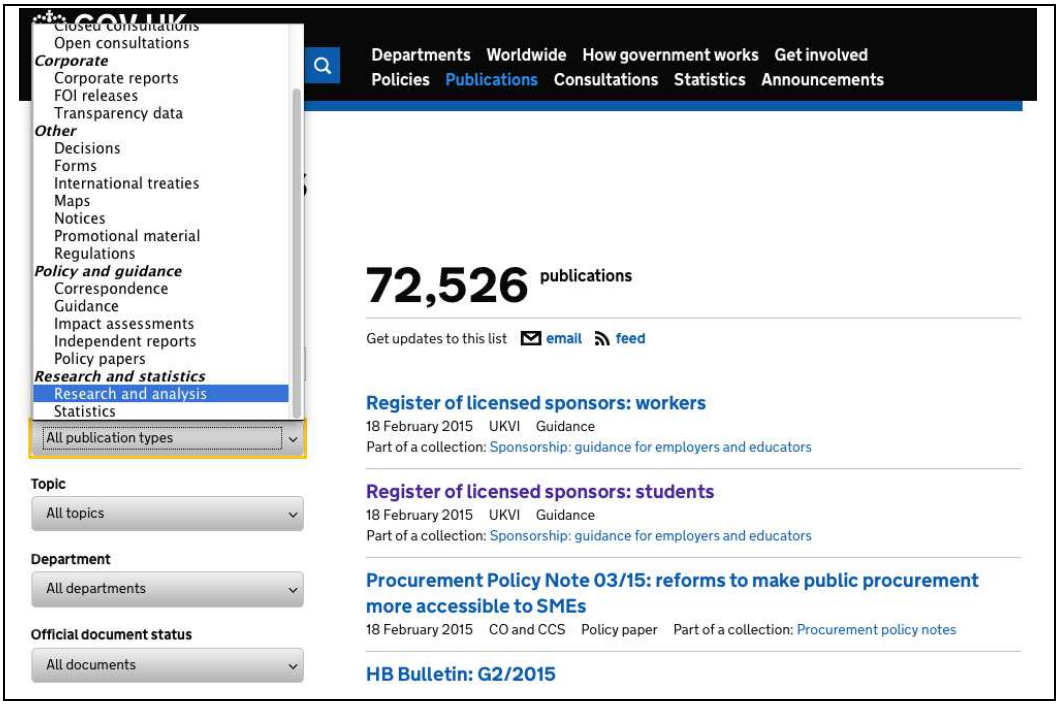
- The public scrutiny facilitated by open publication of all government research allows for an additional form of quality control
- As there is a greater push to avoid duplication of efforts, ministries need to lead by example and make their efforts available, for both other policymakers as well as the wider research community to draw on.

Publication format

Recently, the separate web sites of ministries were consolidated into a single government website, www.gov.uk. This site also has a consolidated section for publications, where all non-classified government documents are available for download in commonly used formats (eg pdf, word, excel, etc). Interviewees noted that because this web site is still relatively new, it does not yet have comprehensive coverage, and for the time being there is still some effort and potential delay involved prior to publication of documents, but the hope is these initial problems will be resolved.

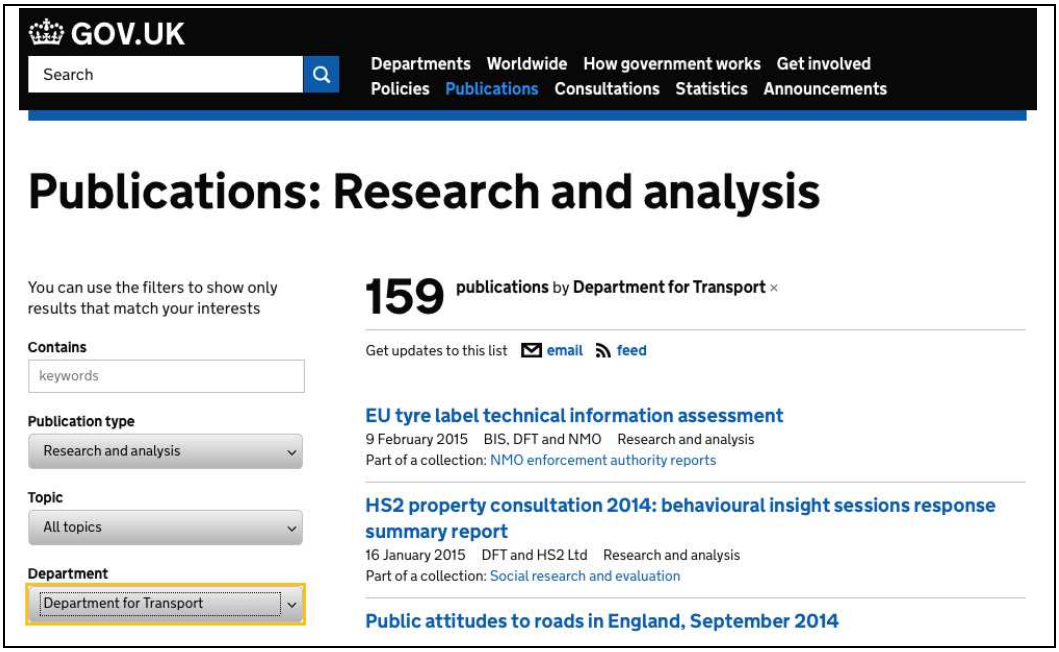
Whilst all non-classified government documents are available from this section, the web site has a specific selection menu for research and analysis (both commissioned and internally generated), as shown in the screenshot below:

[11] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/318610/evidence-strategy-defra.pdf



source: www.gov.uk

Additionally, selection menus allow the viewer to see research and analysis published or co-published by particular departments, in the example below, DfT:



source: www.gov.uk

Appendix D Country Report: Netherlands

This section provides an overview and analysis of the current state-of-play of evidence use in policymaking in the Netherlands, specifically across five Dutch ministries:

- The Ministry of Education, Culture and Science (OCW)
- The Ministry of Infrastructure and Environment (I&M)
- The Ministry of Foreign Affairs (BZ)
- The Ministry of Health, Welfare and Sports (VWS)
- The Ministry of Economic Affairs (EZ)
- The Ministry of Finance

In the case of the latter, we purely considered the cross-departmental studies, which are coordinated by the Ministry of Finance. We thus did not analyse the approach to evidence-based research for the Ministry of Finance separately.

D.1 Overview and key issues

Research-based evidence in policy formation has been a highly debated topic in the Netherlands over the past decade. In 2004, the then Council for Science & Technology (AWT) launched a project on the policy approach to use knowledge and evidence in policy in the Dutch government when they discovered that, until then, there existed no inventory on policies of knowledge within the national government. Nearly a decade later when the Rathenau Institute published its report on “policy and the evidence beast” in 2012, detailing the state of play and suggestions for the future, it was evident that they had clearly unleashed a discussion amongst policy makers still evident today.

Finding the balance between using scientific findings and solving current societal needs is a struggle, despite relatively recent changes to improve the input and coordination of research in Dutch policymaking across the ministries. Can research findings guide policy, or policy guide research questions? Should policy be evidence-based or evidence-informed? These questions remain highly contested in the Dutch policymaking process. Aspiration and practical needs clash on this point. In addition, historical context, practical barriers, but also philosophical ideas have resulted in a different approach to research within each Ministry, and in some cases within various directorates and departments. As a result, although on the whole knowledge gathering is coordinated centrally but implemented largely via a decentralised

approach, a “one size fits all” approach is not applicable to the current state of Dutch policymaking and unlikely to be so in the near future.

D.1.1 Context and structure

All ministries considered for this study have a dedicated ‘department for knowledge or strategy’ embedded in the Secretary-General’s staff of the respective Ministry. This is often alongside HR, Finances and other cross-cutting and non-policy oriented departments. In all five ministries these departments are rather small in terms of FTE yet large in its mission. This is to ensure that they facilitate and support rather than manage the policy process. On paper, they are tasked to set the strategic agenda for knowledge for the Ministry and follow and stimulate the uptake of these knowledge agendas inside and outside their Ministry. Their work is future-oriented and consists of an overall –helicopter- view of both policy and research. In that sense, they function as a bridge between the scientific world and policymakers. In practice, the interpretation of that role and particularly the extent to which the department interacts with the needs of the policy makers (responsive, suggestive, facilitating) varies between Ministries; depending on the dynamics of the organisation, its culture needs and governance history.

In addition to the knowledge department, each Ministry has some form of a research or knowledge coordinator system. This system forms the core of the decentralised approach, as the research coordinators (or other titles, but with similar tasks) are embedded in the policy directorates or in some cases at department level. Research coordinators are policy staff with their own thematic priority, but with the additional task to ensure that relevant research is conducted or brought in for the entire department or directorate, depending on the organisation. How this system works varies among Ministries and depends strongly on the culture and leadership within the Ministry. In some cases the research coordinators meet regularly with each other and with the department of knowledge/strategy to discuss issues related to the knowledge agenda, their own work, or the state of play on research in the field. In other cases, they only meet when it pertains to a specific policy or research issue, and in that case, may not interact with all research coordinators but specifically with those who are involved in, or may be able to advise on a specific issue. As the research coordinators are also tasked with ‘regular’ policymaking, the time available for tracking needs, external research and internal projects depends on the commitment and interest of the research coordinator and the priority placed by the management of his or her department or directorate. The scale of involvement varies from having a thorough and up to date overview of needs inside the Ministry as well as frequent contact and insight into on-going research, to an occasional check during quiet periods. Most of the research coordinators, however, operate somewhere in between these extremes.

All Ministries incorporate external research into their work. In that the following distinctions can be made:

- Knowledge that is produced by **government research institutes**, such as the Netherlands Environmental Assessment Agency (PBL) and the National Institute for Public Health and the Environment (RIVM), and by (scientific) advisory councils, which are often preferred sources as they tend to work directly on the issues of the set knowledge agenda for the relevant Ministry and the quality of their work is rarely contested. A distinction can be made between these institutes on the basis of whether they fall directly within the Ministry (and are therefore part of its organogram) or if they are structurally funded (core, partially, or project-based). Whilst this governance and financing aspect does range quite widely, access to them does not. Access is considered relatively easy by the interviewees, regardless of the financing mechanism, and is often through an account manager within the Ministry. On the other hand knowing which expert at what University may have the answer to their question is not necessarily evident. As one interviewee put it "we fund and rely on the agencies to ensure they have access to and keep an overview of the most recent relevant scientific findings for policy, and present it to us in such a way that we can use it for policy".

- The **national scientific council for government policy** (WRR) is an independent advisory organisation that provides evidence-based advice based on annual research programme, though the research itself can extend (and often does) beyond one year. The programme is designed to incorporate the input from policy makers, the scientific community and civil society. The final list of research topics is devised in consultation with the Prime Minister. The themes may be relevant to all or a large number of policy areas, but not necessarily. For example, this year's themes include big data, and also the public task of the EU, which are issues for multiple Ministries, but also specifically the future of the labour market, and for example the state of culture, which are specific to only a few Ministries but are of high societal value.

- In addition to the council and existing research institutes, there are several **national research organisations** that are government funded. Their research agenda is often set up in agreement between the scientific community, policy makers and the stakeholders who practice. Both the Ministry of Education and Health, for example, commission research required for policy through the research organisations. In the case of the Ministry of Education this is done through the National Coordinating Body for Education (NRO), whilst the Netherlands Organisation for Health Research and Development (ZonMw) commission research for the Ministry of Health, both are part of the Netherlands Organisation for Scientific Research (NWO). These research organisations play an

important part in gathering and disseminating scientific developments, but can also be used for example to commission evaluations.

- On an ad hoc basis, the Ministries may make use of **academic** research or advisory services for the specific input on a policy area where it crosses paths with academic research. However, this more often occurs through round table sessions or indirectly through the national research organisations or research institutes than on a structural and formal agreement. It is indeed rather common that academics have formal and structural agreements with the government research institutes on a specific project or policy area.

- Several **research based consultancies** furthermore provide sector specific research and advice on a policy request basis. In certain cases a multi-annual framework contract for specific expertise such as evaluations or impact assessments are used to reduce the administrative burden on the ministries, whereas in other cases direct tendering procedures are used to obtain research or advice related directly to a certain policy area. Such services are often requested to guarantee independence (in particular when it comes to evaluations), but also to bring in specific methodological expertise as well as to be able to conduct research within a relative short-term, especially when it does not fit the research agenda of the research organisations or institutes.

D.2 Details of Ministries

The tables below present brief overviews of the four Ministries considered for this this study.

Table 8: Overview – NL: The Ministry of Education, Culture and Science (OCW)

The Ministry of Education, Culture and Science (OCW)			
Overview	**Total staff**	**Research/ analysis staff**	**Budget estimates**
	•	• 11	•
Presence of analysis staff	• The centralised department for knowledge has a dedicated (but small) team responsible for developing the knowledge agenda, monitoring research and measuring effectiveness of policies and interventions; they are trained/experts in research and interject their knowledge upon request or when suited to a policy issue • The policy directorates have access to a research coordinator per department, which are policy staff who are tasked with (overseeing, commissioning, etc.) research; around ½ FTE per directorate • The policy staff brings a diverse background of knowledge from economists, educational experts, scientists to governance specialists • Account managers are responsible for maintaining a direct link to the agencies and organisations funded by the Ministry.		
Main sources of evidence	• The majority of evidence-base for policy is generated outside the Ministry. Through personal networks, department relations with external organisations, structurally outsourcing research, a strategic multi-annual knowledge agenda and organised events, the evidence finds it way to the policy makers.		

	• Organised methods of bringing in evidence include: • 1) a monthly 'platform for policy information' ; mini conference with a specific theme, can include outside experts, policy makers can put forward/request the theme • 2) an annual 'knowledge market' (7 thus far) where themes and ideas relevant to the future of education are discussed during a half day event with a broad range of stakeholders; from policy makers to scientists to practitioners • 3) Knowledge lunches; organised by the department for knowledge, a monthly informal knowledge sharing session where external researchers are invited to present their work to all those interested within the Ministry • 4)Regular meetings (once every six weeks) of the research coordinators and the knowledge department to discuss trends, issues, and processes related to bringing in research into the policymaking process • The main source for evidence is the newly developed national research organisation for education (NRO). It has been in place for two years and is expected to become the primary source of all types of research for the Ministry with regard to education. Although it has its own research agenda, it is linked to that of the Ministry in the sense that each is aware of each other's research agenda to avoid overlap, and staff of the Ministry participate in the steering committees of the research programmes within the NRO. The work of the organisation is divided between fundamental, policy and practical research. Research within these three areas is prioritised through an overall research agenda. Its objectives include bridging the gap between existing and on-going research in the field and the needs within research and policy. • The NRO is a component of the NWO, which provides broader input to the Ministry by funding fundamental research • The Department for Services to implement education (DUO) monitors the state of play in education in detail. The data provided by DUO and that of the Central Bureau of Statistics (CBS) form an important input for the development of policy priorities, for example on financing, regional development, teachers, gender, etc. • As of 2014, the Ministry produces an online tool 'trends in view' combining national and international data relevant to education. This data is also highly valued by the Ministry's staff. • The ministry depends on input from a number of scientific and advisory councils including: the council for education, the council for science, technology and innovation, central bureau for planning, social bureau for planning, the council for social development, council for culture, the scientific council for government policy; • Other (partially funded or project-based funded) institutes that are important to the Ministry include the Top Institute for Evidence Based Education Research (TIER), the Research Centre for Education and the Labour Market, the Amsterdam Institute for Labour Studies, The Groning's Institute for Research in Education, the Kohnstahmm Institute, the NICIS Institute, the Dutch Youth Institute, IVA policy research, ITS policy research, the Boekman Foundation Study Centre for Art, culture and policy, E-Quality, Expertise centre Development, Care and Education, National Expertise Centre on VET, Ratheneau Institute , RISBO, Verwey-Jonker Institute. Several of these organisations are part of universities. • The Ministry holds framework contracts for evaluations and research with external research organisations and consultancies on specific policy areas (one for each department). It is expected that in the future these types of framework contracts, or at least the work within it, will be moved over to the NRO. • From time to time, on an ad hoc and issue specific basis small research assignments are commissioned by the department staff to academics or consultancies
Main trends and characteristics	• Whilst the overall multi-annual (3-4 years) knowledge agenda sets the wider stage for knowledge needs of the Ministry, it is mostly used by external agencies rather than the Ministry. The annual research programme per directorate is instead leading for the commission of research by the departments themselves, but that is also flexible depending on the development of political situations. These annual department plans do not necessarily align with the multi-annual knowledge agenda. • The informal network within the Ministry plays an important role in the sharing of knowledge;

	there appears to be a reasonably fluid interaction between the directorates when it comes to shared interests/policy priorities and the gathering of evidence. There is also enough overlap in the thematic areas of the Ministry that this is natural to the Ministry. Not a significant switching of staff, so no significant over-supply of generalists, which makes for a reasonable institutional memory. • There is a strong sense of independence and informality in the coordination process; all research coordinators know each other (reasonably) well and know how and when to get in touch regarding specific procedures. There is no handbook for commissioning work or monitoring quality of the research. Each policy staff is responsible for commissioning their own research. Often the research coordinator is involved in this. process. • For larger research assignments the department for knowledge does play a more structural role and keeps track of the commissioned research. They are heavily involved in conducting and steering research, for example on quasi-experimental research . • The Ministry has experienced significant budget cuts recently, resulting in a less staff, but without less work; this has led to reduced time for the policy staff to be involved in finding, bringing in and analysing research results. This has resulted in an increased demand of short-term research, easy access data overviews . Most research coordinators also have policy related tasks. • Transparency has been an issue for the past few years, particularly in the commissioning of reports. The ministry took part in a pilot for actively publicising commission reports. As part of this pilot a guideline was written on how to publish commissioned research results. • The types of research most requested are technical, factual or evaluation types of information. Research on legal, moral and ethical implications is not often requested. Currently the financing of education is playing an important role and is thus more of an interest, as is that of the public opinion, especially as it relates to parents and teachers. • The increased availability of (open/big) data has enhanced the policy process; it's much easier to access the facts when needed and therefore discussions related to previously speculations (gender, region, etc.) can now easily and for many issues quickly be made available. It's also made policy staff more aware of evidence-base in policy • Both availability of data, discussions on evidence base and austerity measures have increased the focus on effectiveness research • The design of the NRO has fundamentally changed the way research in education is embedded in the Ministry; especially research on practice is likely to become more accessible. Nevertheless, the research can still take quite some time and is not necessarily in line with the timing of the policy needs. Commissioned research can therefore continue to play an important role over external agencies.
Main documents	• Knowledge Agenda 2011 (new knowledge agenda is in the process of being finalised) http://www.rijksoverheid.nl/documenten-en-publicaties/rapporten/2011/01/21/kennisagenda-ocw.html • Overview of all data/research relevant to education indicators http://www.trendsinbeeld.minocw.nl • The national research organisations for science and education http://www.nwo.nl/en http://www.nro.nl • Publications of the Ministry's department on the implementation of education http://data.duo.nl/organisatie/open_onderwijsdata/Images/publicatiekalender_tcm33-41598.pdf

Table 9: Overview – NL: The Ministry of Infrastructure and Environment (I&M)

The Ministry of Infrastructure and Environment (I&M)			
Overview	**Total staff**	**Research/ analysis staff**	**Budget estimates**
	•	• 3 centralised, 1 per DG	•
Presence of analysis staff	• The Ministry's Directorate for Knowledge, Innovation and Strategy (KIS) plays a centralised role in facilitating, gathering and disseminating information throughout the Ministry. However, it is a rather small unit (3 staff tasked with 'knowledge'), ensuring that the staff of the policy Directorates themselves remain involved in the collecting of relevant research as well. • Each DG has a minimum of one research coordinator and each policy advisor has the freedom to seek external input for the development of policy. Depending on the policy area, some directorates may have more than one research coordinator and some departments may also have their own research coordinator. This is up to the discretion of the head of unit. • Within the Ministry there is an account manager per bureau and institute funded and per theme; it may therefore be that there are two or more account managers in contact with one institute. Sometimes they come from the department of knowledge, sometimes they are from the policy departments; depending on the need. • The majority of researchers working for the Ministries are in the non-policy departments (notably the bureaus/institutes that are directly part of the Ministry). These units play an important role in analysing policy implementation and inspection and, depending on the needs, may also provide input for policy development.		
Main sources of evidence	The Ministry implements a strong decentralised approach towards determining knowledge needs, but employs an overall centralised approach towards coordinating and facilitating the input from external sources, although each head of unit and policy maker may also gather research individually based on need. In that, the department for knowledge (KIS) plays an important role to facilitate knowledge related processes. The tools used by this department are for example: • A knowledge strategy document which stipulates its priorities for knowledge in policy development, implementation and inspection between 2012-2015 • A strategic knowledge agenda (currently 2012-2016), which sets the overall research priorities for the Ministry and the division of tasks amongst the policy DGs, KIS and the institutes, but also forms a guide to the wider research field in the sense that it indicates what is most important for the further development of policy in this area • Bi-weekly meetings between KIS & research coordinators; thus far these are working well for discussing strategic issues ensuring that the meeting is relevant and attendance is high • "Strategic knowledge rooms"; two to three times a year a high-level knowledge session related to infrastructure, management and questions arising from within the Ministry is organised for the SG, heads of the DGs and Heads of the bureaus that are part of the Ministry. • "Thematic knowledge rooms" for policy makers at all levels involving external experts, for example on big/open data, input for a roadmap, knowledge for decentralised governments, etc. • Informal lunches for research coordinators to discuss process issues; what obstacles are encountered, when, why, how are they resolved. • An annual 'innovation-relay' where all stakeholders in the field are invited to share and discuss ideas on new developments in innovation. • Occasional lunches with researchers or thought leaders regarding a specific policy subject There is a fine line between the bureaus and institutes that fall within the responsibility of the Ministry and those that are structurally financed by the Ministry. Historically, many of the institutes not directly part of the Ministry have received full core funding, more recently, this is shifting		

	towards project-based funding, although this shift is rather recent and implemented gradually. • Within the Ministry there are: the Knowledge Institute for Transport Policy Analysis, the Delta Programme Commissioner's office, the Netherlands Environmental Assessment Agency, the Royal Netherlands Meteorological Institute, the Human Environment and Transport Inspectorate and the State department for infrastructure (Rijkswaterstaat). These organisations are fully funded by the Ministry (also named in its organogram) and function separately from but closely to the policy DGs within the Ministry and all are involved in research within their own area of expertise. • Although not part of the Ministry, important research institute that are funded by the Ministry on a core or project basis are an importance source for evidence for the Ministry they are the National organisation for applied science (TNO), the National Aerospace Laboratory, Central bureau for planning, the institute for applied research in the field of water, sub-surface and infrastructure (deltares), Maritime Research Institute Netherlands, National Institute for Health and Environment, Energy Centre Netherlands, Foundation for scientific research in traffic safety. • In addition to the institutes, there is a strong network and reliance on the research in academia. The universities with a technical background, such as the University of Delft, TU Eindhoven and University of Twente are consulted as needed, and invited to speak/share their latest research. In addition, there are formal agreements with regards to for example, master classes taught by the university for the staff of the Ministry. The presence of academics is stronger in the bureaus/institutes than in the policy DGs. Several staff members of the bureaus are for example part-time academics. They are involved in the knowledge management within the Ministry and informing/guiding the policy questions. • Within the Ministries there is room for external expertise on an ad hoc basis. The main bureau for infrastructure has its own framework contracts to reduce the administrative burden. This is not the case for the policy DGs. There are also no official 'preferred suppliers' but the policy staff members know the most suitable research organisations and otherwise support on this can be requested through the department for knowledge.
Main trends and characteristics	• Although there is no handbook on quality, processes, research methods, etc. there is a policy on evidence and research. This leads to significant freedom within the policy staff on assessing the quality and methods of research. The department of knowledge plays an important role in this, but this must be seen in the context of the available FTE; they are more involved in stimulating and incentivising than in coordinating, overseeing and steering. • Knowledge within the Ministry is often 'meta-knowledge'. This means that the evidence requested is often rather technical on components of infrastructure and environment, but can also be related to legal implications of policy, financing options and mandated evaluations. Research related to the moral and ethical implications of policy is less frequently sourced by the Ministry, as is a public poll. • Austerity measures have lead to fewer resources for research. This is especially felt in the strategic policy studies that do not have the means needed. The Economic Structure Enhancing Funds (FES) for example, was an important source for financing research related to policy needs, but the available budget has slowly been reduced to phase out the use of the fund. • Over the past decade, there has been more collaboration with external expertise (knowledge over lunch) and in 'learning by doing' rather than 'learning by reading'. Whilst for some Ministries they can obtain evidence through a flexible dynamic of scientists who become policy makers, this is less so the case for this Ministry. This means that there can be a divide / gap in knowledge. The Ministry has been working towards reducing this gap by stimulating more co-creation of knowledge and more regional collaborations. • The line between fundamental research and applied research is thereby becoming less defined, which is considered a positive for the Ministry, because it makes the components of fundamental research more accessible and relevant to policy. • The institutes that are physically close to the Ministry are more likely to be involved in cross-cutting knowledge-sharing than those that are located further away, who are more likely to be consulted on a specific issue.

	• Whilst there is a strong understanding that knowledge and evidence-base is important to the policymaking process, the focus within the ministry is more on facilitating innovation than knowledge per se. This may be because of the strong inter-departmental relations with the institutes or it may be because of a lower prioritising on research developments.
Main documents	• Strategic knowledge and innovation agenda http://www.rijksoverheid.nl/documenten-en-publicaties/brochures/2012/06/29/ienm-maakt-ruimte-strategische-kennis-en-innovatieagenda-skia-infrastructuur-en-milieu.html

Table 10: Overview – NL: The Ministry of Health, Welfare and Sports (VWS)

Ministry of Health, Welfare and Sports			
Overview	**Total staff**	**Research/ analysis staff**	**Budget estimates**
	•	• 32	•
Presence of analysis staff	The strategy and knowledge unit within the Ministry consists of 20 FTE; mix between academic experts and policy experts There are 12 research coordinators in the policy DGs responsible for coordinating the research need within their respective DG		
Main sources of evidence	• Bi-annual knowledge rooms provide high level strategic policy makers the opportunity for knowledge sharing • There is an informal network of research coordinators; they do not structurally meeting but know where to find each other when needed • The Netherlands Organisation for Health Research and Development coordinates the research agenda for health. Its agenda is a combination of policy, scientific and practical needs. • The institutes that are funded by the Ministry on either a core or project basis provide the core source of evidence for the Ministry • On an ad hoc basis the departments have the discretion of commissioning research to external organisations.		
Main trends and characteristics	• There are not one type of research that are of more or less interest than others; from public opinion to evaluations to technical expertise; all are continuously consulted and requested • Behavioural economics is becoming a highly demanded research area within the policy DGs • The multitude of national and international research on health means that often the answer needed already exists, but the question how to get it into the Ministry and to the policy makers is more difficult • The developments on an international level are considered important and 'natural' to the themes of the policy; scientists in the health sector often collaborate or use international sources, this makes it way into the Ministry as well • Transparency of research can be a concern to avoid political controversy. New guidelines for this have been developed recently, but do not require all reports to be made public. • The vested interests of the lobby groups in combination with the multitude of research can cause for blurry lines in evidence gathering, which is why the centralised Organisation for Health Research and Development is an important means to maintain a strong and focused research agenda and be guiding to the policy developments • Austerity has impacted the involvement of the policy staff in research; there is more of reliance		

	on the reports produced and less time for quality control, involvement, and consultation. • Austerity, but also transparency has reduced the number of actors involved in health research, making it more evident who to go to for certain types of thematic knowledge areas or methodological skills
Main documents	• Strategic Knowledge Agenda 2020 http://www.rijksoverheid.nl/documenten-en-publicaties/rapporten/2012/01/31/strategische-kennisagenda-vws-2020.html • National Organisation for Health Research and Development http://www.zonmw.nl/en/

Table 11: Overview – NL: Ministry of Economic Affairs (EZ)

Ministry of Economic Affairs			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	•	• Approximately 30-40	• 5 million directly for commissioning research, costs for staff and costs for funded research agencies not known
Presence of analysis staff	• At the same level of DG, there is an extra unit of the 'loco' SG (similar to a deputy), which is the overall portfolio holder of research, monitoring and evaluations. As a small unit, approximately 4-5 cross-policy analysts are employed to coordinate research needs and relations with the funded research institutes and organisations. • There are 3 policy DGs in the Ministry with each their own Head Analyst. The Head Analysts meets regularly with each other and the staff of the Loco SG to discuss developments in research, monitoring and evaluations. S/he is responsible for hiring analysts within the DG, for facilitating evidence-based policy across all departments within the DG, setting standards and protocols and quality assurance. • Each department has its own research coordinator and in some cases multiple analysts. The research coordinator ensures that the policy staff have a go-to-person, but also that external research is collected, validated and distributed to the appropriate policy staff. There are often more analysts than research coordinators; for the DG Business and Innovation there are for example 10 full-time analysts in 6 departments. All analysts meet weekly with the Head Analyst to discuss research relevant for the DG, but their main focus is on providing support for the research needs within the policy departments.		
Main sources of evidence	• Evidence is generated within and outside the Ministry. Within the Ministry, evidence generated is often related to monitoring and effect measurement, but also to financing options. This type of evidence is often generated by the analysts within the relevant policy departments and often through the use of data generated by core-funded research institutes or the bureau of statistics. • Sources outside of the Ministry include the core and programme funded research institutes. On the basis of an annual programming, in which the Ministry is often involved in setting, research is produced relevant to the overall policy agenda. • Research is also outsourced on a project basis, for mandatory research or for input to substantiate policy options and initiatives. There is a set budget for such research, and processes and protocols in place that involve the approval of the Head Analyst before a study can be commissioned. Such research is commissioned to qualified research organisations, specialists or consultancies.		
Main trends and	• The Ministry's structure has relatively recently changed from a top-down research		

characteristics	department to a new network structure. The structure been set up to generate a high quality evidence, quality assured by qualified analysts on a policy-need basis. The approach is bottom-up and top-down at the same time, to ensure both policy relevance as well as overall coherence. The ability of analysts to access evidence within their research-network is a central feature of the model. • The management of the current structure remains important to ensure the culture of seeking evidence is embedded in the policy processes; having protocols is not enough, it also needs to be led by example from the top. • A knowledge agenda exists for the Ministry but due to its long-term and helicopter view of the state of policy, is less frequently used by the analysts than the demands that arise from the policy staff. • Analysts are on the one hand embedded in their policy section and on the other hand part of the wider research system, leading to structured meetings on research methods, monitoring of evidence, quality assurance and reducing overlap in research
Main documents	• Organogram http://www.rijksoverheid.nl/bestanden/documenten-en-publicaties/brochures/2013/02/01/organogram-ez-met-namen/organogram-ez-nieuwe-structuur-nederlands-18-03-15.pdf • Knowledge Agenda http://www.rijksoverheid.nl/bestanden/documenten-en-publicaties/notas/2009/12/11/strategische-kennisagenda/strategische-kennisagenda.pdf • Publication of reports http://www.rijksoverheid.nl/ministeries/ez/documenten-en-publicaties/

Table 12: Overview – NL: The Ministry of Foreign Affairs (BZ)

Ministry of Foreign Affairs			
Overview	**Total staff**	**Research/ analysis staff**	**Budget estimates**
	•	• 30	•
Presence of analysis staff	• The department of knowledge and strategy is tasked with the forward looking knowledge needs within policy • The inspection for development and policy evaluation (IOB) is tasked with evaluating the implemented policies; they consist of dedicated methodological evaluation experts who are permanently tasked with evaluations and policy staff who rotate • A policy unit on international cooperation employs specific analysis staff • With the policy staff there are strategic policy advisors which function similar to research coordinators; there is one per DG		
Main sources of evidence	• The evaluation department (IOB) conducts the majority of research themselves but has a framework contract for impact studies with 8 consortia • External experts are often based on a specific thematic knowledge or local/geographical or a combination thereof • During a specific negotiation or policy development the policy DGs may hire external experts; often research consultants, to help them with short-term and ad hoc knowledge input • Every 4-7 the knowledge priorities are set at meta level and in consultation with all DGs		
Main trends and	• More awareness of evidence base and pressure on the independence of the research has increased the quality control of the evaluation services • Austerity had impacted the labour contracting processes (temporary contracts instead of regular		

characteristics	employment), but this caused too instability and now the staff are back on regular contracts • Due to the international nature of the work, there is frequent consultation with international partners; especially the 'Nordic+' countries with similar policies and similar knowledge needs • The increased role of the EU in international negotiations requires more and better understanding of the use of the Dutch input when it reaches EU level. These types of negotiation questions are a higher priority than the evidence base for the position at the moment
Main documents	• Evaluation programme of the Ministry http://www.rijksoverheid.nl/ministeries/bz/organisatie/beleidsevaluatie/lopende-beleidsevaluatieonderzoeken

D.3 Sources and content

D.3.1 External and internal evidence

The reliance on internal evidence varies per Ministry and depends on the size and scope of the non-policymaking units. For example, the Ministry of Education relies on external research for studies, but has an extensive internal data department, and the Ministry of Infrastructure & Environment has access to a large bureau of researchers in its internal structure conducting studies on relevant issues whereas the inspectorate for evaluations in the Ministry of Foreign Affairs manages all evaluations, but the Ministry as a whole lacks sufficient data. The generation of evidence within the other units of the Ministry is rare.

External sources of evidence

The large majority of evidence used in the policy process is derived from the institutions funded by the Ministries. The priorities for these institutions can be set in consultation with the Ministry (particularly when it provides core-funding) but the majority of these organisations set their own research agenda for several years, and are well-informed of the longer-term policy needs.

The mode of financing has impacted the research agenda to some extent. Many institutions used to enjoy core funding for their own research agenda, but most institutes now receive project-based funding relevant to specific, but large, policy objectives.

The presence of external agencies has reduced over the past decade; whereas before a large number of specialised organisations existed, there have been efforts (partly due to financial pressure) to merge and combine research institutes and create efficiency in that process. These institutes are particularly important for the generation of technical evidence.

In addition to these institutions, most ministries commission studies or evaluations directly needed for a specific policy issue. The Ministry of Foreign Affairs and Education both hold framework contracts with external research organisations to

reduce the administrative burden and allow for a quick tendering process. In addition, the Ministry of Education and Health make use of their national research organisation to commission studies relevant to the policy developments.

Internally generated evidence

When evidence is generated internally, it tends to only come from a specific unit, bureau or inspectorate tasked with research, such as the evaluation unit in the Ministry of Foreign Affairs, the Meteorology Bureau in the Ministry of Infrastructure, etc. With the exception of the evaluation unit in the Ministry of Foreign Affairs, these forms of evidence are often not directly linked to the policy cycle.

The collection and managing of (large) data sets, is becoming more and more important to policy developments, especially when the data is able to inform on the effectiveness or efficiency of policies and interventions.

Evidence from abroad

Evidence from abroad serves as a benchmark for the Dutch state of play. Few of the interviewees highlighted the use of foreign research intensively, but at the same time acknowledged its importance. To some extent there is an expectation that Dutch researchers are fully aware of the developments within their field, also abroad, and that therefore the information provided through national channels sufficiently covers international developments. All interviewees did indicate to be aware of and occasionally consult international data sources such as provided through the EU, OECD and the UN agencies related to their area of work.

D.3.2 Types of evidence

Law requires that reviews and evaluations of policy and government interventions be conducted. As such, the national budget indicates by which year what kind of policy needs to be reviewed. Evaluations provide sound insights into barriers and lessons learned and is therefore de-facto often of interest to the policymaking process. It is thus no surprise that all interviewees highlighted that the evaluations of policy interventions serve as important evidence in informing the policy process.

Most interviewees also underlined the need for technical and factual evidence, particularly as policy staff members are not expected to be technical experts and thus need external evidence per issue. The distinction in this respect can be made between evidence that already exists and evidence that has yet to be generated. Often, the information already exists, but has simply not reached the policy process. Various tools are used to increase the interaction between researchers and policy staff to reduce this gap and avoid duplication in research. Such tools include knowledge rooms, knowledge markets, and rotations with temporary academic staff, international research coordinator structures, open lunches, and attendance of policy staff at scientific conferences.

D.4 Barriers, quality and reliability

D.4.1 Overview of barriers

In order to incorporate research into the policy cycle, research needs to not only be available, it needs to be understandable to the policy makers, conclusive in its findings and cover the perspective of the policy. To find these aspects in research are rare, especially when it has to be produced in a scientifically acceptable method. The barriers from a policy makers perspective can be summed up as:

- Awareness of existing research
- Ability to understand, translate and apply the research to the policy area
- Timing of the research results and policy needs

D.5 Demand for evidence and absorptive capacity

During this study, all interviewees and reports confirm the need for and the growing importance of evidence as a base for policymaking. The incentive of designing policies based on research has two obvious main advantages, namely its public benefit (the best policy as far as research can demonstrate has been designed) and the decision-making process has been thorough and therefore easier to compromise on with the political opposition.

Whilst all interviewees recognize these benefits and indicate that research indeed is often requested and incorporated in the policy process, they also underline that not all research is sufficiently relevant, conclusive or integral to directly lead to policy choices, thereby reducing the opportunity that indeed the public benefit has been addressed fully. Furthermore, certain issues have yet to be researched, but require policy to be developed and solid research often takes longer than policy makers have. These practical considerations in combination with the ideological and philosophical priorities of the leading political coalition reduce the demand for research.

The institutes the Ministries (co-) fund have research agendas that are often set for multiple years. The interviewees indicated that these agendas are sufficiently broad that slight adjustments can be made to ensure that the research conducted is more in line with the needs of policy development. At this level there is a high demand for evidence, particularly as the institutes tend to research aspects that at least at meta-level are relevant.

The growing interest in effect and impact measurements as a way to make policy-decisions, has also increased the demand in research in this area. Over the past decade an interest in baseline studies to monitor and evaluate interventions has increased, methods to assess effectiveness and impact have been heavily debated

(when and how can you conduct counter-factual research) and the use and limitations of open and big data for policymaking is currently explored by most, if not all Ministries. These interests have led to the hiring of staff members that are able to work on these issues, particularly economists, econometricians and ICT staff especially in the Secretary-General's staff units. Nevertheless, the majority of policy staff are expected to be generalists; able to move fluidly between policy dossiers and organisational changes.

Although the aspiration for the use of research in policy is high, the time constraint, especially at a time of austerity, puts significant pressure on the ability of the policy staff to assess research results. Summaries and presentations of research results as well as data dashboards are more often preferred to a thick, well-researched research report. Furthermore, whilst the criteria during the hiring process of policy staff include an academic background, research skills are not as essential in the hiring process as the understanding of public governance. To overcome insufficient research backgrounds, several of the knowledge departments highlighted to have provided training courses on outsourcing research.

D.6 Documentation and publication

D.6.1 Documentation and guidelines

As demonstrated in the tables per Ministry, each Ministry has begun to express knowledge needs via a multi-annual knowledge agenda. For some ministries, the current agenda is their first. These knowledge agendas vary in time span, but tend to work around a four-year cycle, in line with the cycle for elections. The agenda approach enables the policy DGs to set a broad framework from within they will operate at policy level, but more importantly, allows for the research field, particularly the research institutes that are (co-) funded by the Ministries, to conduct multi-annual research projects that are actually relevant to foreseen policy needs. The content of the knowledge agenda is often more forward looking than the state of play of the policy cycle. As policy changes during the four-year cycle, due to the need to respond to societal changes and political developments, the relevance of the research agenda, may vary per Ministry. Indeed, the input required from research during that cycle may vary. The issues set out in the knowledge agenda are thus of long-term importance to the work of the Ministry, often beyond the four year election cycle.

In addition to the knowledge agenda, the annual budget per Ministry contains an overview of all policy areas where evaluations are required. Within the Ministries, an annual programme per DG and sometimes per department, furthermore stipulates the research required for policymaking.

With a large reliance on external and independent research organisations, which have historically been leading in the research field, the guidelines for research

methods are in most cases outsourced by default. There are no handbooks, guidelines or other methods in the Ministries to assure the quality of research commissioned. To ensure that policy staff do have an understanding of research methods and are able to judge the quality of the approach, several ministries offer workshops and trainings on tendering procedures and the quality of research methods. Such trainings are often oriented towards the staff in a position (similar to that) of a research coordinator within the departments. The lack of structure and coherence in the provision of such trainings and the absence of handbooks and guidelines, do lead to a large freedom and trust in external organisations to ensure the reliability of the research.

D.6.2 Publication

The issue of transparency and publication of the research came forward in nearly all interviews for this study. Bluntly put, the main concern of the policy makers with the publication of research commissioned or conducted by the Ministry is that it will lead to more work for the Ministries. If for example, the result of a study is contrary to the political agenda, or if it contradicts previous findings, or is inconclusive, the study will raise public (and often political) attention, leading to more work for the Ministry. Whilst this may indeed be in the interest of society, the fear of increased workloads at a time of austerity has made many departments wary of publishing reports, or in the extreme case, commissioning research.

To avoid this behaviour, all Ministries have, or are in the process of creating, a protocol for when to publish reports, how and to which stakeholders. Large studies and planned evaluations are included. In some cases the debate around open/big data is also considered. In addition, the research conducted by the (semi-) independent research institutes in line with the knowledge agenda is always made public. The research conducted on behalf of the research organisations (in the case of the Ministry of Health and Education) are furthermore made publically available.

Appendix E Country Report: Finland

This section provides an overview and analysis of the current state-of-play of evidence use in policymaking in Finland, including the Prime Minister's Office (VNK) and six Finnish ministries:

- Ministry of Education and Culture (OKM)
- Ministry of the Environment (YM)
- Ministry for Foreign Affairs (UM)
- Ministry of Social Affairs and Health (STM)
- Ministry of Employment and the Economy (TEM) (innovation policy)
- Ministry of Transport and Communications (LVM)

E.1 Overview and key issues

Government level governance in Finland is based on a management-by-objectives approach adopted two decades ago. Funding is allocated to ministries based on 4 year revolving budget frames, which are reviewed annually and act as the basis for the following year's budgeting.

Recent couple of governments have defined government level policy initiatives cutting across ministries, but without earmarked allocation of funds to these initiatives, the implementation has remained fragmented at the level of individual ministries.

The main policy documents are the government programme and national policy area specific strategies, some of which are ministry specific, some cut across several ministries.

The overall policy culture favours high level education and scientific research, which means that research-based evidence is typically regarded highly by the government and at the ministries. Thus, the overall demand for and use of research-based evidence is relatively high.

In some policy areas such as TEM, the emphasis on stakeholder opinions has somewhat increased over recent years. While this has not replaced research-based evidence, it has overemphasised specific topics and policy initiatives. Therefore, some topics or initiatives have received more attention than they would have if the analysis would have been based only on extensive research-based evidence.

Ministries rely mostly on captive research institutions and agencies in their administrative sector as well as on research networks for research-based evidence. Internal gathering and analysis of evidence is mostly linked to policy processes and specific initiatives. Ministries emphasise and some also have resources for identifying and commissioning research aimed at anticipating and addressing future demand for research-based evidence.

E.1.1 Context

Ministries' research funds have been reduced dramatically over the recent years. At the same time, policy challenges have become more complex as the need to address societal challenges and other cross ministry policy objectives has increased. Hence, there is a need for stronger research-based evidence to support policymaking.

To compensate for the cuts in ministries research funding, to better support government level decision-making, and to enhance cross-ministry collaboration and coordination in gathering, analysing and using evidence, two new strategic research funding allocations were established in 2013.

One of these is the VNK's TEA funding, the purpose of which is to support government policymaking in short and mid-term. Annually ministries propose research topics, which are prioritised by the TEA coordination group consisting of representatives from all ministries and the VNK. Once the TEA groups prioritisation has been approved by the government, the competitive funding call is opened. The steering of the eventually funded research projects are at the joint responsibility of those ministries that benefit from the projects. They may also invite external experts in the project steering groups. TEA funding budget was 5.4 MEUR for 2014 and approx. 6.0 MEUR for 2015. The plan is to increase this to the level of 12.5 MEUR by 2016.

The other strategic allocation for policy relevant research is STN. It operates as an independent research council inside the Academy of Finland. Its role is to fund longer term policy relevant research anticipating the demand for research-based evidence and supporting longer term policymaking. Annual budget of STN is approx. 57 MEUR.

All new and reformed legislation as well as national level strategy prepared at the leadership of one ministry is subject to internal consultation across ministries, relevant agencies, and key stakeholders. However, as the concerns related to the quality of preparation of new and improved regulations, strategies and policy initiatives have grown, proposals have been made to establish an independent expert body under the government for the purposes of quality control and to support ex-ante impact assessment.

In the case of a programme, thematic or policy evaluation, as well as an external committee report, the ministry (alone or in collaboration with other ministries when

recommendations cut across ministries) typically establish an internal working group to assess the report and its recommendations. The main purpose of this internal assessment is to analyse which recommendations would be appropriate to implement and how.

E.1.2 Key issues

During the last few years the emphasis on providing stronger evidence-base to support government level policymaking has increased. This has been driven partly by the need to cut government spending in general, but more importantly by the need to address increasingly complex policy challenges cutting across several ministries. In 2013 this resulted in a government resolution, which contained two main elements.

Firstly, strategic research funds aimed at supporting government decision-making were gathered into two allocations. VNK TEA function was established to manage funds allocated to short- and medium term needs for research-based evidence in collaboration with all ministries. In addition to funding, VNK TEA also coordinates research needs across ministries. Funds aimed at addressing longer term policy relevant research needs were allocated to a newly established STN. Its funding is focused on thematic areas according to a research plan decided by the government.

The second element of the resolution was to merge government research institutions in order to create critical mass and enhance cross-disciplinary research. This has been since further supported by establishing LYNET, which is a network of 7 government research institutions and 4 ministries.

These reforms were implemented only recently, so it is difficult to say to what extent they will strengthen evidence-based policymaking in Finland. However, as the interviews clearly indicate, the interaction between and inside ministries has already started to increase, strengthening coordination of policy relevant research activities and increasing the potential to improve the evidence based used in policymaking. Establishing TEA at VNK and approving the research focus of both TEA and STN at the government have also brought policy relevant research activities closer to political decision makers

Interviews clearly indicate that there are concerns related to the use of research-based evidence. Ministries see challenges in the pace and complexity of policy processes and in the increasing interest of politicians to use external committees and formal working groups to gather and analyse evidence. Limited time and resources as well as political decision makers willingness and ability to use research-based evidence have raised concerns. Based on the increased interest to launch numerous committees and working groups, politicians seem to have some doubts related to the ministries' ability to analyse research-based evidence, and especially to formulate policy relevant conclusions, options and recommendations.

These concerns emphasise the need to improve communication and interaction between politicians, ministries and researchers (as well as key stakeholders). This can be supported by establishing practices for extracting the most relevant messages and their potential meaning and policy relevance from the available research-based evidence to the decision makers, eg in the form of thematic policy briefs, reviews and summary reports. Furthermore, the documentation given to decision makers should always include references to the main sources of research-based evidence, thus emphasising the fact that the proposals are strongly based on available evidence. The emphasis should be on ensuring that decision makers have the right evidence available at the right time and in the right format. The increased attempts on anticipating future demand for research-based evidence is therefore also important.

Ministries emphasise different sources of research-based evidence depending on their own resources and competences and access to captive research institutes and agencies. STM is an example of a combination of own strong analysis capabilities and captive research organisations supported by a wide range of thematic advisory bodies. On the other hand, OKM relies mainly on external sources of research-based evidence produced by strong university teams. The reason for this variance is primarily historical rather than a result of a deliberate government level long term strategy.

Close integration of the analysis and sense-making of research-based evidence into specific policymaking processes can ensure that the people responsible for the planning and implementing policy initiatives are sufficiently aware of the evidence and that evidence is used in the process. However, there should be a balance between addressing immediate and short-term needs for evidence, and more exploratory gathering and analysis of research facilitating the anticipation of future demand for research-based evidence. Based on the interviews, the latter may be increasingly challenging in the future, especially as funds available may become even more limited.

E.2 Details of Ministries

The tables below present brief overviews of the six departments considered for this study.

Table 13: Overview – FI: Ministry of Education and Culture

Ministry of Education and Culture			
	Total staff[12]	**Research/ analysis staff**	**Budget estimates**
Overview	• 297 (ministry) • 3116 (administrative sector)	• Total of 7 FTE full-time or predominantly at the ministry. Foresight and Analysis Group lead by the Special Government Adviser consisting of 1+10 people from policymaking units (4 FTE) and further 3 FTE in policymaking units. • Most staff deals with evidence at the ministry and at the agencies	• No ministry level budget. • Each policymaking unit has their own budget, totalling about 5 million EUR annually for the whole ministry. • Allocations to specific studies such as OECD PISA and PIAAC, otherwise flexible
Presence of analysis staff	An internal cross-unit group for coordinating foresight and analysis activities. The group is lead by the Special Government Advisor and it includes 10 other people from the ministry's policymaking units and support functions. The ministry doesn't have a research director. The group also coordinates ministry's work related to national strategies, government programme preparation and cross-ministry strategic research (TEA managed by the Prime Minister's Office).		
Main sources of evidence	• No government labs or research institutes. • A number of university based research institutes such as RUSE , FIER and CUPORE at University of Turku and University of Jyväskylä are used frequently. • The main agencies, the Finnish National Board of Education and the Academy of Finland , have been assigned the mandate to act as advisory bodies to the ministry in issues related to education and science, respectively. • Immediate needs are addressed internally at the ministry based on already available evidence (e.g. the Special Government Advisor maintains up to date material on key indicators and results of studies, international benchmarks and their analyses, and relevant research findings). • Mid-term needs are addressed further by consulting stakeholders and researchers, sometimes commissioning specific studies. • Long term needs are anticipated and addressed through research and gathering evidence from international research and benchmarks. • All ministry's research funding is competitive. However, the same strong research groups tend to win most tenders.		
Main trends and characteristics	• Ministry culture supports the use of research based evidence in areas of education and research (not quite that much in other areas). • Increasing recognition of the need to work across the policymaking units. The foresight and analysis group has been established to coordinate across policymaking units, but units still remain quite independent. A common framework for gathering needs for research-based evidence is currently piloted for the first time. • The demand for research-based evidence has increased during the recent years. The main		

[12] Ministry of Finance, statistics of government employment, 2013. http://vm.fi/valtio-tyonantajana/valtion-henkilosto-tilastoina/henkilostolukumaarat

	reasons for this have been increased international interest and the need to understand and explain the Finnish educational system (e.g. because of excellent PISA results), major structural reforms (e.g. increased autonomy of universities), and nationally indentified challenges (e.g. indications of losing ground in international benchmarks). • The absorptive capacity has increased, especially due to the recent recruitment of scientists to policymaking unit director and manager positions. • The challenge is in the time and resources available for analysing the evidence, not so much in the availability. The other key challenge is the policy maker's ability to make difficult political decisions, even though the evidence and analysis clearly indicates the need for policy action. • The internal processes of gathering, analysing and sense-making and how these processes are organised are more important than a formal specific research unit or similar separate function or the time formally allocated to this work. • Quality of evidence is analysed individually and interactively during the analysis or policy process. The processes are inclusive, which ensures that the majority of policymaking unit staff is involved also in analysing the evidence. • Gathering and analysis is mainly linked to the preparation and implementation of the government programme and sector specific strategies. The emphasis on foresight and anticipation of future needs for evidence has been increasing. • All reports are public and most published by the ministry.
Main documents	• Ministry's publication series: http://www.minedu.fi/OPM/Julkaisut/julkaisulistaus?lang=en • Ministry's planning and monitoring documents: http://www.minedu.fi/OPM/Linjaukset_ja_rahoitus/tulosohjaus_netra/?lang=fi (only in Finnish language) • Ministry's strategy: http://www.minedu.fi/OPM/Julkaisut/2010/strategia_2020.html?lang=en • TIN Research and Innovation policy guidelines for 2015-2020: http://www.minedu.fi/export/sites/default/OPM/Tiede/tutkimus-_ja_innovaationeuvosto/julkaisut/liitteet/Linjaus2015-2020.pdf (Finnish language, English translation not yet available) • Research policy portal: http://research.fi/en

Table 14: Overview – FI: Ministry of the Environment

Ministry of the Environment			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• 283 (ministry) • 1023 (administrative sector)	• A research team of 4 including the Research Director and one team member from each policymaking unit. • Most of the staff is involved in analysing evidence during policy processes	• Current annual research budget is 7.2 MEUR • About 4 MEUR is earmarked to specific topics and the rest is flexible. • Flexible funds are used mainly according to the ministry's R&D strategy.
Presence of	A research team of 4 including the Research Director and one team member from each policymaking unit. The group coordinates ministry's research related to cross-ministry strategic		

analysis staff	research (managed by the Prime Minister's Office).
Main sources of evidence	• One main research institute, the Finnish Environment Institute (SYKE)[13]. The steering of SYKE is based on the ministry's R&D strategy, which identifies horizontal themes for both SYKE and for the ministry's own and commissioned research. The thematic approach also supports cross-departmental collaboration inside the ministry. • Ministry makes use of LYNET[14], which is a collaborative network of 7 government research institutions and 4 ministries. • Immediate and short term needs are addressed through commissioned studies and ministry's internal analysis. • Mid-term needs are addressed through SYKE research, commissioned research funded from the Government's analysis, assessment and research (TEA) funds (managed by VNK), collaboration with other ministries, and international platforms. • Long term needs are addressed using scientific research, international platforms, and SYKE research. • The ministry also makes use of the Forum for Environmental Information[15]. • All ministry's research funding is competitive. However, the same strong research groups and consultants tend to win most tenders.
Main trends and characteristics	• The ministry's culture values solid scientific evidence, which supports the wider identification, generation and use of research-based evidence. • The ministry has high interest and strong use of evidence. This has been also verified by an external study looking into the societal impact of the ministry's R&D activities[16]. • The demand for evidence has increased, especially during the last 1-1.5 years because of the recently launched reform of government research institutions as well as two new sources of strategic research funding (VNK and STN). EU-level regulatory issues can also raise the need for evidence. • The use of evidence depends on individual politicians and their educational background. • Barriers are mostly related to time (immediate needs) and resources (ministry's R&D budget should be higher). • Some concerns with lobbyist "evidence" and political one-man-committees. Quality is assessed individually and interactively during analysis and policy processes. • The ministry has a R&D strategy, which defines the focus for all research activities funded or steered by the ministry. • The emphasis is in the early stages of the policy process, especially the importance of ex-ante assessment of economic and societal impact has been increasing.

[13] Staff of approximately 700 and annual budget of about 60 MEUR, of which lump sum allocation from the ministry of little more than 30 MEUR (approximately 55% of total budget).

[14] http://www.lynet.fi/ (only in Finnish language)

[15] Founded in June 2010, the Forum aims at advancing the transfer of timely environmental information and at increasing interaction between the producers and users of information. The main objective is to support national policymaking, keeping in mind the global significance of environmental problems. The Forum is funded from two private foundations (Maj and Tor Nessling Foundation and Kone Foundation).

[16] https://helda.helsinki.fi/bitstream/handle/10138/40761/YMra_28_2013.pdf?sequence=3

	• All reports are made public when they are completed.
Main documents	• Ministry's R&D strategy: http://www.ym.fi/download/noname/%7B72EDD5A3-0D6C-4062-A76B-676B9A383137%7D/92048 • Ministry's publications: http://www.ym.fi/en-US/Latest_news/Publications http://www.ym.fi/en-US/The_Ministry/Research_and_development http://www.syke.fi/en-US/Publications • Ministry's planning and monitoring documents: http://www.ym.fi/fi-FI/Ministerio/Tavoitteet_ja_tulokset/Suunnittelun_ja_seurannan_asiakirjat_Netra (only in Finnish language)

Table 15: Overview – FI: Ministry for Foreign Affairs

Ministry for Foreign Affairs			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• 997 (ministry) • 1558 (administrative sector)	• Full-time or predominantly 4-5 in the Policy Planning and Research unit and approximately the same amount in other departments, totalling 8-10 FTE. • Basically all ministry personnel is involved in gathering and analysing evidence, especially those working abroad in embassies.	• Total budget for the ministry amounts to approximately 1 MEUR annually (approximately 0.3 MEUR in the Policy Planning and Research unit and a further 0.7 MEUR in policymaking units). • The budget is flexible. The allocation is based on an annual research plan, which is partly based on identified policy needs and partly more generic.
Presence of analysis staff	The Policy Planning and Research unit has full time analysis staff, partly diplomats on rotation and partly scientists hired or seconded from universities and research institutes. The unit coordinates research based evidence related activities across the ministry's departments in issues concerning the whole ministry. They also coordinate the ministry's participation in VNK's TEA activities. The unit also has continuous case-by-case collaboration with the other departments and units. Other units have also people involved in gathering and analysis of research based evidence. Department for Development Policy has also their own research activities, so does the Department for Russia, Eastern Europe and Central Asia, which also covers the Arctic region.		
Main sources of evidence	• The ministry has no captive research institutions. • The main domestic research institute focusing on foreign policy is the Finnish Institute of International Affairs (FIIA), which is directly under the Parliament. • Other departments have frequent collaboration with specific research institutions, e.g. in the Development Policy. • The ministry makes use of a researcher network which consists of internationally renowned researchers and research groups (80% are international). The network is used to identify the best researchers and groups for each specific evidence need. • All funding is project based and mostly competitive (only smaller projects may be non-		

	competitive). • The source depends mainly on the contents of the evidence needed. Own experiences of salience, reliability and legitimacy is high. The ministry can also benefit from its international network of embassies to identify potential research institutes and new sources of evidence. • All the main international organisations are relevant, especially at the EU-level (e.g. Policy Planners' Network[17]). However, own direct contacts to research institutes are more important.
Main trends and characteristics	• The ministry has - due to the nature of its sector - the tradition and high interest in using research based evidence. • The need for evidence is triggered mainly by the ministry's own foresight activities. At times, needs may also be triggered by specific political considerations. • The educational level of ministry staff is relatively high, so the ability is rather widespread. • The main concern is time available for acquiring and using research-based evidence. Direct face-to-face communication is very important. Therefore the unit people participate in weekly discussions of the ministry directors. • The challenge is to find the balance between closeness to policy makers (sufficient understanding of the needs) and the time to look at the big picture (ability to anticipate future needs). • The ability to anticipate the needs for evidence is important. Sometimes it might be challenging to identify the right research institute for a specific topics, especially if the topic is new. • Quality is ensured by the use of internationally recognised researchers and research groups. Quality is also assessed individually and interactively during the policy processes. Lobbying or selective use of evidence have not been identified as problems. • The main emphasis is on continuous gathering, analysis and use of research based evidence. There is no specific policy cycle related overview, but the unit organises a small number of workshops annually for reviewing, analysing and summarising the gathered evidence. • All reports are made public as soon as they are ready.
Main documents	• Ministry's strategies: http://formin.finland.fi/public/default.aspx?nodeid=15176&contentlan=2&culture=en-US • Ministry's publications: http://formin.finland.fi/Public/default.aspx?contentid=50897&nodeid=15707&contentlan=2&culture=en-US • Ministry's planning and monitoring documents: http://formin.finland.fi/public/default.aspx?nodeid=15177&contentlan=1&culture=fi-FI (only in Finnish language)

Table 16: Overview – FI: Ministry of Social Affairs and Health

Ministry of Social Affairs and Health			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• 448 (ministry) • 3724 (administrative	• Approximately 40 FTE work predominantly on collecting and analysing	• The ministry's R&D budget is roughly 100 MEUR. In addition to it, the

[17] http://www.strategicdialogue.org/programmes/counter-extremism/ppn

	sector)	evidence. • The Planning and Development group has a staff of 20 (full time) and policymaking units have a similar amount of FTE allocated to gathering and analysing evidence.	policymaking departments use a few million EUR annually of their funds for research purposes. • Not very flexible, as majority of the funds are pre-allocated according to the ministry's research strategy as block funding to research institutions.
Presence of analysis staff	Half of the full-time staff is at the Planning and Development Group of the Administration and Planning Department. The group is the focal point of ministry level coordination of research activities linking it also to the VNK's TEA activities. The group works in close collaboration with the Permanent Secretary's staff and it has a contact person from each policymaking unit.		
Main sources of evidence	• There are several (almost 50) advisory committees and boards working under the ministry. The role of these is mainly to make sense of existing evidence and provide policy relevant advice for the ministry. • The ministry has 14 agencies and research institutions. The most important of these are National Institute for Health and Welfare (THL), Finnish Institute of Occupational Health (TTL), Radiation and Nuclear Safety Authority (STUK), Finnish Centre for Pensions (ETK), The Social Insurance Institution of Finland (Kela) (its research department) and The Finnish Medicines Agency (Fimea). They all have responsibilities in gathering and analysing research-based evidence, in addition to administrative functions. • Majority of policy relevant evidence comes from THL and TTL. Both of these have strong emphasis on knowledge management. • All funding except for the block funding for the ministry's research institutes and agencies is competitive. • Continuous production of research-based evidence by the research institutions ensures that most of the required evidence is available. • More recently the tendency has been to establish virtual research centres instead of permanent networks. The aim is to create a closer link between the research institutions and universities.		
Main trends and characteristics	• The ministry favours peer reviewed research-based evidence produced at the research institutions and universities. The ministry staff is highly educated, which helps in identifying and analysing what is policy relevant. • The amount of relevant domestic and international research is vast, but the time and resources to access it are limited. • The interest and demand for research based evidence are high and increasing. It is mainly based on needs identified at the ministry, but may sometimes originate from politicians. • The absorptive capacity is very widespread due to high educational level of staff. This is supported by part of the staff working part time at the ministry and part time in research. • The challenges are related to the appropriate formulation of the evidence to ensure correct communication to policy makers and to political decision making. • Quality control is based on individual assessment supported by the appropriate use of reliable peer reviewed sources and high educational levels of staff. All policy relevant documents must include references to research-based evidence. The ministry also makes use of a large number of thematic advisory bodies. • There is a need for better evidence as political decision making has become increasingly demanding (societal challenges). • Political decision makers don't always make full use of the evidence (e.g. decisions are too rushed, time and resources are limited) or they emphasise the evidence selectively. • Identifying policy options, ex-ante impact assessment and monitoring are the most important points in policy processes where research-based evidence is needed.		

	• All reports are published when they are ready.
Main documents	• Ministry's strategies: http://www.stm.fi/en/ministry/strategies • Ministry's publications: http://www.stm.fi/en/publications/all • Ministry's planning and monitoring documents: http://www.stm.fi/stm/toiminta_ja_talous/suunnittelu_ja_seuranta (only in Finnish language)

Table 17: Overview – FI: Ministry of Employment and the Economy

Ministry of Employment and the Economy			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• 569 (ministry) • 12204 (administrative sector)	• The ministry level Research and Foresight unit has a staff of 7 full-time analysts. • Enterprise and Innovation department has 3 full-time analysts. • Most of the staff at the ministry participate in analysis during policy processes.	• The research budget for the whole ministry is 1.22 MEUR (in addition to a significant core funding of VTT and the agencies), of which approx 0.7 MEUR is for the Research and Foresight Unit and rest for policymaking departments. • The research budget of the Enterprise and Innovation Department is 0.1 MEUR. • The ministry's research funding (except for the core funding) is flexible and allocated according to an annual plan, which is reviewed when actual funding decisions are made.
Presence of analysis staff	Research and Foresight Unit at the Knowledge Management Department coordinates ministry level research (incl. a team with representation from all policymaking departments) and VNK's TEA activities. However, the main focus of the unit is on employment and industry sector analyses because of historical reasons. In practice, innovation related research-based evidence is at the responsibility of the Enterprise and Innovation Department.		
Main sources of evidence	• There is are two research institutions under the ministry: Technical Research Centre of Finland (VTT) and Geological Survey of Finland (GTK). VTT has a unit for innovation research which produces policy relevant evidence. • The ministry's administrative sector has several agencies, many of which have or fund research activities relevant for policymaking. The most important of these is Tekes, which funds innovation research designed in collaboration with the ministry. Tekes also produces policy briefs based on the results of the funded innovation research. Tekes also extensively evaluates its activities, which produces policy relevant evidence. • The ministry has a number of advisory bodies each focusing on specific targeted policy area. The role of these is mostly negligible in the area of innovation policy. However, the role of the government level Research and Innovation Council (TIN) is very important. • Most of the ministry's own commissioned research is review type and short term analyses relying on existing evidence or focusing on specific evidence (surveys, etc.). Some agencies also make		

	use of commercial business intelligence type services. • Other relevant sources of research-based evidence include external research institutions (e.g. ETLA) and universities (e.g. Aalto).International research and benchmarking (e.g. OECD, EU) plays a very important role in policymaking.
Main trends and characteristics	• Finland has a long tradition in evidence-based policymaking developed through the TIN (and its predecessor STPC). The interest to gather and use research-based evidence is high, which also shows in the extensive use of evidence. • The main source for the demand is the ministry's own strategic planning supported by the agencies, although political interests may occasionally raise the need. • Policy relevant issues have become more complex (e.g. extend to several sectors) and the need for evidence more dynamic. Political decision making cycles have become more intense; once the decisions have been made, politicians expect them to be implemented almost immediately. • The challenge is to be able to anticipate future needs. Although lots of evidence is available, the challenge is in analysing and making sense of all available evidence and prepare it into usable format. • The absorptive capacity is relatively widespread, but on average staff competences could be higher. • Quality of evidence is assured during interactive policy processes. There is some level of lobbying, but it is easy to separate from research. • Evidence is needed mostly during the initiation (before political decision) and detailed planning (after political decision, before launch) stages. There is also a strong emphasis on evaluation, which is frequently used in designing and readjusting policy initiatives. • Systematic gathering and analysis of research-based evidence is typically linked to key policy processes, such as government programme (planning of a new one or during mid-term review, including futures papers), significant EU decisions and the design of important national policy initiatives or reforms. • All reports are published, most of them in the ministry's own publication series. Reports are published when they a completed, not depending on the policy cycle.
Main documents	• Ministry's corporate strategy: http://www.tem.fi/en/ministry/corporate_strategy_for_the_mee • Ministry's model of corporate governance: http://www.tem.fi/files/42341/Corporate_steering_27.1.2015.pdf • Ministry's publications: http://www.tem.fi/en/current_issues/publications/innovation http://www.tem.fi/ajankohtaista/julkaisut/tem_raportteja (more in Finnish language) • Ministry's planning and monitoring documents: http://www.tem.fi/ministerio/budjetti_ja_toiminnan_suunnittelu/suunnittelun_ja_seurannan_asiakirjat (only in Finnish language) • TIN Research and Innovation policy guidelines for 2015-2020: http://www.minedu.fi/export/sites/default/OPM/Tiede/tutkimus-_ja_innovaationeuvosto/julkaisut/liitteet/Linjaus2015-2020.pdf (Finnish language, English translation not yet available) • Innovation policy relevant strategies: https://www.tem.fi/en/innovations/strategies_reports_evaluations • Tekes publications: http://www.tekes.fi/en/tekes/tekes_publications/

Table 18: Overview – FI: Ministry of Transport and Communications

Ministry of Transport and Communications			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• 174 (ministry) • 2354 (administrative sector)	• There are no full time persons, but 7 people have specific tasks in their job description to participate in research activities and coordination amounting to a total of about 2-3 FTE. • Everyone at the ministry has the responsibility to use research base evidence to some extent.	• Most of the research funding is allocated as core funding to the research institutes and agencies. • The ministry has an annual budget of 2,5 MEUR for own research. • Own research funds are allocated according to an annual plan, which supports specific policy initiatives or anticipates future needs. Small amount of funds are reserved for ad-hoc purposes.
Presence of analysis staff	Development Unit at the Administration Department has the ministry level coordination of research activities. It leads an internal team across policymaking departments for this purpose. Policymaking units have also coordination responsibilities in their own policy areas.		
Main sources of evidence	• In the area of transport, the ministry has two agencies, The Finnish Transport Agency and the Finnish Transport Safety Agency (TRAFI). In addition to having administrative tasks, these agencies also do and commission research. • The ministry also has another research institute, the Finnish Meteorological Institute and a key agency the Finnish Communications Regulatory Authority (FICORA) in the area of communications policy. • The ministry also frequently uses The Research Institute of the Finnish Economy (ETLA) , Technical Research Centre of Finland (VTT) , universities and a number of smaller consultants on a case-by-case basis. • The ministry has no permanent formal internal or external advisory bodies. There is, however, a formal network for R&D and innovation related issues in the area of transport policy. • Gathering and analysis of research-based evidence is systematically anticipated and planned, which allows timely access to relevant evidence. • Ministry actively participates in EU and other international platforms, such as the OECD and IPCC. International platforms are important sources of evidence. The ministry also monitors and makes use of evidence from specific countries such as UK and Sweden.		
Main trends and characteristics	• Research-based evidence is frequently used in planning and implementation of policy initiatives. Research based evidence is extensively used in the preparation of national strategies and policy reviews. • Most of the demand for evidence is integrated into the policy processes. Emphasis on foresight activities has increased and helps anticipate future needs. Some topics are also raised by specific interest groups. The ministry also follows closely EU-level platforms, policy processes and discussions. • The need for research based evidence has remained mostly same as before, although the appropriate timing and formulation of evidence is increasingly important due to the increased pace of technological change. • Absorptive capacity is widely spread as the overall educational level is good. During the couple of recent years the ministry has recruited more people with post graduate education		

	and scientific background. • The biggest challenges are related to ex-ante assessment of future economic impact of policy decisions. The main barriers are related to timing (evidence needed immediately, no time to launch studies or research) and human resources (not enough people with time to allocate to gathering and analysing evidence or defining and launching studies and research). • Quality control is done individually and interactively during the policy process. Commissioning of research is competitive, which allows the selection based on quality and reliability. Selective use of evidence is avoided by using transparent, open and interactive policy processes engaging a wide range of stakeholders and researchers. • The use of evidence is specific to policy processes and significant EU-level decisions. The overall approach the ministry uses in governing the research institute and agencies has been documented. • All significant reports are made public immediately or soon after they are completed in the ministry's publication series. Some smaller ones may not be published in the series, but are all made available upon request. A limited number of reports containing sensitive business information of specific companies are not made public.
Main documents	• Transport policy: http://www.lvm.fi/en/16 • Ministry's model of corporate governance: http://www.lvm.fi/c/document_library/get_file?folderId=3082174&name=DLFE-25616.pdf&title=Julkaisuja%2029-2014 • Ministry's publications: http://www.lvm.fi/web/en/publications_series • Ministry's planning and monitoring documents: http://www.lvm.fi/netra (only in Finnish language)

E.3 Sources and content

E.3.1 Sources

The role and number of captive research institutes vary greatly between ministries. UM, TEM and OKM have either no captive research institutes or their role in producing policy relevant evidence is limited. YM and LVM have one or two captive research institutes, whose role in policy relevant research is relatively important. STM is a significant exception, since it has several captive research institutes that have a significant role in producing policy relevant research-based evidence.

Key agencies are important producers of policy relevant research-based evidence in the administrative areas of TEM, OKM, LVM and STM. Most of the research-based evidence originating from agencies is commissioned to external research institutes, universities and consultants, but some agencies also produce evidence internally.

The only ministry that systematically uses a large number of thematic advisory bodies in the production of research-based evidence is STM. However, the role of these is mainly in analysing existing evidence and providing policy relevant recommendations.

Ministries that have captive research institutes or agencies with the mandate and funding to produce policy relevant research-based and other (e.g. statistical) evidence use most of their research related budget in the form of core funding to these research institutes and agencies. However, all ministries have also some research funds they can use themselves for commissioning research. The amount of these funds has been reduced significantly over the recent years and vary greatly between ministries. At some ministries these funds are centralised or at least strongly coordinated, whereas in others the funds are allocated to policymaking units and only loosely coordinated at the ministry level. All ministries' own research funding is competitive, although most of it tends to be won by a smaller number of strong research groups and consultants.

All ministries and agencies make use of scientific research done at external research institutes and universities. This is done either by commissioning reviews or similar studies gathering and analysing existing scientific evidence (e.g. TEM, LVM), or by organising and utilising different types of research networks (e.g. LYNET, UM) or virtual centres (e.g. STM).

Most ministries have developed some form of researcher networks to help gather and analyse research-based evidence. UM relies mostly on international researchers and research groups. STM utilises a number of formal networks and virtual research centres. OKM relies on a small number of strong research groups at domestic universities. LVM relies very much on open and transparent interaction with researcher and a wider range of different stakeholders. YM makes use of an external platform to support its interaction with a wider range of stakeholders. TEM does not have systematic arrangements for interacting with researchers. However, it makes use of the facilities arranged by Tekes.

Politically motivated and launched one-man-committees and official working groups consisting of external experts have increased their importance over the last 4-8 years. Their role has been particularly important during the first year of a new government. The increased interest to look for external evidence and policy recommendations could indicate that policy makers may have doubts related to the credibility and legitimacy of evidence created at captive research institutes and agencies or internally.

Ministries tend to rely on existing evidence whenever possible and in cases where time and resources don't allow more extensive or in-depth research. This is understandable given the relatively limited resources available for analysis. Ministries and agencies internal analysis resources vary greatly, so does their importance as producer of policy relevant research-based evidence. There is typically a limited number of people working full-time or predominantly on analysis activities, with the notable exception of STM. However, in all ministries a large number of staff is involved in analysis of evidence during specific policy processes.

Ministries' internal coordinators or coordinating units also participate in government level coordination of research activities. This is becoming increasingly important as ministries own research funds are reducing and more research funds are allocated through the VNK's TEA activities and STN.

STM and YM have prepared ministry level research or R&D strategies. This allows them to align both the research funds allocated as core funding and the ministry's own research funds to policy relevant topics. Other ministries have annual plans for using the ministry's internal research funds. Small amounts of research funds are typically reserved for ad-hoc purposes.

The use of ministries' research funds is typically closely integrated to specific policy processes. Thus, the link between analysis and use of evidence is quite strong. Research coordinators and coordinating units typically have an important role in the preparation of national and policy area strategies, which further ensures that research-based and other evidence is analysed and used during key policy processes.

International evidence has a particularly important role at UM and TEM. Both actively participate in international platforms (OECD, EU, UN organisations) and systematically gather and analyse international evidence. International evidence is also important for YM and LVM, which are active in international platforms. While STM and OKM monitor international evidence, their international focus is mainly on EU and to some extent OECD.

E.3.2 Contents

All ministries emphasise the need to be able to anticipate the future demand for evidence as much as possible. However, the ability to ensure the availability of future oriented evidence varies greatly and depends highly on the available resources. Ministries with more resources are better able to allocate funds for exploratory and in-depth research, and foresight. Ministries with more limited resources focus typically on studies closely linked to specific policy initiatives. Some of these studies include reviews of available scientific evidence, whereas some focus more on gathering and analysing stakeholder views and opinions.

The needs for research-based and other evidence focus mostly on legal implications, factual & technical information, financing, and policy and programme evaluations, while public attitudes and moral and ethical aspects receive less attention.

E.4 Barriers, quality and reliability

Main barriers identified at all ministries are related to resources and time available to gather and analyse existing research-based and other evidence. Another challenge is the documentation of the evidence and analysis into a format that is sufficiently adaptable for policy makers.

The availability of policy relevant research-based evidence as such wasn't identified by the interviewees as a serious problem.

Quality control of research-based and other evidence is based on individual and interactive assessment during policy and strategy processes as well as in processes of formulating the evidence and analysis into briefs and reports targeted to policy makers.

Selective use of evidence has not been identified as a problem during policy processes. Decision makers may emphasise specific viewpoints, but evidence is not used selectively as such. There is some level of lobbying from specific interest groups, but it can be easily identified as it is mainly in the form of opinion papers and statements or interest group related surveys, and thus quite easily distinguishable from research. Documents prepared for lobbying purposes may be based on selective use of evidence, but as this is known it can also be taken into account during analysis and formulation of policy options.

Reliability of research-based evidence seems to be good. Ministries are aware of the quality of key external sources of evidence and thus able to take the quality and reliability into account in analysing and using the evidence.

There are evidently some concerns related to the credibility and legitimacy of evidence and especially the analysis done internally at the ministries, as political decision makers have during the recent 4-8 years launched and increasing number of external one-man-committees and official working groups focusing on specific issues high on the political agenda.

E.5 Demand for evidence and Absorptive capacity

The demand for research-based evidence has increased. The main reasons are related to increasing complexity of policy challenges, concerns related to the quality and impact of policy initiatives (especially new or reformed legislation and structural reforms), and increased international interest and benchmarking.

The pace of policy processes and complexity of policy challenges has increased. This is reflected in the need for better evidence and evidence cutting across several ministries. The government level coordination and research funding through VNK's TEA and STN represent efforts to address these challenges.

Discussions to address the concerns related to the quality of preparation and especially ex-ante impact assessment of policy initiatives are on-going. The emphasis in these discussions is on increasing the transparency and strengthening the underlying rationale of policy decisions by exposing them to external reviews during the policy process.

The demand for research-based evidence originates mostly from within the ministries. Ministries and agencies communicate frequently with the research community and key stakeholders. This interaction ensures that the views of stakeholders and reseachers feed the ministries' internal discussions and further facilitates the identification of new demand for evidence. Occasionally the need for evidence is closely linked to initiaves launched by politicians. Gathering and analysis of research-based evidence is seldom motivated directly by external demand.

Interviewees estimate that the absorptive capacity is relatively high at all ministries. The appreciation of high-level education and science ensures that the staff has sufficient competences in gathering and analysing research-based evidence. Some ministries have also recruited more scientists recently, whereas some use seconded or part-time scientists to complement the permanent staff. Transparent and interactive policy processes facilitate the participation of larger numbers of staff in gathering and analsying evidence, which further improves the absorptive capacity.

The communication between policy makers and researchers is quite intensive at the level of agencies and captive research institutes, as well as at ministries research units. The interaction is less intensive between ministries policymaking units and researchers. On the other hand, policymaking units often interact systematically with key stakeholders. The interaction between politicians and researchers is mostly indirect. The VNK and some ministries have recognised the need for better communication between researchers and politicians. This has been addressed by organising thematic events for the government and the parliament.

E.6 Documentation and publication

All ministries follow the government's overall governance model based on management by objectives approach. The main strategy documents are the government programme and policy area specific national strategies. Some ministries have documented research strategies and plans at the ministry level, others rely on annual plans.

Most ministries have a defined and documented annual planning cycle, which features when evidence is being analysed and used.

There are no formal guidelines on how to gather, analyse and use research-based evidence. However, there are guidelines for procuring research, studies and analyses from universities, research institutes, consultants and other external sources. These are typically rather technical and focus only on ensuring that the respective public procurement regulations are complied with.

All ministries publish all reports when they have been completed. Reviews and studies are based mostly on current policy needs and therefore the publication of these is typically closely linked to planned or launched policy processes.

Appendix F Profile: European Commission

This section provides an overview and analysis of the current state-of-play of evidence use in policymaking in the European Commission (EC). We considered the following six Directorates General (DG):

- Directorate General for Education and Culture (DG EAC)
- Directorate General for the Environment (DG Env)
- Foreign Policy Instruments (FPI)
- Directorate General for Food Safety and Health (DG Sante)
- Directorate General for Research and Innovation (DG RTD)
- Directorate General for Mobility and Transport (DG Move)

Whilst the structure of this chapter broadly reflects that of the remaining country profiles, we note two limiting exceptions for the case of the EC:

- The EC does not have a direct equivalent to foreign affairs ministries elsewhere. FPI is classed as a DG, but is not a policymaking DG. Consultation with FPI ultimately showed that there are no individuals involved in evidence collection or analysis for policymaking. To some extent, this fits with the special status of foreign affairs ministries in the other comparator countries, though it is amplified to the point that inclusion in this study was not possible in any detailed form.[18]
- Despite several attempts at contacting and organising interviews in DG Move, we found no individuals willing to be interviewed for this study. Hence we can only provide a rudimentary overview of DG Move, based on desk research.

F.1 Overview and key issues

Self evidently, the EC presents a special case compared with the remaining comparator countries in this study, as it is a supra-national organisation with differently defined remit for action and policymaking. This also has repercussions for the sourcing and use of evidence at the EC. The main factors that set apart the EC from the remaining comparator countries are:

[18] For an overview of FPI's remit, see http://ec.europa.eu/dgs/fpi/what-we-do/index_en.htm

- Its relationship with member states (MS) and constant efforts to understand individual situations in each MS and seek a consequently diverse range of inputs.
- The need to demonstrate European Added Value: This is a key principle in the EC, meaning that any activity undertaken by it needs to be based on a clearly stated case for why the activity could not simply be undertaken by each MS instead
- The Open Method of Coordination: in many areas, the EC does not have any policymaking remit, but there is nevertheless value in influencing MS activities. The Open Method of Coordination draws heavily on evidence – most often in the shape of statistical data and key indicators – in order to encourage MS to share best practice and make efforts to perform comparatively well on them.

F.1.1 Context and structure

The EC is made up of 33 DGs, which have an average of around 800 staff each, although this figure has considerable range (up to around 3500 for the largest). Most DGs have a specific unit in charge of evaluation, impact assessment or wider data collection, alongside a large range of thematic units. According to our interviewees, individuals charged specifically with collection or analysis of evidence make up around 2-5% of total staff, which generally are located in the evaluation and analysis units. However, this figure needs to be treated with extreme caution, as evidence analysis and use is also part of the remit in the thematic policy units. Whilst these may have a small number of additional evidence specialists, evidence analysis and use is considered part of the day-to-day activities in EC policymaking, and a full distinction between analysts and policymakers as found to varying extent in the comparator countries is not acknowledged in the EC.

The presence of specific evaluation/ assessment units stems in part from the high importance of demonstrating value and rationale of policies at EC level. We discuss this function in more detail below.

F.2 A role model within a particular context

The EC stands out above the comparator countries studies here in terms of its highly developed and stringent policy cycle. This includes the following components:

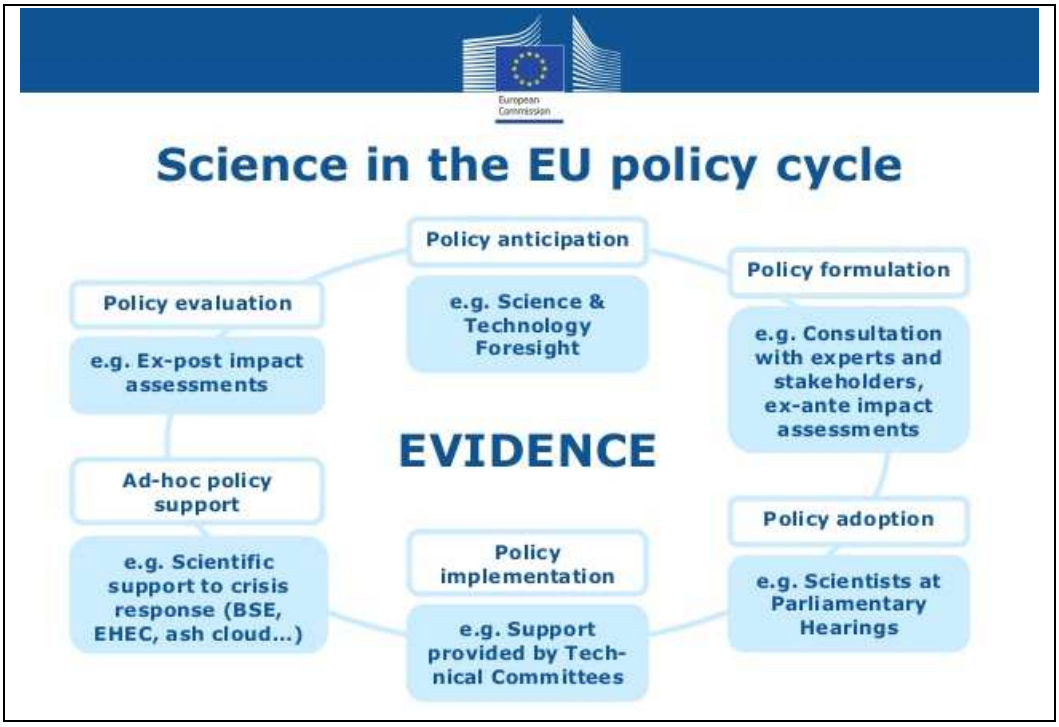
- **Road-mapping**: when new policy considerations arise, a first step is to create a roadmap. These are typically short documents setting out EU added value, a rough outline of rationale and policy options. They contain a minimal level of supporting evidence and analysis, and are usually produced internally. The aim of roadmaps is to to secure cabinet approval for further progression.
- **Ex ante Impact assessment:** Upon approval, This critical aspect of EC policymaking comprises a longer study (around one year with a final output of at least 100 pages), conducted by external providers. Ex ante impact assessments

provide a further options assessment and outline of anticipated impacts. They are overseen by an Impact Assessment Board, and requirements and guidelines for these studies are codified in the EC's Impact Assessment Guidelines. Impact assessments are a critical tool to ensure policy plans are underpinned by robust, high quality evidence and demonstrate European Added Value, in order to then seek political approval for implementation.

- **Implementation:** During the implementation phase, there are obligations to monitor the policy through on-going data collection. Parallel to monitoring data of the programme or policy, Eurostat and other internal facilities provide the capacity to monitor anticipated wider outcomes and impacts. Interim evaluations are also occasionally conducted.

- **Evaluation:** Upon completion, evaluations can draw on monitoring data to demonstrate the value of the policy. They are externally provided and overseen by an expert group. Evaluations ensure accountability on one hand (summative component) but also act as a learning tool for future improvement; in this sense, evaluations link the policy cycle back to the beginning (formative component).

Alongside this codified procedure of policy-cycle steps, there is additionally a growing use of foresight evidence and wider strategic research used to assess future options and understand future policy needs. In part, these feed into the policy cycle, forming a part of roadmapping, or even informing the start of the policy cycle alongside the formative component of evaluations. However, wider strategic evidence collection to some extent also is beyond these steps. Once a particular area of wider, strategic evidence collection is identified, it can be integrated into the DG's annual work plan. In DG RTD there is additionally a foresight unit specialising in these areas of evidence collection, whilst in DG Env the Knowledge & Risks unit has a similar function. In the latter case, its remit over knowledge and science is explicitly separated from statistics, monitoring and evaluation, which is organised through a separate unit. However, for wider strategic research or data collection, there is likewise a need for a mandate demonstrating European Added Value, so there is likewise a codified procedure for getting wider evidence gathering projects into the work plan.



source: Müller, J.M (2013) STEPS Centre Annual Symposium, University of Sussex, 6 Feb 2013.

The EC effectively stands out as a role model in terms of having an unusually robust and codified policy cycle, a sophisticated level of data collection and policy monitoring, as well as a strong presence of experts charged with oversight and advice. However, whilst this gives some useful areas of good practice to consider, the EC cannot be understood as a role model for any country to follow. The highly formalised, data and expert driven approach works well in the specific context of the EC and its particularities, but there are many considerations forcing the conclusions that its approach to evidence-based policymaking cannot be used to reflect in a direct way on individual member states:

- Although the EC's stringently codified policy cycle, assessment and evaluation culture largely eliminates quality concerns and ensures a high level of robustness, it is also burdensome and time-consuming. It is borne partially out of the necessity to demonstrate added value: through existing treaties, the EC is under obligation to demonstrate the legitimacy of all its actions, resulting in the need for a sophisticated procedural framework to ensure this.

- The burdensome nature of these processes is less problematic at EC level, as it does not have pressures from the political level as is the case in member states, most notably ministerial triggers for policies and rapid demands for evidence to support immediately pending ministerial announcements. The closer and regular interplay between politics and policy observable at the national level requires more flexible and responsive approaches to evidence use.

- The open method of coordination is unique to the EC: using data and indicators as an incentive for Member States to change their policies has no equivalent at the national level. This is because the OMC functions on the basis of publicly visible data exerting political pressure on political and policymaking spheres through direct comparison. At national level this could only be possible in large and heavily federalised countries
- The heavy use of expert committees, down to the level of every individual commissioned study is possible in a large polity such as the EU, which has a vast pool of experts to draw on. But especially smaller MS simply do not have the same abundant supply of experts.

F.3 Details of Ministries

The tables below present brief overviews of the six Directorates General considered for this this study.

Table 19: Overview – EC: DG Education and Culture

DG EAC			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• 477	• Estimated at 2-5% (current restructuring makes estimates particularly challenging)	• Draft amending budget 2/2015 – Budget Commitments: €2.92bn[19] • Budget for collection of evidence noted as €11.5m[20] • Some degree of flexibility acknowledged
Presence of analysis staff	The DG has a unit for statistical analysis, another for evaluations, as well as policy development groups who focus on collecting more factual information, which can also include prospective studies. Despite the presence of these separate units and groups, cooperation between policymaking and analysis/ evidence collection is judged to be close, with many staff having a dual remit to work on evidence and implementation alike.		
Main sources of evidence	• JRC (eg its centre for education lifelong learning) • OECD • Eurostat • Specific expert networks on particular aspects of education (eg EENEE and NESET) • Agencies (most notably Eurydice)		

[19] http://ec.europa.eu/budget/library/biblio/documents/2015/DAB/COM_2015_16_final_annex_en.pdf

[20] *http://ec.europa.eu/dgs/education_culture/more_info/awp/docs/c_2014_6856_en.pdf* p 106.

	• Working groups and stakeholder forum events, involving mainly member state representatives • Commissioned studies carried out by a range of providers (academics, consultancies, etc)
Main trends and characteristics	• As education falls within the remit of member states, DG EAC relies heavily on the open method of coordination. This means evidence (especially in the form of statistics and indicators) is utilised as a tool to encourage member states to share best practice and strive to improve on key measures. • To demonstrate EU Added Value, any data collection requires a clear mandate • Evidence use has intensified over the past few years. • Mandatory impacts assessments prior to policymaking form an important element of evidence-related activities. • Overall, strong focus on statistical data, evaluation and working groups/ expert groups,; the latter especially helps to understand situations in member states. • Quality control facilitated through focus groups/ expert groups on specific studies, expertise of statistics unit in the case of data sets. • Hi level of education and cross-cutting expertise among many staff, with some personal interest and initiative in staying up-to-date on evidence. • Many aspects of evidence collection and use are formalised, but there is little use of a policy cycle as such • Examples of success are often related to salient and robust indicators encouraging member states to improve their performance • Guidelines on foresight in progress • Publication policy is unclear – some material is not published
Example main documents	Annual Work Programme for ERASMUS+: *http://ec.europa.eu/dgs/education_culture/more_info/awp/docs/c_2014_6856_en.pdf*

Table 20: Overview – EC: DG Environment

DG Env			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• 514	• around 10 people in the two horizontal units charged with science and statistics, 1-3 • Additionally in each policy unit. Additional high proportion of individuals dealing with evidence to some extent	• Draft amending budget 2/2015 – Budget Commitments: €0.43bn • Overall budget for evidence hard to estimate as it comes from different sources (eg LIFE+ programme). Additionally significant variation between individual units' budgets
Presence of analysis staff	There are two horizontal units dealing with evidence: one for 'knowledge', denoting science and long-term strategic evidence, one for 'statistics', covering operational evidence, monitoring and evaluation. Each policy unit has additional team members with evidence/ analysis specialism, who liaise regularly with horizontal units.		
Main sources of evidence	• JRC (DG Env estimated to be one of the biggest clients of JRC) • European Environment Agency (EEA) • Scientific research through FP6, FP7, Horizon2020 & LIFE+ • Eurostat		

	• OECD, WHO & UN • Strong additional focus on commissioning studies; increased use of framework contracts to simplify this process
Main trends and characteristics	• Clear distinction between 'science' and 'technical support', reflecting long-term strategic evidence needs and short-term monitoring, statistics and evaluation needs. • Sourcing evidence internally is often the preferred option. Especially for longer-term work, outsourcing/ commissioning is chosen where JRC, Eurostat or EEA do not have capability • Evaluations/ impact assessment are commissioned externally. • Notable increase of interest in evidence use, due also to demands from the public and political level • Conflict between environmental protection and economic benefit poses a particular challenge in this area of policy. • Steering groups with technical expertise oversee studies. Evidence from commission sources (JRC, Eurostat, etc) has its own quality control procedures. • High level of absorptive capacity and regular exchanges with the wider research community through internal presentations on key topics, and regular interaction with the scientific community. • Budget for evidence collection is flexible in terms of annual content of work plan, but less flexible on a day-to-day basis • Impact Assessment system ensures all policy is underpinned by robust evidence; though burdensome, the process gives much assurance
Main documents	• EC Impact Assessment guidelines: http://ec.europa.eu/smart-regulation/impact/commission_guidelines/docs/iag_2009_en.pdf • DG Env Management plan 2014: http://ec.europa.eu/dgs/environment/pdf/management_plan_2014.pdf • Environment Action Programme to 2020: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013D1386&from=EN • Overview of DG Environment evidence base: http://ec.europa.eu/environment/basics/knowledge/index_en.htm

Table 21: Overview – EC: Foreign Policy Instruments

DG FPI			
Overview	**Total staff**	**Research/ analysis staff**	**Budget estimates**
	• 162	• N/A	• Draft amending budget 2/2015 – Budget Commitments: €0.76bn
Presence of analysis staff	N/A		
Main sources of evidence	N/A		
Main trends and characteristics	FPI is not a policymaking DG. Hence our contacts were unable to identify anyone capable of discussing an evidence/ policy interface within FPI. In line with other Foreign Affairs ministries assessed for this study, FPI presents a special case, where evidence most often amounts to		

	'intelligence', but is not directly used for policymaking in the sense that is the case in other ministries.
Main documents	• Portal of FPI documents: http://ec.europa.eu/dgs/fpi/key-documents/index_en.htm

Table 22: Overview – EC: DG Food Safety and Health

DG Sante			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• 760	• 20 people. However, some degree of evidence use and analysis acknowledged for the majority of staff (around 80%)	• Draft amending budget 2/2015 – Budget Commitments: €0.62bn • For evidence collection estimates are around €2m, but this rises significantly when generating evidence (eg through H2020) is included, approaching €50m, depending what is included
Presence of analysis staff	Evidence collection is noted as being quite scattered, with departments/ units doing much collection individually.		
Main sources of evidence	• Factual evidence often collected through 3 agencies: – European centre for disease control and prevention – European Medicine Agency – European Food Safety Agency • Calls for tender/ framework contract • Direct contract with JRC and WHO • Committees of experts provide risk assessment		
Main trends and characteristics	• Strong emphasis on risk assessment and separation between risk assessment and risk management • Need acknowledged for more forward-looking evidence • Strong increase in demand for economic considerations • High average age in the DG has led to considerations around updating of skills • Agencies and commissioned studies form the bulk of sources • High awareness of barriers: time constraints, expert opinion cutting pout balanced arguments • Mostly organic quality control, which works well in established sectors where expertise is present, less well in newly emerging areas, though expert groups/ steering groups exist for commissioned studies. • High levels of education and considerable individual initiative in staying up to date on research, though internal audit has highlighted needs to further encourage this. • Acknowledged use of EC policy cycle, evaluation and impact assessment guidelines, but outside these activities there are fewer guidelines on how to collect evidence • Strong record of open publication		
Main documents	• EC Impact Assessment guidelines: http://ec.europa.eu/smart-regulation/impact/commission_guidelines/docs/iag_2009_en.pdf		

	• Impact assessment outline: https://www.ucl.ac.uk/cles/research_initiatives/impact_assessments_in_europe/tabs/materials/ena-banable-presentation-june-13 • List of scientific committees: http://ec.europa.eu/dgs/health_food-safety/dgs_consultations/scientific_committees_en.htm

Table 23: Overview – EC: DG Research and Innovation

DG RTD			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• 1565	• Estimated at around 5%, including 17 in the evaluation unit and 2-3 individuals in most others	• Draft amending budget 2/2015 – Budget Commitments: €6.7bn • Budget for evidence hard to estimate, as some gets funded through H2020, some from other sources • High flexibility acknowledged
Presence of analysis staff	Growing integration between evidence and policymakers. Strong cooperation within policy units; evaluation unit and some others (eg foresight) are somewhat separate, but work closely with policymakers as well.		
Main sources of evidence	• Advisory committees on key subjects • JRC • Horizon 2020 projects • Procurement (project-by-project and framework contracts) • International organisations, most notably OECD		
Main trends and characteristics	• Several advisory committees are used, including unit-specific ones, as well as RISE committee for higher-level guidance, though growing complexity of questions and calls for greater transparency mean greater recourse to studies • Foresight unit in place, expert group EFFLA produced guidance material on foresight, owing to lack of uptake and use of previous foresight work • Proactive approach to evidence collection identified • Greater push to demonstrating long-term and especially economic impacts of policy • Interest in greater use of big data • Strong presence of impact assessment and evaluation procedures, but weak salience of policy cycle. • High level of expertise, education and training (including some internal foresight training courses)		
Main documents	• Documents from European Forum on Forward-Looking Activities: http://ec.europa.eu/research/innovation-union/index_en.cfm?pg=former-expert-groups • EC Impact Assessment guidelines: http://ec.europa.eu/smart-regulation/impact/commission_guidelines/docs/iag_2009_en.pdf		

Table 24: Overview – EC: DG Mobility and Transport

DG Move			
	Total staff	**Research/ analysis staff**	**Budget estimates**
Overview	• 500	• N/A	• Draft amending budget 2/2015 – Budget Commitments: €3.28bn • Specifically for evidence: N/A
Presence of analysis staff	DG Move has a policy unit for Economic Analysis and Impact assessment (Unit A.3), as well as a range of thematic units (Directorates C-E). Additionally, the DG contains the Innovation & Networks Executive Agency (INEA), which implements parts of Horizon2020. Evidence collection and analysis is likely in all these areas, though resource allocation and connection to policymaking is unclear.		
Main sources of evidence	• N/A		
Main trends and characteristics	• N/A		
Main documents	• Overview of studies: http://ec.europa.eu/transport/facts-fundings/studies/index_en.htm • Overview of statistics: http://ec.europa.eu/transport/facts-fundings/statistics/index_en.htm		

F.4 Sources and content

F.4.1 External and internal evidence

Impact Assessments and especially evaluations are generally conducted through the help of external providers. Beyond this, there is a degree of preference to source wider scientific evidence as well as technical monitoring data internally, not necessarily within each DG's own agencies, but within the tools captive to the EC, including JRC and Eurostat. Especially for long-term projects, the captive character ensures consistency and does not entail the additional burden of re-tendering.

External sources of evidence

All DGs make strong use of commissioning studies from independent providers. These can be large management consultancies, small specialist consultancies, universities, research groups or other organisations. Though fully open tendering still exists in many cases (a fully codified process), there is increasing use of framework contracts, in order to simplify the commissioning of studies.

There is considerable use of evidence from major international organisations such as WHO, UN and especially the OECD., both in terms of monitoring data, but in certain cases also in more substantive terms and extensive collaborations.

A second key areas of external evidence sourcing at the EC is the use of external experts, expert networks and working groups. This is particularly important at EC level, as many initiatives require insight into existing situations in each EU member state. As such, groups of member state representatives are commonly used to scrutinise and provide input to plans for new initiatives, as well as providing an overview of the various national contexts to which an initiative needs to respond.

More broadly, the EC makes much use of external experts and scientific committees. However, these are most often kept separate from the policymaking process, a case in point being DG Sante's committee charged with risk assessment, which is under an obligation to focus purely on assessment and not on management of risk.

Internally generated evidence

The EC is not allowed to own captive labs or research institutes; the Joint Research Centre (JRC) acts as a substitute for these. With its roots in the 1960s as a specialist facility for European research into nuclear energy, it has since evolved into the EC's cross-cutting science service, cooperating with researchers across Europe to provide scientific evidence and technical support to EC policymaking. It comprises seven thematic institutes:

- Institute for Environment and Sustainability (IES)
- Institute for Energy and Transport (IET)
- Institute for Health and Consumer Protection (IHCP)
- Institute for Prospective Technological Studies (IPTS)
- Institute for Reference Materials and Measurements (IRMM)
- Institute for Transuranium Elements (ITU)
- Institute for the Protection and Security of the Citizen (IPSC)

At DG level, agencies also play an important role in collection of evidence, notably the European Environment Agency (EEA) for DG Env. Furthermore, the EC has several cross-cutting data collection facilities, most notably Eurostat and Eurobarometer.

Evidence at the EC is additionally sourced through the Commission's own Framework Programmes for research and innovation (ie FP6, FP7, Horizon2020). Though these are coordinated by DG RTD, all DGs can look to work produced through these instruments to obtain scientific insight and evidence for policymaking. However, this

tends to apply more to those DGs with a focus that is aligned with natural sciences (eg DG Env and DG Sante).

F.4.2 Types of evidence

There is a broad range of different methods and types of data used across the commission, with no limitations noted. However, there is overall a strong interest in numerical data, especially economic and wider statistical data. In conjunction with this, there is considerable interest in increasing the use of composite indicators, in order to narrow down the vast amount of data available, though there is also scepticism around the robustness of these. More generally, evaluative studies are in high demand across the board.

However, there is likewise a strong demand for hard scientific and factual information, as well as overviews of the different situations in each Member State on any given policy issue.

F.5 Barriers, quality and reliability

Overall, we find a low level of concern around barriers and challenges to evidence collection and use, as compared with the three countries also featuring in this study. Given the extensive use of experts, there are some concerns about aligned expertise to issue in the most efficient way, as well as the danger of experts presenting their own, potentially biased view, meaning that full impartiality of evidence and consideration of all possible viewpoints is not always guaranteed. Limited resources also pose a challenge, though overall interviewees find the EC to facilitate a high level of evidence use in policymaking.

Particularly the robust and codified Impact Assessment procedure forming the beginning of policy initiative is seen as ensuring that policy is hardly able to be based on poor quality evidence, and that the evidence base for policies is generally as persuasive as it can be.

Most notably, we see few concerns about the two central problems highlighted at national level: time constraints and pressures from the political level. Whilst some interviewees acknowledge that there is a political process and that even robustly evidenced policy proposals may not materialise due to other considerations at the political level, there is very little sense of intrusion from the political into the policy sphere. Partially as a result of this, there is less concern about time pressures and rapid evidence needs affecting policymakers from the political level.

F.5.1 Quality control

Quality control is largely facilitated at the EC through the widespread presence of experts, in conjunction with the heavily formalised procedures for Impact assessment and oversight.

Critically, all commissioned studies are overseen by expert groups, whose members often have a strong degree of technical expertise in the particular subject matter of the commissioned study in question. Especially the level of scrutiny applied to ex ante impact assessments is such that the level of confidence in the evidence quality ultimately shaping policies is extremely high.

The commission's own evidence gathering facilities (JRC, Eurostat, etc) have their own quality control mechanisms and procedures, which means that once evidence from these sources comes to the relevant actors in the DGs, there are no concerns about quality.

Demand for evidence and Absorptive capacity

Our interviews reveal an exceptionally high level of absorptive capacity at the EC. The educational level of EC staff os high (usually Masters or Doctoral level). Additionally, interaction with the supplying community is frequent, facilitated through workshops, conferences and presentations. Furthermore, there is a degree of capacity building, including a foresight training programme for staff in DG RTD.

Demand for evidence is consequently high, and is acknowledged to be rising, especially where statistical data and economic indicators are concerned, as the need to demonstrate economic impact is growing.

F.6 Documentation and publication

At Commission level, the impact assessment guidelines detail the procedure for this particular element of evidence use, with multiple further guidelines for evaluation. Additionally, there is a commission work plan, as well as work plans/ management plans for each DG, detailing evidence priorities and data collection plans for the immediate future. Several further supporting documents and guidelines exist at individual DG level, which are noted in the summary tables for each DG above.

There is a relatively open publication policy at the EC. Whilst there is no comprehensive publications portal, each DG published its impact assessments, as well as most of its commissioned studies. Statistics and monitoring data are to some extent also publicly accessible, especially through Eurostat or Eurobarometer, which are also intended to be of benefit to the wider public. Interviewees in some DGs noted some caveats on publication: under rare conditions, publication is withheld, most often when there are quality concerns.

Appendix G Literature review

This review outlines the key known areas of challenge in uptake of evidence, as well as known facilitators of uptake. It also assesses the function of evidence in policymaking and a range of other issues connected to the subject. As well as providing an overall state-of-play on this topic, this review also informs the content and key issues to explore in the main phase of this study.

'Evidence-based policy' became a slogan around 15 years ago, building on the realisation by the 'evidence-based medicine' movement that a great deal of medical practice is in fact based on common sense, custom and practice rather than scientific evidence. It is often associated with the New Public Management (NPM) movement, though in fact NPM began earlier, with a focus on management by objectives and changing the relationship between the state and the citizen in the provision of services (Hood 1991). Evidence-based policy has been heavily promoted in turn by the Blair and Obama administrations as well as others (including the UK conservative/liberal government that took office in 2010), with a focus on finding out 'what works' as a substitute for policy more strongly based on ideology.

Although this explicit focus on evidence in policymaking is therefore relatively new, research and evidence were of course also used in earlier decades, triggering efforts to understand better how, why and to what extent research-based evidence informs policymaking. We consider here the key debates and observations found in the literature around evidence use among policy makers, in order to inform the programme of interviews planned for the main phase of this study.

G.1 The use of research-based evidence

G.1.1 Overview of key perspectives

Looking across the literature, we do not find any clearly competing theories or perspectives on the topic. However, there are a few distinct strands of literature worth highlighting.

The first strand consists mainly of surveys and other wide-ranging studies of policy makers and/ or civil servants in an attempt to assess the determinants of, and barriers to evidence use. Most often these take a strongly sociological shape and tend to view the investigated policymaking domain(s) as spheres with certain types of norms, habits, cultural preferences, individual capabilities and social ties. From these, we obtain much valuable information on the significance of such sociological factors surrounding evidence use in policymaking. This includes the likelihood of

policy makers accessing or commissioning research, as well as whether suitable use is made of evidence found.

A second strand of the literature is less focused on cultural or individual aspects, but take a wider systemic perspective. Interestingly, these approaches most often are focused on specific case studies of either particularly good or bad practice cases, of particular areas of governance and policymaking (eg healthcare) or of a specific department in a particular country. This is because a from systemic perspective, where questions revolve around linkages, power structures, transition management, etc, the issue of 'good' or 'regular' evidence use is highly dependent on context: evidence use in health policy is very different from evidence use in education policy. The magnitude of variation of contexts, as well as the multiple different linkages, power structures, interests and political tensions present in any given case of evidence use has led some to note that beyond fundamental criteria for determinants and barriers to suitable evidence use, there is little scope for identifying widely applicable patterns of 'good practice' or 'standard procedure'.

Overall, we find a lack of literature that considers explicitly the separate components of the policy cycle: whilst many studies consider barriers, determinants, good practice and bad practice cases of evidence use by policymakers, there is very rarely a systematic distinction between eg identification of need, implementation, monitoring and evaluation. Likewise, the term 'evidence' is rarely problematized and remains un-defined in many studies. Some grey literature deals with this point however, problematizing issues such as who produces the evidence (eg internal or external to the ministry). These areas are therefore especially worthwhile investigating in the main phase of this study.

A critical distinction for our purposes, but not one that is evident in the literature, is between attempts to describe the current state-of-play and attempts to define models of good practice. Whilst many studies reviewed have a normative and often critical dimension, most fall short of highlighting detailed and substantive criteria of good practice that would hold across different contexts. The importance of context goes some way to explain this lack.

G.1.2 Models of evidence use

On the broadest question of what purposes research-based evidence might serve for policymaking, Weiss's typology from 1979 provides a useful starting point, in that first, more recent typologies of the same kind have not added significantly to her overview and, second, because her typology immediately highlights the multitude of different shapes that the use of research-based evidence in policymaking might take. Prior to this approach, Weiss acknowledges a widespread disappointment that especially social science had not contributed to policymaking as much as had been hoped, and attributes this to a limited understanding – centred mostly on a purely linear view – of how research might influence policy makers (1976).

Figure 2 Weiss' typology of evidence use

Model	Description
The knowledge-driven model	'…basic research discloses some opportunity that may have relevance for public policy; applied research is conducted to define and test the findings of basic research for practical action; if all goes well, appropriate technologies are developed to implement the findings; whereupon application occurs.' […] Because of the fruits of basic research, new applications are developed and new policies emerge.'
The problem-solving model	'…direct application of the results of a specific social science study to a pending decision. The expectation is that research provides empirical evidence and conclusions that help to solve a policy problem. The model is again a linear one, but the steps are different from those in the knowledge-driven model. Here the decision drives the application of research.'
The interactive model	'Those engaged in developing policy seek information not only from social scientists but from a variety of sources-administrators, practitioners, politicians, planners, journalists, clients, interest groups, aides, friends, and social scientists, too. The process is not one of linear order from research to decision but a disorderly set of interconnections and back-and-forthness that defies neat diagrams'.
The political model	'[Research] becomes ammunition for the side that finds its conclusions congenial and supportive. Partisans flourish the evidence in an attempt to neutralize opponents, convince waverers, and bolster supporters.'
The tactical model	'It is not the content of the findings that is invoked but the sheer fact that research is being done. For example, government agencies confronted with demands for action may respond by saying, "Yes, we know that's an important need. We're doing research on it right now." Research becomes proof of their responsiveness. Faced with unwelcome demands, they may use research as a tactic for delaying action ("We are waiting until the research is completed").'
The enlightenment model	'There is no assumption in this model that decision makers seek out social science research when faced with a policy issue or even that they are receptive to, or aware of, specific research conclusions. The imagery is that of social science generalizations and orientations percolating through informed publics and coming to shape the way in which people think about social issues. Social science research diffuses circuitously through manifold channels-professional journals, the mass media, conversations with colleagues-and over time the variables it deals with and the generalizations it offers provide decision makers with ways of making sense out of a complex world.'
The intellectual enterprise of society	'It is not so much an independent variable whose effects on policy remain to be determined as it is another of the dependent variables, collateral with policy […]. Like policy, social science research responds to the currents of thought, the fads and fancies, of the period. Social science and policy interact, influencing each other and being influenced by the larger fashions of social thought. It is often emerging policy interest in a social issue that leads to the appropriation of funds for social science research in the first place, and only with the availability of funds are social scientists attracted to study of the issue.' (Weiss 1979)

Source: Weiss 1979

This typology has become a frequently used point of reference in the literature (see eg Ingold & Monaghan 2014). Although for our purposes here the problem-solving and interactive models are the most pertinent, the entire typology needs to be kept in mind, especially as these different models must be understood as ideal types,

meaning they will rarely (if ever) occur in their pure form. In practice, an instance of evidence use by policy makers may well resemble many models simultaneously: utilising research to inform a policy decision (problem solving model) may nevertheless also contain political or tactical dimensions. Moreover, policy decisions based on research may be more convincing if the research findings are in some way already consistent with wider public or academic thinking (enlightenment model/ intellectual enterprise). In such cases, Weiss' typology is a useful prompt to be aware of all the different things that may be 'going on' within a single observed case of evidence use.

Though many positive stories about research use exist (see eg NESTA 2011), there are also many high profile disaster-cases, so which of Weiss' models dominates in practice is a matter of contention. Drawing on a range of data sources from the UK, Nutley (2003) highlights frequent instances of advocacy from research to policy community, akin to the enlightenment or interactive model. However, Stevens (2011) paints a rather bleaker picture from covert participant observation as an intern in the UK civil service, noting that participants in his research were typically faced with a 'deluge' of evidence, and then tended to opt for selective use of evidence to aid and substantiate politically motivated story-telling. This selective and narrative use of evidence squarely fits into the political or tactical models. However, Stevens' research is situated in the specific context of social policy and criminal justice in the UK – a highly contentious and politicised area. His account therefore naturally does not speak for all other policy arenas.

Contandriopoulos et al (2010) take a broader, meta-perspective to this issue, by reviewing evidence use in several different policy domains. Not limited to a single context, they highlight precisely that contextuality is essential to understanding use of research-based evidence. Their work certainly leaves room for the worrying perspective offered by Stevens (2010), but also highlights that in cases of producer-driven content, as well as minimally polarized contexts – so cases where fiercely competing political interests are not in the mix – an ideal scenario of the interactive model (or, by extension, the problem-solving model) becomes genuinely possible. Countries with a less adversarial political culture may easily be an example of a context where less political or tactical use of evidence – and thereby, ideally more robust and less selective evidence – occurs. But even in particular policy contexts, down to the level of individual issues, the prospects for what might be termed desirable use of research-based evidence is variable.

Meta-studies for the most part are unable to highlight more than this general conclusion, whilst studies on specific countries, ministries or other delineated fields will fall victim to the limitation of contextuality at least to some degree (see eg Smith and Joyce 2012). A multi-country, multi-ministry approach of the type conducted in our study is thus an exceptionally useful endeavour in terms of tracing potentially helpful patterns and practices.

In this sense, we can combine the discussion here with the wider critiques of 'evidence-based policy': Several authors have noted that factors other than evidence inevitably affect the policymaking process, including ideology and values, public opinion, financial considerations and lobbying (Duncan, 2005; Mulgan, 2005; Young et al., 2002), leading them to note that policy can at best be 'research informed', whilst others found these observations to necessitate a greater impetus to increase the status of evidence in policymaking to the effect of lessening the effect of such non-research based considerations (Sanderson, 2009). Self-evidently, despite much publicised support for evidence-based policy since the late 1990s other factors are at work. But likewise, the extent to which they are effective is highly variable.

G.1.3 Absorptive capacity and the demand for research-based evidence

Aside from giving a fundamental overview of the various ways in which policymakers might use research-based evidence, Weiss' typology also implicitly introduces a further key aspect, namely how research might *enter* the policy-domain. Whilst the problem-solving and interactive models imply a certain degree of active pursuit of specific scientific knowledge on the part of policy makers – which may involve commissioning the actual research itself – the enlightenment and intellectual enterprise models entail penetration of research in a less formalised fashion.

Donnison (1972) is especially alive to the personal circumstances involved in knowledge transfer to governance and policymaking. He notes that there is seldom a linear transfer from researcher to policy maker, and that the use of the research may most often not be directly representative of the researcher's intention. Here, we find an early example of literature highlighting the need for efforts to forge wide and organic relations between the policy and research spheres, both in terms of understanding each others' priorities and needs, as well as ensuring repeat collaboration becomes more likely and breakdowns of relations are kept to a minimum.

However, alongside the importance of these relationships, the literature also often notes that the connection between researchers and policy makers is a difficult one, owing to the vastly different norms, aims and priorities in the two spheres. McNie (2006; 2007) notes this in the context of translation problems between the two spheres, where lack of relevance or optimal utility of research often becomes a problem and leads to problematic relations between the two spheres, which by definition pursue very different goals. Slob and Staman (2012) echo this and advocate a need for better understanding among policy makers and researchers respectively to better understand the needs and norms of each other's context.

Based on survey research conducted on a broad range of Canadian government agencies, Landry et al (2003) find that extent of research use and uptake differs considerably between policy domains, but do not find that the type or focus of research is a predictor of uptake, and likewise identify few robust predictors on the

part of the policy sphere itself, save for overall research-friendly organisational contexts exemplified through users' research acquisition efforts and links to the research community – largely cultural/ sociological factors. Implicitly, these findings highlight that the policy domain needs to be viewed at least partially in sociological terms, comprising individuals with certain cultural outlooks and norms, which may or may not be conducive to research use. The formal institutional, structural or legislative framework of an organisation is thus only part of the story. These findings are re-iterated in a similar study in the Canadian context a few years later (Belkhodja et al 2007).

Pielke and Sarowitz (2007) note key limitations that might occur in policy circles, which likewise contribute to the often fraught relationship between policy and science:

> *1. The widespread belief that more science automatically translates into more social benefit;*
>
> *2. The insulation of science policy decision processes from the contexts within which scientific knowledge is used;*
>
> *3. The capture of science policy decision process by narrow political constituencies (drawn from either the supply or demand side);*
>
> *4. The natural resistance of bureaucratic decision processes to changes inside the margins;*
>
> *5. The absence of analytical frameworks and tools that can reveal connections among science policy decisions, the supply function for science, the demand function for science, and the effective pursuit of stipulated societal outcomes. (p.14)*

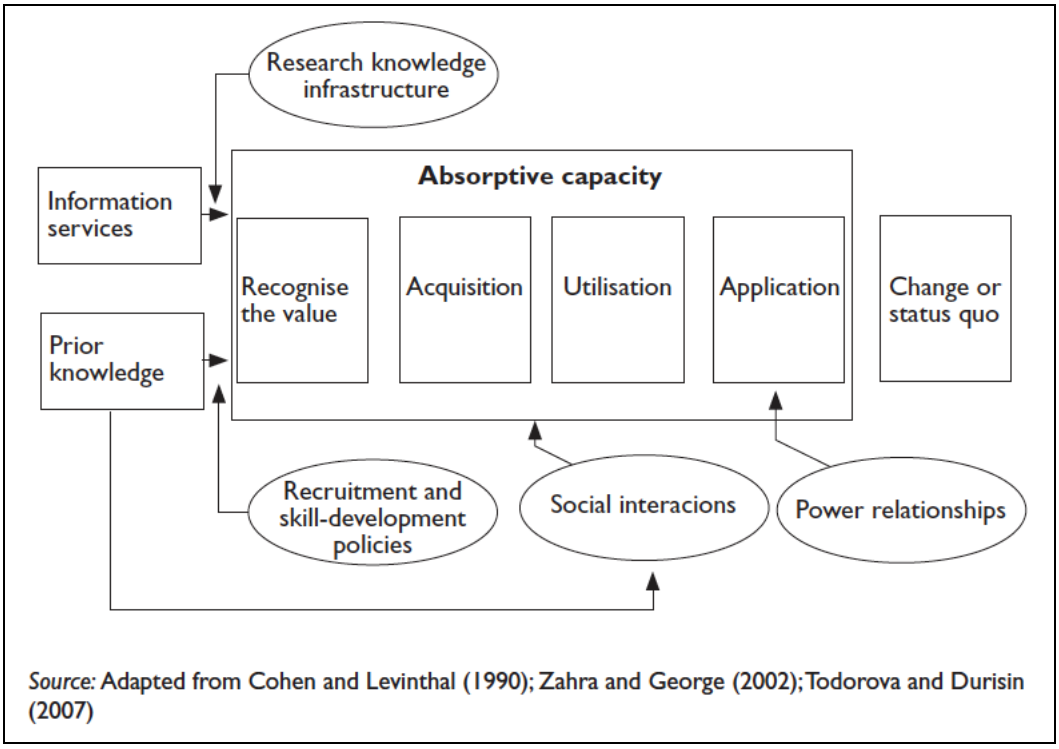
These are all issues worth contemplating when researching evidence use in a particular field, though it is unlikely that all will be present. Much rather, the challenge – among others – is to assess how different countries, organisations or individuals manage these potential problems and threats. As such, this perspective can be a useful tool to guide discussions with policy makers, and to ascertain which of these noted points carry particular salience in a given context.

Wesley Cohen and Daniel Levinthal introduced the idea of 'absorptive capacity' to the R&D and innovation literature in a landmark article. They define it as "the ability of a firm to recognise the value of new, external information, assimilate it, and apply it to commercial ends" (Cohen & Levinthal, 1990). Their terminology is slightly misleading – 'absorptive capacity' seems to imply a more of less passive reception of external knowledge. However, the concept is intended to be active, relating both to the internal R&D skills and capacity of the firm and to its ability to use these skills to look outside for opportunities. It builds on the idea of R&D having "two faces", with

one developing new knowledge internally and the other seeking external knowledge (Cohen & Levinthal, 1989).

Ouimet et al (2009) build on these ideas in considering the absorption of research-based evidence by public servants. Absorptive capacity depends to a large extent on civil servants' educational level and on their propensity to communicate with academic researchers in the first place. Caution is needed though: whilst this is a good determinant of 'absorptive capacity', the link between these features and the propensity to actually use the research for any substantive purposes is present, but less strong. Their figure (Figure 3) illustrates that whilst social capital and educational level might well be crucial in research acquisition, this is still conceptually separate from utilisation and application, where other institutional factors such as 'power relationships' likewise play important roles.

Figure 3 Conceptual framework for the absorption of research knowledge by civil servants



From: Ouimet, Landry, Ziam and Bedard (2009)

The 'absorptive capacity' perspective thus suggests that not only deliberate behaviours but also the capacity to undertake and use research are likely to be beneficial in the policymaking process. In recent years there have increasingly been processes of embedding or co-locating teams of analysts and researchers within departments and their agencies. Authors note that such developments contribute to a greater culture of evidence use within the organisation, leading to the sort of factors commonly associated with greater use of evidence: capability deriving from

skill and education, and personal links with researchers. However, Campbell (2006) cautions that placing analysts and policy makers into proximity does not automatically lead to better outcomes. Drawing on the idea of a 'culture' of evidence use, she notes that even if proximity is facilitated, there needs to be an overt effort to encourage collaboration and appreciation of cross-disciplinary working in departments. Here, of course, we are back to the issue of contextuality.

G.1.4 Complexity

One important strand in the literature considers the use of evidence in the context of complexity. In effect, many authors find that evidence use is embedded in social and political processes of such complexity that it is difficult to find strong patterns or therefore to make theory-based predictions. A recurring theme in complexity theory is the idea that properties of complex systems are 'emergent', that is that they emerge from the interactions of the many components and are not necessarily predictable.

The array of issues, problems and contextualities around the use of research based evidence in policymaking (see also Young 2005) has led some authors to advocate complex systems theory as a way of understanding this particular form of knowledge transfer. Complexity theories would in general caution against the seductive possibility of generalisable rules for improving the shape and extent of uptake of research-based evidence. As such, this would be a problematic path to go down for the fieldwork involved in the present study. However, it is worth highlighting the points raised by this line of argument, as we may well hope to locate scope for generalisation within the limitations given by the complexity angle. Smith and Joyce (2012) present the following overview of implications:

Figure 4 The implications of complex systems theory

Features of complex systems (adapted from Cairney 2010)	Implications for studying research use in policy
1. A complex system cannot be explained by studying constituent parts; rather, the analysis must be of the system as a whole, in order to capture interactions.	This underlines the need to carefully assess the research boundaries around studies of knowledge translation. It suggests, […] that it may be necessary to explore the construction of research, as well as its translation, and that, as case study B illustrates, translation takes place at multiple levels. It also highlights (as do policy network theories) that relevant actors beyond research, policy and practice settings (e.g. journalists and lobbyists) ought to be included.
2. The non-linearity of, and feedback loops in, complex systems mean it is extremely difficult to predict behaviour. Consequently, small actions can have big effects and vice versa.	These two aspects of complex systems highlight the importance of considering multiple, interacting relationships and also suggest that we should not be surprised either when vast bodies of research have very little impact on policy/practice (as has been the case of much health inequalities research) or when minor events, or events apparently unrelated to the nature of the research evidence/technology, suddenly lead to significantly higher use (or different kinds of uses). These features further indicate that it may be difficult to come up with many generalizable recommendations for
3. The above features of complex systems are likely to result in periods	

of stability/inertia and periods of significant, and potentially sudden, change ('punctuated equilibriums').	improving the use of research.
4. Complex systems are particularly sensitive to initial conditions, which have long-term consequences.	This aspect of complex systems, much like path-dependency and historic institutionalism, highlights the extent to which historical decisions inform subsequent developments. This suggests that long term approaches to studying knowledge translation are desirable.
5. As behaviour emerges from interactions within the system, key changes can occur at a local (rather than central) level and the system is difficult to control.	This aspect further highlights the importance of studying how evidence is employed and understood at a variety of governance levels (e.g. it cautions against the idea that the use of research within a national policy document can tell us much about what subsequently happens locally). It also draws attention to the interactions between different aspects of the system, including different levels.
6. The various problems that complexity theory seeks to address can only be solved by interdisciplinary contributions.	This aspect has two obvious implications for those studying the relationship between research and policy. First, it is important to ensure that such studies are open enough to consider the full variety of research that is of potential relevance to decisions about complex issues. In such cases, multiple barriers transecting disciplinary divisions may emerge as important features, as they did for the case studies in this paper. Second, it suggests interdisciplinary teams may be useful in unpacking process of knowledge translation.

Source: Smith and Joyce (2012)

In contrast to these cautionary points, other reviews have identified some broad conclusions about facilitating factors and barriers to evidence use in policy contexts. Oliver et al (2014) is likely the most recent example and, through comparison with an earlier review of the same type (Invaer et al 2002), a relatively robust overview of key factors emerges:

Figure 5 findings of systematic reviews

	Innvaer [10]	Current systematic review
Number of studies	24	145
Study designs	Mainly small survey and interview-based studies of policymakers' perceptions	Mainly small survey and interview-based studies of policymakers' perceptions with a minority of in-depth case studies
Policy domains	All health	Mainly health, but with studies from a wide range of policy contexts
Countries	Mainly OECD	At least 1/3 from LMIC
Main facilitator	Personal contact between researchers and PMs	Available, clear and relevant research evidence
	Timeliness and relevance of research, with clear recommendations & high quality	Relationships, collaboration & contact between researchers and PMs
	Research confirming current policy	Timing, practical managerial support and
Main barriers	Absence of personal contact between researchers and policymakers	Lack of clear or relevant research evidence, costs
	Lack of timeliness or relevance	Lack of timeliness or opportunity
	Mutual mistrust between scientists and policymakers	Lack of PM research skills or awareness
	Power and budget struggles	

Source: Oliver et al 2014

Many additional studies we reviewed here come to broadly the same conclusions reached by these comparable reviews (see eg APS200, 2012). It is telling however, that these broad conclusions are relatively unchanged for many years and systematic reviews have been unable to add much to them (see also Newman et al 2013).

Concluding the 2014 review, the authors note additionally that a greater understanding of the policy formulation oprocess as a whole, and the different forms of research potentially useful at its different stages, is a gap in current knowledge. They conclude:

> *…little empirical evidence about the processes or impact of the use of evidence by policy is presented by these studies. Despite the increased amount of research on interventions to increase research use in policy, this is not linked with research about the impact of policy on populations, or of evidence use on population outcomes. Much of the literature is concerned with policymaking; but policymakers' time is spend [sic] on implementation. (Oliver et al 2014, p10)*

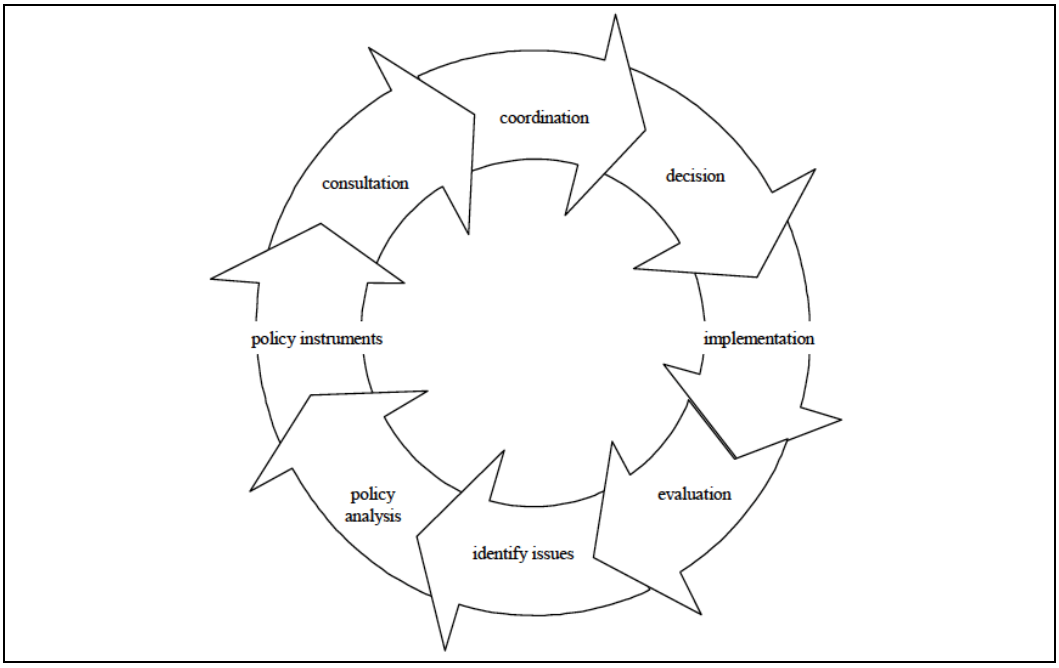
McNie (2007) echoes this sentiment, concluding from an extended review on the translation of research to policy:

> *The most glaring omission in our knowledge of this problem relates to the practical decision functions in real-world settings. That is, there is much to learn about how decisions are made regarding what information is needed (intelligence phase), how it gets packaged and presented (promotion phase), how it gets selected (prescription, implementation and application phases), determining when it is no longer useful (termination phase), and how the information is evaluated (evaluation phase). (p31)*

G.1.5 Evidence in the policy cycle

The tasks undertaken by policy makers are varied, and there have been attempts to systematise the components, often aiming to connect these with the notion of a 'policy cycle.' Broadly, this circular model of policymaking entails a clear sense of standardised process as well as organisational learning and long-term development and optimisation of policy. Policy cycle schematics are frequently used in manuals and handbooks for government departments and are intended to give a basic outline of good practice. We present the Australian Policy Handbook's version in Figure 6. Though the details vary among countries, policy cycles typically contain a phase concerned with identification of a policy need or agenda setting, followed by formulation and planning, then implementation (and closely related monitoring), and finally an evaluation stage, allowing scope for learning, optimisation and error identification to then repeat the cycle.

Figure 6 The Policy cycle



Source: Bridgman P and Davis G 2000

Though widely used, the policy cycle model has been subject to criticism. Everett (2003) notes that this emphasis on a standardised formal process ignores the value-laden aspect of the policy process, as well as the significant influence of political power and that, almost by definition, policymaking cannot entail the extent of rationality implied by cycle-models. However, others understand the policy cycle as an ideal type, from which every instance of policymaking might well diverge to some extent, but which ultimately gives practitioners a useful point of reference:

> *It is designed to answer the daunting question 'what do I do now?' Followed, a policy cycle might assist a public servant move from vague problem to authoritative government deliberation. (Bridgman and Davis 2003, p 98)*

Whilst especially the cyclical nature of policymaking is not necessarily an accurate representation of reality, the steps of the cycle do represent discrete categories of activities that policy makers undertake, and indeed, the integration of the policy cycle in guidance for public servants (see eg HM Treasury 2003) additionally means that policy makers themselves are likely to think in terms of these categories (Howard 2005). For our purposes here, the policy cycle gives us a tool to structure our further research, in that the use of evidence can be considered for each category – identification of need/ agenda setting, formulation, implementation, evaluation. The type of evidence needed at different stages of the policy cycle obviously varies, but again the literature has little to say about this. An exception is the analysis

shown in Figure 7. In principle, the sources as well as the skills needed to use evidence at different points in the policy cycle are likely to vary.

Figure 7 Components of policy process and different evidence issues

Stage of the policy process	Description	Different evidence issues
Agenda setting	Awareness and priority given to an issue	The evidence needs here are in terms of identifying new problems or the build up of evidence regarding the magnitude of a problem so that relevant policy actors are aware that the problem is indeed important. A key factor here is the credibility of evidence but also the way evidence is communicated.
Formulation	There are two key stages to the policy formulation process: determining the policy options and then selecting the preferred option	For both stages, policymakers should ideally ensure that their understanding of the specific situation and the different options is as detailed and comprehensive as possible – only then can they make informed decisions about which policy to go ahead and implement. This includes the instrumental links between an activity and an outcome as well as the expected cost and impact of an intervention. The quantity and credibility of the evidence is important.
Implement–ation	Actual practical activities	Here the focus is on operational evidence to improve the effectiveness of initiatives. This can include analytic work as well as systematic learning around technical skills, expert knowledge and practical experience. Action research and pilot projects are often important. The key is that the evidence is practically relevant across different contexts.
Evaluation	Monitoring and assessing the process and impact or an intervention	The first goal here is to develop monitoring mechanisms. Thereafter … a comprehensive evaluation procedure is essential in determining the effectiveness of the implemented policy and in providing the basis for future decision-making'. In the processes of monitoring and evaluation it is important to ensure not only that the evidence is objective, thorough and relevant, but also that it is then communicated successfully into the continuing policy process.

Source: (Sutcliffe & Court, 2005)

This omission is less likely to exist where research is commissioned within the policy sphere (see eg APS 2012; BIS 2010), but in terms of knowledge transfer from the wider research community. Oliver et al (2014) and McNie (2007) identify this lack of contextual understanding as a key issue in the supply and demand of research based evidence in policymaking.

This approach of looking at evidence use not only as a knowledge transfer issue, but as an organisation and process-issue is likely to be a fruitful – and original – line of enquiry. In addition to the barriers and contextualities highlighted here, systematising more clearly the points in the policy cycle at which barriers are most likely to occur presents one line of investigation; different kinds of evidence (see eg Cunningham et al 2013) that might be useful at different stages of the policy cycle represent another (Oliver et al 2014 also note that 'evidence' is often poorly or not at all defined in the literature on this topic – Nelson et al 2009 find similar lack of

definition by policy makers themselves), and even overarching typologies of the type of Weiss (1978) are likely to become more nuanced here: a model from her typology might be highly salient at the inception stage but irrelevant at the evaluation stage.

G.2 Hierarchy and organisation

G.2.1 What kind of evidence?

Responding to the challenge of sheer volume of available research on any given topic, some authors suggest systematic hierarchies of evidence to be used, in an attempt to distil available research to those pieces with the greatest potential for use and representativity. Leigh (2009) notes that both the US and UK governments have such hierarchies for evidence – the US for medical research, the UK for social policy – and in both of them, systematic reviews and meta-analysis are judged to be the optimal type of research to be considered for use. More so than any individual study, these types of research publication are of use within their own research fields in terms of outlining the current overall state-of-play on any given topic, but likewise are exceptionally useful for policy makers as they summarise a lot of existing research and are thus more likely to present broadly held scientific opinions while providing context and critique for studies that might be more contentious. However, Leigh also acknowledges that a pure reliance on systematic reviews is not advisable: such reviews may themselves not necessarily be based on sound methodology and selection, so ultimately the policy makers still need to have the insight to identify whether or not such a review is fit for use. Boaz and Pawson (2005) highlight examples of such reviews on comparable subjects with wildly different results. A further issue, rarely discussed by those who aim to promote structured review, is that the technique is most readily applicable in fields where there are large numbers of similar studies that can be surveyed. An emblematic case is the use of structured review to assess clinical trials focusing on particular diseases. A key methodological problem here is the fact that trials leading to negative results tend not to be published – so a statistical treatment of the published results is undermined by selection bias.

G.2.2 Boundary work

The sociology of science has in recent years tackled the issue of boundaries between science and non-science – and, correspondingly, between scientific and non-scientific work. This is of course an old and central issue in the philosophy of science, which generally sought to distinguish between the two on the basis of method. Originally the idea of 'boundary work' was introduced to describe activities that separate the scientific from the non-scientific (Gieryn, 1995). More recently, 'boundary work' has come to mean the work of organisations that work at the boundary between science and society – especially between science and wider policymaking. Along with this notion comes the idea of 'boundary objects' such as patents or reports containing research-based evidence for use in the policymaking process. In the same vein, there

are 'boundary organisations', which work at the boundary and which are in some sense governed by, or have responsibilities to, stakeholders both on the side of science and of society. As Guston (2001) remarks:

> *"The boundary organisation […] gives both the producers and consumers of research an opportunity to control the boundary between their enterprises in a way favourable to their own perspectives."*

A key test of the value of boundary work and boundary objects is the extent to which these satisfy the traditional criteria of saliency, credibility and legitimacy. Boundary objects may be used in a number of roles in the policymaking process such as enlightenment, decision support and negotiation support (Clark et al, 2011) – so they can also be seen as instruments in the functioning of some of Weiss' (1995) categories.

More generally, the growing use of research-based evidence in policymaking involves more active roles for boundary organisations and more opportunities for creating boundary objects. There is clearly variety in the form and governance of boundary organisations. At least the following categories are visible

40. Independent boundary organisations not governed directly by policymakers, such as SPRU, NESTA and the former US Office of Technology Assessment (Mulgan and Puttick 2013; see also Cabinet Office 2013)
41. Boundary organisations governed by policymakers but protected from their influence to some degree by governance arrangements, such as TNO's STB division or the Fraunhofer ISI institute
42. Boundary organisations that are agents of policymakers, such as ministries' executive agencies or government labs
43. Other organisations not tied to government, which act as contracted boundary organisations from time to time (such as Technopolis). (This may be a sub-category of 1)

The UK system has evolved a special class of boundary worker in the form of the chief scientists, whose job is to interpret the scientific world to policymakers. This is a position increasingly characteristic of Anglo-Saxon countries. Such figures act most often in an advisory role, and the literature suggests that their prime advantage is to be a 'translator' between the spheres of research and policy. With extensive knowledge of both as a key requirement, these individuals can go some way to smooth the knowledge transfer process and the barriers associated with this collision of two very different worlds (Doubleday and Wilsdon 2013). In some cases, the role of chief scientists might go beyond that of a translator: with breadth of scientific knowledge often a key desirable characteristic, there are instances of direct advice from the individual in such a position, rather than a consulting or translating function noted above.

G.3 Changing practices

Smith and Halliwell (1999) conducted one of the most recent comprehensive studies of evidence use in government, drawing on research into the experiences in several countries (European Union, Nordic Union, New Zealand, United Kingdom, USA and Australia). The report concludes that whilst all entities studied acknowledge a need for greater use of evidence – both in terms of formulating better policies, as well as responding to the demise of public trust in traditional authority – there was uncertainty amongst all organisations studied about whether they had a suitable system of research use in place. Especially high-profile 'policy disasters,' often attributed to poor use of research, tended to shake trust in both policy makers, as well as in evidence use itself.

Whilst the report shows that there is unlikely to be a single correct way of using research in policy, owing to different cultural contexts to which evidence use must always be adapted, there is overarching faith that the existence of formal guidelines for research-based evidence use can play a useful role (see also Gluckman 2013). Moreover, there needs to be visible recourse to these guidelines, in the sense that policy makers can be held to account for not adhering to an expected standard of evidence use. In effect, such guidance can provide quality control for evidence-based decisions. At the time of this report, the UK is identified as a leading proponent of such guidelines.

The UK has several sets of guidelines, most notably the Magenta Book (HM Treasury 2011) which sets out guidelines for internally produced or commissioned evidence, especially evaluations. Here we find guidance on, eg the key steps to follow when planning and undertaking an evaluation and how to answer evaluation research questions using different evaluation research designs, as well as approaches to the interpretation and assimilation of evaluation evidence. For use of external evidence, the Government's Chief Scientific Adviser issues guidelines on the use of scientific and engineering advice in policymaking (BIS 2010). These documents set out in methodological terms what may be called good practice, and there are calls in other countries to systematise such guidance in a similar way (see eg Gluckman 2013 for New Zealand). However, even in the UK, where such guidance is particularly extensive, there is no clear sense of the extent to which adherence is at all binding: little is known about whether these guidelines are always used, whether it is at all practical to use them at all times and what sanctions might be in place if they are not used – in short, the function of such guidelines is unclear.

Though frequently identified as an important component, we find no literature that assesses, in terms of good practice, how such guidelines should operate, what they need to contain and what recourse to such guidelines needs to look like for them to be effective.

Appendix H Bibliography

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technopolis |group| United Kingdom
3 Pavilion Buildings
Brighton BN1 1EE
United Kingdom
T +44 1273 204320
E info@technopolis-group.com
www.technopolis-group.com