

**USER-CENTRED METHODS IN THE ANALYSIS AND DESIGN OF SOFTWARE  
TOOLS TO SUPPORT MANAGEMENT CONSULTANTS**

by

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A thesis submitted to the University of Plymouth

in partial fulfilment for the degree of

**DOCTOR OF PHILOSOPHY**

School of Computing

Faculty of Technology

**January 2000**

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# Abstract

The aim of the present work was to investigate the development of improved software tools for management consultants, and to investigate the effectiveness of augmented user-centred methods in this development, and thereby consider the more general use of augmented user-centred methods to develop software tools that support creative human activity systems.

The research method used draws from and integrates aspects of user-centred design, soft systems methods, structured systems analysis and design, and software engineering. This includes using user literature, 'thinking aloud' role play observations, and interviews to develop a user model of the management consultancy process; using literature of related disciplines (qualitative data analysis and social network analysis), literature of existing computer assisted management consultant software tools, and formative iterative prototyping, empirical user testing and heuristic evaluation to synthesise a general design rationale of software tools for management consultants; and using empirical user testing and a subjective user acceptability interview to holistically evaluate the impact of the use of such software tools on the management consultancy process.

The results provide evidence that the use of such software tools will provide significant benefits to management consultants, and that the overall impact can be summarised by delayed payback: although the use of the software draws out the early stages of an assignment it speeds up later stages, and although it may take a couple of assignments to realise its full potential, it leads to a deeper and more rigorous understanding of the client organisation.

This leads to an original contribution to knowledge in the conclusions that integrated qualitative data analysis and social network analysis software tools can be useful to

management consultants, and user-centred methods are important in the development of software tools for creative human activity systems.

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describes dimensionalisation as the process of splitting a category into two or more subcategories because it is necessary to distinguish between more specific characteristics. This leads to greater resolution and detail. There is often a tendency to start with fairly broad categories and move toward more specific ones.

#### 4.4.3.5 Links

Another fundamental task, which is complementary to categorisation, is linking (Tesch, 1990; Dey, 1993; Miles and Huberman, 1994; and Strauss and Corbin, 1998). Links (also referred to as connections and associations) may be made between many aspects of the data and analysis, such as data segment to data segment, category to category, and data segment to category (as shown in Figure 4.2). Category to category links may be formal or substantive. Formal links make distinctions of similarity and difference: they describe subcategory relationships. Substantive links describe other forms of relationship, such as causality.

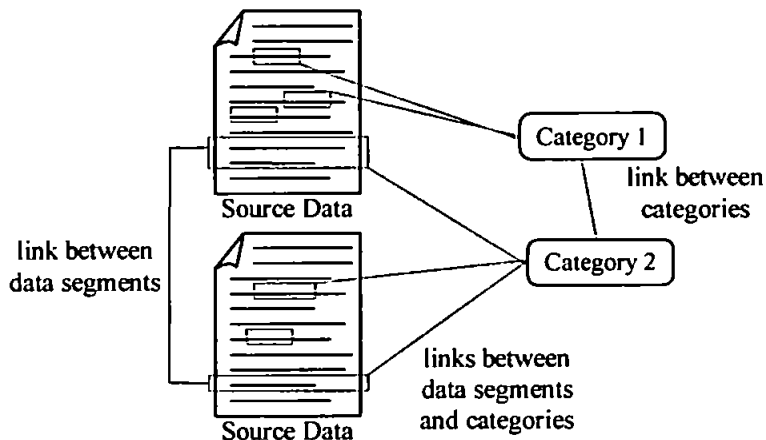


Figure 4.2 – Diagram showing links between data segments and codes, and between codes.

#### 4.4.3.6 Causal Analysis

Dey (1993) and Miles and Huberman (1994) describe the interest within qualitative data analysis of identifying causal relationships or links, which may be perceived to form chains or trails. This may be used to identify the source or ultimate cause of a concept or aspect of behaviour.

#### **4.4.3.7 Category Counts**

The usefulness of measuring the weight of evidence relating to a particular category by counting the number links made between the category and the source data is described by Weber (1990), Dey (1993), and Miles and Huberman (1994). This is a task that emphasises the dependency between quantitative and qualitative analysis: a numeric count can add meaning to the qualitative analysis by giving an indication of how significant or abundant a category is, however it is dependent upon the accuracy of the allocation between categories and the data.

#### **4.4.3.8 Information Beyond the Text**

Weitzman and Miles (1995) describe the use of information beyond the text that consists of additional factual information regarding cases that may or may not occur in the text, which enriches the range of real-world information that is included in a study.

### **4.4.4 Information Presentation**

Dey (1993) and Miles and Huberman (1994) describe graphic representation for categories and both formal and substantive links. Graphical methods of representation are described as being particularly suitable for use in qualitative data analysis, as they are a very effective and powerful way to identify and present key concepts and complex interactions.

#### **4.4.4.1 Category Hierarchy**

A category hierarchy (classification schema or conceptual framework) may be drawn to visually represent the formal connections between categories. It shows relationships of subordination between concepts. Figure 4.3 shows an example of a category hierarchy graph (after Dey, 1993: p. 46).

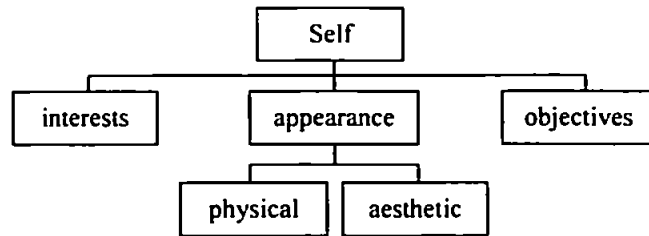


Figure 4.3 – Category Hierarchy showing formal connections between concepts.

#### 4.4.4.2 Conceptual Networks

A conceptual network may be drawn to visually represent the substantive connections between categories. A common form of conceptual network is a causal network showing causal relationships between categories. Figure 4.4 shows an example of a conceptual network graph that is also a causal network graph (after Dey, 1993: p. 51).

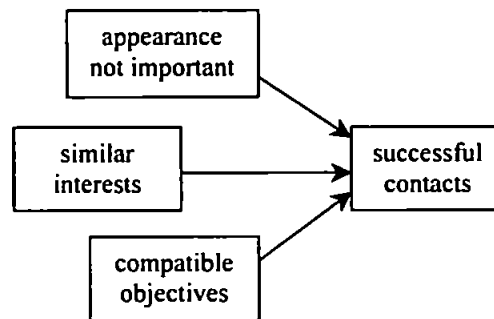


Figure 4.4 – Conceptual Network showing substantive connections between categories.

#### 4.4.5 Computer Aided Qualitative Data Analysis

Many authors describe software support for qualitative data analysis (Tesch 1990; Dey, 1993; Miles and Huberman, 1994; Kelle, 1995; Weitzman and Miles, 1995; Fisher, 1997; Fielding and Lee, 1991; and Fielding and Lee, 1998).

It is not possible for software to directly perform the key analytical task in qualitative data analysis: understanding the meaning of the data (Kelle, 1995). This is because this task cannot be fully described by current representation methods (such as algorithms, production rules, and semantic networks) and hence cannot be implemented. For this reason all software tools follow the overall strategy of supporting low-level mechanistic tasks

directly, which indirectly support the high level conceptual tasks that are concerned with understanding the meaning of the data (described in section 4.4.1.3).

#### **4.4.5.1 Software Types**

This section distinguishes between three types of software package specifically designed to support qualitative data analysis. Many of the actual software packages have been developed by qualitative researchers with programming skills.

##### *Code and Retrieve*

This type of QDA software tool specialises in assisting with dividing the data into data segments (described in section 4.4.3.3), attaching categories (described in section 4.4.3.4) to the data segments, and displaying all data segments attached to a specified category.

Also, they frequently provide facilities that allow the user to search for strings of characters (keywords). They have replaced marking up, cutting out, sorting, reorganising, and collating tasks that were performed manually with scissors, paper, and note cards.

They represent a 'quantum leap forward' from the manual methods, because they are faster, more flexible, and more accurate (Weitzman and Miles, 1995: p. 18).

##### *Code-based Theory-builders*

Software tools of this type usually include the same facilities as code and retrieve software tools. However, in addition they allow relationships between categories to be recorded and manipulated (described in section 4.4.3.5). The most common example of this is support for a hierarchical conceptual structure representing formal links between categories. They often allow propositions or assertions to be established and tested, usually based on rules or formal logic.

### *Conceptual Network Builders*

This type of software tool allows the user to develop graphical networks (described in section 4.4.4) consisting of nodes, which represent categories, that are linked by lines, which represent relationships between categories. It is important to realise that these graphical networks are not just hand drawn diagrams (as produced by standard drawing tools). They are real semantic networks that are developed from and associated with the data. The significance of this is that it makes operations possible that are more complex than the simple 'draw box' and 'draw line' type of operations provided by drawing tools: add a category to the diagram and the software can automatically add a node to represent it and add lines to represent all the relationships between it and other categories (nodes).

#### **4.4.5.2 Software Functions**

##### *Data Entry and Storage*

Software tools vary in how they allow data to be entered, organised, and stored. Some require the user to type the data directly in, others allow data to be imported from other applications (usually word processors). These packages vary in how much they constrain the format of the data to be imported. For example some limit the number of characters per line, while others require special formatting characters (such as new lines, @ or ~) to be inserted to delimit data segments. Weitzman and Miles (1994: p. 19) comment that 'Meeting strict data preparation requirement can be labour intensive.' and projects need to be of a minimum size before the time invested on this overhead can be recovered.

##### *Data Segments and Categories*

There are differences in how software tools allow the user to break the data into data segments and associate categories with those data segments. Some require that the data segments are established before the data is imported by inserting delimiting characters (described above). Others allow completely free-form data segments; the user drags with

the mouse to precisely define the start and end points of the data segment. These software tools usually allow the user to create data segments that are nested within one another, or overlap. This gives the user the ability to perform an initial coarse categorisation of the data; associating large data segments with categories. This can then be followed by a finer coding; associating categories with smaller data segments. Weitzman and Miles (1994: p. 19) indicate that 'virtually any style of research will benefit from a more flexible' data segmentation facility. Many software tools provide a facility for multilevel (a hierarchy of) categories. Some software tools limit the number of characters that can be used to describe categories to a maximum number of characters (such as 10 or 15). Software tools also vary in how easy it is to revised the category scheme; how easily categories can be renamed, reorganised, merged and split.

#### *Memos and Annotations*

Some software tools provide support for attaching memos and annotations (described in section 4.4.3.2) to the data. They vary in how well these memos and annotations are linked to the data that they describe.

#### *Data Linking*

Software tools vary in how they support creating links (described in section 4.4.3.5) between different parts of the data. Facilities may be available to link within parts of the data (such as between data segments, or between categories) and to link across parts of the data (such as linking data segments to categories). These facilities help the user to navigate easily through the data and analysis. Some software tools allow references only to be recorded (such as a line number), which are conceptually linked to the associated data. Alternatively, other software allows genuine links to be created, which are operationally linked to the associated data. This allows the user to navigate around the data automatically by selecting (clicking) associated ideas, rather than by moving linearly through the data

looking for the data that corresponds to the reference. Some programs also allow implicit or dynamic linking, which allows the user to highlight a portion of data and instantly start a search for other places where the same data occurs.

### *Search and Retrieval*

Many software tools offer some form of search facility. They may provide facilities to search for data segments linked to a specified category and/or to search for specified strings of characters (keywords and phrases). Several items may be searched for at once and are usually referred to as search terms.

They vary in the way searches are started. Many software tools allow the use of Boolean logic expressions to search for different combinations of terms. A few software tools can look for overlapping and nested data segments associated with categories. Some software tools have facilities to restrict the search to a specified part of the data (such as specific cases only).

They also vary in the way the results of the search are made available. The hits may be shown highlighted in full context with the complete data, with part of the surrounding context (a specified number of words before and a specified number of words after), or completely out of context with no surrounding data. Some software tools make a record of searches and hits that can be retrieved, repeated, and updated.

### *Conceptual/Theory Development*

Some software tools have facilities that directly support theory building. This may be done via rule or logic based approaches, where 'if ... then' style propositions or hypotheses can be tested automatically, or through creating graphical networks. Software tools that support the creation of graphical networks allow ideas to be clarified and tested visually. Some allow hierarchical diagrams only, while others support free-form networks where the user can arrange the diagrams without constraint. The flexibility and control the user has over

node and link labels also varies from simple labels to more complicated attached text. Links between nodes are limited to being of a single-unspecified type in some software tools, and may be of multiple directional types (such as 'is part of', 'leads to', or 'follows') in others.

### *User Interface*

Software tools vary in the way they interact with the user. Some are based on split screen approaches, and others on windows. Some are text based, while others are graphics and mouse based.

#### **4.4.5.3 Key Questions for Choosing Software**

This section summarises some of the key questions for choosing QDA software described by Weitzman and Miles (1995). They argue that selection of QDA software tools should be based on the characteristics of the data that will be collected and the analysis that will be performed (described in section 4.4.1.2).

The software should include support for handling the types of qualitative data used. This includes the handling of:

- multiple cases, where sorting facilities and the ability to work on a sub-set of cases is important
- data regarding each case being elicited from multiple sources, where facilities for making links are important
- data of different types (such as text, sound, or video)
- data that is subject to revision or correction
- data that is free-form (such as unstructured verbatim transcripts) or well structured (organised into responses to a set of standard questions)



The software should also support the style of analysis used. This includes the following considerations:

- How exploratory or confirmatory the analysis will be; where powerful search, easy category revision, and a good text/graphic display are an especially important for exploratory analysis.
- Whether pre-defined categories that are static or evolving/emerging categories are used; where automatic category assignment and easy category revision are an particularly important for evolving categories.
- Whether single or multiple categories per data segment are required.
- Whether the categorisation is performed iteratively or in a single pass; where easy category revision is more important for an iterative approach.
- The fineness of analysis required, which is indicated by the data segment used: such as word, line, sentence, and paragraph.
- The importance of context and closeness to the data; which determines the amount of surrounding information displayed for search hits.

#### **4.4.5.4 Two Specific Software Packages**

Weitzman and Miles (1995), Fisher (1997), and Silverman (2000) review several dedicated qualitative data analysis software tools in detail. This section describes the most pertinent aspects of two of the most pervasive and powerful packages available. It was based on a combination of the literature and practical use of demonstration versions of the software.

##### *NUD•IST*

The Non-numerical Unstructured Data Indexing, Searching and Theorising (NUD•IST) software tool is one of the most widely used and powerful qualitative data analysis packages. Categorisation is done via a category hierarchy. A powerful searching facility

that can look for character strings and combinations of codes is provided. This facility is further enhanced by the user being able to store searches and results as categories (referred to in this package as nodes).

One of the main restrictions of NUD•IST relates to its data entry facilities (described in section 4.4.5.2). It takes in data as unstructured ASCII text files (it is designed for free flowing narratives). It does not support free-form data segments; data segments are delimited by the insertion of hard carriage returns in the data. This makes word-oriented analysis extremely difficult, if not impossible. Also, when searching it is not possible to show hits in their full surrounding context, only whole data segments are retrieved. Lastly, its support for graphical output is limited to the category hierarchy, which has very limited editing facilities. Although it is possible to represent relationships between categories they cannot be explicitly named or graphically represented in a conceptual network.

#### *Atlas/ti*

Atlas/ti is another powerful and commonly used qualitative data analysis software tool. Like NUD•IST it is designed for free flowing narratives, and takes data in as unstructured ASCII text files. It supports free-form data segments that are easily assigned to categories using the mouse, and can record relationships between items (such as data segments, categories, and memos) of different types. Several pre-defined types of relationship are provided and the user can create their own. One of its most powerful (and unique) facilities is a graphical network editor, which allows the user to explore the relationships between items visually. It allows links to be created and removed visually using the mouse, and has a hierarchical 'auto-arrange' facility, which will attempt to arrange the current network in a hierarchy. It does not automatically store the searches and results.

## 4.5 Conclusions

### 4.5.1 Similarities between Related Disciplines and Management

#### Consultancy

This section describes the relationships between the disciplines described in this chapter and the field of management consultancy, as shown in Figure 4.5. This diagram takes the model of key aspects of the management consultancy process (presented as Figure 3.3 in section 3.4.2) and relates its components to disciplines relevant to this thesis, specifically QDA and SNA, which are described in this chapter, and their underlying fields.

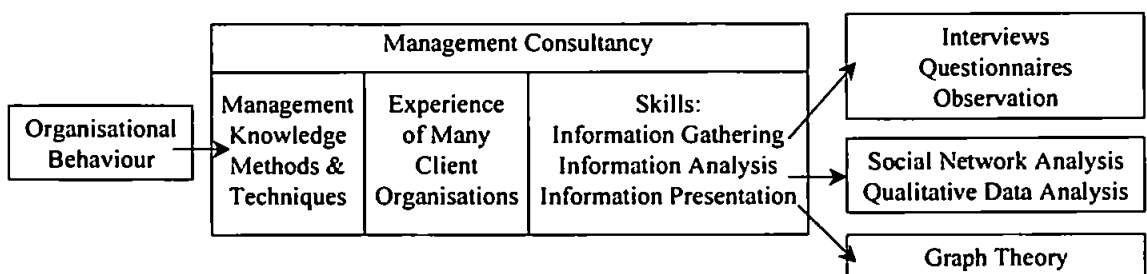


Figure 4.5 – Model of Fields Related to Management Consultancy.

The field of Organisational Behaviour (OB) is concerned with knowledge regarding behaviour of organisations and the people and groups within them (described in section 4.2), and as such represents part of the underlying management knowledge, methods, and techniques used by management consultancy (described in section 3.4.2).

The disciplines of SNA and QDA are related to management consultancy by common techniques and methods. This is evident in the strong similarity seen between the categorisation and cross checking performed by consultants, which were described in the consultancy literature and present in the case study (described in section 3.4.3), and those used in the field of QDA, which were present in the QDA literature (described in section 4.4.3). Further evidence of this was elicited during the interview that discussed QDA and SNA methods with the consultant; he commented that ‘some of the grounded theory material immediately rings bells ... theme finding ... that’s exactly what we do’.

Similarities are also apparent in the resemblance seen in the generation of charts by management consultants, which were described in the consultancy literature (described in section 3.2.5.2) and present in the case study (described in section 3.3.4.6); and the creation of sociograms in the field of SNA, which were described in the SNA literature (described in section 4.3.4.1), and the creation of conceptual networks in the QDA literature (described in section 4.4.4).

All of these disciplines can be seen to relate to one another. The discipline of OB employs SNA and QDA to derive knowledge regarding behaviour in organisations. The disciplines of OB, SNA, and QDA all use interviews and questionnaires to elicit information (described in sections 4.2, 4.3.2, and 4.4.2), as do management consultants to elicit information from members of client organisations (described in sections 3.2.5.2, and 3.3.3).

The common problem of information overload is shared by both management consultants (described in section 3.4.5) and qualitative researchers (described in section 4.4.1.4).

## **4.5.2 Differences between Related Disciplines and Management Consultancy**

This section highlights some important differences between the characteristics and practices of management consultants and the related disciplines.

Consultants tend to spend short periods of time in client organisations; they take snapshots recording the state of organisations at a given point in time, whereas qualitative researchers tend to spend extended periods of time with their subjects. The consultant is under intense pressure to complete assignments within very short time frames; something that is not evident in the qualitative data analysis or social network analysis literature.

Consultants are concerned with specific information regarding the particular client organisation involved in the assignment, rather than wide ranging generalisations (which

apply across many client organisations). Consultants often need to perceive organisations in an unbalanced focused way, dealing with parts of the organisation in terms of individuals, and other parts in terms of abstracted groups.

Although some of consultants' methods (such as causal analysis) are very similar to the conceptual/theory development performed during qualitative data analysis, the consultants' focus is on the pragmatic conceptual development of issues specific to the current client organisation rather than theoretical development of issues that are generic across many organisations.

The consultant will ask questions that are specific to single interviewees, in order to get a clearer picture of the specifics of this organisation, academics will tend to ask exactly the same questions to all interviewees, in order to identify general trends.

Unlike qualitative researchers, it would be very unusual for consultants to work with full verbatim transcripts of interviews or observations as this takes too long and interferes with the client-consultant relationship.

This can be summarised by describing what the consultant does as a kind of *discount* qualitative data analysis that is less pedantic and hence produces results more rapidly.

The presentation of findings to the client organisation is critical in consultancy: making the information accessible to the client organisation's management team in a short period of time in a form that enables them to understand and make use of it. The role of information presentation for qualitative researchers, although important, is not so critical and compressed into such a short time scale.

The consultant is an interventionist (organisational change is usually the consultants' main purpose, as described in section 3.2.2.1), many social science disciplines, such as ethnography (described in section 4.4.1.1), have adopted the philosophy of limiting their

work to observing and describing only, and deliberately avoid trying to change the systems they are dealing with.

### **4.5.3 Contribution of Software from Methods Related to Management Consultancy**

This section considers the contribution to the management consultancy process that QDA and SNA software tools could make. It discusses the contribution that could be made by adopting existing software designed for the two methods. It then considers the merit of developing integrated software tools that draw from these disciplines, but are designed specifically for management consultants.

#### **4.5.3.1 SNA Software**

The similarity, described in the previous section, between the chart generation performed by consultants and the sociograms used in SNA suggests that the sociogram generation and manipulation facilities provided by SNA software could be useful to the consultant.

However, this support would be restricted in three ways. Firstly, as current SNA software tools are limited to support for unstructured graphs and 'El Centro'/star graphs; they do not include support for hierarchical graphs. Secondly, SNA software tools provide no support for automatic generation of sociograms from questionnaire and interview data; the consultant would have to either type data relating to each node and link into an input file, or draw each node and link by hand. Thirdly, current SNA software tools support a single relation only; graphs showing different types of relationship are not possible.

SNA could provide consultants with statistically based analysis methods, although their appropriateness and the way they are interpreted (their meaning) would need to be investigated very carefully; this would probably require methodological discussion between social network analysis specialists and management consultants, which is beyond the scope of the present work. During the technology interview the consultant commented

that he was more interested in the meanings behind the relations between actors, rather than statistical calculations.

The greater contribution from SNA to management consultants may come from the framework provided by concepts, terms, and methods rather than SNA software tools.

#### **4.5.3.2 QDA Software**

This section starts by building a profile of the sort of QDA software that is likely to be most useful to management consultants. This is done by relating the characteristics and practices of consultants (described in chapter 3) to the key questions for choosing QDA software (described in section 4.4.5.3). It then considers whether a software tool meeting this profile exists and the usefulness of such a software tool.

##### *Profile of QDA Software Tools for Management Consultants*

Consultants elicit data regarding multiple cases from different people in the organisation (described in section 3.3.3); this indicates that it is important to be able to sort the data and work with a sub set of cases, which is corroborated by the case study (described in section 3.3.4). They elicit data of different types, such as questionnaires and interviews, however interviews are the most common type of data collected and they rarely analyse audio or video tapes (described in sections 3.2.5.2 and 3.3.3). The data consultants work with (interview notes) is not subject to frequent change. Although consultants work with a range of data, the most common is interview notes where the data consists of key words, phrases, and points structured into questions or topics. It would be very unusual for them to work with full verbatim transcripts of interviews or observations (described in section 3.2.5.2).

The consultancy process involves both exploratory and confirmatory analysis (described in section 3.3.4). The proportion is dependent upon the level of intervention: the closer to implementation the more confirmatory the analysis becomes, the further away from implementation the more exploratory it becomes. This indicates that for a diagnosis level

intervention (which is the focus of this work) search and retrieval facilities, easy category assignment and revision, and good graphic display (conceptual networks) are important. Consultants use both pre-determined categories and emerging categories (described in section 3.3.4.2). Evidence of pre-determined categories can be seen in the four main (high level) headings used by the specific consultant. However, he uses emerging categories that relate to the specific client organisation at lower levels, which may be promoted to higher level (main) categories if they become significant enough. This suggests that it is important to have easy revision of codes, and automated coding.

The consultant commented that single statements often contain many ideas (described in section 3.3.3.4); this indicates the need for multiple classification and word-oriented data segments (fine analysis), and was confirmed during the technology interview. He also indicated that the analysis within the consultancy process was iterative (described in section 3.3.2), which suggests that it is important to have flexibility (be allowed you to change your mind – use a try it and see strategy), and easy category revision. During the technology interview the consultant indicated that the context of the data was very important, and that network graphs would be important given the importance of presenting; making findings accessible to the client organisation's management team. He indicated that he wasn't keen on using matrices as they tend to 'fragment' the data and 'that actually diminishes the value of the analysis that's been done'.

This indicates that a QDA package with the following facilities is required by management consultants:

- The ability to work with interview notes that are structured into questions or topics
- The ability to sort the data and work with a sub-set of cases
- A powerful search facility.
- Easy to use category creation, allocation, and revision facilities.



- Automatic category creation and allocation facilities.
- Multiple categorisation and word-oriented data segments.
- High quality network graphs.

### *Critique of QDA Software Tools*

The two packages examined empirically in detail (described in section 4.4.5.4) were selected on the basis of providing support for categorisation and network graphs, and being the two most powerful and widely used specialist QDA packages available.

Both packages examined take data as ASCII text files and cannot automatically apply interview or questionnaire structure during data entry. This would have to be done after data entry using categories for each question; even then a matrix structure of interviewees and questions would need to be done separately.

The QDA software tools have no explicit support for SNA. Although, categories could represent people, there is no explicit support to make this easy. The consultant would have to create each link between actors themselves by looking through the data and drawing the relevant link in; there could be no automatic generation of sociograms from the interview notes. Also there is no facility to relate a link between two actors (categories) back to a data segment; although the consultant could create a link between two actors, he would not know where in the text the response was or who gave it.

Both software packages were quite large: they would be difficult and time consuming for a management consultant to learn and would provide many features that were of little use to the consultant. They also tend to work in an academic rather than pragmatic way. Of all of them Atlas/ti would probably be the most useful to consultants, because of its free-form data segments, graphical user interface, and focus on graphical networks rather than logical/rule based hypothesis testing.

#### 4.5.3.3 The Need for Integrated Software Tools

Recently, advances in software tools designed to support SNA and QDA have helped address some of the difficulties in those areas, such as information overload. There are strong similarities between the practices involved in SNA and QDA and the practices of management consultants, such as the classification of themes and the common problem of information overload. This strongly suggests that software developed to support SNA and QDA could be useful to management consultants.

However, there are some fundamental differences in characteristics (such as aims and strategy) between management consultants, and researchers using SNA and QDA methods. Current SNA and QDA software has been designed to support the researchers using SNA and QDA methods, rather than management consultants. This conflicts with one of the main principles of user-centred methods; that software should be designed explicitly for user's characteristics in order to make it effective (HUSAT, 1988). In particular, current SNA and QDA software tools do not provide facilities to integrate with one another, which would inhibit their meeting the consultant's requirement for rapid switching between qualitative, quantitative, and integrated views of organisational data (described in section 3.4.3). This suggests that although the underlying functionality provided by SNA and QDA software may be useful to management consultants, it may not be designed and implemented in a way that is directly accessible by and hence most useful to management consultants. This leads to the hypothesis that *'in order to maximise its usefulness, software tools to support management consultants should be based on the consultant's characteristics and practices as well as integrated SNA and QDA functionality'*.

Hence, the decision was taken to investigate the development of integrated SNA and QDA software tools to support the management consultancy process that were also based on the management consultant's characteristics and practices, as encapsulated by the user model presented in chapter 3.

## **4.6 Effectiveness of the Research Methods**

This section considers the effectiveness of the research methods used to identify and analyse disciplines for their potential contribution to software tools for management consultancy (described in section 4.5.3).

The user participation in this activity in the form of an interview with the consultant discussing potential contribution of QDA software tools to management consultancy yielded important information. Presenting well articulated descriptions of another similar area of human activity helped consultant articulate his own working practices more effectively; he could describe his own working practices in terms of similarities and differences with other discipline. Also, the evaluation of software facilities provided by existing QDA software tools ruled out facilities, which from the developer's perspective seemed appropriate but the consultant did not want (such as matrices). This would have wasted time and resources if they had been implemented.

## **4.7 Summary**

This chapter argues that integrated social network analysis and qualitative data analysis functionality will be useful to management consultants. In doing so it describes concepts, methods, and software tools from the disciplines of Organisational Behaviour (OB), Social Network Analysis (SNA), and Qualitative Data Analysis (QDA) that were identified as being similar to those described in the user model of management consultancy (presented in Chapter 3), and which might therefore contribute to the development of software tools for management consultants.

## **5. A Generic Design Model for Software Support of the Management Consultancy Process: Towards a General Design Rationale**

*This chapter presents a critical review of the current computer assisted management consultancy (CAMC) literature, a general design rationale for integrated CAMC software tools, and a description of a prototype integrated CAMC software tool that was developed to investigate and evaluate key aspects of the design rationale.*

*The review of current CAMC literature examines the literature in the light of the model of the consultancy process (presented in chapter 3). The design rationale uses the knowledge of software support in related disciplines (presented in chapter 4) and the review of current CAMC software as guidance and inspiration, and is based on the model of the consultancy process. It is intended to provide a design framework for integrated CAMC software tools and to indicate the range of facilities that such tools could provide. The prototype integrated software tool implemented a subset of the facilities described in the design rationale, and was used as a vehicle for the development and evaluation (described in chapter 6) of the design rationale.*

### **5.1 Research Method**

This activity involved a review of literature describing the development and results of existing CAMC software tools, the development of a prototype CAMC software tool, the development of a software requirements specification for the prototype CAMC software tool, and formative iterative design evaluations of the prototype CAMC software tool.

#### **5.1.1 Literature Review of CAMC**

A literature review of CAMC software tools was conducted in order to identify issues that may contribute to the development of a generic model of CAMC, such as types of software

tools; effective and ineffective design strategies; appropriate and inappropriate computing technology; and benefits, limitations, and impact of such software tools on the consultancy process.

### **5.1.2 Prototype CAMC Software Tool**

An executable prototype CAMC software tool was developed in order to clarify the generic model of CAMC (acting as an executable software requirements specification), and act as a vehicle for evaluation of the model by the user. This was done as the consultant interacting with a working software tool (including user interface and functionality) was considered essential for eliciting a realistic evaluation of usefulness, usability, and impact on the consultancy process.

Formal specifications were not used as they can be difficult for users to understand, and cannot be used to represent the user interface (Vonk, 1990). Paper based models were not used for the same reason.

#### **5.1.2.1 Type of Prototype**

A vertical prototype was developed (described in section 2.1.3.2) as it would allow the consultants evaluations to be based on empirical use of the facilities rather than supposition and conjecture. It would be difficult for the consultant to evaluate the software's usefulness via a demonstration of many non-working features. Using a subset of the most significant features, which span the whole analysis process, on concrete examples would be easier for him, give more accurate results, and give greater depth of information. To do this these features need to be fully functional (Neilson, 1993: p. 94).

#### **5.1.2.2 Implementation**

An incremental development strategy, involving modular design, and regression testing was employed (from Software Engineering). This was done to make the prototype more

maintainable and reliable, given the rapid number of significant changes it underwent.

Although software reliability was not the focus of this work, consideration was given to the reliability of the prototype software tool to reduce the chances of software failure biasing the evaluations.

The prototype was implemented primarily in a third generation language (Microsoft Visual BASIC), also using a fourth generation language (SQL) via a relational DBMS (Microsoft Access 2.0) as this speeds up development and yields reliable functionality. The choice of primary development language was influenced by Visual BASIC's built in screen designer, and ability to use embedded SQL statements. The use of reusable software was not possible as source code for the required functionality was not available.

### **5.1.3 Software Requirements Specification for the Prototype CAMC Software Tool**

This was done in parallel with the development and evaluation of the prototype, and is included as Appendix I. It acted as a written record of the facilities that the software tool provided and as such was under continuous revision in parallel with the prototype. It provided a summary of what the software did.

### **5.1.4 Formative Iterative Design Evaluations**

The aim of this stage was to identify and eliminate usability and learnability issues relating to the prototype software tool. This was done to reduce the likelihood of such issues adversely influencing the evaluation of usefulness. To a lesser degree clarification of usefulness relating to the general model of CAMC software support also occurred.

This stage was done as part of the iterative design (described in section 2.1.3.3) process: modifications were made to the prototype as a result of comments that were elicited during repeated evaluations; effectively 'exercising the prototype' (described in section 2.1.3.2). Thus, it was formative (Neilson, 1993): done in order to improve the prototype. It was

conducted in a computing laboratory as the high stress and short of time of the natural setting (real consultancy assignment) would have meant that the consultant would not have time to discuss and reflect on the software with an evaluator, and the results of software failure would be potentially damaging to the consultant. A naturalistic approach was taken: the evaluations were not limited to a narrow set of variables, and an attempt was made to re-create the natural setting as much as possible (a task made easier by the fact that consultants frequently work in unfamiliar rooms similar to the one used for the evaluations). This was done to address some of the limitations associated with laboratory experiments (Galliers and Land, 1987).

All evaluations commenced with a demonstration of the part of the prototype software tool under review, in order to prompt discussion and a process of guided self exploration: where the evaluators were initially prompted to consider specific facilities and then encouraged to explore under their own direction. Prescribed tasks were not used due to the complex, non-sequential nature of the tasks. The developer was present during all evaluations to provide support.

Two types of evaluation were used (described in section 2.1.3.3): heuristic evaluations by technologists and empirical user testing by the management consultant. The heuristic evaluations began almost as soon as the prototype was started, with the user testing being introduced in later iterations, when many of the more technical problems had been resolved.

#### **5.1.4.1 Heuristic Evaluation by Technologists**

Many evaluations were conducted, using three evaluators (with experience in both academia and industry): a human factors specialist and two software engineers. Explicit guidelines (usability heuristics) were not used in order to preserve the varied perspectives of different evaluators.

#### **5.1.4.2 Empirical User Testing by Management Consultant**

Four evaluations were conducted with a single test user. The same experienced management consultant who was involved in the previous exercises was used, because of his computer literacy, previous experience in evaluating software tools (Destiny and Spotlight), and familiarity with present work. In ideal circumstances a larger number of users would be involved, being representative of all user types: however, this was not possible due to the time required to repeat the test with many other users and as no other consultants were available.

A portion of a consultancy assignment was used that was artificially generated by the developer, to be representative on the basis of the user model. The consultant's notes were entered into the system prior to the consultant using the software. This was done to conserve user time and was appropriate as the focus was on the analysis aspects of the software rather than data entry.

This stage also acted as training; the consultant's exposure to the prototype software tool increased his familiarity with it. All four evaluations were observed by the researcher and video recordings were made to allow review at a later date.

## **5.2 Review of Current CAMC Software Tools**

### **5.2.1 Software Packages**

This section describes in outline seven software packages; the description includes the following information: overall purpose of software, application domain, target user (managers or consultants), basis of development (organisation theory, technology, user), level of intervention (diagnosis or recommendations or both), data entry approach (direct entry of organisational data, or computer based questionnaire), and reported benefits.



### **5.2.1.1 TQMS**

The Total Quality Management System (TQMS) was designed to identify areas of an organisation that may benefit from Total Quality Management (TQM) tools and techniques, and select the most suitable TQM tools and techniques for implementation (Franz and Foster, 1992). It was designed to act as a management consultant for use by manager(s) in organisations. Its design was based on the Transformation through Strategic Improvement Tools (TRANSIT) method and expert systems technology. The user enters organisational information by responding to a computer-based questionnaire consisting of a fixed set of questions; this information is then processed by expert system technology (a decision tree) to produce reports containing recommendations with explanations. During its development a formative evaluation was conducted with an expert, which resulted in several modifications.

### **5.2.1.2 CASA**

The Computer Assisted Strategy Audit (CASA) software is a strategic management software tool for use by manager(s) within a management consultancy assignment (Krallmann *et al*, 1992). Its development was based on a technological (expert systems) approach. CASA is used where an assignment concentrates on problems relating to strategic management. In such cases the client responds to a computer-based questionnaire that elicits information about the client organisation. Although the software then allows some basic diagrams to be produced, the focus is on a senior management consultant using that information for deeper analysis, which may involve the consultant conducting interviews to look at specific problem areas. It contains the following modules: preliminary, segmentation, corporate culture, market and competition, cost and profit, and general assessment.

### **5.2.1.3 SuSyFIM**

The Support System for Interim Managers (SuSyFIM) is a support tool for organisational diagnosis by interim managers (Frowein and Postma, 1992). Interim managers are described as a specialised type of management consultant who temporarily perform the role of management (the provision of temporary executive staff is described in section 3.2.2.2). The development was based on organisation theory, expert system technology, and interviews with a co-operating interim management agency. It had a modular architecture, where each module contains questions relating to a specific domain (such as market, finance, structure, and culture).

### **5.2.1.4 Destiny**

Destiny (Pearce *et al*, 1994) is a software tool for diagnosing organisational issues and analysing professional relationships in detail. Its development was based on interviews with a collaborating management consultancy practice. It was designed for use by management consultants and trained facilitators. The facilitators would be trained to use Destiny to collect organisational information during interviews with members of the client organisation. The management consultant would then use Destiny to analyse this data (in both graphical and textual form). The software deliberately follows the non-prescriptive style of the management consultants on whom it was based; it does not produce recommendations. One of the most powerful facilities provided by Destiny is the automatic generation of graphs from questionnaire data.

### **5.2.1.5 OASIS**

The Interactive Decision Support System for Organisational Analysis (OASIS) is a software tool for analysing organisation structure problems regarding authority and responsibility relationships (Sushil and Raghunathan, 1994). It was designed for use by managers, and its development was based on organisation theory. The user enters a pre-

defined set of organisational data including the tasks allocated to each member of the organisation and the reporting relationships within the organisation.

#### **5.2.1.6 Spotlight**

Spotlight (Pearce *et al*, 1996) represents a further development of Destiny. Its main additional features are a questionnaire creation and editing facility, and additional charting facilities, such as the ability to deal with less hierarchical organisation structures, and orbit charts, where actors are placed in orbits based on the number of relations (actors with more links appear in the centre and actors with fewer links appear on the periphery).

#### **5.2.1.7 Organisational Consultant**

The Organisational Consultant (Baligh *et al*, 1996) is an organisational design software tool for management. Its development was based upon organisation theory (more specifically contingency theory) and expert system technology. It applies approximately 350 organisational design rules to organisational information (such as organisation size) entered by the user to produce prescriptive organisational design recommendations (such as functional structure, or high centralisation).

### **5.2.2 Conclusions**

This section describes the overall themes that recur across the software packages, and presents four main criticisms of the overall software development methods used and results obtained.

All software packages have included the storage of organisational information, and many (Organisational Consultant, SuSyFIM, CASA, and TQMS) have also included the storage of organisational knowledge, usually represented using expert systems technology, and the automatic application of this organisational knowledge to the organisational information.

Software Name	Year	Target User	Data Entry	Domain	Focus	Org. Theory	Expert System
Organisational Consultant	1996	Manager	Direct	high level organisational design	Rec	Yes	Yes
Spotlight	1996	Consultant	Questionnaire	organisational diagnosis	Dia	No	No
OASIS	1994	Manager	Direct	authority & responsibility relationships	Dia	Yes	No
Destiny	1994	Consultant	Questionnaire	organisational diagnosis	Dia	No	No
SuSyFIM	1992	Interim Manager	Questionnaire	organisational diagnosis	Dia	Yes	Yes
CASA	1992	Manager & Consultant	Questionnaire	strategic planning	Dia	Yes	Yes
TQMS	1992	Manager	Questionnaire	TQM	Rec	Yes	Yes

<p>Key: Dia – Diagnosis Rec – Recommendations</p>
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**Table 2 – Main Characteristics of CAMC Software Packages.**

Table 2 presents a summary of the main characteristics of the current software packages, which may be broadly divided into two basic types relating to the target user. Some software development (TQMS, OASIS, and the Organisational Consultant) has focused on software that replaces the management consultant: this may be described as computer based management consultancy (CBMC). Other software development (CASA, Destiny, SuSyFIM, and Spotlight) has focused on supporting the management consultant: this may be described as computer assisted management consultancy (CAMC).

The level of intervention (described in section 3.2.5.1) supported by each package differs; with some packages (the Organisational Consultant and TQMS) focusing on producing prescriptive recommendations for solutions and others (CASA, SuSyFIM, Destiny, and Spotlight) focusing on the diagnosis of issues. Those focusing on diagnosis were also those that focused on supporting rather than replacing the consultant: they described doubts regarding the development of software that could successfully replace the consultant's experience, knowledge, and skill (described in section 3.2.2.2). There is a danger of the

inappropriate application of solutions resulting from recommendations without sufficient diagnosis; frequently the client will see symptoms rather than causes and consultants will often modify the client's perception of where the real issues are.

The basis for software development is focused in two areas: organisation theory (Organisational Consultant, OASIS, SuSyFIM, CASA, and TQMS), and expert system technology (Organisational Consultant, SuSyFIM, CASA, and TQMS); with a few brief indications of participation by management consultants (SuSyFIM, Destiny, and Spotlight). However, few details of systems analysis work conducted and no explicit user model are present. Details of the methods and results of summative evaluation of usefulness are also absent. Also, evaluations have focused on the benefits aspect of the software's impact on the consultancy process without considering how it may change the working practices of consultants and whether any changes are desirable and have disadvantages.

Spotlight is unique in describing the provision of a questionnaire creation and editing facility for the user. Most packages (Destiny, SuSyFIM, CASA, and TQMS) provide a fixed questionnaire; the user can determine (explicitly by selection, or implicitly by virtue of prior responses) which questions are answered, but cannot modify or create new questions. In two packages (the Organisational Consultant and OASIS) the user enters organisational information directly without using a questionnaire. However, none of the packages appear to provide support for the storage and analysis of the form of qualitative data that is produced by one of the most common information gathering methods used by consultants: free text responses from interviews (described in section 3.4.3).

This identifies five main criticisms of the literature describing existing CAMC software tools. The following two issues relate to software development methods:

- They are primarily based on computer (expert systems) technology and/or organisation theory, with little consideration of the characteristics and practices of the users' (management consultants') requirements; they provide little coverage of the analysis and design methods used during software development, and none are based on an explicit user model of the management consultancy process.
- There is little or no consideration given to the holistic evaluation of the impact that using such CAMC software tools would have on the consultancy process; the few comments made that relate to evaluation seem to be aimed at 'proving' the cost saving worth of the software, with no consideration of any problems it might cause or how it may change the consultancy process.

The following three issues relate to the results:

- Most of them work in a prescriptive rule-based manner that does not match the non-prescriptive, creative practices of many management consultants (such as the particular consultancy company involved in the present work): the software is placed on the mechanistic (right hand side) of the application domain continuum, whereas much of management consultancy appear to be placed toward the creative (left hand side).
- With regard to difficulties within management consultancy, they focus exclusively on reducing the cost of assignments; and have failed to identify another, in some ways more significant problem for consultants: information overload (described in section 3.4.5).

- They have failed to identify a key user requirement; that is, the analysis of qualitative data in the form of free text responses in interview notes, which occurs in tight integration with quantitative analysis (described in section 3.4.3).

## **5.3 Model of Integrated Software Tools to support the Management Consultancy Process**

This section presents a general model for integrated software tools to support the management consultancy process. It is based upon the model of the consultancy process (presented in chapter 3), and it uses the knowledge of software support in related disciplines (presented in chapter 4) and the existing CAMC software (presented in section 5.2) as guidance and inspiration. It includes data, functional, and non-functional aspects.

### **5.3.1 Goals**

The design goals were to produce a model that was:

- applicable to as wider a cross-section of the field of management consultancy as possible
  - across different consultancy companies
  - across different assignments
  - throughout the whole consultancy process
- independent of changes in
  - technology
  - domain knowledge of consultancy

### 5.3.2 Strategy and Architecture

This section presents a general architecture for software tools designed to support the management consultancy process.

In order to achieve this, the model was based on the user model of the management consultancy process (presented in chapter 3) focusing on generic aspects of the model that applied across consultancy companies and assignments, with a high degree of adaptability to the needs of individual consultants and assignments.

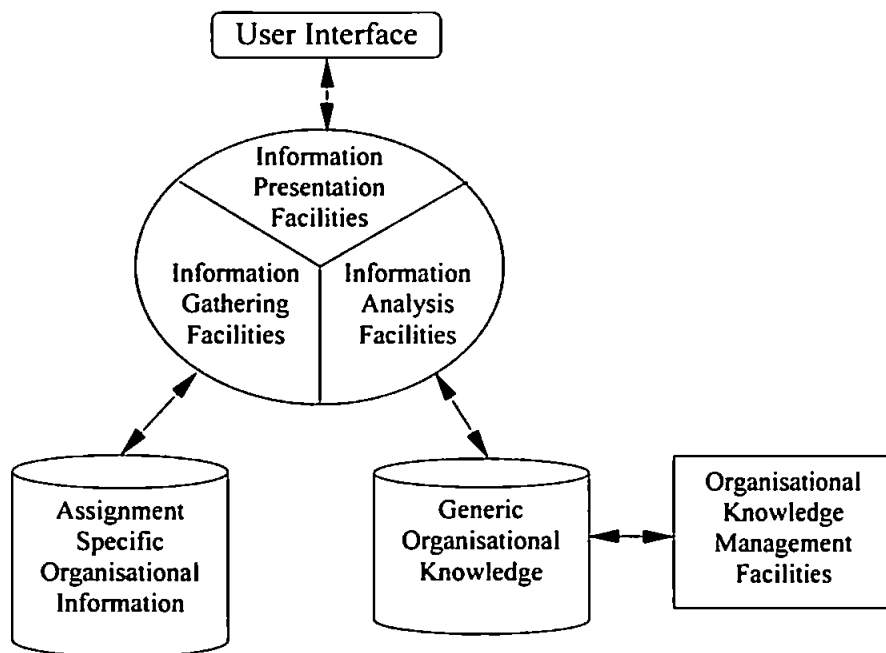
More specifically the model was focused around the three underlying concurrent sub-processes (information gathering, analysis, and presentation) rather than on any sequence of stages (particular method) or current organisational (domain) knowledge. This was done to achieve the goal of applying across different assignments and practices and throughout the consultancy process (described in the previous section).

The sequence of stages involved in a consultancy assignment is highly variable across consultancy companies and consultancy assignments within the same practice (described in section 3.4.2). Although many attempts have been made to develop a generic sequence of management consultancy stages, it has proved difficult as stages are varied according to the differing needs of each assignment. This implies that basing a design for CAMC software on assignment stages of a particular consultancy company or assignment would lead to software tools that were unsuitable for other assignments and consultancy companies. In contrast, the three underlying concurrent sub-processes are present across a wide range of consultancy companies, across many consultancy assignments and across the most of the consultancy process (described in section 3.4.2). Therefore, basing a design for CAMC software on them is likely to lead to software that is suitable for many assignments and practices.



One of the fundamental decisions in designing CAMC software is the form which support takes; the choice of which tasks should be allocated to the computer and which should remain with the consultant. Key considerations here were the consultant's use of personal judgement based on individual experience. It is not possible to completely automate these processes/activities. Task allocation was based on the consultant retaining control and these activities being supported and not inhibited by the software support.

Hence, tasks such as the generation of questions, filtering of interviewee's responses, deciding what to record, deciding what to crosscheck were allocated to the consultant: even if a computer could do this it may destroy the human element – it is unlikely that people would open up to a computer in the same way they do to consultants. Other activities such as searching the text for occurrences of key words and phrases (described in section 3.3.4.1) and generating graphs from relationship questions were allocated to the computer (described in section 3.3.4.6). This follows the same strategy of supporting the high-level creative tasks indirectly via direct support of the low-level mechanistic tasks, which is used by QDA software tools (described in section 4.4.5). The model is also similar in many ways to other recent work that seeks to support creative application domains; it is similar to the Genex framework (Shneiderman, 1999), which calls for integrated creativity support tools, and focuses on supporting the user in searching, browsing, visualising the data, exploring the data, and disseminating the results.



**Figure 5.1 – General Architecture for Software Tools to Support the Management Consultancy Process.**

The design model for CAMC software tools consists of seven tightly coupled elements (represented diagrammatically in Figure 5.1). It was hoped that this integrated software tool approach would facilitate easy rapid movement between the different perspectives that a consultant needs to consider (described in section 3.4.3).

It is important to note that these elements do not necessarily represent distinct software modules, but elements that exist across many software modules. For example in any implementation there may not be a specific presentation software module, this functionality may be distributed across several actual software modules. Facilities may be so well integrated that it could be difficult to classify any specific facility as belonging to a single element. For example a particular facility may provide support for both analysis and presentation.

### **5.3.2.1 Assignment Specific Organisational Information**

This element represents all of the information regarding the client organisation that is recorded during an assignment. It includes the results of analysis as well as the interview

notes. It is effectively a model of the client organisation, and represents an augmentation of the consultant's mental model of the client organisation. The consultant augments his mental model using paper and pen/pencil to create interview notes (described in section 3.4.1). This model uses the same strategy of augmenting the mental model, but using computer technology. This element is described in more detail in section 5.3.4.

#### **5.3.2.2 Information Gathering Facilities**

A set of information gathering facilities allow assignment specific organisational information to be gathered and recorded from different types of source (such as observations, interviews, and questionnaires).

#### **5.3.2.3 Information Analysis Facilities**

A set of information analysis facilities allow the assignment specific organisational information to be analysed using integrated quantitative and qualitative analysis techniques (drawn from fields such as SNA, CA, and QDA). Some of these analysis techniques may make use of the organisational knowledge (the consultant can selectively apply specific knowledge and is always in control). This element is described in more detail in section 5.3.5.

#### **5.3.2.4 Information Presentation Facilities**

A set of information presentation facilities allow the assignment specific organisational information (including results of analysis) to be presented back to members of the client organisation. This element is described in more detail in section 5.3.6.

#### **5.3.2.5 Generic Organisational Knowledge**

This element represents general organisational knowledge drawn from the field of OB (described in section 4.2) and consultants' experience of previous assignments or employment. It includes sets of questions and topics that require responses from members

of the client organisation, which would be elicited via questionnaires and interviews. It also includes analysis of these questions in the forms such as production rules, searches for keywords and reciprocal relationships, and mathematical calculations. These constitute stored actions relating to the information analysis facilities. The analysis facilities will allow the consultant to apply it to the assignment specific organisational information resulting in the highlighting of potential organisational issues (or at least points for further investigation). For example, it could be used to identify keywords that may indicate confusion (such as 'unclear', 'vague', and 'lack of'), or check for reciprocal relationships (if John and Bob have both been interviewed and John has indicated that Bob is his boss, it could check that Bob also indicated that John was his subordinate). This part of the model derives from the existing CAMC literature's demonstration that this is useful (described in section 5.2.2).

The model makes it independent of other components, and gives the consultant the ability to modify (via the organisational knowledge management facilities) and selectively apply portions of it, because it is prone to change (described in sections 3.4.2 and 4.2).

#### **5.3.2.6 Organisational Knowledge Management Facilities**

A set of organisational knowledge management facilities could allow the consultant to modify the generic organisational knowledge described above. This would include a questionnaire creation and editing tool, and facilities to store any of the information analysis actions (such as searches).

#### **5.3.2.7 User Interface**

A user interface element would give the consultant access to all of the above components in a tightly integrated manner. Both information and facilities would be made available in a natural and therefore easy to use form.

### **5.3.2.8 Confidentiality and Trust**

A non-functional issue that applies throughout the whole model is the maintenance and support of the confidentiality and trust between the consultant and the client organisation (summarised in section 3.4.4), especially interviewees. This is so fundamental to the consultancy process that it is unlikely to change as a result of either technological advances or alterations to the organisational domain knowledge of consultancy.

### **5.3.3 Research Focus**

This section describes which aspects of the model were focal to the current work and why. It is concerned with which areas, from of those identified as being useful to consultancy, this work should focus on. It eliminates avenues of investigation on the basis of research interest as well as the potential usefulness to consultancy. Key criteria for selection are a lack of existing understanding, current academic interest, and significance within the user model of the consultancy process.

The present work focuses on the integration of quantitative (SNA) and qualitative (QDA) functionality. This was done for the following reasons:

- The user model of the management consultancy process clearly indicates the central role of integrated quantitative and qualitative analysis in management consultancy, which suggests that this would provide significant benefits to management consultants.
- The lack of mention within existing CAMC literature and software, which suggests that it is likely to give an original contribution to knowledge.
- The current interest in mixed (quantitative and qualitative) methods approaches within the field of QDA (Kelle, 1995).

It does not consider the automatic analysis of organisational data using the generic organisational knowledge, as the value of this has already been established by previous CAMC work (described in section 5.2.2) and therefore would be less likely to result in an original contribution to knowledge.

It focuses on organisational information collected by interviews and questionnaires (single type of source), as these are most complex (due to the structure that the consultant wishes to impose on them) and most commonly used. This would highlight issues regarding the ability of software to assist with the problem of information overload. It does not explicitly consider organisational information collected from other types of source (such as organisational records, or observations).

The following sections will consider the Information Analysis Facilities, Information Presentation Facilities, Assignment Specific Organisational Information, and User Interface elements in greater detail.

### **5.3.4 Assignment Specific Organisational Information**

This section describes the range of organisational information that could be stored by integrated software tools, is derived from the user model presented in chapter 3.

An integrated software tool would need to store the following information (based on what would be needed to support the main functional areas, and inspired by what consultant's record manually):

- Background information
  - Actor Details
  - Group Details
  - Client organisation's official structure.
- Interview Plan

- **Topics/Questions** - Three types of topic/question were modelled (based on the type of response expected):

**Relationship** – these questions indicate a relation between the interviewee and another actor.

**List** – these questions give indicate information as selected from a set of standard answers. The answers must be selected from a list. For example 'What is the main role of your section?'

**Descriptive** – these questions give descriptive information as free text (the full answer must be typed in using the keyboard).

- **Topic/Question Structure (Sequenced Hierarchy).**
- **Interview Notes**
  - **Interviewee's Responses:** The response given to a question posed by the interviewer.
  - **Interviewer's Annotations:** The side notes made by the consultant during the interview.
- **Analytical Notes**
  - **Themes** (representing concepts that are of interest to the consultant, including issues, important background information, and actions to be taken by the consultant).
  - **Relationships** between the themes and the text of the interview notes (both responses and annotations).
  - **Relationships** between themes (such as 'causes').

The storage of this information is intended to augment the consultant's mental model of the client organisation, thus providing a more reliable record that is far less prone to deterioration over time.

### **5.3.5 Information Analysis Facilities: Integration of Quantitative and Qualitative Analysis Methods for Management Consultancy**

This section describes a method for adapting and integrating SNA, and QDA methods and concepts for use by management consultants, without considering technological issues.

It represents the range of facilities (organised into key functional areas) that could be provided by an integrated software tool for management consultants, depending on the exact style of consultancy being supported and what technology was available. It also indicates why each facility is included by relating it back to specific parts of the user model and related disciplines.

#### **5.3.5.1 Responses – Display and Filtering**

This facility allows a sub-set of the consultant's interview notes to be displayed as text for analysis. It allows the consultant to show responses for given interviewees and questions. For example, the consultant could show only responses given by 'Charlie Baker' and 'Jim Lemon' to the questions 'Who do you deputise for?' and 'What is the main role of your section'.

#### **5.3.5.2 Actors**

Although within the field of SNA actors (described in section 4.3.1) in a given study are usually restricted to being of one form (such as groups, organisations, nations, or individuals), for the purposes of management consultants the actors within an actor set may be of different types, i.e. a mixture of groups and individuals. The rule restricting actors to



a single type is derived from the need to produce wide ranging generalisations from the data. This need does not apply to consultants, and the rule is therefore not required.

### **5.3.5.3 Themes**

With the field of QDA, the term code (described in section 4.4.3.4) is frequently used to describe something that represents a concept or theme. For the purposes of consultancy the term 'theme' was used, as it appeared more meaningful to the consultants (described in section 4.5.1). A theme may represent concepts such as an organisational issue, an action that the consultant wishes to undertake, and a piece of relevant organisational information. A theme may result from relationship (SNA type) data; the fact that a relationship exists or not may represent a significant organisational issue. The process of coding may range from searching for themes (looking through the text for equivalent concepts, which involves interpreting and understanding what is said) to exact match keywords.

### **5.3.5.4 Actor Attributes and Information Beyond the Text**

The personnel details and official organisation structure may be perceived as actor attributes (described in section 4.3.1) and information beyond the text (described in section 4.4.3.8).

### **5.3.5.5 Actors and Themes**

Actors and codes are central to the integration of social network and qualitative data analysis methods. Social network data, such as compositional variables (actor attributes) and structural variables (relational ties), may be viewed as information beyond the text (described in section 4.4.3.8), and used to assist in the qualitative analysis of textual interview data. Also an interview text may be viewed as an actor attribute (described in section 4.3.1) of the interviewee. Also actor attributes may be represented in the text, for example the fact the employee Y has been with the company for 11 years may be appear in the interview notes of employee Z.

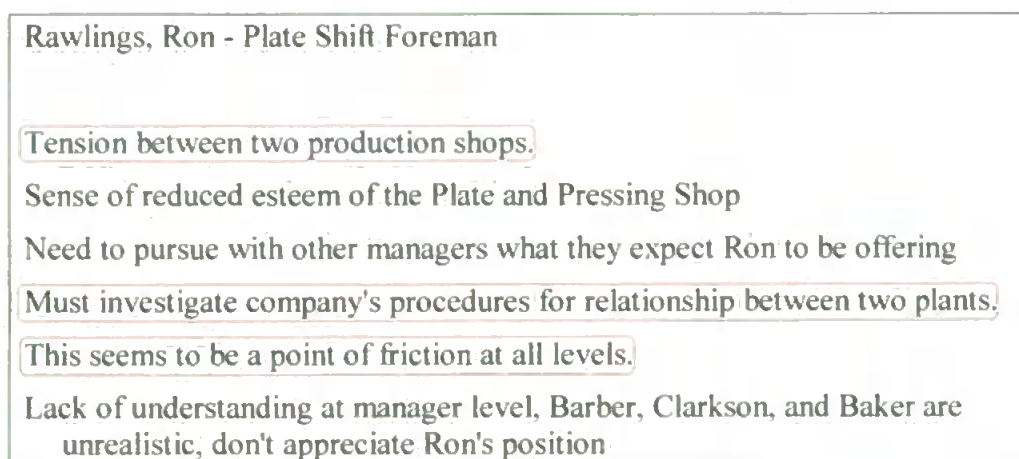
Codes may be associated with actors in two ways. First a simple one to one association, such that a code may represent an actor and be linked with every mention of that actor in the text (actor code). Secondly a complex association, where a code represents a concept related to one or more actors.

This association of actors with codes was inspired by issues which involved actors.

Organisational issues, such as failing to meet deadlines or confusion, may be represented by codes. These issues, such as a personality clash between two people, or a person being defensive, often involve individuals and groups from within the client organisation.

#### 5.3.5.6 Theme Creation and Linking

This facility allows the consultant to create themes (representing underlying concepts) and link portions of text (from the consultant's interview notes) to them. For example a theme may be created to represent the idea of tension between two people, and portions of text from the consultant's interview notes where that idea appears may be linked with that theme. Text associated with themes may be highlighted as shown in Figure 5.2.



Rawlings, Ron - Plate Shift Foreman

Tension between two production shops.

Sense of reduced esteem of the Plate and Pressing Shop

Need to pursue with other managers what they expect Ron to be offering

Must investigate company's procedures for relationship between two plants.

This seems to be a point of friction at all levels.

Lack of understanding at manager level, Barber, Clarkson, and Baker are unrealistic, don't appreciate Ron's position

**Figure 5.2 – Excerpt of interview text highlighting portions associated with the 'difficulty between Plants A and B' theme.**

It was included to assist the consultant in classifying the text, cross checking responses from different individuals and cross relating issues. The term theme was used in preference

to code (described in section 5.3.5.3) as it appeared to be more meaningful to the consultant.

It is possible to search the responses and annotations for a given term (described in section 4.4.5.2), consisting of one or more words. The results of searches should be persistent, i.e. they should be stored as part of an assignment, and be available for use elsewhere. This could be achieved by creating a theme for each search performed, where each match in the text was associated with the given theme.

The text may contain actor indicators (such as job title and various forms of name), which may be searched for and then portions of text that referred to actors could then be linked to the appropriate actor theme.

#### *Text Search Themes*

This facility allows the consultant to search the text for phrases of interest. The search results (matches) are given as themes linked to the portions of text where they occur.

#### *Actor Themes*

This facility allows the consultant to see where actors are referred to in the text. It searches through the text looking for phrases that refer to actors (such as names and job titles). It then links each of these portions of text to its respective actor theme. An example is given in Figure 5.3.

Rawlings, Ron - Plate Shift Foreman

Tension between two production shops.

Sense of reduced esteem of the Plate and Pressing Shop

Need to pursue with other managers what they expect [Ron] to be offering

Must investigate company's procedures for relationship between two plants.

This seems to be a point of friction at all levels.

Lack of understanding at manager level, Barber, Clarkson, and Baker are unrealistic, don't appreciate [Ron's] position

Figure 5.3 – Excerpt of interview text highlighting portions referring to Ron Rawlings.

### *Group Themes*

This facility allows the consultant to see where groups are referred to in the text. It searches through the text looking for phrases that refer to groups (such as names). It then links each of these portions of text to its respective group code.

#### **5.3.5.7 Theme Relationships**

This facility allows the consultant to record the existence of relationships between themes (such as causal relationships, and relationships indicating the involvement of an actor).

#### **5.3.5.8 Actor Themes**

For each actor a corresponding code can be created, called an 'actor code', which represented references to that actor in the text (such as first name, surname, job title, and group name). In this way sections of text may be associated with the actors they mention. This would allow easy identification of all text referring to a given actor, i.e. all text associated with that actor's 'actor code'.

#### **5.3.5.9 'Involved' Theme Relationship**

This links themes with actors (via actor themes). A code can be created that represents a concept related to one or more actors, which is associated with all mentions of this concept in the text (examples are given in Figure 5.4 and 5.5). This is a many to many relationship,

where a code can have several associated actors, and an actor can be associated with several codes.

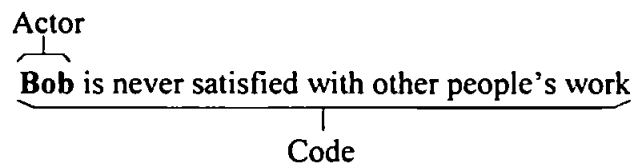


Figure 5.4 – Code representing a concept involving a single actor.

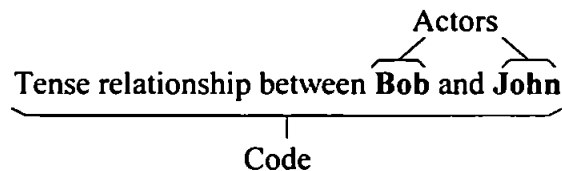


Figure 5.5 – Code representing a concept involving multiple actors.

### 5.3.5.10 Quantification of Themes

Quantitative statistical functions could be calculated for themes, such as:

- A count of the number of portions of text that each theme is associated with (for search themes this would correspond to the number of matches/hits), and
- The number of interviewees to whom each theme has been associated.

These quantities could be displayed on the theme graphs. This is important for maintaining confidentiality as it allows an issue to be quantified without indicating who supplied the information.

### 5.3.6 Information Presentation Facilities

The information resulting from the methods described above, will be represented visually as graphs (described in sections 3.2.5.2 and 3.3.4.6).

#### 5.3.6.1 Actor Graphs

It should be possible to generate sociograms (described in section 4.3.4.1) showing actors and relationship responses. It is important that these graphs are generated from responses

to relationship questions rather than entered or drawn by the consultant. Within the field of SNA the location of nodes on sociograms is irrelevant, in management consultancy graphs are frequently drawn that use the location of nodes to convey some form of structure information (such as position in a hierarchy). It should also be possible to easily identify the source of a relational tie that is displayed as a line on a graph; to this end the notation of placing a semi-circular dot against the source was developed (shown in figure 5.6). This makes it easy for a consultant to visually check for reciprocal relationships.

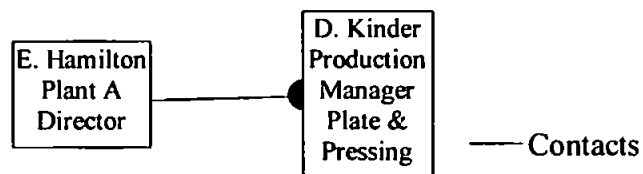


Figure 5.6 – Diagram showing that D. Kinder has indicated that he has contact with E. Hamilton.

It should also be possible to overlay responses. Actor attributes may be included on these graphs as part of the node.

- Official Organisation Structure Overlay Actor Graph: This facility allows responses to relationship questions to be displayed visually as additional lines superimposed onto the official organisation structure. An example is given in Figure 5.7.

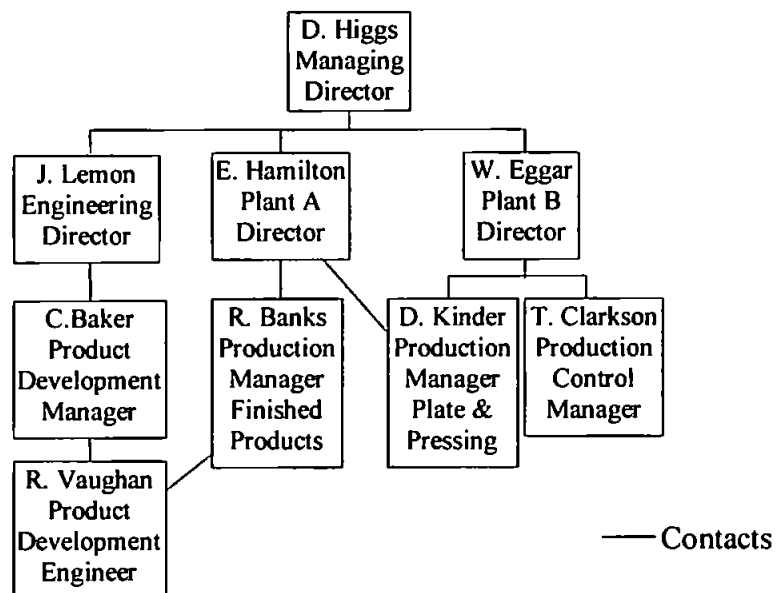
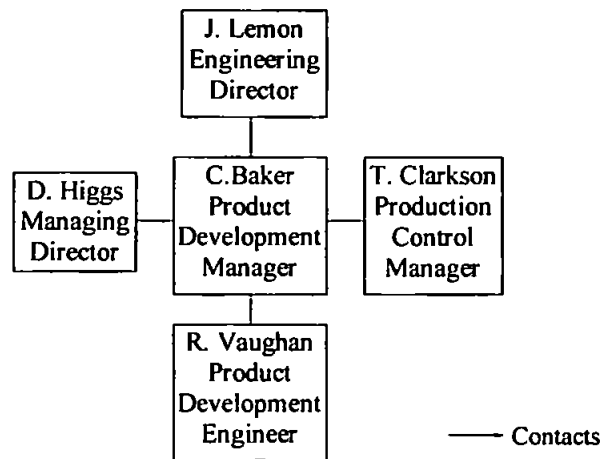


Figure 5.7 – Example of an Official Organisation Structure Graph, with contacts overlaid.

- Actor Star Graph: This facility allows responses to relationship questions involving a focal actor to be displayed visually. Actors that have ties with the focal actor are displayed in a circular fashion around the focal actor. An example is given in Figure 5.8.



**Figure 5.8 – Example of an Actor Star Graph showing Contacts for C. Baker.**

- Actor Orbit Graph: This facility was provided by the Spotlight software tool (described in section 5.2.1.6). It arranges actors in orbits based on the number of relations they have with other actors (actors with more links appear in the centre and actors with fewer links appear on the periphery). An example is given in Figure 5.9.

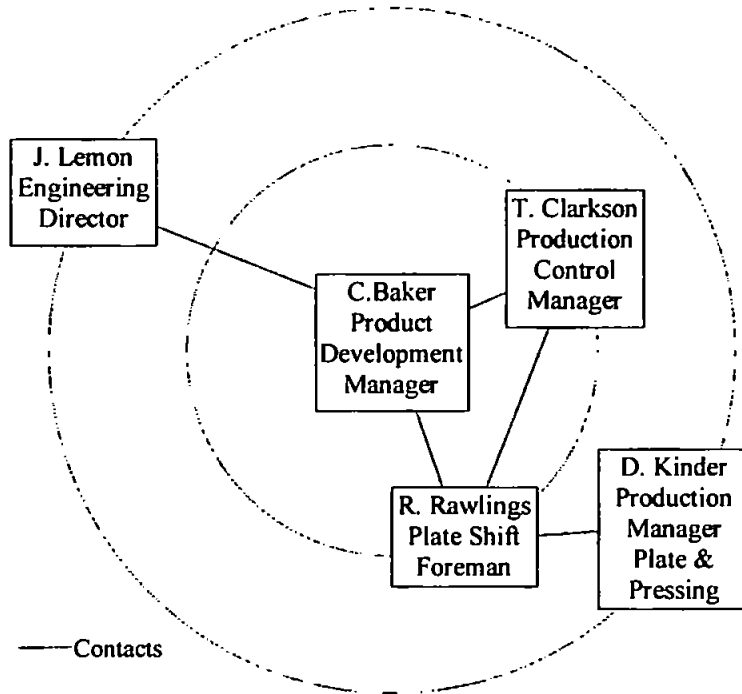


Figure 5.9 – Example of a Actor Orbit Graph showing Contacts between several actors.

- Actor Network Graph: This facility allows the consultant complete flexibility of specifying which actors to include and where they are positioned. All responses to relationship questions involving the included actors are displayed visually. It is the closest graph to a true sociogram. An example is given in Figure 5.10.

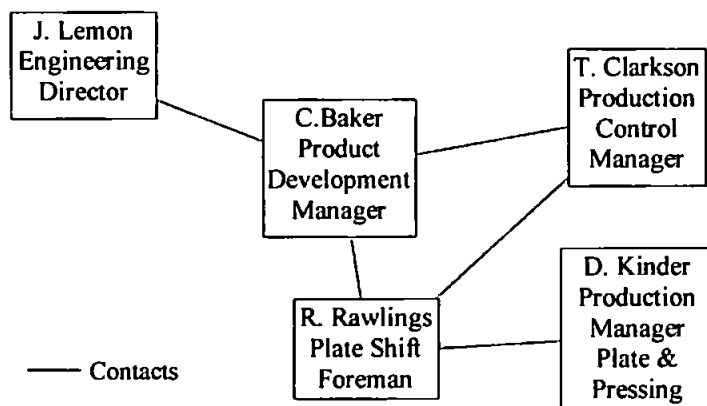


Figure 5.10 – Example of a Actor Network Graph showing Contacts between several actors.

### 5.3.6.2 Theme Graphs

Conceptual network (described in section 4.4.4.2) showing representations of codes and links (both between responses and codes).



- **Theme Hierarchy Graph:** This facility allows the consultant to display the hierarchy of themes along with relationships between them. It is also the means by which the consultant creates relationships between themes. An example is given in Figure 5.11.

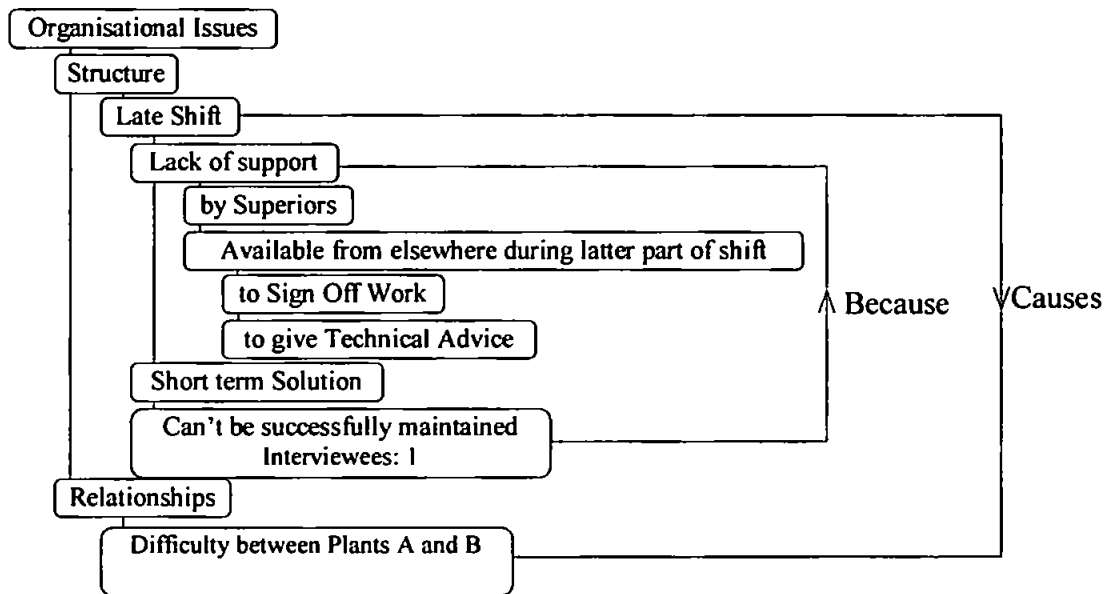


Figure 5.11 – Example of a theme hierarchy graph, with theme relationships overlaid.

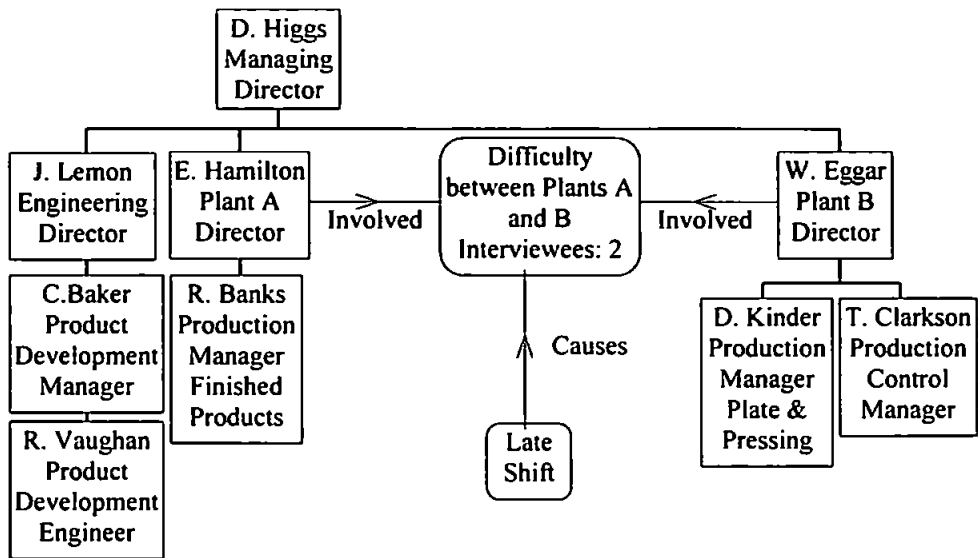
- **Theme Network Graph:** This facility allows the consultant complete flexibility of specifying which themes to include and where they are positioned. All relationships involving the included themes are displayed visually.

### 5.3.6.3 Integrated Theme-Actor Graphs

**Integrated Socio-conceptual graphs:** This will then support integrated SNA and QDA graphs, showing concepts in context with the actors they involve and relations between those actors. In organisational terms this means displaying organisational issues in context with the people and groups they involved, and relations between these people and groups.

- **Theme Official Organisation Structure Overlay Graph:** This facility allows themes to be added to the official organisation structure overlay graph. The diagram presented as Figure 5.12 shows the issue 'difficulty between Plants A and B', in context with

the organisational structure. It also indicates those involved in the issue (the two Plant Directors), and the causal relationship with another issue (the late shift).



**Figure 5.12 – Official Organisation Structure with Themes, and Theme Relationships Added.**

- Theme Star Graph: This facility allows themes to be added to any actor star graph.
- Theme and Actor Network Graph: This facility allows the consultant complete flexibility of specifying which actors and themes to include and where they are positioned. All responses to relationship questions involving the included actors are displayed visually. As are all relationships involving the included themes.

### 5.3.7 User Interface

The model included a high quality user interface for the following reasons:

- So that the consultant could work with the highly inter-related information from different sources in a flexible, and natural manner.
- To support the high level of interaction between the user and the system, originating from the iterative nature of the analysis.

- To minimise the time taken to learn to use the software and minimise the requirement for long formal training, which could defeat the objective of saving the consultant's time.
- to reduce problems arising from the limited levels of computer literacy, and relatively low frequency of operation of the software of consultants.

This was based on visual representation of much of the organisational information, direct manipulation these visual representations, and a split screen.

A split screen (Weitzman and Miles, 1995) is used in the analysis window, to support the rapid movement between different perspectives. Also if the consultant wants a different view of the same information it is not necessary to select the information again. It allows different views of the same information to be compared, and related.

Direct Manipulation (Shneiderman, 1998; Norman and Draper, 1986; and Preece *et al*, 1994) is used throughout the user interface to assist with easy learning and use of the software by consultants who may operate the software infrequently, and have limited IT experience. It is especially important due to the high level of inter-related information on screen concurrently. A direct manipulation interface has previously been used effectively in a QDA software tool (Weitzman and Miles, 1995).

## **5.4 A Prototype Integrated Software Tool to support the Management Consultancy Process**

The software support for the tasks indicated above was done by providing a set of inter-related facilities (toolbox approach), with which the consultant could interact freely.

### **5.4.1 Mode of Support**

The prototype was developed to support the analysis and presentation preparation performed by management consultants away from the client organisation. This was done for the following reasons.

Firstly, it was considered likely that the computer would interfere with the delicate interactions between the consultant and the members of the client organisation that is critical during the interview process (described in section 3.3.3) and the presentation sub-process (described in section 3.3.5). In general people are concerned about information being recorded on computer and may therefore not interact in the normal way. Also, the use of the computer would slow these activities down as consultants can't usually touch type.

Secondly, on a pragmatic level the evaluation of the software's use during interactions with the members of the client organisation would be extremely difficult to organise; a willing client organisation was not available, and attempting to capture and analyse the impact of the software on the complex interactions between several people would not be practical.

Thirdly, the analysis and preparation for presentation of organisational information to the client organisation are activities that are critical to the consultant. These represent the main payback areas of the software's use. If these do not show the potential for payback then it is not worth pursuing other areas (such as improvements in data entry).

### **5.4.2 Mapping of Current Computer Technology onto Design**

The strategy adopted was to investigate the application of stable technology that would give reliable results – having something that only works part of the time is of little use to the consultant and is difficult to evaluate. Although there may be many technologies being developed that may show some promise in the future these are not going to be useful to

CAMC immediately. This view was taken as this work is concerned with the usefulness of CAMC software tools.

Hence, the development of the prototype involved the following technologies: relational database systems, information retrieval, and direct manipulation.

### 5.4.3 User Interface and Overview of Functionality

This section describes the prototype’s analysis facilities and user interface in detail. All the main analysis and presentation facilities described in the general design model were implemented in the prototype.

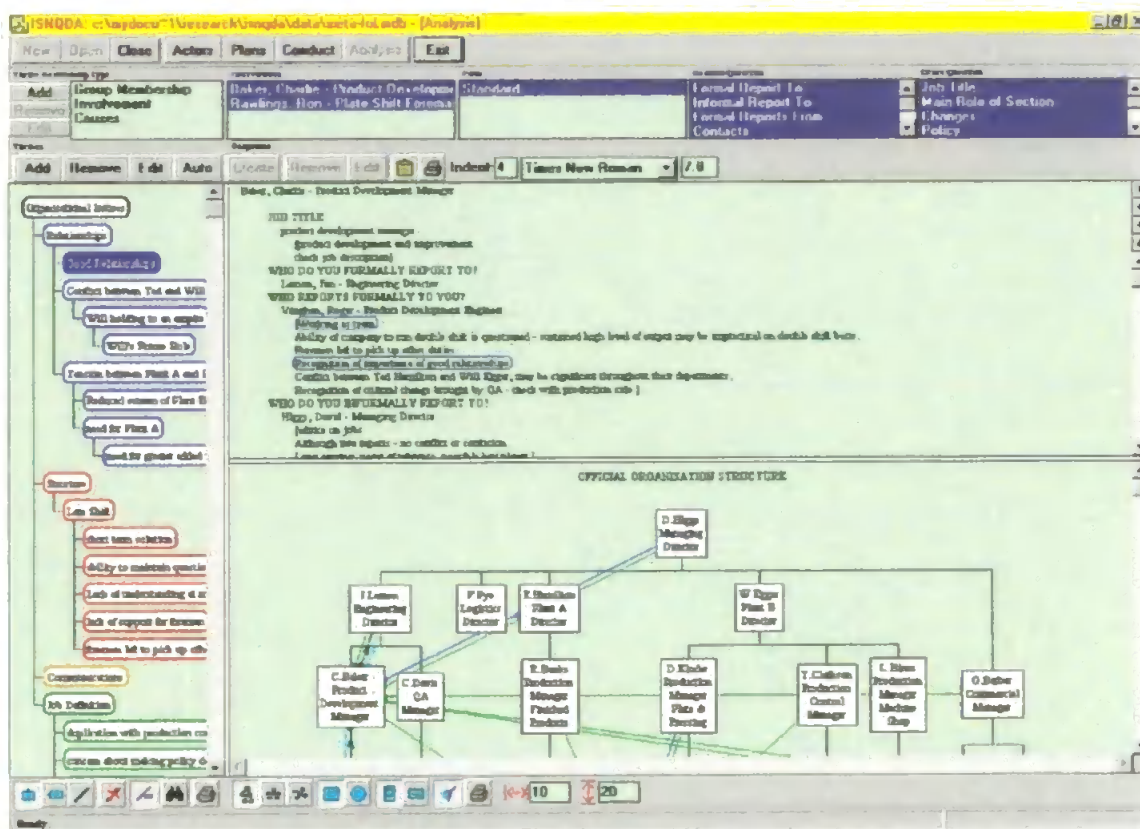


Figure 5.13 – Prototype Integrated Software Tool Analysis Window.

The user interface for the prototype’s analysis facilities (shown in Figure 5.13) was based upon a split screen design, consisting of three panes: text pane, graph pane, and theme pane. The text pane’s main purpose was to display the consultant’s interviews as full text. The graph pane allows graphs of various forms to be generated and manipulated. These include actor graphs, which represent portions of the interview notes relating to relations

between actors, theme graphs, which represent themes and the relations between themes, and integrated actor-theme graphs, which represent actors, themes, and the relations between them. The theme pane displays a theme hierarchy graph, which includes all of the themes currently defined. At the top of the window four list boxes allow the consultant to control which aspects of the data (interviews and questions) are displayed. The whole interface works on the principle of direct manipulation.

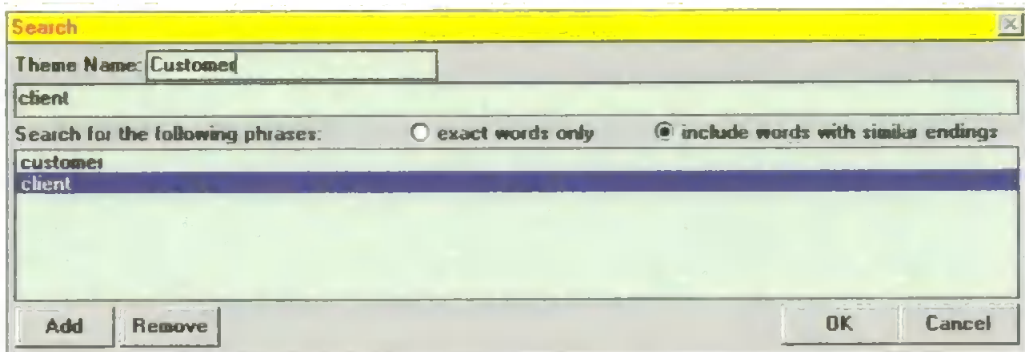


Figure 5.14 – Prototype Integrated Software Tool Search Window.

A text search facility was provided that gave the consultant the opportunity of using a stemming technique from the Information Retrieval field, which matches words based on their stem. This means that typing in engineer would also match similar words, such as engineering, engineered, and engineers. The algorithm used was based upon the one described in Porter (1980). Figure 5.14 shows the dialogue box that provides this facility.

Three types of graph were implemented: hierarchical organisation structure graph, star graph, and free-form network graph.

## 5.5 Effectiveness of the Research Methods

This section considers the effectiveness of the research methods used to develop the general design rationale for integrated CAMC software tools, and prototype integrated CAMC software tool described in the previous sections.

The user participation, in the form of user tests, played a key role; it resulted in a large number of significant usefulness, usability, and learnability issues being identified and

resolved, which could have distorted the user acceptability evaluation. These issues were often resolved on the basis of observing the user's behaviour, discussing difficulties with him, and noting his suggestions. For example the facility to locate the text corresponding to a relation between actors was developed as a result of observing the consultant frequently looking up corresponding text for lines on the graphs. Another example relates to the way lines were represented on the category hierarchy graph; the initial method left the consultant confused and unsure of their meaning – he instinctively re-drew the graph using a slightly different notation, which was subsequently adopted by the software.

The use of formative heuristic evaluations prior to the user tests avoided wasting a significant amount of the user's time; the involvement of technologists to check usability issues acted as a filter identifying a significant number of fundamental issues that did not require the user's involvement.

The prototype was invaluable during this activity; it provided a concrete basis that acted to confirm and clarify design decisions; and thus incrementally clarify the match between user requirements and the software tool. Without it all discussion would have been hypothetical and unlikely to have identified as many issues.

## **5.6 Summary**

This chapter describes a generic design model for computer assisted management consultancy (CAMC) software tools, which incorporates a design rationale and functional specification. This design model was based upon the user model of management consultancy (described in chapter 3); an integration of current SNA, and QDA concepts, methods, and software support (described in chapter 4); and current CAMC software tools (described within this chapter). It includes the description of a prototype Integrated Social Network and Qualitative Data Analysis (ISNQDA) software tool that was developed as a

vehicle for evaluating the design model, and the impact of using such software on the consultancy process.



## **6. Holistic User Acceptability Evaluation**

*This chapter presents a descriptive summary of the results from the two sources of data: transcripts of a software assisted analysis exercise, and an acceptability interview. The intention is for it to bring the reader as close to the data as possible without them having to read the entire transcript. It aims to be faithful to the original data and avoid drawing conclusions as much as possible. It provides a base from which conclusions are drawn in the final chapter.*

### **6.1 Research Method**

The aim of this activity was to use the prototype CAMC software tool as a vehicle for the evaluation of the usefulness of the model of user requirements (presented in Chapter 5). Care was taken to focus on issues relating to the underlying model of user requirements rather than issues relating specifically to the prototype. It sought to draw a comparison between the manual and software assisted processes, considering the impact of the software on the consultancy process. It involved a software assisted analysis exercise followed by an acceptability interview.

#### **6.1.1 Software Assisted Analysis Exercise**

A user test (Nielson, 1993) was undertaken involving ‘simplified thinking out loud’ (Nielson, 1993: p. 18) to allow comparison with the manual analysis exercise. This was an empirical laboratory based exercise. An experienced user (the same management consultant who participated in the other exercises) was given the overall objective of performing an specimen task: the generation of feedback (included as Appendix F) from consultant’s interview notes (included as Appendix D). In order to achieve that objective the user then followed a process of exploration, with the experimenter providing assistance regarding how to use the software (acting as a user manual). Prescribing the way in which

the tool should be used was inherently unfeasible due to the complex, non-sequential, creative nature of consultant practices. This exercise was recorded on video tape, and then the 'thinking aloud' narrative was transcribed verbatim (the full transcript is included as Appendix J). The consultant participated in a training session prior to this exercise, which took the form of an interactive practical demonstration of the main functional areas of the software. No recording was made of this training session in order to allow the consultant to become familiar with the software in a relaxed environment without feeling that his actions were being monitored.

### **6.1.2 Acceptability Interview with the Management Consultant**

This involved eliciting a measure of subjective user satisfaction via a questionnaire (included as Appendix K) guided interview. This exercise was recorded onto video tape, and then transcribed verbatim (the full transcript is included as Appendix L).

## **6.2 Results of Software Assisted Analysis Exercise**

This section presents a summary of the results of the software assisted analysis exercise, where the management consultant used the prototype ISNQDA software tool to analyse the consultant's interview notes (included as Appendix D) generated by the interview exercise. A full transcript of this exercise is given in Appendix J.

### **6.2.1 Looking through Interview Notes**

The consultant started his analysis by reading through Charlie Baker's interview notes interpreting their meaning looking for significant information, in particular organisational issues [416]. He read through the interview notes on several occasions following this [471, 850].

## **6.2.2 Identifying Organisational Issues**

During the exercise the consultant identified two specific organisational issues: one regarding Charlie Baker's job description [417], and another regarding the operation of the late shift [453]. He also focused on two more general areas of interest: relationships within the company [582], and drawing together annotations he made during the interview, which were reminders to himself to do various tasks, into an action list [842].

The identification of the issue regarding Charlie Baker's job description was triggered by reading the interview notes. The operation of the late shift seemed to be remembered from the interview: the consultant commented 'my recollection is that it was an issue, but I don't know' [469]. The consultant's interest in relationships and the action list seemed to be predetermined.

## **6.2.3 Searching for Evidence**

The consultant used the keyword search facility (described in section 5.3.5.6) several times during the exercise [433, 454, 461, 582, 843]. He used it to look for evidence relating to the issues and areas of interest mentioned in the previous section. In the case of the first issue (regarding Charlie Baker's job definition) he used the search to cross check a comment found in the interview notes by identifying supporting or conflicting evidence. The consultant indicated that, although the search did not identify any additional evidence, having unsuccessful searches recorded was useful to eliminate potential lines of enquiry [441-443]. In the case of the issue with Charlie Baker's job definition the search 'confirmed ... it was only Charlie Baker that mentioned it ... and he only mentioned it once' [467].

He also commented that the number of search hits was 'worth noting' [582, 638, 760], and that although the searches seem to take 'quite a long time' when one is sat in front of the screen, compared with searching manually it is relatively quick [642-644].

### **6.2.3.1 Context Checking of Search Results**

Where searches were successful in producing multiple hits the consultant ran through the hits looking at their context to judge whether they were relevant to the issue or topic of interest [471, 497, 582, 646, 648, 694, 728]. An example of this is where the consultant searches for the term 'shift' hoping to identify all of the references to the problem with the late shift. However, as the consultant reviews the results he finds several hits relate to the word shift occurring in people's job title (such as 'Shift Foreman') and are not concerned with the late shift issue [582].

### **6.2.3.2 Iterative Search Refinement**

Searches were not always successful immediately. The consultant spent a significant amount of time in a process of 'iterative' search refinement [486-487, 590-594, 754], involving modifying the search by adding, removing, and editing search terms [473-484, 618, 632]. He also abandoned a search completely and started a new one [469]. He developed a tendency to start with a broad search and then narrow the search based on the results [629, 754, 756].

### **6.2.4 Quotations and Themes**

Several times the consultant expressed an interest in extracting statements from the text; these were usually derived from search hits that were relevant [497, 499, 503, 507, 662]. He was advised by the investigator to keep these relevant statements separate from the raw search results [516]: he responded with agreement [517]. The consultant created separate themes to collect together (categorise) associated relevant statements (based on the search hits) [663]. He also used the facility to create sub themes to organise the themes and quotations [507, 676, 768, 771].

### **6.2.5 Presentation**

The consultant described the use of the above analysis in a meeting or workshop to discuss the issues with the company's executives [497, 760]. This would include presenting part of the theme hierarchy graph on a single overhead [505, 571]; only certain branches would be included with less relevant portions hidden [660, 738]. It would also include printing out the statements [523] as side notes, highlighted in the full text as a small report [497]: The consultant comments 'I may want to be reminded of those statements' during the meeting [507]. He describes the manual process as 'virtually doing that' [507].

### **6.2.6 Exploratory style of working**

The consultant used the software to explore themes within the interview data [582, 636, 916] in order to distil/compress it [582]. He commented that this was 'exactly what one did manually' [636].

## **6.3 Results of Acceptability Interview with Management Consultant**

This section presents a summary of the results of the acceptability interview with the management consultant (the full transcript is given in Appendix L). It follows the interview plan quite closely. It first describes specific comments made by the consultant regarding the fourteen key groups of facilities. It then describes more generic comments, made by the consultant, regarding the software tool as a whole.

### **6.3.1 Comments Regarding Specific Facilities**

#### **6.3.1.1 Responses – Display and Filtering**

This facility allows a sub-set of the consultant's interview notes to be displayed for analysis. It allows the consultant to show responses for given interviewees and questions. For example, the consultant could show only responses given by 'Charlie Baker' and 'Jim

Lemon' to the questions 'Who do you deputise for?' and 'What is the main role of your section'. This facility is described in more detail in section 5.3.5.1.

The consultant commented that this facility would allow him to 'break down' [1182-1183] the 'awful lot of information' [1197] gathered during interviews into manageable chunks. He said that without this facility 'it would become that much more difficult to handle' the 'volume of data actually being presented to you': you would 'never work your way through it.' [1155].

The consultant gave several specific examples of situations where this facility could be useful:

- He said that 'quite often one would want' to look at responses given by 'all interviewees' to 'some basic questions', which would 'start to' give an 'overall picture' [1111].
- He indicated that one may want to focus on a part of the organisation (for example 'if you've got particular grey areas') and look at responses given by all those within that part of the organisation [1113].
- He stated that sometimes it is possible to get 'questions that ... have yielded nothing at all' [1121] and that 'you probably wouldn't even bring them into' the analysis [1123].

The consultant also described this facility as being 'very supportive of the way that we and other consultancies work' [1189].

### 6.3.1.2 Actor Graphs

#### *Official Organisation Structure Overlay Actor Graph*

This facility allows responses to relationship questions to be displayed visually as additional lines superimposed onto the official organisation structure. This facility is described in more detail in section 5.3.6.

The consultant said that this facility ‘has enormous strength of presentation’ [1251] as it ‘represents what most people will relate to’ [1227]. He also described an ‘inherent’ [1259] problem with ‘this form of chart’ [1233, and 1259], saying that ‘it is limited’ in ‘the amount of information you ought to try and present on it at any one time’ [1251] before it becomes an ‘unreadable’ [1235] ‘mess’ [1241].

However, he also commented that with this facility ‘an awful lot’ can be done ‘to overcome’ this problem. More specifically, he mentions the ability to ‘hide branches in the hierarchy’ [1256-1259], which allows the consultant to select ‘what you want to’ show and ‘what you don’t want to’ show [1253].

#### *Actor Star Graph*

This facility allows responses to relationship questions involving a focal actor to be displayed visually. Actors that have relational ties with the focal actor are displayed in a circular fashion around the focal actor. This facility is described in more detail in section 5.3.6.1.

The consultant describes this form of graph as ‘one of the better methods of representing the interaction as far as one person is concerned’, which clears ‘a lot of the clutter’ [1407] of ‘people not involved’ [1409] in the area of focus. He indicated that it ‘can give a very clear picture’, and is ‘an important method for looking at key players’.

### *Actor Network Graph*

This facility allows the consultant complete flexibility of specifying which actors to include and where they are positioned. All responses to relationship questions involving the included actors are displayed visually. This facility is described in more detail in section 5.3.6.1.

The consultant describes this facility as ‘very powerful’ [1491] and ‘a significant step forward’ [1499]. He commented that ‘it allows pictorial representation of quite complex relationships free from the concept of either it being part of the hierarchical structure or being focused around one individual’ [1501]. He also said ‘there have been times in the past when I would have given my eye teeth to have had something like this’ [1491].

#### **6.3.1.3 Manual Theme Creation and Linking**

This facility allows the consultant to create themes (representing underlying concepts) and link portions of text (from the consultant’s interview notes) to them. For example a theme may be created to represent the idea of tension between two people, and portions of text from the consultant’s interview notes where that idea appears may be linked with that theme. This facility is described in more detail in section 5.3.5.6.

The consultant describes this facility as replicating ‘what we were trying to achieve’ manually, ‘but in a more structured and orderly way’ [1573]. He comments that ‘this is certainly something that’s new’ [1573].

#### **6.3.1.4 Automatic Theme Creation and Linking**

##### *Automatic Actor Themes*

This facility allows the consultant to see where actors are referred to in the text. It searches through the text looking for phrases that refer to actors (such as names and job titles). It



then links each of these portions of text to its respective actor theme. This facility is described in more detail in section 5.3.5.6.

The consultant said ‘the whole thing doesn’t hinge on it ... but it’s useful’ [1671]. He commented that ‘searching for names can be awfully boring’ and the ‘advantage’ of using this facility was ‘the speed and accuracy’ compared to doing it manually [1677].

#### *Automatic Group Themes*

This facility allows the consultant to see where groups are referred to in the text. It searches through the text looking for phrases that refer to groups (such as names). It then links each of these portions of text to its respective group theme. This facility is described in more detail in section 5.3.5.6.

The consultant commented that the contribution of this facility is ‘about relevance to a particular study’ [1695]. He said it ‘really depends upon the client organisation’ [1691]: in some companies ‘you could actually have an awful lot of your data held within groups’, whereas in others ‘you would not find yourself working in groups’ [1693].

#### *Automatic Text Search Themes*

This facility allows the consultant to search the text for phrases of interest. The search results (matches) are given as themes linked to the portions of text where they occur. This facility is described in more detail in section 5.3.5.6.

The consultant described this facility as ‘very very powerful compared with manual methods’ [1759]. He said it was ‘probably one of the most significant’, ‘if not the most significant tools’ for actually identifying themes [1725]. He commented that it ‘replicates the manual process’ [1753], where ‘you’re looking for key descriptors of issues’ [1755].

He said that this facility would ‘shorten the trawl’ through the ‘awful lot ... of paper’ [1753], and that ‘you wouldn’t’ or ‘couldn’t do it from hand-written documents, because of the time it takes’ [1751].

The consultant indicated that it would take ‘a period of time’ for someone to learn how to ‘use it effectively’ [1763]. He described several aspects that he thought would need to be learnt ‘over a period of time’ [1763], which focused on ‘expanding or narrowing the search’ [1761].

#### **6.3.1.5 Theme Relationships**

This facility allows the consultant to record the existence of relationships between themes (such as causal relationships, and relationships indicating the involvement of an actor).

This facility is described in more detail in section 5.3.5.7.

The consultant commented that this facility ‘certainly helps ... identify cause and ... create a picture’ of that cause [1785]. He indicated that his ‘fairly positive response to it’ was due to it helping to ‘convey that’ picture ‘in some detail to’ the client organisation [1785]. He said that ‘it allows you to do things in a structured manner’ [1791].

#### **6.3.1.6 Theme Graphs**

##### *Theme Hierarchy Graph*

This facility allows the consultant to display the hierarchy of themes along with relationships between them. It is also the means by which the consultant creates relationships between themes. This facility is described in more detail in section 5.3.6.2.

The consultant indicated that this facility ‘had it’s strength in supporting’ [1819] ‘the iterative process with the client’ [1817]. He said that being ‘able to suppress’ information ‘is very important indeed’ [1815], as the entire theme hierarchy may contain ‘far too much information’ to present [1817].

The consultant identified a significant problem with the creation and display of theme relationships, which he indicated was ‘probably the least successful’ part of the software [1869]. He described it as ‘almost totally inaccessible’ [1865], and agreed with the interviewer that it was ‘cramped’ [1866-1867].

#### *Theme Network Graph*

This facility allows the consultant complete flexibility of specifying which themes to include and where they are positioned. All relationships involving the included themes are displayed visually. This facility is described in more detail in section 5.3.6.2.

The consultant commented that ‘if you’re trying to link between themes’ [1897] this facility has the ‘potential’ [1887] to be ‘an extremely powerful tool’ [1901]. He indicated that because this facility is ‘quite different’ [1917] he found it ‘one of the areas ... most difficult to judge’ [1861], and as a result his comments were ‘slightly speculative’ [1885].

### **6.3.1.7 Integrated Theme-Actor Graphs**

#### *Theme Official Organisation Structure Overlay Graph*

This facility allows themes to be added to the official organisation structure overlay graph. It is described in more detail in section 5.3.6.3.

The consultant said that he was ‘was not sure it has any impact at all’ [1983]. He commented that he wasn’t sure ‘you’re actually worried about the official organisation structure’, ‘when you get down to this’ level [1989], and that it just adds ‘clutter’ [1987].

#### *Theme Star Graph*

This facility allows themes to be added to any actor star graph. It is described in more detail in section 5.3.6.3.

The consultant stated that this ‘could actually be quite a powerful tool’ in situations where there were some ‘issues’ and one, two, or three related ‘people who I was particularly looking at’ [2081].

### *Theme and Actor Network Graph*

This facility allows the consultant complete flexibility of specifying which actors and themes to include and where they are positioned. All responses to relationship questions involving the included actors are displayed visually. As are all relationships involving the included themes. This facility is described in more detail in section 5.3.6.3.

The consultant commented that ‘if you’re trying to link between themes, and link between people and themes’ [1897] this facility has the ‘potential’ [1887] to be ‘an extremely powerful tool’ [1901].

He compared this graph with the theme network graph, saying that ‘they would be used for two different purposes’ [2137]. He commented that ‘you may well have’ situations where saying who was involved ‘would only cloud the issue’, and ‘on other occasions’ indicating who was involved ‘actually clarifies the issue’ [2139].

## **6.3.2 Comments Regarding the Software Tool as a Whole**

### **6.3.2.1 Software’s Mode of Use**

#### *Information Gathering: Interviews*

When asked about ‘taking the machine into the interview’ [2290] the consultant indicated that he did not think it was wise or ‘practical’ [2291]. He pointed out that during the interview the consultant wanted the interviewee to be ‘relaxed’ and ‘talking to me’, and that the consultant needed to maintain ‘eye contact’, ‘pick up body language’ [2295], ‘take ... on board’ [2304] and summarise [2293] what is said, and ‘maybe ask a supplementary question’ [2304]. He indicated that ‘having to be involved in the keyboard’, ‘could inhibit

me' in doing these things, especially as 'there aren't so many consultants who are touch typists' [2295]. He said that he didn't think the computer 'sits along side' these aspects of the interview process 'at all' [2306].

### *Information Analysis*

The consultant indicated that the use of the computer during analysis away from the client organisation 'is appropriate' [2283].

### *Information Presentation*

The consultant commented that using the machine during presentation of information to the client organisation 'has some possibilities' [2308]. He described the benefit that 'you could quite quickly' produce some graphs 'as a result of the debate' [1389]. He makes the statement that 'I would be very worried if any of that text [points to the interview text pane] was ... available' to members of the client organisation during the presentation session [2310, 1369, 1399]. He also comments that members of the client organisation 'have only go to read one line and you've blown the whole effect', and the consultant has only got to turn his 'back for a minute' or 'go out and have a break' for this to happen [2314]. He suggests that during presentation sessions 'I can get to that [points to the theme graph pane] and that [points to the actor graph pane]', but 'I can't get ... to the text without' a 'password' [2310, 1373]. He said 'we would never take' the 'response sheets' into the 'workshop environment' [2316].

## **6.3.2.2 Usefulness**

### *Information Gathering*

When asked 'how significant', 'the ability to just store' the interview notes was [2172], the consultant replied by saying 'it's significant if you're doing an exercise that is actually

going to monitor change' [2173], 'if you implement change, and you then ... want to monitor what has happened as a result of that change' [2175].

He described a problem with 'working from looser ... hand' written 'notes', that 'the consistency ... is not going to be as great' [2175]. He indicated that consultants 'rely on a record' that they 'will never fully expand', 'because you're going to look at it within the next week' [2183]. He commented that 'if you're not careful you could be influenced by the passing of time' [2175], 'you may put a slightly different interpretation on it twelve months down the line' [2177].

When asked whether the same thing would happen with the software [2178], he replied 'no, the software is causing you include sufficient detail', to expand 'that one or two word side note ... into a fuller statement' [2179]. He said that 'you are getting a far better record' [2187]. When asked whether people using it 'are ... likely to be more rigorous in the recording of information' [2180], he replied that it 'demands that they've got to be' [2181]. He said that 'the text ... has to be comprehensive enough' to include all of the key words [2195]. When the interviewer responded with the comment 'a key word search is no good unless the key words are in the text' [2196] he replied 'absolutely' [2197].

### *Information Analysis*

When asked about the 'speed of the analysis' the consultant commented that 'once you've got your text ... and ... themes ... in' then 'I think there is an enormous potential to speed up the analysis' [2193].

The consultant commented that the 'amount of information that ... is effectively recorded' [2221], the 'number of people' being interviewed [2223], and 'the number of questions you're likely to ask' [2219] are unlikely to increase as a result of using the software.

He states that the amount of information recorded is unlikely to change because the consultant will 'always try to note down any side issues, as well as the formal structured questions' [2221].

He indicated that the number of interviews and the number of questions asked during each interview is more dictated by 'the amount of time that individuals within the company have got to give up' [2215] and 'how long you can actually make an interview' so that it stays 'dynamic and vibrant' [2217]. He said 'experience has born out' that 'normally to try and interview anybody for more than an hour and a half' results in it starting to 'tail off' and become 'very difficult to stimulate' [2219].

### *Information Presentation*

The consultant commented that the software has taken 'two ... established means of presentation', and 'added a dimension, to do with the issues' that 'are actually being drawn out here [consultant points to theme hierarchy graph]' [2241]. He said that 'we may well have ... represented that ... on an overhead', but with the software 'you can bring that straight out, you can bring' it 'down to certain levels', and 'you can show the main' themes 'and only expand a few' branches 'that are relevant' [2241]. He described the graphs as 'dropping out, almost as a by-product of the process you've gone through' [2243]. He said 'what you've got here ... is a very flexible tool', for looking at 'the actors', 'the themes', the 'causes' between themes, and the 'people that are involved' in the themes [2243].

### *Major Value*

When asked about 'where ... the major value in the software' lies, the consultant commented that he was 'fairly neutral about the information gathering' because 'it puts certain ... demands ... on the consultant' [2245]. He said that the software 'gives you opportunities' for performing 'some of' the analysis 'more quickly' [2245], and 'one of the real strengths' is the 'flexible ... presentation' facilities [2247]. He agreed that he felt

'indifference to information gathering, but' saw 'quite a lot of potential in the analysis and the presentation' [2250].

When asked whether 'the facilities provided, provide enough added value to make the data entry ... worthwhile', and whether the software 'would actually be used', he replied 'Yes' [2140].

### **6.3.2.3 Variation of Usefulness**

The consultant indicated that the usefulness of specific facilities depended very much on 'consultancy style' [1077]. The usefulness of many facilities would vary depending on the nature of the assignment.

### **6.3.2.4 Team Consultancy**

The consultant asked about a facility for 'bringing together' [2287] or 'merging' [1283, 2283] 'text that's been put in by several people' [2289], so that 'one person' [2289] or everyone could perform analysis on the 'whole lot' [2289] of data.

## **6.3.3 Limitations of Exercise**

The consultant commented on three aspects of the exercise which caused him difficulty and hence limited his ability to be conclusive.

- He indicated that the small volume of data (in comparison to a full assignment) made it 'difficult to judge' [1877] the potential of several facilities.
- He also found it 'quite difficult to evaluate the individual parts' [1069], as he looked upon the software tool 'as very integrated' [1067].
- Lastly, he indicated that the limited exposure he had to the software made it difficult to respond to some questions [1493].



## **6.4 Conclusions**

### **6.4.1 Usefulness, Usability, and Learnability of Analysis Facilities**

This section aims to answer the following questions:

- Was the software useful?
- Which facilities were most useful
- Did the learnability and usability of the software distort the consultant's perception of its usefulness?
- How representative of consultants in general was the specific consultant?

It considers the consultant's opinions regarding the usefulness, usability, and learnability of the ISNQDA software tool's analysis facilities (summarised in Table 3), which were elicited during the acceptability evaluation.

A key issue in the overall evaluation of CAMC software tools is whether the benefits outweigh the cost of data entry: during the acceptability evaluation interview the consultant indicated that the benefits of using the software tool did indeed outweigh the cost of data entry and that therefore it would be extremely useful to management consultants (described in section 6.3.2.2). This is supported by his indicating high levels of usefulness for each of the facilities evaluated, and no negative contributions (described in section 6.4.1.1).

Facilities	Ease of Learning		Ease of Use		Contribution	
	Himself	Others	Himself	Others	Himself	Others
4.4.3 Automatic Text Search Themes	E	E	VE	VE	VP	VP
4.2.1 Official Organisation Structure Overlay Graph	E	E	VE	E	VP	VP
4.2.3 Network Graph	VE	VE	VE	VE	VP	VP - P
4.2.2 Star Graph	VE	VE	VE	VE	VP	VP - MP
4.5 Theme Relationships	OK	OK	QE	OK	VP	P
4.6.1 Theme Hierarchy Graph	OK	OK	QE	QE	VP	P
4.1 Responses – Display and Filtering	VE	VE	E	E	P	P
4.3 Manual Theme Creation and Linking	QD	QD – D	E	QE - OK	P	P
4.7.3 Theme-Actor Network Graph	E	E	VE	VE	P	MP
4.6.2 Theme Network Graphs	E	QE	VE	VE	P	MP
4.4.1 Automatic Actor Themes	E	E	VE	VE	MP	MP
4.4.2 Automatic Group Themes	E	E	VE	VE	MP - NI	MP - NI
4.7.1 Theme-Actor Official Organisation Structure Overlay Graph	E	E	VE	VE	NI	NI
4.7.2 Theme-Actor Star Graph	E	E	VE	VE	?	?

Key:	
VE – Very Easy	VP – Very Positive
E – Easy	P – Positive
OK – OK	MP – Moderately Positive
QD – Quite Difficult	NI – No Impact
D – Difficult	? – Unable to Judge

**Table 3 – Usefulness, Usability, and Learnability of Analysis Facilities.**

When answering six questions the consultant was unable to give a response consisting of a single value. Instead he gave a response consisting of a range of values, which indicated the variation of usefulness depending on the needs of the assignment. When answering two questions the consultant was unable to give a response at all, because the facilities were so novel he found it difficult to comment.

#### **6.4.1.1 Usefulness of Individual Facilities**

No functional area had a negative impact on the overall software. One functional area was given a no impact (useless) contribution. This is consistent with and therefore supports the consultant’s statement that overall the software was useful.

The consultant indicated that the functional areas that gave the greatest (very positive) contribution for him were:

- 4.2.1 Official Organisation Structure Overlay Graph
- 4.4.3 Automatic Text Search Themes
- 4.2.3 Network Graph
- 4.2.2 Star Graph
- 4.5 Theme Relationships
- 4.6.1 Theme Hierarchy Graph

The consultant indicated that the functional areas that gave the greatest (very positive) contribution to other consultants were:

- 4.2.1 Official Organisation Structure Overlay Graph
- 4.4.3 Automatic Text Search Themes
- 4.2.3 Network Graph
- 4.2.2 Star Graph

The consultant indicated that the last two of these would vary

- 4.2.3 Network Graph – very positive to positive
- 4.2.2 Star Graph – very positive to moderately positive

The consultant indicated during the acceptability evaluation that the text search and (both actor and theme) network graph facilities made the most significant contribution (were the most useful). Those two facilities were also the two he spent the most time using during the software supported analysis exercise. This raises the question of whether he saw them as being most useful because he'd spent a lot of time using them and understood them well, or he used them a lot because they were most useful. The evidence from the software assisted analysis exercise indicates that the latter is true, as he was given the opportunity to use all other facilities.

The consultant found it impossible to estimate what contribution the theme-actor star graph would make for himself and other consultants, because of its novelty.

In seven functional areas the contributions for the specific consultant were identical to those for other consultants. In two functional areas where the consultant gave different responses for himself and other consultants, he indicated that the contribution of those functional areas to others would range from the same as for himself to less than himself. In the other three functional areas where the consultant gave different responses for himself and other consultants, he indicated that the contribution of those functional areas to others would be less than for himself. The consultant indicated that no functional area would give a greater contribution to others than to himself.

This indicates that on the whole the facilities provided by the software would be generally useful across a broad range of the management consultancy field, but that a slight bias existed in this work toward the specific consultant.

#### **6.4.1.2 Comparison of Learnability and Usability with Usefulness**

This section considers whether the ease of learning and easy of use would distort the opinion of usefulness. If the ease of learning and use was influencing the opinion of contribution then one would expect functional areas with positive contribution to have good ease of learning and use, and functional areas with negative or no impact on contribution to have poor ease of learning and use. The significant responses here are that:

- The Theme Official Organisation Structure Overlay Graph, which had no impact on the overall contribution, was easy to learn and very easy to use.
- The Manual theme Creation and Linking, Theme Relationships, and Theme Hierarchy Graph, which showed some relative difficulty in learning and use, had a positive contribution.

These indicate that the ease of learning and use did not distort the opinion of contribution.

#### **6.4.1.3 Comparison of Specific Consultant and Others**

This section considers how typical the specific consultant is of management consultants in general, by comparing the results he gave for himself and other consultants.

In twelve functional areas the responses given for learnability were identical. In the two functional areas where the consultant gave different responses for himself and other consultants, he indicated that he thought others would find them more difficult to learn. In eleven functional areas the responses given for usability were identical.

In the three functional areas where the consultant gave different responses for himself and other consultants, he indicated that he thought others would find them more difficult to use.

Both of these results are consistent with this consultant being a very experienced user of computer software.

#### **6.4.1.4 Comparison of Learnability with Usability**

Two functional areas were equally easy to use as they were to learn. Eleven functional areas were easier to use than to learn. One functional area was less easy to use than it was to learn. In general the results for ease of use were better than for ease of learning. There are two possible explanations for this. Firstly the focus of the work was biased toward ease of use. Secondly it may reflect an underlying characteristic of this type of software that it is inherently more difficult to learn due to its complexity.

### **6.4.2 Software's Impact on the Consultancy Process**

This section considers the impact of using this form of software tool on the management consultancy process, which is shown as a conceptual network in Figure 6.1. It starts by describing the potential benefits that were identified during the evaluation. It then

describes the potential drawbacks that were also identified. It concludes by reflecting on the ways in which this changes the consultancy process.

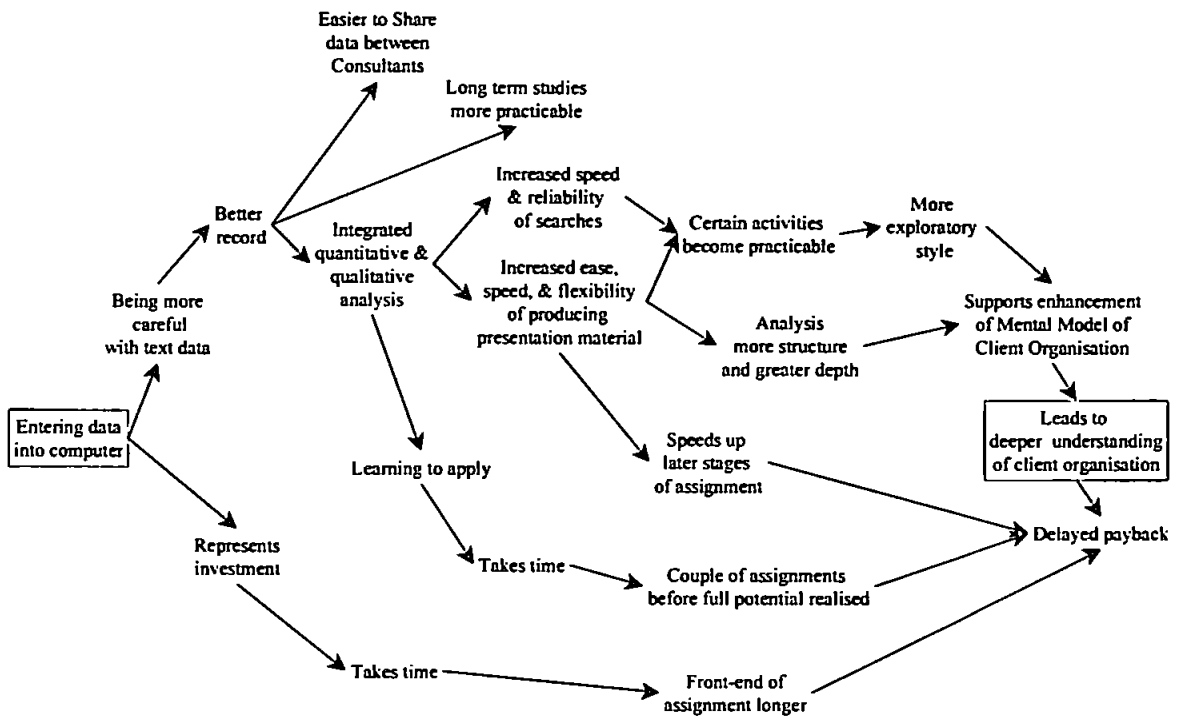


Figure 6.1 – Conceptual Network showing Impact of Management Consultants using ISNQDA software tool.

#### 6.4.2.1 Benefits

The evaluation identified several ways in which the software would enhance the consultancy process.

The consultant indicated the entering the interview notes into the computer provides a better record of the data (described in section 6.3.2.2). This better record is partly due to the consultant being more careful with recording the data (described in section 6.3.2.2). The evidence indicates that this facilitates the analysis of qualitative data in the form of free text (described below); it is also suggests that it would also make long term studies more practicable, which could assist with monitoring organisational change over time, and make it easier to share organisational information between consultants.

The consultant indicated that there was considerable added value in the support for the analysis of issues derived from free text responses (described in section 6.3.2.2). This supported what was done in the manual process: the creation of headings under which the issues and data could be categorised (described in section 3.3.4.2). However, it went beyond this; increasing the depth of analysis by allowing the consultant to represent many levels or layers of sub-categories, and increasing the structure and rigour by making associations between findings and data explicit.

The search facilities were identified by the consultant as being very powerful. In particular the text search facility (described in sections 6.2.3 and 6.3.1.4) was identified by the consultant as either the most or one of the most significant facilities provided by the software tool. It facilitated the identification of themes by looking for key descriptors in the text; replicating very closely what was done manually, but doing it significantly faster and more reliably. The consultant indicated that this would probably result in this task being performed more frequently than was done manually, as the software makes it practicable. This is supported by the evidence from the software assisted analysis exercise, where the consultant spent a large portion of the time using this facility.

The consultant indicated that the ability to present the results of his analysis as graphs was also particularly important, as it would help make the consultant's finding accessible to the client organisation's management team (summarised in section 3.4.1). He commented on the flexibility provided, and the easy and speed with which they could be produced: he described the presentation material as 'dropping out almost as a by-product of the process you've gone through'. The effect of this is to speed up the later (presentation preparation stages of analysis) and hence make the production of many different graphs practicable, which supports and enhances the natural exploratory style of the consultancy process (described in sections 3.3.4 and 6.2.6). This supports the enhancement of the consultant's

mental model of the client organisation, which leads to a deeper understanding of the client organisation.

The consultant indicated that several facilities helped reduce the difficulties associated with information overload (described in sections 6.3.1.1, 6.3.1.2, 6.3.1.4, and 6.3.1.6). The facility to filter the responses assists with the problem by allowing the consultant to focus analysis on a sub-set of the data. The multi-level theme categorisation facility helped to control the problem by hiding data within concepts.

#### **6.4.2.2 Drawbacks and Limitations**

The evaluation also identified two drawbacks relating to the use of the software, and one area where it did not provide an anticipated benefit.

Firstly, the entry of the consultant's interview notes forces the consultant to be more rigorous in recording (summarised in section 6.3.2.2), by being slightly less abbreviated – just enough to retain the meaning. This takes a significant amount of time and therefore makes the 'front-end of the assignment longer'. The consultant saw this as representing an investment in the consultancy process.

Secondly, the consultant revisited the underlying theme of learning to apply the software to get the most out of it, throughout both the software assisted analysis exercise and the subsequent acceptability interview. He commented that the facilities were easy to use, but it would take time and probably a couple of assignments before the full potential was realised.

Thirdly, he gave a strong indication that the use of the software would not increase the volume of information that the consultant could gather and analyse (summarised in section 6.3.2.2). This was due to the amount of information that consultants could record during the interview being dictated by the consultants writing speed and ability to move between writing and the many other tasks involved. Also, the number of questions and



interviews undertaken was dictated by the amount of time members of the client organisation could give, and the length of time an interview last and still remain dynamic and vibrant.

### 6.4.2.3 Overall Impact of software on Consultancy Process

The evidence presented in this chapter suggests very strongly that there is significant potential in integrated quantitative and qualitative software tools for at least some management consultants following a process consultancy style. It indicates that these integrated tools provide significant benefits over using the existing separate tools together. It has also highlighted several aspects in which integrated tools could change the way consultants work. Figure 6.2 shows a modified model of the management consultancy process. The integrated CAMC software tool is now part of the core consultancy process: relieving the consultant of some cognitive load, which facilitates the development of a richer mental model of the client organisation; relieving the consultant of some processing load, which supports the consultant's skills; and allowing the delivery of enhanced feedback material.

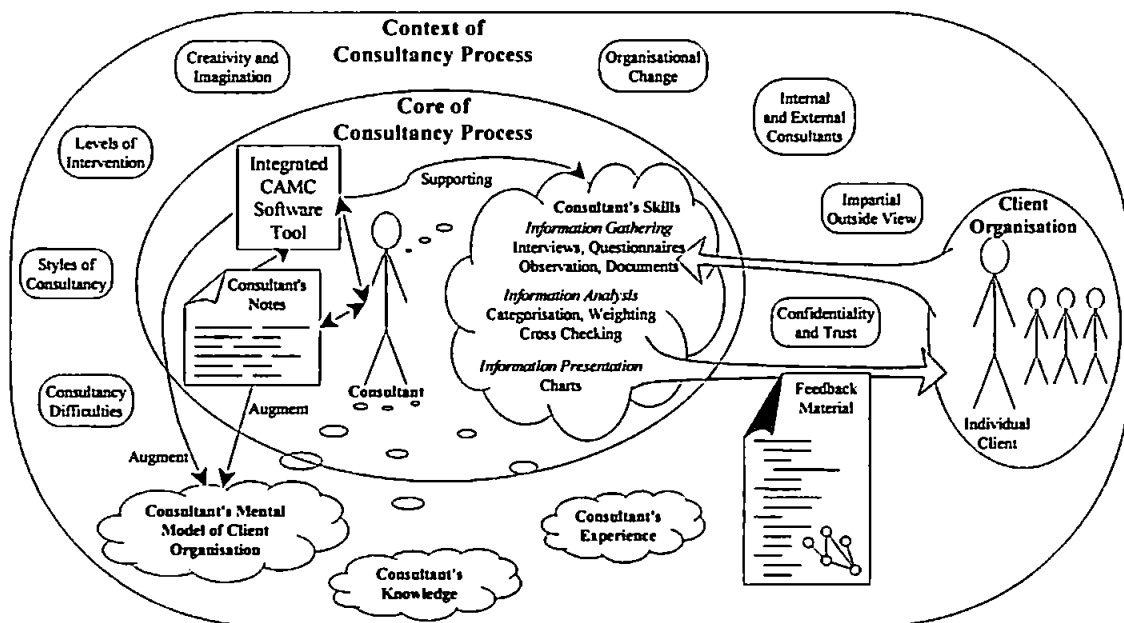


Figure 6.2 – Modified Model of Management Consultancy Process: a User Centred Rich Picture Diagram

The overall impact of the software can be summarised by delayed payback: although it draws out the early stages of assignments, it speeds up the later stages, and although it may take a couple of assignments to realise its full potential, it leads to a deeper more rigorous understanding of the client organisation. The speeding up of the later stages would increase the number of searches performed and the number of graphs produced, thereby allowing the consultant to be more exploratory.

## **6.5 Effectiveness of the Research Methods**

This section considers the effectiveness of the research methods used to evaluate the prototype integrated CAMC software tool, which was used as a vehicle to evaluate the general design rationale for integrated CAMC software tools (described in chapter 5).

User participation was absolutely vital to this activity; a large number of hours were put in by the user, resulting in a wealth of information being elicited. The evaluation considered the holistic impact of the software on user; not just benefits, it also considered possible problems and changes to user's practices. The prototype acted as a vehicle for the evaluation of the general model for integrated CAMC software tools, providing concrete examples for the consultant to work on and hence be discussed during the user acceptability interview.

It is difficult to say how effective this activity was, with nothing to compare against: the real test of how effective this it was at estimating the impact on the management consultancy process resulting from using CAMC software would be the use of the prototype by consultants during real assignments. Its performance could then be compared against the results of this activity. However, this has significant difficulties associated with it; one could apply same the acceptability interview, and/or video tape the use of software. However, this could drastically interfere with the consultancy process.

## **6.6 Summary**

This chapter provides empirical evidence that demonstrates that CAMC software tools based on the generic design model (presented in chapter 5) can be useful to management consultants, and that the use of such software tools would change the consultancy process. In doing so it describes the results of two holistic evaluations: an empirical user test with the prototype software tool (described in chapter 5), and a user acceptability interview.

## **7. Conclusions, and Further Work**

*This chapter summarises and draws together the conclusions made by the previous chapters (3, 4, 5, and 6) and puts them into a wider context. It is hence concerned with the interpretation and correlation of data from various sources, discussing similarities and variations in the evidence from different sources, and considering its significance and implications.*

*It starts by identifying the contribution of the present work; first in the context of the field of CAMC software tools and then in the broader context of software development methodology. Finally, it suggests further work that now seems relevant as a result of the increased understanding developed by the present work.*

### **7.1 Contribution**

This section reviews the contribution made by the present research to the various fields from which it is drawn.

#### **7.1.1 CAMC: Software Support for Management Consultants**

This section describes the contribution to knowledge of the present work in the field of CAMC.

Within the management consultancy literature Kubr (1986), Margerison (1988), and Markham (1994) provide the most detailed description of how management consultants analyse complex organisational information; that is the specifics of the tacit knowledge involved in the consultancy process. They mention actions that consultants perform during assignments, such as sifting through the data, creating a number of headings under which the issues fall, and comparing information from different sources (described in section 3.2.5.2).

The present work has developed a user model of the management consultancy process, which is described in chapter 3. This integrates the information presented by the literature with information elicited during a case study, thus providing a more comprehensive picture of the work of management consultants; in particular it identified the issues regarding information overload and qualitative analysis. As a result of the case study, the model includes a more detailed description of this tacit knowledge, such as the use of pre-defined categories, and multi-level categories (described in section 3.3.4), and more concrete evidence of how creativity, personal judgement, and intuition are used within the consultancy process. For example, their use by consultants during interviews with members of the client organisation in deciding what information is relevant to the client and therefore what is recorded (described in section 3.3.3.4). This provides evidence that places management consultancy on the creative left hand side of the application domain continuum (described in section 1.1).

A review of literature describing the disciplines of qualitative data analysis and social network analysis revealed that they share some common characteristics and practices with management consultancy (described in section 4.5.1); such as categorisation and cross-checking and checking for reciprocal relationships between actors. It also revealed significant differences, which are described in section 4.5.2. This led to an evaluation of the contribution that software developed for these disciplines could make to management consultancy (described in section 4.5.3), which influenced the development of the generic design model for CAMC.

A review of literature describing existing CAMC software tools identified five main criticisms of their development (discussed in section 5.2.2). Firstly, they are primarily based on computer (expert systems) technology and/or organisation theory, with little consideration of the characteristics and practices of the users' (management consultants') requirements; they provide little coverage of the analysis and design methods used during

software development, and none are based on an explicit user model of the management consultancy process. Secondly, as a result, with regard to difficulties within management consultancy, they focus exclusively on reducing the cost of assignments; and have failed to identify another, in some ways more significant problem for consultants: information overload (described in section 3.4.5). Thirdly, also as a result of the first criticism, they have failed to identify a key user requirement; that is, the analysis of qualitative data in the form of free text responses in interview notes, which occurs in tight integration with quantitative analysis (described in section 3.4.3). Fourthly, there is little consideration given to the holistic evaluation of the impact that using such CAMC software tools would have on the consultancy process; the few comments made that relate to evaluation seem to be aimed at 'proving' the cost saving worth of the software, with no consideration of any problems it might cause or how it may change the consultancy process. Lastly, the majority of them work in a prescriptive rule-based manner that does not match the non-prescriptive, creative practices of many management consultants: such software is placed on the mechanistic right hand side of the application domain continuum (described in section 1.1), whereas much of management consultancy appear to be placed toward the creative left hand side.

The present work has addressed some of these criticisms. It has produced a generic design model for CAMC software tools (described in chapter 5), which was based on an explicit user model of the consultancy process mentioned above, and shows much commonality with other work (such as Shneiderman, 1999) considering software support of creative application domains (described in chapter 5). It has also included an extensive in-depth holistic evaluation of the likely impact on the consultancy process that the use of software tools based on this CAMC design model would have (described in chapter 6).

The evaluation provides evidence that integrated SNA and QDA software tools can be extremely useful to management consultants, and that the overall impact of the use of this

software can be summarised by delayed payback (summarised in section 6.4): although the use of the software draws out the early stages of assignments, it speeds up the later stages, and although it may take a couple of assignments to realise its full potential, it leads to a deeper understanding of the client organisation based on more rigorous analysis. The speeding up of the later stages would increase the number of searches performed and the number of graphs produced, thereby allowing the consultant to be more exploratory. It provides evidence that disagrees with the results of Pearce *et al* (1994 and 1996): it indicates that it is unlikely to increase the number of interviews and number of questions that a consultant could analyse, as this is determined by factors outside the scope of the software (described in section 6.4.2.2).

The importance of considering how software support could change the practices of consultants can be seen in the field of QDA (described in section 4.4), where there is an ongoing debate regarding the implications of qualitative researchers using QDA software tools (Tesch, 1990; Weitzman and Miles, 1995; and Kelle, 1995). This debate is considering issues such as, whether computers can genuinely increase the volume of data that can be analysed; whether they can facilitate analysis that is more robust, visible, and valid; and whether these changes to the QDA process are methodologically sound.

Although this type of consideration for CAMC software is beyond the scope of this thesis, the evaluation presented here will potentially stimulate debate in this area within the management consultancy field.

The success of the present work in can be seen in several ways; it was successful in generating a user model for management consultancy, it was successful in providing a model of CAMC software tools that would be useful to management consultants, and it was successful in providing an in-depth holistic evaluation of the impact that the use of such software tools would have on the management consultancy process.

However, it is recognised that part of the evaluation process was based largely on a single case study, and that as part of future work a more widely based evaluation with more end users would be desirable. Nevertheless, the present work has demonstrated that potential effectiveness of this approach to the design of software support for management consultants.

### **7.1.2 Software Development Methodology: Effectiveness of User Centred Design Methods for Creative Application Domains**

This section describes the present work's contribution to knowledge regarding software development methodology, which focuses on the use of user-centred methods in developing software tools to support creative application domains, such as management consultancy. It considers two key factors in the success of the present work.

The first key factor in the success of this project represents an integration of the idea of a rich picture from soft systems methods (Checkland, 1981; and Checkland and Scholes, 1990), which is described in section 2.1.2, and the general philosophy of user centred methods (Landauer, 1995; and Preece *et al*, 1994), which is described in section 2.1.3. Specifically, this key factor was the development of an implicit 'user-centred rich picture' (UCRP) of the management consultancy process, which represents a deep understanding of the characteristics and practices of the users (management consultants) in the mind of the software developer. Some aspects of this UCPR were represented explicitly using natural language narratives (presented in chapter 3) and summarised using a user-centred rich picture diagram (shown in section 3.4.1). However, other aspects of the software developer's deep understanding of the user that were not explicitly expressible, still significantly influenced the software design in an implicit manner throughout the software development process. They also significantly enhanced the communication between the developer and the user.



The development of the UCRP was facilitated by the software developer immersing himself in the user's world using multiple data sources, which has a similar underlying philosophy and methods to ethnography (described in section 2.1.3.3). The data sources included an extensive review of the management consultancy literature (described in section 3.2), and interviews and role-play observations with a specific management consultant (described in section 3.3).

The use of the user's literature takes the established information gathering technique of using individual organisation's documentary records (described in section 2.1.1) to a more generic level. The literature regarding the field of management consultancy provided useful contextual information regarding what consultants do and why they do it (such as the importance of client confidentiality in the management consultancy process). This facilitated the development of a holistic perspective of consultancy practices. Also, it provided a broad overview of the consultancy field, which gave a clear indication of the generality of the information from the case study of the specific consultant; it helped identify which information was particular to the specific consultant interviewed and which was applicable to a wider cross-section of management consultants. This helped place the specific consultant within the consultancy field as a whole. However, it contained few details of exactly how consultants work: i.e. the specific tacit knowledge of the consultancy process.

The role play observations build on observational requirements analysis techniques that originated in conventional systems analysis and design methods (described in section 2.1.1) and user-centred methods such as 'thinking aloud' (described in section 2.1.3), and adapts them to deal with being unable to observe the natural setting due to confidentiality issues. In order to overcome this the consultant (user) was asked to play the role of a member of the client organisation. This proved very effective, opening up the specifics of the consultancy process and thereby revealing important tacit knowledge that was not

elicited via the interviews or literature review. It allowed real data from previous assignments to be collected without betraying client confidentiality: the consultant responded to questions based on his experience of responses given to similar questions by interviewees during previous assignments. In this way, the responses were representative of a range of previous real life consultancy assignments. This contributed enormously to the software developer's UCRP.

The development of the UCRP can enhance information gathering methods. Mishler (1986) identifies a significant problem with interviews: that the lack of shared assumptions, contextual understandings, and common knowledge between the interviewee and the interviewer can lead to misunderstandings of questions and answers. This may also be expanded to other information gathering methods, such as observation. The present work has indicated that the development of the implicit UCRP in the mind of the developer gradually establishes shared assumptions, contextual understandings, and common knowledge with the user, thereby reducing the potential for misunderstanding.

The second key factor in the success of this project builds on evaluation techniques established within user-centred methods (Shneiderman, 1998; Landauer, 1995; and Nielson, 1993), which are described in section 2.1.3.3, adding the holistic philosophy of soft systems methods (Checkland, 1981; and Checkland and Scholes, 1990). Specifically, this was the 'holistic evaluation' of the impact of the use of CAMC software tools on the management consultancy process (i.e. management consultancy methodology), which included benefits, problems, and emergent changes to the practices of management consultants that may result from its use (described in chapter 6). Consideration of such consequential effects is neglected by existing evaluation methods. This holistic evaluation was facilitated by the development of a CAMC prototype (described in chapter 5), which provided a concrete platform that allowed the evaluation to be based on empirical evidence of use by a real user. The importance of holistic evaluation for the development of software

for creative application domains can be seen within the field of QDA, in the ongoing debate regarding the methodological implications of qualitative researchers using QDA software tools (Tesch, 1990; Weitzman and Miles, 1995; and Kelle, 1995), which was described in the previous section.

The consideration of the contribution that software developed for other disciplines could make to management consultancy helped guide the development of the generic design model for CAMC. However, this presented a paradox with the principle of user-centred methods that software should be designed for specific users needs; this suggested that the transfer of software tools, functionality, or concepts to users for which they were not designed could result in user requirements not being met. The present work provides evidence to suggest that this can be avoided by careful elicitation of the target users' characteristics and practices, careful selection and adaptation of the source disciplines' software and concepts, and extensive evaluation methods, such as iterative prototyping, heuristic evaluation and empirical user tests.

The high level of user participation in this work across all parts of the software development process enabled the systems analyst to see the process from the consultant's point of view by extensive and detailed exposure to an example assignment, with concurrent explanation of the consultant's rationale. This contributed to an in-depth understanding of the subtle tacit processes involved, and interactions between the user and software technology.

These key factors in the success of the present work provide evidence suggesting that the use of augmented user-centred methods in the form of the development of a UCRP and use of holistic evaluation can be important in the development of software for application domains that lie on the creative left hand side of the application domain continuum (described in section 1.1).

Also, the present work builds on Rasmussen's (1992) map of work system characteristics by describing the application domain continuum (section 1.1) from creative left hand side to mechanistic right hand side application domains. Whilst not involving a fundamental change, this represents a clarification in terminology and hence understanding.

The present work highlights three, more general, challenges facing software development methodology. Firstly, the consideration of new concepts, paradigms, methods and techniques to produce effective software support for application domains that are difficult to analyse using current techniques and methods. Secondly, the integration of these new concepts, paradigms, methods and techniques with those existing currently. Thirdly, the dissemination and accessibility of these new concepts, paradigms, methods and techniques throughout the software development field to both researchers and practitioners, which may be seen as resulting from the toolbox approach (described by Crinnion, 1991): there are now a very large number of software development philosophies, strategies, methods, and techniques for the academic or commercial software developer to choose from, which sometimes operate in isolation (as islands of knowledge). Evidence that this is a general problem can be seen in Checkland and Scholes (1990) who describe the general misunderstanding of soft systems methods.

## **7.2 Further Work**

### **7.2.1 CAMC**

The present work has demonstrated the potential usefulness of integrated social network and qualitative data analysis software tools to contribute greatly to the field of management consultancy (summarised in section 6.4). This was done via laboratory based practices with a small sample assignment. Further work is now required to determine if this contribution can be realised in live 'real world' assignments of larger size, in the natural setting. This

would require the development of a full product rather than a research prototype, and larger scale involvement of management consultants.

Further work could be done to investigate aspects of the user model of the management consultancy process (presented in chapter 3), and the general design model for CAMC software tools (presented in chapter 5) that have not been considered in this work. There are several areas where the design rationale could be extended:

- Considering the effectiveness and improvement of facilities for entry of consultant's interview notes
- Allowing topics/questions that record relationships between two people (other than the interviewee).
- Considering the usefulness of other SNA and QDA methods to management consultants, such as statistical social network analysis methods, and the display of qualitative data in the form of matrices.
- Investigation of the provision of further automation facilities using artificial intelligence techniques, such as natural language processing.
- Providing explicit support for the extraction of social network data from qualitative data in the form of free text: it may be possible to use actor identifiers to extract social network data from text, where sections of text include descriptions of relations between actors.
- Considering support for using software dynamically during meetings with members of the client organisation.

Although the present work focused on a single consultant working alone, consultants often work in teams. Further work could consider extending the user model to include aspects

relating to this, and hence facilitate the provision of explicit support for consultants working on assignments in teams.

### **7.2.2 Other Areas**

Work could be undertaken to investigate the implications or potential contribution that the concepts developed within this work could have for other areas, such as:

- other forms of consultancy (for example clinicians, information technology consultants, and solicitors);
- the methods of SNA and QDA, where there is current interest in the general integration of quantitative and qualitative methods; and
- management researchers, who may find the type of CAMC software tools described in chapter 5 useful for their purposes (the author has been approached by two such individuals who were interested in the work).

### **7.2.3 Software Development Methodology**

The present work has indicated the potential of methods, such as implicit user-centred rich pictures, user-centred rich picture diagrams, literature reviews, role play observation, and holistic evaluation. However, it was restricted to a single case within a single application domain.

Further work could be undertaken comparing these methods with other methods when employed by different people in different application domains, in order to identify their range and level of effectiveness more concretely.

The problem of dissemination and accessibility of new software development concepts, paradigms, methods and techniques suggests that a unifying theory or framework is needed to draw software development methodology together, making it more coherent and hence

allow developers to select and integrate them more effectively and easily, and to migrate faster from old to new approaches.

# Appendix A - Example Assignment: Interview Plan

Job Title

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Formal Reports

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Informal Reports

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Deputise

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Main Role of Section

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Effectiveness of Organisation

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Contacts

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Policy

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Strategy

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Day to Day

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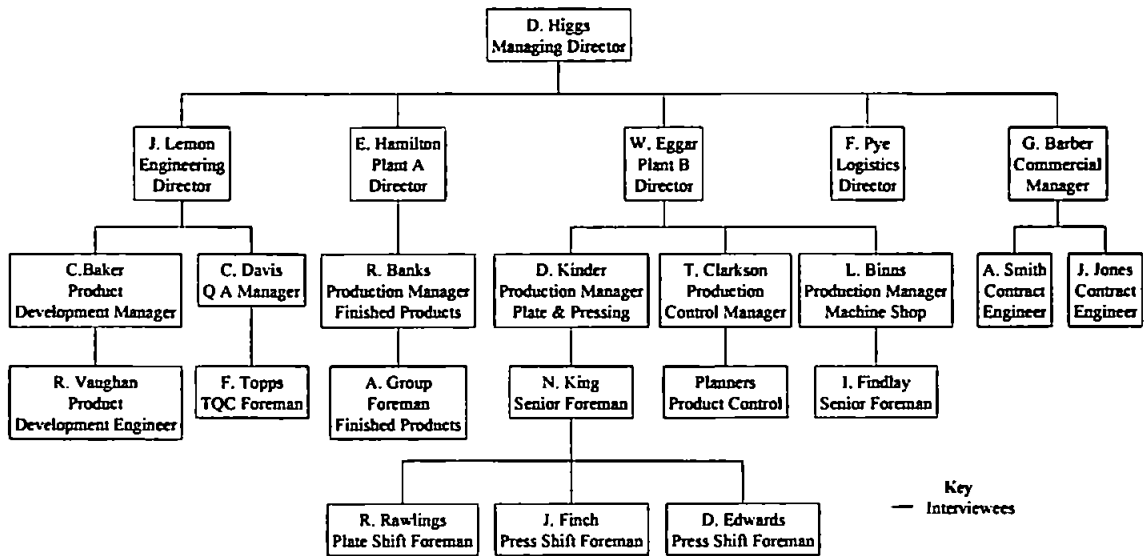
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# Appendix B - Example Assignment: Background

## Official Organisation Structure



## Company Background

The company employs about 130 people. It produces seven or eight hundred standard product lines. Variations are produced on those. It has no Sales department. The sales and marketing of the company is dealt with by the Managing Director (as he has a marketing and sales background), although a lot of it happens through the Commercial Manager. Most sales are by contract rather than a sales-force.

The company has about 100 customers, mainly manufacturers. It used to be largely dependent on the motor trade, however it is now more involved in specialised vehicles, such as heavy goods. It produces relatively small numbers of products.

A large portion of the company's work involves the cutting, shaping, and forming of sheet and plate metal of various gauges. However, they are increasingly working with specialist materials, such as stainless steel.

# Appendix C - Transcript of Manual Interview Exercise

For both interviews the following abbreviations have been used:

- I. Interviewer's comments (mainly questions), who would normally be a management consultant, but is played here by an experienced systems analyst.
- R. Respondent's comments (mainly answers to those questions), who would normally be a member of the client organisation, but is played here by an experienced management consultant.
- A. Analytical comments made by the experienced management consultant whilst 'thinking aloud'.

## Interview 1: Charlie Baker - Product Development Manager

- 1. I. Charlie, could I start by asking you what your formal job title is please?
- 2. R. Yes, I'm known as the product development manager in the company. I think that that is fairly self explanatory, the sort of area in which I work.
- 3. I. I assume that means initiating new products.
- 4. R. Yes ... certainly that is the key role that I and my team have. We do get involved in a lot of issues relating to existing products; it isn't only the development of new products.
- 5. I. Right so improvements and so on.
- 6. R. Yes.
- 7. I. Could you tell me who you report to?
- 8. R. Yes, in the structure of the company, I in fact report to Jim Lemon, who is the engineering director.
- 9. I. Right, is he your only reporting line?
- 10. R. Certainly, formally he is. If we think in terms of food and rations then yes, that's who I report to, and he will carry out reviews and the rest. In reality I have quite a lot to do with David Higgs; who seems to turn to me quite frequently on the development side. He is out and about in the market place and gets ideas, and he will even phone from a customer and say 'what do you think about this job'.
- 11. I. Have you got any other people that you report to on an informal basis?
- 12. R. Not report to, no. I think those are the only two people that I have to answer to, a lot of other contacts obviously.
- 13. A. I think there are two things I, so far, would have noted down. The first thing is that he talked about product improvement as well as product development. I

would be noting down to check his job description at that stage, because one would anticipate that that would reflect in the job that he was supposed to be doing. If it doesn't, the way he was putting it, it sounded as though it was probably as significant as new developments, and therefore one would want to be raising that as an issue. The other point is that although he appeared to report to two bosses, he was very reluctant about that, it didn't seem to cause any conflict. So that he not only reported to his direct line boss but in turn to the MD who was one level above that. And I would have probably made a note to that effect; that although he saw two quite clear reports, it wasn't in any way expressing any conflict or confusion in that relationship.

14. I. So for your formal duties, or formal job description you report to Jim Lemon, but for getting some insights into the market place you have an informal link through David Higgs.
15. R. Yes ... I think David takes the view that ... if you gather I have been in this job for some time and probably know the company's products better than anybody else. And I think I am used as a reference in that particular point. And therefore, very much, David will come through, and Jim understands this and in a sense he tends to give me a fair bit of licence to represent what would be a departmental view on these things.
16. I. Yes, I imagine he expects it almost...
17. R. Yes, I think that's fair. I mean, I have been around a lot longer than he has as well, and I think we have always performed fairly well, and therefore he is not worried about us too much. Perhaps if things didn't go so well he would play a closer monitoring role of my activities.
18. I. Do any links apart from that one, through David Higgs exist directly to the market place, for you to get feedback on what happens there?
19. R. Well yes. You were asking me about who I reported to and I was sort of saying, that was the only formal report. I have a lot to do with Graham Barber, Commercial Manager. Graham is not supposed to issue any tenders or agree any order, which has non-standard components in, unless it has actually come through our office. The reality is, that tends not to formally happen with every piece of paper, but certainly he and I work very closely together and we have understandings. And he has a degree of freedom in the decisions that he will make in his interface with the customer. And I think from our point of view at times I will meet with him with customers particularly when there is a new or significantly modified product that we may be talking about. So we work very much as colleagues. He would not expect to take instructions from me and I certainly wouldn't from him.
20. A. A couple of points there. When he was talking about his relationship with his superiors – long serving and a point of reference. So one would probably jot down the fact that you could have a fairly key player in the company. Maybe more so than his actual position indicates. Again I would probably jot down that he obviously has talked about his relationship with Graham Barber, where that's a good relationship and he finds it easy. These are all important things to be putting down as the side notes.
21. I. So it's a more or less equal relationship.
22. R. Yes.

23. I. Could I ask who reports directly to you then?
24. R. Yes, Roger Vaughan reports directly to me. We have got three more people in the department who on paper report through Roger. I think again the reality is we're a small team, and I tend to deal directly with the staff. But Roger certainly has a wealth of experience and heads up the team, and certainly has some technical input there that is absolutely invaluable to us, and the staff would actually report through him.
25. A. I would note down particularly, Charlie Baker's comment about working as a team, and his relationship with his subordinate staff. Not making any pre-judgement on that, but noting it as a fact to see whether any other evidence can be found elsewhere in the study.
26. I. Anybody else that reports to you?
27. R. No, these days we've slimmed down considerably, and things like secretarial services... I used to have my own secretary at one stage, but those are not the luxuries of today. Anybody else, there is quite, I suppose I would call it a special relationship between the Forman in the Finished Products. Again this is an arrangement that I have sort of come to with Roy Banks; where I don't object to his Forman approaching us directly, and he doesn't mind us giving advice to them. Again Finished Products, we may only do batches of 20 or 30 of an item, and there is sometimes a bit of prototyping and that sort of thing. Although we don't have a prototype shop as such, the foremen in Finished Products tend to be the level of responsibility.
28. I. You say foremen.
29. R. Yes, I don't know who else you have spoken to in the company, but we have a certain amount of shift working. We actually work I suppose its over two shifts a day. We're at work from 7:30 in the morning until about 10 at night, and have been for quite some time, which is a sign of working reasonably well. I am not sure that the company is geared up to sustain that in the long term. Because you tend to find that once everybody's gone at 5, 6, 6:30 at night we're running, the Forman are left and tend to pick up all sorts of things that are not necessarily Forman's duties. So there are links there. There is only really one Forman on the pressing side that I have dealings with and that is Ron Rawlings. Who I have known for many years. He tends to play a fairly significant role in that area of the business. He seems to represent the foremen, who again there is some shift activity there. Strangely enough that used to be the busy shop, but isn't as busy these days, but he tends to come to us and sort out any issues that may be on the interpretation of products into production.
30. A. A point there I would note down. An issue there being raised about the overall ability of the company to work a double shift system. And the question of sustained high level of output. I think I would be noting down and underlining this relationship obviously at foreman level with the development department. That clearly, there seems to be a very open and free line of communication. Which at this point I would probably be marking down as a positive attribute, but would be wanting to hear other peoples' views. Because clearly in that relationship, particularly in the case of Rawlings, there are four levels above him shown in the organisation chart. And one would be saying, is this an acceptable arrangement with everybody or am I getting a slightly rose coloured response at this point?

31. I. So that is a link that's very much dependent on personal history.
32. R. Yes, I think it reflects the way both David Higgs and to some degree his predecessor run the company. There has been fairly open lines of communication. It doesn't mean to say that there aren't some points of tension, but ... at a personal level many of us get on with doing the job, and that's what it's about at the end of the day.
33. A. ... I would possibly underlining at this stage the apparent importance about good relationships. The comment about 'generally speaking people get on and do the job' is usually a sign of a fairly committed team. So one would probably put a marker down against that. So there is at least one person here who thinks that there is an environment of wishing to succeed, and wishing for everybody to be contributing and to be assisting one another.
34. I. Who does Roger talk to other than you?
35. R. Well, Roger has this role of, as you say, answering to me. He's got his own staff. Because of the style of the company, he has contact with a lot of people, but he has always been very loyal in our objectives as a department. And ... he probably takes quite a lot of the flack that I might get otherwise, but he certainly comes to me with all the major issues. And even if he gets somebody like Ted Hamilton, that's the Plant A Director who you may of met, he tends to get hold of Roger on occasions and give him a bit of a rough time. But Roger will always come back and sort of talk through that situation. I think that Ted is one of those people who would like to be running our department, but certainly I wouldn't see that Roger was in any way answerable to him. He doesn't play the role in that way.
36. I. I am slightly surprised about that. That its only Ted Hamilton rather than Will Eggar.
37. R. Well, Will is a power unto himself. Everybody goes to Will about all sorts of things. If you want a father confessor in this company, Will's the man to go to. Probably with the exception of Ted who we were talking about, and ... the two of them are always at logger heads about something. I think its a conflict of interest in part, they run these two plants, and one never feels they get the service from the other they deserve. Most of the time its fairly good humoured but never the less there is a fairly long history there. Will doesn't come to us other than within the more formal structure of things. I mentioned Ron down at shift foreman level, and in that Department to a degree it tends to come back at that point. Bear in mind that a lot of those products have been around for a long time, they are not big issues.
38. A. I would be noting down at this stage that there is an observation of the relationship between Ted Hamilton and Will Eggar. Where the word conflict ... where apparently each aspiring to run the whole of the production side; and my note would probably be saying something like this could be significant not only at their level but throughout their departments.
39. I. I suppose most of the variations take place in the Finishing Room.
40. R. Yes, this is the thing with the Finishing Department. We are into these relatively small batches ... more complex. And ... Ted gets very up tight because he does not feel he has got his materials through from the B Plant, and usually, he is up against a deadline, it's something he hasn't seen before, he has got some drawings in front of him, and he's got some problem we haven't been able to prototype. And therefore he will grab hold of me or particularly Roger to get that

resolved. More or less a different temper probably between the two plants in that respect.

41. I. Is there a quality...
42. R. Yes, Chris Davis is the quality manager. He and I certainly have quite a lot of contact. As you can see we both report to Jim anyway. In Jim's departmental meetings, we come together. In this day and age quality and product development are very adjacent activities.
43. I. Does David tend to be more influenced by Hamilton or Eggar, if someone is demanding.
44. R. I don't think so. I think he is a good Quality Manager. For a long time we really did not address quality issues. We were a fairly rough and ready organisation. Obviously quality has become a big issue of more recent times, and certainly with the effects of ISO and the rest of it we've had to step up on it. I think Chris is very even handed. He has changed the culture of the company in bringing in quality. At the same time he recognises that things have got to go out through the door, and isn't unreasonable, and we do on occasions get him to compromise his standards a bit in the interest of achieving deliveries. But certainly wherever there is any amendment to agreed quality he or Frank (his number two) make sure it is signed off and they are aware of that. So we have got procedures in place to allow things to continue. Probably one of the biggest cultural changes the company has had over the years.
45. A. A lot of additional information in the area of quality, and I think I would be noting down at this stage the recognition of the cultural change that Quality Assurance and Quality Management has brought into the company. Recognising in the note that this needs to be picked up on the production side to see whether they have any particular quality issues. The picture here is optimistic and that's a good thing, but there may be other views that I ought to glean. I am cross checking that against what other people say, because a lot of the indirect activities of the interview is to be getting some weight to the views that you are taking. If a view is held by everybody it stands a fair chance of being right. If there is a divergence of view one wants to know whether that's out of professional interests; that you may find that production has a very different view to, let us say product development and quality over an issue like quality. Equally you may find you just get a single person that's expressing a view very strongly, and you may or may not want to pursue that. It depends how viremently they hold that view or whether it is in fact relevant to the overall exercise you are doing.
46. I. Who would you deputise for, in the event that they were away?
47. R. Well I think probably formally, I would step in and pick up some of Jim Lemon's activities. I mean certainly that doesn't include going and sitting in board meetings, all those sort of things. But I tend to pick up more than Chris Davis does, of the routine things when Jim is away. It is quite a difficult question. I am not sure where representing the company and deputising for somebody, where the dividing line is. I was mentioning earlier that I go out with Graham Barber at times to customer contact, or at least meetings. In some ways I do feel a bit put upon by that. Because I am sure that some of the decisions I get involved in, probably Jim Lemon should be involved in those. They get a bit nearer to what I consider to be policy issues, but he seems to make himself scarce on occasions.

48. A. I would be noting at this stage, obviously a degree of concern about making policy decisions, and whether this is a recognised and desirable feature. Again probably, make a note to check back to the job description and see whether that reflects this level of responsibility. I am assuming it doesn't at the moment, because that slight sense of irritation from somebody who hasn't to date been irritated by anything. And therefore if he is going to make a point its likely to be significant, and I would be marking that down as something that may be significant.
49. I. If you were away who would deputise for you?
50. R. Oh well, Roger quite clearly, that's Roger Vaughan.
51. I. How would you in a sentence characterise the main role of your section? Do you call it a department or a section?
52. R. We call it a department. Its certainly a small department. Main role ... we see ourselves quite clearly having the responsibility in the company to see that we are producing designed for production and therefore producing products that will meet the customers specification. And therefore we are the interpreters quite often of that specification.
53. A. Clearly there it was a matter of designing for production, a number of key words. I would be looking there for probably not wanting to put more than ten or a dozen words down.
54. I. So almost a design function.
55. R. Yes, ... normally we will work based from customers drawings. But quite clearly customers will come along with drawings and the practicality of turning that directly into a manufacturing product is not straight foreword. And you therefore get into this discussion of, still in this day and age design for manufacture is not necessarily the result of every ... all our customers design efforts. They will design and land up with something that is almost impractical to manufacture or to manufacture economically. So certainly on a lot of the finished goods we find ourselves in that sort of role. You were asking me what was in your terms a single sentence. Well, as a single sentence its about converting a customer requirement into a manufacturable product. But ... relating to that, if somebody wants twenty off and their not going to want anymore, then we tend to knife and fork those and produce them, because invariably they are prepared to pay what ever that costs. But if somebody says 'well we want a hundred now but we may want five thousand down the line', you are then likely to work through a means of preparing jigs or tools of some sort and the investment on that. And we will work with the customer and obviously through our own commercial group on actually getting that together. I think the other thing on product development ... we've certainly played a part in looking at things like new equipment purchases. Where we have had fairly long running product runs and we have got associated products, we are obviously looking for improved economies. And that lies within the structure with both Ted and Will as plant directors. But it is unusual for them to go and commit the company to any new equipment without our being involved. Sometimes quite significantly involved, because they may well come along and say can get this machine, it will do what we are doing at the moment, but what have you got round the corner that may be coming along. Are there things that we ought to be accounting for? If we spent a little bit more on that equipment it would safeguard our situation for the future.

56. A. A lot of information being given here. Almost on the philosophy of the company in dealing with its customers. Here again, it may be felt to be highly relevant depending upon the original brief to the consultant, and one may note down most of the key issues that have been raised. The approach to small batches. The approach to analysing whether it is likely to be a long run of product. And again noting this down in case there is supportive or conflicting information from other people. If one is talking about organisation, which one may well be, restructuring the company in some way. That sort of information we have just had on the relationship with the customer could be very important in saying that there is need to be able to bring intelligence of the customer's requirements right into the heart of the organisation. And so one would tend to be making some fairly detailed notes of what has just been said. I would note down involvement in capital equipment purchase and obviously an awareness of the economics of manufacture and again ... we are back to the job description. Are those formally part of the job. At this point I probably would be asking some supplementary questions in terms of this job description. Normally for an interview I would have seen it and read the job description beforehand. Certainly in some interviews, it would not be unusual to have a question 'Is this your job description?' because it can prompt response. It depends on what you are doing. I think at this stage I would be saying to Charlie, 'You have mentioned a number of items now where you are involved in these things. Are they formally part of your job? Or is it just because you have been around for a long time you tend to get involved?'. Now again this can be important in terms of re-organisation of the company, and certainly in terms of where responsibility lies. Because if you are going to re-organise you could be moving a key man out from a role that he is fulfilling at the moment, which has all these ancillary activities. To do with equipment, to do with the cost effectiveness of manufacturing, which may stem from his long experience with the company. But clearly if he is involved in those he has some value but it may not be a recognised value. So I would be asking a more direct question at this point regarding which activities formally appear in his job description.
57. I. It almost sounds if you have got an R & D brief in the back of your job spec, which is not formal.
58. R. I've never seen it quite in those terms, but I think you are right. I think we were saying that I have been around for some time. I think part of what has built up into the job has come out of the knowledge and experience, as well as what is formally laid down within the immediate structure. We are not a big organisation and many of the jobs we have overlap the boundaries, and no doubt in a big organisation what I do could be split into three different people. It is about the product, it certainly is looking at the economics of the product development, and the product manufacture as well as just the straight development. As you say maybe there is an R and D aspect. I hadn't sort of picked up as R and D. I don't even think of ourselves as an R and D company.
59. I. Who are you dependent on in your job. First of all who are they and then what do they supply you with?
60. R. Yes that is quite challenging actually. I think there are two main streams of, as it were initial input, to us. One is at a sort of policy and strategic level, which is quite clearly through Jim, and in that respect Jim is very good indeed. If there are plans afoot or there are decisions made he is very quick to keep us in the picture on that. And he does not get too involved in the day to day, but at that



level ... so very dependent on him. I think the main other contact for what I would call the day to day is over with Graham Barber, and if you like, if we react to anybody its Graham on a routine level and then as we were saying earlier probably David Higgs on a ... Graham is our commercial manager. So the orders that are coming in and the enquiries that we are having, he feeds in to us on that side. And then as I said David's roving commissions will come in and sort of say 'well how about this one'. Its at a higher level than maybe what, an earlier stage of the process than with Graham ... Graham will rarely come unless he has actually had a formal enquiry or an order's landed on the desk.

61. A. On this point I would put down, who are you dependent upon ... would be Jim Lemon. Then I would pick up about this strategic activity: policy and strategy that has been discussed is fed from that level. So I would just be picking those key words out at that point. I would be putting down 'Graham Barber - orders and enquiries, actually received'. And I would be putting down 'David Higgs - informal enquiries and results of sales meetings', where this is a verbal enquiry rather than a formal written enquiry to the company.
62. I. That's almost a third one.
63. R. Yes, but that is more intermittent. I mean the other two are quite clearly understood by everybody in the organisation. The way David chooses to work he is really just taking the shortest route in to getting an answer. So that is ... input to us. I then think we have this ... what I would call, the two way interaction side of it, and that brings us very close to the sort of people we have been talking about in the production plant. I mean they really ... there is a healthy tension there, they are often pushing us fairly hard because they want details of a product so they can get their planning and one thing and another done. I mean particularly as far as Tom Clarkson is concerned, who is Production Control Manager. He's always jumping up and down saying 'I can't load this batch of work, we haven't had details from you'. And I think we're occasionally seen as dragging our heels a little bit in that direction, but it is just the volume of work that we have to handle. And then again probably a reflection of a smallish company. We've got this very close relationship which is again backwards and forwards between the actual foremen on the shop floor. They are coming back, I suppose, looking for interpretation.
64. A. I would be putting down at this stage in terms of who do you service, clearly it was the production departments with product information, and I would probably have asked a supplementary to get a few names there. But it appears that would be at production manager level and even at foreman level, but particularly I would be putting down Tom Clarkson who is the production control manager. And seeing a formal response to him of future product specifications for production. So it would be 'Tom Clarkson - product specifications', it would be other people in the production shops with product specifications, and other details to do with the manufacturing of the products.
65. I. So its very much down to social lines rather than formal lines of communication.
66. R. Yes at that level. Its probably with Tom a bit more formal. He will see work coming through, and if he has got something that's planned two weeks down the line, and he knows that we haven't done what ever we had ... may have been asked to do ... it might be that there is some work on that occasion has to be hand done or some more fundamental work done. He will often be chasing us saying

“I’ve got that going in Monday week into the plant. Are we actually going to have all we need from you?”

67. I. I presume that he needs to order the right materials, and ...
68. R. Yes, I think. I was saying earlier that we tend to deal with everything as a contract, and even our more standard orders are ... the mode of working is as if it were a contract. And its part of the contract engineers work to actually sort of clear on special occasions materials, and interpret the customers order or enquiry in the sense of what ...
69. A. I would be noting this comment about this mode of working. Its again important in understanding something of the relationships but also the idea of everything being handled as a contract will dictate certain relationships, which as a consultant one would expect to see, and would be relating to. So that's a point I would record.
70. I. What was the term you used then?
71. R. Contract Engineer. Those are Graham Barber’s people on the Commercial Manager’s side. I mean, we use the term ‘engineer’. They are not actually engineers. Although they have a good engineering background. They are contracts people, commercial people, they are very deeply involved in the interpretation of orders and enquiries.
72. A. I would be putting down this relationship clearly with the contracts people, and that we were providing them with information to allow them to detail the product within the contract documentation.
73. I. I am surprised that they don’t actually furnish you direct.
74. R. Yes I think ... I don’t know whether I mentioned them directly but I was talking about getting things from Graham. I tend to think of it from Graham, but it may come through either Andrew or Jim. In fact if you look at procedures in the company, they are committed to coming to us and getting clearance on absolutely anything that isn’t a non standard product. But its trust and understanding that allows them to make some decisions themselves.
75. A. I would at this stage be moving back and adding some contacts to make quite sure that I had the record down that both Smith and Jones as Contract Engineers were important contacts, not just their manager Graham Barber. I would note at this stage that there has been a reference to the procedures in the company. I wouldn’t be asking Charlie Baker for a copy of the procedures manual, but I would be clearing that with David Higgs or somebody else in the company if it was appropriate. A procedures manual can form a useful reference.
76. I. So presumably each of those guys is responsible for a whole range of products.
77. R. Yes, they tend to split actually the finished products from the routine. In reality I don’t think that split is as clear as maybe it appears on paper. There is a tendency to over simplify that, because so often to get to your finished product side you have got to take into account production schedules on the standard product that you are going to be moving across. So you have really got the two phases. You can’t plan for a finished product without having looked at the implications on the forward order for deliveries. Even on pricing, if your using a relatively small number of standard components, you may be able to put those on the back of a large batch that’s going through. So that if you have got a thousand going through for a standard run, and you know that over the next two months you are

going to need another hundred for support of some special product; you will batch that up to a larger batch obviously. It saves on set-up time.

78. A. This is getting quite complex at this stage. Clearly there is a lot of inter-reaction between Charlie Baker, and presumably Roger Vaughan, and these two contract engineers, and I would be noting down a number of key items that came out from this. I would note down the split between finished products and routine, and probably solicit who was dealing with which. I would note down this relationship to production, production schedules even in this relationship with the contract engineers. For the reason that one might have thought that this was to do with Tom Clarkson's area and yet clearly Charlie Baker and Graham Barber's people are getting involved. I would have underlined by now my initial note on this apparent duplication or interference in the production control side. Whilst Charlie Baker may have some good sound knowledge in that area, it appears that he could be pre-empting the options that are left open to production control. Therefore, I would be putting a note down on the relationship between production development and production control.
79. I. So how do you get that forward vision of what the production schedule is?
80. R. Well this lies very much with production control, and I think this is where very quickly the whole thing becomes very one dependent on the other. I mean I certainly talk to Tom about forward ordering, because I am sometimes trying to re-schedule my own workload. He will be working with the contract engineers. Who will, before they can confirm any order or set out any tender, have actually got to have agreed with Tom and his staff that there is capacity against the scheduled delivery that we are offering. That's Tom Clarkson, Production Planner.
81. A. Despite that comment, which has built something of a tri-partied relationship between Charlie Baker and Tom Clarkson and the Contract Engineers, I would still be leaving my earlier comment. I would still be pursuing that with Tom Clarkson and either Smith and/or Jones.
82. I. It seems to be a fascinating job. You obviously need to very flexible.
83. R. Yes ... I gave you the idea, at least I hope I did, generally speaking that we work fairly well as a team. Clearly there are some issues that are tensions, because we have got different objectives. But a company this size only works by people working together, and there have been times in the past when that hasn't happened and we have all protected our own ground. But we wouldn't be alive and competing in the market these days if that were the case.
84. A. I would note at this stage something of a commercial and long term company aim. This working together its obviously been drilled into people, has been underlined and is part of the working attitude, as being important to them staying in business. So there would be some note to cover those issues. It's recognised, the history may or may not be important, but the fact that they now see co-operation within the company and the support of one another rather than defending their own ground as being important to staying in business. So it's part of the culture.
85. I. Right, this brings me on to the next question really. How effective do you perceive the organisation as being? I mean clearly it works, I suppose as all organisations do by a mixture of formal structure and informal.

86. R. Yes, I have to be honest with you. Having you sitting opposite me and asking me these questions worries me a bit. Because I understand you are here to, sort of, look at the organisation and how effective it is. A lot of it works extremely well and I would find it to our disadvantage if it was altered too much. I do believe that the whole relationship between plant A and plant B ... it is time for a change. Things have developed there. It may or may not have been something that crossed your mind. Plant A is actually finished products, and Plant B is ...
87. A. Would note down 'concern at potentially altering the organisation'. Not to the degree of there being a fear of change, but just feeling that where they had got to was successful, at least in comparison with where they had been in the past. Would be definitely noting down the area where Charlie does feel there should be change, and he's talking about Plant A and Plant B, and the development of the business that has already changed something of their mode of operation, if not their organisation.
88. I. It did cross my mind.
89. R. Yes, and its only because plant B has been there for a long time. Plant A originally we used to do some actual plating work. So we were buying sheet and plate, in the days we were doing some work for the car industry. We were into chromium plating and that sort of thing. So it was originally a plating shop and in the change we just use that space. So we have got A following B these days rather than the other way round, which is how it came about in the first place. But I think ... I believe the future of the company actually lies in our finished products. We have got to have products that have got ... that increased added value. Whereas I think Will and his empire, and it is an empire compared with Ted's area, are really hanging on to a status which is hardly justified today. Having said that their part still has the major turnover, but it does not actually make the highest gross margin.
90. A. Recognition of the need for Finished Products. The recognition of the need for greater added value products, for the future of the company. I would definitely note those points down. Would note down the view about Will holding to an empire, which is ... historical. But clearly Charlie Baker's view is that it is now an outdated situation. Would note down this observation about gross margin. It's not unimportant that somebody is recognising, and one would want to pursue this with other people, the business is about more profitable activity. A note probably to be talking to the two plant directors about this particular issue.
91. I. That's interesting. That seems to be a fairly outstanding, fairly significant example of things that might need looking at. Can you think of any other aspects either positive or negative in the company?
92. R. I mean, working with people like yourselves I assume that what I say to you is not going to directly be passed out. As I say he's a great guy, and everybody goes to him. If you want your father confessor then that's where you go, but I would here say in the board room he is very very dogmatic. In what in fact is .... but in a sense it isn't a different problem to the one I identified before, but its bringing it onto a personal level. I think that's where the difficulty lies, and I suspect he will have to be, because he has got some good years still to give the company. It will have to be a means of accommodating him to bring about the change. And I am not sure, although ... probably that there could be some potential that he supports more than the sort of sales side in the end. He's possibly a bit rough and ready for me. A good plant director doesn't necessarily

make a good salesman. I think the other area is, people talk about ... competing in ever widening markets and this has shown the increasing amount that David's away, and now the ... export drive that we have got. I think we have to question how long we can have most of our sales and marketing driven by our MD, and whether he in fact, he ought to be fulfilling the role of MD more than sales and marketing director. Up till now we have done very well because of this long standing customer base of people that come back and repeat orders or variations. That's been very good for us, but ... if we are to even hold our own, let alone expand, then ... we have got to look at things in a different way. And be more aggressive, which is what David can be in terms of our sales and marketing efforts, but it actually needs somebody to be steering the ship back at base as well.

93. A. I would have put a side note down that a view was expressed as to accommodating Will in any future organisation. There would be a note to the effect of the importance of Will and a future role for him, even if he is a very dogmatic character. Also we are now going back, and we are picking up another observation, which is an observation in relation to David Higgs. I would have noted down 'David Higgs seen as Sales Marketing, question of his MD role'. Again this would be an area where I would be looking for either supporting or conflicting views from others. Certainly not a thing I would solicit from anybody else in any way at all. But just be aware. Note; point on stronger management within the company, more aggressive approach to the company, rather than just an aggressive approach to sales and marketing.
94. I. Can you identify anything that is working particularly well?
95. R. No, I think there is ... the middle team of us work, I believe, extremely well, and this is where I am concerned about change. I mean if you take Graham on the commercial side and Tom on production control, and we haven't talked about Roy very much, Manager in finished products. We work very well as a team, and ... that that's important in the company. We seem to each have reasonable relationships with our immediate bosses and our own staff, but there is a lot of trust build up there. And ... that that trust is actually saving the company an awful lot of money. Its not a company to have great meetings and everything minuted. And I visit occasionally other companies, and you find the amount of internal back saving that's going on. And you go in and meet somebody and they will pull out a file with a hoard of notes of where this has been discussed, and 'ah well that wasn't my bit that was so and so'. And we're informal in, taken in respect to companies like that. I mean we do have our stuck-ups some moments, be honest about it, occasionally. And we have all let one another down but I think there is a tendency toward to sort of forgive and forget. You know ... I don't think anybody is deliberately devious. They may be forgetful and there may be a little obtuse on occasions, but ... having said that, the interests of the company do come very highly.
96. A. A note; again re-enforcing informal working and trust by implication limiting formal procedures.
97. I. That's a priceless asset isn't it.
98. R. Well as I say, this is what I don't want you to destroy for us. I mean you can come in, and the trouble is I know they are going to take notice of what you say. Whereas I can say it all day long and it wouldn't get the slightest notice.
99. A. Strong defence of informal working, and the advantages of the present regime.

100. I. From what you said the way this company works informality is actually key to their success.
101. R. Yes, maybe others have said other things to you, and I don't want to overlay that. There are some very definite procedures laid down and those are stuck to. I will not undertake work on a project unless I know from Graham or his staff that he has got an order or he has got a request for it, a tender has been put out. Now he may phone me and sort of say 'what about this that and the other', and I'll give him an opinion, but I will not invest time unless I have actually got a formal piece of paper. In exactly the same way nobody will produce anything unless they have actually got something that has been signed off within our department to say that's the way its to be produced. I mentioned Chris and his quality, and part of this came out of the need for quality systems, because obviously to have a quality audit you have got to have those procedures in place. Although they were there beforehand, they were re-enforced with his activities, because originally we went in for the British standard on that and that's quite demanding. But ... it has changed the culture a little bit. There was a day when I used to get notes on the back of a proverbial fag packet. You know we used to work off that, but I am asked to account for my departmental budget, and part of that is working against formal requests. Slightly different with David of course, he will always break the rules 'put me a few hours in on this' and 'I've got it into Charlie too at the moment'.
102. I. So you do work as cost centres.
103. R. Yes.
104. A. Clear support for existing procedures, and the way in which they are used. Endorsement of what came out of Quality Assurance. Underlying plea not to become more procedural.
105. I. And that is, largely speaking, well adhered to?
106. R. Yes, its this balance between having something that's set down and we all know where we are working, and yet not being over rigorous. I say jokingly, David will break those rules. The fact that I might have one of my staff in for an hour to talk to Graham about something that's come in before it ever gets to the point of a formal request. That sort of thing will happen, but what I am not prepared to do is to say 'oh yes one of Roger's engineers has spent a couple of days on that without it actually...'. We know that the company ... that's in the company's interest, and its formally a part of our process. Rather than just somebody's whim as to whether that might be possible. We do obviously do some speculative work, but that is speculative work that is agreed. And Jim would come and ... say that the directors have been talking about this particular project, product range and we actually want to move forward on that. These are our views, and we'd probably get involved in discussion at that stage, but even then although we don't have individual development budgets we don't put contracts against them. I allow, in my annual budget, about 15% just for development, pure development work, which is speculative development. This is part of the budget process. In fact, you could eat into that very quickly, it has to be tightly managed.
107. A. Note: 'clear understanding of spending parameters, apparent well established disciplines in cost control'. These may be relevant to some specific subsequent items, but I don't know at this stage. But one's getting the overall impression of a fairly well managed company. And if one is going to make that statement at a

subsequent stage it is the recording of quite specific things that support that, that I would be noting at this point. If we are talking about potential restructuring of the organisation. You may say that you want to restructure the organisation, but not change some of the underlying procedures, and they would have to be adjusted to deal with that new structure. But what one is hearing here with this particular interviewee is that he feels that it works well they know where they stand. He talked about his budget and his budget limits and how much discretion he's got. In this case, one is using previous knowledge to judge that these are actually quite positive responses you are getting here.

108. I. Could we get onto your individual job, and so on, details of it? Could I ask you what the main functions ... the main reasons are for your job to exist, in terms of keywords?
109. A. I would have moved forward a little bit and made the note somewhere else.
110. R. Yes, I think that you have to go back to the job title on that, as we said earlier, it may be fairly broadly interpreted. It is about the development of the product within the environment in which we work. That is ensuring a product that will meet a customer's requirement and giving sufficient information and detail to the production plants to actually produce that product. So I see it very much as a link role between what in our company is the Commercial Department and the Production Department. Its often a key, the development, is a process of optimisation of what we may have done previously and looking for the most economic way of meeting a particular requirement today ... this is particularly so in terms of tooling and the rest of it, which is such an enormous cost.
111. I. Is that a two-way link between the commercial and production?
112. R. Yes.
113. I. As a matter of interest do you ever get the opportunity to go back to customers and get them to re-think the specification?
114. R. Yes, I think we have possibly touched a little bit on this earlier on. Sort of saying we may land up with something and say your drawings you've sent in. You have almost prescribed the way that is produced, but in fact we can give you something that has the same functional characteristics but we want to produce it in a different way. So yes, we do that. Occasionally we loose out on that because people have gone out to two or three people for tender and somebody comes back and says they will produce it the way they want it. Sometimes even if they pay more for it they say 'that is what our engineers have said we need and we're not going to be drawn into a modified design just for production reasons'. Again, we know what we have got in the way of equipment to produce.
115. A. I think, had I been interviewing at this stage, I would have probably moved this on a pace. It's all very interesting, but you can in fact move an interviewee on to the next point just by the 'yes I think that clears what I want at the moment, is there anything else'.
116. I. So what areas of actual policy are you responsible for in relation to the company.
117. R. Quite difficult. I think we've talked again earlier about looking at where the company is going with some of its products, and our ... speculative work that we do, and that clearly does become a matter of certainly execution of policy. I am not sure whether, ... we are drawn in to make some observation, but I am not a policy maker as such.

118. I. Who actually makes policy in that area.
119. R. Well policy. The directors work as the ... senior management team of the company, and they are responsible for policy making. If something is coming up where there maybe something that David's come back with saying that there is a possible area that we could start producing for. It may well be that in discussions at that, the senior executive level, Jim will say well we have got some monies. We will actually do some development. So we have got something we can actually send out to a potential customer. Probably not much in the way of policy at the end of the day.
120. A. I think at this stage I would be moving it on, my note would probably be 'an understanding and awareness of policy', but underline the comment that Charlie is actually not a policy maker. As a side note, if this was the first interview I would probably allow this to continue, because its useful information. I think if it was subsequent interviews I would have probably drawn it short.
121. I. You advise?
122. R. Yes, as a manager in the company I don't see myself as having a real responsibility for policy.
123. I. Does the company ever operate away days, brainstorming, or anything of that sort?
124. R. Yes, I don't think we have ever actually had any away days, but certainly we will have a, probably three times a year, we will have a fairly formal briefing/debriefing type of meeting, which is looking at a whole range of issues. But will look very much at a product which is what I am interested in. That's over and above our normal ... team briefing type of activities that go on. Where I was, I think saying earlier, Jim is very good in keeping me informed as to what has come out of the board. I mean it is company policy that that should happen, but from what I hear from elsewhere it doesn't always happen as well in other departments.
125. I. So, presumably you also have not a great deal of influence on strategy?
126. R. What do you mean by strategy?
127. I. I would mean, the practical actions which arise out of policy. Policy is a wish and strategy is an implementation of that wish.
128. R. I think, to me that's what Jim and I work at together. How are we going to achieve something? I don't see an awful lot of strategy again at the level that I am working at. There is that 'how we going to work through...'. I tend to get, in my role in the company ... a lot of the work is about the processing of routine activities, or supporting others in the occasional activities. We were talking about new equipment earlier on. Now obviously it has come out of a strategy that we want to try and improve our efficiency in a particular area, and we are looking at new equipment as being a possible way forward. And I would be one of a number of people who would be involved in that. I am not sure I set an awful lot of strategy myself, or actually develop strategy, but just respond within them.
129. I. I guess that at the day to day management level you have got a lot more to do?
130. R. Yes and I think that's probably what we have been talking about, a lot ... I like to think that I am always looking at the overall objectives and aims of the company



and the company's spelt those out fairly clearly. So they are available to all of us. But in working towards those, yes I am doing that in the context of fulfilling quite a lot of what is just almost a day to day routine.

131. I. What would those main activities be? I mean, how would you quickly characterise them?
132. R. Well let's look at typical issues of the day. If I have a point of pressure it is, or two points of pressure. One is to ensure that I provide information that allows the company to turn round its tenders, and we do try and respond to any normal tender within 14 days. Even if it hasn't got an actual ... tender date as such to it, so its a, maybe use the expression, a quotation, in our case. Clearly something that goes on longer than the 14 days, because there may be meetings with the customer and all the rest of it. Now, that on occasions can mean quite a lot of work for my department, to actually have responded and made its contribution. And the other point of pressure is that, within the overall production plan for any particular order that we have taken, that we are not a delaying factor. I am not so sure we are as successful at that as we would like on occasions, because we can get bogged down with trying to resolve technical issues. Bogged down with even sorting out, sometimes within an individual machine operator. You know, ... how he feels he might best tackle a particular job. We clearly have a very good idea whereas sometimes you come across somebody whose ... there are one or two who are quite good whiz kids. Who will come up with ideas and ways of solving problems. So that because ... with Tom's responsibility he doesn't let work out onto the shop floor unless there's the full documentation available. Or if he does that its clear for the first few stages of production. And that particularly applies to the finished products side.
133. A. Would have put down quite clearly 'responsible for the product development part of tenders'. Would note here 'managing the engineering/production specification'.
134. I. So you actually have to provide a fleshed out spec of what kind of thing it must consist of, of how its to be made?
135. R. Quite often, yes. Actually we have just highlighted something that I am not sure that I have made clear. Although somebody else may have raised here with you, and that is that. Although Tom Clarkson works for Will Eggar his Production Control responsibilities are across the whole site. So one's always dealing with Tom whether it's finished products or not, as far as the production planning are concerned.
136. A. Would have noted fact of Tom Clarkson, and his role. Something that is incidental at the point of the interview here, but relevant in understanding the organisation, and would probably add that as an additional note against the relevant questions.
137. I. Is this a good way of ...
138. R. Its historic, lets put it that way and I am not sure what one's supposed to learn from history. Again it was very sensible at one point. Certainly going back before Finished Products was really a going concern. It was a really small activity. Not very complex. There was such a bulk of the work in Will's area, and in the days of the old plating shop it sort of pulled things through into the production. So it made a lot of sense. I think as the balance is swinging, I am not

suggesting it should go under Ted, and maybe it should stand in isolation somewhere, or have its own particular point. Although I am not sure who it should report to. There is not a natural person in place for that. You were saying about what were my main things, and I have taken ... two critical, and one of the things that is quite important to us that we haven't touched on at all is, I guess if there's any records anywhere in the company of what the company produces, what is produced in the past then, I don't think formally we would call it an archive, but effectively we are the archiving agent. I think that is probably why people come to us a lot because, the old question 'have we done this before', 'well not quite but about six years ago we did something along that sort of line'.

139. A. I would be noting down this responsibility, which seems to have slipped out, but could be extremely important in the present and future success of the company. I would also note at this stage 'pick this up with Quality Assurance'.
140. I. That's a very important function isn't it, or can be.
141. R. Yes ... things are changing, considerably with computerisation and that has made quite a lot of difference, and ... certainly these days its probably a big issue for us to address.
142. I. Can I ask how you actually make those records?
143. R. They are all hard copy. It's long hand. I mean we tend to wind up with a file against a particular running product. So that if we've got a standard product against which we have done modifications at times we'll keep all that together, old drawings, notes that have come through.
144. I. Is this actually part of your formal job description?
145. R. Well I am not sure. It is interesting me talking to. You know its only when somebody challenges you that you think 'hang on I do that, everybody expects it to be there but nobody actually recognises that it should be'. We've actually got quite an interesting, and this is totally informal, sort of no reference to this, one of the development staff, one of Roger's staff, particularly keeps, and has done for a long time, a very good log. So that we could actually identify where we have modified products for a particular customer, even against their customer order. Now I am not saying that's 100% foolproof but with a little bit of ... sorting through it, we will probably be able to find, maybe over the last six or seven years anything that, where there has been modification or change from the standard and be able to find a reference for that. So if we had a customer come along and say 'well you did so and so for us about five years ago'. We could probably find that.
146. I. But, there is no formal change control system in place?
147. R. No, I think some people would look at it any say, you know 'we haven't in some areas actually moved sufficiently with the times in record keeping', and again somewhat historical... It was the old standard lines that ran for a long time, and moving forward through evolution. But its particularly the modifications of standard products and the finished products that have caused this demand upon us.
148. A. Would at this stage, have just noted down that there is some importance in ensuring that with any change that takes place, that this archiving would be

important. And could be something that could be overlooked as it doesn't seem to be formally assigned to anybody.

149. I. I am surprised that ISO don't insist on it.
150. R. We deal with that on the basis that we can track from orders. But that isn't quite the same as being able to track back from the other end, back from actual products. I mean we can produce you the history, the product record of a particular order that's gone through. But you've then got to know what the order is to be able to do that. But if you pick up on that order then yes you would know exactly what product and you would know all your ISO-9000 requirements. But ... what we are doing here is actually, its product driven, and so there maybe a case, you are raising a very valuable observation. There may be a case to bring the two closer together. But it certainly hasn't been recognised. I will just make a note of that actually because thinking about it Donald, who has done that is not going to be with us for ever and a day. And I am not sure that anybody else fully understands what he does. Yes that's a useful one.
151. I. You have talked about, in relation to your job, ways in which you have some influence, and things for which you have day to day activity. But lastly what are the bottom line things for which you're actually held to task as a deliverer.
152. R. I think as far as the company is concerned, because of the focus we have these days ... its things that can be measured by the accountant. As you realise our accounting ... we work as an autonomous organisation, but in fact the accounting is done by our parent group off site. And they are very keen on things like scrap ratios, and this sort of thing. So my accounts, accounting heads that I am particularly concerned with rightly or wrongly tend to be bottom line. I sometimes wonder - they get a bit historic by the time they actually get back to you. You've got, actually running within the budget which is set, which isn't too difficult because we've got a staff establishment and that's probably 90% of the costs. But never the less that gets fed back to me each month. I have to keep an eye on that. Within the systems we've got I can ... my department can be credited with scrap that's produced if we've actually put some instruction out into the shops that hasn't allowed production to produce to either quality or to specification. It doesn't happen too often. You bloody well know when it does happen and it usually comes as a fairly big one and we get clobbered by that.
153. I. Don't you have more hours for that?
154. R. No, ... it's an exceptional charge. But certainly if David's going to get worked up about anything its that sort of thing. I think he would say its avoidable error always as far as we are concerned. The others can get away with it. Production make a hash and it's always somebody else's fault. If there's something we've actually passed through ourselves. Maybe on the interpretation of a customer's order where we've said you know 'produce it in this manner', or we've made this modification and it doesn't come out right. Then it does tend to fly back fairly quickly into our court. There's no formal way of recording although there's no doubt that we get quite a lot of feedback, as I indicated earlier if we are delaying production on getting on with a job. I mean production will always ... that the process from the receipt of an order to actually getting the goods out. They are usually left with the last week out of six weeks, and everybody else has spent the time thinking about it rather than getting on with it. That's not strictly true but ... because we are essentially a reactive department we can get enormous sudden work loads and there are occasions where it isn't a matter of putting in

hours or anything else. It's just that we cannot cope and something has to give. I try and understand what's happening on the production control side. As I said earlier I talk to Tom quite frequently. So that if we are going to delay anything it's going to be whatever has least impact upon production and upon the ultimate delivery. I mean I always reckon that production want twice as long as they actually need anyway. But I wouldn't say that to anybody else. I would soon get chewed off for that. But there certainly ... there is pressure the whole time to make sure we're not delaying things. So ... if you take the getting the quotes out, or the tenders out ... it ... actually getting work into the production shops and avoiding any delays. And so there is that bit of scrap that might be produced as a result of... Those are the three big things that I would always be able to tell you what the figures have been, what the situation is.

155. I. I can see that those are the most visible indicators of your performance. I mean they do strike me as the ... less important things that are concerned as being important to the company.
156. R. But you see, if you look at the job description I have got, and you have obviously had a copy of that ... they are the ones that people are going to measure me by. I think the others could be extremely important to the company but because they're not in very big print in the job description I don't get held accountable. Certainly if I think of a couple of years ago, buying one of the new presses I must have spent, over a period of three months three or four weeks in discussions and visiting places on that. Now nobody takes that into account at all. Now I have got a good team that keep everything going. It's possibly part of the informality that we were talking about earlier which has its strengths and its weaknesses.
157. I. It works OK up to a certain size. Have you noticed any ways in which growth in the company, has there been any growth? I mean has there been any way in which the formal structures which work with a certain size are now beginning to creak?
158. R. Yes, I think inevitably we tend to come back to the same things a bit. Coming back to what has happened on the quality side ... that significantly changed, and that wasn't about growth that was just we had requirements to meet. I am not ... I believe we could grow and I believe there are inhibitors to that growth at the moment. I am not sure whether the inhibitor is the informality. But I do recognise that if growth took place it could possibly change that. I mean the fact that I will talk to Graham most days and I will talk to Tom most days allows things to move forward, and it's only the two or three of us that are talking. If it became more people involved then there would probably have to be greater formality.
159. I. I am tending to side track you a bit here.
160. R. Yes fine. But I think, probably from where you sit it is an important point. I mean I don't know exactly what your brief is, but I can't imagine them investing in your time if they are not looking to getting some return in terms of preparing the company for some growth. And ... all that I hear from David is potentially there is a market out there that we could exploit. One of the things that again you have ... set in my mind that I haven't particularly thought of before is ... I affect the profitability of the company, in terms of, we in the department here can make decisions that impact into the unit cost of the product quite considerably. I think, if we make some wrong decisions then it could cost the company a

considerable amount more. It's quite simple for us to, in looking at the product, build in extra stages in production. Whereas with a bit of clever thought you can avoid that and therefore limit the number of handlings in the rest of it. Now there's nothing in the companies procedures to recognise that, and to either hold us accountable for it. And yet probably, and I don't know there are only five of us, we could probably loose for the company or gain for the company the cost of the five us in a year. It could even be several times over but certainly, we save the company that amount of money most years I would think.

161. I. But that's in no way assessed at all?

162. R. No.

163. I. Key activities, I suppose they are things that you do in order to meet those responsibilities? I mean how would your job description have your key activities? How would your job description prioritise them?

164. R. The job description is rather in terms of ... deliverables of one sort or another and so the activities are in how I deliver. My key activity, if you ask what do I do everyday. I know exactly what's in the department. I plan the work within my particular department. I think others would feel sometimes slightly over planned. But you know if I go down the corridor and I bump into Tom and he sort of says 'I was going to contact you about a particular order that's on the shop'. I have sufficient knowledge to know where that is at the moment, either who's working on it, when its likely to be coming out from our process. I mean that probably sounds as though I invest a lot of time in it. I do invest time in it but its again because of the size of the operation something which I can actually keep very close to me. We are a service department and I set us out to provide that service. So there's the ... department work planning is high on my list. The support for customer enquiries and in turn for the tenders which you've referred to. Certainly enquiries I'll handle myself. I try to avoid Roger and the rest of the team getting too distracted by the odd enquiries. Again ... they are probably capable of handling them. It isn't a matter of not believing they can do it. But I do think if somebody is actually into a piece of work the less distractions the better. So in a sense I try and create the outward face of our department which may involve me in some trivia but ... that's the better way of doing it. I do try and give some time, its probably on a monthly basis, to reviewing some of our standard products. It may only be ten or fifteen in any good month, and in some months I don't even get round to it at all. To see whether in the light of ever changing events such as we may have learnt through the production of some particular product that we could improve the, another existing product. In other words transferring across the knowledge we have gained. So there's this continuous improvement as an objective, and we meet it but, as I say, if I am only tackling ten a month its a long time getting round the cycle. And I guess if I was to look back over the last twelve months it certainly wouldn't be 120. It would probably be half that number that have actually been reviewed.

165. I. The key activities that we have talked about so far, to some extent I asked you to give those determined by other people. But these activities are actually ones which you are not asked for, but which you just do as a matter of practice.

166. R. Yes ... I think they enable us to provide a better service, and therefore that's the motive for doing it. I do like to think that occasionally we are seen as a contributor to the success of the company. And part of that is in being able to

demonstrate that we have improved what by some may be considered to be the status quo as it were.

167. I. So your continuous improvement programme would be part of that sort of thing?
168. R. Yes, I think that that wasn't formally set up. But ... its been recognised increasingly as being of some value. I do tend to push it in front of Jim now and then, and sort of say 'you know we've managed to improve production time on that', or set up time or whatever.
169. I. Do you actually get a chance to feed back, for example via an appraisal process?
170. R. Yes, we do have formal appraisals. I think formal is probably the word. I don't find them particularly helpful. What I do think is that again its probably since David's been with us over the last few years, that Jim finds it useful to be able to go into meetings within the senior management team and sort of say 'we don't regularly report on this but over the last x months we've done this, and we see this as some sort of efficiency saving' or whatever. That works quite well, and I'll say to Jim 'we've had one or two significant examples, plus a lot that haven't been very significant, but this is where we have gone over the last maybe six months'.
171. I. Sort of informal stories of success?
172. R. Yes.
173. I. Let's get back onto the main stream again. You've talked about parts of your job description which are externally set for you. But what about things like continuous improvement that you have set yourself.
174. R. Not always an individual contribution. The continuous development is very much, that's been my initiative, but I do think over a period of time what Graham, Tom and I have developed is quite significant in terms of the day to day running of the company. I think we've recognised the needs of one another, and have worked towards improving the communication. Some of the formal procedures have been improved, and in a sense the three of us have created a sort of a power house for change. Maybe at a fairly modest level, but ... if one was to go back maybe three years or so, take a snapshot then to where we are now... And that is another area that one can get a certain satisfaction from. One can see those improvements.
175. I. If you were to divide up your week into time allocations. How much would you attribute to each of these activities? How much of your 40 hours would you attribute to those?
176. R. I think probably there are two hours or so a week that are formal meetings ... there's probably something over a day that would be the informal meeting/communication side of things. The planning /awareness side, I probably spend half an hour each day. So that's half a day across the week. Actually sort of getting aware of what has happened, what's coming through. Direct involvement in the major tenders, which I tend to be involved in varies enormously. I mean some weeks I can spend three or four days and do nothing else, other weeks I hardly touch it at all. But I guess there's a day and a half a week in that area. Particularly with big jobs that come through on occasions, or the more difficult jobs they may not be enormous, but they have some, and in that is at times visits out to customers. I don't know how many I have given you there, you've got about three, three and a half days. Its a difficult one to answer

isn't it. I suppose the, if I go back over twelve months or so the particular special projects side of things, we were talking about, has probably taken another half day, maybe even another day. And those are very much the things that are outside the declared job specification. That gives you a broad idea ... I certainly see Jim a couple of times a week for a period, but ... that's the informal meetings more than anything else. Its very difficult, part of the formal structure is one's availability the open door. I would probably leave it at that, not fully occupied but that gives you a feel of where it goes.

177. I. We have talked quite a lot about your perceptions of what's going well in the company and what isn't. Is there anything you would like to add to that?
178. R. What is and what isn't working well. Things that are working well are this, the drive to get things done and that's very much reactive to the customer demand. I think again that part of the almost seed chain is the relationship with the customer, and the customer becoming king these days. Rather than 'they'll take what we've got or we don't do business with them'. Things that aren't going so well. I am not sure they are not going so well, but one doesn't have, at least I don't have clarity, and that is really where David's taking us. I talked about this potential for expansion and maybe he's already started talking to you about that. I don't think we have a vision for very far ahead. At least it hasn't come down to my level in the organisation, and ... that probably causes some frustration, and I think the others will talk about that. Where we feel we've done a lot of work to get ourselves to where we are and we're not actually exploiting the potential. So there's several things in that. There's an element of communication, and maybe we are not being communicated with sufficiently. Although, in other respects the company is quite good at communication, but ... in terms of communication the intention rather than the fact, where the strategic policy thinking is possibly going. I think some of us feel that we may be able to have contributed a little bit more to that. And the other area that clearly isn't working well is the relationship and some of the tensions between the two production plants ... I'm on the side of that, a little bit in the wings. Although it causes me some problems on occasions, as an observer I think it's a major issue for the company.
179. I. I guess that we've incidentally talked about the aspects of your job and the structure which needs changing to improve the effectiveness of the company or your particular role in meeting the targets, and so on. Are there any things which you would like to bring out, apart from those which we have already covered?
180. R. No I can't think of any. I think we've talked about the two shops, the two plants, we've just been referring to, and ... the other is this whole future on the sales side, and ... those are the big issues. I think if things start to change on that, there ... there's going to be an awful lot of stuff fed down the line as it were, that is going to involve those of us that actually keep the day to day things running ... we touched earlier on Tom Clarkson's position ... if that was to change or somebody else new came in with a responsibility on the production control planning side, or if Tom was promoted up. Elevated to directorate or something like that, although I'm not sure that would be the case. I think that could bring about change, and therefore we would have a lot to ... as a result of those sort of changes... You haven't yet asked me about where we may be vulnerable as a company. What I think I would say, and its related to what you are saying ... I have mentioned the relationship between Graham, Tom and myself, and I do wonder if any one of the three of us was to leave. An awful lot is down, although

there are the formal structures I was talking about, to trust and understanding between the three of us.

181. I. That gives the impression that a lot of the glue that makes the company work and stick together is actually based on these personal relationships, and there are deputies that would ...
182. R. I think, others may disagree with me, but ... that there is an important trio in this company.
183. I. Can we talk now about the contacts that you have with other people. First of all the form that various contacts take. How often they take place and the purpose. What those contacts are? Could we start with formal?
184. R. I suppose if there's a formal contact with Jim my boss its really as irregularly as once a month, but equally at an informal level there aren't many days, that we're both in, that we don't speak, and certainly twice a week we will sit down and actually work through a number of issues ... within my own department, I talk to Roger each day. This is how I update him on what's going through, and certainly the staff, I'll see them each day, even if only for a few minutes. I think that's important. As I have said communication with Tom and Graham, very important and sort of almost constantly ongoing. We tend not to sit down and formally thrash through things. We tend to take them as they come. So if we have got issues then we will tackle that as an issue by issue basis. We did at one time have slightly more formal meetings. We used to meet once a week, but it got to the stage ... either things weren't moving at that particular speed, because they were slow items, or we had already resolved the fast moving items. So that got abandoned. I have talked about open door. A number of people that have open door policies. I certainly don't object and would encourage, you know even a foreman making contact if they need to. I have quite a lot of contact with Bill Eggar, but it's really to do with specifics and particular issues of the day. It tends to be very much more at a... If you have got quarter of an hour to talk about wider issues, Will's the one to be talking to. In some ways I can learn more from Will than I can from Jim. I mean Jim's very good at formal debriefing of things are going on, but Will's, that is, he's minder and wider and we talk about the implications of things that have been decided.
185. I. Of those sort of styles of communication. How well would you say they worked?
186. R. All those that I have been referring to are clearly verbal, within those definitions, they're a verbal communication. With the different frequencies I have been talking about. I mean written communication. Yes there's written communication through the procedures. I'll certainly have written communication on a monthly basis with John in terms of his debriefing notes and I will, and I have to report in writing to him in writing once a month on set down, key issues that he wants to be putting into his board meeting. We're not a great company for memoing one another. I think if it comes to that its usually some breakdown in communication rather than ... and that again is the style from the top... David would rather have two minutes on the phone than spend ten minutes putting something in writing.
187. I. Have we addressed the idea of these styles of communication having good and bad features? Is there anything further you would like to say about them?



188. R. Yes ... the biggest thing with this is that everybody feels comfortable. Before I was with this company, for a time I was with another company, where everything was very formal. You never acted until you got a memo. Life was about responding. So everything you received you had to respond to. Even if it was only to accept the fact that you had received it, and that seemed to work quite well. But everybody accepted that, and I think here we all accept something else. I have used the word trust earlier on. I don't think anybody in this company would turn around and say 'no that wasn't said'. Now I know that isn't the case everywhere, and therefore you are relying on the trust, of the fact that something has been said, people will have accepted that as part of the record. We are very different in dealing outside. I mean don't get the idea that we are casual with our relationship with our customers. And in fact the amount of paper work that's generated by others in that sense is quite considerable and we have to safeguard our situation. We will not get involved, as I was saying earlier, until we've got the procedural side of our communications right, which means we've got an order, we've got a formal enquiry. We'll respond to that and all the documentation that goes with that is written and recorded and very formally done. But in terms of just running the business, then I think we're certainly less structured.
189. I. So you have talked to me about the contacts that exist between you and your manager. Briefly you have referred to the fact that you see Jim formally more or less on a monthly basis, but perhaps more frequently on an informal basis.
190. R. Yes as I was saying, about a couple of times a week we sit down together. And we speak most days if we happen to be in. But ... I said at the outset he doesn't sort of, he does let me get on with it to a large extent.
191. I. Does that work OK?
192. R. Yes it works very well. I mean it certainly suits me to have some freedom and it suits me to feel that I am trusted. I don't think I could work with someone who was breathing down my neck all the time.
193. I. What about contacts with your colleagues, your peer group?
194. R. Well I think we've talked about a number of the peer group. I mean, certainly the relationship with some of the production managers is more difficult. It is this, I think they're rushed off their feet ... they see us as, what I may have said earlier, a part of the process that makes their life more difficult in terms of time scales. I don't think they would question our technical input but they would like to feel they had more time to work out their own scheduling within the production plannings, and we are often a stumbling block to them doing that.
195. I. So they work less well would you say?
196. R. Yes, I am not sure that could work very much better but certainly that's where the tension comes.
197. I. And those meetings, presumably formal and informal?
198. R. Yes we don't, in the sense of formal things at that level, Jim and Ted and Will get together. We tend as a peer group not to meet that often formally. We are not encouraged formally into inter-departmental meetings. I think on the odd occasion that we've come together, it's usually because there is the recognition of the need to sort out a problem. Not exactly banging heads together, but it's been a little bit of that sort of situation.

## Interview 2: Ron Rawlings - Shift Foreman

199. I. You're on the afternoon shift.
200. R. For the last two years I have been on that shift all of the time.
201. I. Who do you report to directly?
202. R. Well I report to Nick King, who is the Senior Foreman. I mean I think it's a farce talking about reporting to anybody quite honestly in this organisation, because he certainly does not take any responsibility for what I do.
203. I. Who else do you report to?
204. R. Well the boss is Dave Kinder, and he's not a bad boss but I don't think he understands the problems. He seems to keep himself detached from what's going on. Yes he's the production manager.
205. I. So you actually speak to him directly, but would that be an informal ...
206. R. Oh no its quite formal. I think Nick will only interest himself in the things that Nick's interested in ... he's only here anyway for about three hours when I'm here. In fact it's hardly that because he leaves at four thirty, so its only really two and a half hours.
207. I. Would that be about it as far as your reporting went.
208. A. I think I would be making a note at this stage of 'check the job description of Nick King'.
209. R. Oh no not at all. I mean the problem is as far as my particular shift is concerned ... it gets to the middle part of the afternoon and people start going off home, and I pick up any responsibilities that are going. If there's a delivery truck coming in, six or seven o'clock in the evening. There maybe some people in the stores, but I'm the one who picks up responsibility for that. Security, once the last manager's gone I look after the site ... any security problems that's left with me.
210. I. So it's sort of 'any other business' after 5 o'clock?
211. R. Effectively yes. Sometimes before five as well.
212. I. Does that require you to report to other people as well?
213. R. Yes ... I'm supposed to be a shift foreman. And yet I spend the last two hours of what, most evenings ... writing out notes to leave for people in the morning ... of things that have happened that haven't worked out as they thought they were going to. And I am always having to write to the, well we call them the trinity round here actually, there are at least three that you may have come across that feel they run the place.
214. I. So is there anybody else who you would like to indicate whose ear you seek?
215. R. I don't find anybody very reliable these days in this organisation. There was a time where I knew exactly where I stood with people. Will Eggar was for a long time my boss as Production Manage. And he got himself promoted to director and once that had happened the whole place ... fell apart and ... even he is losing a grip of things these days.
216. A. I would note here that there is apparently some reason for Ron Rawlings to feel aggrieved. Apparent lack of support and management by his superiors is reflected in what could be vulnerability but is coming across as a fairly

aggressive response. So I would put down 'aggressive, vulnerable', but the key being that he clearly doesn't feel he has been supported in what he is being asked to do.

217. I. So when you say these days, how long are you referring back?
218. R. Well ... this movement I had onto this late shift. Some people call it the twilight shift and some people call it the dead shift, and I suppose it was around that sort of time. There has been a lot of ill feeling ... between ourselves and finished products. And they like to think of themselves as the premadonnas these days, and taking all the resource and seem to be the important people. And I don't think that Will has defended our corner very well. And ... a typical example is I come in and Tom Clarkson will put out his production plan and I arrive, take over the shift at two o'clock, and by the time I have got a debriefing its probably about half past 2, to find that the production for the day has hardly been touched and I am expected to get it out by ten o'clock in the evening. And usually before they go home I've got one of the foreman over in finished products making sure he is going to get all his goods so that he can start his shift at 8 in the morning. Well ... it just doesn't bear any credence to reality at all, it's an impossible situation.
219. A. Note 'tension between two production shops', and a sense of reduced esteem of the Plate and Pressing shop. Note a question about production planning, again questioning managerial direction of Ron.
220. I. Do you actually deputise for anybody? I suppose you deputise for everybody by the sound of things.
221. R. Yes, I think you ought to note that. I mean it is a case of it has got to be picked up. I do have to phone people on occasions when they just can't make the decisions, but I try not to do that more often than necessary.
222. I. In the unlikely circumstance that you are away, who deputises for you?
223. R. Well normally if I am away, Jim Finch, who is one of the other foremen on the shop, he will cover the evening shift.
224. I. So you are normally the only person who takes the evening shift.
225. R. Yes ... it seemed a good idea at the time, and it probably has some benefits. It suits my social life and one thing and another. It isn't as though its an issue in that respect, but I do feel very put on by the company. It's a situation where I feel they have just exploited having somebody about.
226. A. Note down to question at Will Eggar level and probably at David Higgs level this whole operation of the evening shift. It appears to be a very vulnerable area. Re-emphasise the level of being unhappy with and tolerating a situation, which is unacceptable, and not... Obviously, a very loyal member of the company but exploited.
227. I. So by the sound of things the main role of your evening shift is actually clearing up the day's unfinished business? Was there anything else?
228. R. Well there are 25 production workers on that shift and I don't mind that, but there are probably running on to seven or so, maybe even later depending on the work load. Seven or eight other people around who are really nothing to do with me at all. But they have nowhere else to go from maybe six o'clock, maybe earlier to get instruction, to sort out problems. I mean there may be one or two of

the directors having a noggin before they go home, but they're not to be interrupted so everybody comes in my direction.

229. A. Would note at this point, has Ron actually built something by his willingness to help, that was not intended. He has talked about 25 that work for him, but then saying there are six or eight others, maybe he could have walked away from that. Note 'need to pursue with other managers what they expect Ron to be offering', or even if they are aware that he is offering something on the evening shift.
230. I. Apart from that sort of clearing up and sorting out function do you actually, presumably you also have production tasks as well?
231. R. Yes ... clearly production is laid down for the day. I think the difficulty is that each week we seem to get into this rollover situation. And toward the end of the week by the time I get in, what should have been the production starting at 7:30 that morning was probably not started until 2 o'clock, and therefore we're picking up where... Now inevitably, I can't do all that, and it's... therefore I'm leaving things for the morning, and this is where a lot of the hassle comes from.
232. I. So it sounds as if you actually have to talk to a great number of people depending on ... who would you put as the sort of top five people that you would normally talk to?
233. A. Note to talk to Tom Clarkson in particular about the philosophy of production planning, and whether he operates a policy of overloading production.
234. R. Well I try and get hold of Dave Kinder, when I come on to start with. I invariably have to clear what work there is that appears to be done with Tom Clarkson. I mean he will have issued probably 24 hours ahead the latest batches of work, or at least his people will have done. He's got some planners and production controllers. I used to deal with them, but I have very much of late taken it to go straight to him. I need to know what the situation is. I've taken too much flack of recent times, apparently doing what I was told to do, and having done the wrong thing. I don't quite get Tom to sign off what I am to do that shift but I certainly get him to give me some indication of his priorities. I can't second guess him every time and be right.
235. I. So they are your two main people on who you depend?
236. R. As far as the work that is to be done those are the two that I would go to. I suppose the other person I have a fair bit to do with is Charlie Baker. If there are any problems in interpreting the production instructions in terms of the technical content, I'll speak to him or one of the people in his department. And ... he's a busy man and so invariably it's somebody else in his department. And usually I get a fairly good response from them, but again the difficulty is if I go in there from much after four o'clock in the afternoon, they're almost sort of tidying up. I don't get an awful lot cleared and there's nobody around there certainly after about five thirty or so. So most of my shift I haven't got cover, and this can often be the reason why things don't get set up and run. It is a real problem, I am left, I have to make decisions. If I have to substitute one batch of work for another. You know I don't have all the information to know whether that's right within the overall company's responsibilities, which at the time they accept that. But you know, if things are a bit tight then I do seem to be at the rough end of it.
237. A. Significant organisational issue relating to a reasonable volume of production being carried out at a time when it can't be supported by all of the normal

support functions. Embittered is probably a word I would be recording at this stage.

238. I. So would these be the main people who would look to you for particular services?
239. R. I think I am employed here to supervise this group of 25 people. And my job is to take the next batches of work that have been loaded and to see that those are undertaken according to specification within the time scales that are laid down. So that if I come onto a shift and something is to be finished at the end of that shift and I have the resources to do that, that's what I am expected to do.
240. I. In doing that who would you report to?
241. R. Well on paper that would be Nick King, but in reality its Dave. But the actual schedules to what has been done obviously comes out from the production control department. And they will have loaded the jobs and so we have always got a bit more loaded in the shop that we are likely to achieve. And I don't argue with that, and certainly it needs that because if I do have problems on a job and I have to leave it, I may have to transfer people on the machines and get on with something else. I think the thing which normally sticks with me is that I normally get Roy Banks or one of his people. It seems to be the last thing they do before they go home is upset me. That's the production manager in the finished goods side. I suppose these days probably 30% of what we produce in this shop goes across to Finished Products. Whereas the other goes mainly against customer order. There's a little bit we produce for stock occasionally and sometimes I know batch sizes are made up so we get a few for stock. But somehow or other they always seem, just as they are finishing and that's usually just gone half past four or so, they're on dictating exactly what they need for 8 o'clock in the morning to keep their production going. And I may not even have those things listed from production control. I mean the work may not have been loaded, and some of the jobs that I handle, there may be five or six production processes in our shop. Where its gone from one machine to another through that. Now although you asked me about my title plate, I deal with plate and pressed and everything else. In the way things are these days, mainly plate workers in an evening, but there are some pressed workers as well. Now if I haven't got an order, or goods haven't come through, or whatever or they're stuck at an earlier process, there's nothing I can do to respond to the finished products by saying I can have it by 8 o'clock in the morning, and everybody's attitude seems to be well its my responsibility to get that done. I may not have the machine set up that I need on another job and I can't reset it, unless I have actually cleared it with Tom or one of his people. I don't know what his priorities are. I don't know what the customer wants. Some nights I'm just scrapping around doing whatever I can with the people I've got. Not very satisfying on occasions. In fact very frustrating.
242. A. Must investigate what the company's procedures are for the relationship between the two plants. Considerable concern that at all levels this seems to be a problem, and a point of friction.
243. I. Are your difficulties recognised? Do you actually have any means of feeding back your dissatisfaction?
244. R. I used to think they were interested. I am not sure that they are now.
245. I. What happens if something goes disastrously wrong?

246. R. Well we'd land up with an inquest next time I'm in. And we'd sit down for an hour and go through and I believe ... That would normally be with Don Kinder present, and he's I suppose reasonably protective of me. I think he understands that I do the best that I can. Mind you he's never here to help me out. But if it gets to an inquest situation because we missed a delivery or something like that, he'll certainly listen to my side of the story. And if he gets to meetings with others from other departments then he will defend my situation. But that doesn't really solve the problem. I mean ... there are expectations at times and you'll get Barber, Clarkson and possibly Baker, they bang their heads together and decide that this is achievable. And I don't think they understand quite honestly. I think that there's an expectation that everything is going to run every minute of the day. They don't appreciate some of the problems we have on set-up times. They don't appreciate the sort of smoke you can get on a production run. I mean some of the more complex set-ups we've got these days. Even when you've set up you may have an hour or so just in running test pieces and checking them off, and making sure they are up to quality. That's another issue that I haven't actually raised, but there are times that I actually need to get a sign off, and there's nobody around to sign off. So I either run and hope that its right, it'll get signed off post event, or I say 'well I'm not going to do anything about that, I'll wait until its formally signed off'.
247. A. Barber, Clarkson, and Baker have just been mentioned. There was a reference earlier to this trinity, names not mentioned at that stage. But clearly part of the animosity is that there seems to be these three who drive the production, and Ron is expressing a view of being... that they are taking an unrealistic view, or they are not appreciating his position. This may be legitimate or not, but certainly one would be recording that there appears to be a lack of understanding at manager level, what in fact the constraints are within the production facilities. I would list all of these specific problems, not being sure at this stage how they would be used, but they are clearly examples of what clearly is part of the frustration as recorded by Ron Rawlings.
248. I. So clearly there seems to be a lot wrong with the way the structure works at the moment. Is there anything that works right? That you can identify? What are you happy with?
249. R. That's not an expression I would use these days at all. I used to enjoy my job in this company and it worked very well. We had a situation where, good for the company, we were increasing the volume of work we were putting through. And I took on this job understanding that it, in its initial form it would be for a fairly short period of time. If it was going to continue over a long period of time that would be staffed up properly to cope with it. And ... they have taken advantage of that, and I certainly wouldn't let the company down, but at the same time I just feel that the situation has been exploited. That there is a need for other people to be around if I am going to work effectively, and I don't know because I don't see any figures. I just have a feeling that we are paying for the 25, 30 of us that are around, and our efficiency is probably only half that of those that are on the day shift, when all the support people are there. And the idea that I can pick up say between 2 and 5 o'clock and do all the communication with people, and get everything set up, maybe theoretically all right. But it's just impossible.
250. A. Note, evidence that this was a short term solution, and a very strong view that it cannot be successfully maintained. Note down that 'no relevant performance

information' ... getting evidence from one person that he is working in a vacuum as far as information is concerned. Therefore we would be looking for any other indicators that way.

251. I. So you think they have unrealistic expectations of you. When those expectations aren't met do you collect flack for that?
252. R. I do particularly from the Foreman in the Finished Products side. That's my real area that I feel is unfair to me, and I think the company's go that totally wrong. I think as far, if you make something for stock then the priority is usually not that great. If we are making against order there's sometimes a little bit of flexibility, in so far as even if it is due out the following day, if somebody's in 7:30 the following morning they can pick that up and get that batched.
253. A. Again another point that highlights this difficulty between the finished products and the plate and pressing.
254. R. They will have even set up in an afternoon, to start running a batch of work, which when I come on hasn't even been started in our shop. And they're expecting that by the time I go at 10 o'clock to actually be able to send their forklift truck across, first thing at 7:30 in the morning and put it straight onto their machine.
255. I. So they haven't got anybody there in the evening either.
256. R. No they haven't, and ... it just doesn't make any sense at all because everything I produce has got to go through quality checking before it can actually go over to them. But this is the attitude, it says on the piece of paper that's what they're going to get and they expect me to produce it.

# Appendix D - Example Assignment: Consultant's Interview Notes

## Interview 1: Charlie Baker - Product Development Manager

### Job Title

Product Development Manager  
[product development and improvement  
check job description]

### Formal Report To

Jim Lemon

### Informal Report To

David Higgs: advice on jobs  
[Although two reports - no conflict or confusion.  
Long serving, point of reference, possible key player.]

### Formal Reports From

Roger Vaughan  
[Working as team.  
Ability of company to run double shift is questioned  
sustained high level of output may be impractical on double shift basis.  
Foremen left to pick up other duties.  
Recognition of importance of good relationships.  
Conflict between Ted Hamilton and Will Eggar, may be significant throughout their  
departments.  
Recognition of cultural change brought by QA - check with production side.]

### You Deputise for

Jim Lemon  
[Degree of concern about making policy decisions, irritation - not in job description,  
should be Jim  
Lemon's role - check job descriptions.]

### Deputise for you

Roger Vaughan

### Main role of Section

Designing for production, designing to meet customer specification, interpreters of  
specifications.  
Time, cost invested in total to jigs, etc. proportional to size of batches, new equipment  
purchases.

### Contacts

David Higgs: informal spoken enquiries and results of sales meetings.  
Graham Barber: orders and enquiries, actually received.  
[Good relationship; finds it easy.]  
Jim Lemon: information on policy and strategy.  
Tom Clarkson: product specifications.  
[All production carried out as contract]  
Contract Engineers (Smith and Jones): provide information to detail the product, within  
contract documentation.



[Obtain copy of procedures manual – clear with David Higgs.  
Split between specialised finished products and routine production runs.  
Relationship between production schedulers and contract engineers.  
Duplication/interference in production control side - production development and production control can overlap.

Working together - recognised as being important in staying in business culture of team working very apparent.]

Production departments: production information.

Foremen Finished Products: giving advice, open and free line of communication (positive).

### **Effectiveness of Organisation**

Relationship between Plant A and Plant B - outdated situation.

Recognition of need for Finished Products, recognition of need for greater added value products.

Will Eggar holding to an empire - historical.

[Need to accommodate Will in future organisation structure - importance of future role.

David Higgs seen as Sales Marketing, question of his MD role.

Strong management of company, more aggressive/interventionist management required, not just aggressive sales and marketing.

Importance of informal working and trust.

Clear support for existing procedures, underlying plea not to become more procedural.

Clear understanding of spending parameters, apparent well established disciplines in cost control.

Endorsement of what came out of introduction of QA.

Concern at potentially altering the organisation for change sake - not fear of change.]

### **Policy**

Understanding and awareness of policy, but not policy maker.

### **Strategy**

Does not set or develop strategy, just responds within strategy set by others.

### **Day to Day**

Responsible for the product development part of tenders, managing the engineering/production specification.

[Tom Clarkson responsibilities across whole company (both Plants) although he works for Will Eggar.]

Provides Company Archive

[important, check with QA, not formally assigned could be overlooked in re-structuring.]

## **Interview 2: Ron Rawlings - Shift Foreman**

### **Job Title**

Shift Foreman for afternoon shift.

### **Formal Report To**

Nick King:

[Check the Job Description of Nick King.

Reason for Ron to feel aggrieved

apparent lack of support and management by his superiors, aggressive, vulnerable.

tension between two production shops

sense of reduced esteem of the Plate and Pressing Shop]

**Informal Report To**

Dave Kinder / Everyone

[a note of sarcasm out of frustration].

**Formal Reports From**

25 production workers.

**You Deputise for**

Everybody

[sarcasm - Senior members of company absent for several hours a day.]

**Deputise for you**

Jim Finch.

[question operation of evening shift with Will Eggar and David Higgs obviously very loyal member, tolerating unacceptable situation, being exploited.]

**Main role of Section**

Ensure that batches of work are undertaken according to specification.

Clearing up the day's unfinished business.

[need to pursue with other managers what they expect Ron to be offering has Ron built up something by his willingness to help?

Talk to Tom Clarkson about philosophy of production planning – does he operate policy of overloading production?]

**Contacts**

Dave Kinder.

Tom Clarkson: Directions on what work needs to be done, with indication of priorities.

Charlie Baker: Technical Advice.

[can reasonable volume of production be carried out at a time when it can't be supported by all of the normal support functions?

Ron seems embittered.]

Roy Banks.

[must investigate company's procedures for relationship between two plants.

seems to be a point of friction at all levels

lack of understanding at manager level

– expectations of Barber, Clarkson, and Baker are unrealistic, don't appreciate Ron's position.]

**Effectiveness of Organisation**

Extra staff to support operation of second shift.

[double shift was short term solution,

very strong view that it cannot be successfully maintained

no relevant performance information. Ron working in information vacuum

Ron gets flack from foreman in finished products – Ron feels this is unfair

this highlights difficulty between Finished Products and Plate and Pressing]

## Appendix E - Transcript of Manual Analysis Exercise

The following abbreviations have been used:

- I. Investigator's comments.
- C. Management Consultant's comments.

257. I. ... the basic scenario is that two interviews have just been completed as part of the consultancy assignment and you're now preparing for delivering a presentation or formal meeting with the client organisation to feedback some of the issues. So it's analysis of the interview notes, have you got a copy there?
258. C. Oh yes, I've got those there, yes.
259. I. right ... in order to produce a feedback sheet ...
260. C. Yes.
261. I. and any other graphs or charts or things that you feel are necessary.
262. C. Right, OK.
263. I. I leave it open, so that if there's anything else that you feel you want to include in addition to what's been specified ...
264. C. Now ... essentially we've got two levels of information on our consultant's interview notes. We've quite clearly got what I call factual information, which is the reports to ... who reports and I would just be going through to check therefore that that tied up with what I would anticipate from the organisation charts.
265. So the first thing, for the two characters ... individuals that we interviewed ... on the organisation chart Charlie Baker confirmed with Lemon his boss, but relationship with David Higgs. Now at this stage we've only got that by Charlie's interview ... probably we would have spoken with David Higgs and confirmed that therefore the other way. We may also have talked to Lemon so that again we would have got confirmation or otherwise there. So one would be looking at that point for any other information that supported that particular statement.
266. Now as far as Rawlings was concerned and I'll just do an organisation chart at the moment ... Rawlings was actually very dismissive of organisation, but he did confirm that he was responsible to King. He equally was saying that he had dealings with Kinder, and again this may have been confirmed by other people had they been interviewed.
267. So that, in summary, one is saying a reporting structure that 'is more open' probably the easiest way of putting it, than appears on the official chart. Now, it could be that ... there are only those two examples, equally it's quite possible that you'd be picking that up from other people ... in other words throughout the organisation that openness exists. So that taking to a feedback meeting would be a matter of saying 'well quite clearly this is very open' or 'there are a number of areas where it's very open' anticipating that one would get confirmation as to the fact that is what they want ... that's what they've set themselves out to achieve.

268. You will find that in an organisation, an organisation chart, a simple chart of this nature, it will be ... a statement will be made 'well we need something to present the formal situation, but it's only there as a sort of a back-cloth against which we work out our day-to-day relationships, and people have no fear or no concern about all the cross-relationships that come out.
269. Now in terms of other charts, it might well be that based on these two pieces of evidence if it applied to other people we might prepare a chart that was about informal reporting relationships, so that we could actually be presenting back saying 'well that's your formal chart, in fact there are all these ... perceived to be reporting relationships that exist over and above that. Now the issue there is one of definition, whether it is in fact reporting or whether it is just a communication and again this might be something which opens up into quite a major debate.
270. In other words the freedom that they might have anticipated has actually gone further than they wanted, and people are almost getting confused by that change situation. So that is both what I would do and the reason why I would be doing it. Now, also coming from the initial information here, we have then got, we have formal reporting informal reporting which is what we have just been talking about. I will come to the subject of deputising because there's some issues there ... tend to put those probably together at the end or further down the exercise. But I would also as far as charts are concerned ... start to look at communications and say are there any issues here that stem from the structure into communications.
271. Now, as an aside this is where it becomes a quite difficult with just the two [interviews] and I'm having to try and work that out.
272. We, at a structural level, had no comment about the number of levels. We had certainly a comment from Rawlings on the difficulty of his communication to any of his superiors, because of his working a shift out of step with most of them and they were only present for a relatively few hours. And that clearly is a structural problem, if the thing is moving ... as well as a communications problem. There was a very strong message coming through, particularly from Baker and in a sense far less if it might even be countered by what Rawlings was saying. But Baker was saying all the way through 'the structure works well, the company works well because of relationships and I would be putting down, I think, under the structure probably and the communications something about relationships. So that my list now would have down Structure, and I would probably be running in parallel communications, and under structure we've already put down 'open', under structure we would put down 'works well because of people' and both those were Baker comments. Under Rawlings we've got a doubt about structure in shift context. I'm not sure at this stage whether those two are in conflict, or whether one is such a minor subset of the total, that in Rawlings case it is a total response which is subjective totally to his circumstances.
273. I. So are you saying that it could be two situations, localised...
274. C. Well it could ... I'm sensing that because of the number of times Baker was saying 'things work well because of people' and was talking about good relationships, that for lack of any better information he is probably reflecting what is the general view. What we are saying is that in terms of structure and also in terms of communication Rawlings is saying that those things don't work,

but that could be because solely of his own person situation of working these non-standard shift hours of ... as he explained in great detail, knowing that there aren't people around, and he lands up picking up an awful lot of issues that really are outside what he expects to be doing. And also that he has got nobody to communicate with to get the situations resolved. So we've got here a good communications ... open ... free ... there are a number of words that were used by Baker. As far as Rawlings is concerned, I think we're ... probably the best we can say from the analysis of his initial communications view is that it's poor in the context of shift hours or shift working hours. Right, so we've immediately started getting one or two of the things coming through. They come through ... I'm particularly looking at structure at the moment, but because there are communications indications within that I've started putting those down. One could start up a list also in parallel with that on relationships, because ... relationships again ... and this is the link because they are discussed almost in the same breath during the interview ... so that the relationships are generally good to take the Rawlings [Baker]. Relationships difficult relating to shift workers. Now, I think I would be careful in that way that I actually phrased that because it would be quite evident where that ... or who a key source of that information may be. Now, again one is likely to land up with maybe a number of other people who might be interviewed also saying they find it difficult to relate to the management, and that would come through in terms of relationships, communication, structure, everything ... I think ... I'm just looking for a name at the moment, but somebody like ... Clarkson who is the Production Control Manager. From what Rawlings was saying I imagine that Clarkson has an absolute nightmare in dealing with the... So that if Clarkson was one of those to be interviewed one would be looking for collaborative information...

275. I. How likely do you think it would be that he would be interviewed?
276. C. Well, I think, bearing in mind that we are looking at a production/production management situation I would have anticipated from the 22 people ... I would have probably have expected to have seen maybe about half of those. So that certainly somebody like Clarkson I would have seen as a fairly key player, and particularly because we've got two plants: Plant A and Plant B. And yet the production control actually comes under one of those plant managers, it is not an independent function that one might have expected to have been the case. And one of the key issues that was within the brief was that we do have these two plants and the relative autonomy ... the relationship between these two plant directors. We have picked up from Baker that the relationship between the two plants is quite different to what it was in the earlier days. We know that there's a history behind that. And, I guess, therefore the investigation is to establish ... because we're looking at organisation structure, that's the purpose of the exercise ... that we would be saying is it right to be having two plant directors, two plants, can we expect two plants to run with a production control that's under one of those directors, who could probably pull that manager [director] in his direction. So I would e saying there clearly is a case for picking up somebody like the production controller who could have key evidence, our two examples we've got are one out of effectively a service department, because the engineering director has service functions: quality and product development. But we saw with product development that a lot of what they're about, and their tasks and their contribution is influenced by the fact that there are these two different groups, these two different departments in production. Another key player I would want I think to talk to is somebody like Barber who is the

Commercial Manager, or one of his contracts [engineers] people. Again one would look to interviewing several people out of each level in the management structure, probably all the directors. Actually Barber is a manager rather than a director, although he is shown on the chart at that level.

277. I. Do you think he would be shown a level down?

278. C. It probably, more accurately, he would be ... could be a level down. I think it became quite clear in our interview with Baker that because of the role the MD is playing looking after the sales and marketing side. There isn't another director, other than the managing director who really deals with the customer, and in a sense Barber, who is only a manager, is the next level. So, we know nothing about pay structures, how people are perceived, but certainly the way Baker talked about the situation ... one rather gathered that Barber was his sort of level in the company. So, I would want to see those directors ... key players here, we don't know whether quality is much of an issue in what we're looking at ... obviously Baker had a lot to offer. I think it would be important to have seen ... say Barber, probably Clarkson, obviously Kinder is quite a key player, he's got quite a number of staff, we've talked to Rawlings. We must pick up something in the A plant side so either a foreman or the production manager of finished goods would be important. If that helps just on that point...

279. So we've gone through, and we've started getting what I would call really obvious ones. Now, had we have interviewed those people ... at this stage I would be looking at the interview notes, picking up any comments that comments that came out from for instance contact ... there was ... [looking through interview notes] ... there was this point that came out, and again I want to put this into structure. So that under structure we have got a whole area of relationship between the product development, the production planning, and the contract engineers, which is to do with job function. So, I would probably note that down as 'job function' and then put those three areas... There appears from what Baker was saying ... so we've got one piece of evidence there, indirectly it was picked up by Rawlings who certainly wasn't very complementary about production planning, very much the other way. So, we've got both people we've spoken to who are raising issues about the pre-shop floor activities, in taking an order through the process. Now those three departments in traditional organisations could well be three quite separate departments. Increasingly as computerised systems are coming in they are likely to come closer together, because they are dependent upon the same data, they are effectively handling different stages of the same process. So, I think again one would just be again feeding back that at a structural point of view 'is the company at this stage ready to review those functions and look to another way of performing those functions'. Now, structurally we've had this Plant A - Plant B ... which was a structural issue. At the communications level, drawing some of these down, we've had what I would call pre-production activities, communications issue there. On relationships we've had directors at Plant A and Plant B relationships poor ... qualify poor director relationships. Now again this is difficult with only the Baker-Rawlings... I we were finding that we'd interviewed 11 people and about 8 of them were actually raising something on that issue one would be saying, in terms of relationship that's a very real issue, it may show in communications we know that there's a question on structure in terms of what they are now trying to achieve which is different from maybe what they were doing at some historic stage. So, I would continue going through this ... and in

fact I'll put a qualifier there because we did have an exact term ... this is under structure, Plant A, Plant B outdated situation. So...

280. I. And that's a direct quote from one of the interviewees, isn't it?
281. C. Yes. That would be sufficient to stimulate. Now, one might find that under structure it ... somebody else chooses to put in another qualifier ... I mean, that was fairly inoffensive, that was just saying outdated, but one could have 'structure Plant A -', something like, because these was mentioned also by Baker, so it was almost 'mixed priorities', words like 'conflict' were coming through, and one may choose therefore to say in terms of structure the Plant A - Plant B ... there are a whole range of issues including 'these were not only mentioned by 8, 10, 11 people', you know - could have been mentioned by everybody, 'but also they were mentioning it in several different contexts, such as the outdated, the mixed...'. And literally in terms of presenting it, just put a line with the main heading and a number of sort of sub-headings. Because what one is doing here, as with all these summaries, is only stimulating ... that sort of conversation, stimulating that addressing of an issue. Now, the role of the consultant therefore in how you put these brief notes together is that the consultant has got in his mind and on the source documents that he's not going to be revealing, the record of maybe where that came from, what the actual issues were ... the illustrations and the careful use of some of that information when the debate is taking place means that one can take the management team a stage further ... or move them on through the debate so that they start saying 'well yes, we know that there is a problem in Plant A' and not want to come any deeper than that ... and one says well look we've put down these four or five items oughtn't we to talk about each of these items, and they will say 'Yes but, how can one say there are mixed priorities?'. And one can say well we understand ... and immediately you've got the information, in other words just an illustration ... again you're not saying where it came from, try and certainly not only de-personalise it, but as it were de-function it, in other words don't necessarily take it from one manager's point of view, but say 'well we understand that the point has been that there can be conflict of interest or the Plant that should be feeding the other Plant is actually looking after its own output and always putting second priority on the work that's got to be fed through to the second Plant'. So again, we are in the situation of literally going through gleaning information from the first trawl that we did, pulling out what we think is important. Now, on of the key things here is that if you've had more than one consultant involved in doing the interviews, which is quite often the case, you might yourselves do this in open debate, as consultants.
282. I. This process?
283. C. This process. So that, you have got two or three consultants maybe that have interviewed ... you may have done a first pass yourself or you may have gone through and got some ideas, but then you would sit down and test and trial even these points.
284. I. In what way?
285. C. So, you would be saying ... 'we understand that the structure works well because of people'. Now, I've got that as a consultant who interviewed 2 or 3, 4 people, and I say 'I've got one person who felt that very strongly, and he implied that relating to a large number of his contacts, I've only seen two of his contacts and they both confirm, maybe not as strongly, but they've made that point that

it's about the way people want it to work, the will to make it work'. Now the other consultant may say 'Well I didn't pick that up at all', and in fact the other consultant happened to see Rawlings and there's a strong argument to say 'as far as the structure's concerned it doesn't work and it isn't even helped by people, in fact people are making it even worse that the structure that appears on paper'. Now as I was saying earlier, that may mean that you're putting down here two conflicting points but coming from different parts of the organisation, or it could mean that one is saying that ... after the consultants have had this discussion ... there is a strong lobby to this particular view but that isn't universally accepted without actually making it as another point. So you go through this having everybody feeling one thing and you can make a statement of absolute confidence – that's where everybody stands on this. Are you saying there are two totally conflicting points or are you saying there's a general view but not everybody subscribes to it, without going as strongly as saying there are two different camps. Now, that can be quite important in terms of moving a management team forward in their thinking, if there are two strongly held different camps then you know you've got a problem. If everybody's of the same view then maybe that is right or conversely if it's a negative view maybe that's something that's got to be addressed or maybe it's a misconception, in other words maybe everybody's feeling something which is counter to what the company wants but it could be something that is quite positive, or expressed in a positive way. Take an example, if you have a very autocratic manager, MD, but everybody was saying we like it because we're able to do what we want. He may be very antagonistic to that view and say 'Well, the last thing I want is for people to be able to do things of their own, on their own initiative. I'm here to make this place run and they will do as they are told'. A bit of an old fashioned idea, but you take my point. So that we've got this situation of out of that consultancy ... the consultants' interaction and if you like putting some trial to our views. Now, it won't be all of them because where you've got this strong numeric count then you've got a lot of evidence to go on. It's either where there's conflict or there is less evidence. Now one of the things that comes out of this process of putting together this feedback sheet is that quite often one will have started, particularly if you've seen 11 people or so, and you've put down under structure the first person you would get 6 or 8 items, you'll go through and some of those will be repeated and some will be ... some additional items will come onto the list. You could land up with a very large number of items, you might have 20 items under structure and part of the process will then be to say well yes these were commented on by all 11 therefore they definitely stay, you've got some down the way that you say that's definitely under structure but actually it links with an item down here in communication, and we haven't got that many items under communications so we will just sort of roll them together for the purpose of presentation.

286. I. That's reducing the number of items in structure by one?
287. C. Yes, I mean generally speaking you've got to talk about holding this probably to no more than about 8 items or so. If you've got those four groups, in this case, of structure, job definition, communications, and relationships, which are typical, you could have other categories.
288. I. What sort of other categories, just as rough examples?
289. C. You could have a category such as looking more at the technical side of the job, so you could have something that tied up process. Have people made comment



on process? Now, process oh it's obviously impacted upon by most of these, but if you were looking at the problem of, as we are here, but we haven't dealt with process ... of production, production targets being met, output being met...

290. I. ... dropping down a level to the actual process of operation...
291. C. Yes, it may not be actually dropping down, I don't think I would pre-judge it by saying it is dropping down ... I mean you could ...
292. I. Or maybe focusing in?
293. C. It is focusing in I think. It's actually doing a slice across some of these, but these headings, and we've started out, on this particular occasion, with four headings which are typical, one sometimes will actually put down the issues and, as I was saying a few minutes ago, you find a lot under structure maybe, and you say actually there's a sub-group under there, there's a group that we can consider separately.
294. I think there is also an issue that the total number of items you want to bring back only needs or only should represent those things that are important to the company, now I'm not sure that a consultant can ... a consultant will judge that, I'm not sure that they always should judge it. And the other thing is, again as I was implying earlier ... in the process of taking people through this you may have those main items down and then use other items as illustrators. If you're using this as one of your feedback documents into workshop context, where you've got a management team together ... the management are there for a day or so to say 'How do we actually put ourselves into a position for the future ... that we will be a more effective company, that we will be a more efficient company, a more profitable company and all these things'. Now you may find that those are the things that are being talked about, efficiency, profitability, we're moving to wanting to be a world class or what ever the current ... and you'll get those. What we're doing here is taking a slice below that and saying these are the headings of the issues you're facing, if you're going down a level below starts to if you're not careful, to hit up against the confidentiality side, but you can still use some of that information in terms of stimulating the debate. But I think it's important that in seeing the feedback which we've just been talking about, drawing it out, listing ... making the lists, and in preparing the charts that we talked about at the outset, that this again is only about bringing a group of people, focusing their thinking ... they will have given the time, they will have come aside for this purpose. So, what you're actually doing is trying to bring them on board with the issues as quickly as you can ... bring them to a point where they're ... it may quite often be, a lot of it ... are issues that they have previously been aware of, but you're bringing them back up to the forefront of their mind. You're seeking to get agreement that these are the issues, once you've got the agreement that they are the issues you're then looking to resolving those issues. And in most management teams you'll be looking for a common view ... possibly held slightly more strongly by some than others, but nevertheless a common view. If you find you get one person that stands totally apart and is ... you have a different set of circumstances that you've got to cope with, but that's the consultant's role at the end of the day it's not about the information and the presentation of the information. So, sorry we have digressed a little, to the general rather than the specific ... it then now means we have started to pull out a number of issues on structure, this number of issues on communications, so of which we were saying earlier have some link, we've got a number of issues on relationships. Now, back to this particular sheet

[Consultant's Interview Notes] and I'm now looking at Rawlings and I've got Rawlings and ... there was this classic comment that he made about informally reporting to and he said that he informally reported to Dave King who is skip a level up ... who is two levels above him and in sarcasm he was saying that he reported to everybody. And I think that that is an important thing to ... pull out at this level, mainly to be fairly carefully worded insofar ... you may want to be protecting that man. You may feel on the other hand that it's such an open issue, everybody knows that this shift situation has one impacted on Rawlings and everybody knows how frustrated he is with things. And therefore you don't have to disguise it.

295. I. What would you do regarding the actual individual in that situation would you seek their permission to ... would you mention them in a meeting, would you identify them?
296. C. There are two ... I think there are two things here, occasionally actually going through interview you might say on a particular point 'Do you mind if that is made public ... that it was you that actually said it?' on a thing like this I think that having interviewed somebody like Rawlings one would again I think be looking for some confirmation from other people ... that they had cause to have contact with Rawlings, and I would be very much on this particular issue saying, wanting to present the fact, or the fact as perceived by Rawlings and say 'Here's a star chart, this man has said that he's had contact with all these people', however many they may be, 10, 15 people. Because clearly, if he makes the comment everybody or everyone, one will have actually pursued that and said 'Well actually who do you mean by that, you don't have dealings with a hundred and thirty odd people in the company' and in his case he will say 'No, but I have to communicate with the 25 staff that work for me, I have these within my own department, there are these that are across departments because of my contact with product development, with production control, with contracts. There are these people. Plus the fact ... because I'm here on my own or I'm tidying up here at the end of the day when other people are going, there are a number of people that are contacting me on these...'. So one would have the star chart, that would show where he has said he is having contact. If one has seen the number of people we said we were going to see, a number of those will have been confirmed. I think that if you are then saying, if it's confirmed from everybody that you've actually spoken to, then it's a fair likelihood that he was honest about the others as well. And therefore ... a very good tool at this stage is to say 'Well, as far as the structure's concerned we obviously have ... we're talking now about the shift situation. You have a structure in place, there are comments that say that structure was alright as a temporary measure, its now appearing that it's run for two years, or what ever the period was, and this ... this structure has very real problems in the area of communications, and in fact this is ... what is reported to us by you're foreman in that position'. Now you're making no observation at that stage, you're not saying as our notes said 'everyone' with a note of sarcasm, you're saying those are the people that he says he has to report to.
297. I. So it would be normal then, are you saying that it would be normal for you to reveal the source of just the relationship responses, because of the factual nature of ...
298. C. Yes, certainly as far as ... straightforward questions like 'Who do you informally report to?', 'Who do you communicate with?' but not the

observations that they've made on those communications, not the observations they've made on the informal reporting. So the star chart of informal reporting for Rawlings ... it's his statement of who he believes he informally reports to. Now, if that ... when that's put before that management team, they say 'But that isn't the case' you're actually saying 'But that is that man's perception, he feels he has to report to all those people, about different parts of ... activities that he's responsible for. And they may say 'Well, not so, he actually responds to King, that's his direct superior, he shouldn't need to be reporting to anybody else' ... I think immediately you have got the debate going. You may well find that some people around the table were saying that, you could equally find that his, his plant manager Eggar will say something different, he'll say 'Well, yes I know we've got a problem there'. Certainly if, as I was saying a few minutes ago, you've got from people that you've interviewed the reverse situation showing you can say 'Well, it isn't just he saying that's who ... reports to, actually these people have identified that he reports to them on certain issues.' ... QED ... you know, you're actually saying 'this is an issues'. Now, the fact that Rawlings may have made some very strong personal observation on that you would hold to yourself, but the strength of that personal observation may have been part of the trigger for you as the consultant to have actually explored more fully that particular issue. And this is where it is ... even within the interview process, or even when you're interviewing other people ... you don't want to lead the interviewee, but you do want to give the interviewee the opportunity to respond. So that when you're saying to them 'Well, who informally reports to you?', and they may give you one or two names, if you perceive there may be someone else you might say 'Well, is that always the case, does that apply at all times of the day?' ...

299. I. To prompt possible additions?
300. C. Yes ... I say one is wanting to avoid leading the witness, but at the same time ... it's very easy for people to sort of say 'oh well, informally reports to me, oh well so and so informally reports to me', and sort of leave it at that. And if you've got a little bit of information that's come from previous interviews, then you will say 'only that person or' you know 'What happens in this circumstance, what happens in that circumstance?'. So, we have gone through our ... our interview summary [Consultant's Interview Notes]. Now, I would also have, fairly fresh in my mind at that point, a number of things that were said during the interview. So, from my interview summary I may well want to ... I will also recall a certain amount.
301. I. Are you saying that the notes will act as a trigger and ...
302. C. Yes, they are down as a statement, as a fair summary of what was said. But I may well be in a position to sort of say 'oh yes now when we were in the structure there was this situation regarding product improvement and product development'. Having looked at Charlie Baker's job description ... clearly he has an issue as to whether he's just dealing with product development and how product improvement fits into that and he also has problems in the area of where the product has ... where they are responding to a customer, where the customer has designed and specified the product they want and converting that into a manufacturable product, an economically manufacturable product and he may not see ... he gave the impression that he doesn't see that in this area of product. So that when I was saying here we've got sort of four areas that we've got down and I said there was that additional area that might put in, it could well be that

we bring in these semi-technical functional things and say ... there are these items. Equally, I may look at it, or the consultant may look at it and say actually there is an issue about job definition. There are things that are happening which are not within the job definitions, they're not even a recognised as part of the pre-manufacturing process. They happen, they have to happen, but they are not specified anywhere as happening, they don't appear in people's job descriptions. Or one may look at things like the quality control manuals and say but there isn't a way of dealing with that situation, it isn't just specified, people are doing things that actually fall outside the quality procedures that have been put in place. So that one could again, sorry repeating myself, but coming back to the fact that one could have in addition to these four, those that are pre-process related, sorry, pre-manufacturing ... process related issues.

303. I. So that one that you've just put in, if you were to stick to these four headings...
304. C. It would probably come under job definition. Yes. But again this comes back to the brief. Are we talking about organisational development, which we may be. Or are we talking about organisation development in the context of there being shortcomings in the manufacturing process and therefore the effectiveness of the company. And therefore it may be that as part of that reporting back it isn't only the organisation issues, but it is trying to identify manufacturing or process issues that impact upon the structure as it is at the moment.
305. Now on ... in terms of relationships, one that I don't think came through to this, as I recall ... is the use that is made of people that have been around for a long time. You remember Charlie Baker had been around for a very long time and was used for reference ... [Consultant is looking for specific point in text, researcher points to it] ... Ah thanks, it is there 'informal reporting, long serving, point of reference, possible key player' ... I knew I'd seen it somewhere... Now, again that could come ... I'd be putting that down under relationships, and it's a matter of style ... is the company as part of its culture wanting to cut across all or any of the formalities that are there, to be able to access people who have had certain experience because of their length of time in the company. Again, totally commendable but it is whether somebody [management] wants to do it that way or not. So, in terms of some of these good relationships that we've been talking about, or particularly that Baker was talking about. One may find that you've got somebody bringing up the issue that they are consulted or references ... taken on matters that are outside their immediate job. And so one would have down under relationships ... 'openness to general consultation by senior managers', again if that's three or four people that have said that then one would actually be bringing that out as a point. Now ... [looking through notes] I've jumped around a bit, and do forgive me for this...
306. I. Is that natural?
307. C. Yes, because ... you remember I started putting these headings down, fairly early on things will come out under those... so that if I was in fact working on, we've got communications, we've got relationships, now if I was looking at job description, which was the other one that we've definitely got, job definition actually. Under job definition I've got this policy which comes up making policy decisions, this is where he [Baker] is deputising, and we talked about formal deputising, he talked about formal deputising and the he talked about, at times, actually making decisions which he perceived to be policy, it was policy relating, as I recall, to customers and how the company was going to deal with a particular relationship with customer, what it was prepared to do and I think

again, I therefore would be putting that down, with ... under this heading of job description. With the idea that there may be a whole area here of whether the company is actually setting out positively to delegate a lot of authority to people, or whether in fact wants some very clear policy statements, or whether one ... the company wants anything, that is in any way policy, referred back before decisions are made. Now again there are very different styles on this, you will find some companies that to a relatively senior level of management ... people are having to work within a very well defined set of guidelines 'No I can't say whether we can do that or not, I shall have to refer it back.' is the sort of statement ... whereas it could well be that in the company at the level that we're talking about, we're talking about Baker and one could find this with Barber and maybe with some of the other production managers. But in fact they are aloud, within a general framework, to make some fairly far reaching decisions. But if that doesn't appear within the job definition, job description one actually is saying to the company, you ought to modify your statements, so that people know that they are actually working within their authority. Baker had some concern that he was stepping outside his authority. He appears to be the sort of person who would do that, one because he has got some confidence in his own judgement, I think he felt that his relationship with others, his bosses was such that he wouldn't get taken to task too much, about having done that. But if that's the way the company wants to run then at least put the man's mind at ease, by saying 'Look, you know you can make decisions on this, yes it is ... the policy is broad enough for you to make that sort of second level policy decision without any difficulty'.

308. I. You've also got the question of development, that you mentioned earlier under job definition, haven't you ... same person, Baker.
309. C. Yes, there are a number of things that came out on that and ... I think it's worth recognising there are going to be some on job definitions. Some real positives and some real negatives. I think that the job that Rawlings is doing ... is about a very poorly defined job.
310. I. What sort of comments do you think you'd be putting down there?
311. C. Well, I would be ... obviously from his own observation, he ... [looking at notes] ... it's difficult to find anything that's positive in what he has said ... he, I mean he is basically ... implicitly, almost with every piece of information he gave us, I'm doing that but I don't know whether it's what I am supposed to be doing. He doesn't explicitly say, but I think one can implicitly read ... he is a foreman, and he has a foreman's job ... that's his defined job, his job description will be a foreman's job. And what he is actually saying at every turn is 'but over and above that I'm doing this and I'm doing that and I'm doing the other, that is what is expected of me'. I mean, he talks about ... in contact, he has contact with Tom Clarkson and there's some on the production control side, where he talks about having indication of priorities, so implicitly he is setting the priorities. He talks about his relationship with Charlie Baker wanting technical advice and that the point he is making here is that more often than not he is actually making technical decisions, because there's nobody available.
312. I. Is that the sort of thing that you would pop down as a heading?
313. C. Well this ... this would come down here under ... yes, under the job definition, but in terms of his contacts we've got, now ... looking for a general statement ... [making notes] I'd probably put down to start with, that some of the job

definitions are inadequate, that the job definitions are outdated and do not take account of the current situation, and one may then put dash particularly relating to the shift situation. As we were saying earlier, picking up a particular group of issues relating to the production process ... if I was feeling particularly strongly that this whole shift situation was an issue, it wouldn't be inappropriate to have a sort of a sub-set of issues that actually just related to that, where one was not breaking down between structure and communications and relationship but saying 'all those items', however many there were, 'are issues that were raised about the second shift, and they would not just come from Rawlings who was at the sharp end of that but obviously everyone else that was interviewed. Now, again the two interviews make that a little bit difficult to do, but if one had interviewed someone like Kinder who as a production manager was responsible for Rawlings ... he may well have been giving reasons why the two shift situation existed and therefore one would have had opportunity to talk to him about it. Eggar, again if interviewed ... So, you could find it was an enormous subject in its own right. So that again while one is looking at the organisation structure, one may well, over and above the overall process that you're talking about, have this particular area of the extra ... evening shift as a key area of discussion that you're feeding back to management. Now ... hopefully the message is coming through that whilst what will start out with the four maybe five main headings that one would analyse, it's again back to my theme, it's about making information that you have gathered, as a consultant, readily accessible to a management team. And, if you like, it doesn't have to be just a list ... of ... taken from one point of view ... you can almost have a matrix concept whereby you're almost pulling out and listing down items that relate to ... I don't think I've ever known it for more than two issues, but for a couple of issues. And in this case ... it could be the pre-production processes, or it could be the shift process.

314. I. What about the situation with the two Plants.

315. C. Well ... we've little information on that from this interview, that could be the heading rather than the process, it could be that one picks it up on the two plants side. I would be reluctant to land up with three issues on that matrix concept ... because I think again you start to make it too complex. I think equally in pulling out those issues we want to be careful not to allow the management the opportunity of picking off one of those issues and focusing their attention on that. And in a sense for the consultant one needs to have got a feel for the senior management team, as to how they will actually respond to the information you are feeding to them. The standard classifications are effectively generic classifications – structure, communications ... structure, any part of the company, communications – any part of the company. What we've just been talking about are looking at more specific issues, and so it's a secondary approach. If those are ... if those can be integrated into those generic the fine. What I'm suggesting to you is that there are occasions when for the sake of clarity one would pull those out and say 'All the evidence is that this is an issue that stands with such prominence that we have drawn together all the observations, all that is reported in that area'. To re-state what you and I have recognised a number of times in the past, we are talking about a methodology, or a method to get to an end result and whilst there is a definite structure to that method you have to have some flexibility within it. You will ... even when looking at structural issues in a company, it could be that your brief and your remit is an MD saying 'I feel that we've got too many departments at the

moment, there is too ... the way that we've structured ourselves is broken down too far it makes things slow it makes it difficult to get progress, I'm actually looking to reduce the number of departments that I've got', in the exactly the same way that you can have MDs that say 'I think we've got too many management levels – there are too many levels of management, I want to clear one or more levels out'. Now, from a consultant's point of view, you've then got to address those as part of the structural issue. And you may be bringing evidence that agrees with that point of view, you'll be bringing some evidence that clearly disagrees with that view, you may be putting evidence that quite definitely leads to some possible solutions, hopefully not just a single possible solution at that stage. Or one may just be putting the facts down without any lead at all, in other words avoiding pre-empting any of the discussion that might take place. So that, if in this case the brief had been ... the brief was in this case 'we're not as effective as we want to be – we'd want to improve our effectiveness, and profitability and one thing and another'. Then, if it's just that one then we'd try and ... with the generics. If it was that statement, and then we know we've got a capacity problem, we know we've got issues that relate to our overall manufacturing process, we know that the history of two plants confuses the situation, one is already, by the definition of what one is looking at, had those defined as particular areas that needed addressing. So I think ... the bottom line is that whatever one is going to take into that management workshop situation that you have a clear understanding, certainly at MD level, what you're taking to that. So that if you're staying with the generic you're staying with the generic, if you're highlighting some quite specific areas then at least that is agreed ground – there has been an acceptance that the input to the workshop will take that particular form.

316. I. So are you saying that you're trying to make sure that there's a reasonable idea within the management team of what sort of issues or what sort of direction the meeting will at least start at or take?
317. C. I think it's the content of the meeting. There is no point in going in saying 'there are a list of', take the three issues we've got there, 'there are a list of issues that relate to the process, there are a range of issues that relate to the two workshops, there's a list of issues that relate to the shift situation' and the MD says 'that isn't what we want – we want to be talking about communications within the company at large'. So if you are wanting to talk about communications, let's look at communications, but we immediately know ... one of the communication areas relates to the process, there are problems with the three ... or communications are more complex because there are three areas involved in the pre-production process ... there isn't a flow of data, it could be a systems problem, whatever. We know that there is a difficulty of communication because one shop is working in isolation outside the hours... So you've immediately put that back into a communications situation. There is a communications problem between the two plants. Now you could then find, you land up with a communications problem relating to the two plants at a structural level, at a communications level, at a relationships level, because the two are ... So, you know, you've covered it the other ... but it's their perception of ... how they want to tackle it. Now, certainly at a structural level, as we were saying earlier, you can do some charting. At a communications level you can do some charting. Probably at a job definitions level, and a relationships level you wouldn't expect to chart those. Now, it could be that you could chart, as we said earlier, particularly the contacts and the informal reporting just relating to the late shift

situation. It could be that one finds that one could chart the ... something on the communications between the two shops – either at all levels or at a particular level, if it illustrates the point. You know, if you've got problems at you're foreman in the finished goods, between you're senior foremen in the, in the Plant B, and there's a whole communications issue around those two people, what they do and don't communicate on, how often they have to communicate, you know, you've got a whole raft of things. You may want to pull that together as an illustration – this is what the two individuals have said, this is what other people have said about that.

318. Just a footnote – what the consultant has got to do is to reconcile his own professional view as to what should go into the debate with what is acceptable at the outset, that managers will listen to.
319. I. The brief?
320. C. The brief. Now, you ... if you're a good consultant you can actually move the brief forward. If you are presenting this back into a workshop situation you can actually influence the way that discussion goes, by what you bring in. But if you start off with something that is other than what is expected or what has been agreed, then you're going to have a very much more difficult task bringing people on board. So you do have to sort of ... take what you have got to present, because that's what you have found, and how you fit that into the brief, so that part of the process that we've been talking about here of what do I put down under what heading – yes we've gone through and we've said we'll take those notes what I've actually recalled that may amplify that, anything else that I've put down as my side notes, actually as a result of the interview. Bring all those and put them down under what I call the standards, the structure, the communication, the relationships, the job definition. I may want to have some things as backup, that I don't actually present to start with, but if we move into communications and we find this evening situation becomes a major topic of discussion – I might say 'Well we did actually look at that a little bit, here's some information'. But you're actually then responding to the invitation to present it ... or one would engineer it so that the conversation and discussion so that you could present it.
321. I. Presumably because you felt it was of significance...
322. C. Well you wouldn't have prepared it if ... There is another side to that, and that is if there is a misperception. In other words the MD saying 'I'm sure my problems are in this particular area' and you don't find there is any problems there, that you want the evidence that sort of says 'Well you asked us to consider this area, but we've found the evidence is this, the evidence is that ... it doesn't appear to be the problem'. Now, again that is ... it's easier to present the findings and let them draw the conclusion there isn't a problem than start out by saying there isn't a problem this is the evidence ... I don't know how far we've gone down it, I don't think this was quite the way you were anticipating we might go.
323. I. No, it's better actually.
324. C. Oh right OK.
325. I. I think what I'd like, if you like, just to tidy up, is if maybe we could try to say finish off but just move the feedback sheet more towards a completed example.
326. C. Yeah.



327. I. And also again, to just finish off and get an indication of the graphs you would draw, you don't necessarily need to draw them, just describe them.
328. C. Well...
329. I. If you would like I could just photocopy that and let you draw on it...
330. C. What we can do, I think...
331. I. I suppose I'm concentrating on deliverables now.
332. C. Yes. The graphs would be, because of the open structure of the company ... I would probably put onto a graph informal reporting.
333. I. That's everyone's, is that ... which, are we talking about the official organisation structure graph here, or...
334. C. I would try and put it onto that. The situation could visually become very complex. I may therefore say that I'm therefore going with informal reporting on a sort of an equivalent to a star chart ... which is obviously individual.
335. I. Are you implying there that the star chart arose as a solution to the problem of complexities of overlaying onto...
336. C. Well, I think it came ... it comes out of what I would call identifying the hot spots.
337. I. Right.
338. C. I mean, certainly there is a problem in terms of the amount of information you can actually put onto a traditional type of organisational chart. If you've interviewed 11 people, and you've got 22 people on your chart then you get an awful lot of data on that chart. So that if you then say 'Well are there other ways of presenting it?' one of the ways is to take 11 charts and say 'This is your formal communication for each person.' so that you get a chart that focuses. And that's fine. But if you take something like the concept that we've talked about, of is star chart, which is effectively saying 'You take the person you're considering as the nucleus and everybody else is on an orbit around.' then you can immediately start to assimilate more easily the people that have got a lot of, in this case we are talking about informal reporting, but it could be communications for any particular reason of communication. Then immediately you're sort of saying 'Well look, you know, there are three or four people who have a lot of informal reporting', or 'There are three or four people, more maybe, that are involved in a lot of communication about this particular aspect of the business'. I mean there is the opportunity ... can be the opportunity to represent what is on the organisation chart by a sort of a network rather than by a structured chart, and again this can be worthwhile. Because if you ... if rather than as on a star chart you have a single orbit, everybody's at the same distance, you can actually pick up the number of points of contact, which are the important contacts because between two people there may be contacts on a dozen different issues and other people only contact on two issues. So there are a number of options that are open ... can be open in terms of how that sort of information is presented, and one can see the effects ... or the relevance, probably is the better word, of certain people's roles in the context of the overall business.
339. I. Have you used network diagrams before in assignments?

340. C. We started using them, again to overcome some of these problems, the network diagrams were very much looking at the issues where you are looking to remove levels of management, where you've got this flattening of organisation structure. And it's very easy to say we don't need those people functionally, we can move the function to somebody else so that it becomes part of their job. So we've got maybe three or four people at that particular level who we can pull out. If you're not very careful what you actually do is only look at that in terms of the formal functions those people fulfil. That person is part of production planning – they schedule work – we can move that up or we can move that down. What you find is that that person as part of their scheduling of work actually holds together a whole network of activities, and therefore if you start saying 'What does that, you do a more detailed study, below the level we're talking here, because you've identified that potentially as a job that may not exist. You've said 'That person is communicated with or communicates with others on this range of subjects'. If that person is not available to communicate on those subjects who else might these people already be communicating with ... if they're not communicating with anyone else on those issues other than that one person you're going to move you've actually got to put in place, not just that a function is going to have been moved, but that you've put a substitute network together, or you've picked up the issues that that person is contributing. Now if we come back to our example here ... while we were talking to Charlie Baker we've got a situation, he is Product Development Manager, but from the interview it became quite clear there were a whole range of other things, that he was in fact part of that, the communications network, and people came to him with other information, people came to him for other things. So if we were saying 'Well we're going to look at the product development the production control and some of the functions of commercial, the commercial side, the contract engineers', and somehow part of our organisational development was to ... to re-structure that. One would then start saying 'Are there things that Charlie Baker does professionally that are actually part of his job, that would not fit into that but somehow we've got to ensure they continue', and 'are there things that he does, and roles that he plays that are in support of the company, that if you we're to take him out as an individual would actually leave quite a hole in the total skills, the total contribution that is being brought to the company'. That is where network diagrams, network charts come into their own. They are probably not the most effective tool at the level we're talking about, the level we've been talking about today, which is the initial feedback, but if, because they take quite a long time to cover the data, it's a slightly different data gathering exercise. But if one was to say 'We have gleaned all this information from this consultant interviews, we've fed this back, the management decision are that we could possibly make these alterations' you may actually want to take a second look at the ... some of those hot spots, and say what is the implication ... if we change that, if we pluck structure, if we move that person out altogether or to a different part of the company. In exactly the same way that ... if you were re-structuring, when you've made the decision to re-structure, one of the first things you have to do is to re-write all the job descriptions, because people's jobs will change. So that the networking is, in a sense, almost part of that process, or at least a parallel exercise to that process. You know, these are the support networks in place at the moment and if we change where do people get the information, who do they communicate with...

341. I. I see.

342. C. Right. So we were going through, so ... We would want, maybe on this hierarchical chart, to show something like informal reporting if it was an issue. It maybe there are one or two key people and particularly when one talks to someone like Rawlings who feels ... that an individual star chart could well demonstration the situation.
343. I. For all relationships or the informal reporting?
344. C. Well, no, on a star chart you'd probably go to all the relationships, could do, again it's ... we certainly know we've got it for informal ... our questions may not have actually been geared up to give it everything, although we may find we've got two or three areas that we can particularly identify. If we were particularly pursuing let's us say this activity of the relationship between the commercial, production planning, and the product development side, we may have wanted to pursue that and say 'Who does anybody communicate with on certain issues on those three functions?'
345. I. But these two would be typical?
346. C. They would be typical. Also ... there was a question [looking at consultant's interview notes] ... there are two here that really come under ... there's the informal reporting and there's the contacts. Now, depending on understanding and terminology within the organisation, the informal reporting and the contacts are probably particularly the ones that one would be interested in. When you get to the star chart, on a star chart you could show the formal, the informal, reporting from ... all those could be shown, just on one star chart. That's the strength of the star chart, whereas you'd never get that on any form of hierarchical chart.
347. I. Because it would be too complicated?
348. C. It would be ... there would be too much information that one was trying to present on one presentation. I think the area that we've just been talking about on networks, you could network that information, but you would probably want it to be more specific. It's when you've identified almost what you're going to do that you move on to very detailed networking, network representation. So you've got two ... long standing ... activities as far as that is concerned. Now as far as our list here is concerned, we've talked about structure, we've put down from the interview notes, we may have gone down to check something off at this level, and we will have put down up to seven, eight maximum at the end of the day items that we want to bring in as far as structure is concerned. Some of them will be positive, some of them will be negative. Likewise, with communications we would put a list down ... relationships and job definition. It may be on some of them that there are only two or three items that have come out. What we said on the way through is that from the consultant's point of view he, she will want ... wanted to have ... put into a form that's accessible to them quite a lot of this data. Bearing in mind, in a workshop situation one would be wanting to be as factual as possible and not saying 'I think somebody said this.' or 'I think somebody said that.'
349. I. Are you getting to the stage now where you think you've covered the main...
350. C. Yes, I think so, we ... the apparent simplicity of complexity of this is that because there are only the two it looks extremely simple. It's actually when you start say getting up to the 10 sometimes 20 people, it actually takes a lot of time to draw these out. Is that particular observation the same as that or is there a

subtle difference, is there a difference we ought to draw out? Have we got the right, sort of, balance on this? I'm just looking at communications again. You see there's a structure, a structural situation here which is ... which is about availability of support staff ... I think that's already addressed in the context of, in the context of the communications are poor in the context of the shift working. So from a communications point of view we've already covered that. From a structural point of view we haven't particularly covered ... relationships, also coming back onto this one, we've said good, difficult relates to shift work, that actually embraces a whole range of relationships. One may for example on that having sort of gone through say 'we actually want to draw that out that that's at an operational level, operational relationships'. But also it's impaired personal relationships, because the way Rawlings was talking he actually was saying quite ... you know when I took this on for a short time it was alright, he's now going at everybody. So it's not just at an operational level, but at a personal level relationships have been impaired by that situation. Now one may well have picked that up from other people as well, you know, so... The process would be difficult relationships and as you went through qualifying that down to two levels. Now that at the moment has got only one statement of good relationship and two statements of difficult relationship or poor relationship, whereas going back to the weight of evidence we had ... we know that the relationships are generally good at a personal level, or that's the impression we've been given. One may say 'The relationships are operationally supportive' if we go back to Baker's input. Now, again if you had got two or three other interviews that would have shown through quite strongly. Now I'm putting down here ... job definition, there was this policy issue, it's the boundaries of policy ... level of decision making comes out from that.

351. I. Would you be specific to the individual related to?
352. C. No, because again we're back to ... usually because it is part of the style it will, you will get that information from two or three different quarters.
353. I. But in that particular instance, there was ... was it Charlie Baker indicating that he personally had a difficulty with policy. If he was the only person that had mentioned that, say it was an issues that was particular to him. How would you approach that from the confidentiality perspective?
354. C. Right.
355. I. Is that a reasonable question?
356. C. Yes, I think it's a very good question to ask. I think that the way one would have dealt with that is that ... one would have said on job definition ... probably put down at this level 'policy boundaries mainly well defined'. Now what that is then doing is leaving this question that comes out of the discussion, you know 'Why's it qualified with mainly?' – 'Well we didn't find in all cases that people...' and you don't have to be then too specific. You're bringing the issues. Now, if you get the MD or another senior director saying 'Well, we do leave our people fairly open' one can then say 'Well, to what level? Are you saying that your senior managers have fairly wide powers of interpretation of an overall policy' – 'Yes, that's what we are saying.' – 'Well, it isn't actually written into any of their job descriptions. Is it something that ought to be written into their job description?'
357. I. I see.

358. C. And at that stage you might say 'Well, we're talking about managers now, are we including that into the job descriptions of all these people or are there some where it is particularly more pertinent?' ...
359. I. Right, I see.
360. C. 'Are we talking about writing boundaries as far as internal activities are concerned or does it apply to people when they're representing the company?'. Now you've taken that through without actually saying [raises hand straight in air – manner similar to a child informing on another] 'Charlie Baker said...'.
361. I. I see ... but the chances are if there's a problem there they will move in his direction or it may be an issue across the board. So without actually identifying him...
362. C. It may be an issue across the board anyway. But even if it was only the ... by putting it down 'boundaries mainly well defined' you open up a discussion...
363. I. Without identifying...
364. C. Without identifying, and you've moved it to getting a general statement of what is happening about policy. If the senior group say 'Policy is a matter for the directors. It is a written statement of policy. Nobody moves outside that.' you may ask the question 'Well, does that mean in company' and take an example 'that there is a policy that covers what happens under these internal sets of circumstances. Or you may say 'Well, what about policy relating to customers? Can, is the only person that can actually negotiate on behalf of the company Higgs who ... or does Barber have some ... who else meets with customers?' – 'Oh, Baker meets with customers.' – 'Does he?'. So again you've used an indirect way of picking up the fact. Now, it is equally possible, you will raise the subject and you'll say about policy 'boundaries mainly well defined' ... and ... somebody says 'What do you mean by that?' to the consultant, and you say 'there seems to be some evidence that there were policy issues' and you get somebody like Lemon saying 'Oh, Charlie Baker's been going on about that, he's always going on about that point' and one has to say 'Well, there was some evidence from that quarter, but' you know, but that wasn't the only evidence, 'Is it an issue or isn't it an issue ladies and gentlemen?'. And immediately it will either be 'No it isn't an issue. It's somebody's perception. He's got a hang-up about it.' to which one is then saying 'That's probably something that ought to be addressed and resolved'. If it is thought to be some sort of an issue you go down the path I've just been saying, where it is better defined in people's job descriptions. These things are not black and white. It is ... but if you can ... if in fact there are a group of people who have some degree of interpretation of policy within their job then that needs to be somehow written into their job description. If a sales policy is that we're only going to sell this sort of work, but somebody finds that within a meeting there is an opportunity of taking on some other work, then fine. But they need to know that they have that breadth of freedom.
365. I. Are we sort of heading to the point where you're happy with that? Are you happy with that?
366. C. Yes. [tape paused]
367. C. Right, I think you were sort of saying 'It seemed to move round in a something of a cycle.'. I think I would say it is something of an iterative process. One will have started out taking the first interview, pulling out a range of issues under various headings. One will then go, look at the second interview, one will add in

a few more, one will have put some strength and body, because as a second opinion, once again, got a third, fourth, fifth series. As we were saying earlier, if there's more than one consultant involved, then you get that process. And you do get then to a stage of saying 'Well ... these things that were said, those come together, you know, two or three of them were effectively saying the same thing'. So you've now got one issue that's of very much greater strength. And you will discuss, if there are two [or more] consultants involved, sort of saying 'Well, that was actually said, but that was implied, or there was extra strength put in by a couple of people ... and though there were only two that were very strongly saying that all supportive evidence is to add further strength to those two statements ... either absolutely explicitly or implicitly by what was said'. And in preparing for this sort of work... feedback to the workshop ... it is not unusual to say 'This sort of statement was made very strongly by some people, and they were quite explicit about it. But there was that implicit background coming through.'. So that if one sort of says 'relationships are very important' for example. You may find that half the people actually interviewed actually said that ... some of them very strongly, some of them slightly less strongly. But implicitly other people were saying 'Well ... in the way the company operates these things run fairly smoothly'. Not saying that's out of relationships, but what else do you ... what other conclusion can you draw? ... You may, if it's a later interview, actually draw them a little bit, and sort of say 'What do you mean by that?' But if it's an early interview you may not have picked up the significance of it being at a personal relationship level.

368. I. ...Normally where would that process take place, and what would the exceptions be? The range of different places, the locations that that would take place?
369. C. This discussion?
370. I. This process that you've just gone through.
371. C. I think very much back at the consultant's base. There ... I mean sometimes there will be a certain amount of it done on the client's premises, if you've got a very secure room that you're working in.
372. I. So, would it have members of the client organisation present?
373. C. No, not at all.
374. I. That's a very strong indication, for reasons of...
375. C. You are discussing ... first of all what individuals have said, which was given in confidence, you're also actually analysing, as a consultant, your own views of what has been said, your own interpretation of what has been said, and you're trying to ... particularly if there's more than one of you involved, you're trying to get a very clear, defensible statement that you're going to go back to the client with. Now, this doesn't have the formality of the final report [spoken in an official tone] or the recommendation that you would have in some forms of consultancy. But, nevertheless it has to have all the professional verification. So, you are at times sort of saying 'Well ... have I actually fully understood what that person's said?', you know, if there's a statement that's been recorded which appears to be in conflict with another statement, 'Have I fully understood what that person said? ... I'm actually in so much doubt about that, I'll phone them up ... remember when we talked ten days or so ago, am I right that you said so and so, and so and so?', or, 'Did you give me the right impression?' ... 'Yes.' ... 'Oh, fine, thanks.'

376. I. That's not come out before that you would actually, possibly...
377. C. I can only think of one circumstance when I've actually done that. When something seemed so out of place with other information one had gleaned.
378. I. So this is rare, but presumably when it happens it's actually quite important?
379. C. Yes, because ... I'm trying to think of an example ... I can think of the person, I can't think of the example, what it was now ... On this particular area, it's not unusual to interview somebody and say at the end of the interview 'If there's anything that comes up as we continue the process, do you mind if we come back to you?'. And certainly that has happened on occasions, more so that the phone call. Because the phone call is definitely the back at base, you're trying to ... things out. Whereas you might sort of still be on the client's premises and say 'Oh, following on what we were saying, just two or three other questions I would like to ask' ... Because if we're starting to move and we've suddenly found for instance that ... the shift situation has become an issue, and we'd already interviewed the production controller and he'd said nothing particularly about the ... shift situation, in the interview. Then, go back and say 'We've been talking to other people and one of the things that obviously is not that easy in the company at the moment is, there is a second shift thing operated'. And you might suddenly find that you've opened up a door and he comes at you, and sort of woe [pushes hands forward toward interviewee], and you might be inclined, or if you feel the confidence you might say 'But you didn't happen to mention that when we...', 'Oh well we were looking at the main stream of ... you know, company activity. That's actually a relatively small ... part of the situation, but now you've raised it, yes, it is a major, major issue.' or you know 'Well we all consider it's a temporary arrangement ... If you're looking at the future of the company, the it'll of all probably gone away before you get there. You know, before any changes are made.' To which one might respond 'Yeah, OK, but it ... what you're saying, what other people are saying, really it isn't an option to continue it, or if it's going to continue it actually needs to be on a very much more formal and supportive basis.' To which you might get a confirmation that that's the case or not. So, we've used the term, this is about process consultancy ... what we've actually been saying is, right at the outset, that we've started out, we've taken a brief, we've said that part of our process is to interview a number of people, we've put together a questionnaire, we trial that questionnaire, so we may have gone to somebody, trialed it, modified it, we may have, as a result of modifications, had to go back to the first person, and say ... 'there are a few more questions as a result of having...', right we're now running, we go through, we get the best results we can from the individuals [interviewees], yes, there is that sweep up that we've been talking about, where you may feel, because of what's come out subsequently, that you want to go back to a number of the people. Not often, but it can happen. You've then got this process of analysis, which can, as I've said, bring the situation, you actually want to confirm something with somebody because it's very significant, again ... I suppose it's part of the consultant's professionalism. They wouldn't expect to have to do that very often. You then land up with the feedback that we've been talking about. But if that has led to some proposed re-structuring, as we said earlier on this afternoon, part of that certainly be that job definitions will change, jobs will need to be re-defined. But it could be that you want to glean more information, even before you make that final decision. We talked about networks, so it is a process that you're moving forward. The first tranche of

information you get ... may not hold all of the answers. Because the way that you see ... potentially going forward actually says 'We could do with... it actually wasn't a perceived way by anybody'. And therefore we might want to gather a bit more information before we actually push that into shape. So ... and this to me is one of the strong benefits about process ... consulting by process rather than the investigation, analysis and recommendations. Because if you do the investigation – that's what the consultant has perceived, if you do the analysis – that's the consultant's analysis, if you do the recommendation the consultant makes from his perception. If you go down the line we're talking about here you've got the ... the interview which is gathering the information, from which you get a perception, you do first level analysis, which is what we've been talking about this afternoon, you then take it back to the people who live with that situation. You've therefore immediately got your perceptions and your initial answers as if they were tried by fire. You may at that point, in that interaction with the management ... decide, make decisions on an action plan. And those then become the output rather than the recommendation of the joint management – consultancy team. That's what the company hope to do. It may be that within a few of those areas, that you say actually we would like to know something else. And in turn to implement that action plan, what does it need? And it needs ... new procedures because we're going to change something, it needs new job definitions because we're going to change something, and it needs ... and it needs ... So you come out with a number of actions that actually you're going to have to put in place before you can bring about the full implementation of what you've said. Little review...

380. I. Excellent.
381. C. I'm sure we haven't said anything there, that we haven't said several times before in one form or another, but it's probably just worth re-stating it...
382. I. I don't think ... there's a lot in there that I don't think I've got on tape ... The final question is, how close to the real situation would you say that exercise was? In what ways would you say it was fairly accurate, in what ways would you say it was different to a genuine, real situation?
383. C. It depends what you mean... I think the two interviews that we did. The first interview in particular was probably fairly close to a real situation. The second interview we curtailed a little bit, in length. Although, sometimes particularly at that sort of level foremen level you may have a much shorter interview than you would do at a more senior management level. The work that we've then done on those, I think is fairly genuine. I think when we come to the analysis, as I have said on this particular session a good number of times, it is ... the process is there, but because there are only two sets of evidence one is normally looking for ... if not statistically calculated, at least some statistical weighting or at least a numeric weighting. Saying 'These must be issues because all, the majority, over 50% of people have raised these.' And clearly when you're taking this into the next stage, which is the workshop stage, with the management team, if you are actually saying 'We have spoken to 11 people and 11 people have all raised this issue ... to the question, whatever. They have given this piece of information.', or 'Some people, some of the 11 that we interviewed, actually raised this three or four times at different points in the interview.'. You're putting a lot of weight to that observation. And that is where this exercise has ... been limited. The issues that have been raised are quite different, because the people concerned were at different levels in the organisation, they were in



different departments in the organisation. And therefore you're getting two ... sets of observations, which hardly ... you wouldn't expect them to overlap, so therefore you wouldn't expect them necessarily to come up with much correlation between them. So that is a shortcoming of this analysis.

384. I. Was there anything else that you can think of?
385. C. [Long pause] I don't think so, other than ... that point affects both the process and the results. And the other thing is ... as again I've indicated, it's unusual that an exercise like this would be done by a solitary consultant. Normally it's involved a number of people. And that actually does become quite a part of the process because you have ... or you both have evidence, or if there are more of than two of you, the group have evidence, their perception ... of what's been said to them. Their interpretation of ... the way things have been said, and you do have that challenged by your colleagues. So that it becomes ... not only the view of 11 people as you've understood those views, but they've actually gone through some sort of ... your views have gone through some sort of testing. Because ... let us say that there are two of you and one have seen five and one has seen six, and one say 'Well everybody gave me this impression', and the other one is saying 'Well nobody gave me that impression from my group'. You're actually caused to re-think your own process ... 'Ah, but all the people I saw happened to be first line supervisors, and people ... were all directors' answer to your problem. All the people I saw were out of manufacturing, all the people I saw were out of service departments. So, again ... so actually in doing that mix of who sees who you want to try to overcome those sort of issues anyway. So that both of you have got the widest..
386. I. Spread?
387. C. Spread, cross-section of people. It certainly isn't the most important, but I think it is an important aspect, that ... that interaction between the consultants can actually add value to the process.
388. I. Excellent. One more thing. Looking at the process of what you were doing, one of the key parts seemed to be ... structuring the issues in terms of whether one is a sub-issue of another or they are two separates, or whether you want to put ... a group of ideas ... under just one title, or whether you want to represent them down ... would you say that that's a reasonable statement? That that's...
389. C. I think that's part of the skill of the consultant. I'm back to what I was saying earlier. It is an exercise of being a communicator between the staff in the company and the management in the company. What you're actually trying to do is to give the best information, on which managers can make decisions, for change or whatever it may be. And therefore you need, to be able to take, what at times by the interviews we've had here, are ... is a lot of data, in a sense to distil that, without losing too much of the meaning of it. But then to present it in a way that is going to be helpful to, to moving forward. So, if you have a ... it you try and expand it too much to start with, people are just bemused by the amount of information you're putting in ... as I said earlier, probably four or five major categories with no more than six or eight items under each. It's what the average manager will assimilate, fairly rapidly ... 'Gentlemen, these are the issues ... that have come out.', 'Oh, is that all?', 'Well, no there's a lot hidden behind those, but what we want to do is address those.'. Now, you can bring as many ... secondary ... points to the table as part of the discussion. But I don't think you can ... I don't think you want to sort of drown them, with everything

you've come across. You could probably make a list of a hundred things that had been raised ... ugh, where do you go with that?

390. I. So there's ... a very key aspect of it is almost like a filter then?
391. C. Oh yes.
392. I. You're skimming off the top level?
393. C. This is why I say this weighting, just by the number of people that have raised the issue. But, I mean even that can become distorted by recent events ... 'What's the most important thing in the company at the moment?' or 'What's the most important thing this company's got to address?', 'Oh, quality.'. And you find everybody's saying quality, and then you find that last month there was the biggest order that's been sent out this year was returned because there was some quality problem with the product. So everybody's focused into quality ... 'When did that last happen?', 'I don't think it's ever happened before.'. You take the point.
394. I. Yes, so then you have to deal with that as the consultant.
395. C. Yes, the fact is that there was a problem and it could be that there was a very major problem. I mean it could be that it was a symptom of a situation rather than being just totally isolated. Or you may find 'What has that got to do with the structure of the company?'. It may not have an awful lot to do with the structure of the company. 'Is it important in the company's current experience?' Extremely important in the company's experience. But it isn't going to count for very much in a couple of months time. It'll just be one of those pieces of history that the company talks about.
396. I. Thank you very much.
397. C. OK.

## Appendix F - Example Assignment Feedback Sheet

	No. of People Commenting
<b>Structure</b>	
Open	1
Works well because of people	1
Doubt about situation in shift context	1
Job Function of Product Development in Production Planning – Contract Engineers	2
Plant A & Plant B outdated / mixed products – causes conflict	1
Availability of support staff	1
<b>Job Definition</b>	
Policy – boundaries mainly well defined	1
Level of decision making	1
<b>Communications</b>	
Good communication – open – free	1
Poor in context of shift working hours	1
Complex relating to pre-production activities	1
<b>Relationships</b>	
General good personal relationships	1
Difficult relationships relating to shift working – both operational and personal	1
Poor relationship between Directors at Plant A & Plant B	2
Operations supported by relationships	1

## Appendix G - Example Feedback Sheet

	No. of People Commenting
<b>Structure</b>	
Too many management levels	5
Complex external matrix structure does/may limit management autonomy	4
Structure only works because of people	2
'Level' skipping - bypassing	1
Duality of plant manager and manufacturing manager roles	1
Clear lead from the top required	1
<b>Job Definition</b>	
Need more individual management accountability/decision making by committee	7
Overlap production/manufacturing managers	3
Job needs redefinition	2
Resources shortage leads to doing lower level tasks	1
<b>Communications</b>	
Poor co-ordination in engineering	4
Too many meetings	3
Operations meetings are good	2
Some meetings unstructured (no defined structure for making things happen)	2
Communications have improved	2
Not enough face to face meetings with customer	1
Could improve shop floor communications - more section meetings	1
<b>Relationships</b>	
Team work has improved - develop more	3
Barriers still exist - but reduced	3
More positive management style now	3
Still some defensiveness/negative attitudes	2
Common commitment/willing to take responsibility	2
Not sufficiently customer orientated	1

The above issues are a selection of genuine issues, which were identified by the consultant during previous real assignments with client organisations (the organisations are not identified for reasons of confidentiality).

## **Appendix H - Confirmatory Analysis**

The following issues are common to many organisations, and therefore usually checked.

1. Overall Organisation Structure: This concerns the number of levels in the organisation related to its size and the distribution of its workforce. It identifies a potential for 'flattening' the organisation's structure.
2. Accountability
  - 2.1. Low: This identifies areas where there is no apparent direct accountability. It concerns interviewees who do not directly report to anyone, either on the official organisation chart or from their interview.
  - 2.2. High: This identifies areas where there is a high level of accountability. It concerns interviewees who either directly report to more than one person and/or indirectly report to anyone, either on the official organisation chart or from their interview.
3. Unofficial Reporting: This identifies where a reporting relationship is deliberately used in addition to official organisation structure. It concerns interviewees who have any unofficial reporting relationships. However it is necessary to check those who have official reporting relationships (direct or indirect) that appear to by-pass other official reporting relationships.
4. Variants: This identifies areas of confusion over official Organisational structure. It concerns interviewees whose official reporting relationships (direct and indirect) differ from those on the original organisation chart.
5. Difference in Opinion: Those who differ from others (where 2 related people are interviewed).
6. High numbers of Relationships
  - 6.1. Subordinates: This concerns interviewees who have a large number of direct and/or indirect subordinates.
  - 6.2. Contact: Those who have a large number of contacts.
  - 6.3. Total number of relationships: Those who have a large number of total relationships.
7. Job Contributions
  - 7.1. Repeated: Those job contributions that are repeated.

7.2. Unidentified: Those job contributions considered to be essential to a business that are not indicated.

7.3. Inappropriate: Those at relatively junior levels of the organisation, who have a high number of job contributions and those at relatively senior levels of the organisation, with short term (day to day) job contributions.

## 8. Comments

8.1. Negative: Those who have negative aspects of their job contributions and those who have any negative comments appearing during the interview. Look for words such as 'ineffective', 'difficult', 'poor', 'bad', etc.

8.2. Uncertain: Those who have any uncertain comments appearing during the interview. Look for words such as 'unclear', 'lack of', 'vague', etc.

9. Unconfirmed Deputies: Those who have deputies who are interviewed and do not confirm the situation and those who deputise for individuals, who are interviewed, and do not confirm the situation.

10. Unconfirmed Supply: Those who have suppliers who are interviewed and do not confirm the contact, and those who have customers who are interviewed and do not confirm the contact.

11. Ineffectiveness: Those who have any ineffective relationships.

# Appendix I - Prototype Software Tool Requirements Specification

## Data Specification

<b>Actor</b>	A person or group of people.
Actor ID	A whole number that is unique to each actor.
Actor Type	0 – Group of people, -1 – Individual person.
Surname	The surname of the individual person.
Forename	The first forename of the individual person.
Other Name	Another name by which the individual person is known.
Job Title	The job title of the individual person.
Group Name	The name of the group of people.
Group Size	The number of people in the group of people.
<b>Actor Node</b>	An actor's node in the (hierarchical) OOS.
Index	A whole number that is unique to each actor node.
Actor ID	The ID of the actor that this node represents.
Node Next	The index of the next actor node to the right of this actor node.
Node Sub	The index of the first subordinate actor node to this actor node.
Node Level	The number of levels below normal that this actor node is at.
<b>Actor Group</b>	A group of actors.
Actor Group ID	A whole number that is unique to each actor group.
Actor Group Name	The name of the actor group.
<b>Plan</b>	An interview plan.
Plan ID	A whole number that is unique to each plan.
Plan Name	The name of the plan.
<b>Topic</b>	A topic.
Topic ID	A whole number that is unique to each topic.
Topic Name	The name of the topic.
Topic Text	Text expressing the topic as a question.
Response Type	0 – Relationship, 1 – Pre-determined, 2 – Free Text.
Plan ID	The ID of the plan that this topic is part of.
Single Response	0 – Multiple Responses, -1 – Single Response.
Direction	0 – None, 1 – Toward Interviewee, 2 – From Interviewee
Colour	The colour of this topic (used for arcs on graphs).

<b>Topic Node</b>	A topic's node in the (hierarchical) plan structure.
Index	A whole number that is unique to each topic node.
Topic ID	The ID of the topic that this node represents.
Plan ID	The ID of the plan that this topic is part of.
Node Next	The index of the topic node that follows this topic node.
Node Dep	The index of the first dependent topic node to this topic node.
<b>Predetermined Response</b>	A pre-determined response (PDR).
PDR ID	A whole number that is unique to each PDR.
Topic ID	The ID of the topic that this PDR is for.
Text	The text that represents this PDR.
<b>Response</b>	A response to a topic.
Response ID	A whole number that is unique to each Response.
Interviewee ID	The ID of the actor who gave this response.
Topic ID	The ID of the topic that this response was for.
Associated ID	The ID of the actor, actor group, or PDR given as the response by the interviewee.
Text	The text of the response given by the interviewee.
Annotation	The text of interviewer's comments/observations.
Sup Response ID	The ID of the response that this response is dependent upon.
<b>Theme</b>	A theme.
Theme ID	A whole number that is unique to each Theme.
Theme Name	The theme's name.
Description	The theme's description.
Colour	The theme's colour.
Associated ID	The ID of the actor or actor group associated with this theme.
Type	0 – Normal Theme, 1 – Actors Theme, 2 – Actor Groups Theme, 3 – Actor Theme, 4 – Actor Group Theme, 5 – Search Theme, 6 – Match Theme
<b>Theme Node</b>	A theme's node in the (hierarchical) theme structure.
Index	A whole number that is unique to each theme node.
Theme ID	The ID of the theme that this node represents.
Node Next	The index of the theme node that follows this theme node.
Node Dep	The index of the first sub-theme node to this theme node.
<b>Theme Phrase</b>	A theme phrase.
Theme Phrase ID	A whole number that uniquely identifies each theme phrase.



Theme ID	The ID of the theme that this theme phrase is associated with.
Text	The theme phrase's text.
<b>Theme Text Link</b>	A link between a theme and a section of interviewee, plan, topic, response or annotation text.
Theme Response ID	A whole number that is unique to each theme response.
Theme ID	The ID of the theme to which this link refers.
Type	0 – Blank, 1 – Interviewee, 2 – Plan, 3 – Topic, 4 – Response, 5 – Annotation
Associated ID	The ID of the interviewee, plan, topic, response or annotation to which this link refers.
Start	The ordinal position of the first word of the section of text.
Size	The number of words in the section of text.
<b>Theme Relationship Type</b>	A type of link between themes.
Relationship Type ID	A whole number that is unique for each theme relationship type.
Name	The theme relationship type's name.
Label	The theme relationship type's label, which appears next to arcs representing instances of this relationship type.
Direction	0 – Non-direction, -1 – Directional.
Colour	The theme relationship type's colour, which is the colour of arcs representing instances of this relationship type.
<b>Theme Relationship Item</b>	An actual link between two specified themes (instance).
Relationship Item ID	A whole number that is unique to each theme relationship item.
First Theme ID	The ID of the first theme.
Second Theme ID	The ID of the second theme.
Relationship Type ID	The ID of the relationship type of this relationship item.

## Functional Specification

1. *Actors* – This group of functions is concerned with recording the actor details, group details, and official organisation structure.

### 1.1 Actor Details

1.1.1 Add – Record a new set of actor details.

1.1.2 Remove – Delete specified set of actor details.

1.1.3 Edit – Modify specified set of actor details.

### 1.2 Actor Group Details

1.2.1 Add – Record a new set of actor group details.

1.2.2 Remove – Delete specified set of actor group details.

1.2.3 Edit – Modify specified set of actor group details.

- 1.3 Official Organisation Structure (OOS) – The structure must be hierarchical other forms of structure (such as matrix structures) are not supported.
  - 1.3.1 Display – Display the OOS as a graph.
    - 1.3.1.1 Font – Select the font (text style) for the text on the graph.
    - 1.3.1.2 Pitch – Select the pitch (text height) for the text on the graph.
    - 1.3.1.3 Vertical Spacing – Select the vertical spacing between nodes on the graph.
    - 1.3.1.4 Horizontal Spacing – Select the horizontal spacing between nodes on the graph.
    - 1.3.1.5 Show
      - 1.3.1.5.1 Name – Display the actor’s names in the nodes on the graph.
      - 1.3.1.5.2 Job Title – Display the actor’s job titles in the nodes on the graph.
    - 1.3.1.6 Hide
      - 1.3.1.6.1 Name – Do not display the actor’s names in the nodes on the graph.
      - 1.3.1.6.2 Job Title – Do not display the actor’s job titles in the nodes on the graph.
    - 1.3.1.7 Node Shape
      - 1.3.1.7.1 Vertical – Arrange text so that nodes are shaped tall and narrow.
      - 1.3.1.7.2 Horizontal – Arrange text so that nodes are shaped short and wide.
    - 1.3.1.8 Print – Send a copy of the graph to the current printer.
    - 1.3.1.9 Abandon – Revert to graph as it was at start of session, losing all changes to the graph since the last session.
  - 1.3.2 Add Actor
    - 1.3.2.1 Superior – Add a specified actor (A) to the OOS as the superior of another specified actor (B).
    - 1.3.2.2 Peer – Add a specified actor (A) to the OOS as the peer of another specified actor (B).
    - 1.3.2.3 Subordinate – Add a specified actor (A) to the OOS, as the subordinate of another specified actor (B).
  - 1.3.3 Remove Actor
    - 1.3.3.1 Single Actor only – Remove a specified actor from the OOS.
    - 1.3.3.2 Actor and Subordinates – Remove a specified actor and all of their subordinates (recursively) from the OOS.
  - 1.3.4 Move Actor
    - 1.3.4.1 Superior – Move a specified actor (A) to become the superior of another specified actor (B).
    - 1.3.4.2 Peer – Move a specified actor (A) to become the peer of another specified actor (B). If initially the two actors are immediate peers and the first actor is to the right of the second actor, then the first actor is inserted to the left of the second. Otherwise, the first actor is inserted to the right of the second.
    - 1.3.4.3 Subordinate – Move a specified actor (A) to become the subordinate of another specified actor (B).

- 1.3.5 Drop – Lower specified actor to next level down, without changing who they are subordinate to (this effectively makes them a level lower than the normal position).
- 1.3.6 Raise – Higher specified actor to next level up, without changing who they are subordinate to (this effectively makes them a level higher, toward their normal position).

Pre-condition: Specified actor must already be lower than their normal position.

2. *Plans* – This group of functions is concerned with the creation, and deletion and modification of information gathering plans (IGP). These are sets of topics and questions structured hierarchically, and constitute a mixture of interview plan and questionnaire.

2.1 Display – Display the currently selected plan as a graph.

2.1.1 Font – Select the font (text style) for the text on the graph.

2.1.2 Pitch – Select the pitch (text height) for the text on the graph.

2.1.3 Vertical Spacing – Select the vertical spacing between nodes on the graph.

2.1.4 Horizontal Spacing – Select the horizontal spacing between nodes on the graph.

2.1.5 Show

2.1.5.1 Name – Display the topic's names in the nodes on the graph.

2.1.5.2 Text – Display the topic's question text in the nodes on the graph.

2.1.5.3 Type – Display the topic's response type (relation, check list, free text) in the nodes on the graph.

2.1.5.4 Response – Display the topic's response number (single valued, multiple valued) in the nodes on the graph.

2.1.6 Hide

2.1.6.1 Name – Do not display the topic's names in the nodes on the graph.

2.1.6.2 Text – Do not display the topic's question text in the nodes on the graph.

2.1.6.3 Type – Do not display the topic's response type (relation, check list, free text) in the nodes on the graph.

2.1.6.4 Response – Do not display the topic's response number (single valued, multiple valued) in the nodes on the graph.

2.1.7 Node Shape

2.1.7.1 Vertical – Arrange text so that nodes are shaped tall and narrow.

2.1.7.2 Horizontal – Arrange text so that nodes are shaped short and wide.

2.1.8 Print – Send a copy of the graph to the current printer.

2.1.9 Abandon – Revert to graph as it was at start of session, losing all changes to the graph since the last session.

2.2 Add – Create a new plan.

2.3 Remove – Delete an existing plan.

2.4 Edit

2.4.1 Rename – Change the name of an existing plan.

2.4.2 Topic (Question) Structure

#### 2.4.2.1 Add

2.4.2.1.1 Sequence – Create a new topic and add it sequentially after an existing topic.

2.4.2.1.2 Dependent – Create a new topic and add it as a dependent of an existing topic.

2.4.2.2 Remove – Delete an existing topic.

2.4.2.3 Edit – Modify the details of a specified topic.

#### 2.4.2.4 Move

2.4.2.4.1 Sequence – Move a specified topic (A) to become sequentially after or before another specified topic (B). If initially the two topics are immediate peers and topic A is sequentially after topic B, then topic A is inserted before topic B. Otherwise, topic A is inserted after topic B.

2.4.2.4.2 Dependent – Move a specified actor (who must be in the OOS) to become the subordinate of another specified actor (who must be in the OOS).

### 3. Conduct

3.1 Interviewee – Select the interviewee.

3.2 Plan – Select the plan.

3.3 Display – Display the currently selected plan as a graph.

3.3.1 Font – Select the font (text style) for the text on the graph.

3.3.2 Pitch – Select the pitch (text height) for the text on the graph.

3.3.3 Vertical Spacing – Select the vertical spacing between nodes on the graph.

3.3.4 Horizontal Spacing – Select the horizontal spacing between nodes on the graph.

3.3.5 Node Shape

3.3.5.1 Vertical – Arrange text so that nodes are shaped tall and narrow.

3.3.5.2 Horizontal – Arrange text so that nodes are shaped short and wide.

#### 3.4 Topic

3.4.1 Select – Make a specified topic the current topic.

3.4.2 Move

3.4.2.1 Next – Make the next topic in sequence the current topic.

3.4.2.2 Previous – Make the previous topic in sequence the current topic.

3.4.2.3 Dependent – Make the current topic's first dependent topic the current topic.

3.4.2.4 Parent – Make the topic on which the current topic is dependent the current topic.

#### 3.5 Response

3.5.1 Move

3.5.1.1 Previous – Move to the previous response given to the current topic.

3.5.1.2 Next – Move to the next response given to the current topic.

3.5.2 Remove – Delete the current response to the current topic.

3.5.3 Enter

3.5.3.1 Relationship – Enter a relationship response to the current topic.

3.5.3.2 Checklist – Enter a pre-determined check list response to the current topic.

3.5.3.3 Free-Text – Enter a free text response to the current topic.

3.5.3.4 Annotation – Enter an annotation for the current response.

#### 4. *Analysis*

##### 4.1 Responses

4.1.1 Display – Display responses for a given combination of interviewees and questions (drawn from the plans they belong to) as text.

4.1.2 Print – Send a copy of the responses to the current printer.

##### 4.2 Actor Graphs

4.2.1 Official Organisation Structure Overlay Graph – Display the OOS as a graph with relationships based on responses to specified questions overlaid.

4.2.2 Star Graph – Display a graph showing a specified actor (subject) with relationships based on responses to specified questions shown (do not display actors who do not have a specified relational tie with the subject). Display only relationships between the subject and other actors.

4.2.3 Network Graph – Display a graph showing specified actors and the relationships between them.

##### 4.3 Manual Coding

###### 4.3.1 Add

4.3.1.1 Next – Create a new theme and add it to the hierarchy below a specified theme.

4.3.1.2 Sub-theme – Create a new theme and add it to the hierarchy as a sub-theme of a specified theme.

4.3.2 Remove – Delete a specified theme.

4.3.3 Edit – Modify the details of a specified theme.

###### 4.3.4 Move

4.3.4.1 Next – Move a specified theme (A) to become below or above another specified theme (B). If initially the two themes are immediate peers and theme A is below theme B, then theme A is inserted before theme B. Otherwise, theme A is inserted after theme B.

4.3.4.2 Sub-theme – Move a specified theme to become the sub-theme of another specified theme.

4.3.5 Create from Text – Create a new theme, named after the currently selected text, and link the currently selected text to it.

###### 4.3.6 Link

###### 4.3.6.1 Add

4.3.6.1.1 Current Theme – Link selected text to currently selected theme.

4.3.6.1.2 Other Theme – Link selected text to specified theme.

4.3.6.2 Remove – Delete the currently selected link between text and theme.

4.3.6.3 Edit – link's details (Manual or Automatic).

4.3.6.4 Re-Theme – Re-allocate section of text, currently allocated to a theme, to a different theme.

#### 4.4 Automatic coding

4.4.1 Actor Theme – Create links between a specified actor theme and all of the places in the text where actor identifiers occur.

4.4.2 Actor Group Theme – Create links between a specified actor group and all of the places in the text where actor group identifiers occur.

#### 4.4.3 Search Theme

4.4.3.1 Create – The following creates a single search theme and a match theme (which is placed on the hierarchy as a sub-theme of the search theme) for each phrase form found, linking all matches in the text to the respective match theme.

4.4.3.1.1 Literal – Search the responses (including topic names/question text) looking literally for a specified set of phrases.

4.4.3.1.2 Word-Stem – Search the responses (including topic names/question text) looking for the word stems of a specified set of phrases.

4.4.3.2 Refresh – Repeat the search of a specified search theme.

#### 4.5 Theme Relationship

##### 4.5.1 Type

4.5.1.1 Add – Create a new of theme relationship type.

4.5.1.2 Remove – Delete a specified of theme relationship type.

4.5.1.3 Edit – Modify the details of a specified theme relationship type.

##### 4.5.2 Instance

4.5.2.1 Add – Create a relationship between two specified themes.

4.5.2.2 Remove – Delete a specified relationship between two themes.

#### 4.6 Theme Graphs

4.6.1 Hierarchical – Display the hierarchical theme structure and specified relationships between themes as a graph.

4.6.1.1 Hide Branch – Hide specified branch of tree.

4.6.1.2 Show Count – Display for each theme the number of links to that theme, and the number of interviewees linked to that theme.

4.6.2 Network – Display a specified set of themes and specified relationships between themes as a graph.

4.6.2.1 Add Theme – Display a specified theme as well as specified relationships between it and other themes on the graph.

4.6.2.2 Remove Theme – Do not display a specified theme and specified relationships between it and other themes on the graph.

#### 4.7 Integrated Theme-Actor Graphs

4.7.1 Theme Official Organisation Structure Overlay Graph – Display the OOS as a graph with relationships based on responses to specified questions, specified themes, and links between the specified themes overlaid.

- 4.7.1.1 Add Theme – Display a specified theme as well as specified relationships between it and other themes on the graph.
- 4.7.1.2 Remove Theme – Do not display a specified theme and specified relationships between it and other themes on the graph.
- 4.7.2 Theme Star Graph – Display a graph showing a specified actor (subject) with relationships based on responses to specified questions, specified themes, and links between the specified themes shown (no not display actors who do not have a specified relational tie with the subject).
  - 4.7.2.1 Add Theme – Display a specified theme as well as specified relationships between it and other themes on the graph.
  - 4.7.2.2 Remove Theme – Do not display a specified theme and specified relationships between it and other themes on the graph.
- 4.7.3 Theme Network Graph – Display a graph showing specified actors and specified themes. Show relationships between all actors and themes.

# Appendix J - Transcript of Software Assisted Analysis Exercise

The following abbreviations have been used:

- I. Investigator's comments.
  - C. Management Consultant's comments.
398. I. The only thing really, as you're going through this is, the same as the feedback ... the manual feedback generation and analysis. If you could try to vocalise what you're thinking. Remember I'm here as an on-line help system.
399. C. Yes. Now ... you are trying to get some comparison...
400. I. Between the two [Exercises] ... So essentially what we're trying to do, is do the same task...
401. C. Yeah.
402. I. Using the software.
403. C. But looking to get the same results.
404. I. Or similar results ... It may be that you produce exactly the same results, or it may be that you produce results that are similar.
405. C. You're fortunate, my mind is so scatty these days, I can't even remember what we got in the way of results...
406. I. When I say the same results, I mean the same form of result. I won't be analysing to see whether you picked out a particular issue and put it at a particular level. It's not that sort of thing, it's the general sort of things, what you were able to do overall.
- So if at any point if you want to do something and can't remember how to do it, just say.
- Right, if you would like to open up ... can I turn that round ever so slightly [turns computer monitor so that it is more visible to interviewer and camera] ... is that OK.
407. C. Yes.
408. I. Right, if you click on open then. And the Meta data is already in there. And what you should find here is that if you click on actors you should have ... all the actor details are in there.
409. C. Right
410. I. And if we in fact go straight to analysis [Consultant clicks on Analysis button] ... then you can see that, that information [official organisation structure shown as graph] is in there. If you'd like to right click up here [points to Interviewees list] and select ...
411. C. So we'll take Charlie Baker, and that was his responses [Displayed in responses pane]



412. I. Now that should match exactly what you got on you're sheet.
413. C. Which is what we were working from before.  
Right ...
414. I. The printer is connected and is full of paper. So if at any point you want to print anything off, feel free [Consultant looks over parts of display – especially at interview notes].  
It's been over a week now since you've seen the software hasn't it?
415. C. Yes, but it's been a lot longer since I've seen this actual data, so ...
416. I. Yes, that's nearer two weeks, isn't it [consultant continues to look through interview notes on screen].
417. C. Right, I'm going to start by ... there's an issue here of whether it [Charlie Baker's job] being to do with product development and product improvement ... now you'll have to explain to me the colours here, what have we got?
418. I. Ah, sorry, I forgot to mention [feature added since training session]. If you would like to click on a line [arc on graph representing relationship response].
419. C. Yes.
420. I. Now double click, and it locates it in the text for you.
421. C. Ah well that is fairly significant, isn't it. So, who do you report to informally, so that if I ... right ... does that apply to the black lines as well?
422. I. Yes.
423. C. It does, right so I immediately know that I'm reporting to Jim Lemon. Right, and ...
424. I. From memory, the green lines, I think, are contacts, the black lines are official reporting, and the blue line there, the dark blue line is informal reporting, and the light blue lines are deputy relationships.
425. C. That's interesting there, we've got ... yep so that's picking up those two. OK, now let's go back to issues, which we're particularly looking for. I was going to have a look ... I was interested to see whether, there's this whole issue of development and improvement job description, the title ... development manager. Now, presumably I'm only concerned about two actors here because there were only two people interviewed.
426. I. Two interviewed, yes.
427. C. Now, if I pick up, except that I'm not picking up, because it's Charlie Baker...
428. I. Are you wanting to see where these people appear in the text are you?
429. C. Well, no. What I ... I've got this text, and if I want the other text I click that [interviewee list] don't I?
430. I. Yes, sorry.
431. C. It's one or other, but not both?
432. I. You can select both if you [consult holds shift key and selects] yes that's right.
433. C. So that if I was now to say 'I'm interested in the idea of improvement' ... then I've completely lost where I go to.

434. I. You want to see where improvement lies in [the text]...if you double click on improvement. If you want to add more terms to it you can...
435. C. No, let's stick with improvement, but I want to see where it appears.
436. I. Yeah, if you click on OK [consultant does so]. The little status bar at the bottom...
437. C. Yes that's telling me what's happening [waiting for search].
438. I. Right, if you right click over here.
439. C. On improvement.
440. I. Yes, anywhere [within theme graph pane] [consultant right clicks]. Click on links ... it will show you the number of links that it detected.
441. C. So it's only one, so it's only the one I picked. So, we don't need to pick that word again ... I'm a little bit lost in the process at the moment, because that is something that I have recorded some time ago, at interview, it was registering with me as something that is relatively important ... follow through. And I might want to be highlighting that later. So I've got it down here I've searched on improvement. I can leave it there now.
442. I. Yeah.
443. C. And when I come to print something out from there later on at least I've got it registered.
444. I. Yes.
445. C. Fine, OK.
446. I. And you can also selectively print other things out. So just because you've got that there doesn't mean it's going to come on everything.
447. C. Fine, OK.
448. I. So the intention very much here [theme hierarchy graph] is that you can just create as many themes as you like...
449. C. Now, if I click on ... how do I compress my actors?
450. I. The vertical line just below [the node].
451. C. That's fine, sorry, I don't need that...
452. I. Yeah.
453. C. Now, I'm now interested in, let's have a little look at the whole issue of this ... double shift.
454. I. If you now want to do a search on that, click the binoculars down there.
455. C. Right, so I've got double shift.
456. I. If it's just one word, you can just double click on it, short...
457. C. Yes ... so, would I have done better to have looked at shift – no double shift – do I want alternatives? Yes I do, so...
458. I. You can edit that now, if you like.
459. C. But I want to leave that one in, so ... if I take double out, and put in late. I've now changed that to late shift ... it could be referred to in either way

460. I. You have the choice, you can either do a search straight on shift, or you can say add [Points to add phrase button]...
461. C. I'll do a search on shift. Right ... because if I'd have put add in...
462. I. You could have add double shift, late shift, and how ever many terms you want.
463. C. Let's go back to that. Because if I do double shift ... if I do another one ... late shift ... then I'm in a situation where if I now say OK, I've got two that I'm searching against [Waiting for search], and this will be searching for both the people that were interviewed.
464. I. Yeah, as they are selected up here [points to interviewee list].
465. C. Yes.
466. I. Essentially it always searches the text that you've got displayed.
467. C. That's what I was thinking. That's why I wanted to bring in Rawlings and Ron [Charlie and Ron] because I now start looking at both lots of text immediately ... because what I've confirmed is ... as far as improvement work is concerned, it was only Charlie Baker that mentioned it anyway, and he only mentioned it once. But, because it was a fundamental issue to do with his job, I clearly want to bring that up.
- [Search completed] Oh, we've done alright. Right, so I've got three relating to double shift, no reference to late shift.
468. I. It must mean that it doesn't appear in the text.
469. C. It doesn't appear in the text. There were those, I think when we were actually interviewing used that term, and we've probably qualified it on the way through. Now, if I now just want to have a quick look at ... it may well be that it was being referred to just as shift work. So I will go back and just have a little look at ... I'm interested in getting to the bottom of this as to how often it was referred to, because clearly ... my recollection is that it was an issue, but I don't know ... Yes, now you see there are nine references to shift, and I've got double shift, double shift, which was certainly the term that Baker was using.
470. I. If you want to quickly move from one to another, you can use the arrows [points to the link navigation arrows] up...
471. C. Now that's interesting ... I think I'll actually browse it through, because I think its... Right so ... [Looking down through text using scroll bar] Yes actually quite a number of those references that I've picked up are because they are in the person's title. So we've actually picked up a slight over count there. But we've got the term afternoon shift there ... evening shift there ... second shift there ... and double shift there, which is where we picked up. So...
472. I. If you want, if...
473. C. I go back to that [the search theme]...
474. I. Yes
475. C. And modify... How do I...
476. I. Double click on that and then change the phrases.
477. C. So, I want to add two. So if I add phrase, I've got [typing] afternoon.
478. I. That will just search for the word afternoon.

479. C. Sorry, OK. Because I'm on this screen rather than the other one now. Afternoon shift [typing] and...
480. I. If you hit the return key now, it will actually add that in.
481. C. Right, now I add again ... What did we have? Double, Late, Afternoon...
482. I. I think it was evening...
483. C. I think it was evening, thank you. So I now have [typing] evening shift. Right, now I'll say OK to that...
484. I. Now, you need to, with that [the search theme] selected, click on auto. And that will automatically search for...
485. C. OK, Yes, that's fine I think I've had enough of that. And that should take that six, that we originally gleaned, up to probably about, sorry three, up to about six. And I think on three occasions it was just to do with job title [waiting for search].
486. I. So you've ended up with sort of a process of your search refinement.
487. C. Yes, I mean, the example we've got here, we've only got two people interviewed. But if this had been, as we are assuming it is, a major discussion point, rather than just picking up three or six links ... and having just four definitions for it, you could have all sorts of references. It applies where you'd get different names probably even, given to different sections or departments. And therefore if you're looking at a piece of information, they may say well that's to do with such and such a department. And you're gleaning to as to whether you're actually referring to the same thing or not. So in a sense this, oh it's still running [searching] ...
488. I. Yeah, that's quite a complicated search for it. It's searching through everything, and it's searching for...
489. C. Combinations, four combinations...
490. I. Four combinations. And its also searching for the actual stems of the word...
491. C. Right...
492. I. So if you've said something like double shifts, it should pick that out as well.
493. C. Right ... On that if I'd got a, rather than a single word, or in this case two words ... how would I be with maybe a short clause?
494. I. What it does is it looks at every word in your clause and it reduces it down to the shortest element, removing -ings and -eds and -ses off, and searches for those components.
495. C. Right ... [Search completed] So we've now go there, so we've got, we started out with a search for double shift and I, we've now got one related to afternoon [shift], three related to double [shift] and one related to evening [shift]. We seem to have lost one, haven't we? We had evening, double, late, did we not have it?
496. I. I don't think late actually appeared, it didn't appear in the original search.
497. C. Somebody else has no doubt ... yes, we only had the one [match] of course ... Right. Now, what I would like to do is to pick up the context of those. And I want to just produce a little report, because I want to take this now into a meeting, where we shall be discussing late shift. And I realise that I've got five

statements there ... all relating to, what I chose to call 'double shift' ... the idea of there being two shifts running. Now, it I...

498. I. When you say the context of them, you want to see where they appear...
499. C. I'd like to pull out some ... [scrolling through text] now that's interesting... Now, I'd like to pull out that statement there, from that point right ... can I select it?
500. I. If you want to select it you don't need to drag it. If you click somewhere on the background, just to de-select it. And, just drag on it, click and drag. If you just move to the end point, it might be a bit slow updating, that's just the screen display [consultant is waiting for selection to be updated while dragging].
501. C. Ah, right, OK ... come on.
502. I. You can actually move straight to the end and it will do it in one jump.
503. C. Now, that's a statement that I need to print out. To print out is very important on this.
504. I. Right. When you say print out, you mean just as a piece of text.
505. C. Yes just as a piece of text. Because, what I'm going to line up with now is that when I've got a number of issues, I'm going to have that [theme hierarchy graph] showing. I shall print that out, and present that as a ... maybe as a single screen, as a single overhead, or it could be ... however it's presented. But I've got the opportunity now, to actually have as a side note.
506. I. Some actually more explicit notes...
507. C. The text, and that's a piece of text, and I'd say 'The statement was made questioning the ability of the company to run double shift, and sustain high level output maybe in practical on a double shift'. There are two clear statements there, that are actually expanding this. And subsequently at some stage ... if we're putting some report together, I may want to be reminded of those statements. Which I may draw down from this text, or typing it in a Word document or whatever at some stage. So, there are two things here and I think if you think about the manual analysis we were in fact virtually doing that. We've got a summary statement and a little bit of the ... what was behind it.
508. I. Right, OK.
509. C. Now, also, let me go down ... I should be able to find, can I click several of those or is that really difficult?
510. I. You can't collect them, select them at the same time. You can collect them and assign it to a theme.
511. C. The whole statement?
512. I. The whole statement or parts of a statement.
513. C. Now, how ... can I do that to these?
514. I. You can add it to those, but I would imagine from you're point of view that because this is your raw search you're better off creating another one and attaching it to that.
515. C. Right.
516. I. Because then you're left also with your raw search separately...

517. C. Yes, which I certainly want. Because that is very important that ... we can say we've searched in the general area of the double shift, and these are a number of references. I've then also got this background information...
518. I. The actual specifics...
519. C. Which is, I've certainly got ... two of my three references are double shift in that one statement.
520. I. Right, what you can do then is ... you've got lots of options here.
521. C. Good.
522. I. You can create a theme, which is based on the text of that [points to highlighted statement], but that's a lot of text ... if you like you may say there's lots of sub-themes involved...
523. C. Look, at the moment let's do something very simple. I'd just like to print that line of text out.
524. I. It can't do that.
525. C. Very simple. Right, [laughs].
526. I. Not on its own ... I'll show you what you can do. If you click here [on the theme graph's background] and then click add [them] and then let's say late shift...
527. C. Right ... I'll stick with double shift for the moment. Only because that's ... right.
528. I. What you can do now is drag the blue highlighted text onto double shift. Ah, I think you must have clicked twice.
529. C. I didn't know that I had but I'll accept that as a comment.
530. I. If you want to delete that ... click on it, click the right mouse button. Sorry, click on it with the left, then click on it with the right ... and ... click on remove link. [theme hierarchy graph displays small empty nodes] Yes, I'm not sure, that shouldn't have happened, carry on with this and we'll sort that out.
531. C. Right ... what I'm now wanting to do is to highlight that again. [difficulty in highlighting] Which it did and then I lost it. [Consultant instinctively selects past end of line – expecting whole line to be selected].
532. I. Yeah ... I think you've got to stay...
533. C. On the last...
534. I. On that last one [word] before you let go.
535. C. That could well be the case.
536. I. And it's linked that [points to selected text] to that [points to theme]. And it's done that because you've only got one selected, if you've got none selected or lots then it just highlights it in blue.
537. C. OK, let's follow this bit of process through. And therefore I've now got ... if I click there it'll close that bit down will it? No, cancel that... What I need to go back to is this one here [display names of the themes in the theme hierarchy graph].
538. I. This one here. If you click on the right mouse button there. For some reason, it turns name off ... Yeah, turn it back on again. Right. So, I'm back in this area of looking at double shift, and we've got one link there which is what I've dragged

across in the ... Right, and I've now got ... I want to ... if I highlight that, I've picked up those and I'm going through now, and I will as I said earlier just scan it through [scrolling through text]. There it's shift foreman for the afternoon shift, that's not really telling me anything very much. So I'm not really worried about that one. Question operation ... Right, there are two statements there. Now, I'm ... the reason that I put this one in to start with is that ... that has come out from one of my questions rather than a piece of information that is given.

539. I. Yeah, this is like your note to yourself.
540. C. Yes. But I'm ... nevertheless that is something that I wouldn't mind having on my side note at the moment. So, I think I'll take the opportunity ... [consultant instinctively clicks before the first word and drags over first few words – expecting them to be selected]
541. I. I think you need to be roughly in the middle of the [first] word for it to pick it up.
542. C. Right, thank you. Now, can I get two lines out of this, or just the one.
543. I. You won't be able to get the two together. But you can do one, link it, then do the next one and link it...
544. C. Now, I want to take that across to ...
545. I. Up here [the theme hierarchy graph], do you?
546. C. Yes...
547. I. Now, why's that disappeared, it shouldn't have disappeared. Sorry ... try selecting it again.
548. C. Am I too far along do you think?
549. I. No, that doesn't make sense. That's not... Something's not quite right there. It should drag and drop – I'm suspecting maybe it's not working ... Ah, yes.
550. C. Sometimes you have to take it off the top. So, if I put that [text section] in there [theme]. Then if I do the same thing on this one [another section of text] ... Drag and drop it to there.
551. I. Don't know why it wasn't working before.
552. C. Right. Now, I've also got this other one [text section], which I'm also very keen on.
553. I. Ah, because it's already selected, it will interpret you as wanting to move that [an existing link]. To get around that you can just start at the other end.
554. C. Oh, Right.
555. I. It doesn't matter which way you drag ... Ah, unfortunately that link has taken priority ... yeah, just let it go. Ah, sorry ... that's taken that link and put it up there [theme].
556. C. Ah, I'm learning at the moment. This time it should take the whole statement. Right, OK.
557. I. If you want to confirm that, you click on that now, and you can see ... [Consultant double clicks instead of single click]. If you cancel that [theme edit dialogue box].

558. C. Oh sorry ... Oh, yes. I've got those. Right. OK, now, if I want to put that as a side note somewhere, how does it start copying.
559. I. Right, if you now print that out, you get what you see on the screen. So you can't print out just the bits that you've selected, but you can print out the whole of it, with those highlighted.
560. C. Right, we've got some colour selection haven't we?
561. I. Yeah.
562. C. So could I now choose a particular colour on that?
563. I. For that, yes, and it would highlight these in that particular colour.
564. C. Right, so if I come back to that and I...
565. I. If you right click.
566. C. Right click.
567. I. Colour theme.
568. C. Colour theme, that's it. So I can now say I'll call those red. OK. And whenever I come back to that that will be red.
569. I. That will be red... If you want, click on the print button and you'll see a copy.
570. C. So, it would probably be a matter of doing this several times over with different colours. And landing up ... and printing it off once, and I've got immediately my areas highlighted.
571. I. Different areas. Then you can print off this [theme hierarchy graph] and you'd have the colour codes matching.
572. C. Yes. [waiting for it to print out theme highlighted text].
573. I. From what you're saying, it seems that having the items [text sections] that are linked, just the lines [linked text] printed out, without the rest of the text could be useful.
574. C. Could be quite useful actually. I don't think we've gone that far before, but you see if you come back again to the manual exercise, that was ... when you're doing the manual analysis, you're actually analysing at several levels ... and you obviously have the ability to note against the text... [picks up and looks at first printed page] ... Now, I'm not saying that ... or put positively, I mean, this is fine ... but we've only got two people here, and if I've got a ... and of course a small number of issues that we've covered.
575. I. Yes.
576. C. So certainly being able to ... that text to a particular area of analysis, would be invaluable. But I'm not sure that ... pushes your work quite in the direction...
577. I. No, that's fine, that's fine ... I think it might be printing the same thing again.
578. C. Yes. Now, can I print that [theme hierarchy graph] out?
579. I. Yes, the little printer down there does that.
580. C. Ah, that's why ...
581. I. Yes, I can see that this would be very difficult to use in a meeting if you had 20 or 30...



582. C. Well, a meeting ... already ... we're in a distillation process, and we're trying to compress. Now there is a compression of what is said to me and what I actually entered [recorded], I've already reduced that down. But I'm now looking at building up themes and the rest of it. Because that compression was no more than saying to record the essence of what was said, that's all I need. So, always the general background, the fuzz as it were in interviews, we've taken that to there [points at interview notes]. We're now saying we're looking to start the analysis of that, which is exactly what the exercise is about, and I have now got ... an area there that we've started looking at [double shift]. We know that there we're x number of references to double shift ... and in fact it's worth noting that although I've used the term double shift, it may be afternoon, double, or evening, there are all sorts of different terms used. And of those references I've gone through, and there are essentially three groups of statements, that was a slightly long statement there and that actually was my observation. But there are three things there that I would particularly want to carry forward. In that process I've also taken out the other references to afternoon shift, for instance within the job title of Ron Rawlings, he is a shift foreman, he is shift foreman for the afternoon shift. So getting a double bite there. So there are a number of references, which really were not about data that was of value to me ... it's intrinsic within the title of the job, the definition of the job.

Right ... So, I've so far just looked and pulled for want of clarification what we've got about the afternoon shift. Now ... I'm interested in this whole area of relationships, it comes up several times in different terms, and this is going to be quite difficult, because we've got this business about team working, relationships – need to do a bit of exploring here and see what we've got. So, if I ... double click on that ... I've got relationship. Right, I'd like to add ... I think I'll add team ... try the word support, I don't know whether that's in at all, I can't remember now, when we wrote it down. Ah, team support, why have we done that. Oh, because I haven't pressed add again presumably. Let me learn by my own mistakes and I'll get it right sooner or later. Let's go just trawling around on those ... and so we'll say OK to that.

583. I. By the way the video tape is just for my purposes. It's not going to be directly transcribed, so...

584. C. I'm not worried about that. But I am, as I've often done, made comments that hopefully will help you in...

585. I. Yeah. [waiting for search] I mean, what I'm trying to do here is to just let you get on with it, and produce... [search completes]

586. C. Relationship, relationships, support, supportive, and team. Now, I just wonder, I'm going to have a little trawl back... Now if I want to hall that up again, how do I get back to it.

587. I. Sorry, if you want to?

588. C. Add another one [search phrase].

589. I. In that case, you select the main one [search theme] there, click on ... yeah, double click it.

590. C. And that allows me to add [another search phrase] ... [consultant typing]... Right, and I just...

591. I. You want it to?

592. C. I just want to add that one, works well.
593. I. Yeah, enter. Is that the only one you want to add?
594. C. I might find some more, but we'll go on that.
595. I. Right, for now. OK. In that case click on auto, and that should go through and do auto-search again.
596. C. Now, if I want to do an auto, subsequently, as long as I've got the word, I've left it in I'm alright [starts search].
597. I. As long as you haven't added any manual ... No, actually it doesn't matter actually. It doesn't matter. It just wipes out all the one's [links] that it's automatically put in...
598. C. Previously.
599. I. All of the automatic ones.
600. C. And then re-does them.
601. I. And then re-does them.
602. C. If you've left that word in, if you've not...
603. I. If you've left that word in, yes ... Yes, it just goes through and wipes out all of the links that it put in before, itself, and then just re-does the search [waiting for search].
604. C. You see there's another one that's come up here. I won't re-run the this again, I'll trawl through and see whether there are a number of them because clearly it goes through the whole process.
605. I. Yes, yeah.
606. C. Right [search complete]. Now, that appeared not to find anything at all on that.
607. I. No it didn't. What was the term you used?
608. C. Works well.
609. I. No, I presume it hasn't found anything.
610. C. No, that's fine. Now, where are we. I just saw another one that I rather liked ... No, you see it's working together, is probably, team working. We've got team so we should have picked that up I think. If I click on that will that show me those?
611. I. Yes.
612. C. Yes, I've picked up the team there, so I'm alright...
613. I. What about the word working?
614. C. I think this is going to be part of the skill of using this, is knowing what you've put in...
615. I. Right.
616. C. And so that maybe in that rather than the word team ... if one actually used the word working one would have picked up team working, working well...
617. I. Working together, etc.
618. C. Working together, yes. So, maybe that was a more ... working would have been a more appropriate word to put have in.

619. I. Or more successful?
620. C. More successful, yes. Somewhere or other I ... saw a word earlier on, that I hadn't put in, I wish that I'd jotted it down when I'd seen it ... Yes, now I want to go back in there again, and let's...
621. I. Incidentally, if you have...
622. C. Sorry, can I...
623. I. Yeah.
624. C. [consultant writing down] I'm going to put three more in there, just see where we're going with this.
625. I. The more you have in there the slower the search will be.
626. C. But if I put it all in...
627. I. You might actually be better to split it into two searches. You could create another search with the three that you want to add. I'm not saying that that's right, but if you want to you can do that...
628. C. I'm on relationship ... let's just give it a whirl and see. I take your point and ... so, if I add...
629. I. I see you're doing a search which is very broad, to do with relationships...
630. C. Yeah. Let's just see what it ... so I want that, I want ... we'll try in the light of what we've just been saying, working, which seems a bit strange for relationships, but it may be that that is a useful way in. And then add, I think it was concerns...
631. I. Did I see you pointing at conflict earlier on?
632. C. I could well have been conflict... We'll do that then we'll call it a day. Right, so I'll accept that. Now, I know that 'works well' didn't give me anything. So we'll remove that one, so that's one less. So we've done a bit of editing as we've gone along as well. We're now going to say OK to that.
633. I. Right, now that you've changed the phrases that are in that search click on auto.
634. C. Click on auto again, and see what it has to do. [search started] So it will take a minute or two to actually achieve that. But, can you see the process I'm going through.
635. I. Yeah.
636. C. I'm using it very much to explore ... and I'm exploring themes, which is exactly what one did manually. One went through and one said 'ah, here's an area' and if you like, you remember a long time ago I talked to you about the sort of five bar gate approach.
637. I. Yes, I remember that.
638. C. Where you sort of, you were almost counting things through and sort of saying 'there are so many references to this and so many references to that'. And in a sense that's part of what I'm doing here at the moment, but I've chosen ... partly because of both the, both the depth and breadth of the text that we've got, because we've only got the two people interviewed, we haven't got an awful lot of areas. So relationships, I've chosen as an area. Now, in practice I might have

well sub-divided that, but I'm exploring that because ... I know there should be enough data to actually start making something that's meaningful in terms of relationships. You follow me?

639. I. Yeah. Yes, the comment was purely a technical one, that the more search terms you put in the slower it gets.
640. C. Yes, sure.
641. I. But, yes, that does make sense. What you've just
642. C. Again in the ... although sitting with the screen in front of us, it seems quite a long time, in the reality of doing an exercise like this it's fairly ... it's a fairly small amount of time.
643. I. I suppose you'd need to compare like with like. If you're taking the time the machine is taking to go through and search you'd have to compare that with the time it would take the consultant to go through and search for the same phrases.
644. C. Yes, and you'd be going through sheet after sheet after sheet ... [search completed] Now, we've done very well there. That's all very interesting.
645. I. It's picked a lot out hasn't it.
646. C. Now, it may well be that some of these are a bit rubbishy.
647. I. If you click on that again, the top one, it will select all those beneath it.
648. C. Yes. Now, I think this is where I need to sort of very quickly run through, and I've got working as a team, recognition – the importance of good relationships, conflict between ... no conflict there, degree of concern – about making policy decisions, so that concern is not really about relationships, good relationships, relationship between production schedule and contract engineers, working together recognised as important in staying in business, culture, team/working very important, relationships between Plant A and Plant B, informal working and trust, clear support ... concern of potentially altering, re-organising, change. [consultant is scrolling through text] It's dashed off at a bit of a rate ... apparent lack of support, tension between two production shops, ensure batches of work – totally unrelated... How many links have I got for work? I've got work there and work there is two. Works, I've got, which I haven't done, or particularly seen it, or I've now passed it...
649. I. If you want to just find that one just on it, and click any of these buttons up here [points to link selection buttons] it will find it for you.
650. C. Although he works for... How do I delete that if I want to? Oh, not really...
651. I. What do you want to delete? Do you want to delete the term works?
652. C. Yes.
653. I. Just click on remove.
654. C. [delete theme confirmation dialogue box appears] No, see, I've got a works theme and its associated links. Now, I don't want to do that. So the answer is no, but I could always click on there [consultant clicks on vertical line from search theme], and that's taken all of them out. That wasn't what I meant to do at all.
655. I. If you click on the dotted line at the top there. And, you need to click on the horizontal line just coming off it [the works theme] there.
656. C. Double shift, five links.

657. I. That is a mistake actually, that line shouldn't go underneath.
658. C. I think it's dropping it behind there.
659. I. It's just the line is drawing further than it should, yes.
660. C. Although. What I was thinking of doing here is was sort of saying 'Well I've got a number of things there' that aren't that relevant – I'll just hide them.
661. I. Ah, right, yes.
662. C. So that when I come to print it out I haven't got those. Because, what I would want to do here is the same exercise that we did previously, which is to actually pull down some of the statements that were involved. So that if I click on there, I'm now saying ... Yes, I've got this problem now that I can't ... now you remember we set up something to dump these in last time.
663. I. Yeah, click on add, add a new theme. I don't know what title you want to give it.
664. C. Well, I'll give it relationships again, can't
665. I. So if I just... Right, so I've got relationships, say, do I have to add that, or do I just say OK?
666. C. Fine. So I can now...
667. I. If you now select search.
668. C. Which is what I did ... I can't drag over that [an existing text link].
669. I. No, you can't, no.
670. C. So what I was doing was saying 'OK I've got that, if I drop that out now'. If I drop that out now, I've highlighted it ... so I can...
671. I. Ah, you actually need to click on the blue area [highlighted text], to actually...
672. C. Yeah, I've put that across there, having done that I...
673. I. Sorry, you were just off the edge.
674. C. Aagh ... thank you. You can see the unskilled hand at work.
675. I. No, not at all, it's just a matter of getting used to how it works, isn't it. Just to check that, if you now click on relationships. Yes, that worked.
676. C. Right, so we go back to that ... I've got recognition of good relationships, it might take that, and it has done, if I click there and move it up onto there, I'm OK. And then I want to do a...
677. I. You can actually start...
678. C. Yes but you see I'm trying not to put their names in.
679. I. Right.
680. C. So there's a statement of conflict between. So in doing my little bit of editing here, I'm actually...
681. I. Ah. I think that's just moved the original link, we have the same problem that we had before.
682. C. You think so.
683. I. Yeah ... Right, click on it again, and you should find that it – yeah, that's OK.

684. C. That's OK. Right, conflict between. Right, so if I ... this actually works reasonably well. I mean, I'm not concerned about having to flick backwards and forwards, because it's a very simple operation to do. So I ... that's odd ... that has done something funny there, because that is now not highlighted.
685. I. Yes, what happened – the first time you went to select text and drag it up. You selected it, but you ... when you clicked on the first word it picks up the link ... as priority, so it actually dragged the link up there, rather than the text you'd selected...
686. C. Ah, right...
687. I. It's a technical problem that needs to change. It shouldn't do that ... it should prioritise the text that you've highlighted ...
688. C. Yeah, OK ... Interesting thing is, but it's still leaving me the count there, because...
689. I. It hasn't updated it.
690. C. No. You've got a conflict there that cannot be highlighted and a conflict there that is.
691. I. Yes, it's not updated it.
692. C. OK, fine. You're...
693. I. So needs to update [making notes] ... Yes, that's potentially confusion, isn't it?
694. C. Yeah ... Right ... Now, this particular one here is very specific, it's conflict because he has two reports. Well that's not really about relationships. Or at least not in the way that I'm looking at, at the moment. So I'll ignore that. Degree of concern about making of policy decisions – I'm not worried about that one. So, its concern...
695. I. Can I just ask you to try using these buttons, just so that you've used them and get an opinion of them.
696. C. Right, OK.
697. I. The one at the top here, moves you to the top item, the first item.
698. C. Yes ... and the next one?
699. I. And the next one moves to the previous. The next one moves you to the next. The next one moves you to the last. What you can do is click on one ... now that you've got that selected, it should move to the next ... and automatically scroll round then as well.
700. C. I want to take that and move it across into there. I now want to move one to...
701. I. Now, you need to select one, because at the moment nothing is selected.
702. C. Relationship between... Yes, I've not actually described that one very well there. Description of contact. I've not qualified it, I've just made the statement. I'm going to actually drag that one it, because it's certainly ... it was an issues about relationship. So, I think it's worth...
703. I. Oh, you need to make sure you're not on the original link.
704. C. Right, that's...
705. I. Otherwise it takes priority.

706. C. OK. Right, now I like this one. I think we'll take all that one through. In as much as that is certainly very, a very significant statement. Yes, you can overcome part of this problem. It's just that if you do happen to make the mistake, you lose the link...
707. I. The link that's there. And, if you like you end up with a, if you like double link at the, on the other one.
708. C. Yes.
709. I. It's the sort of thing that, if left in, would drive someone mad, I think... You need to click off the line to de-select it, and then you can drag again.
710. C. Now you see, there's another one here, which ... I'd not particularly qualified.
711. I. I think that's the same one as before.
712. C. Well, why...
713. I. It moved down to here. It scrolled up as much as it needs.
714. C. Oh right, except that I thought I was scrolling down.
715. I. Because no links were selected, when you pressed down, it moved to the end.
716. C. So, I'm now...
717. I. In a position, where you don't know where you were.
718. C. How right you are.
719. I. Yeah.
720. C. Let's have a trog up with this ... go away [speaking to computer] ... I'm quite often abusive to my computer...
721. I. Oh yeah. I think everyone is. [scrolling through] Ah, that looks to be where you were actually...
722. C. Yes. Concerned [reading text]...
723. I. That's I think the last statement...
724. C. The last statement I put in. So that, if I click on there now, and then take it down...
725. I. It drops down to there.
726. C. It drops down to there ... You see, I'd looked at that statement ... and I've looked ... no, because I have to do this in two bits, don't I ... Oh [frustration – difficulty in selecting text]...
727. I. I think it waits for you to stop before it highlights.
728. C. Could well do. Great fun, if you don't weaken ... yes ... doing it according to the book now ... Yes that's taken me from there to there ... lack of support ... yeah ... let's start at the end there ... You could be right, or to put it another way you are right. ...that one, and on to the next one ... batches of work, that's nothing to do with the subject matter at all. Direction of work, that's not. Supported by all normal support functions, no ... that's about the relationship between the two plants. I'm not too worried about that in the context that I'm looking at the moment. Extra staff to support operation of second shift. That's actually a fairly important observation to be made ... and Ron working in information vacuum. Yes I think that ... I'd like to just put, we won't say who,

- but we'll take that statement ... Now, you can well see that a statement like that will also pick up under communications or something of that nature. And we seem to have got there. So, what I'd now like to do is to pick up on that one.
729. I. If you right click, it's not updated properly, but if you right click here and turn the links off, and then turn the links back on again. It should display the number of links that are now under relationships.
730. C. And this...
731. I. Right click, right click anywhere there, it doesn't matter where, turn the links off, and it all squashes up. Now turn them back on again. It'll do a re-calc. It's a way of prompting it into a re-calculation.
732. C. So again...
733. I. Seventeen.
734. C. So I've got seventeen links. Right, and ... we did some fancy work last time on that, I've ... I've put the colour on at some stage. Remind me how I did that.
735. I. Right, if you point at the item that you want to put the colour on, right click, and down...
736. C. Colour, there we are. So, if I go for the green this time. And say OK to that. I should now have a fair number of ... what passes for green [laughter] OK. And I can now go and say, if I print that. It hopefully will like that.
737. I. Now are you going to print this one [theme hierarchy graph].
738. C. Now, I only want to print down to there, so I...
739. I. So, you only want to print these two branches do you.
740. C. Yes.
741. I. In that case, if you hold down control, click on one ... ah you've got shift there.
742. C. Oh, sorry, that's fine.
743. I. Click on one, hold down control, click on the other one and it should select all of those...
744. C. Now, I think that's...
745. I. Now, if you right click there...
746. C. Where?
747. I. Oh, sorry, you've got to hold down, right click. Yeah just right click on that ... Oh, it's de-selected it, sorry. If you click the first one, and then right click and hold down control on that one. You should select it and get the menu up. Now, show only selected themes. And that'll hide the rest of them.
748. C. It has now reduced our ... was it conflict or concern that we reduced from two to one?
749. I. Yes, it's conflict. Yeah. Now that that's been updated ... Yeah, it's a bit lax on the updating, I think, when you start dragging things around. I forgot to tell it to update the list.
750. C. Immediately.
751. I. Immediately, yeah.



752. C. Now, [printer finishes page – consultant reads page] Lets ditch those [previous accidental duplicate printouts] at the moment, because they're going to confuse the ... [consultant marks printed page] I probably wouldn't have printed that bit out. But I've now landed up that I've ... looking at the double shift situation, we've looked at the search which has given it to me. I've then pulled down what are the relevant statements, which I've now got in my nice red ink on paper. And we're now doing the same thing again...
753. I. On relationships.
754. C. Yes. One was, in one sense quite specific, it was a term that was used, which related to quite an issue – double shift. This as you ... earlier ... a broader issue about relationships. It could very well be that as I go in further I might find other words that relate, and one of the reasons for wanting to print this out at this stage could be that, you know, I might make notes on that as I'm going through, but not wanting to break into what I'm doing at that particular time, because it ... it's easy enough to see something, 'Oh I'll do that, when I finish this.' And if you don't actually note it down ... I mean it would be very easily to just, sort of, drop that on there and say 'I've missed out this word here. I'll go back, add that to the search' and then add any information that came out of that search. So, this is part of the iteration...
755. I. So you're saying that you want to annotate the diagrams and the text.
756. C. Yes. [printer finishes] This time I've also run out a chart, which I hadn't done earlier on, which under normal circumstance I would have done at a fairly early stage. So, I've now got a situation here where we ... we went through and searched under this broad heading of relationship. And I've picked up concern, conflict, relationship, relationships, support, supported, team, tension, work, working, and worked. And if you recall we had something else in there at one stage, which I deleted...
757. I. Er, no, it was works wasn't it. You said you wanted to delete, but we didn't actually delete it...
758. C. Why didn't we delete it?
759. I. I think we hid it, but there was an error and it didn't display it correctly. So...
760. C. Yeah, right. Now, I've then got ... a print out in this atrocious green ... I wish I'd picked another colour [laughter from interviewer] Colour blindness as well now. And I should have seventeen statements there. Which is probably about right. Out of a possible ... two, three, four, five, six, seven, eight ... twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen ... twenty three. There were twenty four that were highlighted. Of which I've said that there were seventeen that were actually relevant. We know, there was one word which I would now put aside. I don't think there was anything else there that I didn't actually use. Some of them where I've got ... you know, sort of, five links, and I haven't felt that for the case that is to be made they were a relevant use of the word. So, that ... I've now got to a stage where I've started to put together things that would quite usefully have been ... put on ... dropped out and put onto a slide or papers for discussion. And that would then start the material that was going for the ... the workshop with the executive of the companies, the company's executives rather. Now, I've also got this organisation chart out now. I had a feeling that you did something with the organisation chart ...

761. I. Yes, quite a few things. We can relate these [themes] to each other, to the actors that are involved, and relate them to the chart...
762. C. Right, let's see if we can do something around that ...
763. I. OK ... probably the area that you might want to look at would be the relationship between the two plants...
764. C. Yes, because this is part of relationships, so it's somewhere out of here. But at a level of ... I've got so much data ... how's my best approach now to deciding what part of that I want to bring out here?
765. I. ... The next direction would probably be, now that you've refined this [theme hierarchy] into the ones that have some meaning for you, is to actually take those seventeen links and actually start sub-categorising ... you remember during the manual work you pick up a general area and then you'd start sometimes produce sub-headings wouldn't you?
766. C. Yes, right.
767. I. So maybe if you look at the text and you may want to sub-classify these into sub-themes.
768. C. Yes, if you recall earlier on we did just sort of touch on that. I was saying I was picking a very general theme for the exercise ... because quite clearly yes in practice there would be sub-themes. One would not necessarily take relationship, one would take relationship in some sub-categories. Right, how's the easiest way to do that?
769. I. If you click on relationships, and move down the list, as you see something you may want to for example create a sub-category for working as a team.
770. C. Team working, yes.
771. I. So, up here you could say ... ah, before you say add, if you say click on that it becomes a sub-category... click on add now, say team whatever... [consultant types team working]... and what you can do now, if you click on the large, the top one there, you get both allocated and you can now drag that [section of text] onto team working. So, if you like, you're making it more specific... Now you don't notice a difference here because it's already ... it's in green, so the fact that it's moved from one to another, you won't see a difference there. What you could do is if you change the colour of that [the team working theme] by right clicking, and colour theme. And change it to something like red or something ... something that's different. Now, what you will see, if you click on relationships, is as you drag them to the new category they should change from one colour to another.
772. C. Yes, well it depends where I am. If I'm there, it's still green because I'm in that. But if click that...
773. I. If should have actually moved it from there, if you click on...
774. C. But ... I mean ...
775. I. It should have moved it and not copied it. If you hold down shift and click on the top one there. That just selects the top one. Click on the working as a team and if you point at it and right click and then you can delete it, and remove link. And say yes. I'm not sure why it hasn't already done that. It may be that it was actually indicated twice, I don't know, but click on relationships now, you should see the distinguishing...

776. C. Yeah..
777. I. So now we should be able to go through that a second time and re-allocate it to a lower level. Now, I don't know whether you want to go through and allocate to that or whether you want to create another one for the next one and allocate as you go, it's up to you, there's no... Ah, now it worked that time. I think probably what happened is up here there was two links created. The software should really stop that happening.
778. C. Now, I now want to get ... [consultant typing] ...
779. I. Ah, right, if you move off it a minute...
780. C. Hang on, I didn't pick it up ... yes I did ... that's better
781. I. Ah, right, when you only have one item selected, as you have there, it already has actually linked it to that as you select ... so you don't need to drag it on now...
782. C. Right...
783. I. If you only have the one item you can just go down and select and select. It's only where you have multiple ones that you then select and drag. So, probably you want to click on relationships again and then carry on down through the list.
784. C. So that doesn't tell me there's one link it just says there's a link does it?
785. I. This is down to the updating thing. It needs to update it as you change it. That's wrong, it should then change to one link and in fact it's got 'number of links one' there [in theme dialogue box] because that's just updated.
786. C. Right, how do I get my thing to put a colour on that?
787. I. Right click again ...
788. C. OK, I need to go back onto there don't I?
789. I. Yeah, if you click on that and drag it ... that's a relief, I thought there was a major problem in the software there when it didn't work ... you may choose to leave some attached to the main [theme]...
790. C. Yeah, this is a nice easy sort of way of ...
791. I. Once it works properly...
792. C. Right, now, I've just discovered something there. I want to ... Now if I do that ...
793. I. Because you've got more than one selected it won't allocate that until you tell it to.
794. C. I can take that over onto the two plants. Now, that hasn't got any word in that I had chosen previously, it doesn't matter?
795. I. No.
796. C. Because all that, I happened to use that for selection purposes, I can move any text I like into it?
797. I. You like into it, yes ... just because you've got this selected doesn't stop you from selecting text and dropping it around ... you're not restricted to just the things that have been highlighted.

798. C. Why have those two suddenly come up, because that's to do with shift, and that's to do with...
799. I. Working ... for some reason you linked them.
800. C. Because I thought we had that in our earlier exercise...
801. I. When we printed off the red one then, did it ... there's something not working then...
802. C. It picked up the double shift, I wonder why it didn't pick up the single shift...
803. I. That may have been before we did that search. I think it was before we did that search.
804. C. OK, not to worry about that.
805. I. Yes you did actually highlight these. I can see this has been useful printing that off, because for some reason you did highlight these in the seventeen, I'm not sure why.
806. C. No, right.
807. I. But there's nothing to stop you creating a late shift and allocating them off and changing your mind. That's not a problem.
808. C. No, No, No.
809. I. Ah this one, you paused at that and said 'yes it is to do with relationships'. I think the one above it you just saw that and thought that's a very important issue, or a very important statement, and you selected it for that reason.
810. C. Yes.
811. I. But you can move things around.
812. C. OK, so we've done some breakdown of that. I think I'm happy enough with that now. Now that means I've now got, should have a situation where if I choose to do that.
813. I. You get a combination. Before you do that one, if you turn the links off here and turn them back on again, it will update. That's a pain that.
814. C. But I've only got nine links there.
815. I. That's because the nine is the things that are specifically linked to that [relationship theme].
816. C. Do we have eighteen figures?
817. I. I think seventeen, yes. So in fact nine, five, and four.
818. C. Seventeen...
819. I. Ah you added one from text, didn't you, which is the extra one.
820. C. Right, that's fine, yeah. Just co-incidence that four and five happened to add up to nine.
821. I. Yes ...
822. C. OK, that's good.
823. I. That's the principle of it, you would presumably possibly go down to further levels of depth...

824. C. Yes, I mean it's rather as we did the other day when we we're doing the thing manually. We didn't take it to the final ... [waiting for print out] Yes, also it does start to fill out quite considerably.
825. I. Yes.
826. C. And as you can start to see there, an awful lot of the information is coming out of the analysis ... Can I just do something again, now, I want to create another category.
827. I. Yeah, where do you want it?
828. C. Somewhere up here.
829. I. Off the main one. Well just add with nothing selected, as you are now. [Consultant creates new theme] ... Ah, I see, you can't select the name of the interviewee.
830. C. You can't. Or his job title?
831. I. No.
832. C. I'll cheat one way or another ... Now what I'm going to do here is just ... Now you see I've got some bits in brackets here.
833. I. These are your annotations.
834. C. Yes, and therefore I want to ...
835. I. Because you've only got one item selected as you drag it will automatically add those in. Now, if you want to extend that you need to delete that one. So, right click on it and say remove link.
836. C. Remove link, down the bottom, there we are.
837. I. Right, that'll get rid of that one. And now you can do it again.
838. C. Can I?
839. I. Yeah, because you started on the second word, you're in this awkward, you can either go backwards or forwards. So, delete it again.
840. C. Ah [frustrated amusement]. Right, let's start at the beginning ... Right...
841. I. Am I right in thinking you're going through looking for activities that you may want to do?
842. C. Yes ... almost a 'to do' list.
843. I. Right, could I suggest that you do a search for the word check, see what happens.
844. C. Well, let's do this and let's do that and see whether ... because ... this comes back to the discipline of using ... and how we record. See I've got a statement there 'long serving, key reference, possible key player'. Now I'm putting that on my action list, because actually I want to have a word with the MD about that.
845. I. And check whether his perception...
846. C. Whether my perception is right ... I agree with you ...
847. I. I think I can see a facility that's sorely need here, and that's select line.
848. C. Well it is if you've got a shaky hand like mine...
849. I. Well, either way it would be faster I think.

850. C. Yes... [consultant moving through looking for things to add to his 'to do' list] ... Right, now, possibly I would have done that in a different part, slightly different part of the process. In as much that, if one way putting in this data on a daily basis following interview or whatever, then most probably this would be an exercise to do almost at that stage, pull out a checklist. Because one may actually accumulate a number of checklists out of different interviews and say those were a bunch of tasks that had got to be done, because there's always the follow ups, the things you need to follow up. Now, some of them are purely at a 'I must try and gain a view' through other interview, other interviews. But others are quite clearly things where you've got to make a point of going to see somebody, either you wouldn't see otherwise or you've got a list of things that you want to clear with the MD, or you've got a list of things that if you're going into that workshop situation on the organisation, on the development and re-structuring of the organisation, you take those in as points that need to be brought to mind. So again, checklists could fall into several categories if you wanted it to. And there's an item here, by way of example, 'important check with QA, not formally assigned, could be overlooked in re structuring'. Now, that was actually something you would be wanting on your checklist when you were holding the workshop, with the interactive... that you actually made sure that something that is discussed. They don't seem to be attached to anybody, it's something that would need to be properly sorted. Right, not to sure where we've got to will all that lot. Now, part of this came ... if I were to take the four links that were on the two plants here, and I wanted to some how or other start building that onto the...
851. I. Right, what you need to do then ... what you've got facility to do, it to put a theme from here [points at theme hierarchy] onto the chart. So if you want text here on the chart you need to make that text into a sub theme of that.
852. C. What each individual piece of text?
853. I. Yes.
854. C. Right, so, I've now got my linked bits of text hopefully showing ... Right, well I definitely want that one, so, how do I get that as a sub-theme of that? I go up to add, and I go up to...
855. I. If you click on that [the linked text], right click on it and say 'create theme from text', the last item on the list.
856. C. Yes ... Well there. Right, that's dead easy isn't it. OK
857. I. Ah, here I think if we do 'create theme from text' it will probably put it subordinate to this [previous theme created from text – now highlighted], so to just select the one, you hold down shift ... in fact you've done it now, so that's not a problem.
858. C. ... what am I doing?
859. I. Right click.
860. C. Right click, not left click. That's it.
861. I. And shift.
862. C. If I click on the screen it actually goes back to clear.
863. I. If you click on the background it deselects everything [all themes]. If you just want the two plants [theme] selected, that's it, you hold down the shift key ...

That's the same error that came up earlier on, for some reason it's deselecting the [theme] name when you right click. It shouldn't do that. If you right click there [on theme hierarchy] and click on name, it will go back to normal. That's a pain that, but it's something that can be dealt with. The reason it's not available ['create link from text' menu item] is because nothing [no text] is selected up there.

864. C. I have to select before I ... so it's left click, right click?
865. I. Yeah.
866. C. And it's done the same.
867. I. It's done the same thing. You need to just do the right click, and select name again. I thought I'd stopped it doing that. It was doing that a while back, I thought I'd stopped it doing that but obviously not.
868. C. So we've now got nothing there [under main theme] all four of them are now down there in their own right. So I can then, what can I drag those across to?
869. I. You can just drag them on there to be represented on the graph. So you can place them on the graph.
870. C. Now, I need now to do a little bit of juggling, don't ... can I drag and drop?
871. I. You can't spread these [actor nodes on graph] at all ... oh, no ... the only way you can spread them out at all is by adjusting the size here. So, change the 10 there to say 25 or so, and that should spread it all out. Drag and drop would be better wouldn't it. [Consultant re-arranges and then prints graph]. What you can actually do, is to link these [themes] to the people [actors] they involve.
872. C. Yes.
873. I. Not sure whether you want to do that.
874. C. How do I do that?
875. I. Right, say for example conflict [theme] here, if you select conflict, click on involvement [points to relationship types list], these are your relationship types. Select the line or the relationship item here ... and then you click from there to whoever it is that ... Ah, you need to show the actual actor names again.
876. C. Yes.
877. I. So if you right click, and show top level themes. That should pop the actors back up again. And now you can... that's it you can now pull that one up. And if you want you can close this search up. And that'll make it easier to actually do the linking ... If you want to drag from conflict to Hamilton or Eggar, yeah...
878. C. Right, probably I'd have just done it for the two plants or something, but anyway not to worry. We've already got two in there.
879. I. Yeah, I think so. That's fine ... [consultant reading printouts] ... What that should have actually done was updated the actor graph as well. It should have drawn these [relationships between theme and actors] on here, it hasn't, it's just an update thing. If you drag conflict back and the on again, that should prompt it to actually draw them in. Ah in order to drag that back you need to have one of these two [sub-theme or peer-theme, not relationship] selected.
880. C. One of these two.
881. I. Yeah. ... Yeah, and then you've got them.

882. C. Now, that's interesting, there is something written in behind there.
883. I. It's the name, the text on the line saying it's ... Right, I think, this [integrated actor/theme graph] is quite cluttered isn't it.
884. C. Yeah.
885. I. Of limited use as it is.
886. C. Well there are ways round that ... I'll show you how we'll do that. Don't jump to conclusions. What's that?
887. I. By double clicking on that person you've gone to a star graph for that person. In order to go back to the main one, just double click anywhere on the background.
888. C. How do I remove that [subordinate actors of actor on graph]?
889. I. Are you wanting to ... for this to just disappear. Just click on the branch above ... that line...
890. C. That's it...
891. I. You can press enter there and it will actually go on and do it. Ah, right I see.
892. C. OK, because at the end of the day...
893. I. That's that focal point [of the integrated theme/actor graph], or what's important... I see ...
894. C. [consultant tries to drag actor node] No, ah yes it is ... [consultant moves theme nodes to make graph less cluttered] ... That's quite presentable isn't it?
895. I. Yes. Do you want to print that one off.
896. C. Yeah, well do that.
897. I. Can I also, you've got three forms of graph there. If you flick to a star graph.
898. C. Which is that one.
899. I. Yeah, we've got Jim Lemon at the moment. What we can do is say ... it's probably best to go back to the hierarchical graph and just double click on say Hamilton ... and we have a star graph for him. And nobody's showing a relationship with him at the moment...
900. C. Because of course there wasn't any...
901. I. Because he wasn't interviewed...
902. C. No. I'd leave that one. Now, you see ... do you remember we had, we developed the idea of showing the issues between people?
903. I. Yeah.
904. C. They were actually the more formal links. But, what I'm saying is that idea is not a bad idea because if you just look at that now. Very quickly you've got a picture of two people who are in this case the senior people, tension between two production shops, holding an empire historically, relationships between plants A and B outdated, it hasn't printed the whole lot – I don't know why, conflict between. Because it did say conflict between and it named them, but you know... I normally get away with that under these circumstances. All that would be highly, I'm not so sure about that one quite as it's produced at the moment, but the rest of that is all useful stuff.



905. I. Could I just show you, or take you through something possibly linked to this. If you go to the hierarchical graph. If we move across to Baker, double click on Baker. Now, what we can do now, as well as adding the normal themes, you can add actor themes if they're not on the graph. So we can move down here and actually add Will and Ed to that.
906. C. Did they not pick up at all.
907. I. I don't think they did.
908. C. Where do I put them.
909. I. Anywhere you like. Because they are linked to the others they then get linked in ... Ah that picked up the one behind, so move where you're selecting, yeah.
910. C. A bit giggered at the moment, but I'll find a way around it.
911. I. I think actually this is probably a bad example, because the star chart isn't actually related to that isn't it?
912. C. Well, no.
913. I. So, I tell you what. The third one here is a network. Which if you click on it...
914. C. Well, yeah. Now one can see the power of this because if that did happen to be one of those that was there...
915. I. And they were involved in the relationship...
916. C. Yes, and you wanted to pick in another one, pull in another one, then yes that would be ... I mean I have no problem with the fact that the issue we were discussing wasn't around that particular star chart and it wouldn't have been around anybody else's star chart because you've only got two players.
917. I. Yeah.
918. C. Right, you wanted to take me over to this one now.
919. I. Yes. Now that one just gives you the free format on it's own. That's a way of actually just working with these nodes freely and putting them in any position you want. I tell you what we can do – the late shift involved Rawlings didn't it? Rawlings was the guy that was complaining...
920. C. Yes. We'd have to do a whole analysis on that. I think that that's ... you know I don't think that's an issue...
921. I. Right.
922. C. It happened ... what we've demonstrated is that you can superimpose that onto that ... and the fact that that particular case didn't have a player ... I think I would be inclined ... just doing a bit of selection on size of text at the moment ... certainly the drag and drop on that is ...
923. I. Right, I think there's only one major area, that we haven't looked at. If you click on the actors and can you right click up here [relationship types list] and turn that off. If you right click you should get a little menu that says select none there and that'll get rid of the lines on that and de-clutter it. If you now click on auto, what it will do now is go through looking for where actors are mentioned. So its another search really, but it's a search specifically for the actual people and groups that are involved. So it's searching through the text trying to link these in. I think once we've done this we can draw the line.

924. C. Yes well I must draw the line this evening anyway. So, but we can always come back and do anything else that's ... Now, when it's going through, that will not include the person's name when it's in their job title?
925. I. It will. It will include everything, every time it's mentioned it'll include it.
926. C. Right.
927. I. So, I'd expect it to link in here, here, and here ... I'd expect it to link all the way through [waiting for search to finish].
928. C. Right, those are all those [puts print outs to one side]. I think I would be fairly careful in the way I use that because that is actually my, as a consultant, my view of the two actors to whom those comments relate. It may be that that was supported by the person who told me that actually, you know, it did relate between the two. But some of that is actually, as much as anything to do with the function they hold as the personalities they are. And I think one would need to be fairly careful in the way one reproduced that. I mean, I think your 'is involved in' is probably right, I'm not employing that, but ... you can be involved because it's something to do with you as a person and how you do your job. You can be involved because that is a function you're responsible for.
929. I. Right, would the fact then that ... bear on this that these relationships you can create any number of and name them in any way you like. So you may wish to have different relationships, because you're not limited to just is involved in. So as the consultant you may choose to put 'is involved in because of his job' or...
930. C. Yes, or whatever.
931. I. or part of his job or personal conflicts, or whatever. Does that help that?
932. C. Yes, functional head.
933. I. Right.
934. C. So that you've got these comments and there could be a whole range of comments, and you could do them for quite specifically not those two people, but people who report to them as well. You wouldn't put those peoples names in, so you'd put those two as the functional heads and just ... the only fact, the only reason that it's pointed in their direction is because they head a department. And what you're actually doing is giving them a whole list of things that relate to their functional responsibility, whether it's them, whether it's somebody else further on down the line.
935. I. Right, I see. So you might not necessarily even want to...
936. C. Right, we seem to [actor search complete].
937. I. So what you have now, you may want to drag this, the bar in the middle, down a bit so you can see more text. And what it's done is gone through and ... I suppose really that it's similar to the search that we do. Except it takes a different perspective through the information. Instead of looking at it in terms of a search for keywords related to themes, you're looking at particular people. So for example you can click on Jim Lemon and see where he appears in the text.
938. C. Now that's killed that hasn't it?
939. I. Why has that linked it to plant A [question to self not consultant]. That shouldn't have done that. I think I've probably made a mistake typing things in.
940. C. Hang on just a second, can I just do that again? Now, when I do plant A.

941. I. Plant A is the last one.
942. C. Can I go back through that process?
943. I. You can go back up using the... that's the top button.
944. C. Let's go right back to the beginning. It didn't go back to the top.
945. I. Ah, it goes to the top link.
946. C. Now, I've got that, that one's highlighted, that's fine. That [clicks next link button] will take me down to that one. That will take me down to that one. Now I haven't got a highlighted one there... [Interviewer points at monitor] Ah, I've only moved up. Sorry, I was looking for one right at the top. Yes, that's OK. Then if I do it now.
947. I. It won't go down any further.
948. C. It won't go down any further. If I go back up...
949. I. ...to the top.
950. C. It's highlighted it there. Yeah. So that's fine. It certainly would help in scanning through. So if I'm, if somebody has sort of said to me 'Oh' ... trying to think of a suitable ... 'Jim Lemon's involved in a lot of ... a lot of people use him as an informal contact for something or other and I've got another nineteen people he's had contact with'. So I've seen that broad picture. I may not have picked up all the areas that he is in fact contacted over. I would just know there were contacts. So this would certainly allow me to go through fairly quickly, or relatively quickly, scan and say 'Ah, yes he's involved in that, he's involved in that, he's involved in...'. I might choose to highlight them and put them in a...
951. I. Separate theme?
952. C. Separate theme for some reason. It's a little, it may happen, it's not something that's an immediate replication of something that one has done before in manual analysis, but certainly I wouldn't preclude it as something that at times could be of value. Because what it would do, just thinking about it, if you came up with a star chart. How do we get to a star chart? Is that a star chart? A star chart is that one there isn't it?
953. I. Yeah.
954. C. That's the star chart. I've got other garbage on it at the moment, because we've got these people kicking around.
955. I. Oh, if you right click there, 'remove free nodes'.
956. C. You see that could be ... it would suit me to actually pull down a number of issues there and actually put them on that chart, which are about all these contacts. And I would do that by going through here and picking up pieces of text that relate to that, drop them in a theme and then pull them down from the theme. Again it's using it as a presentational tool as much as an analytical tool. I'm not always clear where an analysis ends and presentation starts.
957. I. They seem to be very tightly integrated.
958. C. In this process ... in the process of using this sort of data they are very closely integrated. Because, in one sense, there's hardly any sense in analysing something that you're not going to be presenting. And presentation as we've said previously is a very important part of the process consultancy, because, again as

we've said, the consultant's picked up to those who are the executives of the company, the board of the company.

959. I. Right, excellent, I think we can stop there.

960. C. Good.

# **Appendix K - Acceptability Evaluation Questionnaire**

This section looks at each underlying group of facilities:

## **4.1 Responses – Display and Filtering**

**Ease of Learning – You**

**very easy / easy / quite easy / OK / quite difficult / difficult / very difficult**

**Ease of Learning – Management Consultants in General**

**very easy / easy / quite easy / OK / quite difficult / difficult / very difficult**

**Ease of Use - You**

**very easy / easy / quite easy / OK / quite difficult / difficult / very difficult**

**Ease of Use – Management Consultants in General**

**very easy / easy / quite easy / OK / quite difficult / difficult / very difficult**

**Contribution to Overall Usefulness – You**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Contribution to Overall Usefulness – Management Consultants in General**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Improvements – You**

**Improvements – Management Consultants in General**

**Impact on Current Practices – You**

**Impact on Current Practices – Management Consultants in General**

## 4.2 Actor Graphs

### 4.2.1 Official Organisation Structure Overlay Graph

Ease of Learning – You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

Ease of Learning – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

Ease of Use - You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

Ease of Use – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

**Contribution to Overall Usefulness – You**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Contribution to Overall Usefulness – Management Consultants in General**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Improvements – You**

**Improvements – Management Consultants in General**

**Impact on Current Practices – You**

**Impact on Current Practices – Management Consultants in General**



#### 4.2.2 Star Graph

##### Ease of Learning – You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

##### Ease of Learning – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

##### Ease of Use - You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

##### Ease of Use – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

**Contribution to Overall Usefulness – You**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Contribution to Overall Usefulness – Management Consultants in General**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Improvements – You**

**Improvements – Management Consultants in General**

**Impact on Current Practices – You**

**Impact on Current Practices – Management Consultants in General**

### 4.2.3 Network Graph

#### Ease of Learning – You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Learning – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Use - You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Use – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

**Contribution to Overall Usefulness – You**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Contribution to Overall Usefulness – Management Consultants in General**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Improvements – You**

**Improvements – Management Consultants in General**

**Impact on Current Practices – You**

**Impact on Current Practices – Management Consultants in General**

### 4.3 Manual Theme Creation and linking

#### Ease of Learning – You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Learning – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Use - You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Use – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

### **Contribution to Overall Usefulness – You**

**very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve**

**(positive – increased usefulness**

**negative – reduced usefulness: confused, complicated)**

### **Contribution to Overall Usefulness – Management Consultants in General**

**very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve**

**(positive – increased usefulness**

**negative – reduced usefulness: confused, complicated)**

### **Improvements – You**

### **Improvements – Management Consultants in General**

### **Impact on Current Practices – You**

### **Impact on Current Practices – Management Consultants in General**

## 4.4 Automatic Theme Creation and linking

### 4.4.1 Automatic Actor Themes

#### Ease of Learning – You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Learning – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Use - You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Use – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

### **Contribution to Overall Usefulness – You**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

### **Contribution to Overall Usefulness – Management Consultants in General**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

### **Improvements – You**

### **Improvements – Management Consultants in General**

### **Impact on Current Practices – You**

### **Impact on Current Practices – Management Consultants in General**



#### 4.4.2 Automatic Group Themes

##### Ease of Learning – You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

##### Ease of Learning – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

##### Ease of Use - You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

##### Ease of Use – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

### Contribution to Overall Usefulness – You

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

### Contribution to Overall Usefulness – Management Consultants in General

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

### Improvements – You

### Improvements – Management Consultants in General

### Impact on Current Practices – You

### Impact on Current Practices – Management Consultants in General

#### 4.4.3 Automatic Text Search Themes

##### Ease of Learning – You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

##### Ease of Learning – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

##### Ease of Use - You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

##### Ease of Use – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

### **Contribution to Overall Usefulness – You**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

### **Contribution to Overall Usefulness – Management Consultants in General**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

### **Improvements – You**

### **Improvements – Management Consultants in General**

### **Impact on Current Practices – You**

### **Impact on Current Practices – Management Consultants in General**

## 4.5 Theme Relationships

### Ease of Learning – You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

### Ease of Learning – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

### Ease of Use - You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

### Ease of Use – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

**Contribution to Overall Usefulness – You**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Contribution to Overall Usefulness – Management Consultants in General**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Improvements – You**

**Improvements – Management Consultants in General**

**Impact on Current Practices – You**

**Impact on Current Practices – Management Consultants in General**

## 4.6 Theme Graphs

### 4.6.1 Theme Hierarchy Graph

Ease of Learning – You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

Ease of Learning – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

Ease of Use - You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

Ease of Use – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

### **Contribution to Overall Usefulness – You**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

### **Contribution to Overall Usefulness – Management Consultants in General**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

### **Improvements – You**

### **Improvements – Management Consultants in General**

### **Impact on Current Practices – You**

### **Impact on Current Practices – Management Consultants in General**



## 4.6.2 Theme Network Graphs

### Ease of Learning – You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

### Ease of Learning – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

### Ease of Use - You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

### Ease of Use – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

**Contribution to Overall Usefulness – You**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Contribution to Overall Usefulness – Management Consultants in General**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Improvements – You**

**Improvements – Management Consultants in General**

**Impact on Current Practices – You**

**Impact on Current Practices – Management Consultants in General**

## 4.7 Integrated Theme-Actor Graphs

### 4.7.1 Theme Official Organisation Structure Overlay Graph

#### Ease of Learning – You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Learning – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Use - You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Use – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

**Contribution to Overall Usefulness – You**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Contribution to Overall Usefulness – Management Consultants in General**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Improvements – You**

**Improvements – Management Consultants in General**

**Impact on Current Practices – You**

**Impact on Current Practices – Management Consultants in General**

#### 4.7.2 Theme Star Graph

Ease of Learning – You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

Ease of Learning – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

Ease of Use - You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

Ease of Use – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

**Contribution to Overall Usefulness – You**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Contribution to Overall Usefulness – Management Consultants in General**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Improvements – You**

**Improvements – Management Consultants in General**

**Impact on Current Practices – You**

**Impact on Current Practices – Management Consultants in General**

### 4.7.3 Theme Network Graph

#### Ease of Learning – You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Learning – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Use - You

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

#### Ease of Use – Management Consultants in General

very easy / easy / quite easy / OK / quite difficult / difficult / very difficult

**Contribution to Overall Usefulness – You**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Contribution to Overall Usefulness – Management Consultants in General**

very +ve / +ve / moderately +ve / no impact / moderately -ve / -ve / very -ve

(positive – increased usefulness

negative – reduced usefulness: confused, complicated)

**Improvements – You**

**Improvements – Management Consultants in General**

**Impact on Current Practices – You**

**Impact on Current Practices – Management Consultants in General**



This section looks at the overall usefulness of this form of software tool to management consultants in general.

Does this form of software tool give enough to outweigh the cost of data entry?

(Would it actually be used?)

Do you think that the widespread use of this type of software would cause any problems?

The intended mode of operation is away from the client organisation, how appropriate do you think this is?

The software has been designed to assist the following activities:

**Information Gathering:** recording of consultant's interview notes

**Information Analysis:** analysis of these interview notes

**Information Presentation:** feedback of the results of the analysis to the client organisation

Where would you say the most value lies?

Are there any facilities that really stand out above the rest?

Can you think of any additional groups of facilities?

# Appendix L - Transcript of Acceptability

## Evaluation Interview

The following abbreviations have been used:

- I. Investigator's comments.
- C. Management Consultant's comments.

961. C. ... I was just sort of thinking, driving along, and trying to think through what it is you've been doing and the context of it because in making an observation, or any observation upon it the context is important. And the thoughts I had were somewhere around this sort of area, that there's been an increasing move within consultancy to go from prescriptive recommendations ... these often result in cherry picking, which in turn results in only partial implementation and either diluted or even gave negative benefits.
962. I. Talking about picking the recommendations of the consultant?
963. C. Yes ... so the consultant comes along does his investigation, comes in with his report and says 'Here you are Mr client, that's what you ought to do.', and walks away. You've paid your money and you've got your report. The client the looks at that, says 'Well, we like some bits of it, but other bits we don't think will work.' or whatever. And they choose the bits they'll implement.
964. I. Is it common for them to, not to understand or have difficulty in making sense of portions of reports like that.
965. C. I think that probably has been the case at times. And of course, in that you've got in making those recommendations you try and support it with all the data, which, if you come to the data cold, can be quite difficult. So, I mean, you used to land up with, sort of, you know, once, if it was a fairly big organisation, once the consultant had produced his report and delivered it you've then got to have a team to try and disseminate what the information was within it. But, I think the important thing is that usually, under that prescriptive basis, the consultant will have given consideration to all the points that they possibly can and therefore the recommendation will have bits that are balanced and traded off ... and provided you take the whole, it probably, it's thought it would, deliver what was expected. In other words improvement. But if you take little bits from it, you reduce the overall impact, and you may well get less benefit. And at times if you choose, chose the wrong bits and left out bits that were very important you could land up actually with a sort of negative benefit. In other words things were worse rather than improved.
966. I. So you are saying that the recommendations are interdependent on each other.
967. C. Yes. Because in an organisational sense you will ... most of what you do has interdependencies with other parts of the organisation. So if you're recommending a change in department A it will impact on departments B, C, and D. If you're recommending changes in department C they will impact on A, B, and D. If you then choose only to take part of the recommendation for A and part of the recommendation for C ... you land up with, you know, it's the old

three legged stool where one leg becomes shorter than the rest and it falls over. You know the sort of thing that I'm talking about. So, it is not decrying the concept of prescriptive, a set of prescriptive recommendations ... but in fact you've got to have a client who will take almost sort of blind faith in ... in taking those on, and will take the bitter pills as well as the sweeter pills as it were. I think you've also got a situation, and typically this happened with I think it was [name of large public owned client] years ago, there was a [name of other consultant] report on the [name of client]. And there was an enormous hugh and cry, because it had cost in today's terms the equivalent of millions of pounds ... this is what they ought to do. And that was a prescriptive ... this is the way you improve you're services, this is the way you improve you're efficiency, etc., etc.

968. I. Right.

969. C. And, in their wisdom, the executive of [name of client] decided they would only implement part of it. And it didn't work and things got worse, and they went back and because it was public money and the rest of it there was newspaper headlines. And they [name of consultant] defence was 'Well, you haven't implemented what we said. You've just chosen bits of it you wanted to implement.', you know.

970. I. They went back to the consultant to try to prosecute...

971. C. Yes, to try to claim against them because their recommendations were not bringing the results that they'd said they would bring. And the defence was unless you take the whole package and do everything they we stand back and sort of say 'Well, you haven't actually implemented what we said.'

972. I. Yes.

973. C. So, that's where consultancy was at one stage...

974. I. Right, so that's where things were then.

975. C. Yeah. Now, process consultancy, which is what we've talked about all through this exercise, has allowed greater participation by the client in developing agreed, and I think that's probably the key word ... developing the agreed strategy with a consequent higher level of ownership, because...

976. I. Higher level of ownership by...

977. C. Ownership by the client, because clearly the client has been an integral part of the developing of a strategy to implement the recommendation. Now ... whilst this process would allow facilitating ... the accommodation of the client's views and also permits the consultant to monitor and to qualify the integrity of the benefits of the resultant implementation plan. You know, so the consultant may come in and say 'Do A, B, C, and D.' and out of the process B gets weakened because there is very good reason and C gets strengthened maybe. But the consultant can still look at that and say 'Ah, but the consequences of that will be...' and if you went too far with that ... becoming unbalanced in the recommendations the consultant could say 'You're not going to get the results you expect from this.' So what it does is put a sort of rein or a control on the ... the effect of cherry picking again. The effect of saying 'These are the things we'd like to do. But, those are the things we wouldn't like to do.' Now, it's the cold report as we were saying before on the prescriptive, that's all you get. Whereas if you're into the process consultancy, you actually sit down and debate that. The consultant can defend or argue a case, or make a case, whatever it

might be ... say 'Look, if you take that bit and don't take that bit, or if you dilute that too far you actually, you're not going to get you're benefits.' So that, at the end of the day, what you've got is a, a strategy, or whatever it may be, to implement the outcome of the consultancy exercise that has taken place. You've got ownership with the policy making body of the company because they have ... sat down and created that strategy. But the consultant has been part of that as well and can say 'You're moving this outside the realms of getting the benefits that ... could be obtained.', or 'If you don't do that you're really wasting your time.' To give you an example of that, a particular case I was involved in, where there was a major sticking point about the role of one director, and it had been at one time a family owned company. And this one director, who as a manufacturing director, was, I think, the grandson of the founder of the company and because the company had grown enormously and it had become a public company by this time, he really wasn't up to it. Now, the ... up to the job that he'd got, and therefore the company had to grab the nettle and say, you know, 'Either we leave him where it is and we will not overcome our problems, or we find something else that he's better suited to.'

978. I. Right.

979. C. In which case we've then got to put somebody else in his present position. And it was actually better in those circumstances almost to create a job for this man. So that you could put somebody in the position he'd got. And, in fact, he was extremely good on the design side ... so what we did was ... and, I mean, he was part of the discussion. I mean, he was a director of the company. He was there, and although there was denial to start with, I mean, you know, he over a period of time it got to the point where he accepted the situation. And, it was decided that there was a particular way in which the company could be organised to increase the profile of its design activity.

980. I. Right.

981. C. And, really what they did was to put the design activity much closer to the, the sort of sales and marketing side. So that they were going out to their clients and saying 'We will provide a design service as well.' Now, he was quite good at that. But he couldn't cope with the hassle and the day-to-day issues, minute-to-minute issues of the production side. Where you've got to make decisions. You've got a whole lot of information. You've got to be able to ... be quite hard at times. Both commercially hard and hard in one's management. Because he'd got whatever it was, a hundred and twenty odd people he'd got to manage. Put him with a small design team. Give him something that, where he could use his design gift and imagination. Offer this to the client, and here was Mr so and so, who bore the same name as the company, and they thought they were getting, you know, sort of a better service. You know, it's actually one of the directors of the company assisting us in our design.

982. I. Right.

983. C. So, but, this would not have come out from a prescriptive recommendation. This came out of this iterative process, of saying 'These are the issues. How do we actually resolve them?'

984. I. Was the solution derived during that discussion then?

985. C. Yes, it was derived during a two day workshop situation.

986. I. Right. Presumably then there was information that occurred during that workshop that the consultant was previously unaware of.
987. C. I don't think so. I think what ... I'm sorry, I mean, no is the answer. It was a situation where it was particularly pertinent to, for the consultant to present the facts without actually drawing the conclusion.
988. I. Right.
989. C. How do you draw the conclusion that a key director and major shareholder is actually in the wrong place.
990. I. I see.
991. C. You know, his grandfather may have been an extremely good entrepreneurial manufacturing guy, but he clearly wasn't. I think he'd have been quite happy if he'd been sort of out on his farm ... looking after beef ... but, nevertheless in fairness he had got a place in the company. Now, if the consultants had said 'Move Fred from that job, the company doesn't need him.'
992. I. Right.
993. C. The report would have been damned and probably nothing would have happened at all. 'We do not like this consultant's report.'
994. I. Possible side effects for the actual consultants concerned, in terms of further contracts.
995. C. Well yes, certainly not further contracts. Certainly a statement of not recognising the politic of the situation. So if you then present a series of facts that everybody agrees, this is happening, this is happening, this is happening. Then a series of perceptions, this perception, that perception, the other ... everybody starts saying 'OK, yes, we all agree those are the problems, those are the issues. Right ... where does responsibility for some of those lie?', and you get Fred sort of saying 'Well, quite a lot of that's my responsibility.' ... 'Right, how do we resolve it?' Ugh, you know, and then other people chip in and say 'We could do so and so.' And it was a process of sort of exploring possibilities, but taking this particular person with those possibilities.
996. I. Right.
997. C. So that, whereas, I think, at the outset ... don't think ... there was a statement there ... he would not have accepted the premise that he ought to move, by the end of two days ... I don't think he was entirely comfortable with, but he at least saw the logic. And subsequently, I know, performed well in that, and probably was very relieved, I didn't have that much personal contact, but I do know that he actually succeeded in that change. And the company succeeded in solving a lot of its problems, by actually bringing somebody new into the organisation in that manufacturing role.
998. I. Right, so it was actually better for the individual concerned...
999. C. As well. But, I mean, he couldn't see that from where he was, I mean... So, coming back to this, and I think we've covered sort of the last part of...
1000. I. Presumably that's quite a good example where the presentation of the information the you've that collected is a very significant problem for the consultant.

1001. C. Right ... Yes, that's really what ... process consultant has a key requirement, which is ... the ability of the consultant to take the findings and analysis of their investigation and present it succinctly to the policy forming executive of the client organisation.
1002. I. Right.
1003. C. And obviously this is in order for the interactive process of forming policy... or strategy to be achieved. I mean, if you go with something that's inaccessible ... then nobody can respond to it.
1004. I. You mean a set of recommendations that are...
1005. C. Well you see yes, but the words I've been using here are very much about the findings and analysis.
1006. I. Ah, right, so it's pre-recommendations.
1007. C. Yes, because and this can be in a way pre-defined within either the proposal for the project or it can be pre-defined for the meeting that you're having, that either the consultant will make some recommendations or that they won't, that they will just stick to their findings and analysis.
1008. I. And leave that...
1009. C. Leave that, yes, to be part of that iterative process.
1010. I. Right.
1011. C. Now, it is about this ability to succinctly present that I believe this research has been a significant, has taken on a significant part of that particular activity. That's why I felt that is was worth just re-stating that background... If the consultant is just going to do analysis and present a report, providing the consultant can understand his process of analysis, providing the consultant can justify to himself and explain to somebody else where he's got to his recommendations in terms of presenting his recommendations, that's really all he has to do. If you go to the process consultancy, the consultant there actually has to present ... a number of pieces of information to give somebody else the understanding that they can become part of the decision making process, rather than it purely being the consultant.
1012. I. So, would you say there's a greater level of depth in the analysis that you explain and put across, whereas in a report it would be a ... a shallower covering of the analytical methods...
1013. C. It would probably... It would probably be more ... summaries of. You you'd land up with a fairly succinct short report on recommendation, refer to a whole load of appendices that would carry a load of statistical information or whatever it may be.
1014. I. Right.
1015. C. But, that ... that, even at that level, that statistical information could be fairly well distilled out ... from the facts. Now, increasingly as you move into the process, depending at which stage you bring the client into the process...
1016. I. For the process consultancy?
1017. C. For the consultancy cycle of work, which is ... about the findings, the analysis, and then coming to, what are recommendations or an agreed strategy.

1018. I. Right.
1019. C. What tends to happen is you get an agreed strategy which will be supported by it, then a statement of recommendations. Rather than having a statement of recommendations which is then torn to pieces, when somebody tries to develop their strategy from that. So that ... sorry you raised a question and I went off at a slight tangent ... I think the important thing is that you actually want to bring, as it were the rawest data, but still within a volume that it can be assimilated. And, you know, that can be quite a balancing exercise, because you can swamp people with data and they can sort of say 'Well ... so what?'. You've got a can't see the wood for the trees type of thing. You've got an awful lot of information but what does it mean. And what you're trying to do here is to say 'The consultant's got all that information. The consultant has at least has put into some sort of logical analysis, some logical form', which can be diagrammatic, and certainly should be supported with organisation charts and any other diagrams that show relationships. But also a means of, analysing the ... the issues where you have effectively free range answers. Because if you're talking about an organisational and relationships, you're actually putting, what is essentially a series of multi-choice questions, 'Who do you report to?'
1020. I. Within a pre-defined list of the people within the organisation?
1021. C. It's multi-choice isn't it?
1022. I. Yeah.
1023. C. 'Who do you talk to about something?' ... 'How do you get on with, answer A, B, C, or D?'
1024. I. Right.
1025. C. Still you're effectively into multi-choice. When you sort of say 'Well, how do things work around here?' you've got a free text response. Now...
1026. I. Or in fact from your point of view it's a free speech response, which you then record as text.
1027. C. As text, yes. But, I mean, effectively it is ... you are allowing people the total freedom in the response that they give, possibly. They are being, either constrained or led by only being able to select a certain number of fixed options. And you see, even if you've got a certain number of fixed options and then you say 'other', from an analytical point of view how do you analyse the others? We had ten people that said A, five people that said B, five people that said C, six people that said D, and twenty two people that said other [laughter].
1028. I. Yeah [laughter].
1029. C. What were the twenty two statements? And you need some way of actually analysing those. And what you land up doing is effectively saying 'Well, of the others we can feed some of those back up into, they're a variation of what we were actually giving as the multi-choice. But ... we've found that two or three other issues that came out under other. But you're doing analysis. That is almost as difficult to analyse as 'How do things work here?' 'Well, they work well...' You know, people give you all sorts of views, again that you then want to be able to access those views in at your analysis stage.
1030. I. Right.



1031. C. To be able to paint the scenario of what is happening, how people are interacting, how people are perceiving the company.
1032. I. And, you're painting that scenario to the client organisation's...
1033. C. Their policy making body in due course. Because ... what the consultant is bringing is actually ... the findings and analysis of where people actually believe they are ... and that can be very different from what is perceived by a board of directors. Talk to a board of directors – 'Does your company do so and so?' 'Oh yes, we agreed the policy on that six months ago and it's in...' 'it's what?' 'Well, it's implemented. We said to the MD get that into place.' And you go to the MD 'Oh yes, fortnight after the board meeting I had my managers together and they were told that was going to be policy in future. They've gone away and implemented it.' You go and talk to those managers, and four of them have got it implemented, and four of them haven't quite got it implemented, and they you go to the next level – 'What policy?' [laughter]
1034. I. Yes [laughter].
1035. C. You know, and it dilutes on the way down. Now ... I mean, there are all sorts of methods used in companies to push those things down through the company, but ... the idea of process consultancy in the context we've got it here, when we're looking at organisational development and all that goes with that, is that ... we're actually saying to that board 'You may have a policy on that. But do you realise that at foreman level one out of thirty five people recognise that as a declared company policy.
1036. I. And presumably the same number or less action on that policy.
1037. C. Whatever, yes. Things get diluted on the way down. Equally the feed up through organisations is not always very brilliant. You can have a group of people in the company who said 'We don't think this company implements its marketing strategy effectively.' And you could have people that are in a sales position, you could even have people that are in a marketing position, but not necessarily the marketing director. You could have people who have inter-reaction on the manufacturing side, or the design side. And all the vibes that they pick up from the client is that the company actually hasn't presented its case very well. In which case marketing isn't working. But the board can sit there and say that 'Our marketing director comes in every quarter and he gives us this report, and he tells us that he's done this and he's done that and we have this campaign, and we've done that, and we've done the other. Marketing's one of the strongest parts of our company.'
1038. I. Right. So it seems...
1039. C. Sorry, you're in your house of paper or whatever. You know, it looks very nice, but it's got no substance to it.
1040. I. Yeah. So it seems that a lot of what you do as a consultant is to ... show the higher levels of an organisation what is actually occurring, or what is perceived to be occurring at lower levels. To give them access to that area, which normally they wouldn't gain access to.
1041. C. Yeah, that is part of it. The other thing is, you can bring in then a lot of consultant expertise in terms of organisation theory ... organisation, you know, the different approaches that people are using in organisations, different structures...

1042. I. Experiences and solutions you've seen in other organisations?
1043. C. Yes, and all that you've read. You know, if you take somebody like Adare in the last ten years, he's probably been the biggest exponent of flatter organisation structures. Now there is one of your management gurus whose been banging his drum around the world and has had considerable influence ... actually saying 'The reality of having that number of tiers in your organisation slows everything down, it makes communication more difficult.' And then you get to the other key things, I mean, the theory of empowerment can be very important if you're looking at an organisation, an organisation structure. So as a consultant you come bringing that in as just one of those areas ... to the board. You've done your findings ... effectively 'Gentlemen' ... men or women by any means ... but 'Gentlemen, the situation is that you believe you have delegation, you believe your people are empowered. In that department that seems to work. This range of departments, these people are saying they cannot make any decision.' And it could be for a number of reasons. They don't have the information to make the decision. You can't empower somebody unless they've got the information. They don't make the decisions because they know they never get a pat on the back for doing it right, but they get hid fairly hard if they do it wrong. So they're not going to make a decision ... and just get chewed off for it if it goes wrong. So you're not empowering somebody there ... or they don't feel they're ... you could say it as often as you like - 'You are given the authority to ... you are the person that should be making that decision.' But the back-cloth to that is 'I don't give you the information you need in order to make the decision.' Or 'If you get it wrong...' [laughter]
1044. I. Or every time you make the decision it's counted ...
1045. C. Yes. So that's what the consultant is about. And taking what is happening, and taking it either on organisation theory or empowerment, or clear objectives, or good job descriptions. I mean, all these things can be part of what the consultant brings as a ... you know ... case in point here, we've got the production engineering, production planning, and the contract engineers. And, I know, in this particular case, those were probably fairly ill defined. They had grown, the company's business had changed. The ... respective roles of those three groups had changed a bit. So, no longer were you getting a coming together, and you'd got a good integration and good, sort of, tight organisation. But then it got out of step.
1046. I. Right.
1047. C. And, you'd got maybe ... as it appears here, too much communication. Because you'd got some decisions being made here, waiting for some decisions from another point, waiting for some decisions from the third player. And, I think it was Peter's comment, you know ... was the holy trinity business ... you'd got this ... situation where effectively all three had to come together. But to everybody else that was very confusing. They had authority apparently, but none of them actually ... could work without the others. Now, that could be totally legitimate, but the exercise in Metaplate showed that that was not the case. That potentially they did have problems. They did stale things up and there was lack of clarity.
1048. I. Right.
1049. C. Sorry, this all came from this and it's taken us a little bit from...

1050. I. That's OK. Has that reached the end of...
1051. C. Yes that's reached the end.
1052. I. Right. That's good background that is.
1053. C. Well, I thought it would be useful, just to sort of say why do we state why what you've done here is important within the overall process.
1054. I. I think what we can do is start to look at software now, and have that as a background...
1055. C. And refer to that context...
1056. I. And refer to it. And then at the end ... what I want to do is look at each facility, or each group of facilities that are provided in the software, and get your opinions of those groups of facilities. And then at the end, once we've done it sort of facility by facility look at the software overall.
1057. C. Yes.
1058. I. Yeah, that's the reason I've got the machine [computer] in here. So that when we're discussing these things we can point to it and this kind of thing in detail.
1059. C. Just as an aside, does that show up at all on your [video recording]...
1060. I. It does. It shows up enough to see roughly where you are. Because I'm familiar with the screen it's enough...
1061. C. So if you can see somewhere to pick up the cursor you know where we are. Or talking about a heading or something else...
1062. I. Yeah I know the software so well and the case study so well, between what we're saying and where we're pointing on the screen I can pick it up. Also the camera's zoomed in, it only actually pick's up about this [hand gesture] sort of area. So, that's really why the camera's here – to pick up the screen, not...
1063. C. and the sound...
1064. I. and the sound, yeah. Right, what I'm going to be done is splitting out several aspects of the software. We've got ease of learning – how quick, easy it way to pick up how the software worked. Ease of use, so once it became clear how it worked how easy it was to actually use. So you may have something that took a long time to suss it out, but once you had it was fine.
1065. C. Yeah.
1066. I. Conversely you may have something that was very straightforward from day one but was an absolute pig to actually use. So there's the distinction there. And, what ... the main thing really, the focus is, what I want to get is an indication of the relative usefulness of all the sections. So, that's the other element, the actual usefulness of it. The added value.
1067. C. I must say I look upon it as very integrated.
1068. I. They [the facilities] are...
1069. C. And pre-empting that, sort of, it's quite difficult to evaluate the individual parts.
1070. I. Yes, I accept that, but...
1071. C. We'll come to it.

1072. I. Yes, we'll try. And yes that's quite strongly recognised. Where I say the usefulness, it's really not the usefulness of this specific piece of software, but the usefulness of the underlying facilities...
1073. C. Yes, the functionality we're talking about.
1074. I. It's the functionality, yes. So, ignoring any thing...
1075. C. Peculiarity.
1076. I. Peculiarities, or thinking about it and saying 'Well if that worked in a slightly different way, but doing essentially the same thing it may be more beneficial.' So that's really where I'm heading. The other thing that I want to distinguish between is usefulness, ease of learning, etc. from your own personal point of view and then to separately try to generalise, obviously from your personal point of view, to the rest of management consultancy. So you may feel that something may be particularly useful to you, but it wouldn't really be useful to the other consultants that you've dealt with over the years, because of the way that they work or whatever. Alternatively, you may think because of the way you work it's not very useful, but it may have benefits to other people.
1077. C. I think the conversation we've already had actually, starts to answer part of that. It does depend on consultancy style. And, how far you're looking ... to having a process, part of which is this opportunity of interaction from the client. Where the tool you're looking for is the tool to aid the presentation to the client. Where you can make available to the client that information that's going to give him the understanding that you've got. But obviously in a very short order. It wants to happen very quickly.
1078. I. Right.
1079. C. So, yes ... take us into it. Where do you want to go?
1080. I. What I've got here is, if you select the open button there.
1081. C. Right.
1082. I. We've got three studies there. The AB study, that's the dummy one used for the training. And, that is the one after the analysis and all of the work that you did on it. So that should be as you last saw it when you left.
1083. C. Right.
1084. I. The Meta one just below is the same thing, but from the actual Metaplate ... that we did last time. And the Meta MD below that is, based on the way you went through and identified themes, I've gone through the whole script and tried to pick out the themes that I could see for you to comment on. Because if you remember, because you were saying that this process that we were trying to accommodate in three hours, in reality would be done on a longer time scale. So we were only able to look in a small area during the time we...
1085. C. Yes. I don't ... I'd be careful in putting too much emphasis on the time. I think had one have been handling the data, I made this point several times, in the previous days. If one were sort of immersed in it, it's rather as you are immersed in the data. Then you're in and your thoughts are running. As you probably noticed last time, it took me half an hour to get into it. Once I got into it, it started to run.
1086. I. Yes. But, even so, three hours to do a complete analysis...

1087. C. Oh, yes...
1088. I. Would be completely unrealistic.
1089. C. Yes, because ... I mean there are occasions where the ... by other methods do take several days. I mean, it's not unreasonable to expect the analysis time to be at least equivalent to the interview time. Now, if you...
1090. I. What sort of time scale are you talking about?
1091. C. Well ... just coming to that one. If you've seen twenty people and you've spent two hours each with them, you've got forty hours. And so if you have forty hours of interview time – probably the analysis is another forty hours.
1092. I. Right.
1093. C. Now, I mean we haven't done that sort of exercise, we haven't had the opportunity of doing that sort of exercise. Neither at the interview stage, nor at the analysis stage.
1094. I. That was the reason I provided that third one [assignment file]. I mean, in my ignorance it may give you some additional themes to say 'Ah yes I would have picked that up.' or 'No, I wouldn't.' ...
1095. C. I'll have a look and see.
1096. I. If you select the analysis option there. If we ... If you'd like to just have a look around at it for a little while to familiarise yourself with it.
1097. C. Yes. Sure. Let's drag that [theme hierarchy slider bar] across there ... come on ... that's better. And a touch further. Have we got anything here at all?
1098. I. If you select the interviewee's...
1099. C. Ah, right.
1100. I. Right click there you can actually select all.
1101. C. I don't know. Do I have to click both do it ... Yes. Right. So, I've got a Charlie Baker again... [Consultant scrolling through interview notes text] ... OK.
1102. I. Right, these [points at theme hierarchy] are the issues that I've, just roughly categorised. Many of them were based on the ones that you've put in, in previous sessions during the evaluations. The earlier ones. Or they're ones derived from the other [manual] exercise ... It's not essential really that they're necessarily accurate issues, but it just gives you something to work with.
1103. C. No, that's very good. Very good indeed.
1104. I. I don't know if you want to select one. To see where it came from in the text. Because I've linked them all in. So, if you move down the text you should find this [currently selected theme]...
1105. C. There's one, yeah ... Yeah fine.
1106. I. Tension between two production shops...
1107. C. Seems to be a point of friction at all levels [reading from text]. Yeah.
1108. I. Right, shall we start to go through...
1109. C. Yeah.
1110. I. The areas then. The first one is the basic area, with this section here [points at text pane] and the section above [points at interviewees, plans, and questions list

boxes], of being able to just simply display interview information. But to be able to filter it, so that you only display a specific number of interviews and specific questions. Just that facility on it's own. Again it's a very basic facility. Don't worry about references to other pieces of software if you've seen it elsewhere. It's the actual usefulness of that that we're interested in. So, feel free to comment on it.

1111. C. I think it's important that one can select the interviewees that one is looking at. Quite often one would want all interviewees for some basic questions. And you start to get some overall picture from that.
1112. I. Right.
1113. C. You may then want, if you've got particular grey areas, and if I may take an example ... you may on this particular, in this particular case have said, actually what I want to do is look at these two production shops and the view of people who are within the two production shops.
1114. I. Right. So, presuming we'd interviewed say twenty people...
1115. C. Yes.
1116. I. You would pick the eight, nine, ten...
1117. C. or whatever ... and you're ... so you're getting an internal view and you're getting an external view. Now in terms of doing this manually what that would mean is a trawl through against the questions you were asking under one set of circumstances and then a trawl through manually scanning under the other set of circumstances. The software quite clearly gives you that flexibility to do the, that analysis. Even to consider maybe somewhere along the line somebody else for some reason, and it would depend on the definition you'd used for inclusion and exclusion. Equally, I think it is very important to be able to deal with just groups of questions. If you go to a big analysis, it may well be that, that you're doing in this area these definitions are better tackled within you're questionnaire structure.
1118. I. Right.
1119. C. If you've got say twenty key questions in four key areas. So you've got questions relating to relationships, and questions relating to structure. You might choose to tackle you're structure questions, those that are specifically to do with structure and say you know, 'Let's actually look at those questions.' And therefore only pull the text up for that. What you could of course always do thereafter is if you ... wanted to ... limited group of people ... again if you want to go deeper, you've got you're structure set and you can always pull in your additional people or you can do another cut of questions.
1120. I. Right.
1121. C. So I think that is, certainly the right sort of level. Individual that you can build up into departments or groups of departments. And certainly that you've got a number of options as far as actually bringing in the questions ... it is possible, irrespective of how much time you spent on designing the questionnaire, that you can get to groups of questions that really have yielded nothing at all.
1122. I. Right, so you're implying that it's useful to be able to eliminate...
1123. C. They're no value. So, you probably wouldn't even bring them into this at all.
1124. I. Right, in that case if we go through the...

1125. C. Yeah.
1126. I. ...the sort of formal questionnaire side of it. How easy would you say it was to learn? And I've got varying from very easy, easy, quite easy, OK, quite difficult, difficult, very difficult. And you can see the scale here, so... To actually operate this how easy was it? How long did it take you to come to grips with it? How easy was it to learn? I suppose another way of looking at that, was it fairly intuitive or did it take time to actually work out how to use it?
1127. C. I think I'd come into the quite easy category there. I think any ... any fairly complex piece of software is going to take some time to learn and I think whatever, you would not expect to go into something of this nature and just immediately ... pick up exactly how it works. Equally, it's not complex. And I'm sure if you sat down and did a full exercise that did take you several days. Once you'd gone through that you'd be very familiar with it and as long as you pick it up every few months you wouldn't have any problems with it, or every few weeks or whatever it might be.
1128. I. Remember, we're just taking about this [points at the text pane] particular...
1129. C. bit here [points at the text pane]. But I think you, sorry I'm taking you to comment on the whole. But, I mean as far as that particular thing is concerned, yes absolutely no problem at all.
1130. I. Ah, so was that quite easy overall or...
1131. C. Yeah, the quite easy was the overall, sorry.
1132. I. So just, specifically for the...
1133. C. Oh, as far as that is concerned, I mean that is ... I would have put that in the very easy category. That is, as you say, very intuitive ... you'd sort that through, no problems.
1134. I. Right. How would you, the same question really, but toward the rest of management consultancy, other management consultants. Do you think it would be the same for them, or do you think there would be a significant difference?
1135. C. In that particular respect I don't think there would be any difficulty at all, no.
1136. I. Right, once you'd got to grips with it then, was it easy to use or difficult to use.
1137. C. That particular facility is easy to use.
1138. I. Ah, just to qualify, it's very easy to very difficult. So, you've got very easy, easy, quite easy...
1139. C. I would say easy to use.
1140. I. Right, and for the rest of management consultancy?
1141. C. Yes.
1142. I. Right, how would you say that contributes to the overall usefulness of the software. I know we've not discussed that yet, but relative to the other things, how significant do you think it is?
1143. C. It is significant in so much as it is the facility that actually dictates the boundary of what you're doing.
1144. I. Right, so what I've got here is a very positive, positive, moderately positive, no impact, moderately negative, this is impact on the overall...

1145. C. Yes, I'm almost sort of answering by asking a question, and saying if it didn't have that ... what would you have and the answer is you'd have everything in there.
1146. I. Right.
1147. C. You'd have no option. But to have all the data you've collected for all the questions for all the people immediately available.
1148. I. So I suppose I'm asking then indirectly how much of a disadvantage would that be?
1149. C. Yeah.
1150. I. How much value does that add?
1151. C. There is a lot of, there is considerable value. So if you come in your positives, it's certainly in this positive area.
1152. I. These questions would all be relative from your perspective, so...
1153. C. Yes, sure.
1154. I. They will be consistent throughout in that sense. So there's no absolute level...
1155. C. No, but I think you are in a situation though, without it, it would become that much more difficult to handle ... volume of data actually being presented to you can be, can become counter productive. Too much and, you know, you'll never work your way through it.
1156. I. Right. So then thinking about that in terms of the rest of management consultancy would you say it's similar...
1157. C. Yes, I mean, I think in this particular area we're talking about here, then yes that is probably consistent between ourselves and anybody else.
1158. I. Can you think of any improvements you think you'd like to see in it?
1159. C. [consultant takes time to consider question] I had an immediate thought that it might have been quite useful to have been able to pull down relationship questions, other questions, that had been grouped under say relationships and structure. Because in your questionnaire you invariably group questions. That was an initial thought. I say that with some reservation though because I wouldn't want it to be exclusively that.
1160. I. Are you talking here about grouping questions within the questionnaire and being able to select a specific group of questions rather than going through.
1161. C. Yes.
1162. I. Right, does the facility to have separate interview plan as, if you like, a group of questions accommodate that?
1163. C. A sub-section of the overall...
1164. I. Well, you could have a relationships question plan, which would have a set of relationship questions in...
1165. C. Yes.
1166. I. A job structure one for job...
1167. C. Yes, because this...



1168. I. There's only actually one plan in there, which I called standard, for this particular demonstration, but...
1169. C. I think that that... Yes that is what I am saying. That you would do well, even in reality, again it's because of the volume of... Because again about the volume, and the focus. And sometimes if there are a team of you involved although you will have selected your, you will have done your particular interviews. You could then say 'One consultant will look at structure, and another will look at communications.', and look at all the questionnaires resulting from all the interviews from the team of consultants that had been involved.
1170. I. Right.
1171. C. That can depend on the form of the questionnaire, on how it's been set up. Because, if you recall, earlier on we were talking about a ... delegated responsibility and people making decisions and not being able to, because they haven't got the right information. We've emphasised very much using this for organisational development, and I've, I mentioned earlier things like communications, and things like job descriptions and the rest of it. There have been occasions, quite a number of occasions, when part of the, or as a secondary set to the organisational development has actually been an information study.
1172. I. Right.
1173. C. Where, it has been recognised at the outset that part of the problems of the company is actually having the right information to hand to the right people.
1174. I. Right, so are you looking at information flows?
1175. C. Well, you can do ... and that could be and certainly has been a very different type of study. But it actually has as a starting point, or can have information that comes from this primary analysis.
1176. I. Right.
1177. C. And you can, under this general heading of communications for example, be asking questions about where you get information to allow you to do your job. Information that allows you to make decisions. Information that relates to the process for which you're responsible. Information, you know, and you go through a series...
1178. I. Right.
1179. C. ...of communication stroke information questions. You know 'How do you receive it? Is it on paper? Is it face to face? Is it off computer screen?' Now, we've not in this exercise used that particular example. But I think you can see that if you had, if you we're going to be able to do that, then to be able to say 'I want as a plan the communications plan.'
1180. I. Right.
1181. C. Now, it could well be that somebody in relationships, or some of the relationship things would highlight pertinent information. But I as a consultant who was looking particularly at communications and information may say to my colleague who happened to now be looking at the analysis on relationships 'If you've got anything that's to do with information or communication, highlight it. I could do with that.'
1182. I. Right, Right, I see, helping you break down information...

1183. C. Yes, so all this comes under plans and I think the very strong answer to my query was about having some grouping mechanism, yes it would and could lie within that.
1184. I. Within that ... Right.
1185. C. Sorry, one of my long answers to a short question.
1186. I. That's what we're after.
1187. C. I mean, I'm trying the whole time to paint the picture for you.
1188. I. I think it's very important on an exercise like this, where there's only one case, to get as much depth as possible, because then it has value academically. I think if you skim along at the level you do probably questionnaire to 300 people, one person, then it's invalid really, or very difficult to justify. Right, the use of that particular facility, could you see how that would impact on the way you work? Would it benefit? What would the benefit be? Would it have a negative benefits or would it change the way you work?
1189. C. No, I think that supports, is very supportive of the way that we and other consultancies work on this. If we take the four headings that we have got there, people are definitely going to work recognising the individual and their position in the organisation. We've just talked about the plans, and those can be important for reasons that we've said in the last few minutes. And, if you've got relationship questions then yes ... the questions may well be phrased slightly differently, but one of the ... if you're looking at any organisation then relationship is a primary area of analysis.
1190. I. Right.
1191. C. And then you've got the related questions, you know the questions here. And again ... I can't think of a consultancy that wouldn't have questions over and above those that are relationship based questions. I would have said the flexibility we, there, to have covered anything we ever did and anything I've seen done by other people.
1192. I. Right, so what would you say the main benefit of that particular facility is? From what you've said earlier it seems to be mainly an issue of speed. The fact that actually going through manually and doing that particular activity of collating and pulling out the questions relating to a particular person is actually quite a time consuming activity.
1193. C. Yes, I mean.
1194. I. It's the actual added value, if you see, I'm...
1195. C. I think the issue all the way through on this is, as with any situation where you've got a very high volume of data. And to do anything with that you've got to have a structure in which you are going to look at that data. Whether you're doing it manually or it's... And if we take, maybe not an untypical, twenty people interviewed and if we take a, not untypical, sixty ,seventy, eighty question questionnaire. You do the sums on that.
1196. I. It's a lot of information.
1197. C. It's an awful lot of information. And therefore to do anything with that you've got to have a structure. And effectively what you have got here is a matrix structure, which on the one side has the people who have been interviewed and on the other it has at three levels of depth on your other matrix. So that we've

got here Charlie Baker, and Ron Rawlings, on one arm, and everyone else, out to our twenty people. And the other way we've got in this case overall just the standard [interview plan] and then we go, we actually go two depths behind that. One that is just about relations, one that is just the other questions. Now, I'm sure there are other ways you could carve that up, this is certainly the way we have done it, and in fact the software doesn't preclude you taking other definitions. All it is saying is you've got ... a structure which is one axis, effectively, of names and another axis which can have a number of plans within it and behind each of those plans you've got two sets of questions, two different types of question. And you could call those all sorts of things. I mean clearly the relationships one does have a very key ... factor, and that is this is where you're getting your chart from. But again I can't think of many people who aren't going to have a chart...

1198. I. We can actually move on to that because that's the next...
1199. C. So, I think ... yes it could be different. But I think that is probably adequate for most people's requirements.
1200. I. Just as a step back, actually no I'll leave that. What we'll do now is move on to the graphs.
1201. C. Oh, right.
1202. I. And we've got three forms of graph, three forms of actor graph.
1203. C. Yeah.
1204. I. The official organisation structure with this overlay facility, the star graph, and the network graph.
1205. C. Right.
1206. I. If we start with the official organisation structure with this overlay of relationships. How easy would you say it was to learn how to use that to hide branches, to look up links in the text, to do all of those sort of things? To change the positions of things to alter the height and width and that sort of thing.
1207. C. As an organisation chart tool it is very easy to use. There are proprietary tools that are far more difficult and are far more restricted.
1208. I. Can we break this down into ease of learning?
1209. C. Ease of learning, easy to learn.
1210. I. Easy.
1211. C. Yes, easy.
1212. I. Bear in mind we've got the scale ... feel free to carry on looking at the scale here.
1213. C. Yes. [consultant looks at scale]
1214. I. That's for you. For the rest of management consultancy, do you think it would be...
1215. C. Assuming that the consultant had looked at organisation tools previously, and that would be a qualifier, then this would rank among the easy.
1216. I. Right. Once you've learned how to use it, easy to use or...
1217. C. I would have said you then come in to your very easy category.

1218. I. Right, and for the rest of management consultancy?
1219. C. Probably back in the easy.
1220. I. Right. And you... the difference there, is that a reflection on your own level of computer literacy, and a reflection on the general level within the...?
1221. C. I think it's a reflection of having spent five, six years of looking at some form of computer aided organisation charts and having spent another five years previously looking at all sorts of means of manually ... presenting them.
1222. I. So it is an experience issue then on your part?
1223. C. Yes, I think that that would be right.
1224. I. Right. So again the contribution to the overall usefulness of the whole set of facilities. So again thinking of the response you gave to the previous one, which was positive.
1225. C. Yes, I ... it would definitely be positive again. I've got some qualifies which I don't know whether you've got space to put your qualifiers in...
1226. I. They're being recorded so...
1227. C. Right OK, yes. It is, it comes out positive ... there are there's first of all a reason why it is positive. Still today as has been the case now for a long time, this represents what most people will relate to when you talk about organisation. They will think of some form of hierarchy chart. It may be drawn in a slightly different way, but essentially they are seeing a two dimensional representation showing varying levels, which are usually to do with seniority.
1228. I. Right.
1229. C. And it is therefore a fairly standard convention. The limiting factor is that increasingly organisations have moved over to matrix organisations from traditional hierarchical organisations and that is quite difficult to represent in that particular chart. It is difficult to represent in any charting. But I think that is both fair to recognise that and I think from your point of view have some statement to make on it.
1230. I. Yeah, right. So...
1231. C. Now that's talking about the base chart. We then come to the links and again...
1232. I. I'm not separating them out.
1233. C. Yeah, but I'd like to make an observation on that, that the linking on this form of chart has always been problematic.
1234. I. Right.
1235. C. I have not experienced any totally positive representation on a two dimensional organisation chart of relationships like this. Where once you start the process of linking you can take that to completion, without getting a very, very distorted, unreadable chart. And that is purely about the number of lines, the amount of information.
1236. I. Right.
1237. C. What you can do is use it for a number of single or complementary or opposing issues, just to illustrate them.
1238. I. Right. When you say issues, you mean relationship type?

1239. C. Yes relationship type issues ... I feel that once shouldn't in any way believe that you can put an enormous amount of information on and have something that is readily accessible to somebody who is looking at it. It becomes, you know, a cat's cradle of lines all over the place...
1240. I. A mess?
1241. C. A mess. So that is the constraint of that type of charting. Common constraint, doesn't matter whether it's done manually, or any of the work that's been done in computer systems...
1242. I. Are you basing that possibly on the experience of delivering this sort of chart and people having difficulty taking on board the number of...
1243. C. Yes, I mean, we've certainly tried, in the days going way back in doing this manually, the solution was to have your core chart and then effectively have on tracing paper one set of relationships and you look at those, and you take that off and you put in another set of relationships.
1244. I. Right.
1245. C. And I guess one had the fond imagination 'Oh if we got some computer you'd be able to show everything.' The answer is you're actually probably only doing the same sort of thing, only electronically. Where you've got your base background and you can say 'Ah well we'll pick up, and we've got some issues here about job description and we've got some issues here about ...' you know, and we've got two or three things which are actually being shown. Get more complex than that – you're in problems.
1246. I. Right.
1247. C. If you imagine half those people being interviewed, and you were to pick up just one issue [relationship]. The number of lines would be quite considerable.
1248. I. Yes.
1249. C. Because there would be relationship issues from what ten people or so, if there were twenty names there, so you'd have lines emanating from ten and some of those ten would have lines to the best part of the twenty other people, or could have theoretically. So, you know I think you, inherently – not a criticism of the, this particular piece of software...
1250. I. Or a criticism of it, but common to all pieces...
1251. C. Yes, it is a tool that should be, it has enormous strength of presentation, but it is limited as to the amount of information you ought to try and present on it at any one time. Now, as applied here you can do an awful lot to overcome that.
1252. I. Right.
1253. C. Because, you can select what you want to put in, and what you don't put in. And very easily you can swap that and move something out and bring something else in. You can also strip out areas where something may not apply, so you're taking a subset and you may say 'That's a very busy area. Let's take all this out because it isn't particularly relevant. Let's just concentrate on that area.' And then of course it explodes up in size...
1254. I. becomes more...
1255. C. more accessible.

1256. I. Specifically there you're talking about the facility to hide branches in the hierarchy.
1257. C. Yes, indeed, yes.
1258. I. And also I suppose to be able to hide different people's interview to reduce the number of lines?
1259. C. Absolutely, so you've got something that assists overcoming the inherent problem of representation in this particular form. But, with what you've just identified, which is taking branches out, only having a limited number of people you could actually make quite an effective tool.
1260. I. Right.
1261. C. As effective as that sort of tool could be.
1262. I. Two specific questions now then, two specific features that are provided. What sort of a comment would you give regarding the notation used to indicate the source. The small circle at the base of the line, indicating the interviewee, the person who gave that information. How useful do you think that is? And the separation of that from the actual direction of the line, the arrow.
1263. C. A number of attempts of representing information in this way through software tools have suffered from how you identify the source of the information to the person that the comment, statement is being directed to, the relationship is being directed to.
1264. I. Whether the flow of information stroke services...
1265. C. Whatever it is, it is always about a relationship. And again I guess there are a number of ways of doing it. I feel that what you've achieved here is ... one of the clearer ways of representing this, I can't think of anything I've seen that is any clearer. They may be different, but not any clearer. Only the concept of the arrow head to say which way something is flowing is very accessible.
1266. I. Accessible to the client?
1267. C. To the person who's trying to interpret.
1268. I. Whoever that may be?
1269. C. There is no confusion. That is something that's going from Rawlings to Kinder.
1270. I. In that case it's a reporting relationship.
1271. C. In that case it's a reporting relationship. And fine he is saying he report to and, no difficulty. To try a, an arrow that also shows where it's come from, for example an arrowhead to the point of which it's arriving can on occasions be extremely confusion. And you do end up with a plethora of arrow heads and also lines leaving that you can't, you can't easy tell. So I think the fairly neat dot, it's distinguishable. I think if I was to comment at all, and I realise there are always problems in doing these things, but I would have gone for a black dot in every case, just because it is slightly more distinct.
1272. I. Right, visibility point of view.
1273. C. Just a visibility point of view. I mean, a comment which I'll make at this particular stage ... we're at the moment on what seventeen inch screen?
1274. I. Yes.

1275. C. The amount of information on that screen is quite considerable. And I think that at the moment one is precluded from either using this on a smaller screen or certainly on a laptop.
1276. I. Well not precluded, but it would be difficult. There's nothing technical in the software that would stop you using it.
1277. C. No, I think though what one might have to land up doing is actually inputting on your laptop, because you would do it [enter the data] where you did it [conducted the interviews]. And then having to stick a large screen onto your laptop somewhere ... to actually do the sort of work that we're doing at the moment.
1278. I. Right.
1279. C. That's an overall observation. I'm not sure it's a criticism as much as just, that, an observation.
1280. I. Yes. It is a limitation from the consultant's point of view though, presumably. The fact of having to get another monitor in. Even if it's a minor one, it's still extra effort on your part isn't it?
1281. C. Yes, it is. I mean, with increasing use of laptops, providing you can get your data in onto a laptop it's less of a problem. If you got to have this amount of kit [points at computer equipment on desk] this volume of kit to actually input your data ... I mean, picture the consultant's environment. The consultant is somebody who arrives on the client premises, has got to be found a corner somewhere. Will probably be in fairly cramped facilities. Will be going through interviews. Will have gaps between interviews. Will immediately therefore want to use some of that time to get data in. And they're not going to be wanting to cart from their car park 300 yards away this [points to desktop PC] – they've got the laptop, that's what laptops about... they'll put in data. They may want to be putting in data at their hotel room at night. They may want to be moving it all over the place. So, laptop is a must at that level. Analysis is quite often significantly done back at base. Because it needs the time and the quite. You don't normally do that on the client premises, you may do sometimes. So it isn't an impossible situation, you know, providing one's got something of the seventeen inch screen. And, I mean, there's nothing to stop you plugging that into the back of your laptop anyway. So, you know, that isn't too much of an issue.
1282. I. Right.
1283. C. There is a point. Do we have any merging facility? We don't at the moment.
1284. I. Merging in what sense?
1285. C. If I was to input some data on my laptop. And you were to input some data, because you'd conducted some interviews on your laptop.
1286. I. No, that hasn't been considered. It was in the scope of the study to start off with that we wouldn't consider specifically group consultancy. It's a focus, a limitation of the study.
1287. C. OK, that's fine.
1288. I. But if you want to comment of the usefulness or potential or problems or whatever...

1289. C. Well, I would make as an observation, that quite often in the last few weeks when we've talked about this we've talked about the team aspect of it. Both in terms of the language that's used when it related to analysis the different terms and if you remember we ... when we were talking about the analysis on the late shift, the double shift, the afternoon shift, the night shift, or evening shift, or whatever it was. Now, part of that is the term that was used by the person that was being interviewed. Part of that at times can also be the consultant.
1290. I. Right, are you saying the term that the consultant choose to use.
1291. C. Well, the consultant may have spoken to somebody else and as always the other person has been talking about the afternoon shift.
1292. I. Right.
1293. C. He goes to talk to somebody else and will ... that person will start talking about late shift. 'Oh Mr Dixon, when you say late shift do you mean this afternoon shift arrangement, the people come in from two till ten?'
1294. I. Right.
1295. C. And the person may say 'Yes, that's exactly what I mean.' And they will continue talking about it in one term, because the consultant has picked up from somebody else another term, because again the consultant may have spoken to a third person who uses one or other of those, they will in their own mind start to use a single term for that. So they're almost doing a little bit of editing.
1296. I. Right.
1297. C. Because it's one in the same thing ... it's rather like ... I'm trying to think of another example...
1298. I. I suppose you could call it a recognised synonym?
1299. C. Yes. It is a recognised synonym. Nice formal way of putting it... You will go through an organisation and you may be talking about, job costing, or something like that. Then there's product pricing. And a lot of people get very confused as to what is a cost or a price.
1300. I. Right.
1301. C. Now, the two are two totally different things. But, the cost that it is to me to produce something is nothing to do with the price at which I sell it to you.
1302. I. Right, but I would imaging that the two terms would often be synonymous.
1303. C. Be synonymous.
1304. I. Interchangeably, and often incorrectly...
1305. C. Right.
1306. I. And is it the consultant's job...
1307. C. A consultant on occasions will check, and then make the adjustment, and then say...
1308. I. That's something that we've come across in the interview process, of these additional questions, to check or clarify.
1309. C. Yes. So, my interview with Mark Dixon has resulted in the fact that every time he's talked about cost he's actually meaning price. And when you put the data and start doing the analysis – you'll do it on the price basis. Because that is



technically correct. You find it with reference to departments. A department may have had a name up till five years ago and it's still know as the body shop when it's called something else these days, you know.

1310. I. Yeah.

1311. C. So, the ... there is a degree of licence to the consultant and ... therefore ... sorry again I've rumbled on and I've lost our point, we were ... we were talking about multi-consultants.

1312. I. Yes.

1313. C. So you've got the situation where it is more likely than not, in a commercial application of this software, you would actually want to allow the data to be input on a number of different PCs or laptops and then brought together for analysis purposes. What you might want to do is merge it, and then a number of people might want to have that merged version, because different people can be looking at different parts of the analysis.

1314. I. Yeah.

1315. C. Because, if you can see, what you land up with ... if you've got four main areas ... which we've often talked about. And you've got communication, structure, relationships, and what was the other ... job definition. At interview stage you're not going to have four different people going in and interview. Interview is a continuous process through there ... and you'll have a number of those. When you come to do your analysis, quite often the analysis will be in that area.

1316. I. Right.

1317. C. So that, in practicality what you want is to be able to ... different people to be able to input those interviews onto potentially different machines. But when you come to do this that could be, you know, this could be consultant 1, 2, and there could be 3 and 4 doing interviews. Because they could be doing several [interviews] each. And this could be consultant four that actually initially the one who's looking at job definitions and issues on job definitions. So there is a merge, and access to the merged data.

1318. I. Right.

1319. C. Within your software that consultant can then just draw down the bit he particularly wants to look at. That's already in place.

1320. I. So that would be potentially quite an important feature for you in future?

1321. C. Well, yes. I mean, other than where you're dealing with a consultant who is a sole practitioner. Who works, or the company or partnership work on the style of very much individual activity. You know, an individual will do a piece...

1322. I. How frequent is that? What would you see apportioned either way? Which is the most common style?

1323. C. Oh, the most common would be teams, small teams. I think the majority of consultancies ... you would certainly get a couple of people involved in an exercise. And you may get ... in this whole sort of organisational analysis.

1324. I. Right.

1325. C. So, yes it is a ... in a commercial sense it is quite an important feature. And while again, as you say, it was within your initial ... definition of the study.

1326. I. Yeah.
1327. C. I think it needs to recognise and, you know, be quite openly stated that...
1328. I. Yes.
1329. C. In a commercial application of this research, to move from research to that stage would actually need something that would allow that merging...
1330. I. That to happen, yeah. Right, the last thing we actually looked at was the overall usefulness of the hierarchical graph, and you gave that as positive. And that was for yourself. How would you say that relates, same question but to management consultancy?
1331. C. It's the same again. In fact, I'm not sure that ... maybe I've understated that. I think that could be very positive for both. It's such as key issue...
1332. I. Feel free to change it if you want...
1333. C. Yes I'd push it up in to the very. Because I've always used the hierarchical structure, if there is a hierarchical structure, and we've said earlier there is in most organisations, as the starting point. We are about taking somebody into understanding a situation.
1334. I. Right.
1335. C. Therefore start on common ground. And the common ground you've got here is, is that hierarchical chart. It will probably be, and should be, as near to whatever they've got in the company anyway.
1336. I. Right, right.
1337. C. As a consultant one of the very first things you'll do is say 'Have you got an organisation chart?'
1338. I. So being able to represent skipped levels and all of that sort of thing is quite important?
1339. C. Yes and I would make a point of setting it up so, you know, the formal published chart by the company, I'd got these in the same order.
1340. I. Right, so it was as close as you possibly could get ... to the same.
1341. C. Yeah. You know, I'm back on my 'Well gentlemen, let's start from here – you all recognise that.'
1342. I. So you're starting on a good footing with something they recognise.
1343. C. Then you get somebody 'Ah well we've altered that.' And then you say 'Alright, look that's where we've started from.' 'Alright, we've altered it, we can edit it.' But ... start from a point, in my view, a very clear point. Everybody immediately says 'Yes I recognise that.' And may also be saying 'What on earth have we paid you money to draw up for us?' [laughter] 'We've already got one of those.' But it's a starting point.
1344. I. I suppose the irony in there is, the better job you do, that you do of mirroring what they produce, the less work it looks as if you've done.
1345. C. Well yes, but I think ... I think it's a case of getting them on board, get them on board with something they're familiar with.
1346. I. Right, right so that's that. Any improvement you can think, oh just before we do, we mentioned the small dots at the end to distinguish the source.

1347. C. Yes.
1348. I. Comments on the lines being drawn parallel, rather than overlapping, because I know that have been, that has caused problems in the past. You see in the software, if there's two lines between the same people it draws them parallel to each other.
1349. C. Yes, I think that that is ... that is a good move. I think that again some charts will work on the basis they will put two lines in and you get arrows pointing in opposite directions – the thing can become difficult. Go back to what we were saying quarter, half an hour ago now ... this shouldn't be used to try and put across too much information. So I think you're far better to put across what you're putting across clearly.
1350. I. Right.
1351. C. Because immediately I can see that I've got two different issues there, I can see which way it's pointing, you know, it's clear. Any improvements, it's always very difficult in these charts and we've got an example just there. Where, we've got the line, you don't want to bring it across the front over the name [node]. But we've sort of lost the little arrow head there. I can just see the tail of it.
1352. I. Yeah.
1353. C. So, I'm a bit sort of lost, or a bit stuck there. And, can't I drag that?
1354. I. You can't drag it across, but you can drag it on top of another one at the same level to move position. So if you drag him over to there it'll swap them around.
1355. C. Yes, it'll only swap so I shall still land up with the same situation. It's just this sort of ... it's silly to take it back to the doing it manually, but if you were doing that manually you'd make sure you'd got the arrow head in somewhere it was...
1356. I. Right, so you, what you did there was possibly indicative of an improvement, was to be able to drag that position [of node] across to actually open the thing up.
1357. C. Well, yes maybe. Or that I could sort of grab hold of an arrow head and do something with it, because I'm actually...
1358. I. Bend it around, or something.
1359. C. Yes.
1360. I. Right.
1361. C. But those are very small refinements ... But what you have to recognise from the consultant's point of view. The consultant will be working on this, he's probably going into a very, very difficult session, and he's been living it for some days. He's got to get his point across 'That line – is that in that direction or the other direction?' 'Well I'd have to look at my paper for that.'
1362. I. Right
1363. C. Lack of credibility ... and you'd do far better not to use aids unless they've got full credibility. So, that one yes definitely.
1364. I. Right. Impact on current practices.
1365. C. That is a good, a very good replication of the best with some editing facilities that are ... more comprehensive than on other tools that I've seen.

1366. I. Is it also, how strong does it replicate the manual process in terms of output?
1367. C. Well, it represents it very well as I was saying earlier ...
1368. I. I was meaning the string and the overlay. How does it compare to that?
1369. C. Well yes. I think what you're getting here is the ability to ... represent, or to prepare a large number of representations very easily. Bearing in mind that we probably wouldn't be using this in the dynamic, because we've got a lot of data here that we're not wanting the client necessarily to see. One would be with this saying 'What do I want to present?' I would be dropping off a number of slides that I can take into a meeting.
1370. I. Presumably that would have been difficult manually because of the time that it would take to draw?
1371. C. Yes, and this is why one tended to land up with overlays, and all the rest of it, so that the core information didn't have to keep on...
1372. I. So are you saying that this is possibly, this particular facility is providing you with the ability to explore more and print off quickly lots of different charts that perhaps you wouldn't have been able print because of the time involved?
1373. C. Yes, I mean, you're talking about improvements ... let's go a big step at the moment in potential improvement ... I'm going to do a whole lot of analysis based on the text that I've got here, and I'm going to pull that out into two forms. There is this linked ... and I'm going to have these charts. It would be quite useful to have that text secured, so that I could actually ... I could only get the text if I'd have somewhere put in a password that allowed me to get hold of that text.
1374. I. Right.
1375. C. And I landed up with a screen layout which was just these two [pointing at actor graph and theme graph panes].
1376. I. If you move over the middle line there [points to separator bar between actor graph and text panes] and draw all the way.
1377. C. Yeah.
1378. I. Ah, you need to be just a little way down from the top.
1379. C. Yes, sorry ... come on ... that's better.
1380. I. Is that what you were talking about?
1381. C. Yes, but ...
1382. I. But with a password...
1383. C. To keep the text out. So, I could actually, I mean, there's nothing to stop me taking this into a meeting, I know it's a bit small, but ... I mean if I was sitting here with the configuration I've got. We've got a number of people, and let's say I'd printed a number off. And we were talking about something - I can actually do quite a lot of manipulation work on there.
1384. I. Within the meeting?
1385. C. Within the meeting. Now that would be a very different dynamic to that that I used in the past. Because that facility hasn't been open to me. I equally don't think you could work on this without having produced some overheads from it,

or be able to project it or whatever it might be. But I would prefer to have those as fixed overheads. Work in the workshop interactive stage, but have this effectively to one side almost.

1386. I. Right.
1387. C. And say 'Ah right, do you mean this?' Now I've the equivalent of that in a manual sense. Where I had maybe that background structure [points to official organisation structure graph] on my main projector. Clear foil, and the coloured pen, and you've drawn it in [during meeting].
1388. I. Right I see.
1389. C. But immediately you've then got, you know, that's usually only put half of it in and the rest of it, whereas, or the little bit you're interested in. Whereas with this you could quite quickly rig some more things in as a result of the debate. And this is one of the reasons, sometimes, why you want two consultants doing the workshop.
1390. I. Right.
1391. C. Because you will always have one that is taking the lead and one that is supporting. That may swap as it goes one. But if one was familiar with this, I think I would be happy enough sitting there saying 'OK gentlemen, we've talked about this for the last hour or so, we've got these various points. Actually what you've said is we've got that there where we started from, we've actually developed our thinking to this particular point' bang [reaches for printer and pretends to pick up paper and hand to interviewer – as if handing to managers in meeting].
1392. I. Right, right, yes I see.
1393. C. Right we go with that. Right that's now the version, mark it on the corner, that's the version.
1394. I. Which is different, a step on from where you are here.
1395. C. Yes. But I wouldn't want in that meeting environment, to actually be in any way ... [consultant trying to manipulate software] come on ... I wouldn't have wanted in that meeting environment to in any way allow that [the interview notes text] information to be available.
1396. I. Right. For reasons of?
1397. C. Security.
1398. I. Confidentiality?
1399. C. Confidentiality, sorry security of data ... because you've stripped out your confidentiality by the time you've got to there [points to theme graph] and you've stripped out your confidentiality by the time you get to there.
1400. I. Apart from the source of the link, but you're saying previously that you don't mind identifying the giver of strict relationship information...
1401. C. Oh no, because all you're putting in there is what's come out of the relationship questions. These are not the observations. This is saying 'I report to so and so. I ... information to so and so.' It isn't saying 'I think he's a bit of a prat' you know ... which is what comes out of this one.
1402. I. Right.

1403. C. So you were talking about improvements, and I was saying that's an overall systems thing, but it is pertinent to the use of that information [actor graphs] and that information [theme graphs]. If in any way you want to anything dynamic with it, rather than having it a static off-line effectively.
1404. I. Right, if we now, say double click on Baker...
1405. C. Yeah, now...
1406. I. And move to the star graph, and basically...
1407. C. Going back in our conversation, a little time ago, I was very strongly making the point about the amount of data that you can have on the hierarchical chart, and what we've got now is one of the better methods of representing the interaction as far as one person is concerned. You've cleared a lot of clutter. You're now actually focusing in on only those relationships that you've chosen to consider for that one person. And by creating the star you've overcome the problem of the actual boxes that are on the hierarchical chart having information behind them.
1408. I. Ah, right.
1409. C. You've overcome the clutter of the people that are not involved. And on this even if you had, in this case what have we got, two, four, six, we've got eight there, quite clearly represented. You could probably double that number, and therefore what you're saying is, you've got potentially a very clear picture of sixteen different points of contact. I don't know if this [points to hierarchical graph button] takes me back does it?
1410. I. That will take you back to the hierarchical.
1411. C. If we just come back to this for the purposes of your record there. By the time you've got sixteen people related to there ... we've got eight at the moment we were saying. By the time you double that up, that starts to get pretty cluttered ... So it is a ... it's an important method of actually looking at those who are key players. You wouldn't, if you were interviewing twenty people, you wouldn't necessarily want to do it for twenty people. But you may say, and this actually had an absolute classic, I can't remember how much data we've got in here now, but ... yes, I mean this is only part of the picture. But in the real case that this was based on I think we'd got Rawlings who'd got twenty some odd contacts.
1412. I. That bracket 25 ...
1413. C. That was his own staff ... but I mean other than his own staff he'd got this enormous number of contacts. Because he was the only person with authority at a particular part of the day. And in fact he was, or people were in contact with him about a whole range of issues which were nothing to do with his job at all.
1414. I. Right.
1415. C. You get completely lost in that on a hierarchical chart. This is ... sorry all that is to say, this comes out and we start answering questions precisely. It is, now you tell me...
1416. I. I suppose generally you're saying that this form of diagram has a benefit over the hierarchical diagram. This goes cut across, whether it's manual or it's a different tool, or no matter what doesn't it?
1417. C. This ... Yes ...

1418. I. That doesn't relate to this particular piece of software does it? Because it's more a characteristic of the star graph?
1419. C. It is a characteristic of the star graph, but I think the fact this software's pick up and used the star graph is a strength to this piece of software. It is a strength to relating this information to...
1420. I. So ease of learning?
1421. C. Ease of learning – it's very easy.
1422. I. And for the rest of management consultancy?
1423. C. Ease of learning I'd have thought was ... back in the very easy, I mean it isn't difficult thing to...
1424. I. Ease of use, once you'd learnt it?
1425. C. Well I would. Yes, I would say that was very easy.
1426. I. And for the rest of management consultancy?
1427. C. Probably you're in the same situation. I mean it's not difficult to use.
1428. I. Right then, the overall contribution of this to...
1429. C. Well I would say very positive. I'm not sure how other consultancies would perceive it. I mean, we put a lot of emphasis on this, we enthuse about it, because of the way we've chosen to present information. I can't believe that it wouldn't be positive. But it may ... they may sort of say 'Well, it's only moderately positive.'
1430. I. So are saying then that you think it would actually vary depending on the actual focus of the consultancy?
1431. C. Yes. I think that that is so. I mean, this is something I say have not seen other consultancies using quite in this form. I mean, this was something that came out of the sort of work that we had been doing. The sort of presentational problems we had. ... there could be a thousand other consultancies using it. It's just that I haven't...
1432. I. So I can actually circle all of the very positive, moderately positive, and then put a question mark to indicate the range?
1433. C. Yes, absolutely.
1434. I. I think that indicates what your saying doesn't it?
1435. C. Yes.
1436. I. Any improvements to that, over and above the ones that you indicated on the Hierarchy?
1437. C. No, I don't think so. Question, if we land up with more than the eight that we've got there where does it put them?
1438. I. What it actually does is it calculates the size of each of these [nodes] and it works out the radius so that none of them touch. So that if you've got say 50 of them it will actually spread it out wider so that they don't overlap.
1439. C. Right, but it doesn't take it down to a small size ... there a standard size box? Or the text size is the same.

1440. I. The text size is the same, but you can change it from there [points to font list box], if you want to. That's how it works ... so if you put a hundred on there you would end up with a large diagram, which would be very spread out.
1441. C. Yeah. And you may not be able to get it all on the screen at the same time.
1442. I. Same time. And again, printing it, you may be able to reduce it down to a small print, print it off onto A4 and then photocopy it onto A3, so ... Similar with the hierarchy graph, if you get a very large one of those you can follow the same procedure.
1443. C. Yes I remember about the hierarchy. Yeah, that's fine.
1444. I. Right, I'd imagine, impact on current practices, as you've been using this really it mirrors what you've been doing for quite a long time, so...
1445. C. Yes, but again you've got potentially the dynamic.
1446. I. Right. So would you say the main benefit would be the same as this previous?
1447. C. Yes.
1448. I. The time that it would take...
1449. C. It ... I mean, I don't think we're saying that in the concept of a star chart there is anything particularly new. And you didn't set out to produce anything new. I think the ease with which we can move stuff in and out of this, and because it's a relationship chart the speed with which we can move people in and out and the rest. Because I am right in saying, aren't I, that if I go back and I remove part of this organisation. What I get at the star chart ... the bit that I've taken out will still be out on that won't it?
1450. I. No, when you hide a branch on the hierarchy, it only hides it on the hierarchy.
1451. C. It does, so I can't ... what I was going to do is make a star around there. OK, not a big issue.
1452. I. So the main benefit really of that is the time issue and the ability to experiment because of the ... How long do you think it would have taken you before, to have produce a chart like that ... or for a series of charts?
1453. C. I mean there was a time when it was ridiculous ... I mean, go back to the beginning when sort of sticky labelled and appended and sort of ... you were talking half an hour for a chart almost. Certainly if you go back to the hierarchical charts, I mean it could sometimes take several hours to produce one of those, to make it something reasonable. And you know, all the problems that go with that, you know, it is ... if you don't get it right, if you want to update it, if you want to put more information on. And let's face it by today's standards bordering on not very professional. But you were looking for something to ... as a vehicle to present the information.
1454. I. Right, this [network graph] allows you to, if you move down to the lower end here, you can now drag actors on there [actor graph pane] and have them in any position you like. In fact ... [consultant experimenting with actors] if you bring on let's say Baker. So that gives you an example. But the point is that you can have any number of actors specifically, and it will show all of the links that you've got set up between them.
1455. C. So you can edit the links by whatever links you've got...



1456. I. ...selected up there [points to relationship question list box]. And you position them in any way you like. So in a way it's similar to a star graph, except you actually add people and remove people.
1457. C. I think it's very different to a star graph, because a star graph is ... in a sense a kind of formal structured ... This is actually a ... a totally editable charting tool.
1458. I. Yes, completely free format.
1459. C. Free format. That's probably the sort of term I ought to be looking for. This to my knowledge is totally unique, I've not come across this before in a software tool. Within our objective of accessibility of information, it has the potential of allowing you to represent a particular set of circumstances that might be quite unique to that particular study, and therefore you want to represent it in a particular way.
1460. I. I think the idea was that you may want to have say three or four relationships between people on one star graph, and three or four that would be on another, to build up a sort of a network.
1461. C. I mean, what this allows you to do is to say 'I would like to pick up ... a particular series of relationships. And let's just say we want to take contacts.
1462. I. Between a particular series of people?
1463. C. And a particular series of people. Now, if those were starting to become quite specific. And as we said before you could have contacts with sub-reasons for the contact. You would actually be able here to draw a very nice little picture. And in this way you could get all those contacts in, all the relative contacts ... and if you'd got two or three clusters ... come on [talking to computer] ... if you'd got two or three clusters, in terms of clarity of presentation you've got every opportunity, and the other day when we were doing this I know we'd got a fairly busy one and I can't remember ... let's point to our friend...
1464. I. Possibly Ron Rawlings, I think he'll be up the top here [points to him].
1465. C. Oh right, yes. Here we are.
1466. I. You just drag him on
1467. C. Oh, sorry, of course you do. Now, if we bring Ron in...
1468. I. I think now if you add...
1469. C. I think now I've got wrong people we can delete this one. How do I delete it?
1470. I. Drag him back.
1471. C. Drag him back, I can't see...
1472. I. It doesn't matter where it goes, just drag him back anywhere.
1473. C. Fine. Yes of course, he's of use...
1474. I. On that note shall we do the ease of learning for yourself?
1475. C. Yes, I mean, ease of learning ... despite my demonstration just, I mean it is very easy, very easy indeed.
1476. I. What about for the rest of consultancy?
1477. C. Yes. I mean that's...
1478. I. And ease of use once you'd learnt it.

1479. C. Yes.
1480. I. The same is it?
1481. C. Yes, it's very easy. I mean, these are extremely easy ... all this side of it.
1482. I. And you'd say the same for the rest of management consultancy?
1483. C. Yes.
1484. I. Contribution, overall contribution to...
1485. C. Yes, it's in this highly positive situation, whatever you...
1486. I. Very positive?
1487. C. Yeah.
1488. I. Right, and from the rest of consultancy?
1489. C. Yes, I mean we're back a little bit like the star chart. Although, I think that probably this would come in the very positive, positive. I say the star chart is a little bit unique, whereas this is very much more ... it's a general drawing, organisation drawing tool ...
1490. I. Unless, it's not a dumb drawing tool. So when you move the node the lines will follow it because it knows there's a link between the two. Rather than using say Microsoft Word or something to draw it.
1491. C. Absolutely. This is what I was saying about the uniqueness of this, and I would underline that and underline it. That from that point of view it is very, very powerful. It is something that ... you know there are times in the past when I would have given my eye teeth to have had something like this. [Laughter between both interviewer and consultant]
1492. I. Right, improvements to that particular form of graph, or the way the actual software presents it, extra facilities anything you can think of ... don't feel forced here, I mean, if there's ... it's just an opportunity.
1493. C. I think that's the sort of question that one would only answer if one had used it quite a lot and found there's some little gismo in it that would have been ... I guess, and this might be old age and colour blindness, and because you've got total selection of colours you choose colours that suit yourself ... I find that some of these colours are fairly sort of light.
1494. I. Right.
1495. C. And probably therefore either one would choose darker heavier colours, or one would say let's run with a slightly thicker line, or something like that. It's a case of it doesn't matter so much on the star and the organisation. Although it may do on the links on the organisation... you know, the hierarchical chart. But I ... some of these I imagine doing this ... particularly it's this case that if you're going to have something, you might as well have something that's more readily reproducible, it's got the strength, would go onto overhead slides and all the rest of it. As I say, if you've got a structure it doesn't matter so much, if you've got the free format then it could become more of an issue because you've got lines going off in all sorts of directions.
1496. I. Right.

1497. C. But that's a very, very small one, hardly worth mentioning. No, I ... as I've commented on ... I think this is very good. Right, what have you got, improvements and...
1498. I. Impact on current practices. Do you think that's...
1499. C. It's a significant step forward. I think it would change current practices.
1500. I. Right, in what sort of way?
1501. C. Well, it allows ... pictorial representation of quite complex relationships, free of the concept of either it being part of the hierarchical structure or being focused around one individual. Because I can immediately bring in focuses around two or three individuals. I can ... and I don't have to show all relationships ... go to star ... no, forget that statement – I've got the same flexibility. No, it's ... if I wanted to look at three key players and there were ten different relational questions. If I try to get three key players with ten relations there I've got some problems [looking at hierarchical graph]. It would become very cluttered. If I take my friend Mr Rawlings – I can only look at him on a star chart. If I [selects star graph] ...
1502. I. It's kept the [free actors on the actor graph] ... if you want to get rid of those, if you right click.
1503. C. No, I was going to move onto them.
1504. I. Ah. Right that's fine.
1505. C. So if I close that down presumably...
1506. I. You just move to the ... the...
1507. C. That one.
1508. I. That one [points to network graph button].
1509. C. That's fine. With this I can pick players. I can pick what links I want, and if it were ten then I could pick all ten of them. I can have a look at some secondary players, bring them into play, I can do absolutely anything I want. Now, I don't know where I can get that elsewhere.
1510. I. Right.
1511. C. And that is moving on the opportunity for presentation in this pictorial form, which you know I warm to very much.
1512. I. Right.
1513. C. The majority of people would assimilate a lot of information from those charts. OK.

Start of second tape

1514. I. Right, if you select the open button. And go to either Meta or MetaMD. And click on analysis. Right, what we did was, we looked at the displaying responses...
1515. C. Yes.
1516. I. And you indicated that was very easy to learn, easy to use, and positive contribution. And then we moved on to the actor graphs.
1517. C. Yeah.

1518. I. And for the official chart, you've got there, easy to learn, very easy to use, and very positive. And the star graph – very easy all the way down and very positive, and a broad range of things there for the rest of consultancy, because you said it depended on the actual situation.
1519. C. Yeah.
1520. I. And network – very easy on learning, and use, and very positive on the contribution. And a slightly narrower range there for the rest of consultancy. Right, now this brings us on to the actual creation of themes. And the linking of text to those themes. If you'd like to right click up there [points to interviewee list box].
1521. C. Sorry right click.
1522. I. Yeah, if you right click and click on select all, and that just ... it's a quick way of selecting everything in there.
1523. C. OK
1524. I. And then you've got all the text. So what I'm looking at here is the manual theme creating.
1525. C. Yes.
1526. I. So this is where you were adding new things, and manually dragging over the text and dropping them onto the theme that you'd selected. If you want to click on any one of these [points at theme hierarchy] you should have the links highlighted for that item.
1527. C. Yeah.
1528. I. There's some links there. Right, so, from the point of view of ease of learning and your own perspective personally. How would you rate that? And it's this very easy, easy, quite easy...
1529. C. Right, manual theme creation.
1530. I. This is where you're dragging here [points at text pane] and dragging and dropping them [points across to theme hierarchy]. And it includes all the facilities for changing your mind and moving the theme somewhere else, redirecting it. So, all of those items.
1531. C. I think this comes into, in the terms of ease of learning, it's probably down in the sort of OK ... it's quite a, it's not a difficult concept as a totally different concept. Certainly I've not see that before and I don't know whether when you did your research you picked up some ideas and this developed from those ideas. In other words it may be that it's a techniques that's been used by others. It may be that it's something that's totally new to you. You know, new by your creation. So, I think there's ... there's quite a degree of learning of both the concept and then learning the process. So I would put that into certainly the OK, quite difficult sort of, probably put quite difficult.
1532. I. Quite difficult. And the rest of management consultants then, if that's the value for you?
1533. C. I can't imagine they're going to find it any easier. So you're probably in the quite difficult again, or could even be difficult.
1534. I. Right.

1535. C. I think at this level you've got to understand ... the methods that we had been using and the method you have developed, which has a direct correlation. It is just different. Now ... I think the areas of difficult are getting hold of this [theme hierarchy] sort of structure to start with, and what that structure could do for you.
1536. I. Right.
1537. C. And then getting...
1538. I. Are you talking about realising the potential usefulness of the...
1539. C. Yes, yes. Indeed. I'm sure you could start out, and do something. So, it isn't that it's inaccessible, but actually to use it so that it's actually adding the sort of value that it can to the process...
1540. I. Are you looking at it from the point of view of using it to it's full potential?
1541. C. Well, you've got to, haven't you? I mean, I would not be doing it justice. So, I think what I would say is to actually go through the learning process is relatively, and I think we've got it by saying it's quite difficult, because you've got to quite a lot to grasp. And I think, yes, probably quite difficult, to difficult for others. Because they might even be coming from the base concepts that we started...
1542. I. Right. Right OK then, once you'd learnt it how easy was it to use eventually?
1543. C. I think we come back into the, certainly the quite easy, even easy. I think it's easy enough to use once you've got into it. You haven't actually, at least you don't appear, I don't know what you've got in the way of observations you can make, but ... there's ... you've almost got to have something of a skeleton analysis in your mind.
1544. I. Ah. Are you suggesting a skeleton hierarchy are you, or?
1545. C. Well.
1546. I. In your mind?
1547. C. I mean, I know we can add on, and delete, and we can do the rest of it. But actually you could invest quite a lot of time and land up with something that still wasn't all that accessible, all that explicit.
1548. I. Right.
1549. C. Now that to me is part of this sort of learning process. But of course, by the very nature of it, even if you've learnt that, when you start with a new study, you've actually got this sort of – it isn't difficult to do the dragging and all the rest of it. That isn't the difficult bit. The difficult bit is ... 'how am I actually going to tackle this analysis?'
1550. I. Right. Do you have the same problem when you are actually doing a manual study? Or is it a similar problem, but different in some respects?
1551. C. I think it's probably a similar problem. So, if you're saying 'Is it easy when you're doing it manually?' The answer can be 'not always'. But I think the real difficulty manifests itself in a slightly different way, because if you're doing it as a paper study, you'll start out ... you'll jot something down to start with, and if that starts to go wrong you'll take a page, throw it away, and then start again. Where as here, you're starting is 'Well, I've taken that, I've put it there.' Now, if

I then want to start altering it. Yes I've got the option of altering it, but if I've got a lot, if I've got in quite some way I've got an awful lot to reconstruct.

1552. I. Right, I see.
1553. C. And I think therefore ... it's what we mean by use, I think is what I'm saying. In terms of so I've learnt how to do it, I've got the structures right, I've got the text, I know how to move stuff around. I can put things in I can rename them. You know, yes, fine. So I've learnt the process. Well, it's then this application of the process, which is different from actually just using the facility. It's actually having this overall perception of where you're going.
1554. I. How you apply it to your particular problem. So are you really considering things in terms of the structure of your themes. You may go in at one level and then decide that that's inappropriate, and have to ... and you may go in at ... and think well that's not really a theme on it's own, it's a sub theme of ...
1555. C. Yeah sure. Yes, that's the sort of thing that I'm talking about. Now, and we've on this particular analysis had our four main headings, which are relationships, structure, job definition ... Now, the questionnaire was broken down that way, but it doesn't have to be and of course it is always possible that you have a questionnaire that is structured one way and when you actually come to do the analysis...
1556. I. Right.
1557. C. Other things have become more relevant, and you would be doing the analysis almost on a slightly different cut to that on which you'd designed the questionnaire.
1558. I. That relates to what you were saying in the last session to do with the four main structures, that you might pull out something like the late shift, and come at it from the side across all.
1559. C. So, I'm bringing all this into the ease of use and therefore ... I am in the quite easy...
1560. I. For the other...
1561. C. For management consultants, maybe even OK for management consultants. It depends where they come from.
1562. I. I'll put it across there, that's not a problem.
1563. C. Yeah. I think the longer, you know ... at the end of the day there is an element of not only ease of learning, but there is an element of some experience and looking at the results from having used it, and used it very comprehensively on a particular study. Because I'm pretty sure ... if you did it the first time on a full study, you would be able to come back and be able to do it far better the second time, and any subsequent exercise you do ... there is an improvement based on your previous experience. And I think that applies not only just at this stage but in the ... the recording of the text and what actually you have put in.
1564. I. Right.
1565. C. You remember previously we talked about some of the use of synonyms and the like. And I think you have got that situation here. Where you may in fact have made it more difficult for yourself.
1566. I. By virtue of the questions you've asked, the structure...

1567. C. Or the way you've ... record the results and then how you enter what you've got as a result of interview, actually in to this part of the process. So, I know we're talking about this, but in fact it's only at this stage that you will find out the strengths and weaknesses of your recording.
1568. I. Right.
1569. C. I mean, that part of it [points to text pane] is not difficult to operate ... bang it in – we've said that's easy enough, no problem. But it's when – the trial by fire for that [points to text pane] is actually when you come to do this [points to theme graph pane].
1570. I. Right, so a very strong link between the two then.
1571. C. Yeah.
1572. I. Right. Then, contribution to the overall usefulness, these particular group of facilities, the manual linking, how much would you say it contributes to the overall usefulness of the software?
1573. C. Well, I think this is where, you know, your innovation has come with this particular exercise. Again we are probably repeating what we said last week when we were doing this [points to text and actor graph panes]. I mean, the actual recording and analysis of that – a lot of people have done that be it manual or however. Charting different people have done different sorts of charting but we've done a bit of charting so that is, there are some new facilities in there which we've identified ... but this with the idea of pulling out ... a whole range of issues and then all your actors, I've not seen anything as structured as that. I accept that in part it replicates what we were trying to achieve. But it's actually doing it in a structured and orderly way. And therefore in software terms certainly and within the methods that you've applied to that, that is certainly something that is new, and therefore contribution to overall usefulness is that, you know, it comes right up in the positive end of things. I think without that, the whole lot doesn't offer an awful lot that is that different. And also bear in mind with this that the strength of a lot of this particularly on your pre... is, you know, you need this to be in place as well.
1574. I. It impacts on...
1575. C. Right the way through.
1576. I. Right. So you're saying positive.
1577. C. I'm saying positive, yes.
1578. I. Right. And for the rest of management consultancy? I suppose the question I'm asking here is do you see it being as useful for them as it would be for you?
1579. C. Yes I think so, I mean, I would, yes I'd probably give it the same score.
1580. I. Right. Any improvements that you could see might be useful?
1581. C. I don't ... we've spent quite a lot of time on this, and I don't think there's an awful lot now left to improvement...
1582. I. This is specific to the linking across.
1583. C. Linking across. I think we've overcome a number of the problem issues that we've had there.

1584. I. Incidentally a couple of things have been modified. If you'd like to try dragging over something, but if you'd like to start to the right of the first word ... You'll now see that you don't have to be on the first word.
1585. C. Right.
1586. I. If you remember, you had to be on the first word, and if you moved over the end... so that's gone. The other thing is that selecting the actual text, if you hold down the shift key and you can select then text ... and assign that somewhere if you like.
1587. C. Along side it?
1588. I. On top of . Now if you click on good relationships – you see what you selected is now associated. So before there was a problem where you couldn't actually select on the ... on an item that was linked.
1589. C. Yes.
1590. I. And that's been cured as well, you can do that. The other thing was that if you'd like say to select from recognise back ... there was a bug where because there was an item underneath that it used to pick that up rather than the text.
1591. C. Yeah, right, fine.
1592. I. So if you select recognise, and that's dragging it. You'll need to click off it to cancel the selection. Right, now if you drag that text up there you should find it picks up the text. Oh, it's cancelled it – I think it must have just missed.
1593. C. Sorry, yes. It may not have been ... hang on...
1594. I. You need to click off. Ah, it needs to be off there, yeah.
1595. C. Oh I've ... Now what we're saying is...
1596. I. Ah, because you've clicked off there [theme graph pane] it's removed all of the text so...
1597. C. We want to... I think we were in here ...
1598. I. You can do it with any of these actually.
1599. C. Yes.
1600. I. Right, if you click on good relationships there.
1601. C. Yes it's logged it in...
1602. I. Now, if you say select from ... to together or something. Now let go. Now if you drag that [selected text].
1603. C. Somewhere else.
1604. I. Somewhere else. It should pick up the text ... remember before it was picking up the link underneath it. Now that's all sorted out.
1605. C. Good that's fine.
1606. I. I think that was a big sticking before.
1607. C. Yes, it really was. That certainly is a ... I think this is where the sort of learning and familiarity we were talking about comes it. I mean once you'd get to use that, I'm pretty sure you'd sort of belt on at a pace.
1608. I. Right.



1609. C. You know, sit down for a few hours with it and you'd actually be whipping through at an enormous pace.
1610. I. I suppose it's just a question of memory in a way, and building up a process that you're very familiar with?
1611. C. Yeah. I think there are two things. One, knowing what it can do. You were talking about improvements and very clearly this is a prototype and one of the things that would be extremely useful is if there were some window – drop down window prompts and that sort of thing.
1612. I. Ah to explain...
1613. C. I think, I mean this is looking beyond... I mean you're saying improvements, as far as functionality is concerned fine. As far as you were asking me about ease of use, then ease of use brings in the fact that ... unless I'm using it, sort of every month or so, I'm back in – I will remember a certain amount, but it's always useful to have something that...
1614. I. Just to remind you what things do.
1615. C. Just to remind ... and I think that's something that clearly one would do with anything, in terms of moving it into more general use.
1616. I. Sure, right. That comment I also assume would apply across the whole piece of software, not to any specific...
1617. C. I ... clearly yes it must. But I think it particularly applies here because this is different, as I was saying a few of minutes ago, unless you've come across this somewhere else, which I'm assuming you may have picked up some facilities from elsewhere, but very largely this has been...
1618. I. But from a management consultant's point of view this is probably going to be novel isn't it?
1619. C. Yes. And that novel approach. Which in itself has quite a lot of novel facilities within it. You actually need to be able to say 'Well, I've got to this point. I've got my relationships. I'm into third level here. Can I go any further? What are my options here?'
1620. I. Right.
1621. C. And some how or other one wants to be able to pick that up. Or I've got myself to a situation. I've got this little chunk of stuff here at first level or second ... third level here, fourth level, I've got that ... well I know I've put it into there to start with but actually it's part of something down here. Now, how on earth do I drag and drop?
1622. I. Right.
1623. C. You know, I know I can do something with it but I need to ...
1624. I. Just a little reminder?
1625. C. Yes. So, you know, it's either a little facility that says 'drag and drop on this' or whatever it may be or 'move this' ... just get a little bit of text that tells you 'Oh do so and so.'
1626. I. Right. You did mention something while we were doing the exercise about quotations. Do you remember can I – I think you asked me 'Can I pull out just a chunk of text?' And I think we were able to create a code sorry a theme from a

chunk of text and then you were able to display all of the themes underneath ... this creating theme from text. It seemed to me at the time that that was quite an important thing.

1627. C. Yes.

1628. I. For you to want to do.

1629. C. Yes, I think ... I think that was coming out as part of the ... compression exercise, I think again in referring to how you actually enter that text, you remember I was saying, twenty minutes ago, the actual input of the text was important, and there is a learning process as far as that is concerned. But I think whatever you do, however good you become, you will with statements, particularly where you've wanted to keep something of the almost verbatim response that you've had. Because it holds a sort of a wealth within it. You know, sometimes a statement can convey a number of ideas and the actual recording of that statement and the retention of that statement will always take you back to those ideas that were encompassed within it.

1630. I. Right.

1631. C. And I think that that ... but when you're doing the analysis you may want to say 'Well, you know we've got this statement which is 30 words long, which was absolutely filled with gems, as far as information was concerned. But I wanted to actually record that and I want it there but to be able to do a compression of that.' which is what, what I think we were talking about when we were talking about the themes.

1632. I. Yes.

1633. C. Yes, that is important.

1634. I. Important. Any ways which you can think of that would change the ways in which the management consultant would operate? This area of facility. The impact on current practices. The benefits, problems, or just changing the way you operate.

1635. C. I think it would change the way ... in our, all our discussions of process consultancy, I think it would change the way in which a consultant has the opportunity to illustrate linkage. I mean these [consultant points to theme hierarchy graph] are definitely pictures that have not been available before, and you know how we've said in process consultancy it is very much, in the style we use, a matter of rapid briefing, getting management aware of what has come out from the actual interview process. And this, you know, had there been times where we'd have had something like that [consultant points to theme hierarchy graph], that would have been a very useful thing to have replicated. And you remember we were talking about printing these out and what you used to print and the rest of it, then that's important. I think ... so on the one hand you've got a presentational tool that's not been available before, and that changes in part the style. I think the other thing is that ... it's probably far more structured than would have been the case previously. This is imposing some disciplines.

1636. I. Right.

1637. C. It's very typically the result of a computerised approach, and most computer systems will bring in certain disciplines. And those disciplines are born out of constraint or out of design feature. To take an illustration, if you think of using a project management software against hand written project management

schedules and one thing or another. You are in fact disciplined by the software in that environment. And, in a sense, here you're disciplined by the software. This is actually saying, you know, unless you identify there and drag it down there, drag it across, put it in its place, do whatever, you're not going to get any information ... and when you're doing it manually you can almost get to a point of sort of saying 'I've picked up the theme I believe in ...' you know you can be less disciplined about it. I mean this is a good thing, because I think one has got to support what one is saying, and that's what it's about.

1638. I. Right.

1639. C. So this brings some very definite discipline.

1640. I. Are you saying there then that it could have implications for the robustness of the analysis and the consultant's ability to justify ... talking about the rigour or the perceived rigour by that sort of thing?

1641. C. [pause of several seconds] Yes, I think that's a very fair observation. I think the reason for pausing and thinking about it is that ... I think the demand is as much on the entering of this text. And the entering of that text as it – that then allows you to do this first level of analysis and I think that that is I think the new rigour, but the strength is both in the actual recording during interview and then the entry of that data, is certainly far more rigorous and therefore will have hopefully a greater sense or degree of reliability.

1642. I. One more thing before we move on. The software actually allows you to put in your annotations as well as the responses verbatim. How much of a difference do you think that makes? Is that a significant facility?

1643. C. It's certainly a significant facility. It's significant in as far that ... there has always been, in this process, two levels of recording. In the earlier stage when, you know, when we first talked, it was a case of you had a questionnaire or an interview sheet and would go through the interview sheet and there was always the margin notes.

1644. I. Right.

1645. C. And the one would say that's the response I've got, but that is something that is either not directly relevant to that and therefore it's not an issue, or it's an action I need to take or it's about manner and style, you know, 'this person is uncomfortable in this area of questioning', 'I don't feel I'm getting the truth here' You know these sort of comments. So I think yes that is ... it is very important, if this is going to meet the requirements. There is actually ... can pick up both of those and therefore your bits where you've got something in brackets or whatever it might be ...

1646. I. Yes it is within the square brackets ... there's an instruction to yourself here 'obtain copy of procedures manual'.

1647. C. Yeah. Now, right that is something to be actioned. But where it is an observation, and we certainly had a number of them, where in fact it was just an opinion one gained about somebody's uneasy.

1648. I. 'Working together – recognised as important for staying in business'

1649. C. Yeah.

1650. I. 'Culture of team working very apparent' that's probably, the last bit is probably a typical...

1651. C. Yes. It isn't anything that's actually being explicitly said. It isn't a fact, and it isn't the interviewee's observation. It is the interviewer's observation on ... a series of questions and a series of statements that are being made.
1652. I. Right, if we move on then. The next one is the automatic creation of themes and links [between themes and portions of text]. If you'd like to move down to the actors section. And this is where if you select an actor you get a... Actually if you select all of the actors you'll get them all. Yeah. How useful – sorry, how easy was it to learn how to use that? And to use it you could select it and click on auto. And it goes through and identifies the ones you've selected. Again, ease of learning for yourself?
1653. C. That wasn't difficult at all. Again I think the only discipline you need, and it's one of these things where it might become almost an iterative process where you'll pick one or two, then you'll add one or two more in, whilst you're exploring. It may be that one would use this in combination with some of this where you're actually picking up people who are very germane to a particular issue or whatever and you want to sort of... What it does do, and again it's probably important for a fairly big study, is that it allows you to trawl through here fairly rapidly to look at either any one individual who's featured or any group of individuals that are within a group or a section. So I think that's important. I think, and this is if you're coming down to improvements can I move on...
1654. I. Yeah, sure.
1655. C. I think at the moment what you've got here is a situation where ... it is both highlighting the person, where they are the response to a question, and that is in your actually, you know, formal questioning side of things...
1656. I. The relationships...
1657. C. The relationships and that, as well as picking them up in the open text. It's almost a case of ... talking about improvements, it might be quite useful just for the speed of scanning through, if the two were, I don't know, in different colours or something.
1658. I. Right.
1659. C. So that you know immediately that if I'm ... if I'm going through, I've got a lot that's highlighted there. Now, if it is just a relationship question, OK that's just a factual piece of information. If I'm actually wanting to see how a particular individual or couple of individuals are referred to, if they are referred to in any particular way then just there highlighted in a slightly different way would be ... I mean obviously where it is a relationship question they tend to be very formally blocked, and you know, you can almost do it by observation, but it is just one of those small things that I think would again just ease the process. Bearing in mind at times we might have quite a large amount of text involved and one could be scanning through pages and pages, you know, as fast as one can and to pick up two people whose names only appear a relatively few times.
1660. I. Right. OK so the ease of learning for yourself?
1661. C. Easy.
1662. I. Rest of management consultancy?
1663. C. Easy.

1664. I. Ease of use, once you'd learnt how to use it?
1665. C. Yeah, that was very easy to use.
1666. I. And for the rest of management consultancy?
1667. C. Yes.
1668. I. Contribution to the overall usefulness of the software, this particular facility?
1669. C. It's certainly in the ... it's certainly moderately positive, I think that's what I...
1670. I. And for the rest of management consultancy?
1671. C. Yeah, put it at, I think, the same. I mean if anybody was to get into this, then it's just one of those tools that ... the whole thing doesn't hinge on it at all, but it's useful.
1672. I. Any way you could see it changing or benefiting or...
1673. C. Well just the one thing I've mentioned to you, which is just an ease of highlighting...
1674. I. Ah, no, you're actual current practices.
1675. C. Oh, right, sorry.
1676. I. Would it benefit, or would it have any problems, or would it change the way you operate? Or does it mirror the way you work?
1677. C. I think it mirrors, it's advantage is the relative speed and accuracy of being able to do it. If you've got maybe a fifteen page questionnaire, and you've got a dozen or twenty of those. Searching for names can be an awfully boring...
1678. I. Yeah, is that something that you would do, that a normal part of the consultancy process?
1679. C. Well, it isn't ... one's certainly done it, but it's like so many of these things, you don't do that every time, with every exercise you do.
1680. I. Are you saying that it's a relatively infrequent activity but...
1681. C. I think it's probably infrequent because it took so long to do it and the accuracy of doing it would be an issue.
1682. I. I see.
1683. C. So I think if it were, as it is here, more readily available and accessible then I think there would be a very real tendency for somebody to use it. I mean, we've gone through and, by way of example, we've looked at somebody like Charlie Baker and we've started to find that this could be quite a key player, not only at a formal level but an informal level. Now, I might then want to say 'Alright, I'm not so interested in the formal reporting but I am interested in who he's got as contacts.' And I've then got a picture of how many contacts and that comes up on the star chart and would be ideal. But I'm then wanting to get down to 'What are those contacts about?' And if we've got here ... essential contacts – description of contact – now it maybe that the name has come up within the description of contact, or it may not have done, but I'm certainly going to have to have gone through and looked at the formal and looked at the secondary question. That's fine not too difficult. But I could then find I've got a statement here 'Who do you deputise for?' and there's another reference specifically to that person, sorry I'm just looking for an answer which actually refers to

somebody else as well, if... Here we are 'description of contact, product specification ...'

1684. I. I think you may have one further on.
1685. C. Anyway, I think you've got the point that I'm making. It may well be that I'm actually...
1686. I. Here we go [pointing to section of text] see your annotations here.
1687. C. Conflict [reading from screen] – yes.
1688. I. Conflict between Ted and Will come out of that. Right.
1689. C. Yes. So it is a matter of – yes the formal answers, structural relationship answers, absolutely fine. But people are referred to a lot on the way through. And we recognised in terms of ... actually being able to haul out, you know, the first name, the second name, the full name, all those could be needed on occasions. And I think it is just very important at this level that we can trawl through. But you wouldn't do it every time, you wouldn't do it necessarily many times in any particular exercise.
1690. I. Right. OK. The next sheet is really all of the same questions except it's relating to groups rather than the actors. So if you were to move down here you'll see probably there's a couple of groups. And you may like to select those ... In fact if you click on one of these buttons here [points to link navigation buttons]. It should move you to the first – there you go – contract engineers. So essentially it's the same facility, but it's applied to groups, rather than the actual people themselves. I mean it could be that this is exactly the same, your perception, as the last one.
1691. C. I think certainly as far as all the, the first four questions ... the answers would be the same. The level of contribution really depends upon the organisation.
1692. I. Right.
1693. C. I mean, it is possible that in some companies you would not find yourself working in groups. In other places you could actually have an awful lot of your data held within groups. It is possible, and certainly we've done exercises where, the interviewee is in fact not recognised as a named interviewee, but as a representative of a team or a group of people. And they have responded therefore in group terms, and they will look upon other departments as groups, and they will look upon maybe external contacts as groups. You know, you get the situation of saying 'well customers are a group'. And therefore again I think one would say 'It's a little bit horses for course – how you're using it'. But having said all that, where you've got groups it's as important as individuals, so it really replicates.
1694. I. Right, so for the individuals then you said moderately positive – so I could put a boundary around – I suppose varying between moderate and no impact is what you're saying isn't it?
1695. C. I mean it's about relevance really, to a particular study.
1696. I. Would that be the same for consultancy in general and yourself.
1697. C. Yes I think so.
1698. I. Any improvements, bar...

1699. C. No, I think just the point I made earlier that ...
1700. I. And changes to current practice and impacts on current practice, benefits, negatives. Would that be the same as before or...
1701. C. Yes, I think so ... I think it's...
1702. I. It's a very similar facility really.
1703. C. It's a very similar facility. I would say the impact, yes it's the same.
1704. I. Right, the next one is the automatic text search, which is where you can select a piece of text, so you can drag on a particular phrase ... and just double click on it ...
1705. C. Oh...
1706. I. ... do a search on that [the word customer is selected], so you can click on OK and it will search through. If you remember we did a few of these and you picked out things like evening shifts...
1707. C. Yes we were doing, because again we were in to looking for similes.
1708. I. Yes. There we go, it's picked out one there [points at highlighted text].
1709. C. Let's trawl back up there ... not an awful lot on customer actually, although I would have thought certainly both those that were interviewed would have ...
1710. I. Presumably in a study, if you were searching for something like customer and you only find a couple of references that in itself is interesting is it not?
1711. C. I'd say extremely. We are a customer focused organisation and nobody actually talks about the customer at all...
1712. I. Yeah, it's just the one.
1713. C. Yeah. Now, to be on the positive side one would not necessarily expect a foreman to have related to customer. It doesn't mean to say that he's not aware of and conscious of, but he would not find that ... in describing his job, talking about issues that the customer is in any way directly relates to him or he directly to the customer in terms of ... He would probably, whereas somebody who had an outside interface would see their responsibility was to outside, somebody like the foreman may see the responsibility to be supplying something internally. And he would have the concept of internal customer, rather than external customer. And an internal customer may very well be referred to by the department or the individual or whatever.
1714. I. Right. OK. So that particular facility...
1715. C. Yes, I think, it will come very high on my list of ... so, in terms of ease of learning – it's easy.
1716. I. For other consultants?
1717. C. Easy again.
1718. I. And ease of use, once you've used it?
1719. C. Well yes, I mean, yes it is, it's very easy to use.
1720. I. And for other consultants.
1721. C. Yes, very easy.

1722. I. This is where it gets very monotonous, but I want to make sure I'm not leading you here.
1723. C. No, no, that's fine.
1724. I. Contribution to the overall usefulness?
1725. C. Yes, it's ... as we saw when we did our exercise when we were chasing the late shift and whatever, it ... it actually probably one of the most significant tool, if not the most significant tool in actually getting these lists...
1726. I. Right, generated...
1727. C. Generated.
1728. I. I see. So where would you place that...
1729. C. Well, it's a very positive contribution.
1730. I. Would you say that goes management consultancy in general as well?
1731. C. Well, if they were used at all, if they were using the tool then yes, I think it is.
1732. I. Right. Improvements to it, any comments?
1733. C. We've only got the one example... This would just click it onto the next one, wouldn't it ... the next place?
1734. I. Providing that one is selected.
1735. C. It'll just move onto the next one in the text.
1736. I. It'll just move onto the next one in the text, yeah.
1737. C. That's fair enough. That's fine.
1738. I. How significant do you think – I mean if you remember, when you do a search it gathers together all the matches and actually creates a theme for them. How significant is that? I don't know if you've used other search systems, but quite often searches, once you've done the search you get a list of matches and that list of matches isn't actually kept as such. I don't know if you're familiar with some search systems, they lose your search.
1739. C. Yes.
1740. I. You've only ... once you start looking in detail you go to some of the hits, you don't keep that search, and maybe if you came out of the session and went back in you wouldn't have the same searches you'd done. But with this the searches are sort of completely permanent, once you've done one it sort of hangs around and you can keep it. How significant would you think that is – just any comments you have? And the ability to go and repeat a search comes within that sort of...
1741. C. Well, certainly ... I think both those features are important. I think that the search ... to be able to replicate a search is very important, because again it's part of this sort of, the whole iteration. You may look at something and ... put it, want to put it aside effectively at that stage and then come back to it.
1742. I. Right.
1743. C. Because some other piece of evidence has re-sparked your interest.
1744. I. An example possibly being finding another synonym for something that you...



1745. C. Yes, I think a very good example is another synonym. I think equally ... there is this whole process of how significant a particular theme is, and really not until you've developed the theme will you always know how significant...
1746. I. Right.
1747. C. So, I think it certainly it is important and the fact as you say, to use your terms 'it hangs around in the background' is again important, because you back to, ah yes, and you're straight back in you can access it again. So yes I put that as important.
1748. I. Right. Impact on current practices of this particular feature? Any benefits, possible problems or would it change at all the way that you operate, do you think?
1749. C. I think that in the way that we've described before it gives you an opportunity, because you've got an ordered text that you're now analysing, which is far greater than ... the way you could carry out the analysis if you'd just got hand written documents.
1750. I. Right.
1751. C. You probably wouldn't – couldn't do it off hand written documents. Just because of the time it takes, the ... we talked last time about the trade-off, the added value, that has to be an added value we were saying. And that comes about as to what you get for the investment of actually putting the text in. Now, if you can get the text in, you know, fairly quickly, that you've got enough experience to put it in, in a way that's going to ... be robust enough for the analysis to take place. I mean if your text isn't robust, however robust you're analysis is – it doesn't give you very much. And I think that's ... so we're in a situation here of saying 'Yeah, that word's thrown up, which is, represents a particular issue or something. Let's have a look at it.' You go in, you have a look at it. That's it, I mean, not difficult at all. Whereas ... and you could do that for as we've said a number of similes, you know it just happens ... and you could say 'Right, OK, I've got a feel for that situation.'
1752. I. Does that replicate what you were doing in the manual process?
1753. C. Well, again ... yes you were trawling. And I think what ... the impact it had was that in a sense to shorten the trawl if three of you had been involved in interviewing – the only way to do that was for the three of you to sit down and say 'Look, you know, I've been analysing this. I've come up with this. Do you recall anything that relates to that from your record?' 'Oh yes.' You know, and then ... but you're sort of interacting at that level.
1754. I. Right.
1755. C. To try and short cut the process. Because if one of you sits down with, you know, this great wodge of paper and you're looking for, what're effectively key descriptors of issues. You've got an awful lot to go through.
1756. I. Yeah.
1757. C. So you just tend not to do it that way. Whereas if you've got ... three consultants that have input their questionnaires. And you recognise there may well be, by the way they've done it, but also by the words used by the interviewees, there would be the need to identify synonyms. Then with that proviso that you know what the

synonyms are you've very quickly got a very clear picture of an issue. Back to our example of the second shift, afternoon shift, the evening shift...

1758. I. Yeah.
1759. C. ... double shift, all that. And it would be no more difficult to do that for two people that had been interviewed than it would be to do it for twenty people that had been interviewed, provided you've put all the data in. So, very, very powerful compared with manual methods.
1760. I. Right, right, excellent. You mentioned, I remember during the exercise, something about the application of this and the business of refining your search. I don't know whether you want to comment on that at all. Remember you were talking about the process of actually putting in the search and changing it and changing it and...
1761. C. Yes. I think that ... I think there is a case out of the experience to say that you don't always get the search defined correctly to start with. You may have a broader area you want to narrow down. And again this is very difficult from a manual point of view. If I pick up a particular word and I'm looking for that word manually then I'm looking for that word. Now, I may pick up the similes for that word if I'm reading, you know, if I'm back at my 150 pages of text ... that can be quite difficult. Here it could be that I pick up one word. I then know there is a simile for that, so I've picked that up. As I'm going through I actually trip across something else, I can then add that in. So I think one is either expanding, or one could be actually narrowing. And again...
1762. I. An example with the narrowing would be the shift business where you picked up people's job, the word shift in people's job title...
1763. C. Indeed, and it could be that one has actually picked up too wide an issue. And one would then want to re-define the words one was looking at, or as you say in that case you picked up a word, but it was used in two totally different contexts. Part of the description of the job and part of in fact an operational issue, which is what we were looking at. But as we were saying earlier, I think this is where ... it isn't that easy to use it effectively first time through. I think these are the things you learn over a period of time. And as I've talked about through the process speeding up, I think...
1764. I. It's a question of application.
1765. C. It is application. It is that process that comes out of repeated use. And therefore a continuing learning process out of that.
1766. I. Right, the next feature is the, this business of theme relationships.
1767. C. Yeah.
1768. I. Being able to link these, and say that one causes another. Being able to link them with the actual actors – to indicate that there's involvement with a particular actor. First of all, how easy would you say it was to learn how to do that?
1769. C. I think that comes into my ... OK sort of area. Again it's a slightly different concept. And it has quite a number of sort of facilities in it that are not that obvious. So, you have got a learning process. And I think it'll take a bit of time, again, to learn to use it effectively. I'm sure one could muddle through, but that's rather different from actually ... grasping hold of the power that there is at your fingertips...

1770. I. Would you say similar or same for consultancy in general?
1771. C. It's the same.
1772. I. Once you grasp it then. Ease of use for yourself?
1773. C. I think it would come in the quite easy.
1774. I. And for the rest of consultancy?
1775. C. I think it would certainly be OK.
1776. I. Right, the contribution to the overall usefulness of the software?
1777. C. Well, we were making some observations earlier that ... I think partly related to this, and this links back to presentation and one thing and another. And I think the contribution is certainly in the positive ... bordering on the very positive, certainly it's positive anyway.
1778. I. Right, which would you ... I mean, I can put on both if you like, or one or the other.
1779. C. Put positive.
1780. I. And for the rest of ...
1781. C. Sorry, I'm going to change that because I think it, I would say from where I come from it's probably very positive. I think it's positive maybe for others.
1782. I. Right.
1783. C. In as much as I would use that as a means of getting to, as I was saying earlier, to illustration and demonstration. Others may not want to, other consultants that is, may not want to use it ... in quite that way.
1784. I. Do you do a lot of, I suppose it may be called causal analysis, isn't it, where you're looking to look at causes or relationships between things.
1785. C. Yes, both look for and represent. I come back to this presentation side. I mean this certainly helps the analysis to identify cause and the rest of it yes, you know, sort of pull it together and create a picture. I think if you, then got to convey that in some detail to somebody else, then this is where I come with this one with my sort of fairly positive responses to it. Because I think it is a way of illustrating just that, you know illustrating exactly where it's come from and the build up...
1786. I. Improvements then, anything, any ways you could see it improved, or any additions?
1787. C. No, I don't think so. I think again, we ... I was talking earlier about the flexibility of the thing, and in a sense I've really covered that in the sort of - it's OK as far as the ease of learning is concerned, so that the only area that one would look for improvement is if there was a way that one eased the learning process.
1788. I. Right.
1789. C. And I think that is more about any prompts or anything that gives you a way into the structure, it's at that sort of a level. Functionally, I'm not ...
1790. I. Right, benefits, problems, impact on current practices? Does it mirror what you do?
1791. C. It certainly, well no, it is ... it is, there's innovation in this, in as much to me it is something that is new. And therefore it allows you to do things in a structured

manner, that either one couldn't do, didn't do before. As I said previously, at times you would take a different cut, because the tool was there, that you hadn't been able to in the past. So I would ... it would change practices, because there is an opportunity to do something that wasn't there previously, which comes back to the communication of information.

1792. I. Right ... Right, the next set that we move onto then are the two forms of theme graph, that we have. The first one is the hierarchy that you have here, and what I'm considering here is how easy it was to set up the hierarchy, to move things around, to move around and display things ... to hide branches, to display the number of links, number of interviewees commenting, ... and make sub-themes and move them around and stuff. So, ease of learning for yourself on that?
1793. C. It comes into the OK.
1794. I. Right, and for the rest of consultants?
1795. C. Probably OK, it's that sort of level.
1796. I. Ease of use, once you'd actually worked out, and comfortable with it?
1797. C. It's quite easy, probably for both.
1798. I. Contribution to the overall usefulness of this particular facility.
1799. C. Yes, I find that difficult to differentiate from what we've just been saying. Because your previous questions are about ... theme relationships, and this is theme...
1800. I. This is the actual graph itself...
1801. C. But that is only a representation of theme relationships.
1802. I. Theme relationships, yes. Yes, I'm just academically trying to distinguish between the representation and being able to set up ... I suppose if you contrast it to another package that may be typed in the theme relationships, allowed you to set them up, but you couldn't actually produce a graph out of it. So ... I think you've probably answered this...to a certain degree...
1803. C. Yes, I think I probably, you'd got the same answers.
1804. I. The same, you don't want to modify those in light of that.
1805. C. No, no, I don't at all.
1806. I. So you gave, contribution was very positive.
1807. C. Yes.
1808. I. And, the rest of management consultancy would be positive.
1809. C. Yes.
1810. I. Right, a couple of specific things. How important do you think would be the ability to hide theme branches and things. you remember you can click on the line and you can ...
1811. C. I think there is ... I'm looking at it from two points of view, I think as far as the consultant is concerned, when he's actually doing the analysis, if his analysis and the set-up of themes, and the rest of it has been pretty good, he may not want to do that because he'd of already of ... been fairly tidy in the process. If he's not been so tidy in his ... the way he's developed it, maybe because of the complexity of the data he's dealing with it may be quite useful to be able to take

out things. I think the more important, from the point we're looking at the moment, is that you've got this opportunity to move things round.

1812. I. Right.
1813. C. I think that is important, because ... if you'd made a once and for all decision you've actually got a problem to live with. Whereas if you can move things around that would help. Having said that that's about the consultant. Now if the consultant is going to ...
1814. I. ... would you say then that moving things around supports the iterative style?
1815. C. Very much so, absolutely it does, yes. If you say 'Is the consultant actually going to use this to prepare material for the iteration with the client?' Then I think to be able to suppress is very important indeed. Not that one wants to be concealing something from them, but it may well be that ... I can almost see it, if you'd extended one of these [points to theme hierarchy] into a fairly comprehensive study, where you've got your theme of relationship and you've got your sub-themes and you've got say two categories below that, I could have this running to three screen depths.
1816. I. Yeah.
1817. C. And I may say well that's far too much information, I used it to do the analysis, but that's far too much information from the point of view of a presentational tool. Therefore if I suppress everything at this lower level, or even at two levels, or I could want to do a ... just start out with something where you've just got the higher level in, and then in terms of printing it out have broken it down so that I'm expanding pieces, saying I'm back on my theme of accessibility to support the iterative process with the client.
1818. I. Right.
1819. C. Now, it does, it has its strength in supporting that style of consultancy. I could well have a similar strength in terms of, if one was preparing these and dropping them into a report structure, that maybe want one little bit that's got a lot of detail in, but somewhere previously you've actually got a summary of the situation. So you've just picked up the themes and the main issues of the themes. So I would use that as a tool to essentially edit into this sort of interactive, iterative stage or the reporting stage.
1820. I. Would there also be an element of audience, if you had particular issues relating to the late shift you may want not want to display those if you're displaying to a different part of the organisation that doesn't ... I mean do you ever have such a large area...
1821. C. No, I wouldn't think so. It's unusual to feedback to that sort of level in the organisation.
1822. I. Right.
1823. C. But what I might want to do, and have done in the past is that, and this would have been done through slides, one would have prepared slides where you'd land up with a slide that had certain information on, and in fact you replicated part of that on some other slide and put some additional information ... because what you're actually doing is sort of saying if you've got here – good relationships ... would have come out, conflict would have come out, tension would have come

out. And then I actually want to start talking about conflict and then tension and then explore the tension area.

1824. I. Almost like an executive summary of the overall issues, then in depth on each...
1825. C. Yes, yes.
1826. I. Right, right. The only other would be this business of, if we right click here [points to the theme hierarchy pane], being able to add...
1827. C. Could I just make a ... I mean, it's not unusual in this workshop environment that I've been talking about, which was for us, was key feedback and first of all dissemination of information that's come from the questionnaires to the company's executive and this sort of iterative process to getting towards ... potential action plans or whatever. You could have maybe sixty or eighty slides you'd prepared.
1828. I. Right.
1829. C. To use over, you know, a two day period. Some of which may not actually ultimately be used, because you've almost had to compare against different options, as the debate, as the iterations goes forward...
1830. I. Contingency planning.
1831. C. Yeah. Now, and this is why I keep on coming back to sort of saying, you know, this is where there are benefits in doing it, because those, I mean if one goes back to the earliest days when we used to do it, you had slide makers, which were those sort of letter at a time sort of things. Now, you move onto PowerPoint, you've still got to type all that in, you've still got to do all the structure for it, and in fact you know it can be quite a long job even now. Now, also what you tended to do, obviously, was to just put down a list of bullet points. Now, there may have been relationships between those bullet points, but for ease of presentation all you did was just put them down as bullet points. Here, you're immediately giving a ... perspective, a depth to the information...
1832. I. Right.
1833. C. Because that has got a number of levels, or degrees of relation, just even by the simple indenting. I think ... it is a reflection of style, but quite a lot of people follow, you know, a not dissimilar sort of technique.
1834. I. Right.
1835. C. So as far as the consultant's concerned ... this is, I'm again back to my added value. This adds a lot of value to the... Anyway, number of interviewees, yes.
1836. I. That gives the number of interviewees that actually have pieces of text linked to that particular item [theme]. So, 'tension between plant A and B' we have two interviewees, so two people...
1837. C. Yeah.
1838. I. 'Conflict between Ted and Will' personal one, one interviewee, 'good relationships' one interviewee. Value, significance, any comments?
1839. C. The, one of the things that the consultant is trying to do in presenting the case bit, as a final report or be it as a part of the dialogue after all of the interviews have been carried out, is to try and put some weight or some credence to the ... the observations that are being made. And obviously the most significant is the number of times that issue has been raised. And where you are, as we are here,

analysing ... open responses, you're able to say to the client, without questions that solicited specifically an observation of that issue, it was nevertheless raised. In other words the question was 'How do things work?', which could be from 'extremely good' to 'they don't'.

1840. I. Yeah.

1841. C. And you're landing up with maybe a band of responses, within that, that are all very similar. And therefore you could be saying, ten people have been interviewed, ten people have all come between two and three on the scale. Or we've got eight people who are within two and three, one that's sort of five on the scale, and somebody else that sees everything through rose coloured spectacles and thinks it's ideal [mutual laughter]. So...

1842. I. Probably the person who implemented it.

1843. C. Well, absolutely, yes, yeah, I mean it could well be, you know. Somebody who can't see, you know, their own problem ... So, I do think that the numerical weighting is, has been important, we've always used it.

1844. I. Right, right. So would you say a benefit of this then is the possibly the time ... did it take a long time to compile that, would you say that...

1845. C. Yes, I mean, I think I've a number of times over the years come back to our five bar gate approach. Where one's actually sorting through and saying, you know, 'How many times was that said? Now, how many references where there?'

1846. I. How many people have actually?

1847. C. Yes, was it a case of, you know, one person that was saying it twenty times, and nobody else said it at all, or whatever. I mean, in interview you've still got that to ... you know, we've got to be wary of that, in using this. Because you don't want to be over stressing or under stressing something...

1848. I. You could have fifty links with one interviewee...

1849. C. Yes ... Yes, I, again it replicates what we have done. But again in a structured manner, in a disciplined manner. And, I think, very much more accurately than one would have probably done by visual scanning. And, I mean, the speed of doing this would ... is very fast compared with that process.

1850. I. Yeah. Right, the next one is the theme network graphs, and if you want to say click the network icon there [points to the network graph icon]. You can now drag some of these over and if you select all of the, if you right click ... and select all. It's going to overlay these, so this seems to be in between late shift, so if you drag late shift ... ah, try tension between, yes.

1851. C. Yes, there it is.

1852. I. So the idea is that you could build up a...

1853. C. I mean I...

1854. I. There's another example of what, so that's the sort of thing we're talking about here. So, ease of learning for yourself?

1855. C. Not, not difficult to learn. So, it would come into the easy.

1856. I. Right, for other management consultants?

1857. C. I'd say it would be quite easy.

1858. I. Easy of use, yourself?
1859. C. Yes, it's very easy to use. It's probably very easy for anybody else to use.
1860. I. Right. So, the contribution to the overall usefulness?
1861. C. Yeah, it's probably one of the areas I find most difficult to judge.
1862. I. Right. Why would that, what is it that's making that difficult?
1863. C. Well, because it is a ... it is offering something that has not really been used in this way before. I think everything else that we've looked at I can say 'been there, done that' in that form or in a slightly different form...
1864. I. Are you saying that this is something that would have to be trialed practically?
1865. C. What I would say is that this linking that you've got on this [theme hierarchy graph] is almost totally inaccessible.
1866. I. You're referring to actually seeing the links, it's cramped and...
1867. C. Yes. That is not the way to form the links, or at least...
1868. I. To display them...
1869. C. To display them. It doesn't work, and is probably about the least successful bit of what we've got. But to be able, again, to actually create a picture, where we've got... I'm not, because we've got links down ... into...
1870. I. You can actually add actors to that.
1871. C. Yes. Now...
1872. I. You may find that Rawlings is linked to the late shift.
1873. C. Yes.
1874. I. So if you're looking for an example.
1875. C. Yeah.
1876. I. And it's also picked up the relationship link that's been given as the response to a question.
1877. C. Now, I perceive there may be, this is about as guarded as I can be, a very powerful little tool here on occasions. With the amount of data that we've got in at the moment, it's quite difficult to judge. But it may be that if I was to go through and to ... how do I loose these?
1878. I. You just drag them back.
1879. C. Anywhere?
1880. I. Just anywhere.
1881. C. Let's just take those out because at the moment they're just cluttering the ... cluttering the show ... that isn't related to anything at all so I'll take that one back again ... I mean, just as I'm using it at the moment there's a sort of a very straightforward drawing tool as it were, which is rather demeaning it nevertheless. I mean, it is actually even at that level extremely useful. I think if one had again got back to this how do you support your analysis, then you've got something here that allows you very quickly to ... illustrate, other than by a chunk of hard text. I mean, I can write that down, I can say 'Situation here, where I've got Rawlings, who is involved in the late shift and has views on the late shift and is talking about the late shift causing tension between the two



Plants, and in fact, although there isn't a link there, it does say that there are two interviewees that have made that point.' Now, I could also land up with a situation that if we'd got a lot more data available, there may be a further chain link, or there may be a lot more cause lines that there are illustrated.

1882. I. Try adding the conflict between Ted and Will.
1883. C. I'll do that by all means. Yeah, OK.
1884. I. So, the personal conflict causes the Plant...
1885. C. I think that as I've just sort of given you the dialogue to that, hopefully that will illustrate that ... I can sit down as the consultant and say 'Oh we've got this issue, how do I actually ... I've got a picture. Now, if the consultant is interested in the pictures and feels that's the way of communicating it, or wants to present something that is going to stimulate the discussion to get to the solution, or to a statutory that might resolve the issue, then I think you would probably be able to draw some ... some very helpful diagrams that would illustrate what the views are and what the relationships between the views are. And people would react to that. But that has to be a slightly speculative statement, not having, not having used it.
1886. I. What would you like to do with these responses. Would you, I mean, I can put the word potential, I mean obviously everything you've said has been recorded, so that will come into the analysis so...
1887. C. I think you're into a potential situation here...
1888. I. So potentially where would you put it on...
1889. C. Well, I think it's potentially...
1890. I. Bearing in mind you can give a range of things.
1891. C. Yeah, we're actually opening up a slightly different issue here. And one we've not touched on I don't think before. And that is that ... I would not necessarily use all these all the time, what this does is give me some options. So what I may have, instead of printing out a chunk of this [points to the theme hierarchy graph], I may find that I would use this [points to the theme network graph] as an alternative. Or I may have taken that [points to the theme hierarchy graph] out with just the key issues and done some sub analysis...
1892. I. Right.
1893. C. At this level [points to the theme network graph]. I think previously we talked about the sort of the overview, and you have to give an overview, I mean it's rather like, if you start with the organisation you start with the organisation chart that everybody recognises. And in organisational terms you may focus into a particular part of it which is problematic, you know, and that's where a fair bit of it is going to be. You've got, in a sense, the same thing here. That may well be a useful tool to explore just an odd area or two.
1894. I. Right.
1895. C. So that, you may present those, for maybe three issues of all the issues that are around, because that happens to be a very illustrative tool, illustrative representation ... atrocious English. You take the point I'm making. And again you could do a study and not use something like that, because it all drops out ... of the theme chart.

1896. I. Right.
1897. C. But, I think, if you're trying to link between themes and link between people and themes ... and there are occasions where you want to do that. We used to on occasions ... let me just see how this works ... if I ... [consultant modifying network graph] ... I mean I know these two are not directly reporting to one another, but we ... on occasion produced something that looked a little bit like this. Where you've got a touch of the hierarchical chart and you've got an issue that has been raised. Now, of course what you're likely to land up with, if you've got a number of people related to the late shift issue, you'd have this as a theme for each of them.
1898. I. Right.
1899. C. And, you know, these are causes, and you could land up with ... you know, if you've got half a dozen people that have raised late shift, and they've given you three, four, five, causes actually quite a big picture of issues that are all relating around that.
1900. I. Right.
1901. C. And I think that that could be an extremely powerful tool, but bear in mind that you are actually moving into an area that moves through the confidentiality barrier here.
1902. I. Right.
1903. C. When you link somebody in with, because this is saying that Rawlings is the source of that late shift information.
1904. I. Ah, it's not, no it's not, the involved is a link in the same way that causes is a link that the consultant has made just as an observation...
1905. C. Right,
1906. I. So that involved, just means involved...
1907. C. Yes, you've told me before, yes, it's alright, that's OK.
1908. I. Is that a potential problem? Because if you've continuously interpreted it in that way, is it possible that the consultant would find individuals in the client organisation would just in that direction, and say 'Well, why has Rawlings said the late shift?' Do you think that might be a problem?
1909. C. I think you're covered by putting the word involved in, and you've certainly reminded me we've had this conversation a long time ago ... I don't think it devalues what we're talking about anyway, because I mean I can choose to just pick up if I wanted to just the late shift information...
1910. I. Right. Or to just remove the involvement link?
1911. C. Yes.
1912. I. So you just show causes for example.
1913. C. Just show causes ... Rather as we have with the third level of actor charts, where you're actually pulling people in as you want to, I think you've got the same facility here. It is a very powerful means of creating the illustration and when one recognises that one of the biggest issues you're dealing with is about communication anyway. Communication of what you've discovered. Anything that helps that has an enormous potential. I think I would just want to badge it

around a few people, as it were, in the real world, in terms of putting it on the back of a study and saying 'Yeah, actually people warm to that very strongly.'

1914. I. Right.
1915. C. Whereas this was new, it is only a different way of presenting something that one had previously done.
1916. I. Right.
1917. C. This actually is quite different, although we've gone part way on this, where we have got people and two levels of links, which were often cause related. But it ... that was achieved by the structure of the question.
1918. I. Right.
1919. C. And you were actually restricted to multi-choice answers to that, in the way we've worked previously. Whereas here of course you've got totally free format answers.
1920. I. Yeah, I see. So that those were pre-determined issues or pre-determined answers whereas this...
1921. C. Well, they were pre-determined options. You know, yes.
1922. I. Whereas this is themes that have been possibly generated through the process.
1923. C. Generated through the process. So from that point of view...
1924. I. Yeah. Ah, so would you say then with this contribution to overall usefulness, I'll put in potential, we could have a range from no impact in a study where you didn't use it at all to...
1925. C. A very high impact. I'm just thinking about this actually, you've just triggered a point that is very, very pertinent, that in any work that I've done previously in this area, if we wanted to do re-analysis of it there has probably had to have been some structure in terms of multi choice. Now as you know with multi choice you either have a very short list, which gives you a very coarse analysis, or you have a relatively short list that can lead ... the interviewee, or you have a very comprehensive list, in which case then the analysis becomes extremely difficult. So, this in terms of allowing the interviewee to make their own statements and still be able to analyse it rather than go multi choice is an important issue.
1926. I. Right.
1927. C. So, I think...
1928. I. That statement seems to span the entirety of the software, rather than being relevant to this.
1929. C. Yes, but as far. I mean certainly that's very true. I'm not sure whether we've put it quite in those words previously, but I think that is true. But of course, you've always been able to have that text, what one would have had was, if you like, some of the questions you would have had your multi choice answers. Now, if you'd then got your multi choice answers, on those alone you'd have done something like was moving towards this. But what we've got here is the ability to produce that [points to network theme graph] from the free format answers. And that is a breakthrough, that is something that is new hence my saying I'm not too sure quite how...
1930. I. Right.

1931. C. It would be used. But if I draw the parallel with the multi choice then, certainly the multi choice answers present it in a fairly similar way, actually had quite an impact. They were quite important. So I think this is probably ... going to be certainly positive on the contribution.
1932. I. Do you want me to put in the range, or ...
1933. C. No, I think you can go positive.
1934. I. And the rest of management consultancy.
1935. C. Probably moderately positive. Again, it depends how far they've gone with their thinking. I've just drawn a parallel to draw, to give you that answer. Because I was talking about what was provisionally to start with. I've now actually moved a bit from that provisional, saying by ... you know, taking a somewhat different application of this sort of thing, where I know it's worked, I can pre-judge. Well, I am pre-judging.
1936. I. Right. Any improvements?
1937. C. I'd need to use it a bit more before I could say that.
1938. I. Right. One thing that I think you said was that it was difficult for you to find the ones that were actually linked. Maybe a facility that would actually display the ones that have links between them may be useful.
1939. C. Yes, I mean I...
1940. I. Because that seemed to be what you were actually doing. You were looking for things, themes that were linked, weren't you?
1941. C. Yes, I think, again, if this had been part of the on-going process of analysis I'd have probably known what was going to be linked. And I'm looking at data fairly cold again at the moment. That isn't to take off what you've just suggested. I think that could be of value. I think the other thing was that I was critical for that very reason of the representation in this vertical format [theme hierarchy graph].
1942. I. Yeah.
1943. C. You may not have a few issues open and going and you've got so many lines on it that its...
1944. I. Yeah.
1945. C. See once you start getting to that level, you know, I have to say I don't think that's really giving you very much at all. I mean, part of this is generated out from ... from here I'm assuming. There's a whole wodge of something going on here.
1946. I. Yeah.
1947. C. And that traces right the way through back up to here [consultant looking at theme hierarchy graph].
1948. I. To actually identify that seems to be quite difficult doesn't it?
1949. C. Yes ... because you've got cause written in, I think ... which is just sort of coming out ... have I already got that? Yes I have.
1950. I. If you wanted to hide that, if you just click on the line just before that ... ah, it's moved the other one.

1951. C. Yes. But ... I say, I think it's one of the, well it is the ... how do I get that back again? I click on ...
1952. I. Click on that again.
1953. C. Yes. It's one of the least effective parts. It's exactly the same problem as we had trying to put the lines on the hierarchical chart. Right at the outset, when I remember a chart was sort of so [consultants hands fully outstretched] long, and paging it across, and you'd got all these lines. You just couldn't tell, and of course as soon as you get a little bit of distortion on the line, which you do get on the screen of course, forget it.
1954. I. Yes, yes.
1955. C. Anyway.
1956. I. Right, impact on current practices. You've already touched on that...
1957. C. Yes I have.
1958. I. You think it might change the...
1959. C. Yes I think it would change current practices quite considerably.
1960. I. But it would be difficult for you, I suppose, to identify why, because that would need to actually be trialed.
1961. C. Yes.
1962. I. Right. What we move onto now. We've got three sheets.
1963. C. Right. Let's go.
1964. I. Are the three integrated charts. So, if you select the hierarchy now. That information [points to previous network graph] is now overlaid onto the hierarchy. So, if I give you one that's already been pre ... and it's basically what we've just done with this late shift, tension ... in fact, it's really very similar to what you were saying earlier, about what you used to do, regarding putting themes under the hierarchy and in this case they're in between.
1965. C. Yeah. I think my immediate response to this is I would be wanting to narrow it right down, get rid of a lot of extraneous.
1966. I. Ah, right. So, you can click on some of these branches [points to actor hierarchy branch]...
1967. C. I'd tend to possibly have that out of the way. I'm not sure that that's offering me very much at the moment. Now, I can drag and do can't I?
1968. I. No, not on here, no. Because it's the hierarchy.
1969. C. Right...
1970. I. Ah, you can say move Hamilton onto the director there and it will swap them around.
1971. C. Right. Yeah ...
1972. I. Ah, can I suggest you take that one and put it up there, and the late shift – bring it down. Is that any more readable?
1973. C. Yeah, I mean, as a nifty piece of software this is very good.
1974. I. Shall we go through the ease of learning for yourself?

1975. C. It's easy enough to learn. There's no constraint on that I think it's...
1976. I. On the scale we have here?
1977. C. Well, it's certainly in the easy. I think it would be easy for anybody else. It's very easy to use.
1978. I. Right. And other people ease of use?
1979. C. Yes, easy to use.
1980. I. Easy.
1981. C. Well, sorry, very easy, yes.
1982. I. Right. Contribution to the overall usefulness of the software? This is where you probably started looking at it, and what you were talking about earlier.
1983. C. I'm not sure it has any impact at all actually.
1984. I. Right.
1985. C. I don't think. I think what we were just looking at previously gave me the freedom to pull in the actors that I wanted to, in the relationship that I was looking for.
1986. I. Ah, right, right.
1987. C. And I don't think that this gives me anything over and above that, other than clutter. As you've noticed I've been taking some people out and generally ... I mean, at the absolute tops, all it's done is put ... what we were saying into some sort of hierarchy.
1988. I. That will be the official organisation structure.
1989. C. Yeah, and I'm not sure that when you get down to this you're actually worried about the official organisation structure.
1990. I. Right.
1991. C. Bear in mind that you've got people who will be familiar. If you want to do anything about the official organisation structure you will be doing that at a different level to having these sort of issues. I wouldn't say that particularly helps.
1992. I. Right. What if you have issues that are relating more strongly to the organisational structure? For example too many levels, or ... somebody reporting inappropriately, or confusion, or...
1993. C. I don't know that I'd choose to put it in to the hierarchical chart. I mean, either it's, let's take your case of too many levels, I could illustrate that on that freer format and use that as effectively a drawing tool. Because probably that would be in one part of the organisation.
1994. I. Right.
1995. C. If it isn't in one part of the organisation, it's an overall issue. And I think if I start to ... have it as an overall issue I'd be illustrating it time and time again on these here and loose definition.
1996. I. Right.

1997. C. So, I'm ... not immediately jumping up and down and saying 'That is going to add very much' I think there might be the odd case that you use it, but I don't see it as having a major impact at all.
1998. I. Right, so it's no impact. And for other consultants?
1999. C. I would have thought that they ... they certainly wouldn't be any higher than no impact. I can't ... I don't know of anybody, or have never read or seen anything that would lead me to believe the people would go down that one...
2000. I. Improvements?
2001. C. I don't think I'm looking for improvement. I think I'm really sort of saying 'I think there are other facilities that you've offered that for me and I think for others would probably better represent what we're trying to represent here.' and therefore...
2002. I. So, trying to actually get a ... very clear picture of why this doesn't seem to be useful. And what is it about it that doesn't seem to be useful. I suppose you've already answered that in saying that it is not adding anything really that isn't provided more effectively somewhere else.
2003. C. Right, yes, let's go back to ... that one...
2004. I. Sorry, it's the one to the right of that...
2005. C. No, can I drag ...
2006. I. Yes.
2007. C. Now, if I bring Baker, Rawlings...
2008. I. Right.
2009. C. Right, I've now got the same information that we had previously. And I'm saying, what we're saying here is let's have Rawlings, he is involved in a late shift situation. It's believed that that is a ... and that situation has a relationship to that tension between the two Plants. We've also got this conflict situation, and we've got two people that are involved in that. So I've got a picture here...
2010. I. Right.
2011. C. I've got nothing else in that picture, except that particular issue. I haven't got other people, you know, assuming I've got all the players, all the actors there. And I happen to know I have because I went through the other way, but I mean in doing this one we'd obviously have checked that through. I would then therefore be inclined to just pull out what I'm trying to get people to focus onto, rather than if I go back to this one is it?
2012. I. The one on the far left ... that one. I know they're all in different places but I think I can see where you're going, that that's introduced a whole host of additional information, which even if you move things around hid and things...
2013. C. Well, yes, you saw what I was doing to start with. You know, if I'd have taken all of these out ... because they don't seem to be in any way relevant to the ... cause. Where have those come from?
2014. I. These are the original ones that you dragged on before. It doesn't get rid of them ... that's, probably be viewed as a bug really. If there are people that are...
2015. C. Now, I can't remove him, because he's, up...

2016. I. Up, yes.
2017. C. Now, I've still go this... Now, how do I want to do this... Let's move that bit of information somewhere down here. I'll move that across there. And let's for the moment say 'Right, OK... [consultant clicks on print text button]
2018. I. Ah that was the actual print the text. Print down here to display that.
2019. C. Oh, sorry [consultant clicks on print actor graph button]. Now ... [consultant dragging more people onto actor graph]
2020. I. Right. Would you say then that this graph is more focused and more to the point?
2021. C. Now, because I wanted to get those two people on, I'd got to have, on this one, the boss. Because I needed him on I couldn't take him out, or him out.
2022. I. Right.
2023. C. I could have possibly taken those out. I ... not too, I could have probably taken...
2024. I. That there, and that would have got rid of those two.
2025. C. Yes, but nevertheless ... I've got to go through quite a process and I was, and it was going to be still giving me information that wasn't necessarily terribly pertinent to where it was going.
2026. I. Right.
2027. C. Whereas that I don't reckon is a bad representation of the situation. Which was ... well you saw how long it took me to do it.
2028. I. Yes, yes. I see. So for this one then, a possible improvement would be to be able to click and just show the people that had links to the themes. That may to a certain degree part of the problem, that the process of actually getting just the people on there that you wanted was so long [consultant nodding in agreement] and laborious because you had to click on all of these...
2029. C. Yes, I think I was saying earlier, if I'm fairly familiar with a situation it didn't take me a length of time to pull in the people that were involved.
2030. I. Yeah, on this one.
2031. C. Yes. Now, I mean, if I'm not too sure about something, I can say 'Well, I wonder whether ... now, is that relevant to what I want to say?'
2032. I. Right.
2033. C. 'No it's' ... right, take it off the scene ... 'oh, no that's not relevant'
2034. I. Oh, I see. And at some point you'll be 'Oh yes, that's relevant.' and you can...
2035. C. Well, it could be. I mean, we know Charlie isn't...
2036. I. Jim Lemon may be.
2037. C. No, you see he's not even involved in ... Jim ... no, he's not involved in these issues, you see, here at all.
2038. I. That's interesting. I thought he would come up with some links between him and Rawlings, because he's Rawlings boss...
2039. C. Ultimately, but you may have...



2040. I. Oh, no, sorry, his immediate boss is Nick King, isn't it?
2041. C. It's ... Yes.
2042. I. That's who I was thinking of.
2043. C. Yeah, but ... you know, one may want to have...
2044. I. It depends on the situation doesn't it? I've just remembered, part of the problem with the late shift, I think, was Rawlings saying that Nick King wasn't providing him with enough support ... so depending on your brief it may be relevant I suppose...
2045. C. Yes. I think I'm leaning towards the free format tool there. That actually being tied in with that structure ...
2046. I. Right, excellent, that's, sort of got to the bottom of why the ... that it's the superfluous information...
2047. C. Yes.
2048. I. That seems to be far more focused.
2049. C. Yes.
2050. I. And you get exactly what you want...
2051. C. What you want...
2052. I. Right. So ... move on then. The next one then is the themed star graph. Now ... it we, if you select somebody there, maybe select Rawlings. Those are alphabetical, so move down there ... Right, now, let's do a little bit of tidying up here ... [consultant starts manipulating graph]. Now, that's actually one of the ones that's actually linked into the structure. It's the one here, I think, that is actually the free form one isn't it?
2053. C. It is, sorry, yes, obviously. Now, this is ...
2054. I. With these [points to structural node], these take priority, so yeah, you need to select...
2055. C. Right.
2056. I. Right, so, ease of learning, ease of use. Now, these are, the mechanism by which this works is the same mechanism as the official organisation chart.
2057. C. Yeah. I think this is ... I'd give you the same marking as the official organisation chart.
2058. I. For learning and use?
2059. C. Yeah, for learning and use. I mean there's nothing very difficult about it at all. I think ... I think by the very nature of this ... I'm not as ... critical as I was for the hierarchical chart.
2060. I. Right.
2061. C. Because you haven't got the same clutter. I equally wonder to what degree one has got any additional information, over and above where we were with the...
2062. I. I'd say with the free one there's no additional information because you can just drop the same actors on as you have here. But the distinction is that all the people that relate to this person are displayed automatically, quickly really.

2063. C. Yes. I think what it does do ... and I'm just again ... I mean it would be quite interesting if you'd got a number of these people who were actually relating into the same issue. But it wouldn't be shown ...
2064. I. Yes, yes, I mean, if these people were related to the late shift as well then those would be linked in. If they were relating to these other ones, I mean we can draw some in if ... probably not ... I don't know ... unfortunately I don't think anyone actually indicated contact with either of these people [points to free actor nodes]. But, yes if there was, say, involvement, say Will or Ed were on this then the links would be there...
2065. C. As well.
2066. I. As well. So it ... it would show all of the links between the actors and the themes that were controlled there. All of the relationship types here [points to theme relationship types list box] and all of the types of relationship between actors there [points to relationship question list box] ... [Consultant manipulating diagram] ... difficult one?
2067. C. Can I?
2068. I. Yeah, I don't think anyone's linked to that one.
2069. C. No, they're not ... they might be because ... oh, that wasn't what I wanted to do...
2070. I. Ah, I think ... what we could do – this lack of support for foremen, what Rawlings was actually talking about ... was the lack of support he got from Nick King. So what we could do is where it says lack of ... in fact lack of understanding involved ... Charlie Baker, this holy trinity, didn't it?
2071. C. Yes, I mean...
2072. I. ... but in theory there's a couple of things there which could be linked.
2073. C. I think, yes ...
2074. I. Having a hard time with this one aren't you?
2075. C. I'm trying to think of application. And I think there are applications. I mean, if for instance we were looking at somebody who ... over and above their formal links and their contacts, actually was somebody who was involved in the ... a particular part of the communications network or some sort of support network, then I think it might show quite a lot of addition ... overall information. And what we're aiming for is – one could very easily say of Rawlings, and I'm doing a for instance here.
2076. I. Yeah.
2077. C. These are the people that have either said they have contact with him or he has said there is some form of formal link or contact, fact. Then we find that in answering that all sorts of people are contacting Rawlings and you ask questions about communications and you ask questions about ... oh, I don't know, a whole range of issues. And you start to get a fact that this person some how irrespective of ... is involved, is part of ... and that can sometimes be quite difficult to draw out and to ... get to the bottom of. Certainly if I was wanting to do that, where it is these secondary links. And other people start coming into the scene – I couldn't draw that freehand, I probably wouldn't be able to carry that amount of information.

2078. I. Right.
2079. C. What is was drawing free hand was really focusing on one thing, with a handful of players.
2080. I. Right.
2081. C. I wouldn't want to go to a hierarchical chart, I would have probably put that out of court for this, but I think this may well bring together, if we form the right links and all the rest of it with the data ... could actually be quite a powerful tool if there were one or two, three people who I was particularly looking at ... them and issues, maybe issues of communication or something like that.
2082. I. Right.
2083. C. And of course we didn't look at issues of communication, we looked at relationships. So I ...
2084. I. So I see ... we are talking about a specific form of issue here, communication. But I suppose possibly relationship type issues.
2085. C. Yes it could be. You could come out there. I think it would be worth doing something else with the data to see what actually showed ... But I think you actually could because ... what this is quite clearly done is said 'Yeah, those ... that's part of structures and the formality of communication, but once you start getting into some of these other issues indirectly you could find out there are a whole, there are almost a sort of a second tier of people, where ...' I'm just not too sure, I'm ... I haven't got ... I mean, here I was saying it's relatively easy to use, and in terms of getting at the information, it probably is. I think in terms of what it might tell you ...
2086. I. The application.
2087. C. Yes, the application, it's quite difficult. Probably the most complex thing we've looked at.
2088. I. Right. Do you feel that you can't give a response to that, or do you feel...
2089. C. Yeah, I'm just wondering on this that the ease of use thing that we've got here, sort of get down to it at this level. I think is very good, is actually down at this end. It isn't difficult...
2090. I. I think this business of application...
2091. C. Is almost a different question on some of these...
2092. I. Yeah.
2093. C. It isn't just an ease of learning – can learn to use it. The easy of use – I can move stuff around. But if you're talking about application...
2094. I. I suppose really...
2095. C. And this applies to the last two or three sheets. There ... is a point of application ... no ...
2096. I. Application I think probably is close to this usefulness.
2097. C. Yes ... The one where we've got totally free format – I think that the ... learning and the use is easy as we've said. And I think that the contribution or this application is very easy to apply it and get something from it, but it may have hidden depths that you build on by experience.

2098. I. Right.
2099. C. I think as far as the hierarchy is concerned ... [consultant shakes head] ... that's, I don't want to know about that really, I don't think that's helped. As far as this is concerned ... again, just manipulating stuff is not difficult, but I'm not sure how one might or might not use this to its full potential. And I would want a lot more data about a lot more actual issue related things that we're talking about, to say 'Yeah, actually this tells me about this guy. It tells me that there are issues here that', this is telling me something of the underside dynamic of what's happening in the company. That's what I feel I might get from it but I'm not convinced by that.
2100. I. Right.
2101. C. I mean, if we got into the question of ... support networks, support relationships. If you're talking about ... a major re-organisation of a company, one of the things that's quite important is where people actually ... informally and sort of socially have their support within that organisation. One of the reasons that re-organisations may not work is because you actually destroy that human aspect of support, rather than the business aspect of support. But I think this might show you something in that area.
2102. I. Right.
2103. C. You might well use it by the questions that you've asked, which are not questions that we've got in this questionnaire at all. But are some of the options that you have in some of the other questionnaires.
2104. I. Right.
2105. C. I'm not writing this one off, but I'm not saying at the moment we've got data that illustrates its potential.
2106. I. Right. So, on the scale really, you're saying either 'don't know/ question mark' or 'range across everything', or 'range between'...
2107. C. No, I think we don't know. I don't think there's relevant data...
2108. I. To actually...
2109. C. To actually ... But you've obviously got my comments and by all means qualify that.
2110. I. Yeah.
2111. C. I think particularly if one was looking at re-organisation. One was looking at the support network side, then I think you may find that this could well help with that.
2112. I. Right, right. Improvements.
2113. C. Can't judge.
2114. I. No. And impact on current practices.
2115. C. I think it has quite a strong potential to impact on current practices. We've done work on these, sort of support networks and the rest of it, and ... there are some free standing tools that will help you illustrate that ... but they're not integrated into this, and they are certainly not looking at this sort of free format response. And therefore it could change current practices quite considerably, if the true

potential of that comes through. And it may well be that you want to set up something that's got some different data in and have a look at that.

2116. I. Right.
2117. C. One more?
2118. I. One more, and then ... couple of finish off questions at the end.
2119. C. Right.
2120. I. Now this one, really, is the last one, the network graph here. What had actually happened is that ... here we come to the theme network and really what I was talking about here was this [theme network graph] without the actors on it.
2121. C. At this stage.
2122. I. At that stage. At that stage there.
2123. C. Oh right yes.
2124. I. Now, I think you actually answered that...
2125. C. Because I started pulling in actors anywhere...
2126. I. Putting in actors anyway. So ... what we can do is answer...
2127. C. Now, hang on just a second, let's have a...
2128. I. Right, so trying to distinguish between the network just with issues [themes] and then the ability to add actors to that. [consultant manipulating graph]
2129. C. Right ... I would put the two absolutely along side one another in all respects. And it's horses for courses.
2130. I. Right. If you did not have the ability to have the actors here and have them automatically linked in, do you think that would restrict you at all?
2131. C. [Consultant nods head].
2132. I. You think so.
2133. C. Yeah, I think you do need the two options.
2134. I. Right. So, would you say then that the network that just shows the themes is slightly less useful than the network that shows you the themes and the actors?
2135. C. Of course it is. If I want a carthorse I get a carthorse, if I want a racehorse I get a racehorse.
2136. I. Right.
2137. C. And I think there are showing ... they would be used for two different purposes.
2138. I. Right, right, I see. Both having their own value in those circumstances.
2139. C. Mm, you may well have things here which despite the fact that you can link people and say people are involved, that would only cloud the issue. On other occasions to say 'Well, these are the people involved in that' actually clarifies the issue.
2140. I. Right, I see. What we want to do now, to finish off, is to stand back and look at the whole piece of software in its entirety. All of these underlying facilities together. The first thing that I want to put to you is this business that we've discussed, at times throughout the process, is this cost benefit situation. Would

you say that the facilities provided, provide enough added value to make the data entry here worthwhile. Do you think it would actually be used?

2141. C. Yes, I ...
2142. I. Feel free to qualify, give conditions...
2143. C. Yes, I shall. I think there is a ... a question on sort of when the payback actually starts. In as much as you may do one or two sizeable exercises and actually feel that it's taking you longer that it would do, to do whatever you did before.
2144. I. Right.
2145. C. You'd land up with, maybe not the best analysis, and you'd have had slightly better analysis done manually to start with. You could find that because, you know, because you'd got distracted by the issues you'd raised. Having said that, you've got all your text there, your answers. You could always run through on that and do the manual ... so to ... But what I'm really saying is I think you might have to go through a couple of reasonable sized exercises before you started to see the benefits.
2146. I. Right. And that would be a learning, experience, application issue?
2147. C. Yes. Because I think you could put the text in, and that's your investment. I mean that is an additional step ... you've taken from the written text and you've got to put it in. What you're definitely saving on is the process of analysis ... once you've set your structure for that analysis. So once you've set your themes and the rest of it – will take you time, and to start with that will be a fairly slow process. But once you've got your themes ... once you've got your data in, you've got your themes then what you can actually produce with this, both diagrammatically, both illustrated by the highlighting of text, by the themes and the players, and all we've been through with the mixture of the two. All that actually shortens what has traditionally been a very long process.
2148. I. Right.
2149. C. But you've made the front end longer. And you've made it probably considerably longer until you have got through that ... the ideas of how you do actually cope with the application and the rest of it. You know, can you do this bit, can you do that, if I do that – what do I get. If I want to get try and get to draw this point out – how do I do it? And you're not constrained when you do it manually. You can choose to do...
2150. I. But manually it takes that...
2151. C. To then do the illustration, to then do your support text, text slides and the rest of it does take a long time. I think that that is something that is ... this is where you're getting your big saving. And bear in mind the number of times I've been saying that things that one could do only because one was in a ... a multiple choice, pre-defined, essentially pre-defined responses. Certainly this is allowing you for the first time in my experience to go into analysis of free text, which is what the exercise is about.
2152. I. Yeah.
2153. C. And that must have a payback. It also does not preclude a lot of the analysis you would do on fairly set text, if you wish to have set text. Because if you've in fact said 'Well, I want to put in the responses to some multiple choice questions.'

You'd just put them in as text responses to the multiple ... and do the analysis based on those. So it hasn't precluded anything, but it has added...

2154. I. Actually, although we haven't covered it, it has the facility to put in checklist responses as well. So yeah, that's...
2155. C. Yeah ... So from that point of view...
2156. I. Benefits of use out-way the costs...
2157. C. Yes. But I think people would have to expect a learning ... and therefore an extended payback. Invest in the first couple of exercises you do, from there on progressively use it more effectively and get the payback.
2158. I. So, presumably the quality of any training that people have would have a large impact on that. If the training was quite weak, initially it would lengthen this process of getting to grips with the application.
2159. C. Yeah. I think your drawing out application is very important. That's probably the most important thing that's come out of these last two sessions. That you've been asking me about learning and you've been asking me about use of specific facilities within the software and the certainly the learning and the on-screen use of those are not difficult. But I think the application of some of them is from the quite hard to the very hard. Because there are almost no, sort of, set guidelines or rules. You're actually ... working through a problem and saying 'How best can I use this to analyse the problem. How best can I use it to...'
2160. I. Ah, right.
2161. C. Not because it's constrained in doing that ... necessarily, but it is just gaining a familiarity. I mean, it's rather like giving somebody a piece of spreadsheet software or a piece of database software and saying 'You have Access.' for example. And you take me through and I can say 'I can learn Access. Yeah, I can use it. Yeah.' – quite nimble in the ... 'Can I apply Access?' And I've only applied it to a very simple thing. But somebody else would have done this with it.
2162. I. Right.
2163. C. The learning – I can go through all the motions. The actual use – I can do those effectively, no problems. But what I get as a result of it, because of the application, would be very different from somebody who is a ... major Access user.
2164. I. So, I suppose the area that we're heading here is that it's possibly a set of follow on research that needs to be done in the application of this. Trying to ... to produce some set of guidelines. Saying 'This is what these things are useful for in these circumstances. Different things are very ... are of very little use, what they can be used for...'
2165. C. Yes, I think there is an element of that. I think, there is an element, that it is inevitably going to have a ... the application is going to have an individuality about it. So, I think, what in fact may be used by some people very extensively, will be used by other people less extensively, and vice versa. It's interesting, because you're back, in part, as to how people are ... and how they balance between pictorial representation and ... text. And some people quite clearly feel very, very happy with text, and can assimilate a lot of information from text. Others tend to be far better at assimilating things that are diagrammatic, that are

spatial, that have got dimension to them. Now, my view, and I think a well substantiated ... fact, is that a lot of people you'll find in the sort of the business world are probably – not probably, are going to be people who will react to the spatial representation, which is the way that this has gone.

2166. I. The diagrams?
2167. C. The diagrams, the ... the interrelationships shown in diagrammatic form and all that goes with that. But, I mean, in the academic world you would find some people who would work very happily with text. Would actually by reading a text statement, would actually assimilate all that that text statement has said. But I think that isn't the sort of person you've got normally in the industrial situation.
2168. I. Right, right.
2169. C. And I don't know, I think there are a lot of academics who think in terms of pictures rather than, you know ... distilling straight from a ... text. They will actually in reading the text, be putting some visualisation to it in some form. And then what this is doing is bringing a group of people to the common visualisation.
2170. I. Right, right. OK. You could look at the software as assisting or having benefits possibly in three areas. The first one is the information gathering ... seen it, sort of, indicated before that there's difficulty when gathering information, if it's hand written that passing them to other consultants and reading them after the event can be a problem. And I think you've mentioned that you try to analyse things as quickly as possible...
2171. C. Analyse, or in this case it would be, I think, get the text down.
2172. I. How much of a benefit do you think that the ability to just store that data is, that assistance with gathering the information, the recording of it, is? How significant do you think that is?
2173. C. I think it's significant ... it's significant if you're doing an exercise that is actually going to monitor change.
2174. I. Right.
2175. C. Because, what you've set is a ... your datum data, and you've got that in a very formalised way. And if you implement change, and you then in any way want to monitor what has happened as a result of that change. Then you've got your base line set. If you're working from a looser, working from hand notes and the rest of it, the consistency of that data is not going to be as great ... and I think you, if you're not careful, you could be influenced by the passing of time, and in fact if you go back to analyse in any way. Whereas here it's actually there and ... you might take a different cut at it. But nevertheless you're using exactly the same data.
2176. I. Right.
2177. C. And I think we can be ... although you'd be using the same data manually, because you're a part for the interpretation, because you've not necessarily have such a full text and the rest of it. You know, your side note which is within the same date put it in, is in. If you look at it, when you're doing a manual exercise you may put a slightly different interpretation on it. Twelve months down the line if you were measuring...
2178. I. Would you do that with this though?



2179. C. Well, no. Because I think you've made your statement. This is actually causing you to say 'That is the ... that is ... sufficient detail for that one or two word side note to have been expanded and made as a statement.' Which is what we've done here.
2180. I. So, do you think consultant's, or people using this are more likely to ... to be more rigorous in the recording of information?
2181. C. This demands that they've got to be. And we've touched on this.
2182. I. Right.
2183. C. I mean, this is part of the investment. When we, you know, talk about the added value. It is demanding you, not to rely on just a record that because you're going to look at it within the next week you will never fully expand – you will always work from your side notes.
2184. I. Ah, right.
2185. C. Now, I could take you back over sheets that I filled in over five years ago and I might be able to say 'Ah yes, that side note was about so and so.'
2186. I. Right.
2187. C. Now, I could be right on occasions. There could also, if I'm back in that company, have been a lot that's happened this time I'm in the company that actually influences the way I ... interpret that. So, you are getting a far better record. But you've got to get benefit from that far better record and for the initial analysis it's on how you can shorten the process to present and to report. The illustration I'm giving you at the moment is if you are going to want to have some monitor of change. Which may not be all the questions. It may only be a limited set of the questions. Or if it were being used by internal consultants, where you're very much more likely to re-trip the group.
2188. I. Right. So, really you're talking about long term studies of ...
2189. C. Yes, yes.
2190. I. Right. The next area would be the information analysis side. And this could have, or mentioned quite a few benefits. The speed of the analysis, for example in the searching.
2191. C. Yes.
2192. I. The ... ability, possibly, to deal with more information. How do you feel about that. I mean, how significant...
2193. C. Well I think, once you've got ... your text in and your themes sorted and the sub-structure in the themes ... I think there is an enormous potential to speed up the analysis.
2194. I. Right.
2195. C. And I think that ... but the text has to be well input, it has to be comprehensive enough so you've got the words. You will ... fairly quickly pick up the similes...
2196. I. A key word search is no good unless the key words are in the text.
2197. C. Absolutely. The 'This was very difficult.' statement, doesn't actually tell you very much. But that as a pen note when it's actually relating to something that's

already on the sheet of paper in front of you ... actually can mean quite a lot. 'The situation between' so and so and so and so, or 'The situation' so and so and so and so, or 'The situation relating...', or 'The situation of' this that and the other 'was very difficult.' means quite a lot. And therefore in terms of putting that in you actually get to amplify that little side note.

2198. I. Right.
2199. C. Which isn't difficult, because it's probably all there on face of the recording sheet. But what you've done is not written it out in full, you've added everything to a particular strand...
2200. I. Right, I see ... That's an interesting point actually. That's a part of the consultant's notes that the software hasn't touched at all, hasn't it? The possible diagrammatic linking within the notes. Drawing diagrams, scribbling, joining things up.
2201. C. I don't know about diagrammatic. I don't think that's particularly pertinent. But I do think ... bearing in mind that you're writing at speed, you know, because somebody's talking ... and if somebody's given you some comments, you may have put those comments down. And you may then find that they've talked about that, and you realise that it isn't just a statement of ... 'Well we're now working an evening shift.' So, you may have ... put down ... 'Recent introduction of evening shift.' And then you go on talking about it. And you may have 'Very difficult.', 'Disturbs production.' you know, and you've got a few. And when you come to put it in here, you've actually, you've got to be a bit more structured in the way you put it in.
2202. I. Right.
2203. C. I say, as a consultant, can tend to use the, you know, the 'This is difficult.', 'This doesn't work.'
2204. I. Ah, with this you're saying, really it would be better to put in 'Evening shift doesn't work.' Evening shift is to qualify.
2205. C. Yes. Or it may be some aspect of it that they've raised.
2206. I. Right.
2207. C. So, there is a demand to be more complete in the statements that you're putting in.
2208. I. That could be viewed, possibly, as a limitation of the software, couldn't it, because, again another avenue may be being able to identify words ... a certain distance away...
2209. C. Ah, no. I don't I'd pursue that immediately. I think it is the situation, and it isn't that bad. I mean, if you're typing it in – what you're doing is typing is transcribing ... facts, observations – from the ... which may be verbatim observations. You are then ... summarising observations, which are a summary of what somebody's said to you, which is ... And then you've got your own note. Your own observations. And I don't think that's too difficult to actually put it. I think what I'm actually saying is there's one category there and it could be your own observations, which may need a bit of amplification at the time of actually putting it in.

2210. I. Right, right. So I suppose what we're saying here is it would be more than likely that the consultant would have to enter the data themselves, rather than handing their own notes to a secretary.
2211. C. Oh, without doubt.
2212. I. Yeah. Right.
2213. C. I've ... maybe we've said that in the past. I can't recall. But I don't believe, for one moment, you can do other than the individual ... entering their own. Because effectively, although it is longhand, it's a short hand. It's an abbreviated record.
2214. I. Right, right. Yeah. OK then ... the other side of it, the dealing with more information. Do you think there's potential in the software to help you deal with more information – either greater depth per person interviewed, or more interviewees?
2215. C. I think you've got again a ... If you look at it, the biggest ... issue usually, for the client, over and above the overall cost of the consultancy package, is the amount of time that individuals within the company have got to give to the consultant.
2216. I. Right.
2217. C. And you've also got the issue as to how long you can actually make an interview and it stay dynamic and vibrant.
2218. I. Right.
2219. C. And, I believe, and experience has born out, that normally to try and interview anybody for more than an hour and a half is ... likely to sort of tail off and not be ... it's very difficult to stimulate, you know, some of the questions. I mean, sometimes it may run for two hours. But it may have been designed to go an hour and a half, depending on whether it's somebody that's fairly vocal. So, I think the amount of information, the number of questions you're likely to ask has got a finite, relatively finite limit.
2220. I. Right.
2221. C. I think the amount of information that one ... takes that is effectively recorded in a free format way, probably won't be any more or any less than it's been in the past. Because you always try to note down any side issues, as well as the formal structured questions.
2222. I. So that's a characteristic of the interview process.
2223. C. That's the – absolutely. And the number of people you interview, I think, has always been fairly flexible anyway. I can't recall having interviewed less than eight or ten, and I can't recall having interviewed more than thirty, thirty two, or so. And that is a reflection of what you're looking for, besides dynamic of the ... size and shape of the organisation. And so ... from that point of view I don't think it will change the overall parameters. But if I come back to the interviewing of thirty two, thirty five people or whatever it might be ... or eight or ten, I think once you've got up and running with this and you understand the structures. So that your application is ... your ability to apply it effectively is set

up. You probably ... I think it's almost inevitable that you will have a better and somewhat quicker analysis.

2224. I. Right, right. When you say 'better'...
2225. C. Well I think it will add consistencies to it.
2226. I. Right, right. Do you think you may see things that otherwise you may miss? So the analysis could be deeper in some respects?
2227. C. I think ... I think what this gives you the opportunity to do is ... I'd pick up a word like 'irritation' and I might link that with a word like 'frustration'. 'I'll just have a look and see whether that's' Which I don't think I would have done...
2228. I. Right.
2229. C. ...before. I think before one would have, sort of ... had to be constrained to have limited the number of themes, and you may still be limiting the number of actual themes, but some of these categories you may be able to blow quite a out further. Because you've actually got a structure here [points to theme hierarchy pane]. A structure which you can collapse.
2230. I. Right.
2231. C. And therefore that gives you opportunities. And if I started out saying ... I just want to look for tension between the two plants – I would have gone through looking for tension and just banged it all in this tension. So that all of this that I've got in this hierarchy would have come out at one level. Whereas I've actually got the opportunity of expanding that quite a bit.
2232. I. So you're contrasting this with the manual process when you're saying you would have...
2233. C. Yes, this is a contrast that I'm drawing ... I mean the whole...
2234. I. Would you say then that it's a more finer form of analysis that it allows you to do?
2235. C. Well, I think ... I think what it does ... We're going around in a little bit of a cycle here. Because, when we started out we would have said 'We don't have to have any real structure for the interview. Other than the topics we're going to talk about, and those being sub-divided. And you go in on the basis of 'Well now, we're going to talk about you're job ... who you work for.', you know 'Who do you answer to?' ... you can work your way through. But you'd allow things to be fairly open. Then you move towards saying 'But surely you can use some sort of computer analysis?' And you then move to the fact of it's got to be a bit more rigid structure. So you say 'Right, let's have the ... the relationships side to start with.' And so you structure that. Then you say 'We've got some more difficult issues. – Ah, from the computing point of view, from the analysis point of view, we'd better have pre-determined lists, your multiple choice.' You may have two or three tiers of multiple choice ... Now, where we're getting back to now is to say 'Ah, we can actually now go back to ... much freer format. We may want to go through the other two steps, but we've now got an opportunity of getting those freer format responses.' Now, I think, what has tended to happen is – at one stage you were trawling through some very free format text, which was quite a long difficult job. You then got the thing more structured, which was easier to analyse. And you can get some computer assistance in doing that. But you lost the texture of the responses.

2236. I. I see, right.
2237. C. And now we're getting back ... those [points to text pane] statements can hold the texture of the response. And therefore I certainly pick up on my irritation, frustration type things and say ... 'I'm not only looking here for somebody saying "things work well in this organisation" but let's see how many people actually use the word irritation or frustration.' And if that's the case, everybody may say things work well, but there's all this ... So this is, it's all about that. It's all the opportunity to do some deeper ... back to this [points to theme pane], this multi depth analysis.
2238. I. Right.
2239. C. And I think that that is very ... that's what I believe you set out to do, and that's what this is offering ... is that back to the open text, and you can look at that open text and see what it says.
2240. I. Right. Moving on from the analysis then, this whole issue of information presentation. The same sort of thing there.
2241. C. Well, I think, having gone through and sort of said that 'It's a communications exercise.' And it's either a communications that you may want some illustrations or you may want some way of summarising what you're putting into a written report. As far as we were concerned, because we saw it as part of process consultancy with a very high interaction with the client, one was actually looking at ways of taking all the data you received through questionnaire and presenting it. And I think what this has done is to take ... two or three established means of presentation ... the hierarchy chart, the star chart ... used very successfully in the past. But one has then added a dimension. And the dimension is first of all to do with what issues are actually being drawn out here [points to theme graph]. That one could actually take a chunk ... we may well have, as I think I said earlier this afternoon, represented that one way or another actually on an overhead. But you can bring that straight out, you can bring that down to certain levels, you can show what are the main things and only expand a few that are relevant.
2242. I. Right. So the key there seems to be the time that it takes to produce and the flexibility...
2243. C. Yes, it is very much a matter ... that's dropping out, almost as a by-product of the process you've gone through. I think what you've got here also is a very flexible tool ... both looking at the actors, looking at the themes, looking at this whole causes, and people that are involved. Which is new as far as I'm concerned, but ... this particular one that we're illustrating at the moment, the last one we looked at, bit more difficult. But I certainly think the ability to drag across and to represent is an absolute marvellous way forward, if as a consultant you're working at trying to get across the core, the heart of what you've been about. So that other people can interact with it ... so very strong in that.
2244. I. Of those three areas then – information gathering, analysis, and presentation – where would you see the major value in the software lie? How would it distribute between those would you say?
2245. C. Well, the first one is sort of ... I'm fairly neutral about, the information gathering, and then as we've already said it puts certain different demands maybe, but certain demands on the consultant. I think, as far as the analysis is concerned it gives you opportunities to do some of the analysis ... certainly

some of it more quickly. I think it gives you a far better record. And I think it actually gives you an opportunity to present some of that analysis on the themes side.

2246. I. Right.

2247. C. I think in terms of the rest of the presentation, I think that ... one of the real strengths it has is good flexible and again certainly more flexible that I have had dealings with before, presentational tools. And that is the dynamic presentation...

2248. I. Right.

2249. C. I think it ... I think we've got the opportunity, there is the opportunity of pulling out absolutely anything that one wants. We've talked a bit about application, I think part of that will be how you find you can apply what you've got.

2250. I. So it seems then that there's a sort of indifference to information gathering, but quite a lot of potential in the analysis and the presentation.

2251. C. Yes, I mean ... don't feel the point that we were just making that information gathering and the cycle that we've gone through, as far as ... the consultant's objectives are concerned it has actually, it has given, it would give the consultant the depth of freedom that he used to have when the whole thing was manual.

2252. I. Right.

2253. C. So, don't ... let's not take off the information gathering side. But in the sense of ... I'm back to application really ... if you get ... with a manual system you have total freedom. You have no constraints at all, providing you can do something with what you've got. Here you've got the minimum of constraints, but you've still got to be able to do something with it. There's no point in putting up a whole load of text that you can't do anything with. So, as far as the interface with the software is concerned ... there's nothing particularly clever about that, in as much as you can type in any text, but if you look at the application then in designing your questionnaire, in deciding what you're going to record, in deciding how you actually enter that in ... you don't need to know entirely how you're going to do this, but you have got to know what the power is that you've got there.

2254. I. Right.

2255. C. In tying up your themes. Because there's no point in having statements there that you then can't turn into...

2256. I. Draw things out of...

2257. C. Yes.

2258. I. I see. Right. Can you see any problems with the use of the software, overall any...

2259. C. Yeah. I mean, I think what we've got here is a prototype. I think this, whilst this split screen idea is very nice, it is actually quite demanding, if for no other reason than it takes the size of the window down and the rest of it. I mean, if I was actually working on this and having to put in, you know, my three interviews that I'd carried out today, I would actually find that very difficult. Probably I'd want to pull that [points to text pane] up, for interview, to a very much larger text ...

2260. I. And even analysis possibly?
2261. C. Well maybe.
2262. I. Then you loose the size of the ...
2263. C. Yeah.
2264. I. So I suppose you're saying you need a large monitor.
2265. C. Well, it certainly needs a monitor of this size [17"] to get away with it at all. I think there are certain times when, alright I can pull down more text [re-sizes text pane to fit more of screen], but it's still on a 7.8 font.
2266. I. Yeah.
2267. C. Now presumably I can bang that up a bit?
2268. I. You can change that up. But you can't have that [points to text pane] large and that [points to actor graph pane] large as well.
2269. C. No.
2270. I. Yeah. So a thirty inch monitor would be a distinct advantage [laughs]. That's what we're aiming towards, isn't it?
2271. C. Well, I think that we're saying that maybe you want certain parts of it, at certain times, that you can blow up. And, that then does start to become quite difficult because you'd be continually changing screens.
2272. I. What about in the impact side of it. The consultancy process. Can you see it having any problems there?
2273. C. I think it depends on where people are coming from. I mean I'm sure there are some consultants who'd say, you know organisational development side of it, 'That tool is not the way we'd go about it.' whereas you'd find others who would say, as we've been saying, 'To a very large extent that replicates what we're doing already ... it replicates part of what we're doing and adds something on to it.'
2274. I. Right.
2275. C. I mean, particularly this sort of consultancy is about information gathering, information analysis, and information feedback. And this does all those. So you then come to a matter of style. How do you gather your information? Well most people do it through interview, through recording responses. How do you analyse? There are all sorts of ways of analysing. I mean, people will ... used to, I don't think it happens as much these days, but you'd certainly go through with people, just have the responses. Which you'd sit down, and read the responses, and read the responses, and read the responses. And then start writing the report based on the ... with very little analytical ways...
2276. I. Structural.
2277. C. Yes. Whereas, as we've said several times, if you want to bring the client staff on board, then you've actually got to do the analysis to allow that to happen, and you've then got to present the outcome of that analysis in a way that people are not going to have to spend an hour trying to get hold of the point. The point is illustrated there, they've got it.
2278. I. Right.

2279. C. From that you can then start talking about it. And that's what this [points to theme pane] is about. And not everybody works in the same way.
2280. I. Right. Specific question here. The software is intended for the consultant to be used away from the client organisation.
2281. C. Yes.
2282. I. How appropriate do you think that is?
2283. C. That is appropriate. I'm not at all ... convinced that the consultant does the ... sort of, analysis work within the environment of the client. I think there is a certain amount of get back to base, give it the time, give it the thought, and the rest of it. I think there is one issue, and that is about just the text input to start with. We referred to, a number of times, getting that in fairly quickly. And it may well be that there is some advantage in being able to do that as close on to interview time as you can. And you will recall, I raised the issue at one stage – could you merge text?
2284. I. Yes.
2285. C. Because I'd almost like to feel one was in a situation where you could do that bit ... at the clients base. And two or three people could be doing that almost simultaneously. In other words for their own interviews. And then say 'Right, I've now got a little text file that I would like to be able to put into' and I can accumulate two or three text files.
2286. I. Right.
2287. C. So, you know, if you're talking, and we touched on this before, about overall improvements to make a commercial product – then I think that is quite a significant... That you can get the initial text in. That you can ... merge in the sense of bringing together. It isn't integrated merging but it certainly...
2288. I. Appending possibly?
2289. C. Yes, text that's been put in by several people, which could then allow probably one person to do some editing on the whole lot ... maybe. And then somebody start the process that you then go through in setting up the rest...
2290. I. What specifically I was considering the possibility of taking the machine into the interview. Do you think that is a wise move?
2291. C. No. I'm not sure it's a very practical move either.
2292. I. Right.
2293. C. There are very few people who, I think, would be able to tie it in. What is inevitably a summary of what has been said. And put their own comments in and actually do justice to what is happening.
2294. I. Right.
2295. C. I don't think many people would actually be able to type that in, effectively, whilst actually doing an interview. Bearing in mind, I am going to be looking at you, and the thing I want most is that you are relaxed and are going to be talking to me. And I'm wanting eye contact with you. I'm wanting to pick up body language. I'm wanting to pick up a whole range of issues. Some of which were recorded by one, I mean, you know ... '[person's name] is tense about this situation, [person's name] is showing irritation, [person's name] is showing frustration.' It's probably built out of body language and tone of voice. And



therefore it's far easier for me to be sitting there [consultant picks up sheets of paper and mimes making notes] ... to have a thundering great screen, either between or alongside – one it could inhibit me, two I've got to be involved in the keyboard – there aren't so many consultant's who are necessarily touch typists...

[Start of third tape]

2296. C. ... and consultants are not stenographers...
2297. I. Right. Stenography being? That's a term I'm not familiar with.
2298. C. I think you'll find that's what they call the person that sits in court and writes down...
2299. I. Ah right.
2300. C. If you've ever watched your films of your American courts, you know, the whole thing is being...
2301. I. Recorded?
2302. C. Being recorded. But I mean all that person's got to do is to just put down every word that they hear.
2303. I. Right. There's a special system for doing it is there?
2304. C. Yes, there is. I'm not totally familiar with it but there is certainly a way in which that is done. Now, you're not into this. You're about a total ... process, and equally the consultant is having to, not just record what is said but take in on-board, maybe ask a supplementary question, maybe change a question further down the way, in the way that that is approached.
2305. I. The supplementaries – interpreting it, relating it to...
2306. C. Yes, and an interview is about 'Oh, earlier on you said so and so. Now, this is a related question but' you know 'can you give us' or 'earlier on you said this was the case, now I'd like to explore that a bit further, can we' Now, if you know your questionnaire, your interview structure, you know ... now sometimes of course you'll pull a question forward, and say 'Oh, well we were going to move on to that but we'll deal with it now.' And you change it, and your note goes in on page six whereas you're only on page three at the moment. So, all this is part of the interview technique, the technique of allowing somebody the freedom – creating the environment. So I don't think this sits along side that at all.
2307. I. What about the other side of the process? The actual presentation side. Having the machine in...
2308. C. It has some possibilities. I don't think it has these possibilities in this form. I think some of this, sort of, development of diagrams could be quite useful, and I think we sort of touched on this before, where I was saying you could have it in the room but not actually as a presentational tool. But you could actually whip something off fairly quickly and sort of say, you know, 'Ladies, gentlemen we were talking about [holds up piece of paper] model A here, our discussion has taken us to model B, do you agree?' 'Yeah' Seal that. So, I think there could be a benefit in having it adjacent to the process, but not as part of the process.
2309. I. Right. I suppose a key issue there would be the confidentiality.
2310. C. Well, yes I mean, I'm really just talking about the presentational side there where we've already said we try to remove... I mean, certainly I would be very worried if any of that text [points to interview text pane] was in any way, sort of,

available within the area in which the process was taking place. Almost to the extent of saying 'Ok I can get to that [theme graph] and that [actor graph] and I can't get back to the text without my password.'

2311. I. Right, I see.
2312. C. Because that I can have in the room where the workshop's taking place.
2313. I. You wouldn't want to slip by accident and accidentally reveal..
2314. C. Well, or, you know, you turn your back for a bit, or you go out and have a break and ... you know, if somebody can ... they've only got to read one line, and you've blown the whole effect. I mean, we would never take into that process all the response sheets.
2315. I. Right.
2316. C. Those would not be in that workshop environment.
2317. I. For the same reason.
2318. C. For the same reasons.
2319. I. Right. Are there any facilities that really stand out?
2320. C. I think I've enthused about the ones I've enthused about. Can I leave you to sort those through.
2321. I. Yeah. Are there any other facilities over all or additional things that have come in to your head you may think may be useful. Not modifications to the existing ones, but anything in addition ... has anything sort of jogged your memory?
2322. C. No, I think ... usually, as far as I'm concerned, development comes out of using what's there. And I, I mean I have no doubt that if one was to sit down and use this a few times one would say 'Ah, what about...' I think we've moved through a process over the years. And this for some years ... and this for some years has been, you know it's probably seven years ago that one was sort of saying 'This is something that would have, could have a very significant effect upon using computer support for what had previously always been a manual operation.' And one had started to go through looking at charting techniques, one had started going through looking at simple analysis, the whole thing has developed steadily, the pictorial diagrammatic representation has moved forward, because computer technology has allowed one to move forward. One has tried things and they've not been successful, one has tried other things and they've been successful. And I think that ... in a sense this is the first time that one has been able to get hold of free text and do some analysis on it. And I'm quite sure that over a period of time using it, one would say 'If only one could do this.'
2323. I. Right.
2324. C. But I come back to what I've said. The analysis ... generally speaking is at ... in three areas, it is about relationship, it's about what physically is transmitted between people and that can be related to the job or otherwise. Those are all what I call the factual, the link bits of information. You've then got ... information that you want to gather in a very structured form, which is selection from lists, effectively multiple choice type of 'these are the things you do, those are the things you don't do', maybe qualifiers on that ... And then you've got this third area, which is the free text. Now, that's the one that's been missing, ever since one started talking about computerisation, this is the one that... Now,

I don't think there is another totally different area. I think those three are the nature of the beast.

2325. I. Right.
2326. C. If you were to say to me 'Are there ways in which one in the future might improve the collection of data?' for example... Ok, if we could record interviews, and we could get text developed straight from those recordings...
2327. I. Speech recognition.
2328. C. So it's speech recognition.
2329. I. Right.
2330. C. Then one's got a whole leap forward. But that would bring a whole different set of problems. Speech recognition, yes it's there and it's coming, but it's coming more for the individual than for groups of people. I'm not sure in interview, and I don't know the research that's going into this, actually how far you can use what you're actually supplied with. Statements in interview as we found with the exercise we did, when Peter and I interacted, we didn't actually necessarily speak all the words that made a statement or a sentence. You get half sentences, you get expressions which mean nothing in themselves, but convey the next link...
2331. I. The transcript doesn't contain the entirety of the information, does it?
2332. C. No. And as I said earlier, you know even with the typing it in, you're looking for body language, you're looking for intonation, and you want to keep some record of that. But if you're saying 'Where are you going?' One is going more down those sort of lines, than ... than necessarily saying 'What can you do with those three elements of the data collection exercise.' ...
2333. I. Thanks very much.

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