



## Project Document Cover Sheet

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Project Information			
<b>Project Acronym</b>	SOFA		
<b>Project Title</b>	Service-Oriented Federated Authorisation		
<b>Start Date</b>	01/01/10	<b>End Date</b>	31/12/10
<b>Lead Institution</b>	University of Oxford		
<b>Project Director</b>	Andrew Simpson		
<b>Project Manager &amp; contact details</b>	Dr Andrew Simpson, Oxford University Computing Laboratory, Wolfson Building, Oxford OX1 3QD email: Andrew.Simpson@comlab.ox.ac.uk telephone: 01865 283514		
<b>Partner Institutions</b>	None		
<b>Project Web URL</b>	<a href="http://web.comlab.ox.ac.uk/projects/SOFA">http://web.comlab.ox.ac.uk/projects/SOFA</a>		
<b>Programme Name (and number)</b>	Access and Identity Management Programme		
<b>Programme Manager</b>	Christopher Brown		

Document Name			
<b>Document Title</b>	Project Plan		
<b>Reporting Period</b>	NA		
<b>Author(s) &amp; project role</b>	Andrew Simpson and David Power		
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Document History		
Version	Date	Comments
V1.0	28/01/10	Initial version written by ACS
V1.1	29/01/10	Update following comments from DJP

Project Acronym: SOFA  
Version: 1.0  
Contact: Andrew Simpson  
Date: January 28th, 2010



## JISC Project Plan

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## Overview of Project

### 1. Background

Issues pertaining to the importance of effective data management have risen up most organisations' agendas in recent years. High-profile failings in the private and public sectors, coupled with individuals' increased concerns with respect to the treatment of their personal data, have made more urgent the need for novel tools, technologies and processes to ensure that access to sensitive data is appropriate.

The focus of this project is to deliver tools and technologies to address issues of authorization interoperability within virtual organisations; specifically, we are concerned with ensuring fine-grained access to, and federation of, data within virtual organisations. The system developed will allow federation across heterogeneous data sources in a way that allows each participating node to continue to utilise its existing authorization mechanism. The project will build upon work undertaken within the GIMI (Generic Infrastructure for Medical Informatics) project, which was funded by the Technology Strategy Board. The GIMI project, which was led by the University of Oxford, delivered two core technologies: a data-agnostic approach to the aggregation of data from heterogeneous sources (called *sif* (for service-oriented interoperability framework) and a technology for *evolving access control*, whereby access control policies can evolve automatically on the basis of observed user and system behaviour, or environmental changes. GIMI allows virtual organisations to be constructed from heterogeneous data sources, with a fine-grained access control mechanism allowing data owners to construct policies according to their specific requirements; in effect, it provides a combined data federation and security framework.

### 2. Aims and Objectives

The broad aim of this project is to extend *sif* to deliver a service-oriented framework that facilitates the secure aggregation of heterogeneous data sources—allowing data source owners to utilise their authorization mechanism of choice. The system will provide a 'bridge' across issues of authorization heterogeneity in a fashion that is hidden from data owners, application developers and end-users.

### 3. Overall Approach

We will take an application-led approach to development to ensure that what is developed meets the needs of the wider community. One application will be concerned with academic administration, in conjunction with colleagues from central administration within the University of Oxford; one will pertain to biological research, which will be undertaken in conjunction with colleagues from the Oxford Centre for Integrative Systems Biology; and one application will build upon existing collaboration with the Oxford Biomedical Research Centre, based at the John Radcliffe Hospital.

The fundamental problem being tackled pertains to supporting the integration of existing and legacy systems in a fashion that allows existing systems to continue to utilise their authorization mechanisms of choice. As well as extending the existing *sif* middleware, we will develop a prototype tool that facilitates the construction of access control policies from a variety of paradigms.

We very deliberately consider the authorization problem in this project, and do not consider issues of authentication; we have no wish to replicate the ongoing work of others who are better placed to tackle this problem.

The success (or otherwise) of the project will be measured according to the following criteria:

1. Is it possible to support federation across at least three disparate data sources, one of which uses an XACML implementation for authorization, one of which uses an RBAC implementation, and one of which uses an ACL?
2. Does the policy construction tool allow the construction of policies for the RBAC and ACL paradigms?
3. Is it possible to support a definitive use case, linking three or more heterogeneous data sources from within the University of Oxford, to enable administrators to undertake analysis that would otherwise be impossible, thereby delivering tangible benefits to the organisation?
4. Has a second definitive use case been identified and supported?
5. Currently, sif supports authentication via standard X.509 certificates. Has the feasibility of supporting authentication via, for example, Shibboleth been determined?

## 4. Project Outputs

The project has eight key deliverables:

1. A user requirements workshop.
2. A user needs analysis and use case document.
3. A project web site.
4. An interim report, detailing progress at the mid-point of the project.
5. A dissemination workshop.
6. A simple, usable tool for policy construction.
7. An extended version of the sif framework that supports an approach to 'modular' access control. Three versions (increasing in functionality) will be delivered: the first at the end of Month 4, the second at the end of Month 9, and the third at the end of Month 11.
8. A final report. We anticipate the final report containing (as appropriate): detailed plans and rationale for the delivery and support model, based on the challenge identified in the bid; an evaluation report, reflecting on the issues encountered and articulating what has been learnt through carrying out the project and what future questions need to be explored; and guidance for other institutions or curriculum areas when carrying out similar innovations.

Outputs which are, perhaps, less tangible, but, nevertheless, useful to JISC, will include an identification of access control and systems integration needs within the academic community.

## 5. Project Outcomes

We envisage three broad outcomes from the work. First, significant lessons will be learned with respect to the need for the integration of heterogeneous authorization frameworks within UK academia. Second, an extension to the sif framework, as well as a policy construction tool will be made available to the community. Finally, for the applications supported within the project, we envisage that the secure integration of disparate data sources to enable analysis—which would otherwise have been difficult, if not impossible—will be enabled.

## 6. Stakeholder Analysis

The stakeholder matrix for this project is relatively straightforward:

Stakeholder	Interest / stake	Importance
IT staff	Low	Low
Data owners	Low	High
Users	High	Low
Policy writers	High	Low
Wider JISC community	High	Low
JISC	High	High
Senior administrators	High	High

## 7. Risk Analysis

Risk	Probability (1-5)	Severity (1-5)	Score (P x S)	Action to Prevent/Manage Risk
Legal / IP issues	2	4	8	Careful analysis of code dependencies; careful consideration of new technologies used
Technological	3	2	6	Establish work-arounds as and when necessary
Lack of engagement	1	5	5	Dedicated work-package
Loss of key staff	1	4	4	Shared code ownership and IP; good documentation; experienced team

## 8. Standards

Name of standard or specification	Version	Notes
XACML	V2.0	

## 9. Technical Development

In this project we will continue to utilise the iterative, test-led approach to development that has served us well in the past. We currently utilise subversion as a versioning control system, Eclipse as our IDE of choice, CruiseControl for continuous integration, and JUnit as a testing framework. We undertake lightweight (in the form of unit, integration and regression tests following code check-in) and formal (in the form of walkthroughs for new components) reviews on a regular basis. This philosophy will continue in this project.

Project Acronym: SOFA  
Version: 1.0  
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## **10. Intellectual Property Rights**

The IP created by the project—both with respect to extensions to middleware and applications developed—will be owned by the University of Oxford. All existing code on which the project depends is owned by the University of Oxford; there are no dependencies in this respect. Ownership and responsibility for all data will remain with the respective data owners.

## ***Project Resources***

### **11. Project Partners**

There are no formal project partners. The project is based wholly at the University of Oxford, with Andrew Simpson and Paul Jeffreys as investigators. There will be some minor dependencies on other (existing) collaborators from within the University—namely those associated with the three application areas (from central administration, the Oxford Centre for Integrative Systems Biology, and the Oxford Biomedical Research Centre).

### **12. Project Management**

Andrew Simpson will act as *de facto* project manager, and will commit between one and two hours per week to managing the project. The core team will hold weekly meetings for the duration of the project. The weekly project management meetings will allow the team to reflect upon changing priorities and update the project plan on a regular basis. Having managed several technological projects in this fashion (e-DiaMoND, NeuroGrid and GIMI, amongst others), we are confident that this practice will also serve us well in this project.

In the interests of expediency, technical decision-making will be delegated to David Power. (Having been technical lead of both the GIMI and NeuroGrid projects, we feel this to be appropriate.) Both Power and Slaymaker will report to Simpson and Jeffreys.

The project has no specific training needs.

Formally, the project team is as follows:

- Dr Andrew Simpson is the Principal Investigator and *de facto* Project Manager. His contact details are: Oxford University Computing Laboratory, Wolfson Building, Parks Road, Oxford OX1 3QD.  
Telephone: 01865 283514.  
Email: Andrew.Simpson@comlab.ox.ac.uk.
- Professor Paul Jeffreys is a co-investigator. His contact details are: Office of the Director of IT, Oxford University, 13 Banbury Road, Oxford OX2 6NN.  
Telephone: 01865 273229.  
Email: Paul.Jeffreys@odit.ox.ac.uk.
- Dr David Power is lead developer / researcher. His contact details are: Oxford University Computing Laboratory, Wolfson Building, Parks Road, Oxford OX1 3QD.  
Telephone: 01865 283670.  
Email: David.Power@comlab.ox.ac.uk.
- Mr Mark Slaymaker is a developer / researcher. His contact details are: Oxford University Computing Laboratory, Wolfson Building, Parks Road, Oxford OX1 3QD.  
Telephone: 01865 283528.  
Email: Mark.Slaymaker@comlab.ox.ac.uk.
- Dr Ivan Flechais is providing his expertise in helping to guide the development of the policy tool. His contact details are: Oxford University Computing Laboratory, Wolfson Building, Parks Road, Oxford OX1 3QD.  
Telephone: 01865 283502.  
Email: Ivan.Flechais@comlab.ox.ac.uk.

### **13. Programme Support**

At this time, there are no specific areas where we would like support from the programme or programme manager.

Project Acronym: SOFA  
Version: 1.0  
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Date: January 28th, 2010

## **14. Budget**

The project budget is given in Appendix A. At present there are no deviations from the budget of the project proposal.

Detailed Project Planning

## 15. Workpackages

The project consists of seven workpackages:

- Workpackage 1: project management (Simpson: Months 1—12).
- Workpackage 2: use cases and requirements (Simpson and Power: Months 1 and 2).
- Workpackage 3: middleware extension and refinement (Power and Slaymaker; Months 3—11).
- Workpackage 4: tool development (Slaymaker: Months 5—8).
- Workpackage 5: applications development and support (Power: Months 5—8).
- Workpackage 6: testing and validation (Power and Slaymaker: Months 6—12).
- Workpackage 7: Community engagement and dissemination (Simpson, Jeffreys, Power and Slaymaker: Months 1—12).

The project has eight key deliverables:

1. A user requirements workshop.
2. A user needs analysis and use case document.
3. A project web site.
4. An interim report, detailing progress at the mid-point of the project.
5. A dissemination workshop.
6. A simple, usable tool for policy construction.
7. An extended version of the sif framework that supports an approach to 'modular' access control. Three versions (increasing in functionality) will be delivered: the first at the end of Month 4, the second at the end of Month 9, and the third at the end of Month 11.
8. A final report. We anticipate the final report containing (as appropriate): detailed plans and rationale for the delivery and support model, based on the challenge identified in the bid; an evaluation report, reflecting on the issues encountered and articulating what has been learnt through carrying out the project and what future questions need to be explored; and guidance for other institutions or curriculum areas when carrying out similar innovations.

The phasing of the workpackages is illustrated in the following Gantt chart. D1 represents deliverable 1; D2 represents deliverable 2; etc. W1 represents workpackage 1; W2 represents workpackage 2; etc. D7.1—D7.3 represents the three versions of deliverable 7.

	J	F	M	A	M	J	J	A	S	O	N	D
WP1	x	x	x	x	x	x	x	x	x	x	x	x
WP2	x	x										
WP3			x	x	x	x	x	x	x	x	x	
WP4					x	x	x	x				
WP5					x	x	x	x				
WP6						x	x	x	x	x	x	x
WP7	x	x	x	x	x	x	x	x	x	x	x	x
	D1 (W1)	D2 (W2)	D3 (W7)	D7.1 (W3)		D4 (W1)	D5 (W7)	D6 (W4)	D7.2 (W3)		D7.3 (W3)	D8 (W1)

Further details are given in Appendix B.

## 16. Evaluation Plan

The evaluation plan is based upon the success criteria:

1. Is it possible to support federation across at least three disparate data sources, one of which uses an XACML implementation for authorization, one of which uses an RBAC implementation, and one of which uses an ACL?
2. Does the policy construction tool allow the construction of policies for the RBAC and ACL paradigms?
3. Is it possible to support a definitive use case, linking three or more heterogeneous data sources from within the University of Oxford, to enable administrators to undertake analysis that would otherwise be impossible, thereby delivering tangible benefits to the organisation?
4. Has a second definitive use case been identified and supported?
5. Currently, sif supports authentication via standard X.509 certificates. Has the feasibility of supporting authentication via, for example, Shibboleth been determined?

Timing	Factor to Evaluate	Questions to Address	Method(s)	Measure of Success
By end of Month 12	Success criterion 1	Is it possible to support federation across at least three disparate data sources, one of which uses an XACML implementation for authorization, one of which uses an RBAC implementation, and one of which uses an ACL?	Essentially, the successful delivery of workpackage 3.	The support for one application meeting the description.
By end of Month 12	Success criterion 2	Does the policy construction tool allow the construction of policies for the RBAC and ACL paradigms?	Essentially, the successful delivery of workpackage 4.	The take-up of the tool by one or more collaborators.
By end of Month 12	Success criterion 3	Is it possible to support a definitive use case, linking three or more heterogeneous data sources from within the University of Oxford, to enable administrators to undertake analysis that would otherwise be impossible, thereby delivering tangible benefits to the organisation?	Essentially, the successful delivery of workpackage 5.	The use of the student administration application to undertake analysis that would otherwise be impossible.
By end of Month 12	Success criterion 4	Has a second definitive use case been identified and supported?	Engagement with existing collaborators and the wider community; the successful delivery of workpackage	The deployment of a second application (either in conjunction with OCISB or BRC).

			5.	
By end of Month 12	Success criterion 5	Currently, sif supports authentication via standard X.509 certificates. Has the feasibility of supporting authentication via, for example, Shibboleth been determined?	Identification and adoption of a suitable authentication mechanism.	A definitive answer in the case of it not being feasible; extended support in the case of it being feasible.

## 17. Quality Plan

<b>Output</b>	<b>Extension to sif</b>				
<b>Timing</b>	<b>Quality criteria</b>	<b>QA method(s)</b>	<b>Evidence of compliance</b>	<b>Quality responsibilities</b>	<b>Quality tools (if applicable)</b>
Months 3—11	Basic functionality	Unit and integration testing	Tests passed	DJP	JUnit and CruiseControl
Months 5—8	Support for applications	Alpha and beta testing	Application requirements met	DJP	

<b>Output</b>	<b>Policy construction tool</b>				
<b>Timing</b>	<b>Quality criteria</b>	<b>QA method(s)</b>	<b>Evidence of compliance</b>	<b>Quality responsibilities</b>	<b>Quality tools (if applicable)</b>
Months 5—6	Basic functionality	Unit and integration testing	Tests passed	MAS	JUnit and CruiseControl
Month 7	Supports basic use cases	Testing against a broad class of test cases	Support for test cases	MAS	
Month 8	Usability	User acceptance testing	General approval from end-user(s)	MAS	

<b>Output</b>	<b>Applications</b>				
<b>Timing</b>	<b>Quality criteria</b>	<b>QA method(s)</b>	<b>Evidence of compliance</b>	<b>Quality responsibilities</b>	<b>Quality tools (if applicable)</b>
Month 7	Supports basic use cases	Testing against a broad class of test cases	Support for test cases	DJP and MAS	
Month 8	Usability	User acceptance testing	General approval from end-user(s)	DJP and MAS	

All code development (middleware extension, application development, and tool construction) will be undertaken by Power and Slaymaker. An iterative, test-led approach to development will be undertaken.

## 18. Dissemination Plan

At present, the following dissemination activities are planned:

Timing	Dissemination Activity	Audience	Purpose	Key Message
Month 1	Establishment of project web site	Wider JISC community	Communicate the goals of the project	The need for an approach to federated authorization in distributed contexts
Months 1—12	Engaging with current and potential collaborators	Those (within Oxford, initially) who might find the technologies developed useful	Communicate the potential of the deliverables	What can we do for you?
Mid-project	Dissemination workshop	Colleagues from within the region	Communicate the potential of the deliverables	What can we do for you?
Mid-project	Conference paper for Secure Data Management workshop	Academic and industrial researchers concerned with secure data sharing	Communicate the extension to sif in support of federated authorization	The academic value of the work
End of project	Journal paper for FGCS	Academic researchers concerned with interoperability issues	Communicate the extension to sif in support of federated authorization, with a focus on the applications that have been supported	The academic value of the work; the value of the support provided to collaborators

## 19. Exit and Sustainability Plans

Considering the outputs mentioned in Section 17:

Project Outputs	Action for Take-up & Embedding	Action for Exit
Extension to sif	Engage with existing and potential collaborators; workpackage 7	Make an open source version of the extension available to the community
Policy construction tool	Ensure that the tool meets the broad class of requirements provided for test cases and that it satisfies user acceptance testing	Make an open source version of the tool available to the community; ensure that documentation is 'fit for purpose'
Applications	Ensure that the applications meet collaborators' requirements	Leave applications in situ; provide for short-term support through existing funding mechanisms

Project Acronym: SOFA  
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<b>Project Outputs</b>	<b>Why Sustainable</b>	<b>Scenarios for Taking Forward</b>	<b>Issues to Address</b>
Extension to sif	It has been established that there is a need for such a solution	Open Sourcing of extension	Licenses; documentation
Policy construction tool	There is a lack of tool support for constructing access control policies	Open Sourcing	Licenses; documentation
Applications	The applications (will) have been developed to meet user needs	Applications will remain deployed	Ongoing support

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## ***Appendixes***

### Appendix A. Project Budget

<b>Directly Incurred Staff</b>	<b>January 10 – March 10</b>	<b>April 10 – March 11</b>	<b>TOTAL £</b>
Senior Researcher (David Power), Grade 8,100%FTE for 12 months	██████	██████	██████
Senior Researcher (Mark Slaymaker), Grade 8,100% FTE for 6 months	██████	██████	██████
Project Admin Support, Grade 7, 5% FTE for 12 months	██████	██████	██████
<b>Total Directly Incurred Staff (A)</b>	████████	████████	██████
<b>Non-Staff</b>			
<b>Non-Staff</b>	<b>January 10 – March 10</b>	<b>April 10 – March 11</b>	<b>TOTAL £</b>
Travel and expenses	£1400	£2800	£4200
Hardware/software	£3000	£	£3000
Dissemination: workshops	£1000	£1000	£2000
Evaluation	£	£	£
Other	£	£	£
<b>Total Directly Incurred Non-Staff (B)</b>	<b>£5400</b>	<b>£3800</b>	<b>£9200</b>
<b>Directly Incurred Total (C) (A+B=C)</b>	████████	████████	██████
<b>Directly Allocated</b>			
<b>Directly Allocated</b>	<b>January 10 – March 10</b>	<b>April 10 – March 11</b>	<b>TOTAL £</b>
Staff (Simpson,Jeffreys,Flechais)	██████	██████	██████
Estates	██████	██████	██████
Other	██████	██████	██████
<b>Directly Allocated Total (D)</b>	████████	████████	██████
<b>Indirect Costs (E)</b>	<b>£19610.75</b>	<b>£58832.25</b>	<b>£78443</b>
<b>Total Project Cost (C+D+E)</b>	<b>£56378.25</b>	<b>£130014.75</b>	<b>£186393</b>
<b>Amount Requested from JISC</b>	<b>£45102.60</b>	<b>£104011.80</b>	<b>£149114.40</b>
<b>Institutional Contributions</b>	<b>£11275.65</b>	<b>£26002.95</b>	<b>£37278.60</b>
<b>Percentage Contributions over the life of the project</b>	<b>JISC 80 %</b>	<b>Partners 20%</b>	<b>Total 100%</b>
<b>No. FTEs used to calculate indirect and estates charges, and staff included</b>	<b>No FTEs 1.58</b>	<b>Which Staff</b> David Power (12 months), Mark Slaymaker (6 months), Project Admin 5%, Simpson, Jeffreys 1.3%, Flechais 1.3%	

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Version: 1.0  
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Date: January 28th, 2010

## Appendix B. Workpackages

### JISC WORK PACKAGE

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 Version: 1.1  
 Contact: Andrew Simpson  
 Date: January 29th, 2010



## JISC WORK PACKAGE

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WORKPACKAGES	Mon	1	2	3	4	5	6	7	8	9	10	11	12
1: project management		X	X	X	X	X	X	X	X	X	X	X	X
2: use cases and requirements		X	X										
3: middleware extension and refinement				X	X	X	X	X	X	X	X	X	
4: tool development						X	X	X	X				
5: application development and support						X	X	X	X				
6: testing and validation							X	X	X	X	X	X	X
7: community engagement and dissemination		X	X	X	X	X	X	X	X	X	X	X	X

Project start date: 01/01/2010

Project completion date 31/12/2010

Duration: 12 months

Project Acronym:  
Version:  
Contact:  
Date:

Workpackage and activity	Earliest start date	Latest completion date	Outputs (clearly indicate deliverables & reports in bold)	Milestone	Responsibility
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				Milestone	Responsibility
<b>YEAR 1</b>					
<b>WORKPACKAGE 1: project management</b>  <u>Objective:</u> to ensure the success of the project					
1. establishment of initial web site	1st Jan	31st Jan	<b>initial version web site</b>		ACS
2. delivery of V1.0 of project management document	1st Jan	31st Jan	<b>project management document V1.0</b>		ACS
3. further population of web site	1st Feb	28th Feb	<b>populated version of web site</b>		ACS
4. establish small advisory committee	1st Feb	31st Mar			ACS
5. delivery of final report	1st Nov	31st Dec	<b>project final report</b>		ACS
<b>WORKPACKAGE 2: use cases and requirements</b>  <u>Objective:</u> to ensure that any solutions developed meet genuine needs					
6. meet with potential users from central administration	1st Jan	28th Feb			DJP

Project Acronym:  
Version:  
Contact:  
Date:

Workpackage and activity	Earliest start date	Latest completion date	Outputs (clearly indicate deliverables & reports in bold)	Milestone	Responsibility
7. meet with potential users from BRC	1st Jan	28th Feb			DJP
8. meet with potential users from OCISB	1st Jan	28th Feb			DJP
9. write up short report documenting findings	1st Feb	28th Feb	<b>short report</b>		DJP and ACS
<b>WORKPACKAGE 3: middleware extension and refinement</b>  <u>Objective:</u> to extend the sif framework to support 'modular' access control					
10. delivery of version 1	1st Mar	30th Apr	<b>Version 1</b>		DJP and MAS
11. delivery of version 2	1st May	30th Sep	<b>Version 2</b>		DJP and MAS
12. delivery of version 3	1st Oct	30th Nov	<b>Version 3</b>		DJP and MAS
<b>WORKPACKAGE 4: tool development</b>  <u>Objective:</u> to develop an authorisation policy construction tool that fits with the extension to sif					
13. engagement with policy writers to determine appropriate test cases	1st May	31st May	<b>test case document</b>		MAS
14. delivery of policy construction tool	1st May	31st Aug	<b>policy construction tool</b>		MAS

Project Acronym:  
Version:  
Contact:  
Date:

Workpackage and activity	Earliest start date	Latest completion date	Outputs (clearly indicate deliverables & reports in bold)	Milestone	Responsibility
<b>WORKPACKAGE 5: application development and support</b>  <u>Objective:</u> to demonstrate that sif is 'fit for purpose'					
15. identification of potential applications	1st Jan	28th Feb			DJP and ACS
16. delivery of application 1	1st May	31st Jul	<b>deployed application 1</b>		DJP
17. delivery of application 2	1st May	31st Aug	<b>deployed application 2</b>		DJP
18. delivery of application 3 (if applicable)	1st May	31st Aug	<b>deployed application 3</b>		DJP
<b>WORKPACKAGE 6: testing and validation</b>  <u>Objective:</u> to ensure that the middleware meets the needs of the applications; to ensure that the policy tool meets the needs of policy writers; to ensure that the applications meet the needs of end-users					
19. establishment of test suite for middleware extension	1st Mar	31st Mar	<b>test suite</b>		DJP and MAS
20. establishment of test suite for policy construction tool	1st May	31st May	<b>test suite</b>		MAS
21. establishment of test suite for application 1	1st May	31st May	<b>test suite</b>		DJP

Project Acronym:  
Version:  
Contact:  
Date:

<b>Workpackage and activity</b>	<b>Earliest start date</b>	<b>Latest completion date</b>	<b>Outputs</b> (clearly indicate deliverables & reports in bold)	<b>Milestone</b>	<b>Responsibility</b>
22. establishment of test suite for application 2	1st May	31st May	<b>test suite</b>		DJP
23. establishment of test suite for application 3 (if applicable)	1st May	31st May	<b>test suite</b>		DJP
24. user acceptance testing for policy construction tool	1st Jul	31st Aug			MAS
25. user acceptance testing for application 1	1st Jul	30th Nov			DJP
26. user acceptance testing for application 2	1st Jul	30th Nov			DJP
27. user acceptance testing for application 3 (if applicable)	1st Jul	30th Nov			DJP
<b>WORKPACKAGE 7:</b>  <u>Objective:</u> community engagement and dissemination					
28. meetings with collaborators from central administration (in lieu of initial workshop)	1st Jan	28th Feb			DJP and ACS
29. meetings with BRC (in lieu of initial workshop)	1st Jan	28th Feb			DJP and ACS
30. meetings with OCISB (in lieu of initial workshop)	1st Jan	28th Feb			DJP and ACS
31. prepare mid-project workshop	1st May	30th Jun	<b>workshop</b>		ACS, PWJ, DJP, MAS
32. SDM paper	1st Apr	31st May	<b>SDM paper</b>		ACS, DJP, MAS
33. FGCS paper	1st Nov	31st Dec	<b>FGCS paper</b>		ACS, PWJ, DJP, MAS

Project Acronym:  
Version:  
Contact:  
Date:

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Members of Project Team:

ACS = Andrew Simpson; PWJ: Paul Jeffreys; DJP: David Power; MAS: Mark Slaymaker