

Facts at a glance

Project name	BreastScreen Victoria Rural Broadband Digital Mammography Project
Project duration	A 3 year project, June 2005-08, including an evaluation phase
Project budget & sources	<p>\$1 million from Multimedia Victoria and \$0.9 million from the Victorian Department of Human Services of a total budget of \$5.4 million (cash & in-kind)</p> <p>Commonwealth Government \$920,000 (via the Commonwealth Communications Infrastructure Fund)</p> <p>Telstra Country Wide \$642,000 in kind</p> <p>BreastScreen Victoria \$1 million in kind</p> <p>Project vendors \$941,000 in kind</p>
Project stakeholders	Victorian and Commonwealth Governments, Telstra Country Wide, Victorian Regional Health Alliances, medical professionals, local hospitals, Victorian women, technology vendors
Main project objective	To test the feasibility of replacing existing analog x-ray screening with a digital screening technology to improve the overall screening process.
Role of broadband technology	Fixed and wireless broadband networks enable large breast screen image files (30-50MB) to be sent digitally from screening points to assessment centres
What the project involved	<p>Installation of digital breast screening technology in one mobile screening service van and three screening and assessment centres</p> <p>Purchase of a picture archiving management system to store digital files</p> <p>Integration of BSVs client records management software with the picture archiving system</p> <p>Trial of a high speed wireless connection to 15 regional locations</p> <p>Deployment of advanced broadband services to the central coordination unit and three screening and assessment centres</p> <p>Implementation of a disaster recovery solution</p> <p>Staff training and process redesign</p>
Main benefits sought	<p>Enhancement of level of service and capacity of BSV to service rural Victorian women</p> <p>Productivity improvements</p> <p>Reduced risk of damage/loss of images compared with physical x-rays</p> <p>Reduced costs of data entry, client records and image storage.</p> <p>OH&S improvements</p> <p>Attraction and retention of staff</p>
Biggest challenges	<p>Coping with the fast pace of change in technologies while adhering to project plan with fixed milestone-based funding</p> <p>Convincing funding bodies that technology was an enabler of better health service delivery and not an end in itself</p> <p>Collaborating between two diverse industries (health and ICT)</p> <p>Redesigning processes and communicating change across the organisation</p>
Results and benefits	<p>Although yet to be completed, the project has allowed BSV to establish that digital mammography is feasible from a technical and practical point of view and can be integrated into the existing BSV service and systems. Cost and productivity improvements are yet to be assessed.</p> <p>The project has shown that broadband can give rural women access to the latest digital mammography technologies and address some of the risks and inefficiencies associated with conventional the analog x-ray film based screening system.</p> <p>It has also enabled BSV to better utilize its staff and resources in an era where it is facing increasing challenges in attracting and retaining a skilled workforce, and has accelerated the organization's adoption of technology.</p>
Lessons learned	Clearly scope the project with distinct milestones

- Make the project an organizational priority and champion it
- Understand that securing funds is time and resource intensive
- Allocate a dedicated project manager to the project with adequate support from partners, project team etc
- Recognize that the project might put extra strain on people and systems
- Be prepared for a steep learning curve
- Be flexible to accommodate rapid technological changes
- Understand the importance of communications and change management

About BreastScreen Victoria

BreastScreen Victoria (BSV) is a public health program established in 1992 to provide mammography (breast x-ray) screening services to Victorian women. It is part of a national screening program and is co-funded by the Victorian and Commonwealth Governments. BSV operates a network of services around Victoria, including eight regional assessment centres, over 40 screening centres and two mobile screening units (as shown in the picture below).

BSV aims to detect breast cancer early in its development, particularly in women aged 50-69, and through early detection, to reduce deaths from breast cancer - the most common cancer affecting women in Victoria.

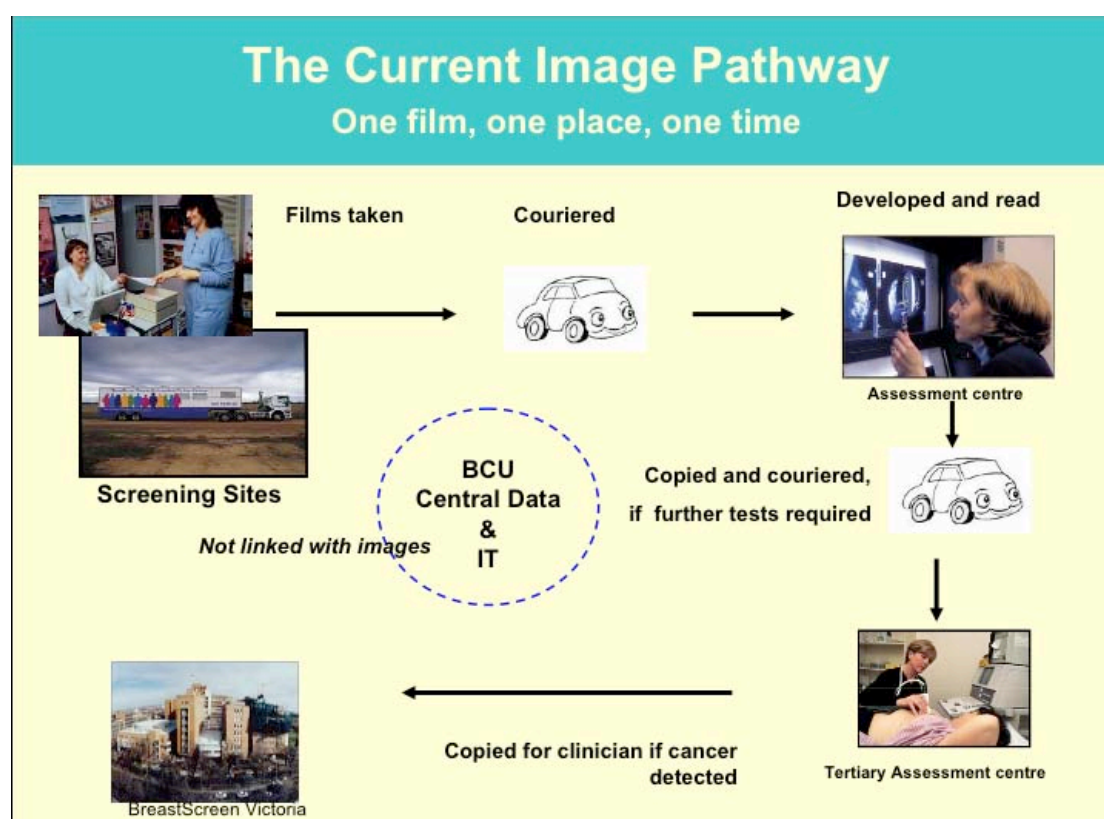
Since its inception BSV has conducted over 2.4 million screens and serves more than 200,000 women each year. Almost half of invasive breast cancer cases diagnosed each year in Victoria are detected by the BSV program.



Background to the project

Recognising the opportunity to use broadband

Until recently, breast screening services were conducted without the use of digital or networked communications technologies. A typical scenario (illustrated below) would involve a woman traveling to a screening centre for a breast screen using conventional analogue radiography equipment, which produces a physical x-ray cassette. The cassette is then physically transported to a screening assessment centre where it is processed onto film and viewed by a radiographer to assess the technical quality of the image. The image is then analysed at a tertiary assessment centre by a minimum of two radiologists and an assessment made. Results are recorded on a client file and conveyed to the woman and/or her doctor, and the x-ray stored in the patient's hard copy file.



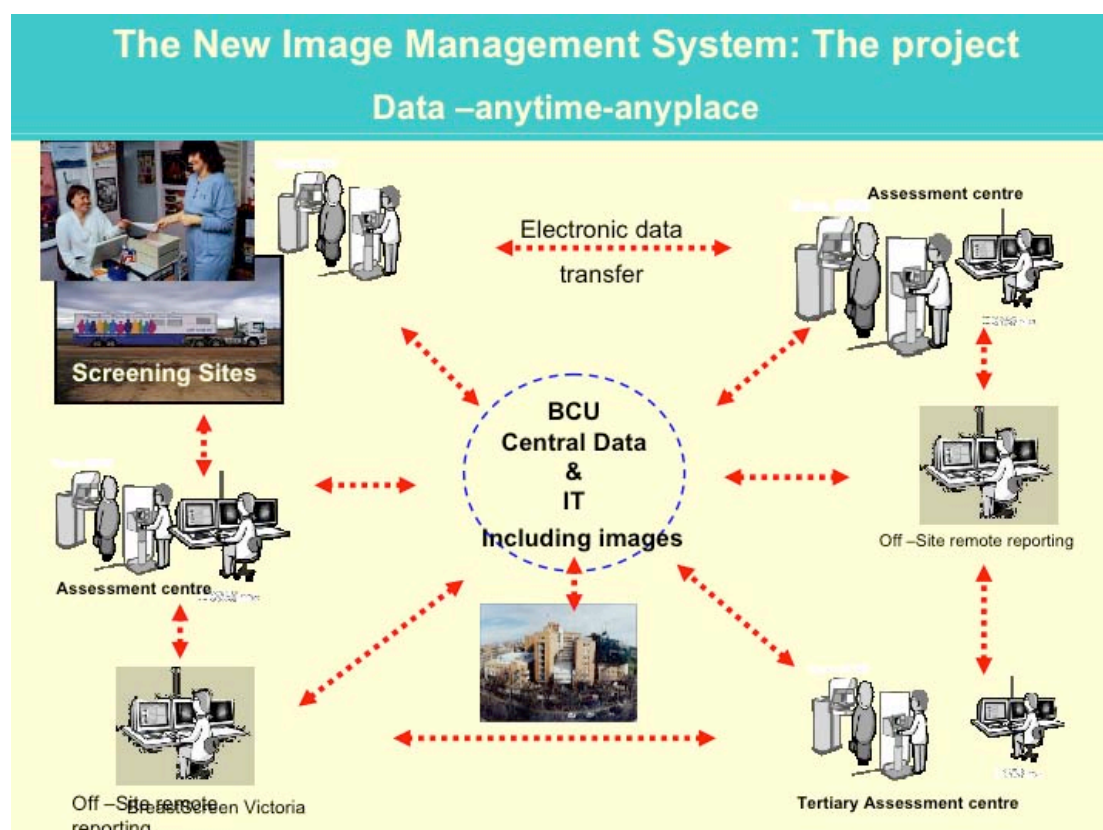
The analog breast screening system is centred around the physical production of x-rays, and is therefore limited by constraints which include:

- The need for some rural patients to travel vast distances to screening centres or mobile vans where physical x-rays can be taken
- The need for some women to make repeat visits when technical issues arise with x-rays
- Risks inherent in transporting unprocessed cassettes from screening centres to assessment centres
- Separation of hard copy patient records from x-rays.

BSV began investigating new technology in breast imaging in 2003. By 2004 BSV had identified the need to conduct a trial which would investigate, on a small scale,

the viability of digital mammography from a practical, systems, human resources, technological, financial and quality of service perspective.

The idea was to pilot a system that would replace hard copy analogue x-ray images with digital images and allow digital image files to be transmitted from the mobile screening service across the BSV network of services using broadband technologies. Breast screen images could be captured digitally in either a mobile or fixed screening centre, integrated with an electronic patient record, sent to a BSV assessment centre, and stored electronically in a picture archiving communication system.



The pilot was intended to move BSV technologies and processes from a “one film, one place, one time” paradigm to a more flexible, responsive and contemporary image management system facilitating “data, any time, any place”.

Broadband, rather than dial-up, was necessary because of the size of digital breast screen images, at an average file size of between 30 and 50 megabytes. Wireless broadband enabled image transfer from the mobile service centre, overcoming the logistical problems of installing temporary fixed broadband services.

Raising support and funding for the project

The pilot was to involve the purchase of expensive digital image capture equipment; its installation in a mobile van and three fixed location screening centres; deployment of a new, high-speed wireless broadband solution utilizing the CDMA network in 15 locations around Victoria; re-development or customization of processes to accommodate changes in workflow arising from the new technologies; education and training of personnel; employment of staff; customization of existing client management software; and purchase of a picture archiving management system and digital storage facilities as well as a disaster recovery solution.

To Breast Screen Victoria's knowledge nowhere else in the world had such a pilot been undertaken. No precedents existed to learn from, and at the time, BSV had both limited funds and limited technical expertise to finance and implement the pilot.

Realising that collaboration was the key, BSV set about identifying potential partners and sources of funds. The project was given a high priority within BSV and by 2005 the organisation had defined a three-year pilot project with a set of clear objectives and milestones, and had secured funding for the \$5.4 million project budget from a range of public and private sector sources.

BSV also formed alliances with key stakeholders who would support the pilot, including the Victorian Regional Health Alliances, public hospitals, doctors and technicians in the medical community, systems and software vendors.

The pilot commenced in 2005 and is due for completion in June 2008 with a final report in September 2008.

Main outcomes and benefits of the project

Although the project is yet to be completed and its results fully documented, the project is widely recognized as a success and has attracted the interest of screening services in other Australian states and also internationally. The project has shown that state-of-the-art digital mammography can be successfully integrated into the Victorian breast screening services network, to improve the screening process.

A range of additional benefits and outcomes have arisen from the project. It has:

- Strengthened BSVs ability to demonstrate a case for funding of a wider implementation of the digital breast screening service
- Improved BSVs capacity to meet the demands of the trend in private sector clinics towards replacement of analogue with digital breast screening technologies
- Improved BSVs capacity to attract and retain staff in a sector experiencing mounting workforce shortages
- Raised morale at BSV and added to a sense that the organization is involved in a cutting-edge project of real significance
- Increased the level of technical skills and the rate of new technology adoption within BSV

The evaluation phase of the project will enable BSV to assess other potential benefits such as productivity improvements and cost reductions.

Lessons learned

With the pilot almost completed, BSV has learned some valuable lessons that may be useful to other organizations intending to undertake broadband projects.

Planning the project

1. Clearly scope the project with distinct milestones

In order to manage risks and ensure a formal evaluation of outcomes against objectives, the pilot was scoped in three phases, starting with a discrete implementation limited to one mobile van and one breast screening assessment centre, extending to a broader rollout in phase two, and completing with a project evaluation in phase three.

2. Make the project an organizational priority and support it with an internal champion

The impetus for the project was driven by the CEO and Board of BSV, whose ongoing commitment to the project gave it real strength. The project was positioned as a strategic and business priority and given regular attention and profile in the organization's communications, e.g. annual reports, newsletters etc. A high profile and an internal champion gave the project momentum and added to its chances of success.

Financing the project and working with funding providers

3. *Understand that securing funds is time and resource intensive, and a tailored approach may be required*

Arranging finance for the project was time and resource intensive for BSV. When initially conceived, the project was far more oriented towards image capture rather than image transfer. However, in order to obtain funding, BSV found that it needed to tailor the project objectives to the requirements of funding providers. To gain funding from Multimedia Victoria, this meant focusing more on the use of broadband technology than the use of digital screening equipment.

Although sources of funds were readily identifiable through the Victorian and Commonwealth governments and the private sector, ease of access to these funds varied. Ironically, one of the challenges BSV faced was to educate and convince some potential funding providers that the project was not just about technology: that rather than being an end in itself, technology was being used as an *enabler* of an improved health delivery service.

Managing and implementing the project

4. *Bring a dedicated project manager on to take responsibility for project implementation and ensure adequate support from internal project teams*

Before the project commenced, BSV recognized its lack of experience in technical project management could jeopardize the project's success, so it employed an experienced project manager to lead the project. This established clear lines of accountability and responsibility, and helped to ensure that the project was delivered on time, with minimal variation to the original project budget, and to expectations.

5. *Recognize that the project might put extra strain on people and systems, and be prepared to accommodate this with additional resources*

Ambitious targets were set, especially for the early stages of the project in order to get it up and running. BSV found that this put some pressure on personnel – particularly technical staff - who had to manage both their “ordinary” responsibilities and those associated with the project. A flexible approach was required to accommodate these extra demands.

6. *Be prepared for a steep learning curve, especially if your organization is not well experienced in undertaking technology projects*

Even with a dedicated project manager and dedicated staff the project forced staff and users of the digital systems to learn and rapidly adapt to new technologies and the changes to existing processes that they introduced. Future rollouts would benefit from more resources to support the rollout of technology.

7. *Be flexible enough to accommodate a rapid rate of technological change*

Technology changes very quickly. BSV's experience was that it changed even faster than was envisaged at the project planning stage. For example, by the time the pilot commenced, the wireless broadband solution originally identified could no longer be implemented - it was part of a network service slated for decommissioning by the network provider. An alternative had to be sourced that stayed within the project budget within a short timeframe.

Working with stakeholders

8. *Understand that the project is as much about communications and change management as anything else*

To be successful, the project depended on the involvement of a range of internal and external stakeholders – from BSV staff through to funding organizations, technology suppliers, technicians, medical professionals, hospitals and end users of the breast screening service. For many stakeholders, the project required changes to existing systems and procedures.

By instituting regular and timely communications with stakeholders, communicating with them early to make them aware of upcoming milestones and change requirements, working in multidisciplinary teams to develop practical solutions, and including feedback loops, BSV helped to:

- Reduce surprises
- Enable stakeholders to transition smoothly from old to new practices, and
- Build internal and external support and commitment for the project.