


A. Proposal Cover Sheet

Cover Sheet for Proposals (Please complete ALL sections)		 JISC Research Information Management Grant Funding Opportunity 11/09	
Name of Call Area Bidding For (tick AT LEAST TWO):			
a.	Collecting & deploying Evidence	<input checked="" type="checkbox"/>	
b.	Sharing good practice	<input type="checkbox"/>	
c.	Requirements specification	<input checked="" type="checkbox"/>	
d.	Improving interoperability	<input checked="" type="checkbox"/>	
Name of Lead Institution:		University of Huddersfield	
Name of Proposed Project:		Using Business Process Management Tools and Methods for Building Research Information Systems	
Name(s) of Project Partner(s):			
Full Contact Details for Primary Contact:			
Name: Dr Liz Towns-Andrews		Position: Director – Research & Enterprise	
Email: L.Towns-Andrews@hud.ac.uk			
Tel: 01484 473169 Fax: 01484 472146			
Address: University of Huddersfield, Queensgate, Huddersfield, West Yorkshire, HD1 3DH			
Length of Project:		6 Months	
Project Start Date:		1 March 2010	
		Project End Date: 31 August 2010	
Total Funding Requested from JISC: £47,474			
Funding Broken Down over Financial Years (August - July):			
£39,603		£7,871	
Total Institutional Contributions: £47,475			
Outline Project Description:			
To investigate the feasibility of implementing process support systems for research information management, using business process management tools and methods and a service orientated approach.			
I have looked at the example FOI form at Appendix B and included an FOI form in the attached bid (Tick Box)		YES <input checked="" type="checkbox"/>	NO
I have read the Call and associated Terms and Conditions of Grant at Appendix D (Tick Box)		YES <input checked="" type="checkbox"/>	NO

B. Appropriateness and Fit to Programme Objectives and Overall Value to JISC Community

- B.1. This proposal addresses the call for projects in the field of Research Information Management (RIM) for funding under the JISC Innovation Programme.
- B.2. Our proposal is to investigate the feasibility of implementing process support systems for RIM using Business Process Management (BPM) tools and methods and a service oriented approach and present a case study on the findings.
- B.3. The proposed project will build on other work being carried out at Huddersfield, synthesising outputs and lessons learned, sharing information across functional areas and aiding in the development of a programme-level approach to solving some persistent issues we experience with information systems design and development.
- B.4. Our proposal is predicated on the conclusions that a) no current or planned commercial off-the-shelf application could adequately meet requirements and b) extensive development and maintenance of bespoke custom software would be prohibitively expensive.
- B.5. As an institution, we are therefore very interested in the recent emergence of new types of software applications known generally as 'BPM suites'. Such tools typically include a process definition language, a process execution/workflow engine, process versioning, electronic web forms and programmatic interfaces to facilitate intercommunication between systems via Web Services. Such an approach appears to allow the horizontal integration of business processes across multiple vertical functions. BPM tools also have apparent inherent support for process change, variation and re-engineering.
- B.6. However, we recognise that for BPM systems to work effectively, a high degree of open architecture, open communications protocols and systems interoperability is required. Therefore, we are currently engaging in several proof-of-concept projects to "service enable" a number of lines of business applications.
- B.7. As stated in the HEFCE-funded 'Research Management and Administration System' (RMAS) feasibility study¹, the University of Huddersfield has expressed a strong interest in developing improved systems for research management administration. In common with the majority of other institutions referred to in the report, we find our systems are currently mostly disconnected, possibly incompatible and divided between different vertical business functions. We are keen to improve this situation.
- B.8. This proposal will primarily address sections 16(a), 16(c) and 16(d) of the call. We propose to carry out extensive and detailed formal modelling of research administration business processes to form the basis of a requirements specification for a process support system. In conjunction with this, we propose to identify and pilot methods for improving systems interoperability and intercommunication by service enabling a number of lines of business application. The proposed project will also seek to collect substantial evidence to develop a strong business case for investment in improved research management systems.
- B.9. We are aware that preparing our information systems for the requirements of the Research Excellence Framework will require considerable effort. We will therefore be following the work of the Readiness for REF project at King's College London with keen interest. Our own project will also examine the CERIF data model and how this might help facilitate the exchange of information. We are also following JISC's work with Professor Balbir Barn of Thames Valley University on business process modelling and the use of BPM tools at Higher Education institutions.
- B.10. We believe that business processes themselves are valuable knowledge artefacts for our institution and yet too often they exist only in the heads of individuals. We believe there could be great value in taking a knowledge management approach to encoding business processes in an appropriate modelling notation and implementing them with BPM tools.
- B.11. We currently have 5 significant projects underway at Huddersfield in the area of RIM:
 - B.11.1. The first phase of data warehousing project to deliver management information on research activity and capacity has already been delivered. This project is allowing us to specify in detail the business intelligence requirements of senior management. Work has involved linking data from multiple systems, including Human Resources, Financial Services, Repository and the Postgraduate Researchers Database.
 - B.11.2. A workflow BPM support system for the Bids, Contracts and Compliance Team which is based in the Financial Services Department. This project is currently underway, with the system due for delivery by the end of March 2010. This project is using BPM tools, including workflow and electronic forms to automate pre-award bidding processes; it is using a service oriented approach to interface with line of business systems including Human Resources and Financial Services.
 - B.11.3. Academic staff profiles and expertise web service. In an effort to pilot small, proof-of-concept, projects in the field of Service Oriented Architecture (SOA), we are in the process of redeveloping our staff profiles database into a profiles and expertise web service. Our vision is that such services could be consumed by process support applications, including those supporting RIM, implemented on a BPM system.
 - B.11.4. Online commercial support system. The Research & Enterprise business development unit is currently in the middle of a project to implement a commercial support system to manage contracts, non-disclosure agreements, etc. This is being implemented with workflow and electronic web forms.

¹ Research Management and Administration System RMAS Feasibility study – Part 1, May 2009, p.15

- B.11.5. We are currently looking to implement an enterprise-wide Customer Relationship Management (CRM) System. As part of this project the University was awarded JISC funding to pilot the Business Community Engagement Customer Relationship Management (BCE CRM) self-analysis toolkit. Concurring with the findings of the RMAS report, we believe that there is potential value in interfacing a CRM system to the RIM.
- B.12. If successful in bidding for the proposed project, we would be able to synthesise and build on the existing projects and present a substantial case study on the use of BPM tools and methods and the application of a service oriented approach to RIM. We believe the case study would be valuable both internally within the University and externally, to share with the Higher Education community.

C. Quality of Proposal and Robustness of Workplan

- C.1. This project will run two parallel strands; the first focussing on requirements specification and a business case and the second focussing on improving interoperability and a service oriented approach.
- C.2. This project will investigate the use of BPM tools and methods and a service oriented approach in developing RIM systems. Building on current and previous work at the University, the project team will assess the business case and technical considerations surrounding the use of BPM tools, technologies and methods. Open standards BPM tools from IBM, Intalio and Microsoft will be considered, along with open source offerings. Particular consideration will be given to how far process definitions might be exchanged between systems, thereby avoiding lock-in to a specific system.
- C.3. In helping to build a business case for improved RIM systems, the project will attempt to:
- C.3.1. Identify strategic objectives – for example Point 1 of our Research and Enterprise 2013 KPIs aims for a “four-fold increase in the research grant and contract income”. We are aware that management of this work will require significant investment in new software systems;
 - C.3.2. Determine how much money is currently being spent on managing research information;
 - C.3.3. Identify areas where work is fragmented and/or inefficient;
 - C.3.4. Identify areas where processes can be enabled by technology – within the University, it is common for basic information storage and retrieval to be facilitated by technology, enabling business processes is much less common;
 - C.3.5. Identify unnecessary/duplicate administrative work;
 - C.3.6. Identify non-cashable benefits;
 - C.3.7. Identify and engage all stakeholders;
 - C.3.8. Model business processes using notation and methodology suitable for later use with BPM tools;
 - C.3.9. Identify best practice business process in RIM that can be repeated and shared.
- C.4. In order to investigate improved interoperability between systems and a service oriented approach, this project will:
- C.4.1. Conduct an audit of current core systems, including the SITS student record systems, the Agresso finance system and HR systems to determine how far each system supports, or could be made to support, a SOA;
 - C.4.2. Conduct at least one small scale proof-of-concept pilot to service enable a line of business application and consume that service within another application;
 - C.4.3. Consider and comment on the challenges of service definition and service scope in SOA and provide practical examples;
 - C.4.4. Identify any areas relevant to the E-Framework;
 - C.4.5. Two teams of contract researchers, headed by Professor Lee McCluskey, will be recruited to conduct this work at the direction of the Project Group.

C.5. Timetable and deliverables

Prior to project start	<ul style="list-style-type: none"> • Recruit contract researchers to conduct business process modelling and interoperability audit of existing systems • Recruit Research Support Administrator • Launch project through special meeting of the University Research Committee (an existing group within the University which meets to share good practice and ensure information is shared in relation to research around the University) • Establish Project Group membership
March 2010	<ul style="list-style-type: none"> • First meeting of project group to agree full project plan and work packages • Complete detailed project plan, including work packages for submission to JISC • Set up internal SharePoint site to coordinate project and disseminate materials • Submit project plan (including evaluation plan, QA plan, dissemination plan and exit/sustainability plan) to JISC • Submit project web page to JISC website (including copy of accepted project plan) • Begin developing external project website for dissemination of materials to the community
April 2010	<ul style="list-style-type: none"> • Monthly meeting of project group to review and evaluate progress • Team A to begin examination of current RIM practices • Team B to begin SOA audit of existing core systems

	<ul style="list-style-type: none"> • Both teams to become familiar with existing projects • Go live with an external facing website for dissemination of project information to the wider community
May 2010	<ul style="list-style-type: none"> • Monthly meeting of project group to review and evaluate progress • Team A to make assessments using JISC Impact Calculator and begin business process modelling • Team B to begin pilot SOA proof-of-concept
June 2010	<ul style="list-style-type: none"> • Monthly meeting of project group to review and evaluate progress • Team A to complete business process modelling and submit report to the Project Group • Team B to demonstrate and document SOA example and submit SOA audit report on current systems • Hold stakeholder focus groups
July 2010	<ul style="list-style-type: none"> • Principal investigator to pull together reports from Team A and Team B into the project case study. • Submit draft case study to the Project Group at monthly evaluation and review meeting for consideration • Invite internal stakeholders and the wider community to feedback and comment on the case study • Submit draft final report to JISC
August 2010	<ul style="list-style-type: none"> • Submit completed case study to JISC • Submit completion report to JISC

C.6. Project management arrangements

- C.6.1. Professor Andrew Ball, Pro Vice-Chancellor for Research & Enterprise will champion this project and has dedicated five working days to the project.
- C.6.2. A project group will also be established, headed by Dr Liz Towns-Andrews, Director of Research & Enterprise. Dr Towns-Andrews will sponsor this project. The project group will meet for 2 hours each month over the six month period to review and evaluate progress against the project plan. The project group will consist of PVC (Research and Enterprise), Directors, Senior Management and Project Manager and Officer.
- C.6.3. Professor Lee McCluskey will manage this project, 20 days of his time have been allocated, supported by a dedicated Project Officer, 20 days time have been allocated.
- C.6.4. Team A and Team B will be made up of numerous key individuals (including the above) within the University.
- C.6.5. It is the University's standard practice to use the methodology outlined in the JISC Project Management InfoKit for all major IT and IS projects and this project will follow these methods.

C.7. Risks

RISK FACTOR	MITIGATION
Difficulties in obtaining relevant information, particularly because the University is largely viewed as a series of discrete departments and functions and not as a system	From the outset, the project group will present clearly the required level of commitment of collaboration between departments and services. This commitment has already been agreed at a strategic level through the Pro Vice-Chancellor (Research and Enterprise) and the Dean's of the seven School's of the University.
Value of service oriented approach and BPM tools are not clearly understood by senior management	The case study will take a practical, real world, approach with small scale, immediately demonstrable examples along with a clear focus on the business case.
Resistance from internal stakeholders to sharing information and details of business processes	Proactively engage all stakeholders and ensure they all fully informed at all times
Contract researchers not recruited	We have thoroughly researched the requirements for these roles and put together detailed job descriptions. Appropriate remuneration has been set at such a level that will attract suitably qualified and skilled researchers.
Key members of the business operation group leave within the project timeframe	As this is a University wide initiative there are numerous staff on the management teams involved who will be able to take such a project forward.

C.8. IPR position

- C.8.1. The case study will be made freely available via the dedicated website and the University Repository.

D. Engagement with the Community

- D.1. We believe that BPM projects require particular attention to stakeholder engagement. This is because business processes typically span multiple vertical business functions/departments and therefore require a far greater degree of cooperation and understanding between stakeholders than traditional software systems approaches that cater for discrete areas. We believe that exploring these issues will be an important part of this project and provide some significant insights for the wider community.
- D.2. The University Research Committee will be the primary forum for the internal dissemination of information about this project.

- D.3. We will seek to actively engage with JISC InfoNet and UKOLN to ensure that lessons learned are shared effectively.
- D.4. We believe that a key part of this project will be learning from the projects conducted within other institutions. We are committed to active engagement with other institutions taking part in the programme and related work, both by electronic means and face to face, including ensuring all of our work is made available on our project website.

E. Impact

E.1. Baseline review of present research activity

- E.1.1. At present we are in the process of defining a strategy for moving forward with the University's RIM systems. We are aware of the pressing need to link together information stored in different systems and to better manage and coordinate business processes. We have a vast number of ad hoc, uncoordinated, administrative support systems built up using spreadsheets and poorly designed databases. With the anticipated growth in research income and activity, the University needs stronger BPM systems to enable activity to be tracked and managed properly.
- E.1.2. This project will allow us to conduct the detailed examination of our RIM systems that we know is necessary in order to meet our goals for the future.
- E.1.3. Forge a strong and beneficial link between the University's academic expertise in process representation and composition and the University's IT services operations.
- E.1.4. Specific impacts of this project will be to:
- Enable us to develop and present a clear business case to senior management for investment in RIM systems, including cashable and non-cashable benefits;
 - Enable us to produce clear, accurate, business process models in a formal graphical notation that can be used in specifying the requirements of an IT support system;
 - Enable us to produce an audit of the SOA and interoperability capabilities of our existing core systems, including SITS and Agresso and provide a proof-of-concept of enabling/leveraging services in a line of business application

E.2. Stakeholder analysis

Stakeholder	Interest / stake	Importance
Vice-Chancellor's Office	Using RIM business intelligence data for making strategic decisions about research	High
Pro Vice-Chancellor for Research & Enterprise	Project Champion	High
Research & Enterprise	The service is responsible for monitoring research and enterprise activity across the University and generating informative reports and promoting RIM best practice within the University. Improving quality and reducing cost of systems.	High
Deans of Schools	Using RIM data to help develop research strategy and monitor and meet research income targets	High
Research Office / Research Administrators	Ensuring RIM data is in a suitable format for reporting to funding councils, etc	High
Library / University Repository Manager	Linking research activity to final outputs	High
Funding councils and research funders (external)	Receiving accurate and timely data, obtaining better value for money	High
Financial Services (Bids, Contracts & Compliance Team)	Generate reports on research and enterprise bids, awards and income relating to targets, pre- and post -award work for all research and enterprise activity, including submitting claims and liaison with auditors and funders.	High
JISC and other institutions engaged in the RIM programme	Sharing of best practice. Case study and analysis and of project findings	High
Customers, partners and other external organisations	Service level and value for money improvements through greater efficiency	High

E.3. Potential impact on wider community

- E.3.1. We believe that an approach to information systems that focuses on automating horizontal business processes (as opposed to supporting discrete vertical functions) may have considerable promise for the wider HE community, both in terms of improving the quality of information management and in terms of reducing overall costs. We would hope to share our findings in this area and also, specifically:
- To present information useful in building a business case for the use of BPM tools for RIM;
 - To present business process models that may enrich domain knowledge in the area of RIM and may contribute to the JISC e-Framework and InnovationBase;

- c) To present information on the SOA capabilities of major systems, widely used in HE, including SITS and Agresso.

E.4. Sustainability

- E.4.1. While the case study will comprise a self-contained output, the information it contains will go on to inform key decision making at the University in the area of RIM

E.5. Evaluation methodology

- E.5.1. A project logic model will be composed at the start of the project and will be used as a point of reference throughout the project to shape evaluation.
- E.5.2. Formative evaluation will be carried out at regular project group meetings, by stakeholder focus groups and via a project SharePoint site with Wiki and discussion forum tools
- E.5.3. Summative evaluation will consider how far the case study has enabled the University to better understand our existing systems and to move forward in developing new systems.
- E.5.4. Feedback and comments on the final case study will be invited from internal stakeholders and the wider community.

F. Budget

Directly Incurred Staff	March 10 – July 10	August 10	TOTAL £
Research support administrator, Grade 6, 1 FTE, 6 months			
Contract specialists x 2.5 months x £30 per hour			
Total Directly Incurred Staff (A)			
Non-Staff	March 10 – July 10	August 10	TOTAL £
Travel and expenses			
Hardware/software	£	£	£
Dissemination			
Evaluation	£	£	£
Other			
Total Directly Incurred Non-Staff (B)			
Directly Incurred Total (C) (A+B=C)			
Directly Allocated	March 10 – July 10	August 10	TOTAL £
Staff			
Estates			
Other	£	£	£
Directly Allocated Total (D)			
Indirect Costs (E)			
Total Project Cost (C+D+E)			
Amount Requested from JISC			
Institutional Contributions			
Percentage Contributions over the life of the project	JISC 50 %	Partners 50 %	Total 100%
No. FTEs used to calculate indirect and estates charges, and staff included	Pro Vice-Chancellor (Research & Enterprise); Director of Research & Enterprise; Principal Lecturer; Director of Computing & Library Services		

G. Previous Experience of the Project Team

- G.1. Those involved in the project have been carefully selected to reflect diversity of requirements and past experience.
- G.2. Dr Liz Towns-Andrews is Director of Research and Enterprise for the University. Liz trained as a chemist and graduated with a PhD on X-ray crystallography, and also has an MBA and is a Fellow of the Institute of Physics. Previous employment includes working as a scientist at Daresbury, Cheshire and Director of Knowledge Exchange for the Science and Technology Facilities Council. Liz has headed numerous research

projects and current and recent external activities include Member of the Institute of Physics; Member of the Industrial Advisory Committee for Cockcroft Institute; Director and Board Member of STFC Innovations Ltd; Board Member and Director of Hanwell Science and Innovation Campus Public Sector Partnership Ltd; Executive Director of the STFC Economic Impact Advisory Board; STFC Director and Member of the RCUK KiT and Economic Impact Group; ; Member of NWDA Science Council Sub-Committee on Entrepreneurship; STFC Member of the RCUK Energy Co-ordination Group; Member/Advisor of the TSB-RCUK Strategy Group; Member of the STFC-EPSC Senior Executive Bilateral; Member of the DBIS-STFC Bilateral Senior Executive.

- G.3. Professor T Lee McCluskey Professor of software technology at the University of Huddersfield, and Director of Research for the University's School of Computing and Engineering. His research interests include software and knowledge engineering, semantic technologies, automated planning and machine learning. His research group has developed a series of award-winning knowledge engineering aids which help in the formulation process of structural and heuristic planning knowledge, ranging from interactive interfaces to fully automated learning tools. He is a member of the Executive Council of the International Conference on Automatic Planning and Scheduling; a member of the British Computer Society; and has been a member of EPSRC's Electoral College.
- G.4. Professor John Lancaster, in his role as Director of Computing and Library Services, is responsible for the provision of computing and library services to the University. Current external activities include Chair of the Performance Measurement and Benchmarking Consortium (for libraries); membership of the SCOUNL Executive Board; and membership of the Advisory Board of the Department of Information Studies at the University of Wales, Aberystwyth. Previous posts include Director of Library & Information Services at the University of Limerick in the Republic of Ireland and Chair of the Division of Information and Media Services and Libraries Advisor for Postgraduate Medical and Dental Education at the University of Wales College of Medicine (where he was also awarded a Personal Chair of the University of Wales
- G.5. Sam Flanagan has 10 years experience as a developer and architect, including web, database and .Net applications development. Sam is a Microsoft Certified Professional and has worked on a number of University-wide projects. Sam is lead developer on the five projects referred to in this proposal and is currently researching Model Driven Software Development. He was co-inventor and Technical Director of the 'Your GP Guide' project; a system sold under licence to the Department of Health in 2008 and now integrated into the national NHS Choices website.
- G.6. Kirsty Taylor is the Projects Administrator for the Research and Enterprise Department and has responsibility for compiling data from University information systems mentioned within this proposal and generating informative reports that can be used at senior level for strategic decision making. Previous to this Kirsty coordinated and submitted the University of Huddersfield's RAE2008 submission, and has extensive knowledge of research administration at all levels. Kirsty works alongside Sam Flanagan on projects referred to in this proposal.
- G.7. Denise Ogden is the Manager of the Bids, Contracts and Compliance Team within Financial Services where she has responsibility for the financial aspects of all University grant proposals and funded research and enterprise grants and contracts. Denise has over 16 years experience of pre- and post-award work in three HEIs and has been employed by the University of Huddersfield for 11 years.
- G.8. Graham Stone has been working with e-resources for over 15 years. He is responsible for the management of the Library Electronic Resources Team, Deputy Head of Technical Services and University Repository. A member of the UKSG Committee since 2001, Graham is UKSG Secretary and a member of the Serials and Journal of Electronic Resource Librarianship editorial boards. He is editor-in-chief of the E-Resources Management Handbook and has recently written a chapter for the new Facet publication Digital Information: Order or anarchy? Graham also sits on a number of library advisory committees including, JISC Collections, Oxford University Press journals, Springer journals and ProQuest, He has also led two JISC projects, the University of Bolton Institutional Repository and more recently the Climbié Inquiry Date Corpus Online project.
- G.9. Dr Ian Pitchford is Head of Research Administration at the University and has over seven years' experience in the administration of research and postgraduate research matters and has worked at universities in the United Kingdom and United States. Dr Pitchford holds a PhD in evolutionary development psychopathology, a Master's degree in psychiatry and Bachelor's degrees in biomedical sciences and in combined sciences. He is a Chartered Biologist, a member of the Institute of Biology, and a member of the Association of Research Managers and Administrators and is currently focusing upon the upcoming REF and attended the ARMA seminar on the 'development of the REF data requirements'.
- G.10. Annabel Holland, in her role of Head of Research and Graduate Education, is responsible for the strategic development and management of the Research and Graduate Education Office within the University. Previous experience includes five years working for the Medical Research Council and fourteen years in University administration at the University of Cambridge and University of Manchester – the last eight years of which specialising in research administration. Annabel has worked on a number of successful and substantial research council bids in the past including DTCs, DTAs, CTAs and headed up a large EngD centre. Annabel is also a member of the Association of Research Managers and Administrators.