Project Acronym:
Version:
Contact:
Date:

JISC Project Plan

Overview of Project

1. Background

The partners in this project are from the Department of Geography, University of Portsmouth (UoP) and the Departments of History and Computer Science at the University of Nebraska, Lincoln (UNL). We have established expertise in the substantive areas of railroad history and the historical geography of US industrial development, and also in the technical areas of historical GIS, digital history, data warehousing, spatial data mining and spatio-temporal visualisation in a web environment.

Our project brings together these historians, geographers, and computer scientists to develop a web-based framework for integrating spatio-temporal historical data from diverse sources for correlation, analysis, and visualization. We propose to test our framework by focusing on one of the most significant and complex transnational processes in history: the development of railroads.

There are several reasons for concentrating on a process, such as railroad development, rather than on an event or a period of time. First, railroad development constituted one of the earliest **global** processes of social change. British capital, laborers (i.e. Irish), iron, rail, products, and technical know-how flowed across the Atlantic into the U.S. and U.S. goods, technologies, and securities flowed back into Great Britain. The records of this process are embedded in and among an extremely wide range of data sources: trade journals, newspapers, maps, timetables, pamphlets, reports, government documents, census data, photographs, lithographs, and railroad records. Scholars of global finance, capital markets, labor migration, the law, environmental change, and culture have increasingly turned to these records but their bulk and lack of integration make any systematic examination of such large-scale processes extremely difficult.

Second, in selecting such a geographically uneven, socially complex, and widely experienced process as railroad development, we quickly realize that the process was highly ***dynamic and contingent***. Places gained prominence and proximity through the rate and time structures that railroads imposed; people used the emerging network to advance time through mobility and travel. Transformations in one place (a new wharf, a lower rate, a faster service) rippled out affecting communities in another. The railroad network, however fixed with spikes and tracks, was never stable; its geography was ever shifting and recursive. We need better tools to visualize and analyze the "second nature" systems like railroads.

2. Aims and Objectives

Overall aim

The project seeks to demonstrate how scholars can work with diverse data relating to a large-scale socio-economic process, such as the growth of the US railroad network in the 19th century, and develop useful tools for spatio-temporal visualization of these data and exploration of the relationships among them. It aims to do this in a case study format, by integrating large-scale data sources from on-line data repositories with other types of relevant data on the railroad system, much of which has already been assembled by the project directors, including time-series historical GIS, worker payrolls,

passenger traffic tables, and other data drawn from original sources. In addition to the standard resources from Google Books and the Internet Archive, the on-line data repositories currently include the Richmond Daily Dispatch Collection 1860-1865 (http://dlxs.richmond.edu/d/ddr/), the US 1880 census from the Minnesota Population Center (MPC) (www.nappdata.org) and a range of resources from the digital library of the University of Pittsburgh (http://digital.library.pitt.edu/pittsburgh/). At the end of the project, it is intended to open the project repository for scholars to submit and test data, as well as to query our collection. Because a very useful framework model and a major dissemination web site for the project (http://railroads.unl.edu) has already been developed at UNL, the project partners are ready to develop the computational technologies that will lead scholars in new directions.

Specific Research Questions to be Addressed

As the substantive topic area is potentially very broad in scope, it is necessary to narrow down the research questions that will guide the development and testing of our data framework to two sub-areas that will be examined in detail. The first of these is railroad-related employment and mobility, and the second is the environmental impact of railroad development. Under the first heading, several detailed questions will guide the search for evidence. These have been chosen as examples because they are either not adequately addressed in the existing literature or have not previously been posed (Q4).

1. **How did the arrival of the railroad change the actual and perceived landscapes of employment opportunity, both on the network itself and in the communities it touched?**
2. **How did railroad-related labour mobility change in response to business cycle booms, strikes or other key historical events and were there differential effects by ethnic group or type of worker?**
3. **What was the temporal and spatial pattern of interchange of skilled and unskilled workers between the railroad sector and other heavy industries, since they shared a large group of common occupations, including blacksmiths, carpenters, engineers and machinists, who did not necessarily report their railroad affiliation in the census?**
4. **In the light of the preceding question, are aggregate published census totals for railroad employment accurate and can they be matched to individual level data records?**

Given the large size of the railroad industry by 1880 (418,000 workers reported in the published census tabulations), these questions are of considerable historical importance yet no current means exist for examining them.

Under the second heading, comparable types of questions can be asked :

1. **Where were the major tunnelling and bridging projects at different times in the evolution of the railroad network?**
2. **What was the extent of landscape modification as new wood or stone buildings and depots sprang up along the tracks?**
3. **From where were the building materials obtained and what were the environmental impacts from quarrying and lumbering?**

These questions clearly relate back to those under the first heading, since the larger railroad construction projects, *each* employed many thousands of temporary workers, and many hundreds worked on the building of *individual* tunnels or bridges. In terms of specific examples, the Illinois Central RR alone placed over 1200 structures along its tracks, while the Baltimore and Ohio employed hundreds of men quarrying masonry for its Appalachian tunnels and yet more to provide ballast for the roadbed of its second track in the late 1850's. Yet, scholars, whether studying railroads or another similarly complex transformation process, face considerable difficulty in documenting the spatio-temporal aspects of such widely variant micro-events and their relation to larger processes. Our data integration and framework tools are intended to address some of these challenges, using a case study approach, guided by the research questions listed above. The case studies will further

refine the substantive questions, to provide specific historical and geographical contexts for the visualisation studies. This is essential, since comprehensive answers to the above questions on a national scale, across the entire 19th century, are clearly far beyond the scope of a limited duration project. Nevertheless, it is expected that the case studies will shed important new light on a number of socio-economic processes linked to railroad development, in ways that would be extremely difficult to achieve without the integration of large spatio-temporal datasets within a sophisticated web visualisation environment.

3. Overall Approach

Planned Case Studies (Provisional titles)

1. National scale visualisation of railroad network development and employment structure

2. Population mobility during the Civil War – an analysis based on text mining from newspapers

3. Movement of railroad workers in the North-East USA – a census linkage approach

4. Landscape Transformation by Railroads on the Great Plains – text mining of railroad reports and newspapers

5. African American mobility after Emancipation – linking GIS, census and other data sources

The first four case studies have the highest priority in the work programme. The fifth will be undertaken, if time and resources permit. Work at UoP is focused on case study 3, and the provision of GIS and census data/analysis in support of studies 1 and 2 (and 5, if pursued). UNL will lead on Case Study 4 and the parts of the other case studies concerned with text mining and visualisation.

Methodological Approaches Required for Case Study Work

The UoP contribution to the overall project will focus on several types of data analysis and dataset provision that require different methodological approaches. In relation to questions of railroad worker mobility for case study 3, the starting point will be the 100% count data from the US 1880 census, available to scholars as part of the North Atlantic Population Project from MPC. More than 5 million records from this dataset for a number of the main industrial northeastern states have already been loaded into an ORACLE data warehouse structure, custom built by the PI for an earlier ESRC-funded project. Use of this high-performance data aggregation and tabulation tool will be complemented by further downloads of records for workers identified as railroad workers in the census, for other parts of the USA. These will be used in Case Study 1 to identify 'hotspots' or concentrations of major railroad employment across the continent for use in subsequent visualisation work, and to provide context for the work in Case Study 3.

Case Study 3 will examine the following:

- Issues in the accuracy of census coding of railroad occupations and correct identification of railroad employees (a number of related problems have already been identified for mine workers in the previous ESRC project and a new occupational coding scheme has been developed to allow these problems to be addressed from the methodological perspective).
- The possibility of linkage of census to non-census datasets forward and backward in time from 1880, such as data from city directories or records of railroad accidents, to allow further examination of questions of occupational and geographical mobility
- Appropriate methods for tracking and visualising the movement of individual workers or groups of workers with similar characteristics

The second main area of methodological work in support of Case Study 1 involves the further processing and tailoring of an existing railroad historical GIS (built using ARCGIS and ORACLE) for

the Middle Atlantic states and Ohio into a series of ARC shapefiles that can be used as part of the web visualisation system developed at UNL. This is not the straightforward task it might appear, because of the fine temporal granularity required for the datasets. This means that the extent of incomplete railroad construction projects (i.e. partially opened routes) at each point in time has to be identified precisely. There is no systematic reference source for such temporally specific information, as opposed to that on the completion dates of whole lines from charter start point to charter end point, which is already in the GIS. Fortunately, the GIS was designed to handle and track this incomplete information and since it was originally built some years ago, a great deal of further information has been collected or identified (but not yet processed) which can be utilised to assist in the task now required. Available project resources will be deployed as efficiently as possible to extend the geographical and temporal coverage and accuracy of the resulting data files, to make them as useful as possible for future researchers, who wish to integrate their data with the system. The ability of the final system to support analyses of different kinds at different spatio-temporal scales will be a key measure of the success of this part of the work.

One example of the specific use of these data within the framework of Case Study 1 will be to re-examine classic cartographic representations of the changing accessibility of different interior points from the Eastern Seaboard by railroad ('time-space compression'), using data from digitised railroad timetables linked to depot data in the GIS.

The final data management component of the work involves the transfer of the requisite shapefiles and other case study datasets to UNL for incorporation in the web visualization system, followed by operational testing prior to public release.

4. Project Outputs

Deliverables and reports

In addition to the standard interim and final reports, and presentations as required at Initiative meetings, it is expected that at least two conference papers will be delivered by the PIs, based on the joint work of the two project groups. These will include a paper at the Western History Association Conference in October 2010 and at the SSHA Conference, Chicago in November 2010. It is also the intention to produce at least two journal articles relating to the project findings, targeted at journals concerned either with technological or substantive issues, though these will necessarily appear on a longer timescale than the funded project itself.

The case study data for the NE USA, though developed at UoP, will be made publicly available through the joint project website at UNL.

The other major class of deliverables are the GIS shapefiles charting the evolution of major railroad systems, such as the Baltimore and Ohio, across parts of the North-East United States 1830-1900. These will partly be based on a modified version of an existing railroad GIS, originally developed to support research on the development of the anthracite coal industry, rather than railroad network visualisation applications.

Knowledge and experience to be gained and shared

The project expects to add significantly to our understanding of the quality of occupational coding of industrial workers, especially railroad workers, in the US 1880 census. This is important for two reasons. Firstly, this is the only 19th century 100% count census available to scholars in digital form. Secondly, railroad workers are one of the largest groups of industrial workers represented in the census.

It is also anticipated that the case study work will make major progress in establishing elements of 'best practice' for future railroad GIS projects, both in the USA and further afield. This will apply both

to map digitising strategies and capture of relevant attributes. Consultation with the advisory group will be important to this end.

5. Project Outcomes

It is expected that the joint project website at UNL will attract growing numbers of hits from students and scholars at all levels from high school to post-doctoral. As the ability of researchers to add data to the system develops, it is also anticipated that the range of resources available and the ability to cross-link information will expand progressively. This latter impact will only be measurable over periods of years, rather than months, however, owing to the time required to build datasets of the requisite kind with appropriate linkage capability. The new visualisation facilities will enable much better insight into the growing 'connectedness' of transportation-related aspects of the US economy in the 19th century than has been possible heretofore.

More specifically, the availability of time-specific, large-scale GIS datasets of railroad network evolution for parts of the United States will be of considerable value to a range of researchers and University teachers. Requests have already been received from Universities on both sides of the Atlantic for such data and the Minnesota Population Center/Social Explorer have also expressed interest in the work. The first groups of scholars to utilise the data are expected to be drawn from the fields of digital history, historical GIS, quantitative economic history(cliometrics) and demography.

Improved understanding of the strengths and limitations of occupational coding of industrial workers in the 1880 census is expected to have an impact on all future work involving questions of occupational and geographical mobility in the USA during the 19th century, that relies on the analysis of large census datasets.

Illumination of spatio-temporal processes of regional economic development by means of the website visualisation and data inter-linkage capabilities.

6. Stakeholder Analysis

Stakeholder	Interest / stake	Importance
UoP, Department, Faculty, University level research management	Further enhancement of research activity/reputation in historical GIS, impact on wider academic community	High
Partnerships	Strengthening of existing trans-atlantic collaboration	High
Academic colleagues, FE and HE teachers in USA and UK	Greatly enhanced access to linked research materials with GIS/visualisation interface	High
Undergraduate and postgraduate students	Web access to previously unavailable data and query/visualisation capabilities	High
General public, life-long learners	Easy access to railroad information and other previously inaccessible reference resources	High (the potential level of interest among the US railroad enthusiast community is

		hard to overstate!)
JISC	Achievement of goals through painstaking scholarship and effective project management, lessons from pilot investigation of sophisticated web visualisation technology based on public GIS developments	Medium
North Atlantic Population Project, other large census and GIS projects	Recognition of importance of appropriate levels of investment and standards adherence required to produce multi-purpose and inter-operable GIS datasets; recognition of analytical importance of accurate census occupational coding	High

7. Risk Analysis

Risk	Probability (1-5)	Severity (1-5)	Score (P x S)	Action to Prevent/Manage Risk
Staffing: Loss of key project personnel	3	4	12	Motivation via good working environment, travel opportunity and skills development
Organisational: Slippage in project timetable due to difficulties ensuring data reach desired quality and accuracy levels to meet a wide variety of potential analytical and matching requirements (a particular problem with railroad GIS datasets owing to their considerable complexity over space and time)	4	3	12	Distinguish essential and desirable aspects of case study work to ensure at least core aspects are completed and data delivered to project partners in a timely manner; use of staged prototype development so problems can be identified at an early stage and rectified quickly
Organisational: Disagreements between project partners	2	4	8	Establish clear priorities and delivery timescales at outset. Maintenance of regular communication via email/phone/teleconference(skype) and face-to-face meetings
Technical: Database/data warehouse problems or file loss due to hardware failure	2	4	8	Ensure standard daily and weekly backup procedures are fully operational, manage any software upgrades carefully in consultation with central Information Service colleagues

External suppliers: Not applicable				
Legal: None known				US copyright law (applicable to project website) placed all unpublished manuscript material (If any is to be used) in public domain Jan 1st 2003. 19th century printed sources out of copyright.

8. Standards

Name of standard or specification	Version	Notes
PDF (Adobe Acrobat)	9	PDF documents
XML		
SVG		If required
ARC Shapefile	9	ESRI de facto standard
SQL		MySQL/ORACLE versions
FGDC Guidelines		GeoData
DDI		Datasets

9. Technical Development

This is not a software development project but will utilise a variety of existing technologies, such as ORACLE database and data warehousing functionality, the MySQL database, ARCGIS for GIS work and the FIRM visualisation toolkit for spatio-temporal data manipulation, query and visualisation. All encapsulated methodologies will be made publicly available through the publication of RESTful web service-based APIs.

10. Intellectual Property Rights

Since existing software tools are to be used, no IPR questions arise.

Project Resources

11. Project Partners

University of Nebraska, Lincoln – main contact: Professor William G. Thomas, Department of History

12. Project Management

The project work programme at UoP will be managed by the PI. Staffing matters are managed in consultation with the Head of the Geography Department. Co-ordination with the linked NEH project takes place by means of regular email exchanges, to be supplemented by teleconferences and several face-to-face meetings on either side of the Atlantic.

The members of the UoP project team include :

Professor Richard Healey (PI) email: Richard.Healey@port.ac.uk

Martin Schaefer (Technical Support Specialist) email: Martin.Schaefer@port.ac.uk

Michael Johns (Research Assistant) (appointed April 2010)

Emma White (Data Entry Assistant) (Casual hours) (commenced work August 2010)

As the team is compact, the amount of time to be spent on project management as distinct from direct engagement with the research programme should be small, perhaps 10%.

Training requirements are limited as standard tools are being used. Any required training will be provided by the PI and the Technical Support Specialist.

In addition, there is a joint project advisory group, who will correspond by email, and Canadian 'users' of the website will provide test datasets for incorporation into the website. However, these groups are not part of the formal management structure of this project.

13. Programme Support

A need to co-ordinate the timescales of project deliverables between JISC and NEH is already becoming apparent.

14. Budget

See Appendix A

Detailed Project Planning

15. Workpackages

See Appendix B

16. Evaluation Plan

Timing	Factor to Evaluate	Questions to Address	Method(s)	Measure of Success
April 2010 onwards	Ability of linkage and analysis of historical datasets to shed new light on railroad worker mobility	Is nominal record linkage possible using available data? Can sufficient numbers of workers be linked reliably enough to permit generalisations to be made without considerable resource investment?	Database analysis	Tracking of 5% of known individuals for at least one time step
October 2010 onwards	Adequacy of annual railroad network shapefiles	Can these shapefiles be incorporated in the web visualisation system satisfactorily? Do they actually represent a verifiably	GIS analysis, website loading, extensive cross-checking of	Successful website loading, high level of consistency found between multiple historical sources and the finalised digital

		accurate picture of network extension or is estimation and time averaging necessary?	historical textual and cartographic sources	datasets, acceptance of datasets by user community
Jan 2011 onwards	Usefulness of case study approach in web visualisation environment	Can the system place disparate spatio-temporal data items in 'hitherto unsuspected connection'	Feedback from advisory group and other users	Generation of new research hypotheses, positive reception by website users

17. Quality Plan

Output	**Railroad GIS Shapefiles**				
Timing	**Quality criteria**	**QA method(s)**	**Evidence of compliance**	**Quality responsibilities**	**Quality tools (if applicable)**
Oct 2010 onwards	Spatio-temporal precision	The entire focus of this component of the project is on producing datasets of the highest possible standard, within the limits of available research resources and surviving documentary information	Cross-checking of all available sources	PI, RA	

Output	**Other conference papers and articles**				
Timing	**Quality criteria**	**QA method(s)**	**Evidence of compliance**	**Quality responsibilities**	**Quality tools (if applicable)**
During and after the project	High quality scholarship and innovative research findings	Standard peer review	Acceptance of outputs for presentation/publication	All staff	

18. Dissemination Plan

Timing	**Dissemination Activity**	**Audience**	**Purpose**	**Key Message**
Duration of project and after	Delivering conference papers (including JISC meetings) and publication of articles	Colleagues from a variety of disciplines	Awareness raising, engagement with project,	Project findings

			presentation of findings/project experience	
Later stages of project and after	Joint project website	Global	Provision of new insights into the role of railroads in US economic development and the value of utilising new web-based data integration, GIS and visualisation tools	As for purpose
Feb 2010	Project plan to JISC	JISC, other JISC projects, wider public	Raise awareness, promote interest and engagement	Programme support
June 2010 onwards	Progress reports to JISC	JISC, other JISC projects	Raise awareness, promote interest and engagement	Programme support

19. Exit and Sustainability Plans

Project Outputs	Action for Take-up & Embedding	Action for Exit
GIS Shapefiles		Deposit in ESRC Data Archive
Case studies	Incorporation in research-led teaching, postgraduate training	

Project Outputs	Why Sustainable	Scenarios for Taking Forward	Issues to Address
Joint project website	Long-term support by UNL and PIs	Continued service and enhancement	Recurring costs, data storage
GIS shapefiles, case study datasets	Further extension of North-East Historical GIS at University of Portsmouth	Ongoing research plans, further research grant bids, undergraduate and postgraduate student GIS projects	Recurring costs, data storage
Further journal articles/conference presentations	Ongoing academic activity	Normal process of research and publication	

Appendixes

Appendix A. Project Budget

Appendix B. Workpackages

JISC Project Project Plan Budget

Directly Incurred Staff	**Year 01/10-03/10**	**Year 04/10-03/11**	**TOTAL £**
Post, Grade & % FTE RA Grade 5 SCP 23 100%	[redacted]	[redacted]	[redacted]
Data Entry Assistant	[redacted]	[redacted]	[redacted]
Total Directly Incurred Staff (A)	[redacted]	[redacted]	[redacted]
Non-Staff			
Travel and expenses	[redacted]	[redacted]	[redacted]
Hardware/software	[redacted]	[redacted]	[redacted]
Dissemination	[redacted]	[redacted]	[redacted]
Other	[redacted]	[redacted]	[redacted]
Total Directly Incurred Non-Staff (B)	[redacted]	[redacted]	[redacted]
Directly Incurred Total (A+B=C) (C)	[redacted]	[redacted]	[redacted]
Directly Allocated			
Staff	[redacted]	[redacted]	[redacted]
Estates	[redacted]	[redacted]	[redacted]
Other	[redacted]	[redacted]	[redacted]
Directly Allocated Total (D)	[redacted]	[redacted]	[redacted]
Indirect Costs (E)	[redacted]	[redacted]	[redacted]
Total Project Cost (C+D+E)	[redacted]	[redacted]	[redacted]
Amount Requested from JISC	[redacted]	[redacted]	[redacted]
Institutional Contributions[1]	[redacted]	[redacted]	[redacted]
Percentage Contributions over	**University**	**JISC**	**Total**

[1] If the institutional contributions include a contribution towards the direct costs of the project please complete a table along the lines of the example overleaf

the life of the project	[redacted]	[redacted]	[redacted]

Nature of Institutional Contributions:

These are calculated at 20% of each full project cost figure across all headings

JISC WORK PACKAGE

WORKPACKAGES	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1: Project Initiation		x	x	x												
2:Census Analysis and Data Linkage			x	x	x	x	x	x	x	x	x	x	x	x	x	
3: Railroad GIS Processing					x	x	x	x	x	x	x	x	x	x	x	x
4: Case Study Development						x	x	x	x	x	x	x	x	x	x	
5. International Project Co-ordination meetings							x		x			x				
6: Case Study Framework Related Tasks			x	x	x	x	x	x	x	x	x	x	x	x	x	x
7: Project Management and Dissemination		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Project start date: 01-01-2010

Project completion date: 31-03-2011

Duration: 15 months (3 month no-cost extension in addition)

				Milestone	Responsibility
YEAR 1					
WORKPACKAGE 1: Project Initiation ***Objective*: To recruit research personnel and arrange server storage enhancement**					
1. Recruit RA	01/01/10	31/03/10	Suitable staff member recruited		RH
2. Liaise with Information Services for extra server disk space (and memory, if required)	01/01/10	31/01/11	Requisite storage accessible		RH/MS
WORKPACKAGE 2: Census Analysis and Data Linkage ***Objective: Analysis of railroad worker data***					
3. Extraction and processing of railroad worker data from 1880 census	01/02/10	31/12/10	Completion of download from NAPP of new data Analysis results using both data warehouse and new data to feed into case study development		RH/RA
4. Linkage of 100% count data to other data sources	01/05/10	28/02/11	Linkage results available		RH/RA/MS
5. Data Entry to facilitate linkage processes	01/08/10	31/12/10	Availability of requisite data in database		DA/MS

WORKPACKAGE 3: Railroad GIS Processing **<u>Objective</u>: Creation of ARC Shapefiles from RR Historical GIS to support Case Studies 1 and 2**					
6. Data Checking and Enhancement, including US library visit Aug 2010	01/04/10	28/02/11	Continuous process of required GIS datafile development		RH/RA
7. Creation of test set of shapefiles and test transfer to UNL	01/07/10	30/11/10	Availability of test files		RH/RA/MS
8. Creation and quality assurance of main set of shapefiles	01/09/10	28/02/11	Availability of checked shapefiles		RH/RA
9. Progressive transfer to UNL and embed in visualisation structure	01/12/10	31/03/11	Delivery of shapefiles to support web visualisation		RH/RA/MS
WORKPACKAGE 4: Case Study Development **<u>Objective</u>: Develop Case Study 3 for Spatio-Temporal Visualisation and Data Linkage from Northeast USA**					
10. Utilise census analysis findings to identify spatio-temporal patterns for case study use	01/09/10	30/12/10	Specification of spatio-temporal coverage of case study		RH/RA
11. Identify, utilise and link data from on-line sources	01/05/10	28/02/11	Resulting case study data files		RH/RA/MS
12. Transfer case study data files to UNL and embed in visualisation structure	01/10/10	31/03/11	Completion of file transfer and case study set up at UNL		RH/RA/MS

WORKPACKAGE 5: International Project Co-ordination Meetings					
13. Portsmouth Meeting	28/06/10	30/06/10	Successful co-ordination of project tasks between partners		RH/RA/WT/IC
14. Northwestern University Meeting	12/08/10	12/08/10	Discussion of integration of text mining and visualisation work		RH/RA/IC/SS/ DD
15. Project meeting at SSHA, Chicago	12/11/10	12/11/10	Co-ordination of Case Study deliverables		RH/WT/IC/DD
WORKPACKAGE 6: University of Nebraska Case Study Framework Related Tasks (including UoP input) **<u>Objective</u>: Customisation of required data and software infrastructure for case studies**					
16. Website enhancement and indexing	01/02/10	30/06/10	XMLtagging of website content		WT/LW
17. Linkage of text mining tools to FIRM framework	01/08/10	03/03/11	Successful inter-operability		IC/SS/DD
18. Text mining of newspaper and annual report data for case studies	01/09/10	31/03/11	Creation of FIRM accessible text indexes		IC/SS/DD/WT
19. User interface design for case studies	01/09/10	31/03/11	Agreed design strategy		WT/RH/IC
20. User interface implementation for case studies	01/10/10	31/05/11	Successful testing of case study user interfaces		IC/WT/RH/RA/ SS/DD
21. User evaluation of case studies	01/02/11	30/06/11	Positive feedback from advisory group		ALL
22. Provision of access mechanism for data downloading and uploading	01/04/11	30/06/11	Ability to transfer data into and out of system		IC
WORKPACKAGE 7: Project Management and					

Dissemination **<u>Objective</u>: Manage project and create dissemination outputs**					
23. Attend conferences and JISC meetings	22/02/10	31/03/11	Conference papers		RH/RA/MS
24. Write journal articles	01/07/10	On completion			RH/RA/MS
25. Prepare JISC Interim and Final Reports	01/09/10	31/03/11	Interim Report Final Report Completion Report		RH/RA/MS
26. General Administration	01/01/10	31/03/11	Meeting other project requirements, managing University Finance Office, HR, IS interactions		RH/MS

Members of Project Team (UoP and UNL):

RH Richard Healey
MS Martin Schaefer
WT William Thomas
IC Ian Cottingham
SS Stephen Scott
DD Doug Downey (Northwestern University)
RA Research Staff Member (Mike Johns)
DA Data Entry Assistant (Emma White)