# Infrastructure for problem-based collaborative research: Aligning research, policy and practice

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# Infrastructure for problem-based collaborative research: aligning research, policy and practice

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## INTRODUCTION

The paper outlines a model for eResearch infrastructure designed to support collaborative and problem-based research comprising partners and stakeholders from various disciplines as well as government, industry and community-based organisations. Its implementation on a web-based Fedora-based repository system which aggregates, stores, articulates relationships between, and disseminates resources associated with Australian social science research in HIV and related diseases is demonstrated.

## THE ERESEARCH INFRASTRUCTURE MODEL

The model has been developed to bridge the gap between eResearch infrastructure capabilities and established collaborative research practice in various disciplinary fields. Underpinning the design is the proposition that eResearch facilities will be optimally used if they fit seamlessly with existing workflows and practices of researchers, and that alignment of research with policy and practice is best achieved if collaborators are able to access and share resources in a timely and efficient manner.

The model responds to the diverse requirements of all stakeholders, while benefiting research programs as a whole. In addition to dissemination of research findings and research translation, functionality supports multi-way exchange of resources between researchers, policy developers, practitioners and affected communities.

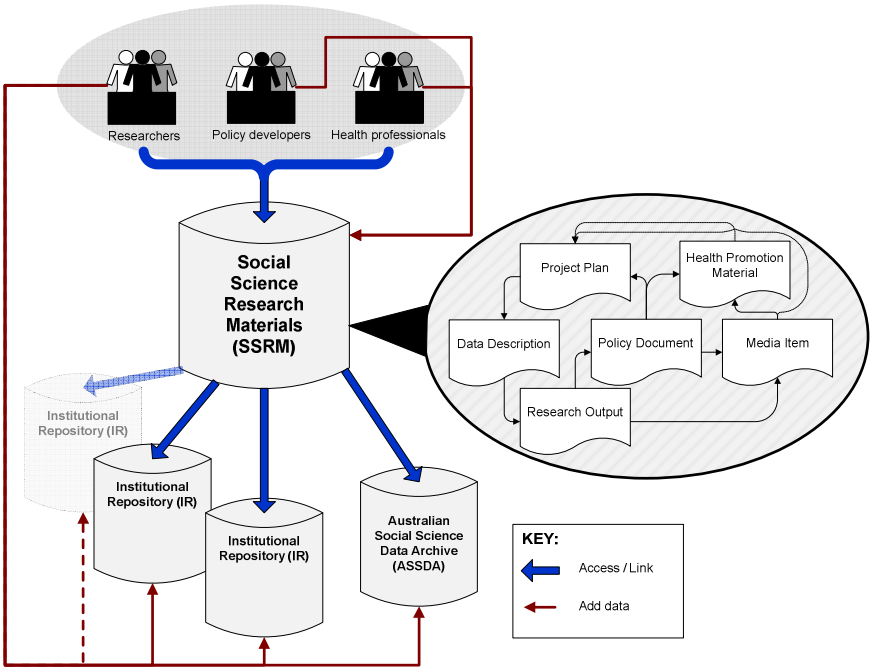


Figure 1: System architecture for implementation with HIV social and policy

## RESEARCH PARTNERSHIPS AND CONTEXT

The internationally recognised success of the Australian response to the HIV epidemic has been largely attributed to the collaborative partnerships forged between researchers, health professionals, and policy makers over the last twenty five years [1][2]. Innovative research analysing changing cultural and social contexts of HIV transmission, has been critical for informing effective prevention campaigns that maintain low rates of new HIV infections. Beginning with early partnerships in 1985, researchers monitoring risk practices among populations and communities most at risk of HIV infection informed the development of government strategies and HIV prevention campaigns. Partner participation is at all stages of research, including development and revision of surveys, collection and analysis of data, and dissemination

of findings, with government and community representation on steering committees of projects at Commonwealth funded Centres. National Strategies [3][4][5], developed with reference to social research, continue to inform the development of HIV health promotion materials. The research agenda, in turn, is established collaboratively in response to the changing needs of policy and practice. Research workplans of Commonwealth-funded national Centres at UNSW and La Trobe prioritise research translation and knowledge transfer, as essential components of partnership-based research, in order to sustain strong relationships with government and community partners and to build research literacy among practitioners and affected populations.

## IMPLEMENTATION OF THE MODEL

The infrastructure project, developed in Library Repository Services at UNSW Library, was initially a UNSW partner project of ARROW, funded from 2004-2008 by the Australian Commonwealth Department of Education, Science and Training under the Research Information Infrastructure Framework for Australian Higher Education. The presentation provides an overview of the content model and workflows, including methods for submission and retrieval of content, identification and display of relationships, and aggregation and sharing of material in the repository.

An open web-based Fedora-based repository contains metadata and digital objects for research and policy publications, conference presentations, health promotion campaign resources and media reportage. Adopting a lifecycle approach to the management of research materials, the repository includes documents derived from various phases of the research process, including proposals, project descriptions and data collection instruments, which are stored alongside publications and other research output.

Extending the research lifecycle model, repository content incorporates associated policy, cultural and media material, from government and community-based research partners. The repository contains born-digital items for which copyright provisions permit storage, and metadata records with links to full-text material on remote websites, including institutional repositories. In addition to items for which full text material is accessible, repository content includes metadata only records for which digital objects do not exist, much of which will be digitised a subsequent phase of the project. Bibliographic records, dated from 1983, include research reports and other grey literature, policy and legal documents, conference presentations, minutes of meetings, media items and health promotion material as well as works of art, and video and audio recordings.

The system harvests research output deposited in institutional repositories of Australian universities. It also interoperates with the Australian Social Science Data Archives (ASSDA), to link metadata records of research datasets in the Fedora repository to data archived with ASSDA. To enable this, the Data Documentation Initiative (DDI) metadata schema has been applied, alongside Dublin Core (DC) and the Metadata Object Description Schema (MODS), to research material in the repository. The OAI-ORE specification is deployed to aggregate content and to articulate relationships between repository items, as well as external resources [6][7].

## CONCLUSION

This model for eResearch infrastructure supports Australian research by delivering a platform for collaboration between research partners and stakeholders, to ensure that research is policy- and practice-relevant. The implementation outlined in the paper advances significant Australian social and policy research in HIV and related diseases by providing an integrated research facility for the curation, sharing, re-use and exchange of resources required by academic, government and community-based partners throughout the research process. Access to aggregated research material facilitates insights that lead to the formulation of new research questions and supports research methods that were not previously possible. By providing a platform for collaboration and information exchange, the infrastructure strengthens existing partnerships and facilitates new ones, leading to more robust research and increased research impact. Expanding the knowledge transfer capabilities of research which provides the evidence base for policy development and service delivery, increases the effectiveness of Australia's public health response.

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