

# 14-19 Reform Programme – Research Evidence Management System

## Introduction

This paper addresses how the requirements for the 14-19 Reform programme to have a process in place that manages, analysis, disseminates research and evaluation sources collected will be met. As a result a Research Evidence Management System (REMS) is being proposed.

## 1 Background and Purpose

QCA is taking forward proposals from the 14-19 Education and Skills White paper published in February 2005 to support the following key aim:

*The purpose of the education system is to help each and every individual reach their potential...[and] the key to doing that is to design a system around [young people] based on high standards, on choice and on meeting individuals' needs and aspirations...This White Paper sets out how we will build a system of 14 to 19 education that will do just that.*

The work to achieve this involves 9 key strands which are led by teams within QCA but which also involve a range of other Government agencies (DCSF, QIA, Ofsted, SSDA, LSC) These Strands are as follows:

1. Secondary Curriculum Review; including changes to key stage 3 and 4, Personal well-being and Economic well-being and Financial capability
2. Functional skills (Functional English, mathematics and ICT)
3. Skills framework (Personal, learning and thinking skills)
4. Foundation learning tier
5. Diplomas
6. Post-14 curriculum (Use of higher education modules pre-18; Key stage 4 engagement programme for 14- to 16-year-olds; Curriculum guidance for Diplomas)
7. Strengthening existing qualifications (GCSE reform; GCE reform; Development of extended project)
8. Modernising the exams system.
9. Research & Evaluation

An important aspect of the work will be a set of interlinking research and monitoring activities which are designed to ascertain the extent to which each key strand is meeting the aims established for the area of work and to evaluate the overall impact of the reform programme as a whole. The research and evaluation processes required to achieve this will be highly complex involving multiple strands and sources of evidence many of which will come from organisations outside QCA.

The focus of this project therefore is on the co-ordination and management of the data and evidence arising from monitoring and research activity around the 14-19 Reform programme. This should cover 5 key dimensions (see Table 1):

*Table 1*

Dimension	Outline
1	Indexing of all major evidence sources against 9 reform strands and milestones.
2	Developing an agreed coding framework to assist in identifying and monitoring of emerging theme or hypothesis.
3	Development of a database to store and analyse evidence using SPSS and NVIVO software
4	Evidence management systems to keep track on progress, code and process reports and integrate diverse data sources linked to the key strands.
5	Providing summaries of outcomes or findings from this evidence to key stakeholders, partners and users, in particular the strand teams within QCA.

## 2 Key features

- The main focus of this work will be the development of an integrated evidence database which is designed to facilitate access to the data and bring together the outcomes and findings from diverse sources. This should also function as a management tool for the overview of the research and evaluation activity.
- The model on which this is based derives from work undertaken during the Curriculum 2000 reforms led by QCA. This also involved a number of strands, baseline evidence and evaluation of progress or themes as they emerged during the development and implementation phases. The system provided the basis for evaluation of the reforms at pilot stage and post implementation. However, it needs to be recognised that the scope of work involved in the 14-19 reform programme is far wider and the challenge posed by the diversity of evidence significantly higher.
- It is anticipated that SPSS will provide the main processing function for statistical data but one new element for the 14-19 Programme will be the use of the NVIVO software. This analyses qualitative evidence or reports using common key words and themes and facilitates cross referencing of all the major sources (see appendix 1). The system requires a **coding framework** derived from the aims of the 9 strands which can be applied to selected reports or data and a method for ensuring the evidence sources are consistently processed using this framework. It is unlikely that all the evidence sources will be subject to a comprehensive coding given the time this takes and the need to control accuracy or consistency.
- A further challenge which will need to be overcome is that there is already a significant backlog of reports and evidence which will have to be incorporated. An immediate priority is to establish how this is stored and recorded as an interim measure. These will then need to be fully indexed, allocated against the key strands and where appropriate coded against key themes etc. This work will test the effectiveness of the database or NVIVO and provide baseline evidence for later evaluations.
- The system will also need to deal with the different format of reports from diverse sources. While there is a greater degree of control on work commissioned directly by the Research & Evaluation team guidance may need to be provided to strand

teams on the formatting of evidence prior to coding. Requests to external organisations will also need to reflect this to facilitate coding within NVIVO.

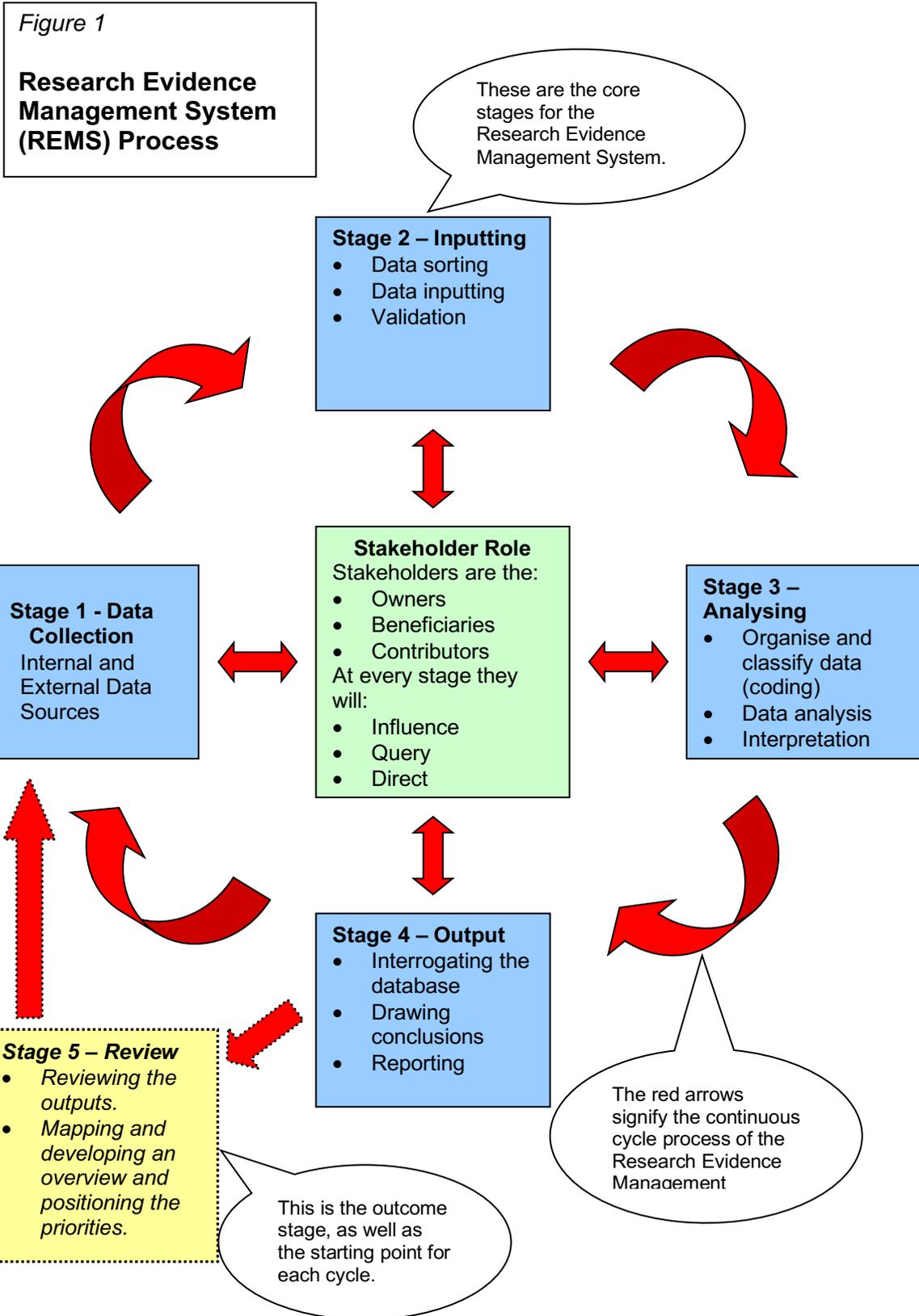
- The development of the database will primarily be derived from the requirements of the 9 Strand Leaders in QCA. They are the key clients for the outcomes of the research or monitoring and it will be vital that their expectations are understood and based on a realistic assessment of what can be provided. Significant in this respect will be the reports or summaries which will be produced and the 'intelligence' this provides to the teams co-ordinating the reform programme enabling them to take decisions. The model for the work will be derived from a **development pilot** with one of the strands to determine what is achievable.
- The project covers part of the key purpose of the Research & Evaluation team function in QCA in terms of evidence management. The primary imperative is to maintain operational overview of the data underpinning the reform programme and to maintain the confidence of Strand Leaders and QCA senior staff that this aspect of the work is under control. To ensure REMS is developed in a way which meets this imperative a **steering group** will be established with staff drawn from R&E and QSD.
- The complexity of the programme and sheer volume of activity means that a degree of realism is needed over the amount of data that can be fully coded and recognition at the outset that some evidence will not be in an appropriate format for inclusion in the NVIVO system. One key aspect will be the recruitment and training of a coding team to work on NVIVO and the development of staff in the R&E team to provide quality control or monitoring of this work to ensure consistency.

### 3 Functionality

The functionality required by the system needs has been specified by the Research & Evaluation team. This system should provide the following functions:

1. A project file for 14-19 reform programme and separate files for each strand.
2. A coding framework for each strand based on themes, hypotheses or trends.
3. Coding within resource constraints to incorporate the priority sources of evidence.
4. The ability to interrogate the database, analyse and draw out trends in the findings.
5. Cross tabulate trends or themes with the strand programme objectives.
6. Analyse how strands affect each other.
7. Developing an analysis process that will avoid repetition in work and examination of strands. Where data is collected once but used and interpreted several times.
8. Identify lessons learnt and good practice.
9. Produce high quality robust data for policy makers.
10. Identify areas for further analysis.

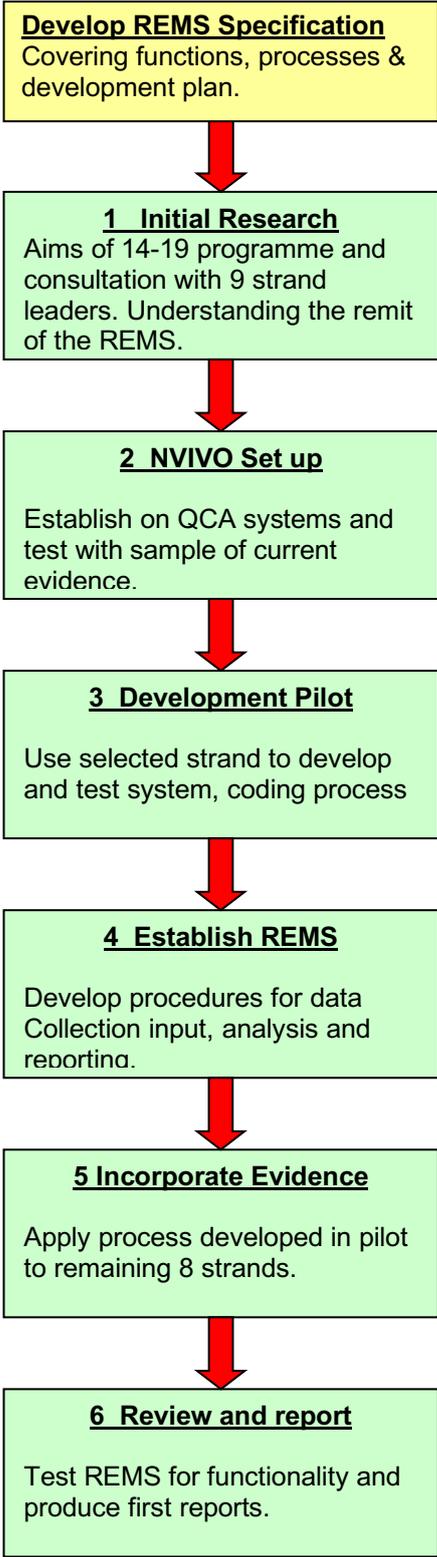
The diagram below (Figure 1), illustrates how the REMS will function. It outlines the stages of the database process and the core feature of it being continuous cycle approach. It is important that there is 'buy-in' from strand teams to this system both as contributors of evidence but more significantly as beneficiaries of the service. The cycle needs to be designed and operated around their needs.



#### 4 Critical Steps to achieve this

The REMS system should be based on an agreed specification covering functions associated processes and development process. Figure 2 below represents the critical stages of the project which are planned for January – September 2008.

Figure 2  
**Critical Steps**



## 5 Proposed Work Schedule

The proposed work will cover a period beginning on 21st Jan 2008 and REMS will be designed and developed by 1st September 2008. A detailed working plan has been devised. The Table 2 below outlines the key stages, critical milestones and the timeframe for delivery.

Table 2

Stage	Proposed work	Start Date	End Date
<b>Stage 1 -</b>  <b>Exploratory Research</b>	<ul style="list-style-type: none"> <li>- Understanding the 14-19 Reforms and overall objectives and milestones.</li> <li>- Meetings with Strand Managers.</li> <li>- Spreadsheet outlining all the available data sources and current evidence held.</li> <li>- Spreadsheet of stakeholders and partners to share information with.</li> <li>- Review existing good practice of databases.</li> <li>- Consulting with an NVIVO expert.</li> <li>- Project Steering Group set-up.</li> </ul>	10/01/08	28/02/08
<b>Stage 2 -</b>  <b>NVIVO Set-up</b>  <b>Coding Framework</b>	<ul style="list-style-type: none"> <li>- Outlining and designing the Research Evidence Management System process</li> <li>- Communicating the outline and action plan to those that are working on the 14-19 Reform team</li> <li>- Consultation meeting with NVIVO expert on setting up the project.</li> <li>- Confirm with IT, NVIVO compatibility with internal IT system and establish on QCA network with necessary licences</li> <li>- Set-up NVIVO project for 14-19 Reform</li> <li>- NVIVO training for colleagues</li> <li>- Putting in place a data collection process that will accumulate all the internal and external data sources.</li> <li>- Develop an outline of the coding framework.</li> <li>- Contract team for data processing, inputting and coding.</li> </ul>	01/02/08	15/03/08
<b>Stage 3 -</b>  <b>Pilot – Strand: Foundation Learning Tier</b>  <b>Pilot reviewed</b>	<ul style="list-style-type: none"> <li>- Review the data sources and evidences currently held</li> <li>- Develop data categorisation and coding and agree with Strand Manager and Steering group.</li> <li>- Prepare documents and input raw data.</li> <li>- Validate data sources.</li> <li>- Data analysis, categorising and coding data to develop nodes.</li> <li>- Further analysis and production of data output.</li> <li>- Results reported to the Strand Managers and steering group.</li> <li>- Consult with NVIVO expert on the pilot development.</li> <li>- Steering group to critically appraise the pilot strand</li> <li>- Make the resulting changes</li> <li>- Review advance capability features of the NVIVO and SPSS</li> <li>- Linking SPSS to NVIVO files</li> </ul>	22/02/08  28/03/08	28/03/08  14/04/08

<p><b>Stage 4-</b></p> <p><b>Establish REMS</b></p> <p><b>Procedures for data entry</b></p> <p><b>Development of reporting processes</b></p> <p><b>Coding team</b></p>	<p>- A guide will be developed on how the Project in NVIVO has been set-up, the coding behind it, the best way to add and update data sources and the quality control measures that need to be followed.</p> <p>- Strand briefing template report produced</p> <p>- Overall summary report template of the 14-19 programmes developed.</p> <p>- Review NVIVOs reporting capability and assess the relevance and usage for QCA.</p> <p>- Develop a proposal to form a coding team.</p> <p>- Team recruited and in place.</p> <p>- Train the team to use NVIVO and REMS.</p> <p>- Conduct regular quality control checks.</p>	<p>14/03/08</p> <p>28/01/08</p>	<p>1/05/08</p> <p>01/05/08</p>
<p><b>Stage 5</b></p> <p><b>Incorporate Strands 2 – 9</b></p> <p><b>Utilising the whole the REMS</b></p>	<p>The remaining strands will follow the good practice from the pilot and will essentially follow the steps outlined in stage 3.</p> <p>- Bringing together all the strands to draw out key themes, patterns and trends across the work strands.</p> <p>- Reviewing NVIVOs capability of doing this.</p> <p>- Develop an analysis process and guidelines to conduct this at regular intervals.</p>	<p>28/03/08</p>	<p>01/09/08</p> <p>Continuo us and ongoing</p>
<p><b>Stage 6</b></p> <p><b>Monitoring and reviewing the REMS</b></p>	<p>- A review and monitoring of quality controls, validation of data and general progress of the REMS, will be conducted on a quarterly basis.</p> <p>- Check procedures to ensure the reports and data been produced is of high quality, is robust, logical and is usable; so that policy makers can make informed decisions.</p>	<p>First review June 2008</p>	<p>Continuo us and ongoing</p>
<p><b>Extending REMS</b></p>			
<p><b>Other research and evaluation projects input</b></p>	<p>- Develop NVIVO Project for QCF Evaluation evidence base.</p> <p>- Transfer existing QCF evidence From N6 to NVIVO.</p> <p>- Understand what point this database has reached.</p> <p>- Develop NVIVO Project for VQ Indicators evidence base.</p> <p>- Develop NVIVO Project for new and pilot qualifications. evidence base.</p> <p>- Review how these can be incorporated via nodes into the 14-19 REMS.</p>	<p>01/09/08</p>	<p>31/11/08</p>
<p><b>Further developing the REMS</b></p>	<p>- Review how the REMS will be maintained. Ensure all the processes that are in place allow for continuous inputting and effective working.</p> <p>- Advanced analysis in NVIVO.</p> <p>- Exploring how to make best use of data in SPSS or Excel format.</p> <p>- Sharing output with external stakeholders and clients.</p>	<p>01/09/08</p>	<p>31/11/08</p>

## 6 Risks

Table 3 below, summarises the key risks to account for; in the development, management, analysis and reporting elements of the REMS.

Table 3

Outline of Risk Area	Risk Status	Proposed Action to avoid the risk
<p><b>Development</b></p> <ul style="list-style-type: none"> <li>- Back log of data sources</li> <li>- NVIVO training and practice</li> <li>- Accuracy of data</li> </ul>	<p><b>M</b></p> <p><b>L</b></p> <p><b>M</b></p>	<ul style="list-style-type: none"> <li>- The decision must be made at the outset on the level of coding that is required to roll out the initial database and what is realistically possible. Resource has been allocated for the inputting stage, to assist with this.</li> <li>- Training is on schedule to be completed on time. Some time must be allocated to practice and trial elements in NVIVO. Support from an NVIVO expert to advice on how to set the project and coding is being arranged.</li> <li>- Checked by incorporating a rigorous quality control and data validation processes, for the team to follow.</li> </ul>
<p><b>Management</b></p> <ul style="list-style-type: none"> <li>- Buy in from stakeholders and clients will be required on a continuous basis.</li> </ul>	<p><b>M</b></p>	<ul style="list-style-type: none"> <li>- Involve stakeholders and clients at the initial REMS design discussions, communicate progress with them at regular intervals and gain their agreement on their contribution at every stage of the process.</li> </ul>
<p><b>Analysis</b></p> <ul style="list-style-type: none"> <li>- Managing the high expectations of stakeholders and clients.</li> <li>- Overflow of adhoc request.</li> </ul>	<p><b>M</b></p> <p><b>M</b></p>	<ul style="list-style-type: none"> <li>- Expectations must be managed, in the early stages; only basic analysis is possible. The system that is being developed is not a 100% system, it is based on prioritising, starting small, thus laying the foundations and then building on them. As the database develops and further information is inputted, then more complex and cross-tabulation type analysis will be realistically possible.</li> <li>- A pro-forma will be developed for stakeholders and clients to fill in, when making a request to draw data from the REMS. Also, adhoc requests will need to be prioritised in order to manage the load of requests.</li> </ul>
<p><b>Reporting</b></p> <ul style="list-style-type: none"> <li>- Reporting is over burdensome.</li> </ul>	<p><b>M</b></p>	<ul style="list-style-type: none"> <li>- Realistic and controlled reporting processes will need to be in place.</li> </ul>
<p><b>Resource issue</b></p> <ul style="list-style-type: none"> <li>- At the development and management stage there is a resource issue in terms of data collection, preparing the data to input into NVIVO, inputting and coding the data and validation of the data.</li> </ul>	<p><b>M</b></p>	<p>To put in place the following:</p> <ul style="list-style-type: none"> <li>- Consult with NVIVO expert for guidance in the development and design stage.</li> <li>- To recruit a temporary coding team to assist with the back log of data.</li> <li>- Train the R&amp; E team colleagues to support with the inputting and coding.</li> </ul>

<p><b>Relocation and transition</b></p> <p>- Managing and effective REMS process in the relocation transition period.</p>	<p><b>M</b></p>	<ul style="list-style-type: none"> <li>- The Coventry move affects the maintenance and development of the REMS, it will influence the recruitment of the coding team. Therefore it would be best to have the coding team based in Coventry. This will avoid the retraining of coders when the move happens.</li> <li>- The objective is to have REMS designed and functioning by September 2008; therefore, the bulk of the work will happen at a time when vital relocation discussions are taking place with internal staff. As a result long-term commitment may be difficult to maintain from strand managers. To avoid this there must be continuous dialogue with them in order to know of and manage any problems associated with the move.</li> </ul>
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## 7 Roles and Responsibilities

Table 4 below, outlines the key resource required, in order to design and develop the REMS. The teams roles and responsibilities have been clearly summarised.

*Table 4*

<b>REMS Resources</b>	<b>Role</b>	<b>Responsibilities</b>
<b>Peter Goff</b>	Evaluation Manager	<ul style="list-style-type: none"> <li>- Co-ordination of evaluation.</li> <li>- Match of coding framework to 14-19 programme Aims</li> <li>- Initial inputting and coding.</li> <li>- Analysing, interpreting and integrating the database.</li> <li>- Reviewing and mapping outputs to develop priorities.</li> <li>- Advanced understanding and the implications of trends and themes discovered.</li> <li>- Communicating and reporting outcomes.</li> </ul>
<b>Somia Nasim</b>	Research Data Manager	<ul style="list-style-type: none"> <li>- Management of REMS.</li> <li>- Manage the design, development and maintenance of the REMS.</li> <li>- Data collection.</li> <li>- Initial inputting and coding.</li> <li>- Analysing, interpreting and integrating the database.</li> <li>- Supervising the coding team.</li> <li>- Developing best practice procedures.</li> <li>- Making best use of NVIVO functions and advanced use of NVIVO.</li> <li>- Analysis process development.</li> <li>- Communicating and reporting outcomes.</li> </ul>
<b>Clare Tagg</b>	NVIVO Expert	<ul style="list-style-type: none"> <li>- Providing NVIVO training</li> <li>- Offer expert advice in the design and development of REMS in NVIVO.</li> <li>- Provide support and guidance on developing the coding framework and Nodes.</li> </ul>
<b>Research and Evaluation Team</b>	Assisting role	<ul style="list-style-type: none"> <li>- Assisting with inputting and coding of evidence sources.</li> <li>- Directing and shaping REMS.</li> <li>- Providing evidence to input into REMS</li> </ul>
<b>Coding Team (additional remit)</b>	Primarily coding	<ul style="list-style-type: none"> <li>- To prepare, input and code documents into NVIVO.</li> </ul>
<b>Strand Mangers</b>	Design, development and directing	<ul style="list-style-type: none"> <li>- Assist with the design, development and maintenance of REMS.</li> <li>- To interrogate and query REMS.</li> <li>- To use REMS as a service that helps them to make informed decisions.</li> </ul>
<b>Steering Group</b>	Guidance role	<ul style="list-style-type: none"> <li>- Critically appraise the design of REMS.</li> <li>- To review and steer REMS design and development.</li> <li>- Ensure the specification requirements are met.</li> </ul>



# Appendix 1

## NVivo 7 Feature List

Released in March 2006, NVivo 7 allows you to handle very rich text based information, where deep levels of analysis on both small and large volumes of data are required. The software contains a wide range of features to partner you through every stage of your research project.

### Set up your project

#### Understand your project

- Open and work with projects developed in previous versions of QSR software including N4 (NUD\*IST 4), N5, N6, NVivo 1 and NVivo 2.
- Work with data in virtually any language including character based languages such as Chinese. NVivo 7 works with Unicode data.
- Handle small to large volumes of data. Users are working with as many as 10,000 documents.
- Merge separate projects or use the structure of an existing project for a new one.
- Store your project data and documents in a single file.
- Enjoy peace of mind with security features like password protection and data encryption.

#### Enjoy the usability

- Rearrange the user interface to suit you. Work in docked or undocked windows, show or hide toolbars or add or remove icons from toolbars.
- Organize and access all of your project items via a central navigation view.
- Context sensitive menus change depending on the items you are working with. Also, 'drag and drop' functionality makes it easy to move data.

#### Access learning resources

- Use the resources in NVivo's help menu like online help, animated tutorials and Getting Started guide.
- View the sample NVivo project to see how a simple project can be handled.
- Access the Network Administrator's Guide for help to roll out software across your organization.



### Work with your data

#### Import, create and edit documents

- Import documents that are in Microsoft Word (.doc) or rich text (.rtf) format or plain text (.txt), including documents with embedded tables and images.
- Create your own documents directly in the software.
- Edit your documents after they've been imported, while maintaining coding you've already completed.

#### Organize and classify

- Organize nodes into hierarchies for easy access to your data.
- Group project items of different types together using 'sets'. For example, make a set for your colleague's documents and memos.
- Use 'attributes' to compare cases using demographic data like gender, age or region.
- See a listing of your project cases and their values using 'casebook'.
- Use 'externals' or proxy sources to represent material that cannot be imported such as websites or books.
- Use 'see also links' to connect items in your project that may have a similar theme.

#### Capture your thoughts

- Create memos to capture your observations and link them to your documents.
- Use 'annotations' to comment on selected content. They're like notes scribbled in a margin.

## Make sense of your data

### Explore

- Explore your data with confidence knowing you can retrace your steps using unique multi-level undo functionality.
- Use the unique 'relationships' tool to explore evidence about relations between items, processes and people.
- Visually display new ideas, connections and findings using 'models'. Use a dynamic model to represent your project in real time or use a static model to capture your project at a specific point in time.
- Use a matrix to compare items and identify patterns or themes.

### Search

- Query your data with a powerful search engine. Save queries, re-run them through new data and track the evolution of results.
- Use the 'word frequency query' to identify the most frequently used words in selected sources or nodes.
- Gather items together using 'advanced find'
- Find and/or replace text in a 'source' such as an interview transcript.

### Code

- Collect related material by coding at nodes or sets that represent themes, ideas, people or places. Refine or remove coding at any point.
- If you're working with structured information, like open ended questionnaire responses, 'auto code' their content by headings or paragraphs.
- Display coding visually using coding stripes. Choose which stripes to display or see up to 200 stripes simultaneously. Your coding stripes can also be printed.
- Use the 'coding density bar' to see how much coding has been completed for a document.
- Use the 'View context' function to see the surrounding words, paragraphs or heading levels of coded data.
- Use a range of techniques to code, including paragraph coding, quick coding or 'In Vivo' coding.

## Share your findings

- Export conclusions, graphics and query results into reports or presentations, including Microsoft Excel or Word.
- Import and export data for use in spreadsheets or statistical programs.
- Produce a wide range of inbuilt reports such as a project summary, source summary, relationship summary or coding comparison report.

### **NVivo 7 also contains features to help you manage your software:**

- Receive automatic notifications when new service packs are released.
- View the inbuilt readme file to see a list of recent software enhancements and other important information.
- Use the 'compact and repair' function to optimize the performance of your projects.
- Install, activate and extend NVivo 7 software and licenses across many computers centrally via an MSI package.
- Protect your organization's software licenses from piracy through software activation.



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