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# **'Sense-making the Narrative' of Pre-hypothesis Reports on the Planning and Appraisal of Mega Transport Projects: The Case of the Channel Tunnel Rail Link, UK**

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**Omega centre**  
Centre for Mega Projects in Transport and Development

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# 'Sense-making the Narrative' of Pre-hypothesis Reports on the Planning and Appraisal of Mega Transport Projects: The Case of the Channel Tunnel Rail Link, UK

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## **Bios:**

### John Ward:

John joined the OMEGA Centre in January 2007 after four years as researcher at the Centre of Advanced Spatial Analysis (CASA) where he developed micro and macro scale models of pedestrian movement as part of his PhD 'Models of Urban Movement: The Analysis of Pedestrian Behaviour'.

John has experience of GIS analysis and modelling from a variety of consultancy projects undertaken in both the Private and Public Sectors such as a safety evaluation of the Notting Hill Carnival Judging Point, Assessment of Street Crime Vulnerability in the London Borough of Westminster and benchmarking of the Canning Town Custom House Regeneration Project.

John's background is from Civil and Earthquake Engineering. He has worked at the University of Pavia, Italy investigating the collapse mechanisms of reinforced concrete frames. His interests include: risk, uncertainty and complexity, agent based modelling and simulation, the use of GIS for risk assessment in urban areas, stakeholder network analysis, and quantitative and qualitative analysis.

### Phil Wright:

Phil became a Research Fellow at the OMEGA Centre in October 2006 after thirty years as a professional chartered town planner. He has worked in a variety of environments in the UK and overseas - for local and national governments, urban regeneration agencies and as a consultant in the fields of strategic planning, urban renewal and transportation.

During his career Phil has maintained a strong interest in strategic planning and policy analysis/formulation. Examples of his experience in this respect include:

- Team Leader for the preparation of 'Metroplan' - strategic plan for the metropolitan area of Hong Kong.
- Preparation of development plans for Hong Kong's New Town Programme and rural hinterlands.
- Head of Strategic Planning Department of the Land Development Corporation (Hong Kong) responsible for identifying and assessing potential urban regeneration projects, corporate planning and the preparation of a comprehensive urban renewal strategy for Hong Kong's metropolitan area.
- In local Government, responsible for growth management strategies/plans in Lincolnshire.
- As a planning consultant, the preparation of large-scale commercial and mixed-use development proposals in London, planning advisor to Network Rail and Director for strategic studies of pedestrian environments and recreation facilities.

**Summary:** This Paper presents the OMEGA Network's approach to the use of pre-hypothesis research (storytelling) in its investigation of Mega Urban Transport Project Case Studies<sup>1</sup> (MUTPs). In addition, it highlights some of the key research findings from the use of this methodology as applied to the OMEGA Centre's first Case Study project - the Channel Tunnel Rail Link.

The OMEGA Centre commenced operations in October 2006 and has established a network of nine Academic Partners in Europe, USA, Asia and Australia, supported by non-academic partners in each country. The Centre and its Partners are seeking to address the key question of 'what constitutes a successful MUTP' by undertaking some 32 Case Studies using a variety of data collection and analysis techniques.

Part of the original research programme proposal was the use of 'pre-hypothesis' research as a means of capturing contextually rich data from key stakeholders involved in/affected by MUTPs. This research method comprises an open discovery approach using (mainly) narrative extracted from project stakeholders in the form of anecdotes and experiences. The anecdotes are captured by 'naive' interview techniques and are analysed using specially designed software to identify patterns of knowledge emanating from the stories that are shared with us by key stakeholders.

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<sup>1</sup> *MUTPs are defined here as completed (post-1990) road, rail, bridge and tunnel projects or a combination of these, each costing in excess of US\$500m (at 1990 prices), located either within urban areas or having a significant impact on urban and metropolitan development.*

## INTRODUCTION

The purposes of this Paper are to review the background to and use of pre-hypothesis research methods in the context of the OMEGA project, with particular reference to the Channel Tunnel Rail Link (CTRL) Case Study. The Paper describes the data collection and analysis process and presents a number key research findings that the 'sensemaking' of the CTRL using the pre-hypothesis approach has yielded.

The OMEGA Centre commenced operations in October 2006 following the award of a grant from the Volvo Research and Educational Foundations. The overall purpose of the Centre's research programme ('The Study') is to foster institutional learning from the growing experience of planning, appraising and evaluating mega Urban Transport Projects (MUTPs) and their impacts from a comparative analysis of case studies spanning Europe, USA, Asia and Australia. Through these studies the intention is to identify both pitfalls and achievements of past planning experiences together with their major social, economic, territorial and environmental impacts so that they may become better understood as a basis for generic lesson-learning for future MUTPs. Ultimately, the aim is to generate a series of generic and context-specific guidelines and analytical frameworks that will better equip future decision-makers responsible for MUTP planning, appraisal and evaluation.

To carry out the Study the *Omega Centre* has established a global network of academic Partners drawn from UK, USA, Australia, Hong Kong, Japan, Sweden, France, Germany, Netherlands and Greece. Each academic Partner is supported by non-academic partners comprising MUTP stakeholders, national and local governments and the private sector - creating an international network involving around forty organisations. The OMEGA Network is undertaking 32 international Case Studies covering a broad spectrum of MUTP project types –bridges, tunnels, road and rail links and combinations thereof. Each Partner will conduct three case studies using a common set of analytical tools and techniques. The Case Study data collection methods being used by all Partners are:

- project template and timeline - comprising key characteristics of individual projects and assembled mainly from secondary source data;
- pre-hypothesis interviews – the pre-hypothesis methodology will be presented below along with some initial findings from the analysis the CoE's first cast study: The Channel Tunnel Rail Link (CTRL);
- hypothesis-led interviews - where key project stakeholders are asked to address a series of common overarching research questions (see below) and project-based hypotheses (this approach is outlined in a parallel paper entitled 'Approach to Sense-making the Narrative of Hypothesis-led Reports on the Planning and Appraisal of the Channel Tunnel Rail Link, UK.

The structure of this paper is as follows:

- **Background To Use of Pre-Hypothesis Research in the Study** - introduces the pre-hypothesis methodology as applied to the OMEGA Project

- **Data Collection and Indexing** - provides an overview of how the data is collected and stored
- **Data Analysis Methodologies: Using Sensemaker Explorer & Manual Approach** - introduces the basic forms of analysis available from the SenseMaker Explorer software and the centers methodology for validating the software
- **Data Analysis - An Illustration of Approach Using Sensemaker Explorer the CTRL Dataset** - comprises a walk-through of a cluster analysis using the SenseMaker Explorer software
- **Conclusions from Pre Hypothesis Analysis of CTRL Data** - presents some of the main findings from the pre-hypothesis analysis of the CTRL

## **BACKGROUND TO USE OF PRE-HYPOTHESIS RESEARCH IN THE STUDY**

In this Study Pre-Hypothesis Research (PHR) represents an alternative (but parallel) data collection approach to the more 'traditional' methods employed in Hypothesis-Led Research. Drawing on work conducted in the fields of knowledge management and cognitive science (Kurtz and Snowden, 2003), PHR broadly comprises:

- open discovery using narrative extracted from project stakeholders (in the form of anecdotes and experiences) and other secondary sources;
- consulting a diverse range of stakeholders in order to view the Case Study projects from multiple perspectives - we seek to interview the widest possible range of stakeholders involved in or affected by the project (from cynics to believers, supporters to objectors etc.). This is of critical importance since the use of stratified samples of stakeholders is often seen to introduce bias and unintentionally inbuilt hypotheses;
- focusing on experiences rather than statements or opinions.

Accordingly, hypotheses are not formed and tested up-front but are created after exploring and analysing the narrative data obtained from stakeholders.

The PHR approach was selected as a parallel form of data collection because it was seen to both offer a means of extracting contextually rich insights into MUTP planning, implementation, operation and impact and also to address some of the potential limitations with more 'traditional' forms of research. The expected benefits of using the PHR approach can be summarised as follows:

- it is consistent with the natural rules for knowledge sharing by humans - we impart knowledge through storytelling;
- it seeks to avoid cognitive bias – pre-conceived hypotheses may blind one to new insights;
- it seeks to reduce research bias by focusing on what the interviewee thinks is important, not the researcher;
- context is key - lessons learned in narrative form provide a meaningful context for any data collected;

- it seeks to address some of the limitations of hypothesis-led research by posing questions that both avoid responses being gamed or gifted by the interviewee and by minimising the interviewer's influence.

Against the above background, data PHR data collection and analysis for the Case Studies comprises:

- the conducting of 'naïve interviews' with key stakeholders on the basis of a series of prompting questions specifically designed to extract contextually rich narrative (anecdotes) concerning each Case Study Project. Each interview is recorded (with permission), transcribed verbatim and sent back to the interviewee for correction and approval. The interviewee is then asked to index each anecdote using an index sheet prepared by the Centre team in consultation with the Partners – the indexes represent the principal 'lenses' through which narrative data is explored and analysed). The prompting questions and indexes are shown at Appendix 1;
- the conducting of 'hybrid storytelling' interviews which were introduced to accommodate those stakeholders who wished to share their experiences without reference to the prompting questions mentioned above. These interviews were also conducted on a 'naive' basis in that interviewers were instructed not to ask any leading questions;
- in parallel, other sense making items (SMIs) such as speeches, magazine and newspaper articles that contain contextually rich data about the Case Study projects is also collected and indexed for entry into the project database;
- software devised by Cognitive Edge Ltd (the Sensemaker Software Suite) is then used to collect the narrative and other SMIs in a common database and to identify patterns of knowledge - this is explained in more detail in the following sections.

## **DATA COLLECTION AND INDEXING**

For CTRL, the study's pilot project, 27 pre-hypothesis interviews were conducted. As one of the key methodological aims of the 'Naïve' interview is to avoid influencing the interviewee, it was decided that the number of 'naïve' interviews conducted by any one interviewer should be limited to four - experience suggests that after conducting about four interviews it is hard for interviewers to avoid exerting undue influence.

The 27 interviews were collected from a broad spectrum of stakeholders who were directly involved in/affected by the CTRL so as to obtain multiple perspectives on both project planning, appraisal, implementation and operations and also the developments associated with the rail link.

Stakeholders were sourced primarily on the basis of knowledge gained from earlier Case Study work (especially the Project Template and Timeline which identifies key actors, pivotal decisions and events in the project's 'history'), from OMEGA Team members' background knowledge and from recommendations made by interviewees. Interviewees ranged from an ex-Deputy Prime Minister to developers, consultants,

lobbyists, advisors to government, train operators, council leaders and journalists. Each transcript was broken up into between 5 and 15 separate anecdotes (known as sense making items or SMIs) and indexed by the respondent according to the OMEGA set of 53 filters (see Appendix 1). This process yielded around 230 indexed anecdotes which were input into a database using SenseMaker Collector (see Figure 1 below) along with anecdotes extracted from relevant journal articles and news stories which were indexed directly by the OMEGA Centre. In total 250 data points were input into the database.

**Figure 1 - SenseMaker Collector is a web based graphical user interface which is designed to allow interviewees to input self indexed anecdotes directly into the OMEGA database.**

OMEGA - PRE-HYPOTHESIS RESEARCH QUESTIONS

5 / 10

Country and Project

Country and Project - Other

Is this?

How does this story make you feel?

Roughly when did the events in this story happen?

<input type="checkbox"/> 1960	<input type="checkbox"/> 1961
<input type="checkbox"/> 1962	<input type="checkbox"/> 1963
<input type="checkbox"/> 1964	<input type="checkbox"/> 1965
<input type="checkbox"/> 1966	<input type="checkbox"/> 1967
<input type="checkbox"/> 1968	<input type="checkbox"/> 1969
<input type="checkbox"/> 1970	<input type="checkbox"/> 1971
<input type="checkbox"/> 1972	<input type="checkbox"/> 1973
<input type="checkbox"/> 1974	<input type="checkbox"/> 1975
<input type="checkbox"/> 1976	<input type="checkbox"/> 1977

Previous Next

## DATA ANALYSIS METHODOLOGIES: USING SENSEMAKER EXPLORER & THE SENSEMAKING OVERSIGHT APPROACH

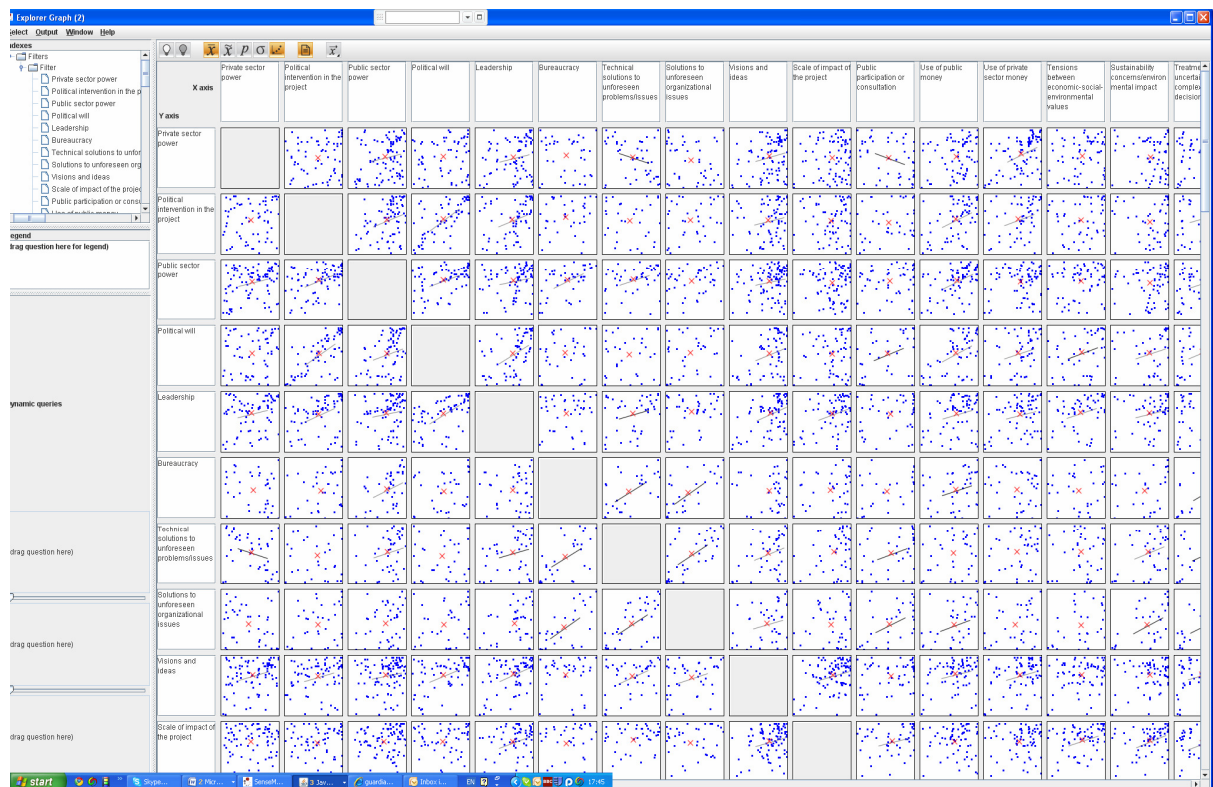
### *SenseMaker Explorer*

SenseMaker Explorer is the software suite we have chosen to use for the analysis of the all pre-hypothesis data collected by the OMEGA Network from the 32 Case Study MUTP projects. SenseMaker Explorer includes analytical and interrogation tools that

allow both the recall and interpretation of Case Study anecdotes. The software makes extensive use of visualisation to allow complex patterns and exceptions to be discovered. The software aims to combine the information processing capability of computers with the pattern-based intelligence of humans.

The software offers a number of ways to view the collected data. From experimenting with all the functions on the explorer tool bar we have found data visualization using the cluster and graph tools to be the most useful (See Figures 2 & 3 below) for our CTRL dataset. There are tools, such as Landscape (see Figure 4 below), which are more suited to larger datasets which we will make use of during the comparative analysis and synthesis stages of our project when we hope to have collected 3000 + datapoints from across all 32 projects.

**Figure 2 – Screen Shot from SenseMaker Explorer Graph Tool**



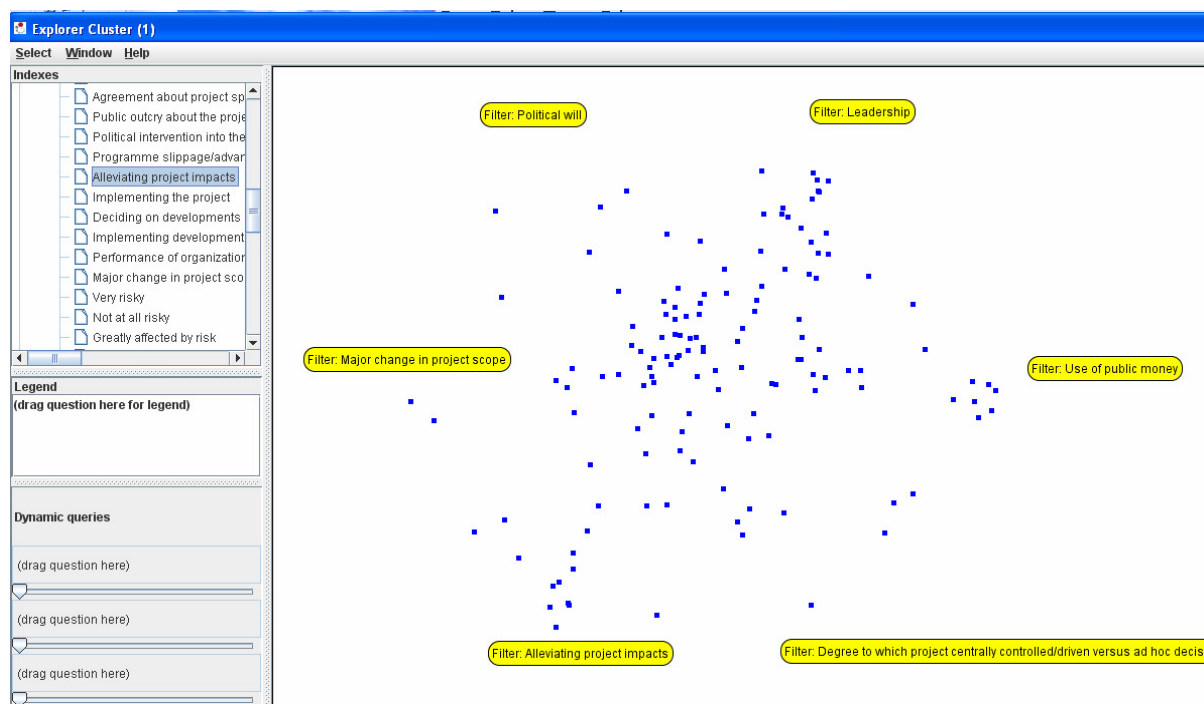
### *SenseMaker Graph Tool*

The Graph tool (Figure 2 above) is for detailed analyses of relationships among filters and pre-hypothesis prompting questions. The tool allows the analyst to examine many patterns and correlations at the same time in juxtaposed scatter graphs and obtain statistical values for each of the scatter graphs such as arithmetic mean of the item

values, Median, the 25th and 75th percentiles, Standard deviation and Significant correlations via a correlation report print out.

From the CTRL dataset we were able to find around 1000 significant correlations from the data. In order to concentrate efforts on the most meaningful results we focused our analysis by taking the highest two correlations (from the correlation report) found for each of the 53 indexes to examine in more detail. It should be noted that each of the blue dots shown in Figure 2 represents an anecdote or other SMI.

**Figure 3 – Screen Shot from SenseMaker Explorer Cluster Tool**



### *SenseMaker Cluster Tool*

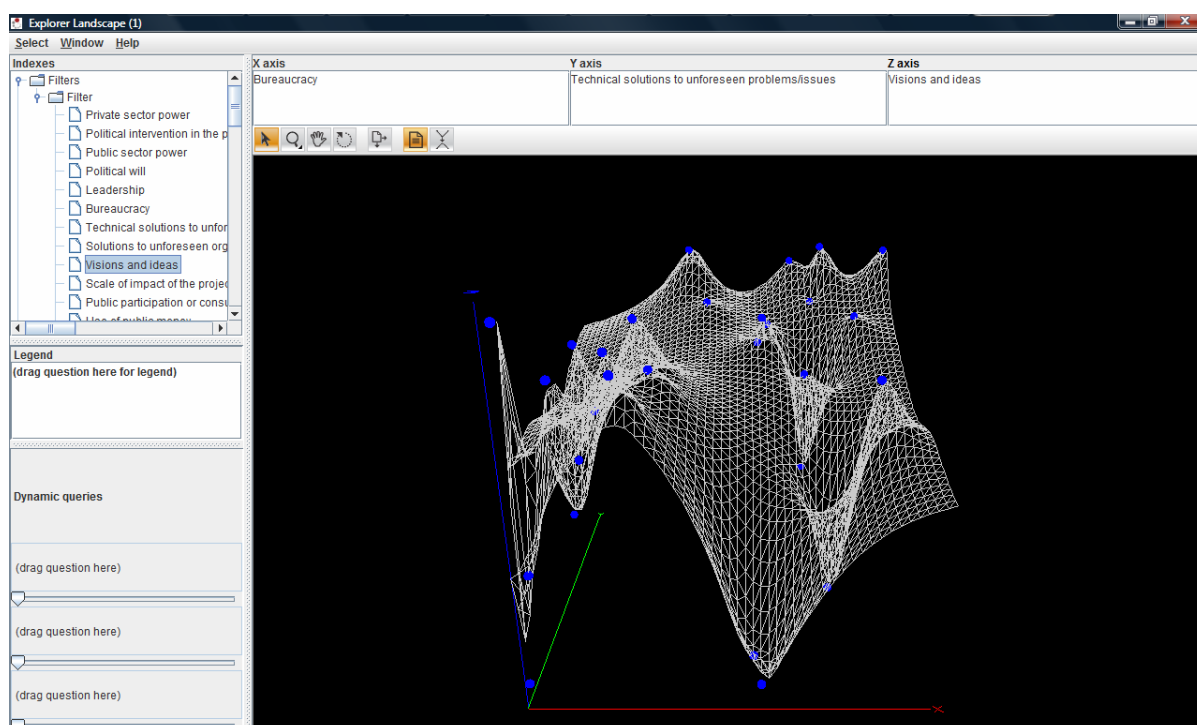
The Cluster viewer (Figure 3) allows the analyst to develop an intuitive feel for the relationships among filters based on linkages to the same items. As filters are dragged around in the space, it is possible to discover insights into how the interviewees perceive the different issues or aspects represented by the filters.

The cluster analysis holds a large amount of data which can become very time consuming to conduct. Therefore, as with the scatter plot analysis, our starting point was to identify the key correlations to investigate in further detail. We used the correlation report to identify the 10 indexes with the highest number of significant correlations, and to then investigate the top 6 correlations within each of these groups.

## Sensemaking Oversight

In addition to the above, a 'manual' sensemaking analysis was also undertaken using the pre-hypothesis interview transcripts directly in order to identify key emergent themes/topics and correlations/relationships - the CTRL pre-hypothesis transcripts contain a wealth of insights that merit 'manual' oversight by trawling through them. The purpose of this is essentially to act as a 'check' on whether there are important emergent themes/topics and correlations/relationships that merit further analysis which may *not* have been identified as a result of using the Sensemaker Software. Any 'new' observations/findings are reported separately but are also fed back into the process explained above using the SenseMaker software.

**Figure 4 – Screen Shot from SenseMaker Explorer Landscape Tool**



The 'manual' sensemaking oversight process can be summarised as follows:

- Stage 1 - examination of all raw data (transcripts) to identify the main areas of interest (themes and topics that appear likely to yield important insights concerning research programme issues);
- Stage 2 - extraction of key sections of narrative (or summaries thereof) drawn from the transcripts of the pre-hypothesis interviews which are relevant to each main area of interest, theme and topic.
- Stage 3 - identification of those themes/topics and correlations/relationships that appear (for example):

- most frequently raised and/or represent views shared by a variety of stakeholders
- particularly dominant for individual stakeholder types
- most insightful and/or unexpected

Clearly, a good deal of judgement is required as to which of the themes/topics and correlations/relationships are most 'important'. In addition, we recognise that there are likely to be very many interrelationships between the areas of interest and themes/topics (for example, political relationships and influence are very relevant to almost all themes and topics identified in the case of the CTRL Case Study);

- Stage 4 – identification of new or emergent themes/topics and correlations/relationships identified by Sensemaking Oversight which have not arisen through use of the Sensemaker Software. Undertake further analysis of these using the Sensemaker Software as required.

## **DATA ANALYSIS - AN ILLUSTRATION OF APPROACH USING SENSEMAKER EXPLORER AND THE CTRL DATASET**

As discussed above, the SenseMaker collector software produced a large number of significant correlations for our CTRL dataset. To make the analysis more manageable the data selected has been prioritized according to the significance of these correlations. For each of the 10 filters with the largest number of correlating variables, we explored the cluster diagram comprising the five most significant relationships to each of these top 10 filters.

For example, 'Political Will' was found to be the 7<sup>th</sup> most highly correlated filter from our list of 53 filters - there were 27 key filters found to be significantly correlated with it. Out of these 27 indexes the 5 most highly correlated filters were as follows

### Correlations with Political Will

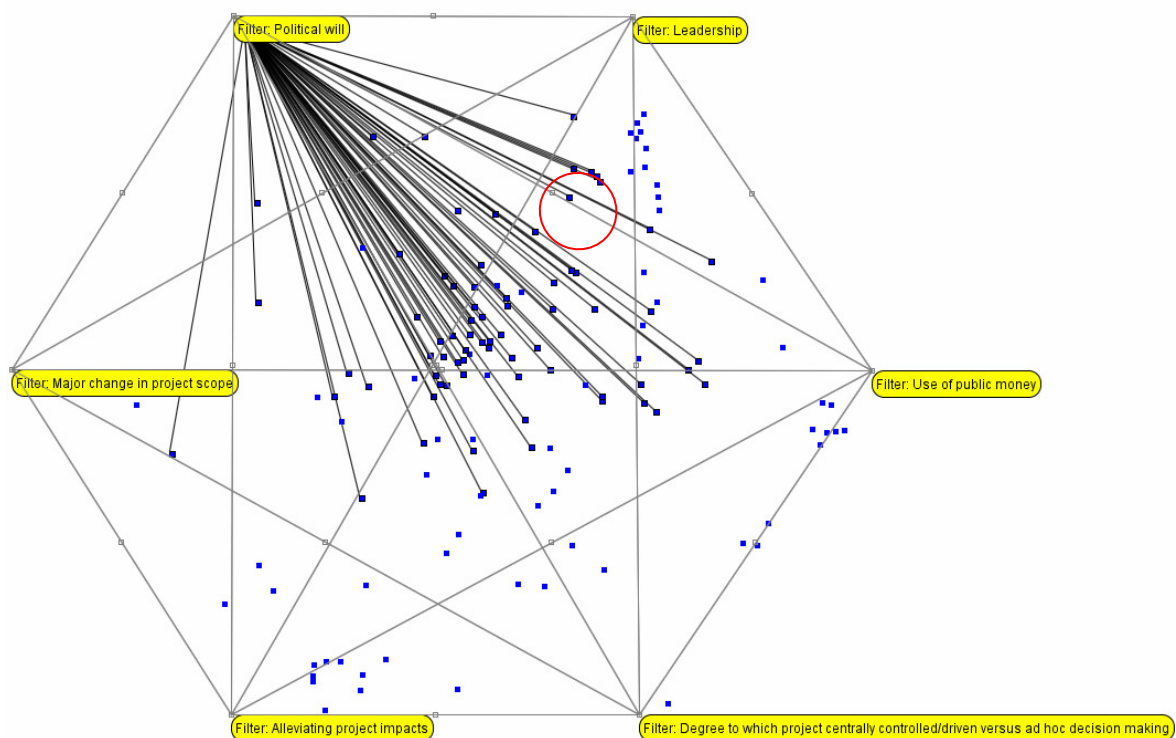
1. 0.684 Degree to which project centrally controlled/driven versus ad hoc decision making
2. 0.669 Much less risky
3. 0.621 Leadership
4. 0.483 Major change in project scope
5. 0.454 Alleviating project impacts

Adding 'Political Will' plus the five strongest correlating filters to a SenseMaker Explorer cluster tool results in the graph shown in Figure 5 below. The cluster displayed by this tool is a spring-tension model inspired by several such information-graphics methods as the "VisualWho" technique published by Judith Donath at the MIT Media Lab. The resulting graph can be visualised as though invisible springs link each SMI to each filter (represented by a yellow box in Figure 5) the strength of the spring is related to the respondents' choice of index for the filter (see Appendix 1). When more than one of these springs is in place, the SMI attempts to optimize its

position by iteratively calculating an optimal position that balances the forces pulling it toward its attractors (the 6 yellow filters in Figure 5). The net result is not a definitive graph-like positioning, but an intuitive representation of how things "hold together".

By investigating the graph shown in figure 5, dragging the filters around the screen to discover the inter-relationships of the SMIs and by interrogating the anecdotes behind individual SMIs a number of cluster can be found. The red circle below indicates one such cluster of four SMIs related to Political Will, Leadership and Use of Public Money which will be examined here in greater detail to illustrate the approach to analysis.

**Figure 5 - Cluster of 4 SMIs Related to Political Will, Leadership and Use of Public Money**



The SMIs circled in red can be selected using the cursor, and the underlying anecdotes extracted. Extracts from the four SMIs are as follows:

Sense Making Item (SMI) 1 *Extract*: Need for public sector speed-up decision making and infrastructure

“It's being constrained by strategic highways issues and that's been the root of the delays that we've seen. Government needs to get involved in solving those strategic highways issues. ....To release the full development potential you need to unlock the highways issue. There is a certain amount of inertia in the planning system, six years to get planning permission for Ebbsfleet, Eastern Quarry four an a half years and counting.....The planning departments in the local authorities are not

resourced for the level of work now, let alone the vast deluge of stuff that is going to come. So, they are going to have to get themselves geared up and we have to play our part.”

#### SMI 2 Extract: Delivering Major Projects

“They do take a huge amount of time, too long. We need to find a balance between not pushing through things without any scrutiny at all, but also being able to build things quickly because the carbon efficiency agenda means we have to act a lot quicker than we have done in the past. So this is a key area that Omega needs to talk about and also give guidance about how we can actually efficiently spend more money in this area.”

#### SMI 3 Extract: Passenger confidence

“We are all alive to terrorism and in the railway industry you have to be very careful. It only takes one unfortunate incident to knock the confidence off of passengers so that would be a pivotal factor. The finances of whoever operates the train services as well, that's always one of the things which is a factor. ....You have got GNER who have had to return their franchise because of financial problems. Heaven forbid that CTRL could be in a similar situation in the future. Should there be some sort of protection against that risk? I think it's inevitable that .....someone else will step in.”

#### SMI 4 Title: Once Bitten Twice Shy

“The dynamic between the Channel Tunnel and the CTRL was this - because of the fire in '95 and the Eurostar traffic figures, there was a massive corporate restructuring, effectively a financial restructuring of Eurotunnel in 1997 ..... effectively the equity holders lost their money.....What this meant was .....no-one having seen what happened to the Channel Tunnel was going to put their money into it. So in '96 the consortium put in their bid to do the CTRL and in '97 withdrew. They said no, we can't do that. They saw what happened to Eurotunnel. Now the problem was, there was a new incoming Labour government and they did not want to be seen as the government which killed the CTRL. ....The consortium was able to negotiate with the new government a very favorable deal, and there was a large public subsidy put into CTRL, both a capital subsidy and an operating subsidy. But by learning the mistakes from the Channel Tunnel, the CTRL was very much better managed”

#### *Discussion & Interpretation of Results*

The cluster of four SMIs above can be seen to represent stories within a context of financial underperformance and long delays. Two key issues identified by the stories are:

- any attempt by the government to speed (planning) systems up would need to find a balance between depth of scrutiny and haste and issue clear guidance on the most effective target for any investment;

- government appears to lack the strategic capability and flexibility required to find adequate solutions to development and financing issues causing significant delays and suboptimum financial solutions/resolutions for MUTPs.

The above example has been taken to illustrate the analysis process of identifying interesting SMI clusters and subsequently identifying issues within the data which can be compared and contrasted with the Hypothesis-Led analysis which the OMEGA Centre is undertaking for the 32 Case Studies.

## **CONCLUSIONS FROM PRE HYPOTHESIS ANALYSIS OF CTRL DATA**

Here we introduce a number of principle conclusions which have been drawn from the pre-hypothesis analysis of CTRL Data. Before turning to the patterns of knowledge that have emerged from the data it is important to acknowledge some of the background characteristics associated with the collected narrative since these represent important lenses through which one must view individual interviewee responses. For example, interviewee responses reflect individual perceptions which are contextually 'coloured' by (inter alia) their period of involvement in the project, which aspect of the project they were involved in/affected by, who they worked for etc.. As a result, it can be seen that stakeholder responses represent different perceptions of the same events or decisions - this inevitably leads to the conclusion that there are 'many truths' and that 'context is key'.

In addition, it has to be acknowledged that analysis of the CTRL data represents only the first step in a much broader examination and synthesis which encompasses all 32 Case Studies that the OMEGA Network is undertaking.

In light of the above, the following are seen to be some of the 'headline' outputs from the pre-hypothesis research phase for the CTRL.

### ***Politics and the role of 'champions':***

- political influence and the necessity to achieve political consensus impacted on almost all aspects of the project;
- lobbying and the role of 'visionary' champions were perceived as being especially pivotal.

### ***Project objectives***

- many different forces shaped the project as the interplay between different stakeholder agendas was played out over a number of years. Accordingly, it is evident that the objectives for CTRL evolved over time in response to these new and emerging agendas.

### ***Project planning & programming:***

- early project planning work pursued by British Rail (BR) was ill thought-out and lacked clear focus;

- however, a step-change occurred in 1990/91 when CTRL became inextricably linked with the broader planning vision for the Thames Gateway. This unified vision led to the emergence of new ideas and agendas associated with regeneration and growth management;
- many consider that since CTRL was effectively the UK's first major new railway for over 100 years, it was inevitable it would take a long time to plan and implement;
- CTRL appears to have become a 'victim' of the lengthy time it took to plan and implement the project as this enabled/facilitated the introduction of new ideas/agendas;
- stakeholders universally see the need for 'certainty' in regard to the ability to deliver project decisions, infrastructure and other associated works as the most 'mission critical' aspects;
- in parallel, most stakeholders expressed the need and desire for co-operation amongst key players as highly important. In this regard, there was little evidence of antagonism between implementing agencies.

### ***Project funding:***

- despite early misgivings about its viability, there remained broad political consensus that CTRL should be funded by the private sector;
- by the time the project was in financial difficulty in 1996, it had gained sufficient momentum to ensure its continued survival;
- notwithstanding the many government announcements in 2007 (on full opening of the CTRL services from St Pancras) that the project had been completed on time and within budget, the amount of 'subsidy' made available through development rights at King's Cross and Stratford has never been made clear;

It is emphasised here that the above represent just a few of the many insights that the pre-hypothesis research phase for CTRL has yielded.

Overall, both the OMEGA Centre and its Partners have concluded that the pre-hypothesis research approach represents a valuable means of collecting and analysing contextually rich data from stakeholders. As noted above, the database we are assembling for 32 Case Study projects will provide a robust foundation for helping to understand and share lessons about 'what constitutes a successful MUTP'.

### **References**

Kurtz, C & Snowden, D (2003) "The New Dynamics of Strategy: sense making in a complex complicated world" in IBM Systems Journal" Volume 42 Number 3 pp 462-483

## Appendix 1

### OMEGA - PRE-HYPOTHESIS RESEARCH QUESTIONS, INDEXES AND FILTERS

#### A. Opening Question (to be asked in *all* interviews)

Interviewees' relationship to the project

- "What is your relationship to the [Case Study] project. Please explain which aspect of the project you were responsible for, involved in or affected by." Index their personal characteristics using the "About You" part of the index sheet.

#### B. Prompting Questions

##### 1. QUESTION 1 (to be asked in *all* interviews)

Looking back, what in your mind were the most pivotal events that shaped the (Case Study Project) project? (Turning points or triggers of significance, not necessarily project milestones) Please consider:

Which of these were most surprising? Most predictable?

- Which of these were planned? Which were unexpected?
- Specify the date the event occurred, who were the main people involved, where it took place and why it took place.

##### 2. QUESTION 2 - Tell me about a time when this project was rescued or sabotaged?

##### 3. QUESTION 3 - When were the moments of stagnation or breakthrough? What happened?

##### 4. QUESTION 4 - When have you or members of your community suffered or been inspired as a result of this project? What happened and why?

##### 5. QUESTION 5 - Imagine this project, 10 years ahead, is perceived as:

- a total disaster or
- a resounding success

What stories would you share with others to convince or dissuade those who felt that way?

### C. Indexes & Filters

1. **Country & Project** (please tick appropriate box)

<b>Australia</b>		<b>France</b>		<b>Germany</b>	
<input type="checkbox"/>	Metro Rail, Perth	<input type="checkbox"/>	Meteor, Paris	<input type="checkbox"/>	Innercity-Tunnel, Berlin
<input type="checkbox"/>	City Link, Melbourne	<input type="checkbox"/>	TGV Mediterranee	<input type="checkbox"/>	BAB 20 Motorway
<input type="checkbox"/>	Harbour Tunnel, Sydney	<input type="checkbox"/>	Millau Viaduct and A75, Midi-Pyrénées	<input type="checkbox"/>	ICE-High Speed Line from Cologne to Frankfurt/Main
		<input type="checkbox"/>	L2, Marseille		
<b>Greece</b>		<b>Hong Kong</b>		<b>Japan</b>	
<input type="checkbox"/>	Attiki Odos (motorway), Athens	<input type="checkbox"/>	Airport Rail Link	<input type="checkbox"/>	AquaLine, Tokyo
<input type="checkbox"/>	Rion Antirion Bridge, Gulf of Corinth	<input type="checkbox"/>	KCRC West Rail	<input type="checkbox"/>	Seikan Undersea Tunnel, Tsugaru Strait
<input type="checkbox"/>	Metro, Athens	<input type="checkbox"/>	Western Harbour Crossing	<input type="checkbox"/>	Chiba Monorail, Chiba Prefecture
<b>Netherlands</b>		<b>Sweden</b>		<b>UK</b>	
<input type="checkbox"/>	HSL- Zuid (TGV - Brussels to Amsterdam)	<input type="checkbox"/>	Öresund Link (Copenhagen to Malmö)	<input type="checkbox"/>	Channel Tunnel Rail Link
<input type="checkbox"/>	Randstadrail (The Hague to Zoetermeer and Rotterdam)	<input type="checkbox"/>	The Southern Link, Stockholm	<input type="checkbox"/>	Jubilee Line
<input type="checkbox"/>	Westrandweg, including 2 <sup>nd</sup> Coentunnel, Amsterdam	<input type="checkbox"/>	Metro, Copenhagen	<input type="checkbox"/>	M6 Toll Road
<b>USA</b>					
<input type="checkbox"/>	Alameda Corridor, Los Angeles				
<input type="checkbox"/>	Air Train, New York				
<input type="checkbox"/>	I-15, Salt Lake City, Utah				

2. **Is this?** (please tick appropriate box):

Your personal experience?       A newspaper, magazine article, or other document?

3. **How does this story make you feel?** (please tick appropriate box):

<input type="checkbox"/>	Elated	<input type="checkbox"/>	Don't Care
<input type="checkbox"/>	Proud	<input type="checkbox"/>	Disappointed/Sad
<input type="checkbox"/>	Hopeful	<input type="checkbox"/>	Angry

4. **Roughly when did the events in this story happen?** (please place mark on the timeline below)

_____ →													
1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025

**5. What roles are represented in this story?** (you may tick as many boxes as you think appropriate)

<input type="checkbox"/>	Advisor - Finance, Legal, Design, Technical, Business etc.	<input type="checkbox"/>	Entrepreneur/Business Person
<input type="checkbox"/>	Planner	<input type="checkbox"/>	Financier
<input type="checkbox"/>	Other Design Professional	<input type="checkbox"/>	Scientist/Researcher
<input type="checkbox"/>	Advocate/Representative	<input type="checkbox"/>	Media/Journalist
<input type="checkbox"/>	Politician	<input type="checkbox"/>	Contractor/Constructor
<input type="checkbox"/>	Bureaucrat	<input type="checkbox"/>	Consultant
<input type="checkbox"/>	Lobbyist/Stakeholder Advocate	<input type="checkbox"/>	Ecologist/Environmentalist
<input type="checkbox"/>	Engineer	<input type="checkbox"/>	Developer
<input type="checkbox"/>	Community or social worker	<input type="checkbox"/>	Local Resident
<input type="checkbox"/>	Commuter	<input type="checkbox"/>	Other

**6. How relevant do you think your story is to the outcome of the project?**  
(please tick appropriate box)

<input type="checkbox"/>	Very Relevant
<input type="checkbox"/>	Relevant
<input type="checkbox"/>	Not Relevant
<input type="checkbox"/>	Don't know

**7. What key words or phrases would you associate with this story?**

\_\_\_\_\_

**8. Which of the following themes are relevant to this story?** (Please select relevance on a scale of 1 to 10. 1 being less relevant, 10 being extremely relevant - for all boxes):-

Public sector power	1 2 3 4 5 6 7 8 9 10
Private sector power	1 2 3 4 5 6 7 8 9 10
Political intervention in the project	1 2 3 4 5 6 7 8 9 10
Political will	1 2 3 4 5 6 7 8 9 10
Leadership	1 2 3 4 5 6 7 8 9 10
Bureaucracy	1 2 3 4 5 6 7 8 9 10
Technical solutions to unforeseen problems/issues	1 2 3 4 5 6 7 8 9 10
Solutions to unforeseen organizational issues	1 2 3 4 5 6 7 8 9 10
Visions and ideas	1 2 3 4 5 6 7 8 9 10
Scale of impact of the project	1 2 3 4 5 6 7 8 9 10
Public participation or consultation	1 2 3 4 5 6 7 8 9 10
Use of public money	1 2 3 4 5 6 7 8 9 10
Use of private sector money	1 2 3 4 5 6 7 8 9 10
Tensions between economic-social-environmental values	1 2 3 4 5 6 7 8 9 10
Degree to which project centrally controlled/driven versus ad hoc decision making	1 2 3 4 5 6 7 8 9 10
Sustainability concerns/environmental impact	1 2 3 4 5 6 7 8 9 10
Treatment of risk, uncertainty, complexity in decision making	1 2 3 4 5 6 7 8 9 10
Globalisation forces	1 2 3 4 5 6 7 8 9 10
Roles and responsibilities	1 2 3 4 5 6 7 8 9 10
Financing projects/development	1 2 3 4 5 6 7 8 9 10
Co-operation amongst those involved in the project	1 2 3 4 5 6 7 8 9 10
Real estate development associated with/triggered by the project	1 2 3 4 5 6 7 8 9 10
Other (please specify)	1 2 3 4 5 6 7 8 9 10

**9. The following situations are represented in this story** (Please select relevance on a scale of 1 to 10. 1 being less relevant, 10 being extremely relevant – for all boxes):

Reaching agreement on project financing/funding	1 2 3 4 5 6 7 8 9 10
Experiencing financial failure/under performance	1 2 3 4 5 6 7 8 9 10
Forming the vision/objectives for the project	1 2 3 4 5 6 7 8 9 10
Project start-up/mobilisation	1 2 3 4 5 6 7 8 9 10
Agreement about project specifications	1 2 3 4 5 6 7 8 9 10
Public outcry about the project	1 2 3 4 5 6 7 8 9 10
Programme slippage/advancement	1 2 3 4 5 6 7 8 9 10
Major change in project scope	1 2 3 4 5 6 7 8 9 10
Political intervention into the project	1 2 3 4 5 6 7 8 9 10
Alleviating project impacts	1 2 3 4 5 6 7 8 9 10
Implementing the project	1 2 3 4 5 6 7 8 9 10
Deciding on developments associated with the project	1 2 3 4 5 6 7 8 9 10
Implementing developments associated with the project	1 2 3 4 5 6 7 8 9 10
Performance of organizations responsible for the project	1 2 3 4 5 6 7 8 9 10
Other (specify)	1 2 3 4 5 6 7 8 9 10

**10. The following perceptions are displayed in this story** (please mark the appropriate boxes):

	<b>Risk:</b> the degree to which future uncertainties and unexpected events may not be manageable within allocated resources	<b>Uncertainty:</b> where imperfect knowledge makes it impossible to describe an existing state or future outcome with accuracy, and where lack of knowledge could have significant consequences	<b>Complexity:</b> where many independent factors interact in multiple and unforeseen/unforseeable ways to generate unexpected outcomes
The circumstances (context) in which this project were planned and implemented were:	Very risky <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Not at all risky	Totally Certain <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Completely uncertain	Extremely complex <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Very straightforward
The degree of control exerted over the planning and implementation of this project was:	Greatly affected by risk <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Not affected by risk	Greatly affected by uncertainty <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Not affected by uncertainty	Greatly affected by its complexity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Not affected by its complexity
How did this project compare with the Channel Tunnel project?	Much more risky <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Much less risky	Much more uncertain <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Much less uncertain	Much more Complex <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Much more straightforward

**11. ‘About Your Role on the Project’** (please tick the box that best describes your influence on the project)

<input type="checkbox"/>	I influenced decision-makers	<input type="checkbox"/>	I supported/advocated the project
<input type="checkbox"/>	I influenced project stakeholders	<input type="checkbox"/>	I observed/reported on the project
<input type="checkbox"/>	I helped to build relationships/consensus	<input type="checkbox"/>	I opposed the project
<input type="checkbox"/>	I helped to implement the project	<input type="checkbox"/>	Other

**12. ‘What You Do’** (please tick the box that best describes what you do)

<i>Private Sector</i>			
<input type="checkbox"/>	Entrepreneur/Business Person	<input type="checkbox"/>	Consultant/Advisor
<input type="checkbox"/>	Business/Financial Adviser	<input type="checkbox"/>	Financial Consortium/Funding Agency
<input type="checkbox"/>	Contractor/Constructor	<input type="checkbox"/>	Other
<i>Public Sector</i>			
<input type="checkbox"/>	Central Government Employee	<input type="checkbox"/>	Politician
<input type="checkbox"/>	Local / Regional Government Employee	<input type="checkbox"/>	Other
<i>Non-Government Organisation/Other</i>			
<input type="checkbox"/>	Work for Regional or Metropolitan Agency	<input type="checkbox"/>	Lobby Group
<input type="checkbox"/>	Local Community Member	<input type="checkbox"/>	Member of Community Action Group
<input type="checkbox"/>	Academic	<input type="checkbox"/>	Other