D2.1 Assesment of the proposed end user requirements

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List of abbreviations

<Abbreviation>	<Explanation>
D2.1	Deliverable D2.1
DoW	Description of Work
DIGIT	Directorate-General for Informatics
EU	European Union
EC	European Commission
EP	European Parliament
Gov2u	Government To You
HanSoc	Hansard Society
ICT	Information and Communication Technologies
M1	Month 1, M3=Month 3 etc
MP	Member of Parliament
MEP	Member of the European Parliament
NGO	Non-Governmental Organization
Soton	University of Southampton
UK	United Kingdom
WP	Work Package
S&D	Progressive Alliance of Socialists and Democrats in the European Parliament[1]
ALDE	Alliance for Liberals and Democrats for Europe[2]
GREENS	The Greens/European Free Alliance in the European Parliament[3]

[1] http://www.socialistsanddemocrats.eu

[2] http://www.alde.eu/

[3] http://www.greens-efa.eu/

Glossary

Open data - a piece of data is open if anyone is free to use, reuse, and redistribute it — subject only, at most, to the requirement to attribute and/or share-alike.[4]

Big data - the term for a collection of data sets so large and complex that they are difficult to process using on-hand database management tools or traditional data processing applications. The challenges include capture, curation, storage, search, sharing, transfer, analysis, and visualization.[5]

Linked data -.describes a method of publishing structured data so that it can be interlinked and become more useful... in a way that can be read automatically by computers. This enables data from different sources to be connected and queried.[6]

End user – potential user of the Sense4us tool.

User generated data – content created by the users of different online platforms rather than those that manage or run these platforms. Includes video, audio, text or images and platforms such as blogs, forums and social networking sites eg. *Youtube, Facebook, BBC* online.

Open government – the practice whereby citizens should have the right to access the documents and proceedings of the government to allow for effective public oversight.[7]

Open policymaking - true open policy making draws on the widest range of evidence. It's about inviting broader inputs and expertise; and creating the room and conditions for others to help solve problems, as well as developing options by trialling, testing and iterating; always keeping implementation in mind.[8]

Contestable policy-making – aims to incentivize the development of high quality, creative policy by opening up specific pieces of policy development to competition from outside the civil service.[9]

4 http://en.wikipedia.org/wiki/Open_data [accessed 7 November 2013]
5 http://en.wikipedia.org/wiki/Big_data [accessed 7 November 2013]
6 http://en.wikipedia.org/wiki/Linked_data [accessed 7 November 2013]
7 http://en.wikipedia.org/wiki/Open_government [accessed 7 November 2013]
8 http://my.civilservice.gov.uk/policy/what/ & http://discuss.bis.gov.uk/opm/2013/09/18/what-is-open-policy-making-2/ [accessed 7 November 2013]
9 http://my.civilservice.gov.uk/reform/the-reform-plan/improving-policy-making/ [accessed 7 November 2013]

Executive summary

Sense4us is a project that was launched in October 2013, to research ways to make policy-making more effective using cutting edge research and technologies. The project partners will create an online tool (toolbox) that will gather and summarize information from multiple sources (i.e. open data, citizen generated data, forums etc.), thus helping policy makers find and use effectively the most relevant and updated information when forming policies. It will also enable policy-makers to simulate the impacts and consequences of different policy options before policies are formally adopted. In a more generic sense, Sense4us aims to bring together a wide range of open data and big data resources, including structured social media analysis, and to address the needs of the usual policy making cycle.

One of the main objectives of the Sense4us project is to ensure the toolbox can be used across all institutional levels (local, national, EU) and audiences (decision-makers/policy-makers), while incorporating feedback from the target audience into forthcoming iterations of the prototype, and evaluating the accuracy and usefulness of the final prototype for the target user group.

Based on this objective, this document addresses the feedback gathered from all three policy making levels, regarding our aim to create a toolbox to facilitate the policy making process at the resource and policy modelling levels. Considering different policy making environments the requirements across three policy making levels slightly differ, some of them are the same, although they vary in terms of level of priority. It should be noted that for many of those who took part in our surveys or interviews, what we were discussing represented a very new approach to data and policy making. Many of them were consequently both attracted and fascinated by the idea and therefore keen to discuss about it, because they feel that the challenge of getting correct data and improving their legislative practices is acute in an age of big data and limited time resources to analyse it.

Most of the policy makers across all three levels wanted an advanced ***data search*** functionality. They want a “one stop shop” for cross disciplinary structured search e.g. *environment, transport, economy* and multiple filters to search across various information sources and multiple data formats. The great majority of end users across all three policy making levels imagine data search as an *advanced Google* – they want *provision of clear visualisation and filtering options – giving clear categories of searchable data* (date, types of documents, key words, field, authorship, relevant social media sentiment and other) and visualised summaries of data sets.

Discussing ***social media data*** remains a relatively important field for policy making – the policy makers admit that segmenting social media discussions by being able to identify policy related groups, highlighting topics and providing summaries of these opinions, would likely deliver more valuable public insights to help inform the policy making process.

The policy modelling field was mostly discussed around the element of trustworthiness. Firstly, most of the end users wished to understand the methodology the tool will use and want to be able to see all the source data that is used to present the predicted outcomes in order for them to trust the tool. Secondly, policy makers explicitly referred to the dynamism of underlying factors in certain policy fields, therefore *flexibility* to choose variables in the tool on their policy issues, in order to make comparisons between different prognoses is important, leading to the idea of a member account being incorporated into the tool to enable users to *individually shape policy simulation*.

1 Introduction

1.1 The project: Sense4us

Sense4us is a three year project that was launched in October 2013, co-funded under the Seventh Framework Programme (FP7-ICT-2013-10), with the aim of assisting policy makers by giving them the tools and methodology to access a wide array of current data and take into account the views of citizens on policy issues in real time.

Developing and implementing policy at any level of government is fraught with difficulty. The impacts of decisions are not always obvious at the time the policy is formulated or enacted, and often short-comings with the policy become known too late to change it. This is not only due to a lack of proper information, but also to the difficulty of finding and aggregating the right data out of the sea of information which characterizes our modern world. Having once formulated a policy it is then impossible to make useful predictions around its likely impact and effectiveness. Policy specialists lack the resources and the methodology to be able to access most current data and are unable to ultimately take into account the views of citizens on policy issues expressed in real time through social network discussions.

Specialists currently have to rely on readily available public information sources based on historic, rather than current data and consultation with a select group of stakeholders, so the Sense4us project is creating a toolkit that will support them in information gathering, analysing and policy modelling in real time. This package of utilities will be based on cutting-edge research.

The project's tools are directed to allow:

- the extraction of information from big data and open data sources;
- the automatic annotation and linkage of homogeneous data;
- the lexical analysis of sources and validation;
- the creation of policy models combining quantitative open data sources with qualitative social comments;
- the prediction of social impact of policy and the outcome of policy, providing understandable visualizations;
- social network analysis for tracking discussion dynamics in social media.

Through close interaction with policy makers around Europe, the Sense4us project seeks to validate results in complex policy-making settings and direct the research towards the support of more effective and better understood policy development.

The ultimate objective of the Sense4us project is to advance policy modelling and simulation, data analytics and social network discussion dynamics, providing economic and social benefits at all governmental levels across Europe.

1.2 WP2: End user requirements

WP2 set out to understand the requirements of policy-makers in relation to the data and sources used to inform policy and to investigate how policy modelling or simulation might fit into the current policy making process, as well as to define scenarios and policy issues which could be used to drive and evaluate the ICT research carried out by the consortium. To this end WP2 therefore dedicated its efforts to examining the existing policy-making cycles and engaging directly with policy makers in both the executive and legislative spheres at the EU level, at national level in the UK and at local level in Germany.

The achievement of the WP2 main goals and objectives is highly dependent on the active role and participation of the partners in all the tasks and activities of WP2 as well as on the level of responsiveness and interest in the project by the target audience. As described in the DoW, all end user partners are responsible for individual role tasks at their level (European, regional, national):

- Gov2U has a European focus engaging with MEPs and their staff in the EP, also EP officials from selected committees and European Commission officials (policy officers and heads of unit);
- Hansard Society has a UK-based national focus engaging with: MPs, civil servants, parliamentary officials including committee clerks;
- GESIS has a regional focus engaging with the German Bundestag (620 MPs) and with the State Parliament of North Rhine-Westphalia.

1.3 Scope and objectives of the deliverable

The scope of this deliverable is threefold:

- to outline the methodology of requirement gathering, and
- to present requirements derived from initial engagement with policy makers,
- to consolidate the requirements from the individual engagements into a single set of requirements that will be evaluated by the project's architecture work package.

From the Description of Work, WP2 has a total of 6 objectives to be reached within the project, however the scope of this deliverable is to present the progress achieved in the following three:

- **Objective 1** – Define scenarios and policy issues, which can be used to drive and evaluate the ICT research carried out by the consortium.
- **Objective 2** – Engage directly with governmental policy makers from different levels of government in different European states.
- **Objective 3** – Understand the requirements of policy-makers in relation to the data and sources used to inform policy and how policy modelling or simulation might fit into the current policy making process.

The research is to be implemented at local, national and European level throughout the duration of the project. The requirements are regularly reviewed and updated on the basis of the project's evolution and new knowledge acquired from continuous engagement with policy makers.

1.4 Methodology and structure of the deliverable

This deliverable's structure is based on the actual methodology used to undertake the policy maker engagement, and this has three main steps overall:

- **Target group Identification** - Target groups that are expected to be interested in the project and are considered as key to the project will be identified and listed.
- **Actions to research requirements:**
    - **Qualitative research: Interviews and focus groups** - Definition of the overall objectives of the dissemination strategy and description of the phases of the dissemination strategy, the tools and methods that will be used in order to achieve the dissemination goals.

- **Quantitative research: Survey** – The actions planned in order to achieve a successful dissemination of the project will be detailed and accompanied by evaluation processes in order to measure their short and long-term effectiveness.

- **Requirement definition** – Definition and description of requirements at each of the three different levels of the policy-making lifecycle.

The actions to research the requirements can be specified in more detail as follows:

- Using current organisational contacts and knowledge of the policy-making process, we identified candidate policy makers with which to engage to research the current policy making life-cycle.
- We created an online survey to bootstrap the end user requirements based on the established current practice and problems amongst target users (EU, UK national level, Germany national and local). The aim was to determine the basic requirements and to identify ways to address current needs within the policy-making process.
- Based on our contacts lists and the survey respondents that showed interest, we followed up the survey with semi-structured interviews at the three different levels covered by the WP2 partners, and focus groups on the UK national level. This provided an opportunity to acquire deeper insight into the problems and challenges of the particular policy makers being interviewed, as well as creating and maintaining relationships that may be followed up at later stages of development in the project.

The analysis of end user requirements is based on quantitative (statistical analysis of survey results) and qualitative research (analysis of the structured interviews and focus groups). The methodology for requirement gathering was determined by all WP2 partners, by composing the list of main questions for the survey and interviews and investigating the target audience's 'perceptions' of the proposed Sense4us tool.

Even though this document is primarily addressed to the project partners in order to proceed with the development of the prototype, it might also prove useful to other stakeholders in the future, drawing together the needs of policy makers in this area and the resulting benefits of the project.

1.5 Relationship of this deliverable to other work in the project

The current deliverable is interrelated with other deliverables of WP2. It is the initial deliverable that will provide the foundation for the next deliverables in the process, especially D2.3, as the requirement gathering will help to track technologies and define future scenarios in the policy making process. It is closely related with deliverable D2.4, which will be the significant follow-up to this deliverable. A full list of WP2 deliverables and input per partner is presented in Appendix I.

The current deliverable provides the background for the creation of the project prototype, therefore it is closely related to the deliverable D3.1, which will present the ways in which the requirements of the policy makers might be addressed in the tool that is being created.

1.6 Quality management

To control the quality of this document and the work that is reported in it, the first ideas were presented and discussed during the Sense4us consortium meeting in London, as well as during regular teleconferences. Gov2u prepared the first draft of this document, incorporating the input

from the other WP2 partners, and distributed it to consortium partners for review. Comments and suggestions for improvement have been incorporated in a number of iterations of the deliverable. The deliverable uses the correct project template and has been subject to a language and quality control check.

2 End user requirement gathering and analysis

Since the Sense4us project is researching policy making at three different levels, the analysis is accordingly set out in relation to the European, national (UK) and regional level (Germany), addressing the different institutional and legislative structures and current political decision practices. Partners chose those quantitative and qualitative methods that would best address their particular policy making environments. The survey was distributed by each end user project partner identifying potential interested policy makers and emailing them an introduction to the project and a link to the survey. The interviews were arranged by each of the end user partners, addressing their specific target audience. Each end user partner used their own communication network, and partners were also free to use whatever interview methods and resources they deemed appropriate. For example, in addition to interviews, the Hansard Society also used focus groups as a research method.

At each of the EU, national and local levels, the initial stage involved identifying the target audience of the Sense4us project, by trying to imagine the potential user of the proposed tool. A generic approach to identifying a potential user was adopted, namely: *anyone working in parliament or government, who is involved in drafting legislative proposals, addressing certain policy developments and therefore is in need of relevant information resources*. Using this definition, each of the partners determined a specific target end-user group for surveying and possible subsequent one-to-one interviews.

Given the differences in the process and target groups the research and analysis undertaken by each end user partner is set out separately. Throughout the process project partners discussed engaging target audiences (e.g. interested policy makers) with both the initial requirements gathering stage and future development stages. This involved identifying the concerns and expectations of our target audiences, as well as analysing the current policy making cycles at operational and resource level. The objective of the research was thus threefold (it is reflected throughout the Survey questions, see Appendix I):

- Identify the current practices of the policy makers;
- Map the information sources used in policy making;
- Investigate the shortcomings in the process and present the Sense4us tool as a possible solution to them.

2.1 Designing the survey

Aims:

The aims of the survey were threefold:

1. to establish current practice and problems amongst target users and to develop a framework for further in-depth questions to be asked in interviews and focus groups;
2. to determine basic requirements and identify ways to address current needs across a broader range of users than it would be possible to interview;
3. to act as the first point of contact with politicians and policy-makers, allowing us to identify those individuals that are interested in this area and who are likely to further engage with the project.

The survey questions were created by end user partners in consultation with the rest of the consortium. The questions were similar across each of the decision-making levels although some of the language was adapted to ensure that respondents understood the questions in their local context.

Before being fielded, the survey was tested with three existing Hansard Society contacts in the UK, who represented different parts of the end user target group – one from a government department, one from a parliamentary committee and one from the parliamentary library – to ensure that the questions were clear, comprehensible and that the design was optimal. At the European level, the questions were tested with the support of two EP MEP's assistants while in Germany there were also initial interviews arranged with policy makers from the State Parliament in North Rhine Westphalia.

2.2 Planning the Interviews and focus groups

Aims:

The aims of the interviews and focus groups were to:

1. build on the understanding of processes and practice in policy-making gained from the survey;
2. increase understanding of the project amongst target users;
3. determine requirements and understand how these requirements might be addressed by the tool.

Interviews and focus groups were carried out with targets that expressed interest in the project or submitted contact details in the survey, as well as those that were identified by each of the partners through desk-research and discussions with policy-makers and decision-makers as being an especially good fit for the project, given their role in the policy process.

The questions were tailored for each individual or focus group but addressed similar themes:

- information gathering;
- current use of digital tools;
- open data;
- citizen involvement and social media;
- policy impact and simulation or modelling, and
- requirements for the tool.

3 EU POLICY MAKING: alongside legitimate procedures and real practices

In order to determine where Sense4us could be the most beneficial and add value to existing policy making practices in the EU, we needed to identify current practices in policy making and therefore look at the European institutions involved in the policy development process from within.

EU policy making has a set of clearly defined legislative procedures regarding how laws are adopted, and the criteria for policy proposals to be approved and converted into decisions. These official procedures determine the structure of the EU institutions involved in the process and are also the mechanism for internal codes of conduct and legislative rules. The institutional structure also shapes the way officials involved in developing certain policies and drafting proposals operate. The EU also provides informational resources, by having specific research departments, impact assessment units or institutional libraries and databases open for use by policy makers.

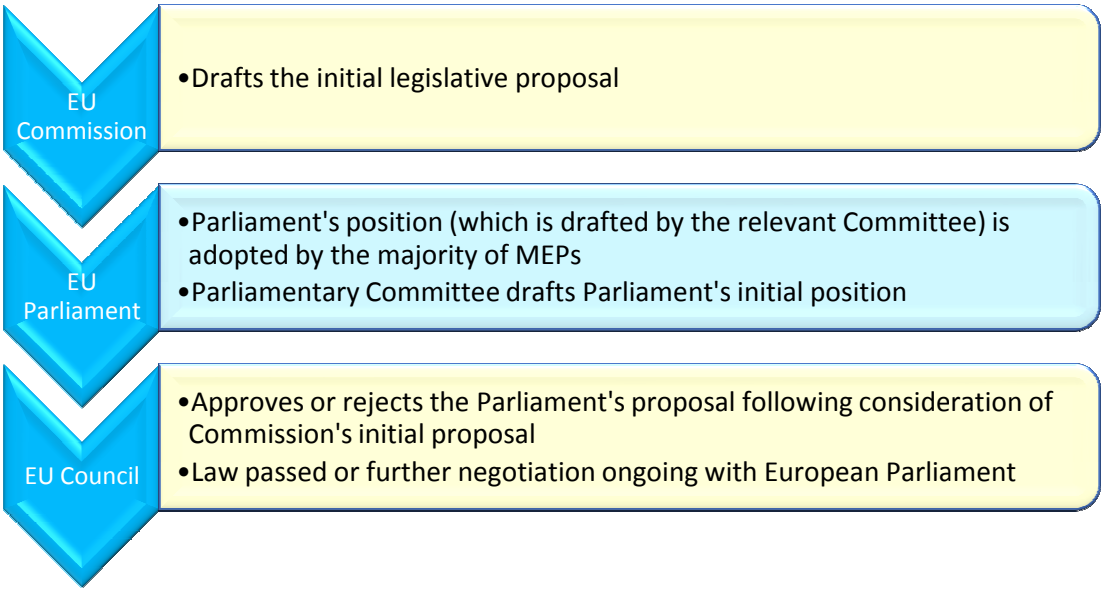

Figure 1: EU decision making: Co-decision

There are a number of decision making procedures used in the EU legislative process, but for the scope of gathering requirements to facilitate the policy making data routine, we considered the most commonly applied "Ordinary legislative procedure" (previously known as the "Co-decision" procedure) (90 % of EU laws), for policy making in the EU. A broad outline of this procedure is shown in Figure 1. Given that it is the form of policy making procedure most regularly used (accounting for approximately 90% of EU law) it provides a good basis for understanding the different legislative roles of the EU institutions in the policy making process and the stages of information flow therein.

The European Commission, the executive power at the heart of the EU, has the power of legislative initiative; most legislative proposals originate here. The European Parliament, being directly elected by citizens across the EU, represents the citizen interest. The voice of the public, it has the right to accept or amend the legislative proposals. The final legislative stage is the Council of the European Union where representatives from each member state present the official opinions of their respective governments on any given policy issue. It consists of the Heads and Ministers of member states, as well as permanent experts, residing in the Coreper I and Coreper II[10] of the Council of the EU. This last stage provides a political constraint on policy initiatives and proposals, the work on most of which in terms of preparation and drafting is done by the European Commission and European Parliament.

[10] http://europa.eu/legislation_summaries/glossary/coreper_en.htm

Throughout, the documentary process - where information in relation to a policy is input – is vital, as it is in this sphere that we propose to help policy makers by providing the Sense4us tool that can gather data and shape policy developments.

3.1 EU target group identification

The European Commission serves as the main body that proposes EU legislative initiatives. In addition to proposing laws, it prepares impact assessments which set out the advantages and disadvantages of possible policy options. It also consults interested parties such as non-governmental organisations, local authorities and representatives of industry and civil society by organising online public consultations. Consequently there is throughout the Commission's various approaches to policy-making a significant demand for information to be input into the various processes.

The European Parliament serves as the main legislative body and possesses decision making power. To support the application of its legislative powers[11] and its role as the voice of citizens, it organises its own opinion based documentary evidence gathering, conducts its own impact assessment studies and prepares opinion based reports.

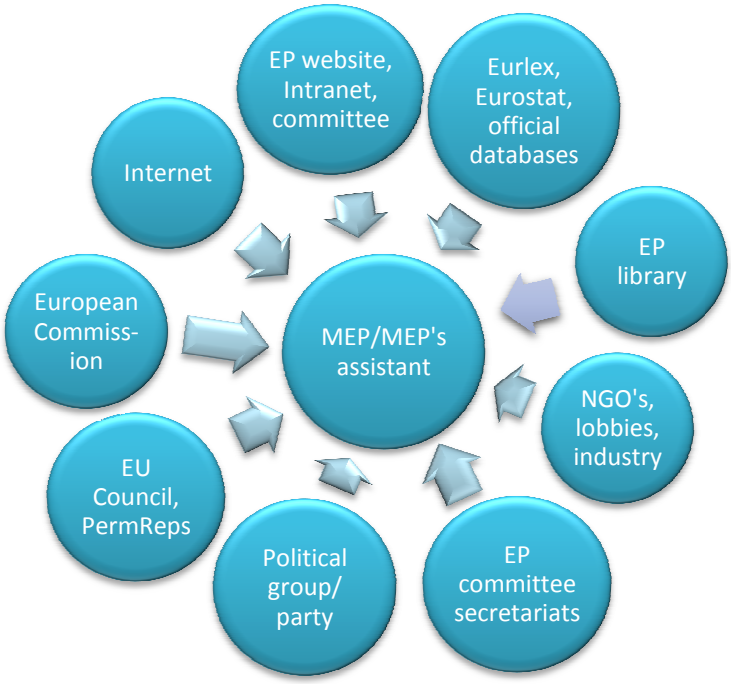

Figure 2: WP2 EU level: Policy input/ EP target group

[11] At every stage of the European integration process, the question of democratic legitimacy has become increasingly sensitive. The Maastricht, Amsterdam and Nice Treaties contributed to improving the democratic legitimacy of the institutional system by reinforcing the powers of Parliament with regard to the appointment and control of the Commission and successively extending the scope of the Co-decision procedure. Subsequently the Treaty of Lisbon further strengthened the powers of the EU Parliament on legislative and budgetary matters and enabled it to effect greater political control of the European Commission through the procedure adopted for the appointment of its President. The Parliament also strives to increase citizen participation in the democratic life of the Union through initiatives such as the creation of a citizens' right of initiative and by recognizing the importance of dialogue between the European institutions and civil society.

The impact assessment and information infrastructure of the European Commission and European Parliament is separate, reflecting the different executive and legislative oversight powers of each institution and their respective roles in guaranteeing the execution of European Treaty provisions[12]. The EP possesses an independent organisational structure and has its own human and operational resources. As a legislature the policy making process is influenced by public and political opinion, including by individual MEPs with their constituency and political perspectives, as well as the views and aspirations of the various political groups that make up the Parliament. As a consequence, there is a high level of information input into the policy making process from different stakeholders and resource groups. Figure 2 provides an overview of the main information sources in the legislative process; these are variable but include institutions and stakeholders as well as existing tools, online websites and internal and external databases.

An understanding of the EU system of policy-making leads us to focus on the documentary process, as well as identify our target group of potential end users, namely those officials with policy making roles in the Commission and Parliament who receive information to input into the process in order to proceed with policy developments. Not all people working in these institutions are involved in policy drafting. Therefore, the target groups– namely the people working in policy positions and dealing with policy drafting tasks - for the communication and end user requirement gathering stage of the Sense4us project were identified as follows:

- European Commission: 33 Directorates General (DGs according to policy area):
  - Heads of Units (EC)
  - Policy officers (EC)
- European Parliament
  - Members of the European Parliament (MEPs): 766
  - Assistants of MEPs: 1518
  - Parliamentary Committees: 20 standing committees (+ 2 sub-committees)
  - EP Political Groups: 7 (includes researchers, policy advisors)

As separate institutions with different constitutional roles and responsibilities and consequently different policy-making procedures, their data resources are not mutually structured and shared and each uses both their own methods and information sources to inform their respective involvement in the policy-making process. Thus we found that the policy data input in both institutions is different in character and uniform data search facilities might therefore significantly improve the availability of data at different policy making stages and therefore advance the efficiency and effectiveness of the process overall.

Our goal is to address the policy data practice needs of both institutions. Sense4us does not seek to change the existing policy making practices, but rather to identify the needs of the institutions and individuals involved in the policy process and facilitate their work by improving data accessibility in terms of better visibility of the policy and supporting information.

3.2 Online survey: information gathering practices and problems to target

The survey was distributed to the European Commission and European Parliament in two phases in the course of 6 months, by circulating the URL of the online survey via email. At the end of this term the survey URL was also published on the internal website of DG Connect in the European Commission, with 2 weeks given to gather the results, resulting in 2 additional responses.

[12] EU treaties can be found here: http://europa.eu/about-eu/basic-information/decision-making/treaties/index_en.htm

The online survey was distributed to a number of MEPs of the European Parliament, as well as the EP committee's secretariats and EP political groups. Given the size of the institution and the number of MEPs (over 760), we decided to target those MEPs most active in the legislative process as their consequent involvement in data gathering and policy making documentary practise would mean they were the Members most likely to be interested in Sense4us.

In order to identify the most active MEPs we chose to use a member activity ranking, published on the www.mepranking.eu website. This utilises the official statistics published by the European Parliament to provide quantitative analysis of EP activity. Using their method we were able to choose and contact approximately 60 MEPs, who were ranked at the top in terms of being the most active in *presenting reports*, *amending reports*, *opinions*, *giving speeches and declarations*. During the second phase of survey distribution we addressed the EP committee secretariats as well as Chairs and Vice Chairs of EP committees (MEPs), seeking to reach more than 120 additional individuals.

Due to institutional data protection practices, the contact details of European Commission officials are not publicly available. To address this, the survey was distributed via the individual contacts of the project consortium members as well as the internal website of DG Connect of the European Commission.

In total 22 responses were received to the survey including from both institutions, representing a wide range of policy areas and drawn from a variety of policy making roles.

3.2.1.1 Policy areas

EU policies are far-reaching and cover many areas, including a range of different specialist fields which in turn bring into play a number of key actors (e.g. institutions, lobbyists and industry organisations), all of whom have their own individual approach to data practice and sources.

Among the respondents to the survey there was a wide range of policy areas represented (see Table 1). The breadth of policy area contributions ensured that a valuable range of different perspectives in relation to end user requirements in the policy making arena were incorporated into our thinking.

It should also be noted that in general any one person is likely to be involved in more than one policy area, therefore the range of policy spheres represented in this analysis is broader than the response rate would immediately suggest.

16 given policy areas	Number of answers, indicating policy area of work
Digital Single Market, eGovernment and e-infrastructures (World Class Computing, Trusted Data Flow, Cloud Computing)	3
Health, Public Health, Food Safety	2
Research and Innovation	2
Economic and monetary policy	2
Development and Cooperation	4
Trade	1
International relations	1
Employment and social affairs	1

Environment, Energy	3
Fisheries	1
EU Budget, Budgetary control and Audit	3
Human Rights, Gender equality	2
EU-Turkey relations, Pan-African Parliament and ACP-EU Joint Parliament	1
Transport, Cohesion policy	1
Consumer protection	1

Table 1: EU Policy areas represented

When evaluating the results it is also important to note that the EP has 20 standing committees and 2 subcommittees. Among the responses to the survey, 16 of these committee policy fields were represented. This breadth of coverage underscores the likelihood that different data gathering and legislative drafting practices across a variety of policy fields have been captured in the results.

3.2.1.2 Information and mapping of the data sources

Information remains a key element in any policy making development process, as it provides the essential evidence base upon which policy decisions can be made and justified. The information itself can cause problems however, especially in recent times when the range of formats and data channels has increased rapidly.

Most of the survey respondents indicated that major problems in policy making relate to a "***lack of time* and *finding the right information";*** given the time constraints and limited resources available to them, they often find it difficult to obtain relevant information or cope with big data. As a result, such problems as ***"too little information"*** and ***"too much information"*** as well as the time constraints in relation to searching for data form the core of the problems that should be targeted by the project in order to facilitate the policy making process (see Table 2) .

Q7 When you are seeking or using information in the course of your work on policy, which, if any, of the following problems do you face? (Choose all that apply)		
Answer Options	**Response Percent**	**Response Count**
Too little information	31.6%	6
Too much information	31.6%	6
Too few sources of information	15.8%	3
Too many sources of information	26.3%	5
Hard to know which sources to trust	26.3%	5
Too little time to gather the relevant information	42.1%	8
Information not available in an accessible format	10.5%	2
Incompatibility of different data sets	21.1%	4

Lack of required tools to perform data analysis	15.8%	3
Lack of required skills/training to perform data analysis	10.5%	2
Incomplete information/data	31.6%	6
None of these	5.3%	1
Other (please specify)	5.3%	1
		answered question **19** ***skipped question*** **3**

Table 2: Problems in information search of EU policy makers

Policy makers need to get the information they want in good time and the scope of existing or alternative categories, formats and sources of data needs to be provided in a more understandable and accessible way than is currently available to them. An advanced search engine with some structured filtering would thus be appreciated. This leads to Requirement EU-1, *in section 3.3, where EU requirements are summarized.*

Q2 How important is it that the information you use to develop/support policy is publicly available, free AND online?		
Answer Options	**Response Percent**	**Response Count**
Very important	54.5%	12
Fairly important	31.8%	7
Not very important	4.5%	1
Not important at all	0.0%	0
Don't know / it does not matter	9.1%	2
		answered question: **22** ***skipped question:*** **0**

Table 3: Online information used by EU policy makers

In order to value the future application of the Sense4us project tool, the survey sought to identify the proportion of online data used by the policy makers and then to consider the types or data sources they use. As it was revealed, **online access to data is highly desirable** and preferred by the majority of policy makers (See Table 3); **55 % of the EU policy makers** indicated that is **very important** for legislative process to use freely available online data, whilst a further **32 %** of survey respondents agreed that this is **fairly important.**

The survey also sought to explore how EU policy makers are actually using this data. The responses show that ***63.9 % respondents from the European Parliament and the European Commission are using internal tools, i.e. unpublished data (e.g. internal data bases / intranets) for the legislative process*** (see Figure 3).

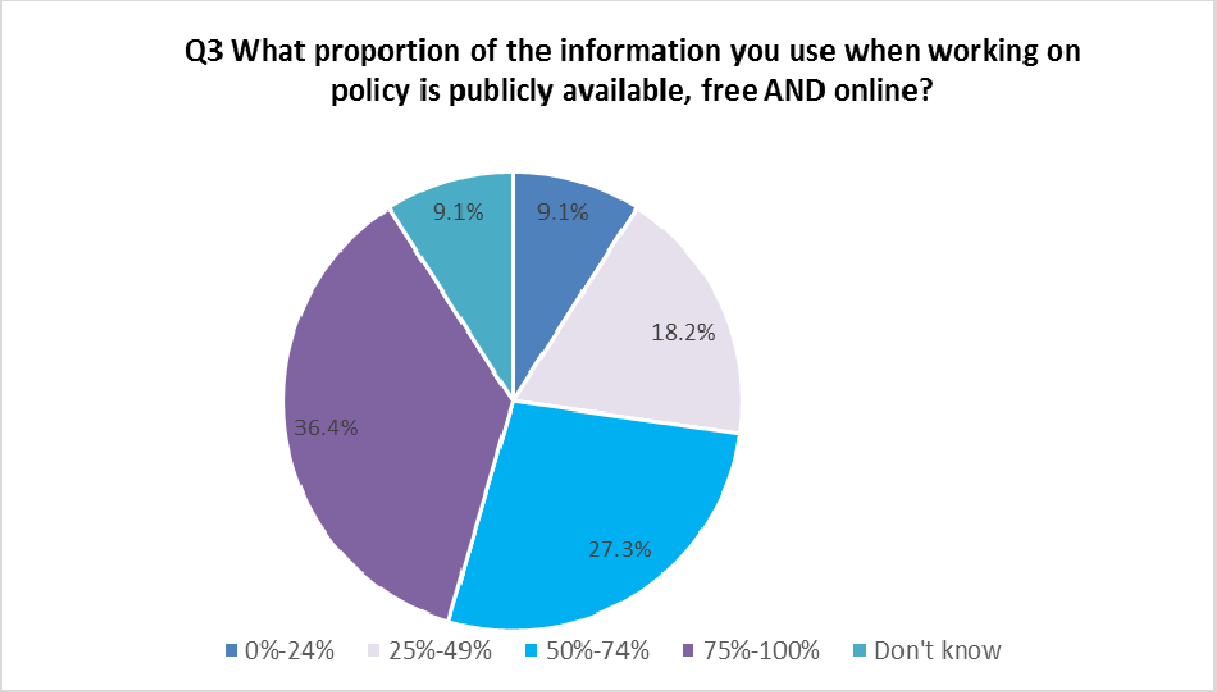

Figure 3: Online resource coverage among resources used in EU policy making

An absolute majority – **95.5%** of the participants claimed to be **using search engines (e.g. *Google*)** to find relevant information on the Web and **41 %** of EU policy makers said they used ***specialised databases***, providing official documents or statistics. ***Nearly 20% are using open data portals and open data***.

The high level of interest in online search engines and databases is not surprising but the fact that external tools such as these outscore internal official repositories, such as E-committee resources (see Figure 4.) is an important finding. It confirms ***that policy makers are making use of a lot of external information, search topics or data and therefore there is significant current demand for this data.***

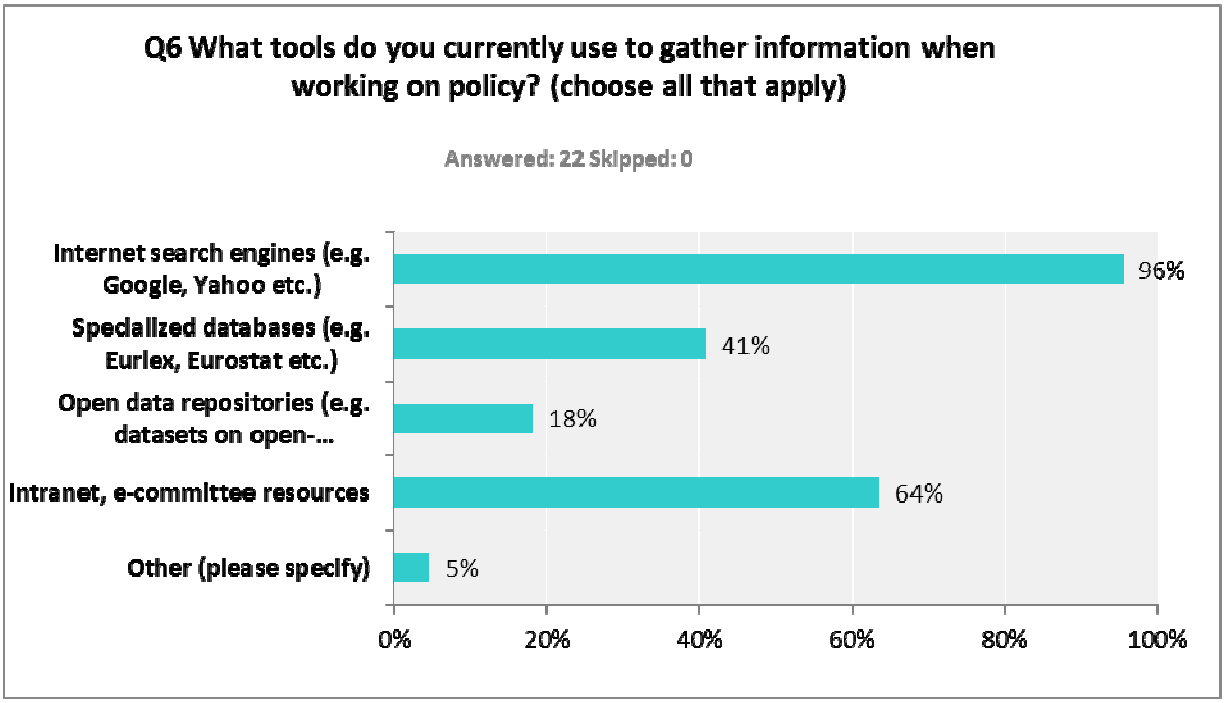

Figure 4: Tools used to gather information for EU policy development

When addressing the types of information that is mostly searched by policy makers, there tends to be a concentration on more structured analytical data, such as summary of data sets with commentary, rather than raw data sets (see Figure 5). This shows that policy makers prefer discussion and interpretation of data, backed up with evidence, rather than just the raw data.

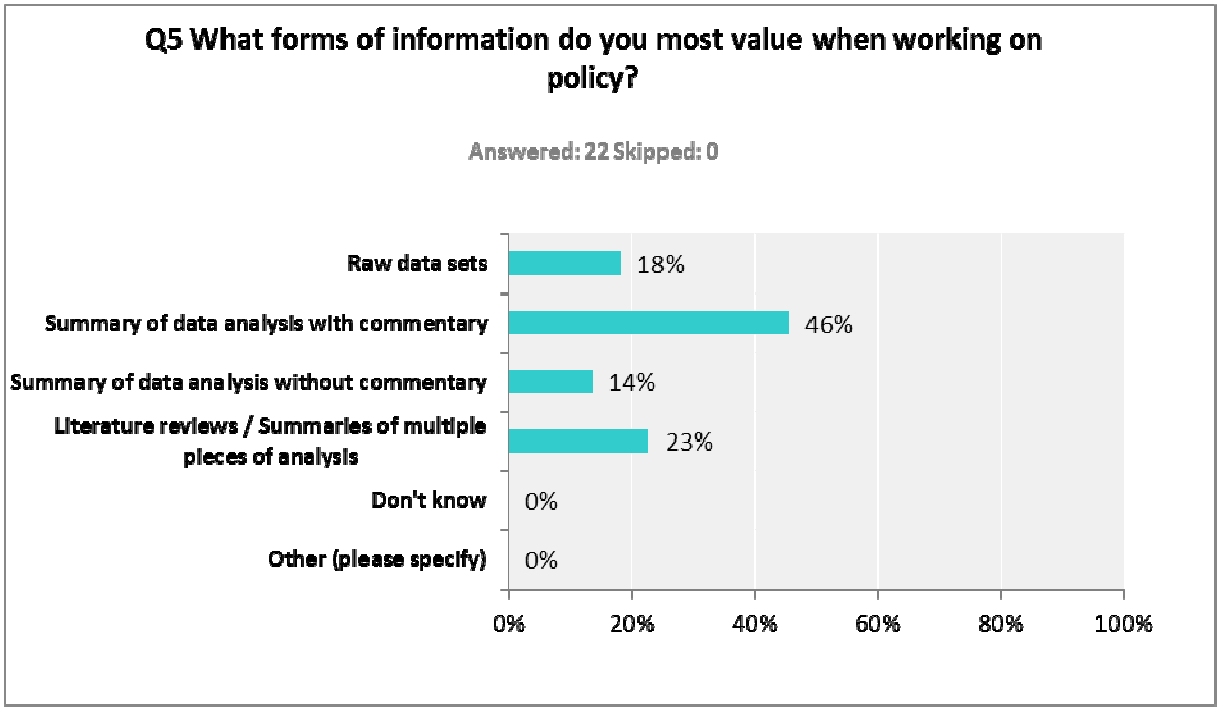

Figure 5: Forms of information-insight to technical data requirements

The factors that inform the preferential choices of policy makers in relation to data, given the wide range of choices available, are linked to what they understand about the quality of information provided (see Figure 6 below).

By far the most important factor is **the reputation of the source** (**74%** of respondents). Next is the **validity of the methodology used to present the information** (**43%**) and **the believability of the results** (**37%**).

Therefore, in their respective policy environment end users search for obvious signs that confirm the credibility and reputation of the source information; these might include authorship, any link with public opinion, the way in which the data is presented, and the attributes accorded to it as a search result. Thus the value of a document may be interpreted differently depending on factors such as who wrote it, where it was published, as well as the extent to which, if any, the political opinions of any group associated with it are known.

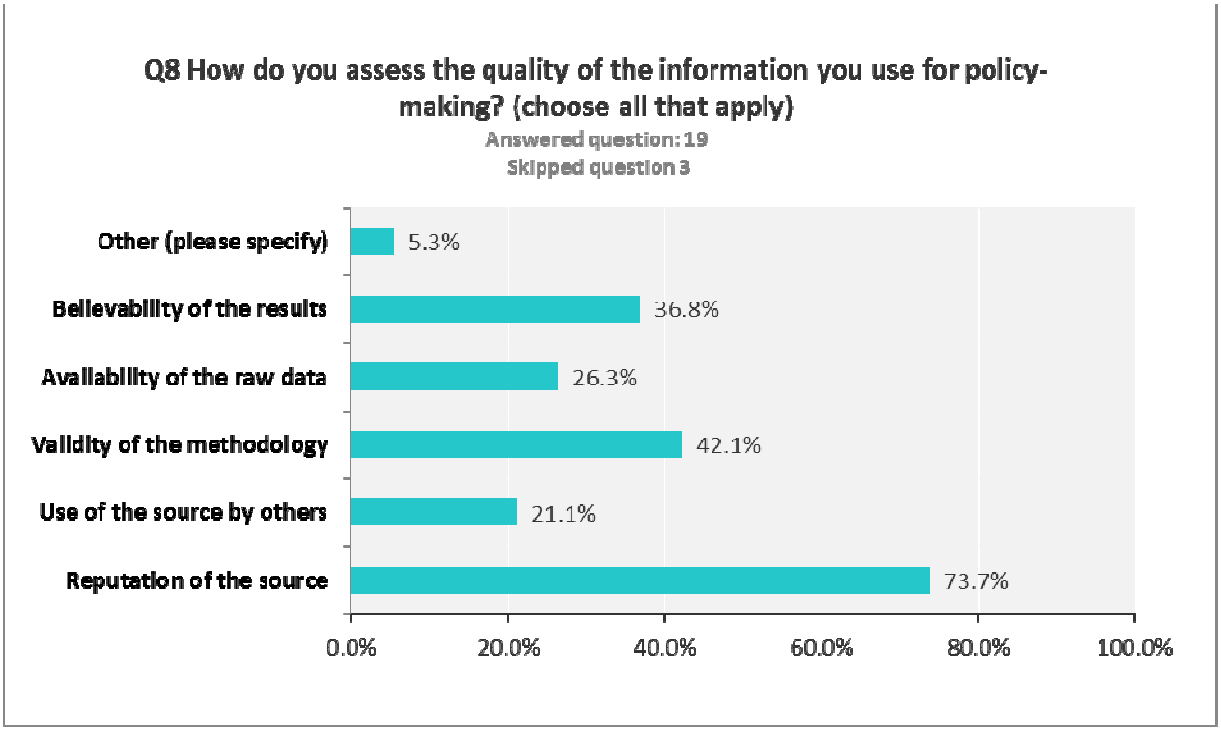

Figure 6: Forms of information sources most valued by EU policy makers

That leads to ***an implied requirement for the visualization and filtering of the search results in the tool, bearing in mind that key factors when choosing a data set and judging whether to trust and utilise it are the authorship of the data and the*** *authoritativeness* ***of the source. This leads to Requirement EU-3*** *in section 3.3.*

3.2.1.3 Public input

To further research the most trusted or used resources of information, the survey included a question with a list of possible information sources in the EU policy making process, and respondents were asked to rank their top 3 in order of importance.

This question also helped us to understand the hierarchy of trusted and wanted sources that shape the opinions of policy makers in a real policy environment. The survey revealed that the information presented by **EU institutions and member state representations is the most valuable source of information (48%)**, academic information is also rated well, while **think tanks, lobby organizations and business representatives amount to on average 30%**. Interestingly, **traditional media** and **social media reaches 20% of policy makers** (see Table 4 below).

Q9 Which information sources do you find most useful? (choose a maximum of three)	
Source	**Answer percent**
Business representatives	26.3%
Charity representatives	10.5%
Think tanks	31.6%

Parliamentary Library	15.8%
Academics	36.8%
European Commission/European Council/Permanent Representations	47.4%
Social media/blogs/forums	21.1%
Traditional media	21.1%
Opinion polling	5.3%
Public hearings/ consultations with citizens	15.8%
None of these	0.0%
	answered question: 19 *skipped question:* 3

Table 4: Most trusted info sources by the EU policy makers

Given the range of sources available, the figures above for social media, opinion polling and public hearings/consultations (combined totalling 42 percent) suggest that significant proportion (almost half) of the policy makers are reaching out and listening to public opinion in their areas of policy interest.

As an overall goal of the Sense4us project is to provide a tool that will help introduce public insights into the policy process and thereby improve the procedure and end product, the survey also posed a further Question 14 exploring how public opinion is actually being sought in the EU political process (see Table 5).

Q14 Which public feedback methods are useful to you during the policy-making process?				
Answer Options	**Very useful**	**Somewhat useful**	**Not very useful**	**Not at all useful**
Public consultations (online and in written)	5	6	2	0
Commissioned surveys	1	8	2	0
Public hearings	1	7	4	0
Dedicated websites for an individual policy	1	6	3	2
Online forums	0	2	9	0
Social media analysis	2	7	2	1
				answered question 13 *skipped question* 9

Table 5: Most wanted public feedback methods by the EU policy makers

The survey also researched which type of methods of gathering public opinion are preferred by the EU policy makers as a suitable form of feedback on certain political issues. Public consultations and social media analysis were indicated as being the most useful ways of gathering public opinion.

Given the high level of demand among EU policy makers for public opinion input into the policy process, it is an implied requirement for the Sense4us tool that it should facilitate ways to acquire public opinion in a more accessible way, including analysis of public discussions, campaigns or social media forums, and provide filtering options in areas such as topic or scope. This leads to Requirement EU-6, *in Section 3.3.*

3.2.1.4 Language

Although there are 24 official languages in the European Union, despite being a key element of the EU, multilingualism appears to be of limited value when policy makers search for information at various stages of the policy process. English is the most popular language used in information searches (91%), well ahead of German (27%), French (23%) and other European languages (see Figure 7 below). This choice is likely linked to the fact that English is the legislative language of the EU and all documents and draft reports consequently have to be drafted in English.

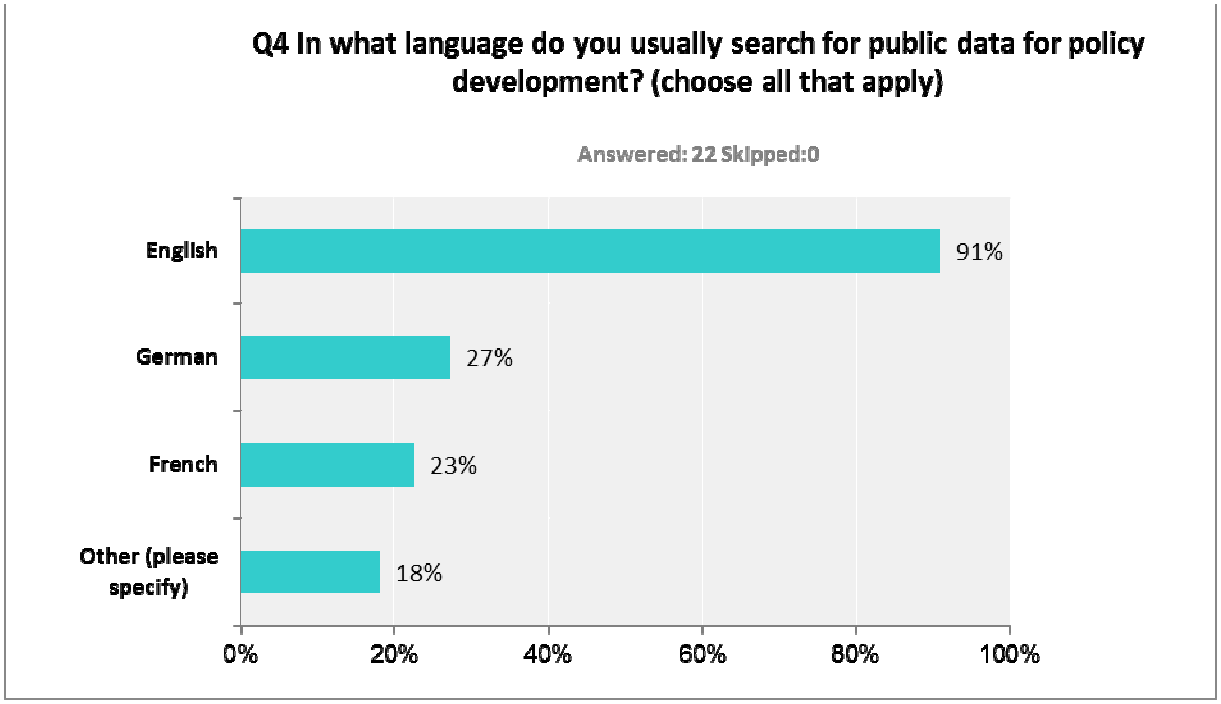

Figure 7: Most used languages to search data by the EU policy makers

Thus a language option for policy information search is a desirable but secondary requirement in the Sense4us tool. However, multilingual options could deliver added value in relation to social media insights as the general public will more often than not use their own language in public discussion forums. This leads to Requirement EU-12, *in Section 3.3.*

3.2.1.5 Predicting outcomes and Sense4us tool projections

In order to indicate problematic subject areas when developing policy, so that we might address real needs when designing the Sense4us toolbox functionalities, we also asked the survey respondents to identify those policy areas where it is hard to predict the outcome of proposed policy developments.

This allows us to "measure the temperature" and understand which policy fields face the most challenges when coping with complex data.

Q11 In which policy areas (yours or others) do you feel it is most difficult to predict outcomes of a given policy, before that policy is implemented? (choose a maximum of three)		
Answer Options	**Response Percent**	**Response Count**
Business, Industry and Internal market	11.8%	2
Trade	11.8%	2
Agriculture and Rural development	5.9%	1
Justice	0.0%	0
Regional development	11.8%	2
Economy/Finance/Budget	29.4%	5
Education	23.5%	4
Employment and social affairs	11.8%	2
Environment	47.1%	8
Humanitarian Aid and Development	29.4%	5
Health and Consumers	17.6%	3
Immigration	5.9%	1
Energy	11.8%	2
Science/Technology/ICT	23.5%	4
Transport	0.0%	0
Taxation and Customs	11.8%	2
Other (please specify)	0.0%	0
	answered question	17
	skipped question	5

Table 6: EU Policy areas: hard to predict the outcome

Nearly half of the respondents indicated **environment policy (47%),** as a difficult field in which to foresee the impact of policy prior to it being implemented. **Economy (30%)** and **education (24%)** were also among the respondents top choices.

The respondents were also asked to identify the problems that policy making in the areas above face. These were the following:

- Too many contributing factors/variables for complex issues. The trade-off in some areas and the effect of compromises between the different actors are very complex to foresee.
- The impact of policy depends on rapidly changing patterns of human behaviour.
- Field related:
  - ICT: there is a lot of trial and error with maturing technology which makes predictability very difficult;
  - Economy: uncertainty of other actors' behaviour;
  - Environment: non predictable climate change.
- Time perspective needed: you can only predict the outcome based on various models of past data.
- Policy instrumentation: unpredictable subjective social perceptions may influence behaviour. Too many interested parties. Surrounding circumstances are difficult to influence.
- Very dynamic areas: traditional econometric models do not apply.

The end user who is likely an expert in the policy issue they are working on will have good insight into the scope of variables that influence certain policy problems, including issues of complexity, time perspective, policy instrumentation and specific field limitation issues. They know that any policy is the result of a range of different factors, and therefore being able to choose among these and any other relevant factors in order to model the development and outcome of a given policy is preferred, as is the ability to make different predictions based on the dynamism of any such underlying factors. This leads to the Requirement EU-5 in Section 3.3.

In order that policy makers can also undertake searches and save information for consideration at a later date functionality such as user accounts would also be useful. This leads to the Requirement EU-8.

We also sought to explore which type of functions would be the most useful to the policy makers by asking them to rate the utility of possible prototype functions:

- *a search including open data and social media analysis;*
- *a simulation tool that would help to predict the possible consequences of the proposed policy option (see* Figure 8 *below).*

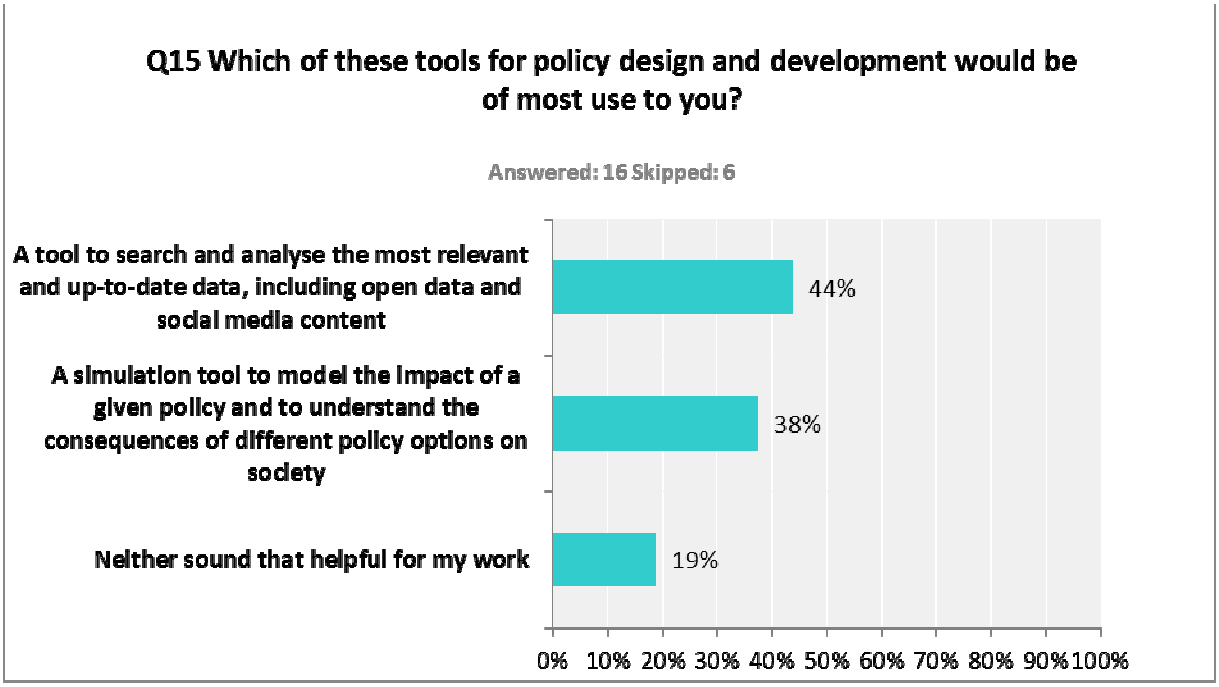

Figure 8: Sense4us tool prognosis by EU respondents

Opinions were relatively evenly split between the two options of information search and simulation, with information search slightly in the lead as the most requested function.

11 out of 16 respondents, who answered the open Question 16 (See Appendix II), asking where the simulation tool would be most useful in their view, and the response indicated that the initial phase of policy making was most popular. One of the respondents was very precise, even suggesting this as a better way than impact assessment: "*in first stages of concept development, and in a second stage to test the developed proposal (and possibly skip impact assessment).*"

3.2.2 Interviews: a closer insight to usual policy making practice

The interviews at the EU level were carried out throughout the whole period of the initial requirements gathering period. At the beginning of the process, the questionnaire and interview questions were tested via preliminary interviews with 2 MEP assistants. This helped us to address the right questions in both formulating the survey and interview questions that followed.

At the European level we conducted a total of 10 interviews with people working in various positions: political advisors, policy officers, MEP assistants or Committee secretariat officials (see Table 7 below).

Interviewees	Policy
1. EP MEP's assistant, S&D group	Employment and Social Affairs, Civil Liberties, Justice and Home Affairs, Women's Rights and Gender Equality
2. EP MEP's assistant ALDE group	Budgetary Affairs, Economic and Monetary Affairs, ACP-EU Joint Parliamentary Assembly
3. EP FEMM Committee Secretariat official	Human Rights, Gender Equality
4. EP EMPL Committee official	Employment and Social Affairs
5. EP MEP's assistant, The Greens/European Free Alliance	Environment, Public Health and Food Safety, Energy and Transport
6. EP MEP's assistant, S&D group	Environment, Public Health and Food Safety, Foreign Affairs, EU-Russia Parliamentary co-operation, Security and Defence
7. EP Policy advisor, ALDE group	Budgetary Control, Audit, Fisheries
8. EP MEP's assistant, S&D group	Economic and Monetary Affairs, Transport and Tourism, relations with India, Parliamentary Assembly of the Union for the Mediterranean
9. EC DG Connect, Policy officer	Digital Agenda, e-Infrastructures, Research
10. EP Political advisor to the President of EP	Foreign Affairs Committee, Eastern Partnership, European Neighbourhood Policy East, EURONEST, Russia, Nordic and Baltic Strategies, Western Balkans, Asia

Table 7: Interviewed EU policy makers

The interviews were useful because they provided us with nuanced insights into experiences and problems that a survey is not capable of capturing. They allowed us to discuss the subject of data usage, data flows and peculiarities in the policy making process with people directly involved in the process itself. This helped us to understand the way they operate as well as their expectations about potential improvements in how they manage different sorts of data and information in their work.

3.2.2.1 Data search

Data search was a key theme running through the interviews. This is illustrated with the following procedure, which is typical of the process of drafting a policy document (and therefore researching the topic and finding information as evidence), and is as follows.

The committee secretariat drafts reports and MEPs amend them. The secretariat knows the report structure and the deadlines, but they are not always competent to provide all information and data for the content needed in the reports. In this case, the committee secretariat can look at what the committee has done so far and also looks at internet sources such as the UN website, or official international and European organizations' websites. There is no fixed repertoire of internet based sources, so most people simply search using Google. The reports are drafted mostly by an MEP's assistant or by the MEP themselves. Throughout, the policy information or conclusions have to be justified by evidence. MEPs may then send the first draft of the report to NGOs to ask for feedback or organize conferences. They have their network of stakeholders to feed them with information/input. MEPs and their assistants will often rely on known sources for selecting evidence to back up their information – for example, through their network of permanent stakeholders who supply the information direct or through publicly available information on websites. As a result, there is an often narrow evidence base and always significant potential for important data or opinions to be excluded from the process.

The majority of MEPs' assistants that we interviewed reported using online data search tools on a daily basis and unanimously supported the idea of a better version of *'Google'* to trace information for policy development. They envisaged a *one stop shop* type search tool, where many types of different data are available in a structured format, with a broad range of filtering options.

To summarize **the requirements regarding data search, expressed by the interviewees:**

- ***An optimized, wide scale search tool that could gather information from online sources across different key stakeholders (especially permanent ones, that are key interest groups and sector organisations) and across various disciplines/policy areas so that searching multiple databases would be unnecessary (including impact assessment studies), as described in Requirements EU-1 and EU-2*** *in Section 3.3.*
- ***Cross disciplinary search, so there would not be a need go to an alternative search engine, as described in Requirement EU-2*** *in Section 3.3.*
- ***Cross-border EU Member State data search: the functionality to filter data based on location / member state, i.e. to find policy related data that is relevant at the national level in EU Member States on legislative proposals initiated at EU level. This leads to Requirement EU-9.***
- ***Historic data: some member states are at different stages of their development and governmental regimes, and historic data is useful to indicate historic experiences (e.g. successes and failures). This is what is often missing – a wider approach to EU policy issues, identifying various practices or implementation levels of the EU policy and the ability to get to know what the practices in certain Member State are in relation to a particular policy and what the experiences are with regard to these practices. This is represented in Requirement EU-7*** *in Section 3.3.*
- ***Structured presentation of data; filtering functionalities (lexical analysis of sources, key words, categories of data structure) proposed:***
    - ***relevant actors/organisations (with contact details)***
    - ***relevant documents and legal acts***
    - ***relevant articles and studies***
    - ***relevant social media discussions***

as described in Requirement EU-3 and Requirement EU - 11, *in Section 3.3.*

3.2.2.2 Stakeholders: real time facilitation

Many interviewees indicated that interest groups, i.e. lobby groups and key sector organisations, frequently play a significant role in the EU policy-making process. Indeed, some lobby organisations advise on policy developments in different sectors on a regular basis. In order to ensure transparency in the EU policy making, interest groups and lobby organisations have to have a 'permanent status' with the EU and all lobbying organisations must be officially registered on the Transparency Register[13].

Some interviewees suggested that it would be helpful if the Sense4us toolbox could technically scan and collect information from the websites of these lobbying organisations, and the Transparency Register. This would help inform the EU policy making process in real time, as described in Requirement EU-1, *in Section 3.3.*

3.2.2.3 Social media and citizen insights

Citizen opinions are gathered using a number of mechanisms:.

- Political groups in the European Parliament organise public hearings involving experts who give presentations and participate in open discussion of political issues from time to time.
- Each MEP consults with his/her constituents at home at the member state level. The degree of consultation depends on how active and assiduous an MEP is in carrying out their constituency duties.
- In the documentary process, when citizen opinion overview or analysis on the political question at stake is needed, an MEP can ask his/her national bureau to find out what public opinion is on certain questions and conduct local analysis.

In general, most policy makers we interviewed were non-specific in answering questions regarding citizen opinion. They were rather more interested when the discussion turned to social media. For example, the MEP assistant from ALDE group, referred to *Eurobarometer* results, which showed that European integration cannot be simply a technocratic matter and needs public comment as a balance, but not all public opinions expressed on social media can be considered valid as there is a lot of "noise" on social networks, for example irrelevant postings, trolls, flame wars etc.. He was rather sceptical about the quality of feedback to videos on YouTube, and to posts made by the EP DG Communication requesting feedback.

A preferred example for public opinion data input into the policy making process was a summary of relevant data available on social media, with the ability to narrow the social group to consult by some characteristics (e.g. location, specialized profession or field blogs).

The interviewee from the EP FEMM Committee suggested that the Sense4us tool could trace the path of a certain URL in social media forums and therefore be able to gather opinions around it: for example, taking a video that was posted by the European Parliament on its website and then embedded on other websites (i.e. blogs, newspaper websites, etc.) and follow the thread of comments associated with that original video.

Most of the interviewees found it difficult to imagine how to trace and aggregate social media opinions in a way that would carry significant weight in a political context. Those interviewees that could imagine how social media opinion might be gathered, suggested gathering sentiments (reactions, or opinions) around the policy issue and its online path through the internet and social

[13] Cp. Official EU Transparency Register website: http://ec.europa.eu/transparencyregister

media, as well identifying or narrowing opinions to those from a certain social group. This leads to Requirement EU-6.

3.2.2.4 Policy modelling

The interview form of requirements gathering was highly beneficial to investigate the views and "perceptions" of the policy makers about the policy modelling aspect of the tool, which aims to give policy makers the ability to predict the outcomes of a given policy development.

A simulation tool might possibly be an independently available facility, to be used by whoever is involved in the policy making process to trace the impact of a given political policy from a social or scientific perspective, as well as other relevant factors within the political environment and conditions.

Most of the respondents agreed that the possibility of predicting the outcomes of a presented policy was highly desirable. However, this assertion was frequently followed by comments about the objectivity and 'believability' of such a tool and the methodology that would be used for different policy fields. Most of the respondents imagined the policy modelling tool as a form of higher level impact assessment, but overall there was a significant amount of scepticism regarding the effectiveness of policy modelling and simulation.

Quotations from the interviews supporting the idea of policy modelling are as follows. Typically, these would be followed by an example illustrating that the interviewee grasped the concept of policy modelling, and was thinking about how it could be applied to their domain.

Policy Example 1: ***"Roaming package" proposal,*** **Political advisor for ALDE group**

I accept the great idea of policy simulation and how beneficial it could be. I want to refer to a recent example One-rate telecommunication policy (Roaming package)[14]. It would be interesting to test such policy proposals at the prediction perspective – what would be the cost and benefits not only to the citizens, but what is the market share of the companies of cutting off the price, how would it change the telecommunications market if regulated at EU level at this point if a free market wouldn't be limited from a competition perspective or what would be impact (socio-economical) on the quality of services provided.

Policy Example 2: ***Environment and climate change,*** **MEP's assistant, S&D group**

The topic of the climate change here comes into play as an example of the importance of political modelling. At the time of considering the Kyoto protocol (i.e. referring to Greenhouse emissions)[15], all policy makers saw a scientific simulation of what will happen in the future, if this policy is adopted. We had scientific data and worked on this data for years and years but in the end it went to a different direction. Scientific truth is put into doubt by a political instrumentalisation [sic]. We can't anticipate decisions as it is all politicization. All actors who participated in the Climate Change discussions accepted the scientific truth and tried to defend it politically. But for example, the radicals said that Climate Change does not exist. At the UN, the truth was also accepted. But as soon as real economic benefits and loss came into play, positions have changed. Then academic reasoning was ignored. Scientific evidence is very interesting and important for the EP because they would lead to no game between the opposition and the ruling party and ensure less instrumentalisation [sic].

[14] Cp. The official website of the European Parliament: http://www.europarl.europa.eu/news/en/news-room/content/20140331IPR41232/html/Ensure-open-access-for-internet-service-suppliers-and-ban-roaming-fees-say-MEPs

[15] Cp. The official website of UNFCC about Kyoto protocol: http://unfccc.int/kyoto_protocol/items/2830.php

Policy example 3: ***The EU Emissions Trading System***, **MEP's assistant, S&D group**

The MEP's assistant was rather interested by the possibility of policy simulation. He addressed a practical example of a policy case with EU ETS (Emissions Trading System), when before adopting the Directive (Directive 2003/87/EC on the greenhouse gas emission allowance trading scheme of the Community), launching the scheme with tax-free greenhouse gas emission, wrong estimations and prognosis on the trading system growth and carbon price were presented. He explained the problem as following: the purpose of the EU-ETS is to limit the quantity of emissions (by setting a cap) and distribute the right to emit through a system of tradable permits. But now there are far too many CO2 permits on the European market. At the stage of impact assessment wrong presumptions have been done while formulating policy, not taking into account the rapid economic crisis and certain changes on the market on the carbon price, there was no proper incentive on how many tax-free emissions should be allowed. As a result the market and ecological situation was not specified correctly.

He referred to the economic factors as the leading ones that have not been taken into account properly in this case. If the Sense4us toolbox could propose a facility that gathers all information on the main factors related to the policy subject (from sources such as public actualities, scientific and economic studies) and give a rough tendency of the policy proposal that would be a major added-value of this toolbox.

Examples expressing concern about the functionality of the tool were as follows.

Policy Example 4: ***European policy as a multifactor political system***, **MEP's assistant, S&D group**

This interviewee expressed his thoughts on policy modelling per se: "[the] … future is uncertain, you can create an amazing program with scenarios drawn, but you cannot take into account all actors, issues or influences at play, especially at the European level. Therefore, I would be doubtful on conclusions of such tool".

Policy Example 5: **Financial markets and financial governance**, **MEP's assistant, ALDE group**

The MEP's assistant was rather interested by the facilitation of policy making in regards policy simulation, but she stressed the complexity of information in the financial policy field. If there would be a possibility to simulate policy and see some graphical prognosis that would be very helpful. However, it is rather possible with policies that can be measured, she could hardly imagine how policy simulation could help in strictly budgetary matters on financial governance as it does not have measurable results.

The sources for a draft report have to be official (e.g. figures presented by Eurostat or ECB), but when it gets to financial policies, the set of sources is normally smaller and there is not much space for deviation from the expert level stakeholders or governments' opinions presented in the Council. At the drafting level, the sources (in terms of key organisations and their published data) are more or less the same, because she mostly checks the same websites and consults the same lobby organisations.

To summarise, most policy makers had an ideal application of policy simulation and modelling. However they expressed concerns about representativeness and objectivity, as well as the methodology used by such a tool.

The implied requirement: the policy modelling facility has to present a clear methodology, the tool should be transparent about what information and factors it uses, and the user should have the opportunity to include new sources and factors***, including the possibility to use scientific arguments***

if they apply as well as publicly available sentiments if possible. When dealing with unmeasurable policy fields, often of a regulatory nature, this combination of many factors is the key path to support the credibility and authority of the results from the proposed policy perspective. This is summarised in Requirement EU-4, *in Section 3.3.*

3.3 Requirements - EU

High priority

Requirement EU-1: A top requirement, mentioned by all of the interviewed policy makers and clearly evident from the survey results is a wide scale search: a search tool should bring up all the online information across:

- different **data formats** and **data sources**: the online sources normally used in the policy drafting at the EU level (internal and external sources of information: legal documents, proposals from the European Commission, OECD, Committee of Regions, e-committee/working documents and EC and EP impact assessments, academic papers, newspapers, studies from governments, studies)
- **key stakeholders**, especially permanent ones, that are key interest groups in the usual political cycle. The search tool could scan and gather information from the websites of these lobby organisations as well as the Transparency Register in order to *help inform the EU policy making process in real time;*
- **relevant press, social media and other forums for public** opinion.

Requirement EU-2: The majority of policy makers preferred a cross disciplinary search: policy makers would like to search data across policy areas/topics, related to an issue, for example, the Single Market and SME's and Environment, so that searching multiple databases or other sources across a range of disciplines would be unnecessary and in that way save time.

Requirement EU-3: It is clear from the survey and interview findings that visualization, filtering and structure of the search results is of high importance, bearing in mind that the key element when choosing a data set to trust or to follow is often determined by the authorship of the data. For example weight can be assigned to data sources corresponding to whether it is officially published or how well the author/organization is known and supported publicly. Important factors for the trust decision about a data source include:

- relevant actors/organisations (with contact details);
- relevant legal acts and related documents;
- relevant articles and studies;
- relevant social media discussions.

Requirement EU-4: It was strongly underlined by the interviewed policy makers that policy modelling part of the tool needs to be trusted and therefore transparent. The policy modelling facility has to present a clear methodology of how it came to its conclusions, including the possibility to use scientific arguments if they apply as well as publicly available sentiments. Where evidence is present (e.g. sources, authors, etc), it should be presented.

Requirement EU-5: User functionality in policy modelling is of high priority, because this requirement highly determines the success and believability of the tool. Most of the policy makers indicated that the problems in predicting the outcomes of a certain political development lay in the complexity of the issue and the dynamic range of factors that might affect it. There are also a number of actors at any one given time that exercise influence on the policy. Most of the respondents indicated that it is difficult to ensure that a complete set of relevant variables is in the model, as policy in a generic sense is a social discipline and factors may change fast. However, the

tool should include all factors wanted by the user and policy models should be based on all the variables the user considers relevant.

Medium priority

Requirement EU-6: Summary of social media analysis: Get a summary of structured data available on social media on specific themes and be able to identify the social group and its sentiment and opinions.

Requirement EU-7: Unlimited time origin for data: Historical data to be used mainly for countries with stable political systems and history (as opposed to constantly changing situations/ crisis in some EU countries). Instability of current and up-to-date data/evidence/situation/context in EU Member States makes simulations difficult.

Requirement EU-8: "Search save" facility: Policy makers indicated their wish to save any search made on broad or specific terms/topics and have a search history, so they could come back to it later.

Requirement EU-9: Cross-border EU Member State data search: Be able to find policy related data that is relevant at the national level in EU Member States on legislative proposals initiated at EU level

Requirement EU-10: Include existing regular information sources, namely impact assessment studies: Make Sense4us an advanced version of the impact assessment currently conducted by the European Commission at early stage of the policy-making process. It was even suggested that perhaps the Sense4us tool could become a common base for impact assessments, instead of having two separate ones in the EC and EP - if both assessment stages would be loaded and combined in the tool.

Low priority

Requirement EU-11: Search word flexibility: The search engine should be able to use both broad and specific terms, not be limited linguistically when certain word searches provide no results, and the most commonly used key words in a certain policy field should be searchable. Without this functionality the tool will not provide added value to current popular search engines.

Requirement EU-12: Language options: Multilingual search was deemed useful by interviewees, but in practice most data is still searched in English. This requirement is therefore optional. That said, support for multiple languages could be very useful when exploring insights drawn from social media and online forums.

4 NATIONAL LEVEL: addressing UK parliament and government officials

4.1 The UK policy-making process

In order to approach the most appropriate end users, an understanding of the policy and decision-making processes in the UK, and the key actors involved, is essential and is detailed in this section. This contextual knowledge also allows the Sense4us tool to be designed to fit into the most relevant parts of the process, so as to have the greatest impact on the work of end users. An explanation of policy and decision-making processes and the key actors involved is described below.

4.1.1 The UK's system of parliamentary government

The **House of Commons** is an elected chamber consisting of 650 Members of Parliament (MPs). They are directly elected by registered voters with one seat per constituency. The government of the day is determined on the basis of election to the House of Commons, with the party (or coalition of parties) with the largest number of seats forming the government. Members of the government are known as frontbenchers, as they sit on the benches furthest forward on one side of the House of Commons Chamber, while MPs from the governing party who are not part of the government are called backbenchers, and although they usually support the government, they do not have to vote with them and can choose to vote against their party if they disagree on a proposed change to the law. The largest opposition party choose a team of shadow ministers to scrutinise and challenge the work of government ministers, and they sit furthest forward on the opposite side of the Commons Chamber to the governing party and are also known as frontbenchers – while the rest of the opposing MPs are backbenchers.

The **House of Lords** is an unelected chamber of approximately 800 members (there is no set limit on membership). Members of the House of Lords are known as Peers and are appointed by political parties or as independent members based on their expertise or achievements. The House of Commons and House of Lords together make up Parliament. They perform similar legislative functions and both scrutinise the work of government, but the Lords is more consensual, has more time to debate and its powers are limited e.g. it can delay legislation passed by the elected House of Commons but does not veto it.

After an election the party leader able to command the greatest support in the House of Commons forms a **government** by appointing around 120 MPs and Peers as Ministers. Those appointed as Ministers are still MPs or Peers, but they have additional responsibilities to develop, implement and be accountable for government policies on specific issues. Ministers lead government departments and are supported by an extensive team of politically neutral civil servants in carrying out their work. The most senior ministers form the Cabinet, the collective decision-making body of the government.

4.1.2 The policy and legislative process

There are four principal stages to the policy-making process that gives rise to legislation: initiation; formulation; deliberation and approval; and implementation.[16] Essentially, the government develops policy and proposes laws and Parliament scrutinises, amends and approves these laws.

Stages 1 and 2, initiation and formulation, happen within government as only it can propose laws.[17] Ministers, with civil service advice and support will develop legislative proposals to achieve an

[16] P. Norton (2013), *Parliament in British Politics* (London: Palgrave Macmillan, 2nd edition), p. 70.

[17] MPs and Peers can propose laws in the form of Private Members Bills but only a handful of these pass into law each year, generally address small often technical policy issues, and cannot pass without government support.

agreed policy objective or address a perceived problem. A range of factors may influence this stage of the process: party manifesto commitments, interest group campaigns (e.g. by NGOs), media pressure, as well as departmental ideas. A policy idea may be subject to external consultation in two formal ways:

(i) the Green Paper consultation process whereby the policy problem is outlined alongside a number of possible options to resolve it and views are invited on the merits of each; *or*
(ii) the White Paper consultation process whereby the policy problem is outlined and the government's preferred option for dealing with it is set out and views are invited on the merits of this option and any issues arising in relation to implementation.

A policy proposal may be subject to one or both of these forms of consultation. However, it need not be subject to them at all - it is at the discretion of the government. Often policy proposals will proceed straight to the formulation stage. Sometimes bills are produced in draft form and sent to Parliament for consultation, known as pre-legislative scrutiny, but this is relatively rare. Recently, a couple of bills have also been subject to a new pilot mechanism known as 'Public Reading stage' during which the draft has been opened up to public consultation.

Once a bill is deemed ready by the government it will pass to Parliament for scrutiny and amendment: this is **stage 3, deliberation and approval**. The formal legislative process will see each bill examined several times by both Houses of Parliament – both in the main debating chamber and in smaller committees (known as Public Bill Committees) – and may be amended as a result of this scrutiny and deliberation. At each stage, a vote will generally take place to decide whether a bill should proceed or not, and whether or not each amendment should be made. If each House takes a different view on an amendment, the view of the elected House of Commons will ultimately prevail.

The resulting Act of Parliament will then be **implemented (stage 4)** according to the provisions set out in the legislation. There is formal provision for each Act to be reviewed by either House between three and five years after enactment. This process is known as post-legislative scrutiny and generally involves public consultation. However, such scrutiny is not mandatory and it remains an under-developed area of parliamentary activity.

4.1.3 Opportunities for consultation and engagement in the policy and legislative process

It is necessary for Sense4us to engage with both the government and parliamentary spheres of the policy-making process as development and changes take place throughout the policy development and scrutiny cycles. Figure 9 below sets out the points at which opportunities arise to exercise influence through consultation and engagement. However the process is rarely systematic and all stages are not always utilised, as noted above; for example, steps 2 and 5 in particular are not used for every policy initiative.

Figure 9: Key steps in the policy-making process where opportunities for consultation and engagement arise (UK)

The government is also currently experimenting with open policy-making, where groups external to government are engaged at the early stages of policy development to challenge assumptions and add their perspectives into the process. This process is in its infancy but greater emphasis is being placed on contestability, testing and trialling, analytics including the use of 'big data', and information secured through greater consideration of citizen engagement.

4.1.4 Definition of key target groups

As they have differing roles in the political system, it was decided to split the relevant actors into policy-makers and decision-makers. This allowed engagement to be as personalised and tailored to the specific situation as possible.

4.1.4.1 Policy-makers

Civil servants – are politically neutral officials that work independently for the governing administration of the day rather than political parties, although they will work collaboratively with ministers' political advisors to develop policy. Civil servants are usually generalists and will move around different departments and work on different policy areas during their careers. They are the key policy-makers within government departments who develop policy at the request of the Minister.

They will bring together the evidence around a certain policy problem, speak to experts, develop policy solutions and seek to understand the implications if the policy was implemented in a certain way. The policy options will be presented to the Minister who will decide which option/s should be developed further. This process may be repeated a number of times before the Minister approves the policy.

If the policy requires primary legislation, an ad hoc team of civil servants will be temporarily recruited to form a bill team to develop the bill, which will be drafted by Parliamentary Counsel. The Bill will then be introduced and debated in Parliament.

4.1.4.2 Decision-makers

Members of Parliament (MP) – MPs are elected to represent their constituents in Parliament but also have an important role in scrutinising government policies. They carry out their scrutiny functions by asking questions of Ministers, debating, amending and voting on legislation and working in committees. MPs are supported in their scrutiny function by committee clerks and library staff (see definition of their work below).

Peers – are members of the House of Lords and have no constituents to represent. Their sole Parliamentary function is to scrutinise legislation and policy. Peers scrutinise bills in similar ways to MPs but have more time and flexibility to discuss legislation and to propose amendments. They are also supported in their role by committee clerks and library staff. The House of Lords is less politically partisan than the Commons (many do not belong to any of the political parties) and because they are appointed for life, rather than being elected every 5 years, Peers are often more independent in their views than MPs.

Parliamentary officials – both Houses of Parliament have their own independent administration staffed by a body of politically neutral officials. The officials of interest for this project are those working in the libraries and for committees that support MPs and Peers by providing them with information and evidence to inform Members' scrutiny of legislation.

Library staff provide additional contextual information about bills, research issues as they arise and respond to specific requests for information from members and their staff.

Committee clerks provide background information to members that sit on committees, they organise inquiries, gather evidence, identify experts and write reports and recommendations for government, in collaboration with committee members.

4.2 Survey

The link to the online survey, along with information about the purpose of the Sense4us project, was emailed to 959 contacts across Parliament and government, including MPs, Peers, parliamentary officials and civil servants. This group included some existing Hansard Society contacts as well as new contacts that were identified through desk research, events and conferences, as being relevant to the project.

The target group of end users was broadly split into two groups – as detailed in 4.1.4. In order to present the questions effectively to both groups, two versions of the survey were distributed with the wording of the questions adjusted slightly to ensure that it reflected their work in the policy process. Importantly it also allowed for any differences in the respective needs of the two groups to be clearly reflected.

The survey was open from 12 December 2013 – 14 March 2014. At the closing date, 46 responses were received in total (23 from each group) and of those that left their details on the survey for further involvement with the project, 4 were subsequently interviewed or took part in a focus group. None of the survey questions were mandatory for respondents to complete, so in some instances the total sample is slightly smaller.

A full list of the survey questions and responses can be found in Appendix IV.

4.3 Interviews and focus groups

Between January and April 2014 eight interviews[18] with a range of senior and junior policy-makers and officials were carried out, with an additional 12 parliamentary officials taking part in focus groups in April and May 2014.

A sample copy of the interview questions and focus group discussion guide can be found in Appendices III and VII.

4.4 Engagement results

One of the benefits of end user engagement using both qualitative and quantitative methods is that results can be cross-referenced, allowing us to check that the broader reflection of opinions that we received from the survey was accurate. Interviews and focus groups allowed a more detailed understanding of problems and processes to emerge as well as enabling us to discuss practical options for creating digital solutions to policy-making problems. Meeting end users face-to-face also gave us the opportunity to identify those that might be willing to help test and evaluate prototypes later on in the project.

While there were some differences between the views of decision-makers and policy-makers at the national level, there were more similarities between the way these groups worked and what they wanted, than there were differences. However, one of the main differences between the groups was their use of publically available information. The policy-makers (those in government) were more likely to use internal data sets and base their decisions on information not available to those outside government, than decision-makers. The parliamentary focus groups confirmed that decision-makers have limited access to this data because it is created and controlled by government and is only shared with Parliament if government wishes it to be.[19] Both groups identified similar everyday problems in gathering and utilising evidence and data and the 'big issues' they chose as being the most challenging for policy simulation were also similar.

4.4.1 Information

One of the most important things to ascertain using the survey and the interviews was where end users currently go to find information and what is lacking when using existing tools and sources.

4.4.2 Open and accessible information

The use of information that is free, publically available and online differs between policy-makers and decision-makers. As Table 8 below shows, policy-makers are slightly less likely to use free, publically available online information than the decision-makers who scrutinise policy. 52% of the decision-makers who responded said that at least half of the information they used was free, publically available and online, compared to 43% of policy-makers.

All of the decision-makers believed that it was important that the information used to support policy was free, publically available and online, with 70% saying it was 'very important'. By comparison, while the overwhelming majority of policy-makers believed it was important (91%), just 39% of them thought it was 'very important'.

[18] Includes the 4 participants recruited via the survey, mentioned in 4.2.

[19] The Public Administration Select Committee has since recommended that the Government should 'ensure that the data which is used to underpin policy work in all public announcements is published alongside the policy statements'. The Government response to this report has yet to be published. House of Commons Public Administration Select Committee (2013-14), *Statistics and Open Data: Harvesting unused knowledge, empowering citizens and improving public services*, HC 564.

3. What proportion of the information you use when working on policy is publicly available, free AND online?		
Answer Options	**Policy-makers**	**Decision-makers**
0%-24%	**13%**	**4%**
25%-49%	**26%**	**22%**
50%-74%	**30%**	**39%**
75%-100%	**13%**	**13%**
Don't know	**17%**	**22%**
answered question		**46**
skipped question		**0**

Table 8: Information used that is publically available, free and online in UK

The interviews with a variety of policy-makers within government also suggested that government departments do not use external data sources as often or as extensively as internal, private data sources. A number of reasons were suggested for this:

- Private data sources include those the government pays to collect (either directly or by a third-party), and which policy-makers feel obliged to use;
- Internal data sources may include information that it is not possible to make available externally (for legal or technical reasons);
- Internal databases may be used to log past reports or correspondence – reusing past work contained in these databases makes it less likely that work is duplicated;
- The use of private, internal data sources has been the accepted practice for many years, and in the large and complicated nature of government institutions this habit is only gradually being challenged and changed.

Whatever the reason, this presents an opportunity for Sense4us and shows there is a need for the type of tool we are proposing, as external data is clearly not being used as effectively as it could be. While recognizing that not all policy information currently utilized by end users will be available to the tool, by focusing on openly available information and making it more accessible, the tool could provide policy-makers with information they would be less likely to use otherwise.

It's interesting to note that decision-makers (those involved in supporting politicians and providing research services to aid the scrutiny of government) use less internal, non-public information. This is due in some cases to not having the same resources as government, and in others to not having access to the government's data sources. Decision-makers are also more accountable to the public and therefore the information they use for the purposes of scrutiny has to be more accessible and transparent in order to underpin and explain their analysis and decisions. Currently, decision-makers do not generally have access to the data that government utilizes in reaching their policy decisions, and this undermines the capacity of decision-makers to carry out that scrutiny function effectively. Creating a tool that makes external evidence easier to access and utilise would help broaden the usage of publically-available information by policy-makers and hence facilitate improved scrutiny by decision-makers.

4.4.3 Information format and presentation

Both the survey data and the information gained from the interviews were very clear about the types of format that policy-makers would prefer to be used when presenting information. Raw data was not at all popular, with those we spoke to very wary about whether they would have the skills to be able to interpret and use it. So much so, one of the interviewees who has a Master's degree in Statistics, still felt that she would be uncomfortable interpreting raw data without being able to refer to the analysis and interpretation of someone with a higher level of expertise in statistics. This has implications for the use of open data, where the information is more likely to be contained in formats, such as spreadsheets, that provide little supplementary interpretation or analysis.

An implied requirement is that there needs to be a degree of visualization, analysis and interpretation of open data for it to be useful for end users, as set out in Requirement UK-5.

Results from the survey, highlighted in Figure 10 below, showed that for both groups, the most valued format for receiving information was; 'Literature reviews/summaries of multiple pieces of analysis' (48% & 44%) followed by 'Summary of data analysis with commentary' (39% & 22%). Most of the other options were significantly less popular. Although policy-makers and decision-makers agreed on their most valued information formats, policy-makers were slightly more interested in receiving the raw data sets than decision-makers, potentially because they have more resources available to analyse the raw data.

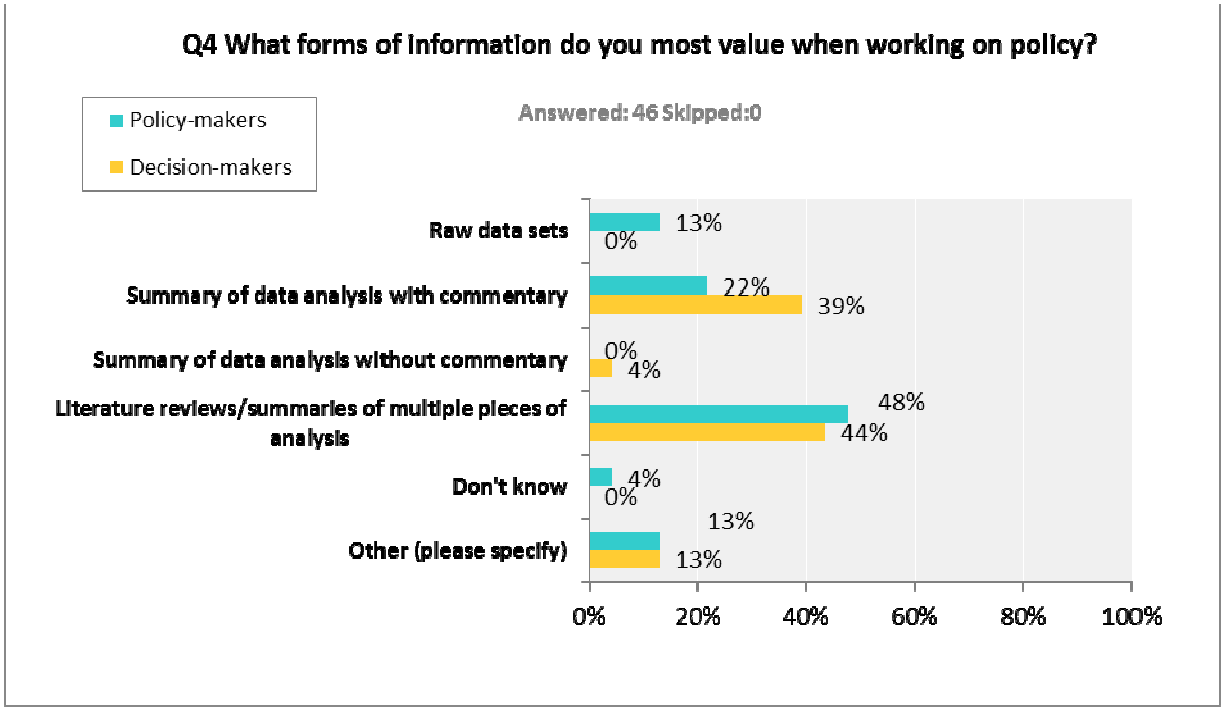

Figure 10: Forms of information most valued by end users in UK

4.4.4 Information gathering tools

In order to understand how Sense4us can support policy-makers and decision-makers, it is important to know which tools they currently have access to, and which they find the most useful for gathering information for policy-making. There were a wide range of digital tools mentioned in the interviews, surveys and focus groups. A full list of the tools and sources used can be found in Appendix VI.

Figure 11 below shows that all the tools that were presented as options were selected by at least 1 in 4 respondents. This suggests that policy-makers and decision-makers are keen to use a broad range of tools if they are useful for informing their work. This bodes well for Sense4us, provided we can show what additional information our tool will capture.

Not surprisingly, internet search engines were well used by both policy-makers and decision-makers. However, perhaps demonstrating the difference between the two groups' role in the process, policy-makers used 'Private/internal databases and intranet resources' (74%) marginally more often than they did publically accessible information sourced from internet search engines (70%). Reflecting their more limited use of private data sources identified in the previous section, only half (52%) of the decision-makers said they accessed private/internal databases.

In the focus groups, ***a need was identified for different types of information to be queried at the same time, allowing comparisons of different sources and types of information e.g. legislative documents alongside academic or media articles. This is referenced in Requirement UK-4.***

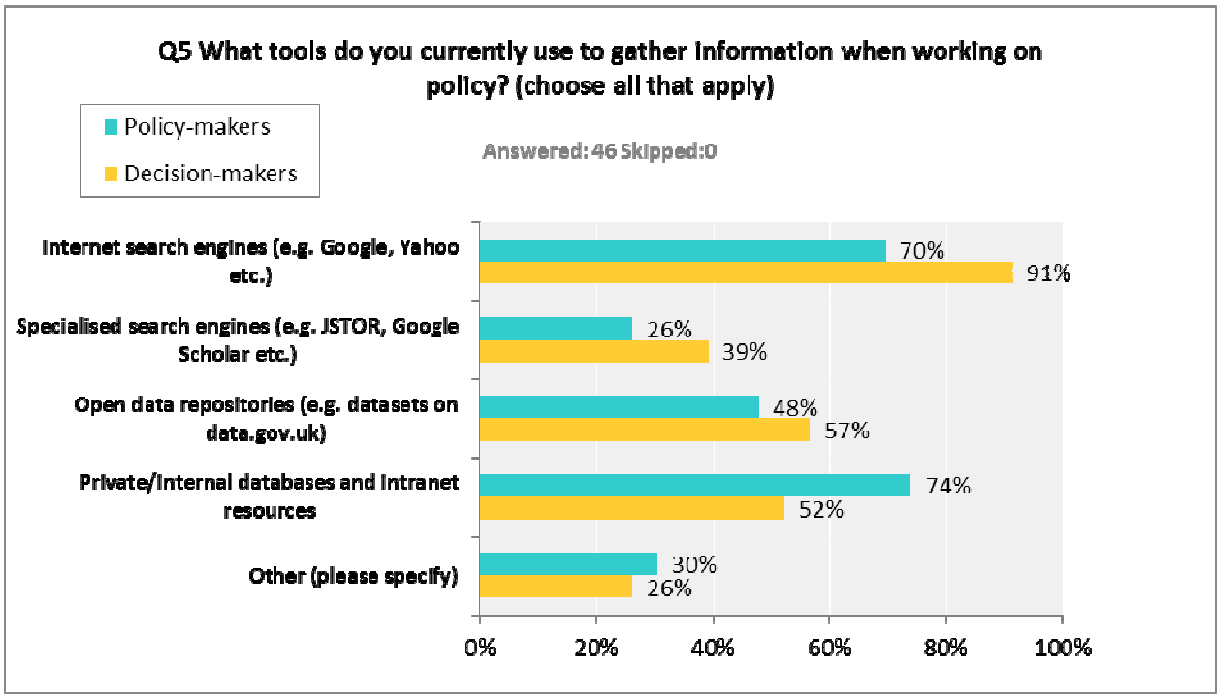

Figure 11: Tools currently used to gather information in UK

4.4.5 Information sources and trust

One of the biggest difficulties that policy-makers and decision-makers had when dealing with information for policy-making was knowing exactly which sources to trust and what information was of good quality. Tools that support this assessment and decision-making process are sorely needed by those that were interviewed and surveyed.

The sources that were described by survey respondents as being most useful were primarily those that could be deemed trustworthy due to the methodology used when analysing research and data from original sources and when gathering expert opinion. Table 9 below shows the top 3 most useful information sources for the decision-makers and policy-makers surveyed.

	Decision-makers	Policy-makers
1	Parliamentary Library	Government departments/official information
2	Government departments/official information	Academics
3	Think tanks	Think tanks

Table 9: UK survey question: Which information sources do you find most useful? (choose a maximum of three)

There is considerable similarity in the two sets of responses to this question, with government/official information and think tanks appearing on both lists. However, the discussions in the focus groups and interviews made it clear that the unequal resources available to the different groups meant that decision-makers often had limited access to academic work via journal articles due to significant budget cuts and therefore a reduction in paid-for journal subscriptions. Despite this problem with accessing academic journals, it is positive for the Sense4us tool that much of the information created or synthesized by the sources mentioned in Table 9 is made available in the public domain.

The survey also asked how respondents assessed the quality of the information they use; the outcome of this question allows us to prioritize certain ways of showing the quality factors of information and helping end users to make quick decisions to sift out the good quality information.

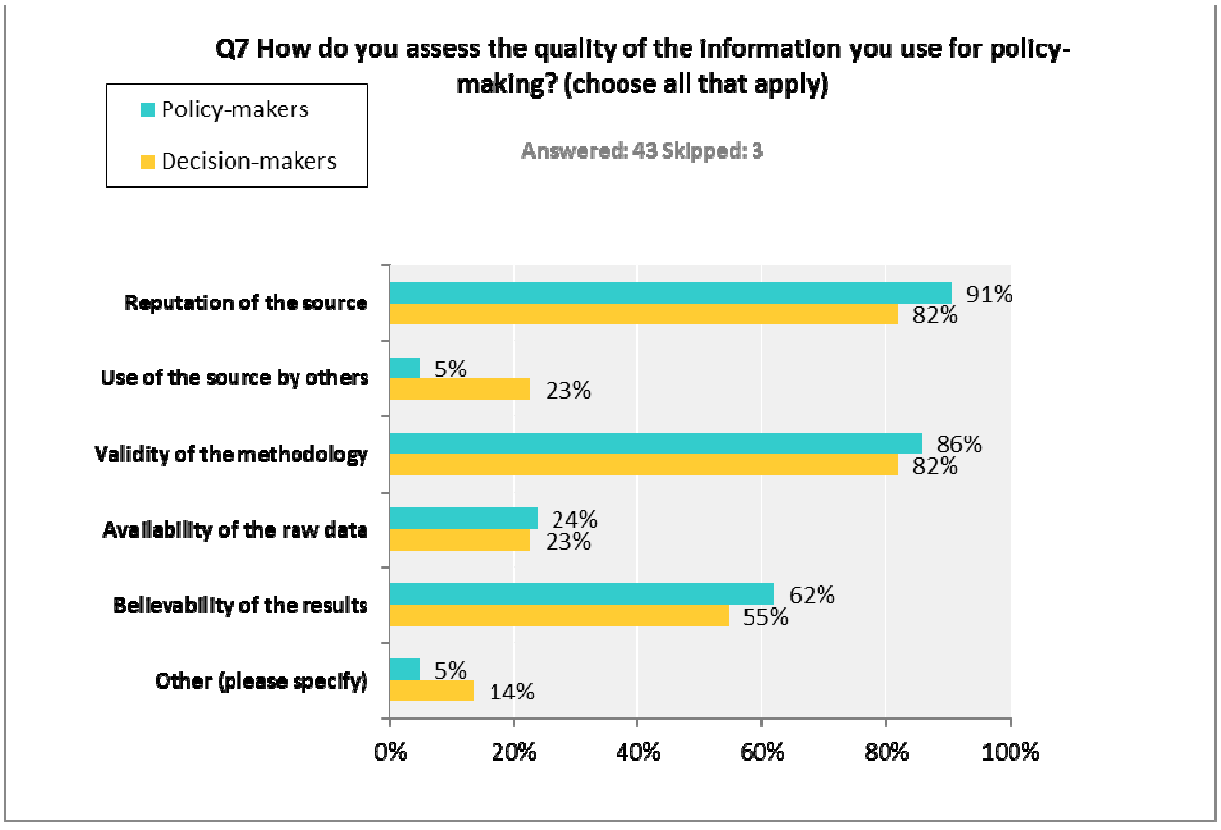

Figure 12: Factors considered when assessing the quality of information in UK

Figure 12 above, shows that the reputation of an author and the validity of the methodology used, were seen to be the most important factors by both decision-makers and policy-makers. This suggests that information about both the author and the methodology should be given prominence

in search results. In particular, providing information on how widely an article or dataset has been used elsewhere, by whom, and whether the raw data is available for scrutiny would all be valuable to strengthen the confidence of end users in the data provided by the tool.

There are two requirements that lead on from this; a need to assess the quality and comparability of different datasets (Requirement UK-8) and the need to provide ways to help users quickly make an assessment of the trustworthiness of sources (Requirement UK-1).

More than half of the respondents to both surveys (54%) also thought that the believability of the results was a key indicator of quality. This survey option was included to capture the element of inherent subjectivity that exists within the policy-making process which a digital tool cannot easily account for. It would be valuable, where multiple sources of data exist on a topic, to run comparisons between datasets to assess the extent to which their findings correlate, as this may enhance the extent to which they are believed.

In the interviews and focus groups there was much discussion about how to display this kind of information; results could be ranked or filtered using a range of different criteria – whether the information was peer reviewed, whether raw data sets were available, how large the sample size was etc.

This implies the need for a large range of filters to allow the different ways that end users understand trustworthiness and information quality to be catered for. This is represented in Requirement UK-2. For the full list of trustworthiness indicators discussed, see section 4.7.2, below.

4.5 Public input

Interview participants were very interested in using information from social media in policy-making, as they saw it as a useful way of adding public views into the process without the constraints or the costs of traditional consultation methods. One of the key elements of their interest was based on being able to understand more about the individuals themselves and being able to segment the social media population into distinct audience groups more effectively than is possible with the limited social listening tools they have available.

This interest in the segmenting of social media audiences is reflected in Requirement UK- 6.

The parliamentary staff that took part in the focus groups said that they often received requests from MPs to include information on 'what the public/my constituents think'. Although opinion poll data is available on some general indicators of public opinion it is rarely about specific enough topics e.g. related to legislation going through Parliament or referencing the right groups e.g. 'what do patients think about this health policy?'

In the survey, as is shown in Figure 13 below, end users preferred traditional engagement tools such as consultations, polls and focus groups to social media data. However, 59% of policy-makers said that they found social media analysis 'very useful' or 'somewhat useful' as a feedback method in contrast to only 35% of decision-makers.

In part, this preference for traditional forms of feedback, such as consultations, is likely to be because the methodology is usually clear, well-understood and easily scrutinized, producing results that meet the needs of end users. In most cases the use of these traditional tools will involve the end users having control over the structuring process and framing of questions, making the outputs more likely to be usable for policy-making. Also, demographic details are more likely to be collected about participants and thus the segmentation that policy-makers request from social media data is more likely to be readily available.

Additionally there is an inherent traditionalism about the way government in particular conducts business, and the suggestion from the interviews and focus groups was that although many

participants were becoming familiar with the use of social media in engagement, outreach and marketing contexts, few could envisage the use of social media data in meeting their policy-development needs.

As the hesitancy in using less formal methods to collect feedback from citizens suggests, ***some end users may need reassurance as to the validity of the data collection and analysis methodologies related to social media data collection and usage, as referenced in Requirement UK-3, which highlights the need for the tool to be transparent in how it collects and presents information to the end user.***

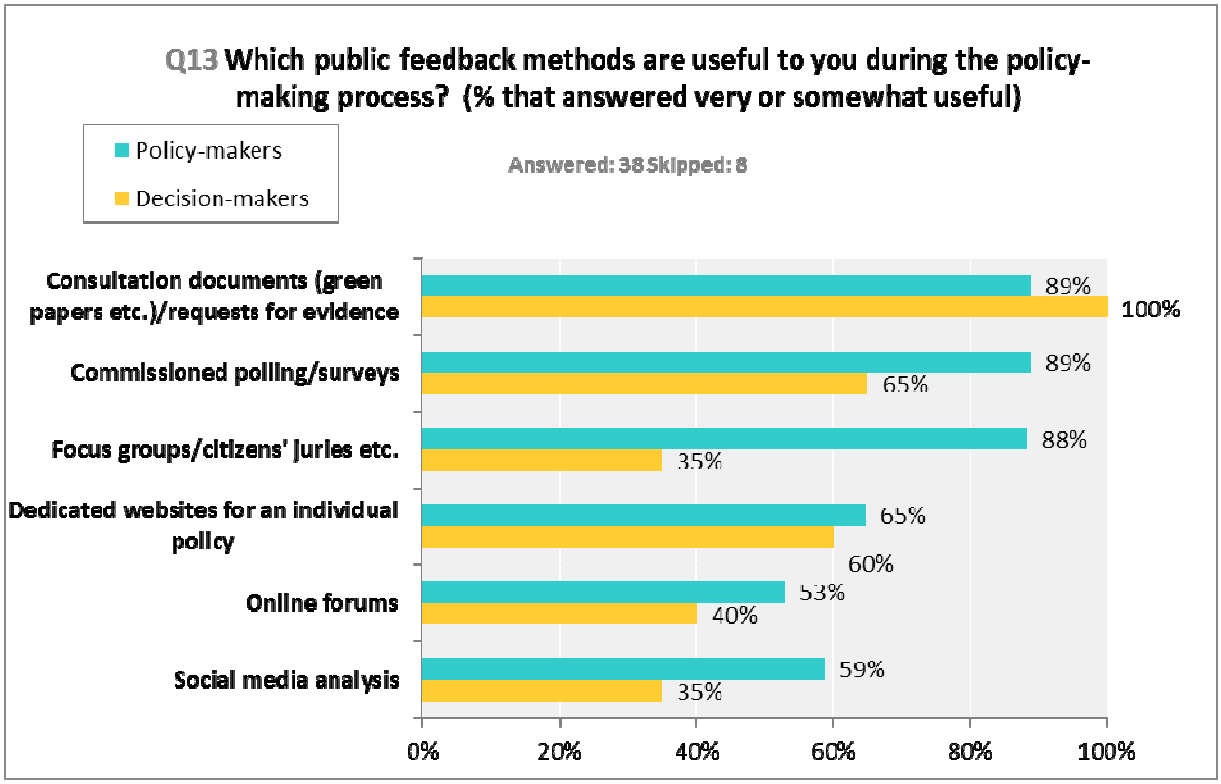

Figure 13: The most useful public feedback methods for end users in UK

For the Sense4us tool, this means that ***analysis of social media and other online data is something that policy-makers are keen to exploit, particularly if it can help them understand different stakeholder groups that they can then target with follow-up engagement. This is referenced in Requirement UK-6 and Requirement UK-13, as well as being illustrated in the following example, taken from an interview with a civil servant***.

Policy example: Electric cars and social media

Social listening tools do not currently provide appropriate insights for policy-making as they are almost exclusively designed for marketers. As a policy-maker you are trying to capture the essence of online discussions and what that means for scoping and implementing policies.

Looking at social media you need a way to understand the different camps of opinion on a policy, such as electric cars, e.g. early adopters, radical refusniks, industry experts, as well as those in related discussions (on renewable energy or saving money for example) that are not connected to the electric car discussion. You need to look at who you are targeting with your policy, build up knowledge of those people, understand when and how you should intervene in discussions, and

provide a mechanism for targeting the roll out of your policy. You need to understand and be able to predict which types of people (demographics) will take part in these discussions.

If you're trying to work out how to operationalize a policy to improve the take up of electric cars you need to understand what the best strategy is. Do you:

- Space out electric charging points every 100 miles

- Locate all charging points within one county to make sure that they are available for a specific group of commuters to use

"Who they are, where they are, what things appeal to them" – this kind of knowledge would really help to understand different networks better and therefore how to best implement certain policies and know where areas of concern might be in relation to policies that are already implemented.

Would the policy-maker be better off targeting electric cars at people who are environmentally conscious or who are more interested in saving money? The motivating factors are different for these two groups. Being able to know about groups that are currently not on their radar but are having related conversations elsewhere would be very useful. Engaging with the right stakeholders on the right issues should be easier as a result.

Taken from an interview with a senior civil servant.

4.6 Predicting outcomes

There was some scepticism, both during our interviews and in the survey, about the achievability of accurate policy predictions and simulations. Policy simulation is an area that is likely to be much less familiar to most policy-makers than the information searching tool or the use of social media as a way of understanding public opinion. For this reason it is likely that end-users will find this part of the tool more difficult to envisage than the other Sense4us elements.

In the survey we asked respondents to give their main reasons for thinking that certain policy areas were difficult to predict the outcomes or consequences of. The main reasons given for this were:

- too many factors outside government control, a complex environment & relationships;
- relatively little data at macro level;
- not enough piloting or consultation to help understand future impact;
- the same policy being applied differently across the UK – can't be consistent in comparisons;
- impacts often too long term;
- many 'unknowns' and lack of quantitative research.

The interviews and focus groups broadly reflected these perspectives, and identified some additional difficulties:

- accounting for factors outside the immediate scope of the policy or initiative that may have an impact, now or in the future;[20]
- the political context and consequences of a policy – is this policy likely to be supported by the grassroots of the political party in government? Do the aims of this policy clash with another policy that has recently been launched?[21]

[20] It is highly unlikely that a tool based on historic and current data could provide this level of analysis as the scope is too broad.

- predictions may be based on poor quality or incomplete data, especially considering the lack of systematic evaluation and impact assessments carried out by government;
- the hypotheticals, assumptions and margins of error need to be clearly explained for prediction to be useful.

There was also some concern, especially from parliamentary officials, that MPs in particular were not sufficiently data literate to understand the limitations of these models or to fully question the data that they would be based on.

> *"You put a number on anything and it gives a certainty... as soon as you have numbers being bandied around there's a risk that there might be too much certainty attached to anything that any model could come out with. Pitching it at a level that informs but doesn't give more certainty than any model is ever going to be able to capture..."* [Parliamentary focus group participant]

The suggestion was made in the focus groups that MPs would be likely to use a 'killer fact' to support a political point they were trying to make rather than using information they were sure was representative of the body of evidence around an issue. Providing context and guidance about how the tool should be used is therefore crucial if it is to be used by MPs or others with potentially low levels of data literacy.

This emphasises the requirement for the tool to be transparent, both in the methodology it uses to present information to the user, as well as the data it uses behind the scenes and bases the end output on (Requirement UK-3). Another requirement should be training or guidance for end users in how the tool works and what can be concluded from the results presented (Requirement UK-10).

Despite most interview participants not being able to imagine what the simulation part of the tool could do or what it would look like, one respondent had a clear idea of the possibilities for government in providing services more responsively, as is done by some large corporations. ***The opportunities for using the most current data, rather than waiting for official historic data is referenced in the policy example below and is reflected in Requirement UK-15.***

Policy example: Tesco and predictive analytics

The Government should be thinking more about using predictive analytics to improve its offer to citizens and to iterate services based on audience segmentation and much more up-to-date data.

Tesco know that if the weather is predicted to be hot they will need to order more BBQs – Government could use similar predictions within the transport network, factoring in the impact of roadworks on haulage times, for example. Providing this kind of information to the citizen or stakeholder would be useful.

There may also be value in being able to successfully simulate the size of changes within understood relationships, for example, the size of the increase in demand for BBQs depending on temperature and time of year, as modeling to detect new relationships is extremely complex.

Taken from an interview with a senior civil servant.

One of the respondents to the policy-makers survey echoed interest in the type of analysis detailed in the example above that focuses on the size of changes and investigating whether there is an identifiable point at which the relationships change significantly:

[21] Similarly, it's highly unlikely that a simulation tool could model the political context and consequences of a policy as appropriate data is unlikely to be available.

> Economy/Finance and environment – it is not easy to predict how complex systems react, or how far we are from a tipping point even if we know there is one (whether it's the relationship between taxation burden and tax revenues, say, or the relationship between application of pesticides and pollinators abundance). [Respondent to policy-makers survey]

4.6.1 Policy areas

In order to help us understand where we might provide the most value to policy-makers and to choose the most relevant use cases in order to demonstrate and test the tool, we asked which policy areas were the most complicated in terms of predicting the outcomes of a given policy. As expected, and as reflected in the Sense4us project bid and original FP7 Call, macro policy areas present the biggest challenge for policy-makers and decision-makers. Table 10 shows the top 5 policy areas which each group chose as being the most challenging in terms of predicting policy outcomes. The stars show the issues that overlap between the groups.

	Decision-makers	Policy-makers
1	Europe*	Economy/Finance
2	Foreign Affairs	Europe*
3	Environment*	Business
4	Welfare/Pensions	Crime/Policing/Justice
5	Immigration	Environment*

Table 10: UK survey question: In which policy areas (yours or others) do you feel it is most difficult to predict outcomes of a given policy, before that policy is implemented? (choose a maximum of three)

This information will help inform the choice of a policy use case to focus on, in order to test the prototype and evaluate the tool; to be discussed further in Deliverable 2.3.

Although the interviews supported the notion that macro political issues are more challenging when trying to understand future policy impacts, there were some more nuanced views about which issues would be good candidates for policy simulation. One interviewee suggested that delivery-focused departments that collect their own data, such as the Department of Transport, may be more likely to effectively incorporate policy modelling into existing processes because the more control a department has over the data it uses, the less likely the process is to be captured by qualitative political arguments. The Department for Transport is also likely to be more comfortable with big data sets, as on a daily basis it will use vast amounts of data when trying to keep transport networks running smoothly.

Another interviewee explained that there was a big disparity between different departments' approaches to data and their use of it in policy-making and implementation. She made a comparison between the Department for International Development and the Department for Education. The former has a systematic evaluation process that measures impact against pre-defined criteria and they spend more of their budget on academic evaluation of policy impact than other government departments. The Department for Education currently does no systematic evaluation of their policies. We could infer from this that targeting policy modelling experiments at departments that currently do no impact analysis at all might therefore make a big difference to policy outcomes,

although there may be a significant hurdles to overcome in persuading them of the effectiveness and value of these methods.

4.7 Problems and gaps

This section describes the major problems and gaps highlighted by the survey and interviews, and in many cases, there is a description of what is needed to address the problem or gap. These problems and proposed solutions form the basis for our requirements, which are listed in section 4.9.

The problems and gaps identified by policy-makers and decision-makers validate the Sense4us approach as many of the problems they specified were highlighted in the initial project brief.

Table 11 shows the key policy problems highlighted in the survey, which were very similar for decision-makers and policy-makers. The list is ordered; those shown in the table below were the six most commonly selected options from a total of 12 shown to each group. The issues that overlap between decision-makers and policy-makers are starred.

	Decision-makers	Policy-makers
1	Too little time*	Which sources to trust*
2	Too much information*	Too little time*
3	Which sources to trust*	Incomplete data*
4	Information not in accessible format	Too much information*
5	Incomplete data*	Too little information
6	Too many sources of information	Incompatible data sets

Table 11: UK survey question: When you are seeking or using information in the course of your work on policy, which, if any, of the following problems do you face? (choose all that apply)

4.7.1 Silos of information

One of the most prominent findings from the interviews was that information is currently 'siloed' in policy areas when often end users need information that cuts across departmental boundaries or when they want to know the economic, social and environmental contexts of a policy and be able to compare these different elements. ***There is clearly a need for the tool to search across policy areas and to simulate policy consequences across governmental departments. This is referenced in Requirement UK-11 and Requirement UK-16.***

This finding was less clear in the survey results as a specific question on the cross-cutting nature of some policy issues had not been included.

4.7.2 Trustworthiness of information

As was highlighted in section 2.1.4, many interviewees said that one of their biggest problems with gathering evidence for policy-making and scrutiny was ensuring the reliability and trustworthiness of sources and information. ***Therefore there is clearly a requirement for some means of assessing the provenance or trustworthiness of the data used. This is described in Requirement UK-1.***

While there were different definitions of trustworthiness there were many common elements mentioned that would make end users feel more confident that the information presented could be trusted.

Key indicators of trustworthiness included:

- peer reviewed information;
- transparency of source data;
- validity and transparency of methodology;
- the nature and reputation of the organization carrying out the research, especially whether they were seen to be party political or independent of government control;
- how often they were cited by other academics or official sources, especially government reports;
- who the individual academic or organisation has received funding from;
- word of mouth and policy specific networks (Twitter was mentioned as a useful way to keep in touch with key players in certain policy fields).

4.7.3 Searching multiple formats and locations

Similarly to point 4.7.1, many interviewees had difficulty searching different types of information at once. Many expressed the desire to combine searches on legislation databases (eg. legislation.gov.uk) with academic journal articles, open data repositories or media articles. ***Providing a tool that not only categorises information into these different types, but also allows searches to be conducted across multiple information types at the same time, was seen as desirable by a large number of respondents. This is included in Requirement UK-2 and UK-4.***

4.7.4 Skills and resources

Although many of the interviewees could see there was potential in using different types of data, such as open data or social media data, in their evidence gathering, few had the time or the skills to use primary data sets effectively. There was a feeling from those in Parliament, in particular, that this lack of skills and resources meant that parliamentary staff's oversight and scrutiny of government policies was impaired. ***A tool that could make datasets easier to understand and manipulate would be useful; a need that is represented by Requirement UK-5, UK-8 and UK-10.***

However, it should be noted that given the lack of necessary statistical skills in assessing the quality of the underlying data and the robustness of the methodology used to collect it, this problem is unlikely to be entirely solved by a digital tool.

4.7.5 Broadening viewpoints

Many of the participants in Parliament, and especially those working on committees, often relied on the same experts and organizations to provide them with evidence for their inquiries and research work. They mentioned that a lack of time was mainly to blame for not searching out new viewpoints on a topic, but they also liked knowing that witnesses or experts were reliable and respected in their fields and could communicate in a clear and accessible way if asked to give evidence before a committee. ***A way of finding additional voices and 'verifying' them as reliable experts (perhaps by the number of times their work has been cited or whether they have presented their work at 'quality' conferences) may help broaden the views involved in policy-making. This issue is included in Requirement UK-1 and the suggested 'Circle of Trust' feature.***

4.7.6 Privacy

A number of officials from Parliament that have a role to play in gathering feedback and evidence from the public, felt that there were serious privacy issues with using information from social media. Committees have experimented with using online forums such as Money Saving Expert and Net Mums to gather evidence for inquiries, but they were clear that these were carried out with the knowledge and consent of those involved. There was concern about the 'social listening' approach because it was felt that it was wrong to use views written on forums, even public sites, as participants were unlikely to expect their views to be read and used in this way. However, it is likely that not all social media sites are viewed in such terms; forums may be seen differently to blogs or Twitter where content is perceived to be more explicitly 'published' by users.

Policy-makers did not share these concerns over privacy – Government appears more comfortable with social listening tools and acknowledges the potential benefits of using conversations on social media to inform policy. More research may be necessary on these differing perceptions and when data is presented by the tool, it would be useful to say what known restrictions – if any – exist in relation to its usage.

A requirement for the tool is that social media data must be clearly labelled so that end users can choose whether to use it or not. Information about how the social media data was collected should be available to end users in the dashboard. This is highlighted in Requirement UK-7.

It may also be appropriate to include good practice and legal guidelines for handling and using social media data in the guidance documents created for end users in D2.5.

4.7.7 Data quality issues

One of the problems that respondents to the policy-makers survey identified was poor quality data, especially data collected by organizations or individuals external to Government e.g. data collected by volunteers on ecological trends. This was an issue brought up unprompted in the free text boxes by four different individuals. They highlighted that monitoring information on policy impacts and the quality assurance of externally collected data was often inadequate.

In order to ensure the results of the tool are valid, an assessment of the quality and comparability of the data must be made before it is used in the tool. The methodology used to capture the data is likely to be a key indicator of quality and comparability. This requirement is more important for the simulation but a quality assessment of the data could also be useful for the evidence gathering part of the tool. This issue is highlighted in Requirement UK-8.

4.7.8 Lack of policy comparisons outside UK

Respondents to both the policy-making survey and participants in the focus group suggested that research and knowledge from other countries about the impact of certain policies was not available or not accessible. Links with officials in other Parliaments had been made but the information returned was often patchy, it was slow to arrive and it was hard to know if the methods used to collect the data were comparable or not. Also, when searching for online information, language and terminology were significant barriers.

A requirement for the tool is that links to global datasets, policies and research should be provided, as well as information on the methodology used to capture the original data. This is referenced in Requirement UK-9 as well as Requirement UK-8.

However, the language and terminology issues identified by respondents as barriers to using non-UK data, may be more problematic for the tool to solve, if it is possible for it to solve them at all.

4.7.9 Politics and politicians

Those working in policy-making in government departments highlighted the problems that the wider political context and the constantly changing political environment created for their work. Not being able to predict reactions to new policies, ministerial interests that are outside the remit of the department and the work of other departments possibly clashing with the aims of a policy being developed, were all problems that civil servants found difficult to manage. As political biases, personal prejudices and public opinion are all a part of the policy-making process it would seem impossible to create a tool that would be able to alleviate these concerns, but finding information that could help inform civil servants about potential political problems ahead of time, would be useful. Social media might be able to provide an early warning on some of these problems.

4.7.10 Options development and innovation

One of the respondents highlighted an issue that has been written about by academics and organizations studying policy-making in the UK – that developing different options and innovative ideas in the early stages of policy-making is inadequate. They suggested that this is because both the skills and the tools to support better options development are lacking.

Improving links to rarely used evidence (such as open and social media data), aiding the discovery of a broader range of information to feed into policy-making and the opportunity to track the impact of a policy at the embryonic stage, could all assist with options development. This does not lead to a distinct requirement but suggests that the approach the Sense4us project is taking could be useful to support options development and policy innovation.

4.8 Sense4us tool prognosis and policy process

In all our contact with policy and decision-makers (survey, interviews and focus groups), those that were interested in the tool and thought it would be useful outnumbered those that did not. As is shown in Figure 14 below, decision-makers were more interested in evidence gathering and policy-makers were more interested in simulation, which reflects both the different roles of these groups and their place in the process.

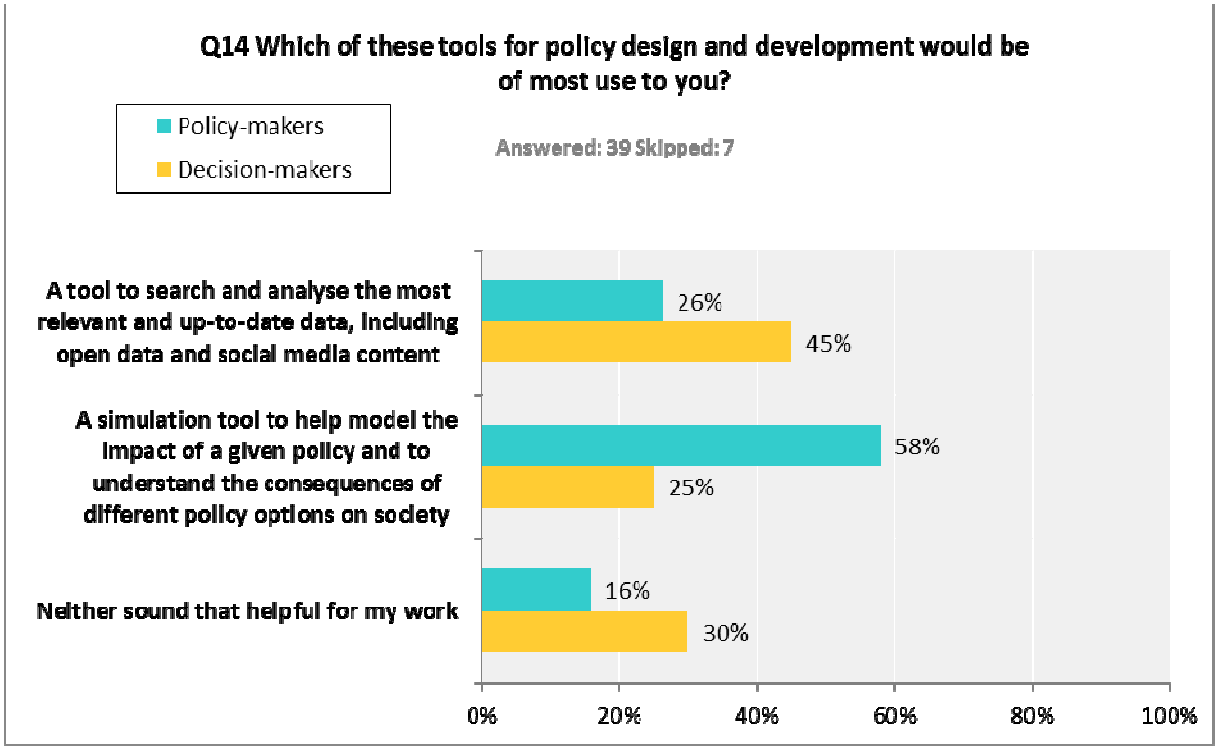

Figure 14: Sense4us tools of most use to end users in UK

There was significant scepticism about how achievable the simulation would be, how accurate it was possible for it to be and what assumptions would be made, especially when selecting input data - which may not be immediately obvious to users. There was also concern, especially from Library staff who provide research briefings directly to MPs, that the results from it would be used by politicians wanting to support their arguments around a given policy, without an understanding of the underlying data, its limitations and the caveats that should be borne in mind.

Although these concerns are difficult for the tool to wholly address as they are based on factors outside the project's control, Requirement UK-3 and Requirement UK-10 have the potential to alleviate them.

Likewise open data was difficult for interviewees to visualize in terms of an output from the information but there was some recognition that there were significant untapped opportunities around open data that needed to be more accessible to policy-makers. This attitude was referenced in the parliamentary focus groups by those working in the Library – as open data becomes more common and fashionable, MPs increasingly expect more to be done with it (despite skills, technology and time not keeping pace with these changing expectations).

The use of social media data was an easier concept for policy-makers to visualize, possibly because this is a more familiar and established practice than policy simulation.

When asked in the survey where the tool would best fit within the policy-cycle, most policy-makers and decision-makers thought that it could be useful throughout the process, with others specifying that it would be most useful if used early on in policy development or policy scrutiny. The following quotation from a survey respondent is an example of this sentiment:

> In principle they could be useful at any stage of the policy cycle, from initial analysis of the problem, to option development, implementation and ex-post evaluation.
>
> [Respondent to policy-makers survey]

4.9 Requirements - UK

Requirements have been sorted into high, medium and low priorities for the research partners to address. These prioritizations are based on not just the number of times an issue was raised by survey respondents, interviewees and focus group participants, but also on the researchers' assessment of the importance of each recommendation for the successful uptake and utilization of the tool by end users.

As the end user engagement was an iterative process, based on an increasingly refined understanding of our end users and their ways of working, not all requirements were discussed with all participants. As a result this list is designed to be added to and validated as the project progresses, so the requirements will be developed further and tested with more end users over time.

High priority

Requirement UK-1: Aiding an assessment of the trustworthiness of sources – understanding the trustworthiness of sources is mostly based on the researcher's judgement. A tool that could help this process by providing additional upfront information on key elements of these decisions, e.g. peer reviewed, most regularly cited or availability of primary datasets would be useful. Assessing the trustworthiness of sources was a problem common to most of the end users we spoke to and there is no tool currently in use that sufficiently addresses this problem. Additionally, encouraging users to engage with new data sources may be difficult without supporting information as to its veracity and value.

Requirement UK-2: Multiple filters – multiple filters would be useful to quickly sift through different types of information and to allow different trust factors to be included in search results, as there are many different definitions of what makes a source trustworthy. Drawing on the trust issues in requirement 1, multiple filters were discussed as a way to personalise the information presented, making the tool applicable to large numbers of end users even if they prioritise different information.

Requirement UK-3: Transparency of the tool – for the tool to be trusted, respondents were clear that they would need to understand the methodology the tool was using to present information and outcomes and be able to see all source data, plus any underlying assumptions that had been made. This was discussed primarily in relation to the simulation tool. Researchers in particular were concerned that they needed to be able to understand how the tool worked and what assumptions it was based on, as they would not be able to have confidence in it otherwise. Without this transparency, there is a significant risk that engagement with the Sense4us tool by end users will be poor.

Requirement UK-4: Searching multiple information types – a tool that could search different types of information, e.g. academic articles, government statistics and open data. Similarly to requirement 2, including a range of different information types that are handled by Sense4us allows the tool to be customisable and applicable to a wider range of users.

Requirement UK-5: Visualizing raw datasets – any data that is contained in spreadsheets or is designed to be machine read rather than read by a human will need to be suitably presented (with summaries/commentaries etc.) in order to be accessible to end users. Data from the survey, interviews and focus groups suggest that visualisation was important for all types of end users because without it key data types, such as open data, are impenetrable to most people.

Requirement UK-6: Segmenting social media discussions – understanding who the users of social media are that are involved in discussions, was seen to be lacking in other social media analysis tools and would therefore be an important addition.

Requirement UK-7: Privacy when using social media data – there was a concern from decision-makers that citizens giving their views on public forums and social media hadn't given their consent for their comments to be used by Parliament or policy-makers. It is therefore important that we make it clear which data has originated from social media so that end users wishing to avoid using this information have the opportunity to do so. Ensuring we provide end users with information about how Sense4us collects social media data is also important. Without understanding how the project collects, uses and stores data, end users are likely to be nervous about using the tool and may not engage with the development of future prototypes.

Requirement UK-8: An assessment of the quality and comparability of data – in order to use different data sets and information to build up a picture of policy consequences, the comparability and underlying quality of these data sets needs to be assessed and certified by the project or the outcomes may be inaccurate or misleading. This relates to requirement 3 that deals with transparency – if end users do not understand how data has been selected and how the quality of the input data has been assessed they are unlikely to use or trust the tool.

Medium priority

Requirement UK-9: Links to global data – it can be difficult to find and use policy research and knowledge from other jurisdictions. Links to global data sets could provide valuable insight into which policies are successful in other parts of the world. Understanding what initiatives work in other parts of the world is an important part of evidence gathering for policy-makers, therefore a tool that can discover related datasets from outside the UK could be very useful.

Requirement UK-10: Training in how to use the tool – this is to ensure that outcomes are not overstated and limitations of the data are made clear to users. This was discussed primarily in relation to the simulation tool. This is also connected to requirement 3 – those supporting decision-makers were concerned that without training there was a strong risk that the findings of the tool could be overstated and trust in the tool jeopardised.

Requirement UK- 11: Cross disciplinary search – a tool capable of searching across issue areas, e.g. health and environment. Similarly to requirement 4, end users felt that evidence used for policy-making or the consequences of policies were rarely limited to one issue area.

Requirement UK-12: Summaries of results – although most researchers wanted a brief overview of the information presented to allow them to decide which links might be most relevant very quickly, they also wanted the ability to see key elements upfront e.g. source name and abstract, and have the ability to dig further into the information if they wanted to see more details such as the methodology by which it was generated. The ability to see summarised results of searches and simulations upfront and then be able to go further in to the information would save end users time and increase engagement with the tool.

Requirement UK-13: Highlighting related social media discussions – highlighting related but distinct conversations on social media so new audiences can be found more easily. (See the policy example on electric cars.) Similarly to requirement 6, highlighting related social media discussions would enable end users to find new audiences and expand the number of voices in policy discussions – something that other social listening tools are not currently effective at doing.

Low priority

Requirement UK-14: Data comparisons across different time frames – as Parliament and government often work on different time frames to other organizations, e.g. the parliamentary session or the electoral cycle rather than calendar year or financial year, it was considered problematic that data was not always available for comparison against these different time scales.

Requirement UK-15: Using the most current data – one of the opportunities for using open data was the ability to see up to date information and to get a better understanding of current rather than historic trends.

Requirement UK-16: Showing policy consequences across departments – as with searching across academic disciplines, there is a need for a tool that will show the policy impacts on a number of different government departments rather than within traditionally defined boundaries. This is particularly important given that cross-cutting macro issues are highlighted as being the most challenging to address.

Requirement UK-17: Customisability – in order for either the search or simulation tool to be useful, they would need to be capable of being customized and adapted by the end user in order to cope with changing priorities and new input data.

4.10 Suggested features

End users often found it difficult to visualise their requirements and how they could be realised within the tool. The features below provide a non-exhaustive list of suggestions for turning some of the requirements into reality. These features are designed to be built on during the course of the project and could be tested with users in future cycles of end user engagement.

'Circle of trust' – users could favourite sources that they have found particularly trustworthy or reliable and could use these 'trusted sources' to discover new sources by searching the academics or organizations that the 'trusted sources' cite in their work.

'Super user' setting – to ensure transparency, especially in relation to the simulation, it is important that highly data literate end users can dig deeper into the tool and experiment with changing input data, tweak relationships or formulae and change default settings to better understand how the tool works and how outputs are effected by the algorithms.

Filtration of search results – providing users with a filter for search results based on a broad range of options:

- topic (e.g. energy, transport)
- type (e.g. journal article, legislation, open data)
- format (e.g. PDF, Document, Spreadsheet)
- trust factors (e.g. peer reviewed, link to primary data, number of citations)
- date
- location (e.g. UK, European, US)
- author (e.g. university, official statistic, media)

5 NATIONAL, STATE AND LOCAL policy making in Germany

5.1 Introduction of the administrative divisions of Germany

GESIS has a focus on decision makers from the national to local level in Germany. Here, the German Bundestag stands for the national level of political decision-making. The German Bundestag is the supreme democratic organ of Germany (See Figure 15) with the German Bundestag as the highest administrative division of Germany. The most important tasks performed by the Bundestag are the legislative process and the parliamentary scrutiny of the government and its work. The Members of the German Bundestag also decide on the federal budget and deployments of the Bundeswehr (Federal Armed Forces) outside Germany.[22]

The 18th German Bundestag has 631 Members, eleven more than in the last electoral term. Currently, the largest parliamentary group is the faction of the parties the Christian Democratic Union (abbreviated to CDU) and the Christian Social Union in Bavaria (abbreviated to CSU) with 311 seats, of which four are so-called 'overhang mandates', ahead of the Social Democratic Party (abbreviated to SPD) with 193 seats, the Left Party with 64 seats and Alliance 90/The Greens with 63 seats.[23]

German citizens elect the German Bundestag, and seats are tied to regional areas. Citizens vote for their candidate for their local area. Given that Bundestag Members represent local areas, debates within the German Bundestag range from national to regional interests.

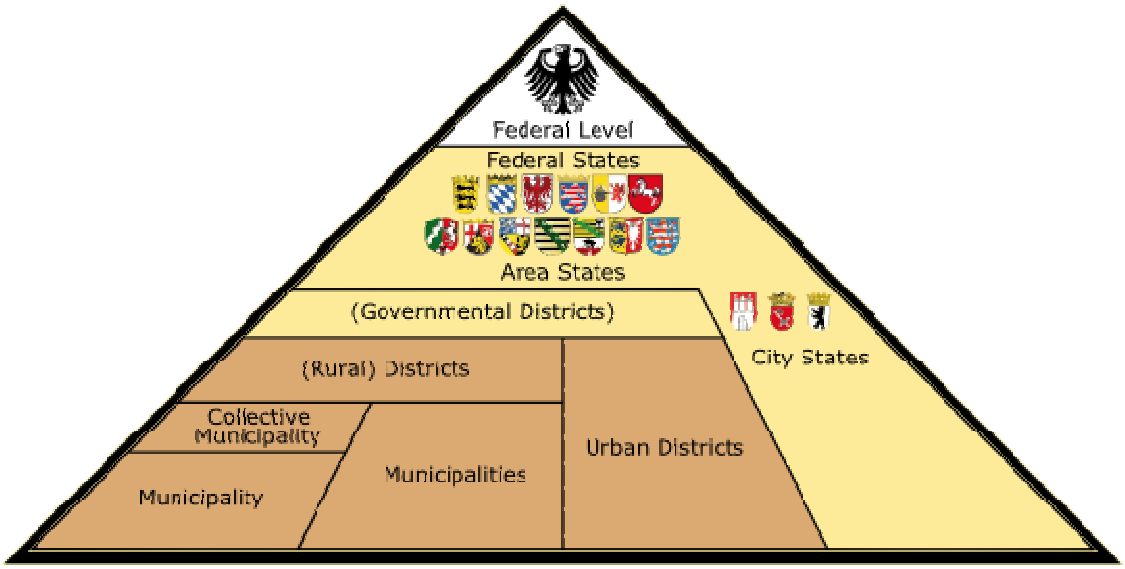

Figure 15: Administrative divisions of Germany[24]

[22] Cp. Website of the German Bundestag. URL: http://www.bundestag.de/htdocs_e/bundestag/function (Retrieved 06/06/2014).
[23] Cp. Website of the German Bundestag. URL: http://www.bundestag.de/htdocs_e/bundestag/members18 (Retrieved 06/06/2014).
[24] Cp. URL: http://en.wikipedia.org/wiki/States_of_Germany#mediaviewer/File:Administrative_divisions_of_Germany.svg (Retrieved 20/06/2014).

In contrast to the German Bundestag, the supreme democratic organs of the 16 German federal states have a more focused view on regional interests. Some federal states can be areas, and others are cities (See Figure 15). For instance the State Parliament of North Rhine-Westphalia[25] is the democratic organ of the federal state representing the region (of the same name) with the most residents (about 18 million). An example of a city state is Berlin, and the Berlin City Parliament for instance is the city parliament with the most residents that live within this city (about three million). In total 13 of the 16 supreme democratic organs are state parliaments. The remaining three parliaments are city parliaments and belong to the city-states Bremen, Hamburg and Berlin.

Instead of the city states the area states have further divisions (Cp. Figure 15). For instance the area state North Rhine-Westphalia has five governmental districts. These are Duesseldorf, Cologne, Muenster, Detmold and Arnsberg. These governmental districts are subdivided into districts and urban districts. In total, North Rhine-Westphalia has 396 municipalities, including the urban districts, which are municipalities by themselves.[26]

Potential end-users for Sense4Us are MPs (German Bundestag, state parliaments and city parliaments), who are supported by their staff. These are roles like Büroleiter/-in (office manager), Referenten/-in (abstractor), wissenschaftliche/r Mitarbeiter/-in (scientific associate) and nicht wissenschaftliche/r Mitarbeiter/-in (non-scientific associate). Further potential end-users are the important divisions of the state government – the ministries and state chancelleries. The chancelleries belonging to the city-states (Bremen, Hamburg and Berlin) are called senate chancellery. The federal state Baden-Württemberg calls this organ the Ministry of State Baden-Württemberg. Concerning the subdivisions potential end-users are from the level of governmental districts. For all divisions it is of high relevance, if there is “enough data” available.

There are different kinds of end user groups within the policy making process with different levels of skills. One important group are the policy makers (e.g. MP), who make decisions. Another important group are the decision influencers. This means, they have the potential to influence decisions, while doing the research and gathering information (e.g. office manager).

5.2 Overall strategy

The main focus is on members of the German Bundestag and state parliaments in Germany. Both MPs and their staff have been targeted for engagement. Two federal parliaments were chosen as targets: one at the area state level, for the state of North Rhine-Westphalia and the other at city state level, the Berlin City Parliament.

For the federal state North Rhine-Westphalia Minister Hannelore Kraft, the State Chancellery NRW and each of the ten ministries we requested personal interviews by e-mail (personal cover letter). With the exception of the State Chancellery NRW and the Ministry of Economy, Energy, Industry, Trade and Craft we didn’t receive a reply. The State Chancellery NRW requested the interview questions that were planned for the personal interview to answer to the questions in a written form. They forwarded the questions internally, but no reply has arrived at the time of writing. The Ministry of Economy, Energy, Industry, Trade and Craft answered the questions in written form, after we sent them via e-mail.

Given the negative reception, the methodology was changed to widen the target audience to all state/senate chancelleries of the 16 German states. Instead of sending a personal interview request via e-mail, a written interview model was developed and circulated to the chancelleries of the 16 German states. A positive reply came back from the State Chancellery Hamburg.

[25] URL: http://www.nrw.de/en/ (Retrieved 24/06/2014).

[26] URL: http://en.wikipedia.org/wiki/North_Rhine-Westphalia (Retrieved 01/07/2014).

Further written interview requests have been sent to MPs from the State Parliament North Rhine-Westphalia, who joined the preliminary discussions or have been engaged within further EU projects. Currently there has been no reply.

The online survey was circulated within the German Bundestag (24 replies) and the Berlin City Parliament (three replies).

5.3 Future engagement

For the future GESIS is planning to engage further MPs from the German Bundestag, the State Parliament of North Rhine-Westphalia and the Berlin City Parliament. In addition GESIS is planning to engage NGOs like https://www.campact.de/[27] and http://www.greenpeace.de/[28] because these kinds of organisations seek to act in the interest of citizens.

The online survey has identified that "the scientific service (in the UK called the digital library)" and the "government bodies / official information" are classed as "important" up to "very important" as information sources for decision makers during the legislative process (Cp. chapter 5.6.7). Therefore these institutions could be an end user group, because they do researches and provide this to policy makers.

5.4 Preliminary personal interviews

5.4.1 Introduction

When the Sense4us project kicked off in October 2013, preliminary discussions took place with potential stakeholders. The aim was to receive early feedback concerning the project's approach that would help the Senes4us consortium to design a goal-oriented online survey. In total six MPs from the State Parliament NRW and their staff were interviewed during the event *Science meets Parliament* 2013. The approximate time was 20 minutes per interview to discuss the Sense4us approach.

5.4.2 Results

The following results emerged from these interviews:

- All interviewees confirmed that information from the Internet is used for the legislative process. ***Here the focus is on topics that are covered by the news and media. In addition, information across policy areas and sectors is of interest to policy makers - policy makers are not limited to these policy issues for which they have responsibility. This leads to Requirement DE-6,*** *in section 5.8, where DE requirements are summarized.*
- The interviewees use common search engines like Google to identify relevant information on the web. ***During the legislative process the interviewees often use the parliament's databases, which are for internal use only and provide rich information. In addition services from the biggest news websites are used, because these provide trusted and qualitative information. This leads to Requirement DE-7 and Requirement DE-8*** *in section 5.8.*
- Two key problems are too much information for policy makers to deal with, and a lot of information is unstructured. ***This leads to Requirement DE-4*** *in section 5.8.*

[27] URL retrieved on 24/06/2014.

[28] URL retrieved on 24/06/2014.

- ***Besides the 'fact-based' information from the news services mentioned above, there is a need for access to political discussions which the interviewees currently view via blogs and Social Media platforms. Therefore the analysis of social discussion concerning particular topics is relevant for the interviewees***. ***This leads to Requirement DE-5*** *in section 5.8.*
- At this early stage of the project, the interviewees could grasp the concept of a tool that provides information from the Internet rather than a tool for policy simulation. The interviewees suggested that we provide more information like real data, demonstrators or screenshots. This would give them a better idea of the concept of policy simulation, so they could provide useful feedback for the development process.
- ***Concerning the question where to use Sense4us' tools within the legislative process the interviewees believed they would use the tools at an early stage of the policy making process. By this, they meant times where draft bills were created and finalised***.
- ***The interviewees mentioned that a frequent monitoring process for reporting and discussion on issues that are relevant for the decision-maker (or their division) would also be meaningful, because it is necessary to be aware of any changes in relation to their particular policy issue(s) of interest. This leads to a Feature Requirement,*** *in section 5.9, where suggested features are summarized.*
- ***The legislative policy process in Germany is mainly based on information provided using the German language. Therefore Sense4us tools need to support German words as input and output as well. This leads to Requirement DE-1*** *in section 5.8.*
- ***The interviewees mentioned that tools used by policy makers need to be easy to use. Therefore usability is a 'standard' requirement. This leads to Requirement DE-2*** *in section 5.8.*

5.5 Written interview

5.5.1 Introduction

As described within the overall strategy section above, the interview methodology has been changed from a verbal to a written format. The reason is that governmental bodies like state chancelleries or ministries want to receive the interview questions beforehand and then reply directly to this request rather than face unseen questions. The reason for that is the request can be directed to the right recipient. The State Chancellery of North Rhine-Westphalia confirmed this process after the personal interview requests to the twelve ministries of the State North Rhine-Westphalia[29] were not successful. The change of the interview format to the written interviews also gave us an opportunity to widen the scope of the questions. The written interviews were sent out, in combination with a personal cover letter, to the following recipients:

- From the level of ministries of the State North Rhine-Westphalia, the Ministry of Economy, Energy, Industry, Trade and Craft received a request for a written interview in March 2014. During this time the Ministry was engaged in a legislative procedure and responded with a general conclusion concerning the interview questions (cp. chapter 5.5.3).
- The twelve state chancelleries, the three senate chancelleries and the Ministry of State Baden-Württemberg got the written interview request in March 2014. A written interview reply came back from the Senate Chancellery Hamburg.
- Two German cities (one small sized city and one big sized city), which were engaged beforehand, got a request for a written interview in June 2014. At the time of writing (June 2014), we are awaiting a reply.

[29] URL: http://www.nrw.de/en/state-government/mitglieder-der-landesregierung/ (Retrieved on 15/06/2014).

- Ten MPs from the State Parliament North Rhine-Westphalia, who have been engaged beforehand, received a request for a written interview in June 2014. At the time of writing, we are awaiting a reply.

5.5.2 Interview questions

The written interview is a two page Word document. It starts with an introduction that describes the Sense4us project and the aim of the interview. Below are the questions that form the core part of the interview, which were chosen from the main Interview questions list (see Appendix III). The questions were in the German language and have been translated to English for the purposes of this deliverable:

1. How do you value the significance of using information on the Internet?
2. What are the tools you use for the decision-making process?
3. What is the political topic or concrete policy where you use information on the Internet?
4. Which are the concrete sources that are used?
5. Where within the legislative process or within which working areas do you find information from the Internet most relevant?
6. In which policy areas would you like to use information from the Internet, but cannot find any?
7. What are the reasons for not using information from the Internet within your policy area and what makes it difficult?
8. Do you use opinion polling or do you elicit public opinion yourself for the decision-making process?
9. What are the methods you are currently using to engage the public or which methods do you think are useful?

5.5.3 Results

The Ministry of Economy, Energy, Industry, Trade and Craft came up with this response:

- Instead of replying to each single question the answer regarding the interview questions was the following continuous text: "*In general the specialist divisions (e.g. energy) work together with domain experts – the federal government engages people from commerce (e.g. lobbyists) or recruits them to work on special legislative processes. The Internet plays a limited role within this process – during the legislative process the Internet will for instance be used to investigate third party opinions. If professional opinions are relevant for one particular legislative process, hearings with experts will be organized within the state parliament.*"

The Senate Chancellery Hamburg provided this response that followed the given interview format:

- Response Q1: Information found on the Internet is very important. However, it is hard to render this more precisely. ***In general decision-makers listen to those kinds of information, which are broadcast by the media online and offline.*** The format (e.g. print, audio, TV, etc.) doesn't count that much. ***This leads to Requirement DE-7***. ***Currently there is a strong increase in the relevance of blogs (in general) and Social Media in terms of political communication. This leads to Requirement DE-5***.
- Response Q2: For identifying relevant information for the legislative process the following tools are used:
    - ***Google***
    - ***Intranet (internal databases of the parliament)***
    - ***Internet sites that are provided by newspaper and TV websites***.

- Response Q3: The Senate Press Office covers, in co-operation with the press offices and technical authorities of the ministries, all divisions and therefore all topics. A specification is not possible.
- Response Q5: ***Information from the Internet is most relevant while working on draft bills and while elaborating draft bills. A frequent monitoring process of issues that are relevant for the decision-maker or the decision-maker's division is in addition meaningful, because it is necessary to know if there are any changes and which changes concerning one particular issue. This monitoring process includes the Internet as well. The assumption is that people inform themselves frequently about the topics they are responsible for, and the Internet is one method***. ***This leads to a Feature Requirement,*** *in section 5.9, where suggested features are summarized.*
- Response Q6: Until now the Internet provided information on every topic. There is no issue that has been worked out in the past, where no information has been found.
- Response Q8/Q9: Public opinion polling is not being done. ***Social Media is the main method for engaging the public via the Internet.*** In addition to the Internet "classical" methods are used (public discussions; publication of building plans; dialogue with citizens: "round tables"; etc.).

From the State Parliament North Rhine-Westphalia we received one reply to the written interview request, from one MP's office manager.

- Response Q1: The Internet plays an important role during the information gathering process. Especially for "unknown" issues, the Internet offers information very quickly and non-bureaucratically. Furthermore it is possible to identify detailed information regarding particular topics.
- Response Q2: For identifying relevant information for the legislative process the following tools are used:
  - ***Google***
  - ***Websites from organizations and institutions***
  - ***Intranet of the State Parliament North Rhine-Westphalia***
- Response Q3: Information from all disciplines are relevant.
- Response Q4: The sources that are mentioned in Q2 are relevant.
- Response Q5:
  - There is a need for researching and analysing information on the Internet that is relevant during the legislative processes. (Here the answer was unspecific without any information on data sources or subtopics.
- Response Q6: Not relevant, because information can be found on every topic.
- Response Q7: no answer
- Response Q8/Q9: Public opinion polling is not being done. ***Social Media is a method for gathering feedback and the sentiment of the public. This leads to Requirement DE-5*** *in section 5.8.*

5.6 Online Survey

5.6.1 Introduction

For the German policy makers, the online survey was translated from English into the German language to increase the chance that they would participate. During the translation process it emerged that some words like 'policy' or 'data' have a different meaning in Germany. For instance 'policy' is nearly boundless within the field of policy making. Its meaning is very broad – it can be just talking about an issue or it can mean to finalize a concrete policy draft. Therefore 'politische Willensbildung' has been used for the German online survey alternatively. This means 'the forming

of the political will' and covers nearly the same range that is aligned with the word 'policy' in the UK. The second important term is 'data'. In Germany it has a very technical meaning. Even if its usage would be even correct in Germany we decided to use the phrase 'Informationen im Internet' instead. This means information from the Internet in general rather than concrete data, which could be limited to the information that is stored within databases. Because of these different meanings we needed to reorganize the online survey. Some questions have been restructured and the order of some questions was also changed. Instead of sixteen questions (EU, UK), the German Bundestags' participants got an online survey with thirteen and the Berlin City Parliament participants got a survey with fourteen questions. Two questions were skipped, because they seem to be too time consuming for the German target group (See Appendix V).

The final survey (See Appendix V) was circulated within the German Bundestag and the Berlin City Parliament by distributing the URL via email. Within the German Bundestag we had support from the MP Patrick Schnieder, who circulated the URL with the online survey in combination with a cover letter internally. The method for the members of the Berlin City Parliament was different, because we had no contacts to provide support. Therefore the URL for the online survey in combination with a cover letter has been circulated to all members' e-mail addresses. The following Table 12 shows some underlying data regarding the methods by which the survey was circulated, how many MPs got the survey and how many filled in the survey successfully.

Survey destination	German Bundestag	Berlin City Parliament
Method	Internal e-mail from MP	External e-mail from researcher
Recipients	631 MPs	149 MPs
Replies	24	3
Position of participants[30]	18 responses from MPs and 6 responses from office members (abstractor, office manager, scientific associate) who work directly for an MP	1 response from an MP and 1 response from office member (abstractor, office manager, scientific associate) who work directly for a MP

Table 12: DE online survey – survey destination

One of the most important things to find out with the survey and the interviews was where end users currently go to find information and what is lacking when using existing tools and sources.

5.6.2 Policy areas

An initial formal classification of participants was done via the policy subject areas they were interested in, with an initial list of 16 subjects. Each participant could select multiple subject areas, and add new ones if their subject was not on the list. Within both surveys, everyone responded to this question.

For the Bundestag results, the strongest responses were given to the topics "economy / finance" and "Europe" with five votes in total. There were no votes for "private economy / industry", "immigration" and "public administration". Other options were selected between one and four

[30] The survey participant's position was asked at the beginning of the survey.

times (See Table 13). Additionally eight topics were added to the list. Three participants added topics within the area of "Family/women/children/teen policy". The second strongest answers were given in the areas "Human rights / humanitarian aid" and "Civil commitment" (cp. Table 14).

With regard to the answers given by participants of the Berlin City Parliament one vote was for "Education" and the second topic "Urban development" was added to the list manually (See Table 14).

The following table summarises how the participants voted for the 16 topics. The seven bottom lines show the topics that were added by the participants. The second column shows the choices for the German Bundestag and the third column shows the choices for the Berlin City Parliament.

16 given policy areas	Number of votes	
	German Bundestag	**Berlin City Parliament**
Private economy / industry	0	0
Society / local affairs	4	0
Crime / control / justice	2	0
Defence / safety	1	0
Economy / finance	5	0
Education	4	1
Employment	1	0
Environment	1	0
Europe	5	0
Foreign affairs	4	0
Public health	3	0
Immigration	0	0
Civil service	0	0
Science / Technology	2	0
Transportation	2	0
Welfare / pension	3	0

Table 13: DE online survey – policy areas

Additional named policy areas	Number of votes	
	German Bundestag	**Berlin City Parliament**
Human rights / humanitarian aid	2	---
Energy / media / law	1	---
Family/women/children/teen policy	3	---
Civil commitment	2	---
Petition	1	---

Digital agenda	1	---
Urban development	---	1

Table 14: DE online survey – additional policy areas

5.6.3 Information on the Internet

Question Q3 addressed the proportion of publicly available, free and online information, which are used when working on policy. A range of five possible responses was given and participants were asked to choose one. Everyone replied to this question.

The result is that everyone is using online available data. No one said that they were not using online available data (See Figure 16, 1st row). 75% from the Bundestag and 100% from the Berlin City Parliament confirmed using online available data really often (See Figure 16, 5th row).

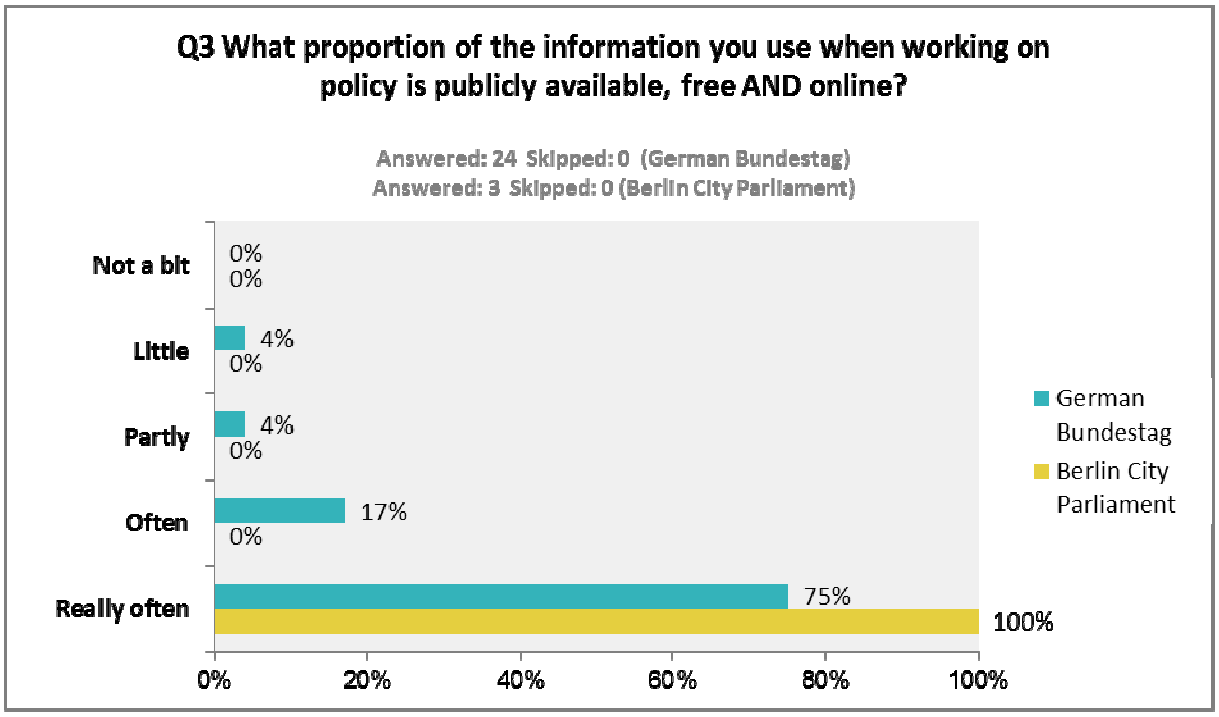

Figure 16: DE online survey – proportion of publicly available, free and online information

5.6.4 Information gathering tools

The aim of question Q4 was to identify tools that are used while searching for information on the Internet. All participants replied to this question.

All participants from the German Bundestag are using private/internal databases (e.g. the parliaments' intranet) for the legislative process (See Figure 17, 5th row). 83% of the participants are using Internet search engines (e.g. Google) to find relevant information on the web. ***Nearly half of them are using social media content to inform the legislative process. 25% are using open data portals and open data***. Only 4% are using special search engines. ***The data sources and tools used in this survey question lead to Requirement DE-8 and Requirement DE-5*** in section 5.8.

In addition the Bundestag participants added three methods about this search information on the Internet (See Table 15).

Although conclusions are difficult to draw with only a sample of three, replies from the Berlin City Parliament indicate that their focus is on standardized search engines like Google (See Figure 17, 1st row).

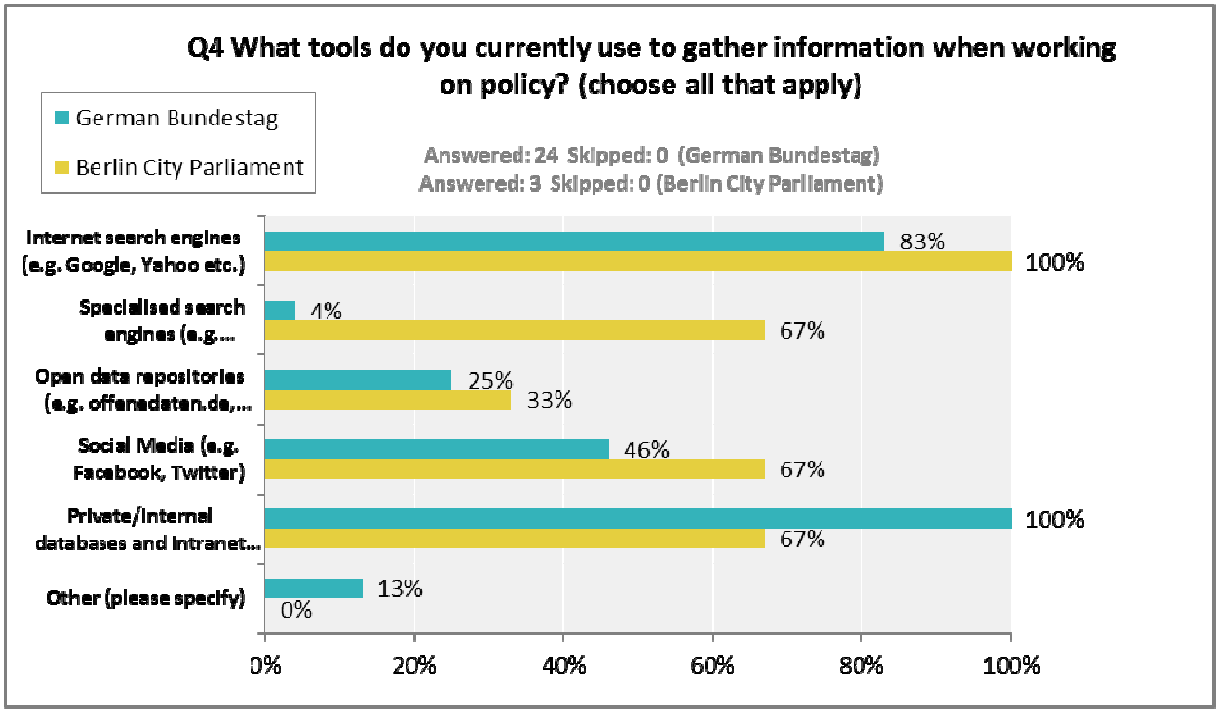

Figure 17: DE online survey – information gathering tools

Search tools that were named additionally	Number of votes	
	German Bundestag	Berlin City Parliament
Scientific publications	1	---
Their own website	1	---
Intranet of the faction of the Bundestag	1	---

Table 15: DE online survey – search tools that were named additionally

5.6.5 Problems and gaps

The following question, Q5, addressed the gaps while searching for information on the Internet. The respondents were given a list with eleven problems, and there was no limit on the number they could choose. Additionally each participant could add their own problems and gaps. No one added any extra problems. In total 22 participants from the Bundestag answered the question and two participants skipped it. Everyone from the Berlin City Parliament answered this question.

The biggest problem for the Bundestag participants, while using data on the Internet, is to identify trusted sources (See Figure 18, 5th row: 86%). The second most popular problem is that there is ***too much information on the Web*** (See Figure 18, 2nd row: 64%). The third most popular problem is that policy makers have to less time to find relevant information (See Figure 18, 6th row: 55%). The

fourth problem is that information on the Internet is often incomplete or fragmentary (See Figure 18, 11th row: 45%). The seven remaining gaps were selected by some respondents, but seem much less important.

With respect to the participants from the Berlin City Parliament, the picture is nearly the same. The most important problem is to ***identify trusted sources*** (See Figure 18, 5th row: 100%). Secondly the following problems were selected equally: ***Too much information on the Web*** (cp. Figure 18, 2nd row: 67%); too little time to find relevant information (see Figure 18, 6th row: 67%); information on the Internet is often incomplete (See Figure 18, 11th row: 67%).

This survey question leads to Requirement DE-3 and Requirement DE-4 *in section 5.8.*

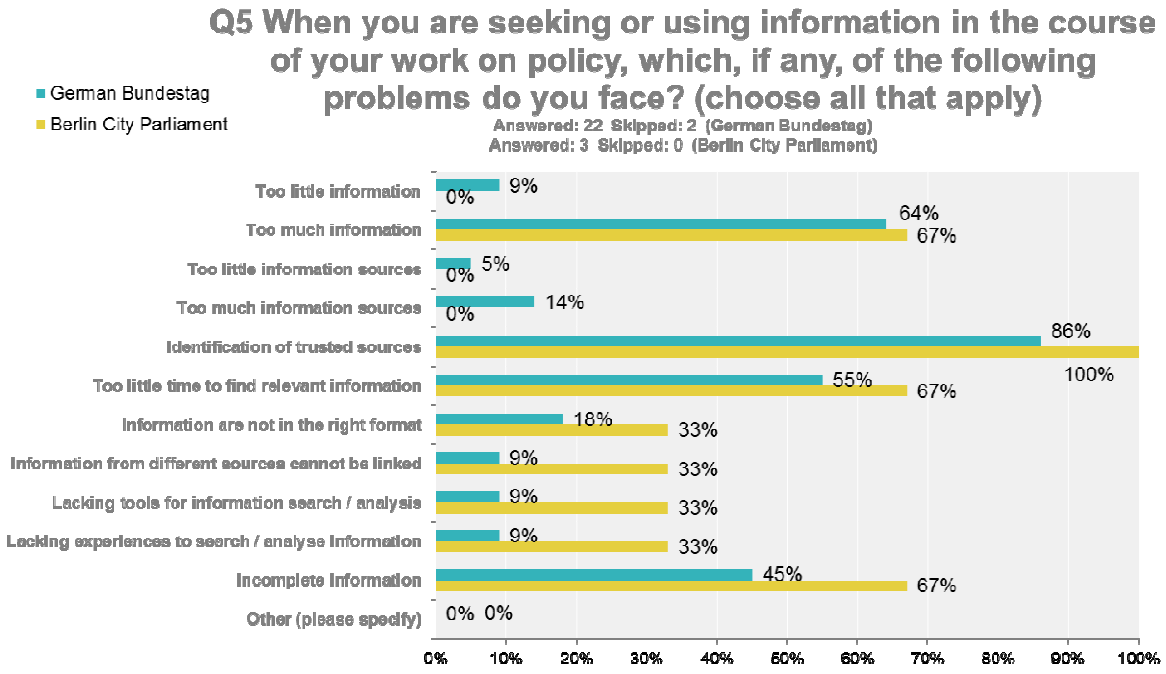

Figure 18: DE online survey – information gathering problems and gaps

5.6.6 Information format and presentation

The question Q5 addressed how relevant the different types of information are for use within the policy making process. The respondents were given a list with four options (See Figure 19) and were asked to choose the most important to them or specify another of their own choice. In total 22 participants from the Bundestag answered the question and two people skipped it. Everyone from the Berlin City Parliament replied to this question. From the Bundestag three out of the 22 participants mentioned that it was not possible to prioritize for only one type of information and they voted for multiple information types.

Concerning the Bundestag participants' the strongest vote was for "Report, essay, expert opinion that are often available in e.g. PDF format or included within a webpage" (See Figure 19, 2nd row: 55%). The second strongest answer was "Summary of data analysis" (See Figure 19, 3rd row: 27%). There were no votes for the two remaining types.

With respect to the Berlin City Parliament the strongest votes addressed "Statistical data e.g. databases or excel formats" (See Figure 19, 1st row: 33%), "Report, essays, export opinion that are often available in e.g. PDF format or included within a webpage" (See Figure 19, 2nd row: 33%) and

"Summaries e.g. reports" (See Figure 19, right part, 3rd row: 33%). There were no votes for "Comments from Social Networks like Facebook or Twitter".

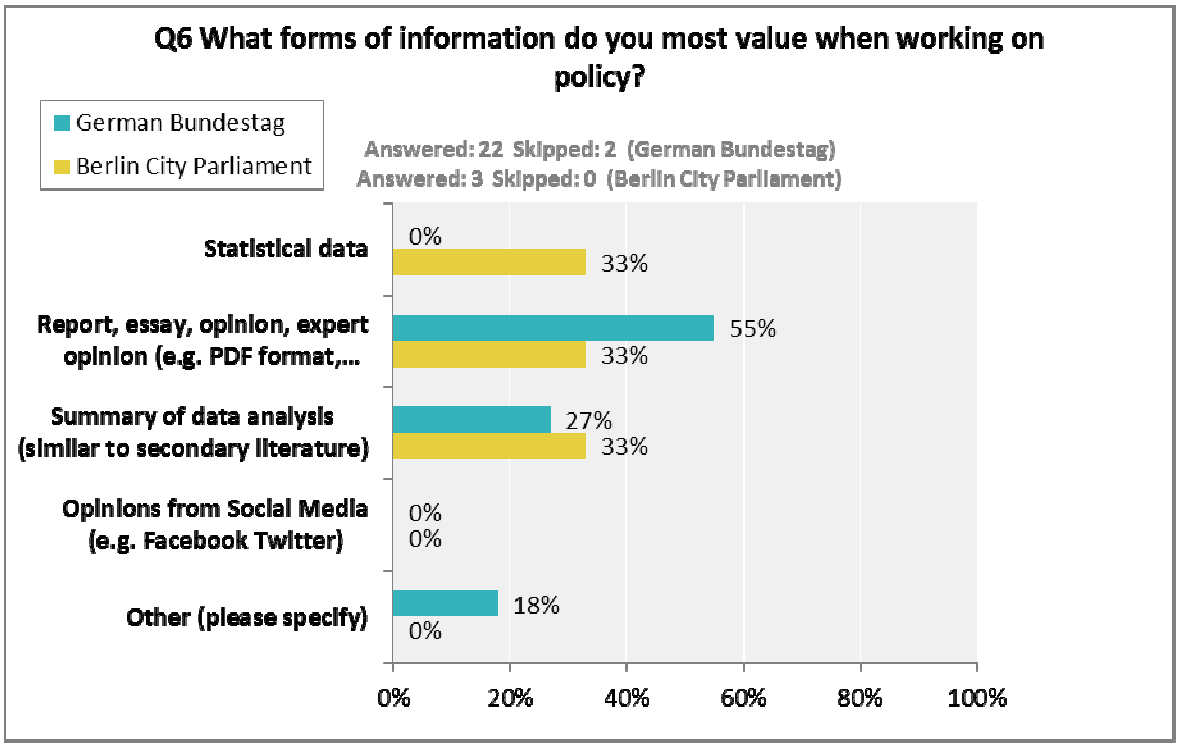

Figure 19: DE online survey – information formats

Additional types of information and comments	Number of votes	
	German Bundestag	Berlin City Parliament
Statistical data and text documents, advisory opinion **Comment: More than one are relevant**	1	---
Scientific combination	1	---
Comment: The first three are important	1	---
Comment: All are important	1	---

Table 16: DE online survey – additional types of information and comments

5.6.7 Information sources and trust

This chapter covers questions Q7 – "how to assess the reliability of information found on the Internet" and Q8 – "which information sources are most useful". Due to the fact that the Berlin City Parliament survey was circulated a couple of weeks after the Bundestag's survey, the decision was

made to include a free text field in the Berlin survey in order to ask about concrete data sources. The following Table 17 covers the participants' answers.

A structural effect of the additional inserted question is that the number of questions for the Berlin City Parliament was therefore higher. For practical reasons we will henceforth use the numbers from the Bundestag's survey to refer to each particular question: this means if we talk about Q7, this refers to question number 7 from the Bundestag's survey and question number 8 from the Berlin City Parliament survey.

Concrete information source	Number of votes	
	German Bundestag (not part of the survey)	Berlin City Parliament
http://www.parlament-berlin.de/[31]	---	1
https://www.statistik-berlin-brandenburg.de/[32]	---	1
http://www.berlin.de/[33]	---	1

Table 17: DE online survey – concrete information source

With Q7, "how to assess the reliability of information found on the Internet" – the participants were given five possible choices and one free text field to provide an additional answer. Here the participants could vote for each suggestion. 23 participants from the Bundestag replied to this question and one skipped it. Everybody from the Berlin City Parliament answered this question. No one added another option to the list.

For the Bundestag participants, the most important method to assess the reliability of information found on the Web is "the reputation of the source" (See Figure 20, 1st row: 96%). Next the participants voted for "the believability of the data" (See Figure 20, 5th row: 61%). After that "availability of raw data" is most important (See Figure 20, 4th row: 52%). The "validity of the methodology" by which the data has been collected is next (See Figure 20, 3rd row: 30%) and "use of the source by others" is last (See Figure 20, 2nd row: 9%).

For the Berlin City Parliament the most important method is "the believability of the data" (See Figure 20, 5th row: 100%). Next is "the reputation of the source" (See Figure 20, 1st row: 67%) and "the availability of raw data" (See Figure 20, 4th row: 67%) both with equal importance. Fewer votes were given to the methods "use of the source by others" (See Figure 20, 2nd row: 33%) and no votes were given to "validity of the methodology" by which the data has been collected (See Figure 20, 3rd row: 0%).

[31] URL Retrieved on 15/06/2014.
[32] URL Retrieved on 15/06/2014.
[33] URL Retrieved on 15/06/2014.

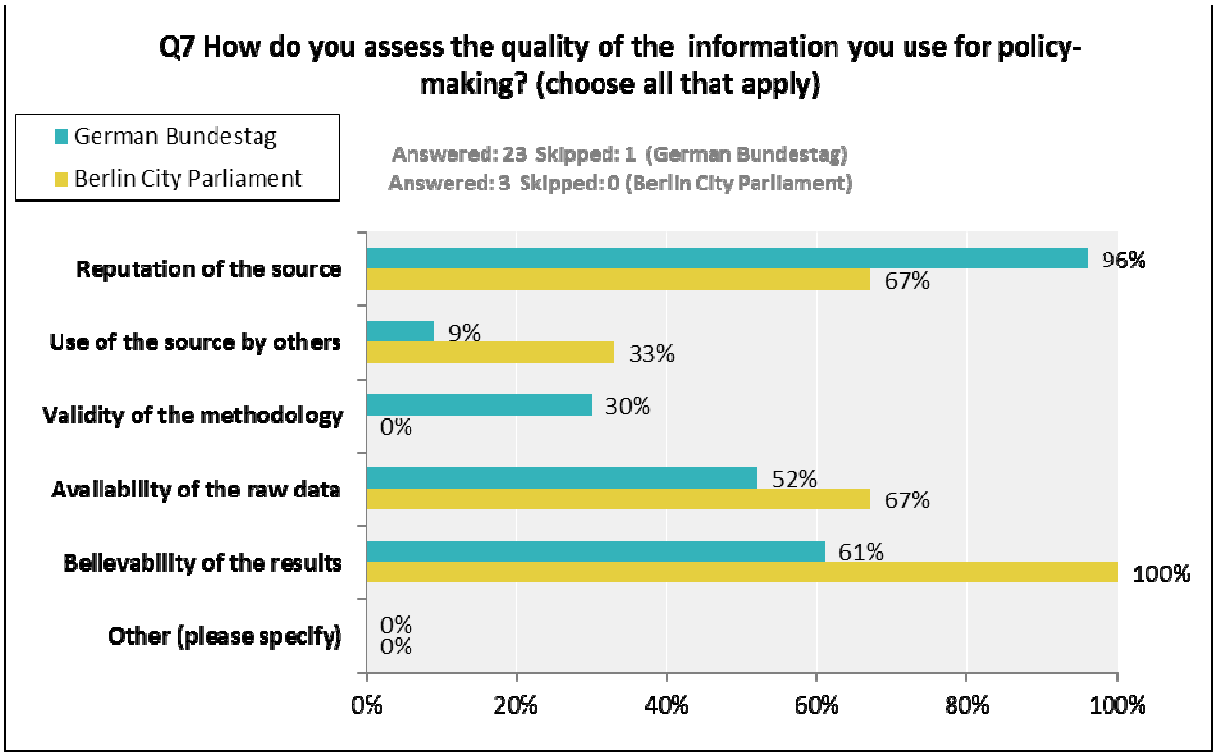

Figure 20: DE online survey – reliability of information found on the Internet

To answer the next question, Q8 – "how useful are the given information providers", the participants were presented a two dimensional matrix. The following two tables show the distribution of assessments for the suggested information provider for the Bundestag and the Berlin City Parliament. The first column displays the different information providers – the first term is the English translation for the second German term that was used during the survey. The next five columns represent the five-step scale from "not a bit important" to "really important". Each row shows the percentage number of votes and the total number of votes. The last column shows how many participants have voted for one particular information provider. The two highest votes are marked in yellow. 23 participants replied to the question from the Bundestag and one person skipped this question. Everyone from the Berlin City Parliament answered this question.

For the Bundestag's participants the "the scientific service" (in the UK called the digital library) and the "government bodies / official information" are "quite important" up to "really" important information sources. These are highlighted in green. "Social Media/Blogs/Forums" and "public opinion polling institutes" (highlighted in grey) are least important. The remaining information providers are arranged somewhere in the middle.

Five-steps scale how Bundestags' participants assessed importance	"Not a bit important"	"Less important"	"Partially important"	"Quite important"	"Really important"	Total
Private economy/ industry (DE=Privatwirtschaft/ Industrie)	**0%** 0	**13%** 2	**50%** 8	**38%** 6	**0%** 0	16
Charitable society (DE=Wohltätigkeitsvereine)	**0%** 0	**6%** 1	**38%** 6	**50%** 8	**6%** 1	16

Think tanks	**0%** 0	**13%** 2	**27%** 4	**47%** 7	**13%** 2	15
Digital Library **(DE=Wissenschaftlicher Dienst)**	**0%** 0	**0%** 0	**0%** 0	**41%** 9	**59%** 13	22
Academics **(DE=Akademiker)**	**0%** 0	**7%** 1	**43%** 6	**36%** 5	**14%** 2	14
Government bodies/ official information **(DE=Regierungseinrichtungen/ offizielle Informationen)**	**0%** 0	**0%** 0	**9%** 2	**64%** 14	**27%** 6	22
Social Media/ Blogs/ Forums	**7%** 1	**50%** 7	**36%** 5	**7%** 1	**0%** 0	14
Media **(DE=Klassische Medien)**	**0%** 0	**17%** 3	**28%** 5	**44%** 8	**11%** 2	18
Public opinion polling institutes **(DE=Meinungsforschungsinstitute)**	**0%** 0	**53%** 8	**0%** 0	**40%** 6	**7%** 1	15
Focus groups/ citizens that concentrate the opinion of many citizens **(DE=Fokusgruppen/ Bürgervertreter)**	**0%** 0	**21%** 3	**29%** 4	**43%** 6	**7%** 1	14

Table 18: DE online survey (Bundestag) – useful information sources

The distribution of assessments for the Berlin City Parliament participants is nearly the same: "***quite important" are "the private economy/ industry", "the scientific service (in the UK called the digital library)", "government bodies / official information" and "Social Media/Blogs/Forums".***

Five-steps scale how Berlin City Parliament participants assessed importance	"Not a bit important"	"Less important"	"Partially important"	"Quite important"	"Really important"	Total
Private economy/ industry (DE=Privatwirtschaft/ Industrie)	**0%** 0	**0%** 0	**0%** 0	**100%** 1	**0%** 0	1
Charitable society (DE=Wohltätigkeitsvereine)	**0%** 0	**0%** 0	**100%** 1	**0%** 0	**0%** 0	1
Think tanks	**0%** 0	**0%** 0	**100%** 1	**0%** 0	**0%** 0	1

Digital Library (DE=Wissenschaftlicher Dienst)	0% 0	50% 1	0% 0	50% 1	0% 0	2
Academics (DE=Akademiker)	0% 0	0% 0	100% 1	0% 0	0% 0	1
Government bodies/ official information (DE=Regierungseinrichtungen/ offizielle Informationen)	0% 0	0% 0	0% 0	100% 1	0% 0	1
Social Media/ Blogs/ Forums	0% 0	0% 0	50% 1	50% 1	0% 0	2
Media (DE=Klassische Medien)	0% 0	0% 0	50% 1	50% 1	0% 0	2
Public opinion polling institutes (DE=Meinungsforschungsinstitute)	0% 0	0% 0	0% 0	100% 1	0% 0	1
Focus groups/ citizens that concentrate the opinion of many citizens (DE=Fokusgruppen/ Bürgervertreter)	0% 0	0% 0	100% 1	0% 0	0% 0	1

Table 19: DE online survey (Berlin City Parliament) – useful information sources

5.6.8 Public input

Only three of the 24 Bundestag participants said that they used public opinion polling (cp. question Q9 – the numbering is different to the EU and UK survey). From the Berlin City Parliament all participants used public opinion polling. Those participants that used public opinion polling answered question Q10 – "which methods are most effective to get public opinion".

The following two tables show the distribution of assessments for the suggested "methods to engage the public" for the Bundestag and the Berlin City Parliament. The first column displays the different methods – the first term is the English translation for the second German term that has been used during the survey. The next four columns represent the four-step scale from "not meaningful" to "really meaningful". Each column shows the number of votes. The first number shows the percentage and the second number represents the total number of votes of the participants. The highest votes for each method to engage the public are marked in yellow.

For the Bundestag's participants the assessment of the "methods to engage the public" is nearly uniform (See Table 20). There is no method that is "not meaningful" at all.

Four-steps scale how Bundestags' participants assessed Q10	"Not meaningful"	"Less meaningful"	"Meaningful"	"Really meaningful"	Total

Consultation document (DE=Konsultationspapier)	**0%** 0	**67%** 2	**33%** 1	**0%** 0	3
Public opinion polling (DE=Meinungsumfragen (z.B infratest demap)	**0%** 0	**33%** 1	**33%** 1	**33%** 1	3
Focus groups/ citizens that concentrate the opinion of many citizens (DE=Fokusgruppen/ Bürgervertreter	**0%** 0	**67%** 2	**33%** 1	**0%** 0	3
E-participation platforms (DE=Beteiligungsplattformen)	**0%** 0	**33%** 1	**67%** 2	**0%** 0	3
Online forums (DE=Online-Foren)	**0%** 0	**67%** 2	**33%** 1	**0%** 0	3
Social Media analysis (DE=Social media-Analyse)	**0%** 0	**33%** 1	**67%** 2	**0%** 0	3

Table 20: DE online survey (Bundestag) – methods to get public opinion

Regarding the Berlin City Parliament participants the assessment of the "methods to engage the public" is nearly consistent (See Table 21). There is no method that is "not meaningful" at all.

Four-steps scale how Berlin City Parliament participants assessed Q10	"Not meaningful"	"Less meaningful"	"Meaningful"	"Really meaningful"	Total
Consultation document (DE=Konsultationspapier)	**0%** 0	**50%** 1	**50%** 1	**0%** 0	2
Public opinion polling (DE=Meinungsumfragen (z.B infratest demap)	**0%** 0	**0%** 0	**50%** 1	**50%** 1	2
Focus groups/ citizens that concentrate the opinion of many citizens (DE=Fokusgruppen/ Bürgervertreter	**0%** 0	**0%** 0	**100%** 2	**0%** 0	2
E-participation platforms (DE=Beteiligungsplattformen)	**0%** 0	**0%** 0	**100%** 2	**0%** 0	2
Online forums (DE=Online-Foren)	**0%** 0	**0%** 0	**100%** 2	**0%** 0	2
Social Media analysis (DE=Social media-Analyse)	**0%** 0	**0%** 0	**50%** 1	**50%** 1	2

Table 21: DE online survey (Berlin City Parliament) – methods to get public opinion

5.6.9 Sense4us tool prognosis and policy process

All participants were asked which tool would best help them in their work. 22 participants from the Bundestag replied to this question and two people skipped it. 64% would like to use policy simulation tool (See Figure 21, 2nd row). 27% would rather use a search tool that finds relevant information on the Internet (See Figure 21, 1st row). 9% don't need any of the suggested tools (See Figure 21, 3rd row). In the Berlin City Parliament, the order of the tool preferred is the same – simulation is most popular, followed by search.

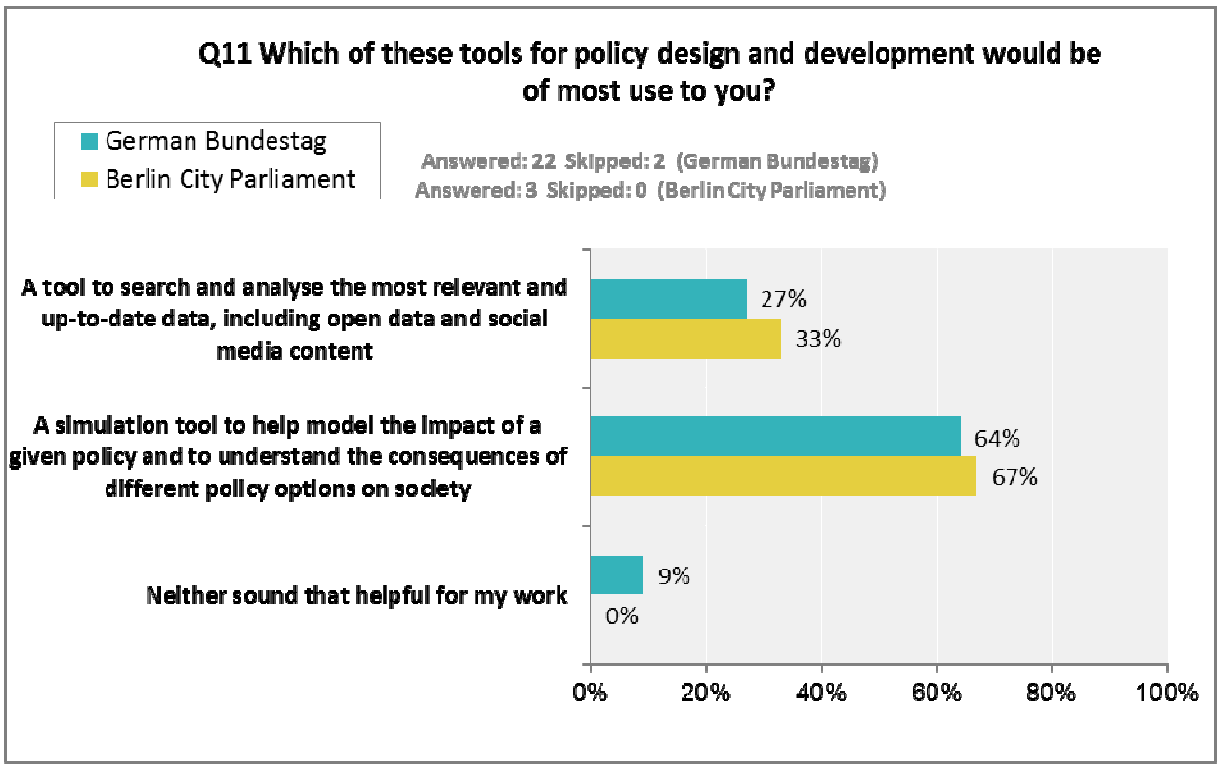

Figure 21: DE online survey – Sense4us tool prognosis

5.7 Where the tools could fit into the legislative process

The interviewees (preliminary discussions) believe the Sense4us tools can best be used within the early stage of the policy making process for e.g. searching and analysing the most relevant information regarding one particular key word or policy document. This could be the phase where draft bills are designed and bills are finalized.

For the Senate Chancellery the information from the Internet are most relevant while working on draft bills and while elaborating draft bills.

5.8 Requirements - DE

Requirements have been sorted into high, medium and low priorities for the research partners to address. These prioritizations are based not just on the number of times an issue was raised by survey respondents and interviewees, but also on the project consortium's assessment of the

importance of each recommendation to the successful uptake and utilization of the tool by end users.

As the end user engagement was an iterative process, based on an increasingly refined understanding of our end users and their ways of working, not all requirements were discussed with all participants. As a result this list is designed to be added to and validated as the project progresses, so the requirements will be developed further and tested with more end users over time.

High Priority

Requirement DE-1

German language - the policy legislative process in Germany is mainly based on information provided in the German language. Therefore Sense4us tools need to work with German words as input and output as well. (See chapter 5.4.2– Preliminary interviews: Results)

Requirement DE-2

Usability - tools for policy makers need to be easy to use. Therefore the usability is a 'standard' requirement. If tools are complicated or difficult to understand policy makers won't use them at all. (See chapter 5.4.2– Preliminary interviews: Results)

Requirement DE-3

Trusted sources - the biggest 'gap' explaining why online available information is not being used during the legislative process according to our online survey is the challenge posed in identifying trusted sources (See 5.6.5 – Online survey: Problems and gaps)

Requirement DE-4

Filter information - the second biggest 'gap' as to why online available information is not being used during the legislative process is that there is too much information on the Web. (See 5.6.5 – Online survey: Problems and gaps).

Medium Priority

Requirement DE-5

Extracting opinions from Social Media and blogs – besides 'fact-based' information from news services (see preliminary interviews), there is a need to access political discussions, which the interviewees currently locate via blogs and on Social Media platforms. Therefore the analysis of social discussions concerning particular topics is relevant for the interviewees. (See 5.4.2– Preliminary interviews: Results) The Senate Chancellery Hamburg has observed a strong increase in the relevance of blogs and Social Media in political communication. Public opinion polling is not being used. But Social Media is the main method for engaging the public online. (See 5.5.3 - Written interview: Results)

Requirement DE-6

Cross-disciplinary search – a tool capable of searching across issue areas, e.g. health and environment. Decision makers are not limited to policies within their topic areas. They are following and researching topics that are broadcast by the news and media in parallel. Also, information across policy areas and sectors is of interest for policy makers beyond the policy issues for which they are responsible. (See 5.4.2– Preliminary interviews: Results, See 5.5.3- Written interview: Results)

Low Priority

Requirement DE-7

Searching and analyzing information provided by the Media – the interviewees mentioned that services from the biggest news websites are used, because these provide trusted and qualitative information. (See 5.4.2– Preliminary interviews: Results) The Senate Chancellery Hamburg mentioned that Internet services that are provided by the media are used during the legislative process. (See 5.5.3 - Written interview: Results) This data could be used as input for the Sense4us tools to support the search and analysis of information provided by the media.

Requirement DE-8

Searching and analyzing internal data provided by parliaments – there is a strong need to use unpublished databases. The parliaments' databases / intranet are frequently used during the legislative process. (See 5.4.2– Preliminary interviews: Results), (See 5.5.3 - Written interview: Results) This data could be used as input for the Sense4us tools to support the search and analysis of information provided by the parliaments.

5.9 Suggested features

Monitoring functionality

End users requested that the Sense4us project should develop a tool to search and analyse the most up-to-date data regarding the interests of the decision makers. For instance the end-user will receive the most relevant data with respect to a key word "urban development" or policy document "development of the river region". Some participants from the preliminary discussions (MPs from the State Chancellery North Rhine-Westphalia) and the written interviews (Senate Chancellery Hamburg) mentioned that they search the same key words frequently.

The participants mentioned that a frequent monitoring process of issues that are relevant for the decision-maker or the decision maker's division is in addition meaningful, because it is necessary to know if there are any changes concerning one particular issue. Therefore it might be a relevant feature if the Sense4us tools take this into account.

6 Overall assessment of end-user requirements

For many of those who took part in our surveys or interviews, what we were discussing represented a very new approach to data and policy making. Many of them were consequently both attracted and fascinated by the idea and therefore keen to discuss about it, because they feel that the challenge of getting correct data and improving their legislative practices is acute in an age of big data and limited time resources to analyse it. The requirements across the three policy making levels share some common themes, and these are discussed next.

Most of the policy makers across all three levels wanted an advanced ***data search*** functionality. They want a "one stop shop" for cross disciplinary structured search (eg. Searching simultaneously across the fields of *environment, transport and economy*) and multiple filters to search across various information sources and multiple data formats. Considering the wide variety of available formats – *public websites, academic articles, copyrighted media (journals, reports, blogs), open data, and legislation*, the target remains the same – to be able to go in depth and trace the political arguments of interest to them. Therefore, the great majority of end users across all three policy making levels imagine data search as an *advanced Google* – they want *provision of clear visualisation and filtering options – giving clear categories of searchable data* (date, types of documents, key words, field, authorship, relevant social media sentiment and other) and visualised summaries of data sets. What also tends to be important for the majority of end users is to be able to store previous findings and use this data later to compare various search results, satisfying the need for current data to be used over a relatively extensive period of time, adhering to dynamism of underlying factors in policy and comparing data across different time frames.

Discussing ***social media data*** remains a relatively important field for policy making – the policy makers admit that segmenting social media discussions by being able to identify policy related groups, highlighting topics and providing summaries of these opinions, would likely deliver more valuable public insights to help inform the policy making process.

The policy modelling field was mostly discussed around the element of trustworthiness. Firstly, most of the end users wished to understand the methodology the tool will use and want to be able to see all the source data that is used to present the predicted outcomes in order for them to trust the tool. Secondly, policy makers explicitly referred to the dynamism of underlying factors in certain policy fields, therefore *flexibility* to choose variables in the tool on their policy issues, in order to make comparisons between different prognoses is important, leading to the idea of a member account being incorporated into the tool to enable users to *individually shape policy simulation*.

7 Conclusions

The main conclusions of this document are the three requirements lists in Sections 3.3, 4.9 and 5.8 respectively. These are a kick-off point for the further development of the scenarios for the project and with the purpose of constructing a Sense4us tool, fostering a real-time policy making cycle, by providing a path to structural resources and insights in to the policy issues in question. The requirements provided at all three levels will be analysed by the project, so that functional requirements and techniques to address them can be determined. This will be described in the upcoming deliverable D3.1, due at PM12.

By providing a clear definition of the problems to be tackled and solutions to be reached, a detailed description of the project's end user requirements is presented and further actions tailored, shaping the functional strategy of the technological solution of Sense4us and leading to the next deliverable D2.3, to design scenarios about how to address these needs of policy makers.

APPENDIX I – WP2: Person Months per partner and List of Deliverables

Person Months in WP2

WP2 Partner	Person Months
University of Southampton – IT Innovation	3.00
Government To You (Gov2u)	7.00
Hansard Society	20.00
Gesis – Leibniz Institut	20.00
Stockholm University/eGovlab	8.00
University of Koblenz	2.00
Open University - KMI	2.00
TOTAL	64.00

List of WP2 Deliverables

WP2 Deliverable title	Partner responsible
D2.1 Assessment of proposed requirements from end users	Gov2U
D2.2 Report that tracks technologies and social attitudes	University of Southampton – IT Innovation
D2.3 Defining policy scenarios at different policy-making levels	Hansard Society
D2.4 Initial evaluation and report of updated requirements	Gesis – Leibniz Institut
D2.5 Report on guidance, examples and methodologies for using SENSE4US	Gesis – Leibniz Institut
D2.6 Final evaluation of the usefulness and accuracy	Hansard Society

APPENDIX II – EU Survey questions

1. What areas of policy do you usually work on? (Policy fields, such as 'Internal market' and/or aspects such as 'legal framework')

Answer Options	Response Count
	22
answered question	**22**
skipped question	**0**

Number	Response Date	Response Text	Categories
1	May 20, 2014 8:45 AM	Test	
2	May 16, 2014 9:38 AM	Digital Single Market, World Class Computing, Trusted Data Flow, Cloud Computing	
3	May 15, 2014 5:12 PM	active and healthy ageing web-accessibility (directive)	
4	Apr 29, 2014 12:47 PM	e-infrastructures	
5	Apr 22, 2014 8:06 AM	Research	
6	Apr 16, 2014 1:09 PM		
7	Apr 14, 2014 12:50 PM	develop	
8	Apr 14, 2014 8:25 AM	Trade	
9	Apr 8, 2014 2:11 PM		
10	Mar 26, 2014 9:14 AM		
11	Mar 14, 2014 4:31 PM	International relations Employment and social affairs	
12	Mar 14, 2014 12:40 PM	Economic policy	
13	Mar 13, 2014 9:52 AM	Environment Energy	
14	Feb 11, 2014 10:43 AM	eGovernment Budgetary control and audit;	
15	Jan 28, 2014 9:04 AM	Fisheries	
16	Jan 20, 2014 2:25 PM	Human Rights	
17	Jan 20, 2014 12:27 PM	Human rights, gender equality, EU budget, fisheries, EU-Turkey relations, Pan-African Parliament and ACP-EU Joint Parliament	
18	Jan 17, 2014		

	9:32 AM	
	Jan 16, 2014	
19	**1:06 PM**	Environment, Public Healt, Food Safety environment consumer protection health
	Jan 10, 2014	
20	**3:22 PM**	foreign affairs
	Dec 4, 2013	Public Sector Innovation for completing the internal
21	**2:14 PM**	market.
	Dec 4, 2013	
22	**9:59 AM**	N/A

2. How important is it that the information you use to develop/support policy is publicly available, free AND online?

Answer Options	Response Percent	Response Count
Very important	54.5%	12
Fairly Important	31.8%	7
Not very important	4.5%	1
Not important at all	0.0%	0
Don't know / it does not matter	9.1%	2
answered question		**22**
skipped question		**0**

3. What proportion of the information you use when working on policy is publicly available, free AND online?

Answer Options	Response Percent	Response Count
0%-24%	9.1%	2
25%-49%	18.2%	4
50%-74%	27.3%	6
75%-100%	36.4%	8
Don't know	9.1%	2
answered question		**22**
skipped question		**0**

4. In what language do you usually search for public data for policy development? (choose all that apply)

Answer Options	Response Percent	Response Count
English	90.9%	20
German	27.3%	6
French	22.7%	5
Other (please specify)	18.2%	4
answered question		**22**
skipped question		**0**

Number	Response Date	Other (please specify)	Categories
1	May 15, 2014 5:12 PM	Dutch	
2	Apr 29, 2014 12:47 PM	Spanish	
3	Apr 16, 2014 1:09 PM	Danish	
4	Jan 20, 2014 12:27 PM	Italian, Spanish	

5. What forms of information do you most value when working on policy?

Answer Options	Response Percent	Response Count
Raw data sets	18.2%	4
Summary of data analysis with commentary	45.5%	10
Summary of data analysis without commentary	13.6%	3
Literature reviews / Summaries of multiple pieces of analysis	22.7%	5
Don't know	0.0%	0
Other (please specify)	0.0%	0
answered question		22
skipped question		0

6. What tools do you currently use to gather information when working on policy? (choose all that apply)

Answer Options	Response Percent	Response Count
Internet search engines (e.g. Google, Yahoo etc.)	95.5%	21
Specialized databases (e.g. Eurlex, Eurostat etc.)	40.9%	9
Open data repositories (e.g. datasets on open-data.europa.eu)	18.2%	4
Intranet, e-committee resources	63.6%	14
Other (please specify)	4.5%	1
answered question		22
skipped question		0

Number	Response Date	Other (please specify)	Categories
1	Jan 20, 2014 2:25 PM	Reports by NGOs, information from meetings	

7. When you are seeking or using information in the course of your work on policy, which, if any, of the following problems do you face? (Choose all that apply)

Answer Options	Response Percent	Response Count
Too little information	31.6%	6
Too much information	31.6%	6
Too few sources of information	15.8%	3
Too many sources of information	26.3%	5
Hard to know which sources to trust	26.3%	5
Too little time to gather the relevant information	42.1%	8
Information not available in an accessible format	10.5%	2

Incompatibility of different data sets	21.1%	4
Lack of required tools to perform data analysis	15.8%	3
Lack of required skills/training to perform data analysis	10.5%	2
Incomplete information/data	31.6%	6
None of these	5.3%	1
Other (please specify)	5.3%	1
	answered question	**19**
	skipped question	**3**

Number	Response Date	Other (please specify)	Categories
1	**Apr 29, 2014 1:26 PM**	lack of time	

8. How do you assess the quality of the information you use for policy-making? (choose all that apply)

Answer Options	Response Percent	Response Count
Reputation of the source	73.7%	14
Use of the source by others	21.1%	4
Validity of the methodology	42.1%	8
Availability of the raw data	26.3%	5
Believability of the results	36.8%	7
Other (please specify)	5.3%	1
answered question		**19**
skipped question		**3**

Number	Response Date	Other (please specify)	Categories
1	**May 15, 2014 5:13 PM**	the quality of conceptualisation and reasoning, plus the clarity of thought	

9. Which information sources do you find most useful? (choose a maximum of three)

Answer Options	Response Percent	Response Count
Business representatives	26.3%	5
Charity representatives	10.5%	2
Think tanks	31.6%	6
Parliamentary Library	15.8%	3
Academics	36.8%	7
European Commission/European Council/PermReps	47.4%	9
Social media/blogs/forums	21.1%	4
Traditional media	21.1%	4
Opinion polling	5.3%	1
Public hearings/ consultations with citizens	15.8%	3
None of these	0.0%	0
Don't know	0.0%	0
Other (please specify)	10.5%	2
answered question		**19**
skipped question		**3**

10. Are you aware of specific gaps in the data, evidence or expertise in your field of policy that make policy decisions more difficult? If so, what are these?	
Answer Options	**Response Count**
	19
answered question	**19**
skipped question	**3**

Number	Response Date	Response Text	Categories
1	May 20, 2014 8:46 AM	No	
2	May 16, 2014 9:39 AM	No	
3	May 15, 2014 5:13 PM	no	
4	Apr 29, 2014 1:26 PM	statements not based on evidences	
5	Apr 22, 2014 8:07 AM	No	
6	Apr 16, 2014 1:11 PM	Yes.	
7	Apr 14, 2014 4:37 PM	yes, a lot of data is missing for basic indicators in developing countries as well as a lot of data on policy results	
8	Apr 14, 2014 8:27 AM	Different reporting methodologies, delays in data submission.	
9	Apr 8, 2014 2:12 PM	YES	
10	Mar 26, 2014 9:18 AM	Data from different sources (e.g. donors in development countries) are not connected or aggregated, lack of exchange of data between actors	
11	Mar 14, 2014 4:32 PM	Not aware	
12	Mar 14, 2014 12:41 PM	Lack of relevant statistics	
13	Feb 11, 2014 10:45 AM	no	
14	Jan 28, 2014 9:06 AM	no	
15	Jan 20, 2014 2:26 PM	Some areas are over-reserched, others lack trustful analysis.	
16	Jan 20, 2014 12:41 PM	N/A	
17	Jan 17, 2014 9:33 AM	Not at the moment.	
18	Dec 4, 2013 2:16 PM	-/-	
19	Dec 4, 2013	N/A	

10:00 AM	

11. In which policy areas (yours or others) do you feel it is most difficult to predict outcomes of a given policy, before that policy is implemented? (choose a maximum of three)

Answer Options	Response Percent	Response Count
Business, Industry and Internal market	11.8%	2
Trade	11.8%	2
Agriculture and Rural development	5.9%	1
Justice	0.0%	0
Regional development	11.8%	2
Economy/Finance/Budget	29.4%	5
Education	23.5%	4
Employment and social affairs	11.8%	2
Environment	47.1%	8
Humanitarian Aid and Development	29.4%	5
Health and Consumers	17.6%	3
Immigration	5.9%	1
Energy	11.8%	2
Science/Technology/ICT	23.5%	4
Transport	0.0%	0
Taxation and Customs	11.8%	2
Other (please specify)	0.0%	0
answered question		**17**
skipped question		**5**

12. Why are these policy areas especially difficult when predicting outcomes and what are the specific problems?

Answer Options	Response Count
	17
answered question	**17**
skipped question	**5**

Number	Response Date	Response Text	Categories
1	May 16, 2014 9:40 AM	Too many contributing factors.	
2	May 15, 2014 5:14 PM	because their impact depends on rapidly changing patterns of human behaviour	
3	Apr 29, 2014 1:27 PM	i'm talking about ICT which is my field: there is a lot of try and error before maturing technology which makes predictability very difficult.	
4	Apr 22, 2014 8:08 AM	You can only predict the outcome based on various models of past data	
5	Apr 14, 2014 4:37 PM	only one I work in	
6	Apr 14, 2014 8:29 AM	Unpredictable subjective social perceptions may influence behaviour.	
7	Apr 8, 2014 2:13 PM	EVIDENT	

8	Mar 26, 2014 9:22 AM	The trade-off in these areas and the effect of compromises between the different actors are very complex to foresee.
9	Mar 14, 2014 4:32 PM	very dynamic areas. traditional econometric models dont apply.
10	Mar 14, 2014 12:45 PM	Very complex issues Economy - uncertainty of other actors' behaviour in this field Environment - non predictable climate changes
11	Feb 11, 2014 10:49 AM	Taxation - very complex issue
12	Jan 28, 2014 9:07 AM	too many interested parts
13	Jan 20, 2014 2:27 PM	/
14	Jan 20, 2014 12:42 PM	.
15	Jan 17, 2014 9:35 AM	The situation concerning those policies is changing all the time.
16	Dec 4, 2013 2:38 PM	Surrounding Circumstances are difficult to influence.
17	Dec 4, 2013 10:00 AM	N/A

13. Do you seek the views of the public during the policy-making process?

Answer Options	Response Percent	Response Count
Yes	76.5%	13
No	23.5%	4
	answered question	17
	skipped question	5

14. Which public feedback methods are useful to you during the policy-making process?

Answer Options	Very useful	Somewhat useful	Not very useful	Not at all useful	Response Count
Public consultations (online and in written)	5	6	2	0	13
Commissioned surveys	1	8	2	0	11
Public hearings	1	7	4	0	12
Dedicated websites for an individual policy	1	6	3	2	12
Online forums	0	2	9	0	11
Social media analysis	2	7	2	1	12
			answered question		13
			skipped question		9

15. Which of these tools for policy design and development would be of most use to you?

Answer Options	Response Percent	Response Count

A tool to search and analyse the most relevant and up-to-date data, including open data and social media content	43.8%	7
A simulation tool to model the impact of a given policy and to understand the consequences of different policy options on society	37.5%	6
Neither sound that helpful for my work	18.8%	3
	answered question	**16**
	skipped question	**6**

16. Where in the policy process do you think these tools would be most helpful?

Answer Options	Response Count
	16
answered question	**16**
skipped question	**6**

Number	Response Date	Response Text	Categories
1	May 16, 2014 9:41 AM	Evidence analysis	
2	May 15, 2014 5:18 PM	in first stages of concept development, and in a second stage to test the developed proposal (and possibly skip impact assessment)	
3	Apr 22, 2014 8:33 AM	Early planning stage	
4	Apr 14, 2014 4:38 PM	formulation	
5	Apr 14, 2014 8:29 AM	Planning a policy measure.	
6	Apr 8, 2014 2:14 PM	EVERYWHERE	
7	Mar 26, 2014 9:24 AM	At inception phase	
8	Mar 14, 2014 4:33 PM	In the earliesr phases.	
9	Mar 14, 2014 12:47 PM	early	
10	Feb 11, 2014 10:51 AM	Impact assessment	
11	Jan 28, 2014 9:09 AM	initial stage	
12	Jan 21, 2014 2:23 PM	human rights and humanitarian aid	
13	Jan 20, 2014 2:28 PM	At the beginning, with a number of hypotheses in mind.	
14	Jan 17, 2014 9:36 AM	All decidents in the EU shall be able to use that.	
15	Dec 4, 2013 2:40 PM	Policy Shaping	
16	Dec 4, 2013 10:01 AM	N/A	

17. Is there anything else you would like to tell us about the policy development process as a result of this survey? (OPTIONAL)	
Answer Options	**Response Count**
	3
answered question	**3**
skipped question	**19**

18. If you would be interested in finding out more about this project or if you have a problem that you think Sense4us could answer, we would be very interested to hear from you! Please put your email address here. (OPTIONAL)	
Answer Options	**Response Count**
	3
answered question	**3**
skipped question	**19**

Number	Response Date	Response Text	Categories
1	May 15, 2014 5:20 PM	tell me where I can have data-searches and analysis done	
2	Mar 26, 2014 9:25 AM	[redacted]@ec.europa.eu	
3	Jan 20, 2014 2:52 PM	/	

19. What is your position within the institution? (e.g. MEP, MEP assistant, policy officer, policy adviser etc)	
Answer Options	**Response Count**
	15
answered question	**15**
skipped question	**7**

Number	Response Date	Response Text	Categories
1	May 16, 2014 9:41 AM	Policy Officer	
2	May 15, 2014 5:20 PM	policy officer - seconded national expert	
3	Apr 22, 2014 8:34 AM	Senior Policy Officer	
4	Apr 14, 2014 4:38 PM	head of section	
5	Apr 14, 2014 8:30 AM	policy officer	
6	Apr 8, 2014 2:14 PM	ADVISER	
7	Mar 26, 2014 9:25 AM	Policy Officer	
8	Mar 14, 2014 4:33 PM	international relations officer	
9	Mar 14, 2014 12:47 PM	MEP assistant	
10	Feb 11, 2014 10:51 AM	Policy Officer	
11	Jan 28, 2014 9:09 AM	policy adviser	
12	Jan 21, 2014 2:23 PM	MEP assistant	
13	Jan 20, 2014 2:52 PM	MEP, committee chair	
14	Jan 17, 2014 9:36 AM	MEP	
15	Dec 4, 2013 2:40 PM	Policy Officer	

APPENDIX III – Interview questions for policymakers (all levels)

Policy making process

- At what point in the policy-making process do you use the most external information and data?
- At what point in the process do you include citizens' views in policy-making?
- Who decides how and when to consult a) the public and b) external experts?
- Have there been any recent experiments or innovations a) using external information and/or open data or b) modelling the consequences of a policy before key decisions were made?
- Are different processes used when making different types of policy?
- Which individuals or groups are the most important drivers of policy in your experience?

Information, evidence and opinions

- What is the biggest problem you face when trying to find relevant information to inform a specific policy's development?
- Is the information you use in developing policy always available to the public?
- Which policy areas (eg. education, defense, health) do you feel are most difficult to find relevant information and data about?
- Which digital tools/online sources do you currently use to gather evidence and information for developing policy?

Judging Information

- What do you prioritize when assessing the usefulness of information for policy development?
- How do you judge the reliability of evidence/data sources?
- Which sources do you trust the most?
- Where do you feel are the gaps in the evidence, data or expertise you need to make the best policy decisions?

Open data

- How do you currently incorporate open data sources into policy-making?
- Is there pressure/a strategy in the department to use open data more in policy development?
- What challenges have you faced when using open data in policy-making?

Big data

- Which big data sets do you currently use when making policy?
- Who provides these data sets?
- Do you mostly use interpretations of the data or the primary data sets?

Open government

- How will/has the open policy-making agenda change/d your department's approach to developing policy?
- Do you feel you have all the resources you need to meet the requirements of open policy-making? If no, what do you need to make open policy-making a reality?

Opinions

- How do you decide which opinions to use in the policy-making process?
- Have you ever included user generated opinions (from social networking sites or online forums for example) when making policy? If so, was this successful?

Citizen involvement

- How do you go about involving citizens in the development of policy?
- How could citizens' online views (from social networking sites or online forums) enhance the policy-making process?
- Have you found user generated material to be useful when making or developing policy?
- What methods have you used to collect user generated information?

Policy outcomes/consequences

Policy areas

- In which policy areas do you feel there is the most difficulty in predicting outcomes?
- Which policy area do you feel would benefit most from policy simulation?
- Predicting outcomes
- How do you currently weigh the consequences or outcomes of different policy options?
- How successful has Government been at predicting policy outcomes to date?
- How do you currently handle conflicting objectives when evaluating the outcomes of different policy options?
- Are there any specific tools you currently use to simulate or model policy options?
- If resources were no object, what would help you to better understand the consequences of different policy options before they were formally adopted?
- Which factors are currently included in your assessment of future policy consequences eg. environmental, economic, equality/discrimination?
- Which factors do you think should be taken into account when assessing future policy consequences and outcomes?
- Do you have any examples of policy simulation or modelling that was proved to predict policy outcomes accurately?

Potential of a tool to support policy-making

- Where in the policy process do you feel that the Sense4us tool would fit into your work?
- Which of these tools for policy design and development would be of most use to you?
- A tool to search and analyze the most relevant and up to date data, including, open data and user generated.
- A simulation tool to model the impact of a given policy and to understand the consequences of different policy options on different groups.
- Imagine a digital tool that would help you in your day-to-day policy-making tasks – what would it do?

APPENDIX IV – UK survey questions and results

Policy-makers results

1. What areas of policy do you usually work on? (Policy topics, such as 'health' and/or specialisms such as 'research' or 'legal')	
Answer Options	**Response Count**
	23
answered question	**23**
skipped question	**0**

Number	Response Text
1	Health, Legislation, Evaluation
2	Legal
3	better regulation, research, communications
4	Research and science policy
5	Higher Education
6	Transparency, Knowledge & Information, Open Data
7	housing, planning
8	environment and rural / economics and analysis
9	Transport
10	Energy
11	Energy
12	energy
13	health and care
14	justice, EU Balance of Competences, local government
15	Policy tools and techniques, corporate development
16	Energy
17	Justice
18	Open Policy Making - Digital input
19	education
20	Migration
21	Agriculture, environment, use of science/evidence
22	Innovation
23	Social Welfare

2. How important is it that the information you use to develop/support policy is publicly available, free AND online?		
Answer Options	**Response Percent**	**Response Count**
Very important	39.1%	9
Fairly important	52.2%	12

Not very important	8.7%	2
Not important at all	0.0%	0
Don't know/it does not matter	0.0%	0
	answered question	**23**
	skipped question	**0**

3. What proportion of the information you use when working on policy is publicly available, free AND online?

Answer Options	Response Percent	Response Count
0%-24%	13.0%	3
25%-49%	26.1%	6
50%-74%	30.4%	7
75%-100%	13.0%	3
Don't know	17.4%	4
	answered question	**23**
	skipped question	**0**

4. What forms of information do you most value when working on policy?

Answer Options	Response Percent	Response Count
Raw data sets	13.0%	3
Summary of data analysis with commentary	21.7%	5
Summary of data analysis without commentary	0.0%	0
Literature reviews/summaries of multiple pieces of analysis	47.8%	11
Don't know	4.3%	1
Other (please specify)	13.0%	3
	answered question	**23**
	skipped question	**0**

Number	Other (please specify)
1	cross Whitehall deployment in other departments, initiatives in EU, G8, other Anglo-Saxon legal frameworks
2	Raw + summary + meta data
3	Meetings with practitioners, summaries multiple pieces of analysis, intel from Tweets

5. What tools do you currently use to gather information when working on policy? (choose all that apply)

Answer Options	Response Percent	Response Count
Internet search engines (e.g. Google, Yahoo etc.)	69.6%	16
Specialised search engines (e.g. JSTOR, Google Scholar etc.)	26.1%	6
Open data repositories (e.g. datasets on data.gov.uk)	47.8%	11
Private/internal databases and intranet resources	73.9%	17
Other (please specify)	30.4%	7

answered question	**23**
skipped question	**0**

Number	Other (please specify)
1	Discussions with colleagues to identify relevant information.
2	books
3	Evidence and analysis held by other teams in the organisation.
4	users, stakeholders, experts, customers
5	Online collaboration and engagement tools
6	Internal analysts
7	government survey data sets

6. When you are seeking or using information in the course of your work on policy, which, if any, of the following problems do you face? (choose all that apply)

Answer Options	Response Percent	Response Count
Too little information	42.9%	9
Too much information	47.6%	10
Too few sources of information	33.3%	7
Too many sources of information	28.6%	6
Hard to know which sources to trust	61.9%	13
Too little time to gather the relevant information	61.9%	13
Information not available in an accessible format	38.1%	8
Incompatibility of different data sets	42.9%	9
Lack of required tools to perform data analysis	23.8%	5
Lack of required skills/training to perform data analysis	33.3%	7
Incomplete information/data	52.4%	11
None of these	0.0%	0
Other (please specify)	14.3%	3
answered question		**21**
skipped question		**2**

Number	Other (please specify)
1	Data/reports not freely available
2	cross government networks
3	Information is often biased and aimed at supporting a particular viewpoint. Its also often not comprehensible or user friendly.

7. How do you assess the quality of the information you use for policy-making? (choose all that apply)

Answer Options	Response Percent	Response Count
Reputation of the source	90.5%	19
Use of the source by others	4.8%	1
Validity of the methodology	85.7%	18
Availability of the raw data	23.8%	5

Believability of the results	61.9%	13
Other (please specify)	4.8%	1
	answered question	**21**
	skipped question	**2**

Number	Other (please specify)
1	transparency of methodology, peer review

8. Which information sources do you find most useful? (choose a maximum of three)

Answer Options	Response Percent	Response Count
Business representatives	28.6%	6
Charity representatives	4.8%	1
Think tanks	42.9%	9
Parliamentary Library	0.0%	0
Academics	76.2%	16
Government departments/official information	90.5%	19
Social media/blogs/forums	14.3%	3
Traditional media	14.3%	3
Opinion polling	4.8%	1
Focus groups/citizens' juries	23.8%	5
None of these	0.0%	0
Don't know	4.8%	1
Other (please specify)	9.5%	2
	answered question	**21**
	skipped question	**2**

Number	Other (please specify)
1	users, stakeholders, customers!
2	Independent research bodies

9. Are you aware of specific gaps in the data, evidence or expertise in your field of policy which make policy decisions more difficult? If so, what are these?

Answer Options	Response Count
	8
answered question	**8**
skipped question	**15**

Number	Response Text
1	not aware
2	limited data on the private rented sector

3	It is not possible to generalise across the areas I work on. There can be quality issues with some of the monitoring data (including volunteer records) on ecological stats and trends. More generally it is often the case that monitoring information on the impacts of specific policies is inadequate.
4	Policy making in government in the UK is still done very much in isolation from knowledge as to how other countries are addressing similar issues.
5	Ministers' interests can be outside their (and therefore Department's) remit. The lack of formal shared narrative between central and local government about the role of local government, in the light of the effect of local cuts, will make it increasingly difficult in the medium term to define a realistic delivery chain for services - whether they are best delivered directly, commissioned or coordinated and who by.
6	Question is too broad - there are lots.
7	Yes, the evidence and data is unclear and controversial and therefore its interpretation is disputable and disputed. That weakens the value from evidence, as well as making it harder to trust.
8	Labour market dynamics Migrant behaviour

10. In which policy areas (yours or others) do you feel it is most difficult to predict outcomes of a given policy, before that policy is implemented? (choose a maximum of three)

Answer Options	Response Percent	Response Count
Business	31.3%	5
Communities/Local government	18.8%	3
Crime/Policing/Justice	31.3%	5
Defence/Security	12.5%	2
Economy/Finance	43.8%	7
Education	6.3%	1
Employment	6.3%	1
Environment	31.3%	5
Europe	43.8%	7
Foreign Affairs	25.0%	4
Health	12.5%	2
Immigration	25.0%	4
Public Administration	12.5%	2

Science/Technology	12.5%	2
Transport	6.3%	1
Welfare/Pensions	12.5%	2
Other (please specify)	18.8%	3
	answered question	**16**
	skipped question	**7**

Number	Other (please specify)
1	appetite of Arms Length Bodies; senior management team
2	I don't think this question makes sense
3	Social areas (ie not just welfare and pensions but also including ageing population, vulnerable people, poverty etc)

11. Why are these policy areas especially difficult when predicting outcomes and what are the specific problems?

Answer Options	Response Count
	10
answered question	**10**
skipped question	**13**

Number	Response Text
1	Multiple conflicting variables and government a relatively small player/influencer.
2	additional resource requirement for implementation
3	is us my opinion
4	Business - it is generally difficult to target business support in a way which minimises deadweight (i.e. the risk of subsidising investments that would have happened anyway). Economy/Finance and environment - it is not easy to predict how complex system react, or how far we are from a tipping point even if we know there is one (whether is the relationship between taxation burden and tax revenues, say, or the relationship between application of pesticides and pollinators abundance).
5	see comments under 9 primarily. Under Crime/Policing/Justice because we do not know what the impact of cuts and reforms will be as they are largely to happen and reforms largely un-piloted
6	Complex issues with many interwoven drivers, and with long term impacts.

7	Have predictions that we make about policies ever actually come true?
8	Because there is such a complex mix of drivers and influences affecting outcomes - it is not as simple as 2+2=4.
9	Complexity of natural systems leading to unintended consequences
10	In foreign affairs and defense there are very many unknowns and few metrics, let alone quantitative research. Immigration is similarly difficult to analyse and predict, though there is some literature on this.

12. Do you seek the views of the public during the policy-making process?

Answer Options	Response Percent	Response Count
Yes	94.7%	18
No	5.3%	1
	answered question	**19**
	skipped question	**4**

13. Which public feedback methods are useful to you during the policy-making process?

Answer Options	Very useful	Somewhat useful	Not very useful	Not at all useful	Response Count
Consultation documents (green papers etc.)/requests for evidence	7	9	2	0	18
Commissioned polling/surveys	4	12	2	0	18
Focus groups/citizens' juries etc.	3	12	2	0	17
Dedicated websites for an individual policy	1	10	3	3	17
Online forums	1	8	6	2	17
Social media analysis	1	9	5	2	17
			answered question		**18**
			skipped question		**5**

14. Which of these tools for policy design and development would be of most use to you?

Answer Options	Response Percent	Response Count
A tool to search and analyse the most relevant and up-to-date data, including open data and social media content	26.3%	5
A simulation tool to help model the impact of a given policy and to understand the consequences of different policy options on society	57.9%	11
Neither sound that helpful for my work	15.8%	3
	answered question	**19**

skipped question	**4**

15. Where in the policy process do you think these tools would be most helpful?	
Answer Options	**Response Count**
	10
answered question	**10**
skipped question	**13**

Number	Response Text
1	They should be used throughout, but particularly early on for the modelling tool and then iterate as more detail of the policy develops.
2	To help think about the impacts of different options
3	In principle they could be useful at any stage of the policy cycle, from initial analysis of the problem, to option development, implementation and ex-post evaluation.
4	Early on in formulating the policy.
5	throughout
6	Throughout.
7	All through, but particularly at the start when most of what a policy is becomes defined
8	At different stages there will be different tools which will be helpful e.g. engagement tool when gathering ideas and evidence.
9	the tool would need to evolve with the policy but it should be there very early on
10	Discovering and quantifying relationships among relevant variables that could be used in models, so at a very early stage in the policy process.

16. Is there anything else you would like to tell us about the policy development process as a result of this survey?	
Answer Options	**Response Count**
	5
answered question	**5**
skipped question	**18**

Number	Response Text

1	Options development is an area where tools and skills are lacking, which often leads to too few options considered and a lack of innovation in options.
2	Ministers' views and actions may override much of this.
3	This project does not seem useful in my field, and it would be unhelpful to try to imply that this sort of information analysis will help construct a rational debate - but it may be useful in other fields
4	QA of external data in a fast moving world in a real challenge
5	So-called 'big data' has potential but it is essential that provenance and quality assurance matters are understood before it is used for life-changing purposes.

17. If you would be interested in finding out more about this project or if you have a problem that you think Sense4us could answer, we would be very interested to hear from you. Please put your email address here. (OPTIONAL)

Answer Options	Response Count
	4
answered question	**4**
skipped question	**19**

Number	Response Text
1	Response removed to maintain the confidentiality of the participants.
2	Response removed to maintain the confidentiality of the participants.
3	Response removed to maintain the confidentiality of the participants.
4	Response removed to maintain the confidentiality of the participants.

Decision-makers results

1. What areas of policy do you specialise in?

Answer Options	Response Count
	23
answered question	**23**
skipped question	**0**

Number	Response Text
1	as ex-CSA (1995-2000), various

2	Third World, particularly Africa; Overseas Territories; Wildlife; Health
3	Science and technology, with a focus on social science
4	Children
5	Environment
6	EU policy on agriculture, fisheries, environment and energy
7	Economic policy and statistics
8	International relations
9	EU
10	transport
11	agriculture, food and rural issues
12	Local Government, planning, housing, benefits, policing
13	Skills, education, employment, arts, Wales
14	Tech, women and entrepreneurship
15	Foreign policy and Human Rights policy
16	Transport, Social, Business
17	Not relevant
18	Health
19	Science policy
20	Wales. Social policy. Health. Culture and language. Education
21	Welfare and treasury
22	Health
23	science/technology/education

2. How important is it that the information used to support policy is publicly available, free AND online?

Answer Options	Response Percent	Response Count
Very important	69.6%	16
Fairly important	30.4%	7
Not very important	0.0%	0
Not important at all	0.0%	0
Don't know/it does not matter	0.0%	0
	answered question	**23**
	skipped question	**0**

3. What proportion of the information currently used to develop policy do you think is publicly available, free AND online?

Answer Options	Response Percent	Response Count
0%-24%	4.3%	1
25%-49%	21.7%	5
50%-74%	39.1%	9
75%-100%	13.0%	3
Don't know	21.7%	5
	answered question	**23**

skipped question	**0**

4. What forms of information do you most value when scrutinising policy?

Answer Options	Response Percent	Response Count
Raw data sets	0.0%	0
Summary of data analysis with commentary	39.1%	9
Summary of data analysis without commentary	4.3%	1
Literature reviews/summaries of multiple pieces of analysis	43.5%	10
Don't know	0.0%	0
Other (please specify)	13.0%	3
answered question		**23**
skipped question		**0**

Number	Other (please specify)
1	as appropriate: one or other of the above
2	Mixed - systematic analyses are very valuable, but it depends on the topic and the precise nature of the work, sometimes going back to raw statistical datasets is necessary, other times summaries are more appropriate
3	Written and oral evidence (I work for a Select Committee)

5. What tools do you currently use to gather information when scrutinising policy? (choose all that apply)

Answer Options	Response Percent	Response Count
Internet search engines (e.g. Google, Yahoo etc.)	91.3%	21
Specialised search engines (e.g. JSTOR, Google Scholar etc.)	39.1%	9
Open data repositories (e.g. datasets on data.gov.uk)	56.5%	13
Private/internal databases and intranet resources	52.2%	12
Other (please specify)	26.1%	6
answered question		**23**
skipped question		**0**

Number	Other (please specify)
1	see Q4
2	media dataset
3	Books, reports, newspapers, etc
4	Select committees have powers to require production of evidence which we use extensively
5	Written and oral evidence (as above)
6	House of commons library

6. When you are seeking or using information in the course of your work on policy, which, if any, of the following problems do you face? (choose all that apply)		
Answer Options	**Response Percent**	**Response Count**
Too little information	27.3%	6
Too much information	40.9%	9
Too few sources of information	18.2%	4
Too many sources of information	31.8%	7
Hard to know which sources to trust	40.9%	9
Too little time to gather the relevant information	59.1%	13
Information not available in an accessible format	40.9%	9
Incompatibility of different data sets	27.3%	6
Lack of required tools to perform data analysis	0.0%	0
Lack of required skills/training to perform data analysis	13.6%	3
Incomplete information/data	40.9%	9
None of these	0.0%	0
Other (please specify)	9.1%	2
	answered question	**22**
	skipped question	**1**

Number	Other (please specify)
1	Time is always a pressure, but often lack of access to journals is a key problem, and also finding sufficient relevant information. If a particular policy question is very focused, it can often be that there is limited research on the precise topic, so it is necessary to make comparisons between the findings of different research when they are not directly comparable
2	broken links; archived resources with no obvious link; lack of search facility

7. How do you assess the quality of the information you when scrutinising policy? (choose all that apply)		
Answer Options	**Response Percent**	**Response Count**
Reputation of the source	81.8%	18
Use of the source by others	22.7%	5
Validity of the methodology	81.8%	18
Availability of the raw data	22.7%	5
Believability of the results	54.5%	12
Other (please specify)	13.6%	3
	answered question	**22**
	skipped question	**1**

Number	Other (please specify)
1	peer review is important
2	We make commission experts to assess validity. Comparative analysis is also a useful tool - spotting outliers.

3	Does the UK wide research address validity for Wales (or any other nation / region of the UK). Do the results seem plausible for Wales, (I have some background in social policy and also 'know' Wales very well

8. Which information sources do you find most useful? (choose a maximum of three)

Answer Options	Response Percent	Response Count
Business representatives	18.2%	4
Charity representatives	18.2%	4
Think tanks	59.1%	13
Parliamentary Library	77.3%	17
Academics	27.3%	6
Government departments/official information	63.6%	14
Social media/blogs/forums	4.5%	1
Traditional media	22.7%	5
Opinion polling	4.5%	1
Focus groups/citizens' juries	0.0%	0
None of these	0.0%	0
Don't know	0.0%	0
Other (please specify)	4.5%	1
answered question		**22**
skipped question		**1**

Number	Other (please specify)
1	specialist media sources and arm's length government bodies

9. Are you aware of specific gaps in the data, evidence or expertise in your field of policy which make decisions more difficult? If so, what are these?

Answer Options	Response Count
	7
answered question	**7**
skipped question	**16**

Number	Response Text
1	No
2	assessments that holistically combine economic, environmental and social impacts of a policy - and that give figures for the economic cost of environmental and social externalities.

3	1. Lack of access to academic work, for example if it is behind a paywall (that we've not paid for, or that reduces our ability to search). Academic work that is written poorly, so that it is hard to understand what it can be used for. Academic work - especially in peer reviewed publications - that is so out of date that it is of little relevance to policy. 2. Poor websites that make it hard to find data.
4	government has become more transparent over recent years, which does make the gaps more glaring - there have been particular issues getting transparency about HS2 and from HS2 Ltd., for example...
5	n/a
6	For us it's not so much about gaps but being able to identify relevant source of information and targeted evidence in the required timeframe (which is usually very short).
7	Uk data sometimes are not available for nations/regions, or very occasionally Wales is split - north and north west of England, south south west of England or even (very peculiarly) Wales and West Midlands. When evidence is gathered directly from citizens it is often unclear if language and culture are takeN into account - or account taken of any biases that might arise. Certainly polling/focus groups etc often do not address the languages issue in Wales. Data sets valid for 60 million people in the UK do not always relate well to Wales - 3 million - or Welsh speakers - 600,000

10. In which policy areas (yours or others) do you feel it is most difficult to predict outcomes of a given policy, before that policy is implemented? (choose a maximum of three)

Answer Options	Response Percent	Response Count
Business	15.0%	3
Communities/Local government	15.0%	3
Crime/Policing/Justice	15.0%	3

Defence/Security	10.0%	2
Economy/Finance	20.0%	4
Education	20.0%	4
Employment	15.0%	3
Environment	30.0%	6
Europe	40.0%	8
Foreign Affairs	40.0%	8
Health	10.0%	2
Immigration	25.0%	5
Public Administration	0.0%	0
Science/Technology	15.0%	3
Transport	0.0%	0
Welfare/Pensions	30.0%	6
Other (please specify)	15.0%	3
	answered question	**20**
	skipped question	**3**

Number	Other (please specify)
1	I would not be inclined to specify particular areas as the issue is important across policy
2	I do not feel able to answer this sensibly
3	I see you do not include culture - so culture and language

11. Why are these policy areas especially difficult when predicting outcomes and what are the specific problems?

Answer Options	Response Count
	13
answered question	**13**
skipped question	**10**

Number	Response Text
1	Environment - e.g. effect of neonicotinoids on bee population; Europe - too much nonsense talked by those with no experience of benefits; Foreign Affairs + Immigration - damage done to Britain by linking these two issues; Health - unpredictable results/side effects of new treatments
2	I think because the levers for achieving outcomes in these areas are complex and there might be confounding factors that make the desired outcomes difficult to achieve - although these problems could apply to many policy areas.

3	I would not be inclined to specify particular areas as the issue is important across policy
4	Despite the work of many economists over many years, it is still difficult to predict how the economy will respond - look for example at the unexpected effect on the labour market of the recent recession. This is partly because economic structures, expectations and information flows have changed and partly because we have relatively little data at the macro level (for example, studying the effect of recessions is made more difficult by the fact we've had under 10 in the UK in the last century). There's presumably a similar problem with defence (as well as various other ones) - we only have limited numbers of conflicts / relationships to examine.
5	Europe and foreign affairs are dependent on the actions of others as well as UK policy. In science and technology, policy is often trying to encourage the introduction of new techniques the success of which is not certain
6	they are the ones with the biggest long term implications which of necessity make them harder to predict
7	Unexpected consequences Differing views from experts
8	n/a
9	Not enough piloting undertaken before full implementation. Not enough preliminary scrutiny or consultation.
10	Too many variables and too much predictive thinking
11	All are subject to forces that are outside government control
12	Lots of social/political factors which are more difficult to predict and test for

13	There is a generic problem in that devolution has led to policies being applied differentially in the 4 parts of the UK - so outcomes may vary + date of implementation + if the policy is implemented at all. This is compounded by the devolution model in Wales - nothing is devolved unless it is - as compared to Scotland - everything is devolved unless it's reserved. Thus the nature and degree of devolution in Wales can be detailed and complex (I sometimes ask ministers ' is this devolved'. They are stumped oftener than is comfortable

12. How useful do you consider the following methods to be for generating public feedback on policy?

Answer Options	Very useful	Somewhat useful	Not very useful	Not at all useful	Don't know	Response Count
Consultation documents (green papers etc.)/requests for evidence	8	12	0	0	0	20
Commissioned polling/surveys	2	11	5	2	0	20
Focus groups/citizens' juries etc.	0	7	10	1	2	20
Dedicated websites for an individual policy	2	10	6	0	2	20
Online forums	0	8	6	4	2	20
Social media analysis	2	5	9	3	1	20
				answered question		**20**
				skipped question		**3**

13. Which of these tools for policy development and scrutiny would be of most use to you?

Answer Options	Response Percent	Response Count
A tool to search and analyse the most relevant and up-to-date data, including open data and social media content	45.0%	9
A simulation tool to help model the impact of a given policy and to understand the consequences of different policy options on society	25.0%	5
Neither sound that helpful for my work	30.0%	6
	answered question	**20**
	skipped question	**3**

14. Where in the policy process do you think these tools would be most helpful?	
Answer Options	**Response Count**
	9
answered question	**9**
skipped question	**14**

Number	Response Text
1	Probably most relevant to economic policy - e.g. effect of tax variations on (a) revenue, (b) employment.
2	At the Green Paper stage, so that the tool can influence the direction of policy.
3	At the earlier stages
4	we get asked about impacts on specific groups so it would be useful to have something that could do that
5	during policy development
6	Throughout the process
7	Those areas which have a large number of stakeholders and/or high levels of public interest.
8	Early
9	For me as a (permanent) member of the opposition - in responding to policy proposals/ green papers/draft bills/committee stages/ report stages - sorry - that sounds like all ....

15. Is there anything else you would like to tell us about the policy development and scrutiny process as a result of this survey?	
Answer Options	**Response Count**
	3
answered question	**3**
skipped question	**20**

Number	Response Text
1	no
2	No thank you
3	Are you looking at p9olicy development in Wales Scotland and northern Ireland? or for that matter on an EU level and in devolved legislatures in other countries - Flanders Catalonia and the Basque country come to mind (the development of the Basque taxation system - essentially devo-max is interesting (to me at least - perhaps sadly)

16. If you would be interested in finding out more about this project or if you have a problem that you think Sense4us could answer, we would be very interested to hear from you. Please put your email address here. (OPTIONAL)

Answer Options	Response Count
	9
answered question	**9**
skipped question	**14**

Number	Response Text
1	Response removed to maintain the confidentiality of the participants.
2	Response removed to maintain the confidentiality of the participants.
3	Response removed to maintain the confidentiality of the participants.
4	Response removed to maintain the confidentiality of the participants.
5	Response removed to maintain the confidentiality of the participants.
6	Response removed to maintain the confidentiality of the participants.
7	Response removed to maintain the confidentiality of the participants.
8	Response removed to maintain the confidentiality of the participants.
9	Response removed to maintain the confidentiality of the participants.

APPENDIX V – Survey questions for German participants

Due to the fact that the Berlin City Parliament survey was circulated a couple of weeks after the Bundestag's survey, the decision was made to include a free text field (Q7) in the Berlin survey in order to ask about concrete data sources. A structural effect of the additional inserted question is that the number of questions for the Berlin City Parliament was therefore higher. For practical reasons we will henceforth use the numbers from the Bundestag's survey to refer to each particular question: this means if we talk about Q7, this refers to question number 7 from the Bundestag's survey and question number 8 from the Berlin City Parliament survey. The following Table 22 covers the translation of questions from the EU and UK online survey (Cp. 1st column) to the level of the German Bundestag (Cp. 2nd column) and the German Berlin City Parliament (Cp. 3rd column). The survey results for the German Bundestag and the Berlin City Parliament follows directly after the table.

Survey questions EU and UK	Survey questions (Q) Bundestag	Survey questions (Q) Berlin City Parliament
1. What areas of policy do you usually work on? (Policy topics, such as 'health' and/or specialisms such as 'research' or 'legal')	Q1	Q1
2. How important is it that the information you use to develop/support policy is publicly available, free AND online?	Merged with question 3	Merged with question 3
3. What proportion of the information you use when working on policy is publicly available, free AND online?	Merged with question 2	Merged with question 2
4. What forms of information do you most value when working on policy?	Q6	Q6
5. What tools do you currently use to gather information when working on policy? (choose all that apply)	Q4	Q4
6. When you are seeking or using information in the course of your work on policy, which, if any, of the following problems do you face? (choose all that apply)	Q5	Q5
7. How do you assess the quality of the information you when scrutinising policy? (choose all that apply)	Q7	Q8
8. Which information sources do you find most useful? (choose a maximum of three)	Q8	Q9

9. Are you aware of specific gaps in the data, evidence or expertise in your field of policy which make decisions more difficult? If so, what are these?	No free text questions were used	No free text questions were used
10. In which policy areas (yours or others) do you feel it is most difficult to predict outcomes of a given policy, before that policy is implemented? (choose a maximum of three)	Question were skipped because it seemed to be too time consuming	Question were skipped because it seemed to be too time consuming
11. Why are these policy areas especially difficult when predicting outcomes and what are the specific problems?	No free text questions were used	No free text questions were used
12. How useful do you consider the following methods to be for generating public feedback on policy?	Q10	Q11
13. Which of these tools for policy development and scrutiny would be of most use to you?	Q11	Q12
14. Where in the policy process do you think these tools would be most helpful?	No free text questions were used	No free text questions were used
15. Is there anything else you would like to tell us about the policy development and scrutiny process as a result of this survey?	Q12	Q13
16. If you would be interested in finding out more about this project or if you have a problem that you think Sense4us could answer, we would be very interested to hear from you. Please put your email address here. (OPTIONAL)	Q13	Q14
#	Q2 - Participants were asked for their position (e.g. MP).	Q2 - Participants were asked for their position (e.g. MP).
Cp. 2+3	Q3 - Instead of Question 2 and 3 (EU, UK) the participants were asked if they using information from the Internet	Q3 - Instead of Question 2 and 3 (EU, UK) the participants were asked if they using information from the Internet
#	#	Q7 – participants were asked for concrete data sources

Table 22: DE survey questions

Online survey results German Bundestag

Q1: Welchen politischen Themenbereich verantworten Sie?		
Answer Options	**Response Percent**	**Response Count**
Privatwirtschaft/ Industrie	0,0%	0
Gesellschaft/ Kommunalpolitik	16,7%	4
Verbrechen/ Überwachung/ Justiz	8,3%	2
Verteidigung/ Sicherheit	4,2%	1
Wirtschaft/ Finanzen	20,8%	5
Bildungswesen	16,7%	4
Erwerbstätigkeit	4,2%	1
Umwelt	4,2%	1
Europa	20,8%	5
Auswärtige Angelegenheiten	16,7%	4
Gesundheitswesen	12,5%	3
Einwanderung	0,0%	0
Öffentliche Verwaltung	0,0%	0
Wissenschaft/ Technologie	8,3%	2
Verkehrswesen	8,3%	2
Sozialwesen/ Altersrente	12,5%	3
Sonstiges (bitte angeben)	33,3%	8
answered question		**24**
skipped question		**0**

Number	Response Date	Sonstiges (bitte angeben)	Categories
1	**Apr 15, 2014 1:00 nachm.**	Menschenrechte und Humanitäre Hilfe	
2	**Mär 24, 2014 12:39 nachm.**	Queer, Energie, Medien, Recht	
3	**Mär 19, 2014 8:31 vorm.**	Familien-, Kinder- und Jugendpolitik	
4	**Mär 19, 2014 6:47 vorm.**	Bürgerschaftlichem Engagement, Menschenrechte	
5	**Mär 18, 2014 6:52 nachm.**	Petition	
6	**Mär 18, 2014 10:38 vorm.**	Familie, Jugend, Bürgerschaftliches Engagement	
7	**Mär 17, 2014 4:37 nachm.**	Frauen- und Familienpolitik	
8	**Mär 17, 2014 3:44 nachm.**	Digitale Agenda	

Q2: In welcher Position sind Sie tätig? (z.B. MdB, Büromitarbeiter/in)	
Answer Options	**Response Count**
	24
answered question	**24**
skipped question	**0**

Number	Response Date	Response Text	Categories
1	**Apr 17, 2014 6:35 nachm.**	MdB	
2	**Apr 15, 2014 1:00 nachm.**	Referentin	
3	**Apr 7, 2014 5:59 nachm.**	MdB	
4	**Mär 27, 2014 1:05 nachm.**	Wissenschaftliche Mitarbeiterin	
5	**Mär 25, 2014 3:45 nachm.**	MdB	
6	**Mär 24, 2014 12:39 nachm.**	MdB	

7	**Mär 21, 2014 10:45 vorm.**	MdB
8	**Mär 19, 2014 5:10 nachm.**	MdB-Mitarbeiterin
9	**Mär 19, 2014 8:31 vorm.**	MdB
10	**Mär 19, 2014 6:47 vorm.**	Mdb
11	**Mär 18, 2014 11:09 nachm.**	Mdb
12	**Mär 18, 2014 6:52 nachm.**	MdB
13	**Mär 18, 2014 1:59 nachm.**	wiss. Mitarbeiter
14	**Mär 18, 2014 12:48 nachm.**	MdB
15	**Mär 18, 2014 10:38 vorm.**	Büroleiterin MdB-Büro
16	**Mär 18, 2014 8:27 vorm.**	MdB
17	**Mär 18, 2014 8:23 vorm.**	MdB
18	**Mär 17, 2014 10:01 nachm.**	MdB
19	**Mär 17, 2014 5:29 nachm.**	MdB
20	**Mär 17, 2014 4:37 nachm.**	MdB
21	**Mär 17, 2014 4:08 nachm.**	MdB
22	**Mär 17, 2014 3:45 nachm.**	Büroleitung
23	**Mär 17, 2014 3:44 nachm.**	Mdb
24	**Mär 17, 2014 3:21 nachm.**	MdB

Q3: In wie weit nutzen Sie verfügbare Informationen aus dem Internet?

Answer Options	Response Percent	Response Count
überhaupt nicht	0,0%	0
wenig	4,2%	1
zum Teil	4,2%	1
ziemlich	16,7%	4
sehr häufig	75,0%	18
	answered question	**24**
	skipped question	**0**

Q4: Welche Tools verwenden Sie aktuell zur Suche von Informationen in der Gesetzgebungsphase? (Alle zutreffenden auswählen)

Answer Options	Response Percent	Response Count
Internet-Suchmaschinen (z.B. Google, Yahoo)	83,3%	20
Spezielle Suchmaschinen (z.B. wolframalpha.com)	4,2%	1
Open Data-Portale (z.B. offenedaten.de, govdata.de)	25,0%	6
Social Media-Plattformen (z.B. Facebook, Twitter)	45,8%	11
Nicht öffentliche/ interne Datenbanken und Intranet-Daten	100,0%	24
Sonstiges (bitte angeben)	12,5%	3
	answered question	**24**
	skipped question	**0**

Number	Response Date	Sonstiges (bitte angeben) Categories
1	**Apr 15, 2014 1:00 nachm.**	wissenschaftliche Literatur
2	**Mär 19, 2014 6:47 vorm.**	Meine eigene Internetseite
3	**Mär 17, 2014 4:08 nachm.**	Intranet der Bundestagsfraktion

Q5: Was erschwert Ihre Nutzung von Informationen im Internet? (Alle zutreffenden auswählen)		
Answer Options	**Response Percent**	**Response Count**
Zu wenig Informationen	9,1%	2
Zu viele Informationen	63,6%	14
Zu wenig Informationsquellen	4,5%	1
Zu viele Informationsquellen	13,6%	3
Identifizierung vertrauenswürdiger Quellen	86,4%	19
Zu wenig Zeit, um relevante Informationen zu finden	54,5%	12
Informationen befinden sich nicht im gewünschten Format	18,2%	4
Informationen aus unterschiedlichen Quellen lassen sich nicht verknüpfen	9,1%	2
Mangelnde oder keine Werkzeuge zur Informationssuche und -Auswertung	9,1%	2
Mangelnde Erfahrung/ Training zur Informationssuche und -Auswertung	9,1%	2
Unvollständige Informationen	45,5%	10
Sonstiges (bitte angeben)	0,0%	0
	answered question	**22**
	skipped question	**2**

Q6: Wie wichtig sind Ihnen die folgenden Arten von Informationen für Ihre Willensbildung?		
Answer Options	**Response Percent**	**Response Count**
Statistische Daten (z.B. Datenbanken, Excel-Listen)	0,0%	0
Texte, Essays, Stellungnahmen, Gutachten (z.B. als PDF-Dokumente, Webseiten)	54,5%	12
Zusammenfassung (z.B. Berichte ähnlich wie Sekundärliteratur)	27,3%	6
Kommentare sozialer Netzwerke (z.B. Tweets, Facebook-Posts)	0,0%	0
Sonstiges (bitte angeben)	18,2%	4
	answered question	**22**
	skipped question	**2**

Number	Response Date	Sonstiges (bitte angeben) Categories
1	**Apr 17, 2014 6:35 nachm.**	Statistische Daten und Texte, Gutachten....leider lässt das System Doppelklick nicht zu
2	**Apr 15, 2014 1:00 nachm.**	Wissenschaftliche Aufarbeitungen
3	**Mär 19, 2014 6:47 vorm.**	Die ersten drei Nennungen
4	**Mär 18, 2014 8:27 vorm.**	Die Fragestellung verlangt eine Priorisierungsmöglichkeit! Alle Punkte sind wichtig.

Q7: Wie beurteilen Sie die Vertrauenswürdigkeit der Informationen die Sie aus dem Internet beziehen? (Alle zutreffenden auswählen)		
Answer Options	**Response Percent**	**Response Count**
Reputation des Anbieters	95,7%	22
Häufigkeit der Nutzung der Informationen durch andere	8,7%	2
Das Verfahren wie Informationen zusammengestellt wurden	30,4%	7
Offenlegung der originalen Daten (sofern diese aufbereitet wurden)	52,2%	12
Plausibilität die Ergebnisse	60,9%	14
Sonstiges (bitte angeben)	0,0%	0
	answered question	**23**
	skipped question	**1**

Q8: Wie bedeutend sind die folgenden Informationsquellen Ihrer Meinung nach? (Maximal drei ankreuzen)						
Answer Options	**überhaupt nicht**	**wenig**	**zum Teil**	**ziemlich**	**sehr**	**Response Count**
Privatwirtschaft/ Industrie	0	2	8	6	0	16
Wohltätigkeitsvereine	0	1	6	8	1	16
Think Tanks	0	2	4	7	2	15
Wissenschaftlicher Dienst	0	0	0	9	13	22
Akademiker	0	1	6	5	2	14
Regierungseinrichtungen/ offizielle Informationen	0	0	2	14	6	22
Social Media/ Blogs/ Forums	1	7	5	1	0	14
Klassische Medien	0	3	5	8	2	18
Meinungsumfrage-Institute	0	8	0	6	1	15
Fokusgruppen/ Bürgervertreter	0	3	4	6	1	14
Sonstiges (bitte angeben)						0
			answered question			**23**
			skipped question			**1**

Q9: Geben Sie selbst Meinungsumfragen in Auftrag oder befragen Sie für politische Entscheidungen die Öffentlichkeit nach Ihrer Meinung?		
Answer Options	**Response Percent**	**Response Count**
Ja	17,4%	4
Nein	82,6%	19
	answered question	**23**
	skipped question	**1**

Q10: Welche Methoden zur Einbindung der öffentlichen Meinung erachten Sie als sinnvoll?					
Answer Options	**Sehr nützlich**	**Nützlich**	**weniger nützlich**	**Nicht nützlich**	**Response Count**
Konsultationspapiere	0	1	2	0	3
Meinungsumfragen (z.B infratest demap)	1	1	1	0	3
Fokusgruppen/ Bürgervertreter	0	1	2	0	3
Beteiligungsplattformen	0	2	1	0	3
Online-Foren	0	1	2	0	3
Social Media Analyse	0	2	1	0	3
			answered question		**3**
			skipped question		**21**

Q11: Welche dieser Tools wären Ihrer Meinung nach für die Erarbeitung von Gesetzen von größtem Nutzen?		
Answer Options	**Response Percent**	**Response Count**
Ein Tool zur Suche und Analyse von relevanten wie aktuellen Daten, inklusive Open Data und Social Media	27,3%	6
Ein Simulationstool zum Aufzeigen unterschiedlicher gesellschaftlicher Konsequenzen von Gesetzen/ Gesetzesentwürfen in Bezug auf unterschiedliche Eingabeparameter	63,6%	14
Nichts dergleichen scheint für meine Arbeit hilfreich	9,1%	2
	answered question	**22**
	skipped question	**2**

Q12: Wollen Sie uns weitere Details zur politischen Willensbildung als Ergebnis dieser Umfrage mitteilen? (z.B. relevante Informationsquellen)	
Answer Options	**Response Count**
	4
answered question	**4**
skipped question	**20**

Number	Response Date	Response Text	Categories
1	**Apr 17, 2014 6:42 nachm.**	Expertengespräche, Positionspapiere, wissenschaftliche Arbeiten (Master, Promotionen), Forschungsberichte,	
2	**Mär 24, 2014 12:39 nachm.**	nein	
3	**Mär 18, 2014 10:39 vorm.**	Gespräche mit Bürgern, Stadtgesellschaft, Verbandsvertretern u.a.	
4	**Mär 17, 2014 4:10 nachm.**	Informationsquellen sind Verbandsanfragen aus dem Wahlkreis und von diesen Fragen zur Anhörung von Gesetzen vor der 2., 3. Lesung.	

Online survey results Berlin City Parliament

Q1: Welchen politischen Themenbereich verantworten Sie?		
Answer Options	**Response Percent**	**Response Count**
Privatwirtschaft/ Industrie	0,0%	0
Gesellschaft/ Kommunalpolitik	0,0%	0
Verbrechen/ Überwachung/ Justiz	0,0%	0
Verteidigung/ Sicherheit	0,0%	0
Wirtschaft/ Finanzen	0,0%	0
Bildungswesen	33,3%	1
Erwerbstätigkeit	0,0%	0
Umwelt	0,0%	0
Europa	0,0%	0
Auswärtige Angelegenheiten	0,0%	0
Gesundheitswesen	33,3%	1
Einwanderung	0,0%	0
Öffentliche Verwaltung	0,0%	0
Wissenschaft/ Technologie	0,0%	0
Verkehrswesen	33,3%	1
Sozialwesen/ Altersrente	0,0%	0
Sonstiges (bitte angeben)	33,3%	1
	answered question	**3**
	skipped question	**0**

Number	Response Date	Sonstiges (bitte angeben)	Categories
1	**Juni 13, 2014 8:56 vorm.**	Stadtentwicklung	

Q2: In welcher Position sind Sie tätig? (z.B. MdA, Büromitarbeiter/in)	
Answer Options	**Response Count**
	3
answered question	**3**
skipped question	**0**

Number	Response Date	Response Text
1	**Juni 20, 2014 10:38 vorm.**	MdA
2	**Juni 13, 2014 8:56 vorm.**	MdA
3	**Juni 12, 2014 10:52 vorm.**	Büroleiterin

Q3: In wie weit nutzen Sie verfügbare Informationen aus dem Internet?		
Answer Options	**Response Percent**	**Response Count**
überhaupt nicht	0,0%	0
wenig	0,0%	0
zum Teil	0,0%	0
ziemlich	0,0%	0
sehr häufig	100,0%	3
	answered question	**3**
	skipped question	**0**

Q4: Welche Tools verwenden Sie aktuell zur Suche von Informationen in der Gesetzgebungsphase? (Alle zutreffenden auswählen)		
Answer Options	**Response Percent**	**Response Count**
Internet-Suchmaschinen (z.B. Google, Yahoo)	100,0%	3
Spezielle Suchmaschinen (z.B. wolframalpha.com)	66,7%	2
Open Data-Portale (z.B. offenedaten.de, govdata.de)	33,3%	1
Social Media-Plattformen (z.B. Facebook, Twitter)	66,7%	2
Nicht öffentliche/ interne Datenbanken und Intranet-Daten	66,7%	2
Sonstiges (bitte angeben)	0,0%	0
	answered question	**3**
	skipped question	**0**

Q5: Was erschwert Ihre Nutzung von Informationen im Internet? (Alle zutreffenden auswählen)		
Answer Options	**Response Percent**	**Response Count**
Zu wenig Informationen	0,0%	0
Zu viele Informationen	66,7%	2
Zu wenig Informationsquellen	0,0%	0
Zu viele Informationsquellen	0,0%	0
Identifizierung vertrauenswürdiger Quellen	100,0%	3
Zu wenig Zeit, um relevante Informationen zu finden	66,7%	2
Informationen befinden sich nicht im gewünschten Format	33,3%	1
Informationen aus unterschiedlichen Quellen lassen sich nicht verknüpfen	33,3%	1
Mangelnde oder keine Werkzeuge zur Informationssuche und -Auswertung	33,3%	1
Mangelnde Erfahrung/ Training zur Informationssuche und -Auswertung	33,3%	1
Unvollständige Informationen	66,7%	2
Sonstiges (bitte angeben)	0,0%	0
	answered question	**3**
	skipped question	**0**

Q6: Wie wichtig sind Ihnen die folgenden Arten von Informationen für Ihre Willensbildung?		
Answer Options	**Response Percent**	**Response Count**
Statistische Daten (z.B. Datenbanken, Excel-Listen)	33,3%	1
Texte, Essays, Stellungnahmen, Gutachten (z.B. als PDF-Dokumente, Webseiten)	33,3%	1
Zusammenfassung (z.B. Berichte ähnlich wie Sekundärliteratur)	33,3%	1
Kommentare sozialer Netzwerke (z.B. Tweets, Facebook-Posts)	0,0%	0
Sonstiges (bitte angeben)	0,0%	0
	answered question	**3**
	skipped question	**0**

Q7: Nennen Sie wenn möglich eine oder mehrere konkrete Informationsquellen die Sie zur politischen Willensbildung verwenden (z.B. http://daten.berlin.de/):	
Answer Options	**Response Count**
	1
answered question	**1**
skipped question	**2**

Number	Response Date	Response Text	Categories
1	**Juni 13, 2014 8:56 vorm.**	Parlament-Berlin.de, statistik-berlin-Brandenburg. de, Berlin.de	

Q8: Wie beurteilen Sie die Vertrauenswürdigkeit der Informationen die Sie aus dem Internet beziehen? (Alle zutreffenden auswählen)		
Answer Options	**Response Percent**	**Response Count**
Reputation des Anbieters	66,7%	2
Häufigkeit der Nutzung der Informationen durch andere	33,3%	1
Das Verfahren wie Informationen zusammengestellt wurden	0,0%	0
Offenlegung der originalen Daten (sofern diese aufbereitet wurden)	66,7%	2
Plausibilität die Ergebnisse	100,0%	3
Sonstiges (bitte angeben)	0,0%	0
	answered question	**3**
	skipped question	**0**

Q9: Wie bedeutend sind die folgenden Informationsquellen Ihrer Meinung nach? (Maximal drei ankreuzen)						
Answer Options	**überhaupt nicht**	**wenig**	**zum Teil**	**ziemlich**	**sehr**	**Response Count**
Privatwirtschaft/ Industrie	0	1	0	1	0	2
Wohltätigkeitsvereine	0	0	2	0	0	2
Think Tanks	0	0	1	1	0	2
Wissenschaftlicher Dienst	0	1	0	2	0	3
Akademiker	0	0	1	1	0	2
Regierungseinrichtungen/ offizielle Informationen	0	0	0	2	0	2
Social Media/ Blogs/ Forums	0	0	1	2	0	3
Klassische Medien	0	0	1	2	0	3
Meinungsumfrage-Institute	0	1	0	1	0	2
Fokusgruppen/ Bürgervertreter	0	0	1	1	0	2
Sonstiges (bitte angeben)						0
				answered question		**3**
				skipped question		**0**

Q10: Geben Sie selbst Meinungsumfragen in Auftrag oder befragen Sie für politische Entscheidungen die Öffentlichkeit nach Ihrer Meinung?		
Answer Options	**Response Percent**	**Response Count**
Ja	100,0%	3
Nein	0,0%	0
	answered question	**3**
	skipped question	**0**

Q11: Welche Methoden zur Einbindung der öffentlichen Meinung erachten Sie als sinnvoll?					
Answer Options	**Sehr nützlich**	**Nützlich**	**weniger nützlich**	**Nicht nützlich**	**Response Count**
Konsultationspapiere	1	1	1	0	3
Meinungsumfragen (z.B infratest demap)	1	1	1	0	3
Fokusgruppen/ Bürgervertreter	0	3	0	0	3
Beteiligungsplattformen	0	3	0	0	3
Online-Foren	0	3	0	0	3
Social Media Analyse	1	2	0	0	3
				answered question	**3**
				skipped question	**0**

Q12: Welche dieser Tools wären Ihrer Meinung nach für die Erarbeitung von Gesetzen von größtem Nutzen?		
Answer Options	**Response Percent**	**Response Count**
Ein Tool zur Suche und Analyse von relevanten wie aktuellen Daten, inklusive Open Data und Social Media	33,3%	1
Ein Simulationstool zum Aufzeigen unterschiedlicher gesellschaftlicher Konsequenzen von Gesetzen/ Gesetzesentwürfen in Bezug auf unterschiedliche Eingabeparameter	66,7%	2
Nichts dergleichen scheint für meine Arbeit hilfreich	0,0%	0
	answered question	**3**
	skipped question	**0**

Q13: Wollen Sie uns weitere Details zur politischen Willensbildung als Ergebnis dieser Umfrage mitteilen? (z.B. relevante Informationsquellen)	
Answer Options	**Response Count**
	0
answered question	**0**
skipped question	**3**

APPENDIX VI – List of UK digital tools and data sources

The box below shows a full list of all digital tools and data sources currently used or mentioned in the survey free comment boxes, interviews and focus groups. Where a comment was made (positive, negative, additional information) about the tool or source this is referenced. It should be noted that many tools such as Twitter can also be sources of data.

Digital tools	Data sources
Twitter	Health Affairs (health policy journal)
Facebook	Office for National Statistics
Google Scholar[34]	Eurostat
Pinterest	Organization for Economic Co-operation and Development
Linkedin	Guardian Datablog
Pubmed[35]	Legislation.gov.uk
Health and Social Care Information Centre[36]	Gov.uk[37]
My 2050 Carbon Emissions Calculator[38]	Parliamentary Library Notes[39]
Survey Monkey[40]	The National Archives
Poverty Site[41]	EUR-Lex[42]
Lexis Nexis[43]	Office of the Rail Regulator Data Portal
Google search	OFCOM[44]

[34] Used with caution as respondent found some journals were not that reputable.

[35] http://www.ncbi.nlm.nih.gov/pubmed [retrieved 9/5/14] PubMed comprises more than 23 million citations for biomedical literature from MEDLINE, life science journals, and online books.

[36] http://www.hscic.gov.uk/home [retrieved 9/5/14] Portal for searching health data sets and other information – the dataset specifically mentioned was hospital episode data.

[37] Information about government services and policy.

[38] http://my2050.decc.gov.uk/ [retrieved 9/5/14] Created by the Department for Energy and Climate Change, Sciencewise and Delib to model the effects of different actions to limit the release of carbon dioxide into the atmosphere and to reduce UK carbon dioxide emissions to 20% of 1990 levels by the year 2050. Designed both as a tool for policy-makers and as an interactive tool for the public to use to see the impact of certain actions on reducing carbon dioxide levels to below the 20% limit.

[39] Written by researchers in the House of Commons and House of Lords Libraries, Library Notes provide synthesized information on topical political issues and legislation passing through Parliament.

[40] Described as a familiar and engaging user interface for civil servants, it could be a useful example to follow when thinking about ways to present large amounts of statistical data.

[41] http://www.poverty.org.uk/ [retrieved 9/5/14] Described as a useful addition to Official Statistics but the site is now only useful for archive data as it's no longer being updated.

[42] Database of all European laws.

[43] Paid for database of media and academic articles.

IPEX[45]	European Court of Auditors
Web of Science[46]	UK Data Archive

[44] UK regulator for the communication industries.
[45] Platform for EU Inter-parliamentary Exchange
[46] Portal for Thompson Reuters academic journals.

APPENDIX VII – UK Focus group discussion guide

Introduction

The Hansard Society is part of a collaborative research and development project, funded by the European Commission, which seeks to investigate how online tools can broaden the evidence base used for policy-making and help decision-makers to understand the consequences and impact of potential policy options.

The project will investigate how online tools could support policy-making across different levels of Government. Our partner organisations in Brussels and Cologne are engaging with policy-makers at the supra-national and local levels, with the Hansard Society focusing on national policy-making and scrutiny processes.

To better understand the processes currently used for gathering and analysing evidence and assessing future policy impact, we are talking to a range of policy-makers, Parliamentarians and the staff that provide them with research support.

We hope to have all interviews for this initial requirements gathering phase completed by Easter 2014. Once we have a set of requirements from policy-makers, the technical partners will create a prototype that will be tested and refined throughout the course of the project.

The tool that will be created can be separated into two elements:

1. Search and analysis – a policy document will be used as the initial input so that the search is much richer than using simple key words or phrases. The tool will then search for and return data sets and citizen generated content that is related to the original policy document. Connections between data sets will be shown allowing users to discover new data that is related to the policy.
2. Simulation and decision support – analyses the policy problem using data identified in the search and analysis component (actors, variables etc.). Alternative policy options that have been put forward by those involved in the policy-making process will then be analyzed. Changing the values of one variable at a time will allow the user to see the impact of that variable on the end result and compare it to the alternative policy options.

Section	Topics to be covered	Time allocated
Introduction	Ask people to sign consent forms Thank people for coming – brief overview of Sense4us and purpose of discussion Ask participants to introduce themselves	10.00 -10.05am
Thinking about evidence gathering	When you start a committee inquiry or receive a research request where do you start? – What evidence do you need? – What evidence do you want? – What difficulties do you come up against? – How do you decide which evidence to	10.05 – 10.20am

Section	Topics to be covered	Time allocated
	use/trust? – What formats are most helpful?	
Supporting members	What information or evidence do members want most? – What would you like to provide but can't or don't? – Is there anything members should ask for that they often don't?	10.20 – 10.30am
Open data Publically available information from Government & ALBs Machine readable Free to use with no limitations on how and why	How do you use open data? – What would you like to use it for but can't? – What data do you want that you can't get?	10.30-10.35am
Public input	How do you use social media data (inc. social networks, blogs, forums etc. but not evidence sessions/consultations)? – What would you like to use it for but can't? – What information do you want that you can't get?	10.35 – 10.40am
Policy impact	How effective or useful are impact assessment documents? – How do you make use of them? – What information is missing? – Why is the information missing?	10.40 – 10.50am
The Tool	What would a tool that supported evidence gathering and analysis need to provide to be useful? What would a tool that simulated policy outcomes need to provide to be useful?	10.50-11.00am
Finishing up	Thank you for attending If there are any areas you'd like to elaborate on we are also running interviews – please contact if	

Section	Topics to be covered	Time allocated
	interested	