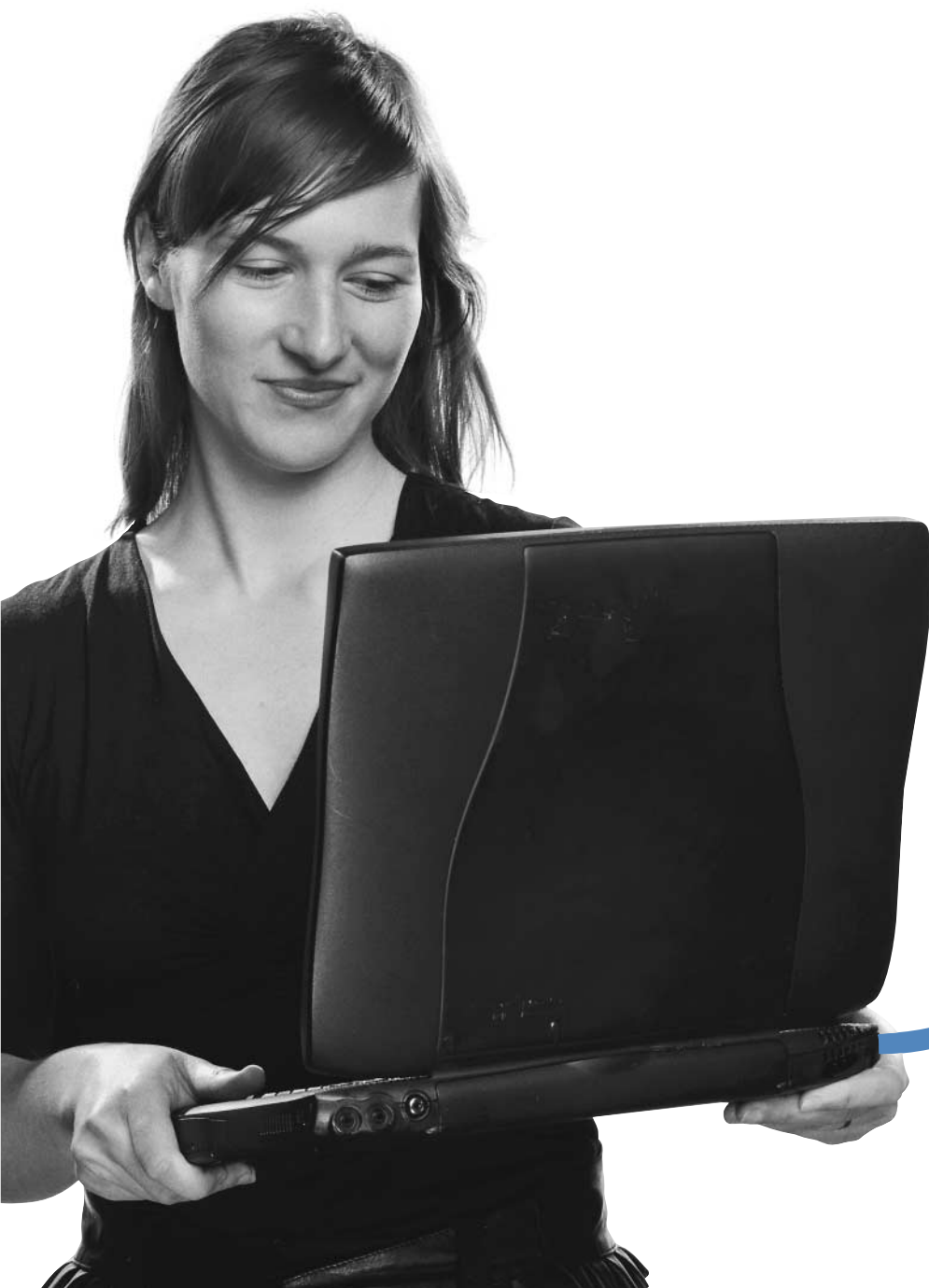


# A national ICT strategy for Scotland's museums

SCOTTISH  
MUSEUMS  
COUNCIL



**The way forward**  
for the use of ICT by  
museums and galleries  
in Scotland





# Contents

The Scottish Museums Council (SMC) is the representative body and membership organisation for Scotland's non-national museums and galleries. We are acknowledged by the Scottish Executive as its main adviser on local museums and the main channel of Executive support for this sector.

We have over 200 members who in turn manage over 330 museums. They include all 32 local authorities, university, regimental and independent museums, ranging in size from small voluntary trusts to large metropolitan services, attracting in excess of one million visitors a year.

SMC combines strategic leadership for the sector with provision of professional information, advisory and support services to members. While we provide an important integrated service to museums, our long-term aim remains to establish a culture of capacity rather than dependency. We therefore place considerable emphasis on helping museums to help themselves, and encouraging other key players to acknowledge their own important contribution.

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# Foreword

I am pleased to introduce *A national ICT strategy for Scotland's museums*.

Museums form a central part of our national identity. They support learning at all levels, provide a rich, stimulating focus for local communities, and offer inspiration and entertainment to people from throughout the world.

Information and Communications Technology (ICT) plays a key part in helping to enhance and broaden these crucial roles. By using ICT effectively, museums can reinforce their position as centres of knowledge, and deliver new and innovative services to more people.

There are many excellent examples of how ICT is already being used to good effect by museums in Scotland, and several are mentioned in this document. However, this strategy is urgently needed, as it sets out what must be done in order to build on these successes, mainstream ICT within museums, and move forward in the use of new technologies at a national level.

The engagement of museums is central to this strategy's success. In consultation with its members and partner organisations, SMC will develop a detailed three year action framework which will set out the practical steps required to achieve the goals detailed in this document.

I therefore commend this strategy as an essential first step in enabling the sector to embrace technology, and continue to deliver high-quality services to the widest possible audience.

**Mike Baughan**

Chair, ICT strategy steering group

# Introduction

A national ICT strategy for Scotland's museums has been developed following research by consultants and was overseen by a steering group, originally convened in 2000, and drawn from Scottish and UK organisations. The research has produced an extensive evidence base which can be accessed on the SMC web site. SMC's ICT Adviser Dylan Edgar has managed the development, with assistance from a cross-team working group of SMC staff.

Our vision is one of modern and accessible museums and galleries in Scotland that use their collections to inspire people, shape identity, improve understanding, provide enjoyment and promote confidence. In making this vision a reality, SMC's aim is to lead, in partnership, the development of museums and galleries across Scotland.

The strategy sets out our vision and goals for ICT in museums. In consultation with museums and other partner organisations, we will develop a three-year action framework that will outline pragmatic steps to enable museums to progress towards this vision. The strategy also identifies areas of priority which will enable us to target investment more effectively. However, further investment will be needed to achieve our aspirational aims.

One of the purposes of the strategy is to show how we can mainstream ICT in museums, and it is therefore aimed at a wide variety of people. Consequently, this is not a technical document. However, because of the nature of the subject, some technical terms have inevitably been included. Where necessary, these have been explained in the glossary.

## Steering group

<b>Mike Baughan</b>	<i>Learning and Teaching Scotland</i>	<b>Chair</b>
<b>Alan Blunt</b>	<i>Scran</i>	
<b>David Dawson</b>	<i>MLA</i>	
<b>Jim Devine</b>	<i>Hunterian Museum and Art Gallery, University of Glasgow</i>	
<b>Elaine Fulton</b>	<i>Scottish Libraries and Information Council</i>	
<b>Ian Graham</b>	<i>Learning and Teaching Scotland</i>	
<b>Rob Mildren</b>	<i>National Archives of Scotland</i>	
<b>Diana Murray</b>	<i>Royal Commission on the Ancient and Historical Monuments of Scotland</i>	
<b>Louise Smith</b>	<i>mda</i>	
<b>Wendy Turner</b>	<i>National Museums of Scotland</i>	
<b>David Watters</b>	<i>Scottish Museums Council</i>	

## Consultants

<b>Alice Grant</b>	<i>Alice Grant Consulting</i>
<b>Bruce Royan</b>	<i>Concurrent Computing</i>
<b>Mike Spearman</b>	<i>The Multimedia Team Limited, Kestrel 3D</i>



# A world of possibilities

“We are forming cells within a global brain”

Tim Berners-Lee, creator of the world wide web

ICT is maturing into a usable, dependable and largely invisible infrastructure, upon which an almost unlimited number of services can be built. This will be one of the most important contributing factors to our economic and social development in the 21st century.

In short, whether we make personal use of computers or not, our society depends on technology.

Personal uptake of ICT is continuing to rise at unprecedented levels. It took only four years for the internet to achieve 50 million users world-wide. This compares to 13 years for broadcast television, and 38 years for broadcast radio.

Over half of all households in the UK now have access to a computer at home and some 45% of Scottish adults make personal use of the internet. These numbers are continuing to rise steeply, and the government wants to make broadband internet available to all communities across the UK by 2005 .

Every Scottish school has internet access, with an average pupil-to-computer ratio of better than five to one. Specialist networks provide broadband internet access to educational establishments throughout Scotland, and the People's Network enables Scottish libraries to offer public internet access.



As technology continues to penetrate our society, we are increasingly living in an on-demand world. A steady supply of informative, stimulating and entertaining electronic material is an increasing expectation. It is one which Scottish museums must respond to, and are well placed to fulfil.

ICT influences  
the way we:

Learn

Consume

Work

Travel

Communicate

Play

Organise our lives



# Where are we now?

## Scottish museums have been at the forefront of adopting new technology



Supported by a Documentation Officer with a national remit, Scotland built an early awareness of using ICT to manage museum collections. Museums benefited from the roll out of the freely available MIS (Museum Inventory System) software to create computer-based inventories. By the 1990s, some larger museums were implementing second generation software, when other UK museums were starting to use collections management systems for the first time.

Most of the ICT training and support available to museums has been focused on managing collections and creating electronic content. The SMC Training Programme includes courses on basic documentation skills, and we have also collaborated with mda and the National Museums of Scotland to produce an interactive CD-ROM entitled *An Introduction to Museum Documentation*.

More recently, Scottish organisations have been influential in delivering services on the internet. Scran in particular has led the way in creating online educational content from individual cultural objects, by building interpretive material and images from electronic documentation data. The Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) provides online access to the database of the National Monuments Record of Scotland through its CANMORE service.

Online museum services are rapidly emerging. Aberdeen City Council and the Hunterian Museum already put object records online, and Aberdeen University offers rich learning resources through the LEMUR (Learning with Museum Resources) project. Scottish museums have contributed to other service initiatives. For example, university-based projects such as Visual Evidence, Charting the Nation, and Drawn Evidence give access to Scotland's drawings, photographs and maps. The Humanities Advanced Technology and Information Institute (HATII) at the University of Glasgow also provides digitisation summer schools aimed at the cultural sector.

We now find ourselves at a critical juncture. Scottish museums have led the way in the use of ICT to deliver creative and cutting edge electronic services. Scotland has internationally recognised centres of excellence in multimedia development such as the Hunterian Museum and The Multimedia Team at Kestrel 3D. They have shown the potential of museums by producing electronic resources ranging from digitised images and audio, to video and virtual reality.

However, we cannot allow ourselves to become complacent. We now need a strategy to consolidate this position, build on our strengths, and mainstream the use of ICT throughout all Scottish museums. Only then can we move forward as a sector that continues to lead and innovate in its use of technology.



# Vision and outcomes

## An 18th century frictional electrostatic generator

*Hunterian Museum*

One of more than 300,000 multimedia resources available on the Scran web site.

SMC's wider vision is for modern and accessible museums and galleries in Scotland that use their collections to inspire people, shape identity, improve understanding, provide enjoyment and promote confidence.

ICT is a tool that will help turn this vision into reality.

We believe that SMC has a leading role to play in the development of ICT in the Scottish museums community. By writing and implementing this strategy, we want to provide routes for museums to increase their use of ICT to deliver high quality services that will meet a wide range of user needs.

We aim to achieve four outcomes from the implementation of this strategy:

### Increasing users

Enabling museums to understand and engage with different groups and individuals who can make use of electronic museum resources.

### Building capacity

Increasing ICT awareness, understanding and skill levels among Scottish museums.

### Improving performance

Mainstreaming technology within the everyday working environment of museums.

### Driving up quality

Consistently high quality electronic output from Scottish museums that addresses a range of user needs.

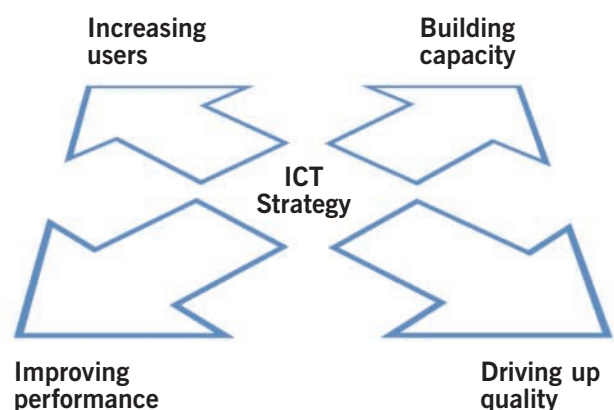
## Scran

[www.scran.ac.uk](http://www.scran.ac.uk)

Scran currently provides access to over a million basic museum object and RCAHMS records, over 300,000 online multimedia resources, more than 50 CD-ROMs, and 60 topical web sites along with a wide range of learner support material.

Scran is licensed to every school and library in Scotland, and to UK higher and further education organisations. Increasingly, Scran is broadening its influence outside Scotland by working with schools in the rest of the UK.

In addition, Scran has worked with a range of partner organisations, including Learning and Teaching Scotland and Communities Scotland, to deliver services to a broad range of users.



# Opportunities

The technology is already available for museums to create and communicate knowledge resources.

To make the most of ICT, museums have to take advantage of the opportunities presented to them.

## **Encouraging participation**

Museum staff have skills in presenting and interpreting collections, that can be translated into electronic services to encourage participation among a range of audiences.

## **Embracing technical standards**

Maturing technical standards will allow for more cross-sector searching, enabling museums to place their collections in a wider context.

## **Working with communities**

Museums often have a good working knowledge of local audiences, who can also be potential contributors to electronic resources and communities.

## **Exploiting e-tourism**

Museums can create compelling multimedia experiences aimed at international markets to encourage people to visit.

## **Collaborating with others**

Museums can develop mutually beneficial partnerships and take advantage of shared technical infrastructure and skills.

## **New ways of accessing museums**

Museums can use new technology to increase access and provide improved services to visitors with disabilities.

## **Making the most of 21st Century Government**

Public institutions that run museums can take advantage of e-government to increase internal performance in museums.

## **Tapping public enthusiasm**

Unprecedented public interest in history, local and family studies presents museums with enthusiastic online audiences.

## **Delivering e-learning**

The latest Scottish Household Survey figures reveal that 44% of adult Scottish internet users make use of the internet for “finding information related to education”. This suggests an established market of lifelong learners making use of the web.

## **East Lothian Heritage Forum**

[www.elh.info](http://www.elh.info)

East Lothian Heritage Forum was set up in 2001. It consists of museums and local history groups and encourages joined-up thinking, sharing of resources and exchange of information.

The web site forms a central part of the forum, and is managed by staff at East Lothian Council's Museum Service. The site will allow partners to develop their own sections, giving them the opportunity to share information, announce events such as talks, workshops, visits and other activities and to participate in the wider discussion about how best to preserve, promote and celebrate East Lothian's history and environment.

an immense  
opportunity



# Challenges

It is clear that although Scottish museums have achieved a great deal through the use of ICT in recent years, significant challenges still remain.

## **Infrastructure and skills gaps**

ICT infrastructure and awareness varies enormously between large and small museums, between rural and urban museums, and between museums belonging to parent bodies and independents.

## **Raised expectations**

Expectations on the part of funding bodies and end users are not necessarily realistic at the outset of ICT projects, given the constraints that museums often work under.

## **Total cost of ownership**

The costs associated with sustaining and supporting computer systems over time can present hidden costs for museums.

## **Inter-service barriers**

Local Authority museums often cite inter-service politics as an obstacle to developing effective partnerships.

## **Understanding users**

The requirements and expectations of online users are difficult to survey and understand. Very little research has been carried out into the users of online resources provided by Scottish museums.

## **Intellectual property rights (IPR)**

Uncertainty over IPR often discourages museums from providing online access to collections.

## **Understanding uptake of ICT by museums**

The use of ICT in Scottish museums is as yet unmapped. MLA is surveying the use of ICT in English museums, and a similar initiative should be considered in Scotland.

## **Investment**

SMC's investment in ICT to support museums was almost £140,000 in 2002/2003. The strategy aims to target future investment to have greatest impact, but significant challenges remain to ensure the necessary levels of investment.

## **Portals**

A portal is a web site that is intended to be a gateway or entrance to the web, with a variety of information and services including a topical directory of web sites and a search facility. Portals are an effective way of making distributed web-based resources accessible from a central point.

Scottish museums have the opportunity to contribute to a range of portals, both from within the cultural sector and from further afield. These include:

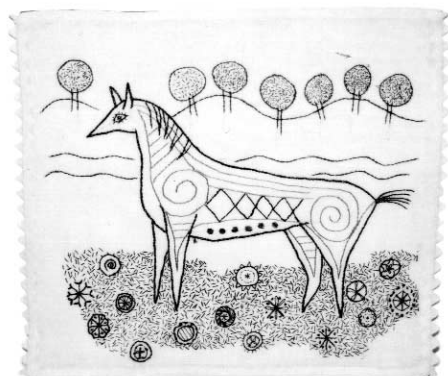
SCONE <http://scone.strath.ac.uk>  
Visit Scotland [www.visitscotland.com](http://www.visitscotland.com)  
Pixus Image Portal [www.scran.ac.uk/jisc](http://www.scran.ac.uk/jisc)  
Enrich Scotland [www.enrichscotland.net](http://www.enrichscotland.net)  
Scotland's Culture [www.scotlandsculture.org](http://www.scotlandsculture.org)  
24 Hour Museum [www.24hourmuseum.org.uk](http://www.24hourmuseum.org.uk)  
Scran Netwide Search  
[www.scran.ac.uk/netwide-search](http://www.scran.ac.uk/netwide-search)  
Historic Environment Portal  
[www.britarch.ac.uk/HEIRNET](http://www.britarch.ac.uk/HEIRNET)

# 4 areas of priority





# The way forward



**Two witches** (right)  
*One of more than 30,000 digitised images currently available on the Shetland Museum web site.*  
Photographed before taking part in 'Up Helly A' in Lerwick, 1908.



**Embroidered place mat** (left)  
*University of Dundee Museum Services.*  
Digitised for the Scottish Textile Heritage Online project.

To address the challenges and take full advantage of the opportunities presented to us requires prioritisation.

We have identified four key priority areas for action in the lifetime of this strategy:

1. **Users**
2. **Infrastructure**
3. **Software systems**
4. **Skills**

## Priority 1: Users

Museums need to know more about the people who use electronic cultural resources, to tailor projects to meet their needs. They also need to identify non-users and understand why they do not use the resources that museums offer.

### Understanding user needs and expectations

People have many different reasons for exploring electronic information based on museum collections.

The Hunterian Museum's *What Clicks?* Strategic Change Fund project aims to survey potential user groups to understand their requirements in an educational context. The findings of this research will inform the implementation of the strategy and enable other museums to meet people's requirements.

## Raising the technological profile of museums

Although some Scottish museums have established high levels of ICT expertise, the majority still have some way to go before they become centres of technical excellence in public perception.

To raise the technical profile requires mainstreaming of ICT in all aspects of how museums function. This will increase awareness among potential user groups of the electronic services that museums have to offer, and will raise the profile of museums as organisations that embrace technology and continue to innovate and inspire using ICT.

### Shetland Museum online photographic archive [www.shetland-museum.org.uk](http://www.shetland-museum.org.uk)

Shetland Museum has a large photographic collection of more than 80,000 images. The museum obtained funding to digitise the collection and make it available electronically to museum visitors through computer terminals, and also via the web.

Public access to the collection has increased enormously through the use of computer terminals in the museum, and by making the collection available online.

The museum can also tap into the wealth of local knowledge by allowing online visitors to suggest descriptions for the photographs, and by distributing the electronic archive to local community and historical groups.

## The spectrum of ICT users

### Recognising key user groups

A helpful distinction is to recognise a spectrum of ICT use, from end users to “first tier” users:

	Unprocessed electronic knowledge	Processed value-added products
<b>Examples of electronic resources provided by museums</b>	Collections management database records Online collection catalogue	Digital images of objects Digitised photographs Interpretive captions Digitised audio and video Teachers' packs Curriculum-based web sites Tourism web sites Subject-based CD-ROMs Interactive gallery displays
<b>People who use these resources might include</b>	Museum staff Researchers	Content developers, e.g. Scran Local history groups and genealogists Interpreters and educators Schools Lifelong learners e-tourists Over-the-threshold visitors
	<b>First tier users</b>	<b>End users</b>

### Priority 2: Infrastructure

To mainstream technology in every aspect of their business, museums must effectively integrate ICT into knowledge management. This requires investment in robust and sustainable infrastructure, and making the most of the infrastructure opportunities provided by others.

#### Getting online with broadband internet connections

A national strategic approach to internet connectivity should be considered. Broadband access can be achieved by pursuing opportunities to piggy-back on existing networks. These may include the Joint Academic Network (JANET) that links higher and further educational establishments, the Scottish Schools Digital Network (SSDN), or the public library oriented People's Network.

#### Publishing museum resources on the web

The museums community should explore a national approach to hosting museum material on the internet. Business models could be put in place which would enable sustainable access to all material at an appropriate level after its creation.

People should not be expected to understand that the custody of a particular object or collection affects their ability to locate it online. Therefore, museum resources should be accessible from a range of portals aimed at cultural, educational and tourist audiences.

#### Protecting intellectual property rights

Uncertainty surrounding IPR often deters museums from making collections information available on the web. Furthermore, many

museums do not have the technology and processes in place to enable them to authenticate online users and provide electronic services within licence agreements.

Relevant IPR expertise and technologies already exist in the wider cultural and educational sectors. The museums community should tap into this expertise in order to protect high quality online resources.

#### Scottish Textile Heritage Online

[www.scottishtextiles.org.uk](http://www.scottishtextiles.org.uk)

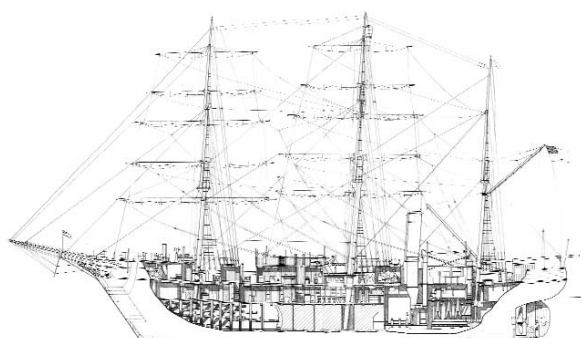
This Strategic Change Fund project aims to provide a one-stop shop on the web for information relating to Scotland's textile treasures. The project is led by Heriot-Watt University, and includes partner organisations from around Scotland.

The project team is surveying and cataloguing textile collections from museums and archives in Scotland. The end result will be a searchable database and image gallery which will give a holistic view of Scotland's textile heritage, for historians, textile designers and other researchers. This will be enhanced with online essays and articles that demonstrate how the collections can be used and interpreted.

### Priority 3: Software systems

Museums need software systems that enable them to manage knowledge about their collections more effectively. Although improving in recent years, the specialist museum software market remains a limited one with little choice of systems, due to the relatively small market that museums represent.

# The way forward (continued)



Side elevation of  
RRS Discovery (left)  
*Digitised for the Dundee Heritage  
Trust education CD-ROM*  
Part of an interactive tour  
of the ship.

## Systems for electronic collections management

Museums should continue to recognise the importance of computer-based collections management, to know what they have and where, and to create and communicate electronic information about objects and collections. Museums will need support and decision-making tools to choose systems that meet their requirements.

Museums also need to prioritise their retrospective documentation in order to make best use of their collections. The museums community should consider a national initiative, potentially under the Full Disclosure framework, for retrospective documentation and converting manual records into electronic formats. This would result in the creation of a body of records that could be compliant with interoperable technical standards.

## Systems to put collections knowledge on the web

Museums require software systems that allow them to create and manage a wide range of web-based material. The museums community should consider adopting and encouraging the use of a national framework of good practice guidelines for the creation of electronic content for the web, in a format that is consistent and accessible to all users. Widespread adoption could be achieved if public funding were only available for projects creating information in formats that adhere to open, interoperable and accessible standards.

Content management systems which enable museums to organise information for the web can be hard to implement, manage and use.

The museums community needs to find a solution to this issue so all museums can easily make knowledge about their collections available online. The museums community could collaborate in procuring systems at a regional level, or content management systems could be hosted by one or more larger partners.

### Dundee Heritage Trust education pack

[www.rrsdiscovery.com](http://www.rrsdiscovery.com), [www.verdantworks.com](http://www.verdantworks.com)

In August 2003, SMC ran a week-long training course called "From concept to blueprint", where museum staff from around Scotland developed ideas and skills for ICT-based educational resources. One project that has emerged from this course is Dundee Heritage Trust's education pack CD-ROM.

The pack has been a great success, with more than 730 schools receiving it so far. The CD-ROM includes an interactive guide to Verdant Works and Discovery Point. It also contains information for teachers, including detailed 5-14 curriculum links, an extensive bibliography, and printable activity sheets for before, during and after school visits.

### Priority 4: Skills

As technology becomes easier to use, the skills required to exploit ICT are becoming less specialised. However, the number of staff needing basic general ICT skills is increasing, and many of them need the ability to evaluate and operate museum-specific systems.

**Commercial Breaks** (right)  
*Almond Valley Heritage Centre*  
 Creating an advertisement for  
 the Commercial Breaks web site.



### Supporting museums

Museums need advice, training and guidance on ICT. This might be technical support, but is more often to assist decision-making about purchasing and commissioning, and to raise awareness of the possibilities that ICT presents. Systems are becoming easier to use, but continuing support for computerised collections management is essential in helping to mainstream ICT and to provide a foundation for more user-focused services.

As more and more museums use the web as a tool for learning and widening access to collections, staff will need to develop an awareness of the options available to make this happen, and some will need to increase their technical expertise in this area.

Just as importantly, museum staff need increased awareness of opportunities for specialist ICT in multimedia interpretation and the ability to commission the very specialist skills these require.

### Sharing skills

Collaborations between museums and organisations with higher levels of ICT expertise must be encouraged. Projects involving partnerships of this kind can help share access to ICT resources and skills, and foster mutually beneficial relationships. The National Museums of Scotland, Scran, the Hunterian Museum and others with these higher levels of expertise all have a potential role to play to raising the ICT skills of the museum workforce.

### Better performance

A framework for skills development should be put in place based on nationally agreed common standards, including the technical standards which enable museums to share knowledge about collections in electronic formats. Agreed standards should be published to ensure their widespread adoption by museums and grant giving bodies.

Despite technology becoming easier to use, the threshold of general ICT skills among museum staff still needs raising if ICT is to be mainstreamed in museums. Learning and Teaching Scotland's ICT Masterclass programme for teachers and other educational professionals might serve as a model.

### Commercial Breaks at Almond Valley Heritage Centre [www.almondvalley.co.uk](http://www.almondvalley.co.uk)

Commercial Breaks is a twelve-month project supported by SMC and the Heritage Lottery Fund designed to involve children and parents in the creation of multimedia advertisements for products and services represented in the museum collection.

As part of a family day out, children are invited to drop in to the "studio" and join the creative staff of a fictitious advertising agency to produce multimedia advertisements for the Almond Valley web site.

So far, children have produced more than twenty advertisements for museum objects ranging from Ingram's "Zenith" Enema, to earthenware pigs and Calder's Bee Yeast.

# Turning our vision into reality

A set of goals will form the basis of a detailed three-year action framework, which will be developed in consultation with museums and other partner organisations.

## **Our goals**

Based on the research carried out for this strategy, we have identified overriding goals, along with specific goals that relate to each of the four priority areas described in this document. When implemented, these are designed to combine and achieve our desired outcomes which were outlined on page 7. On the following pages, our goals are described and mapped against the outcomes.

## **Key stakeholders, possible partners**

SMC will need a number of partners, each of which will have important roles to play in the implementation of this strategy. These may include:

- British Library
- Higher and Further Education
- Hunterian Museum, University of Glasgow
- Joint Information Systems Committee (JISC)
- Learning and Teaching Scotland
- Local Authority education departments
- Local Authority ICT services
- Local Authority museum services
- mda
- MLA
- Museums in Scotland
- National Museums of Scotland
- Scottish Executive
- Software and hardware suppliers
- Scran
- UKOLN



# Overriding goals

	Increasing users	Building capacity	Improving performance	Driving up quality
<b>1. Mainstream the use of ICT in the culture of Scottish museums</b> Ensure that ICT is used to underpin the knowledge management, business processes and services of museums.		●	●	●
<b>2. Secure strategic engagement and participation</b> Work with museums, key stakeholders and partners in Scotland to make sure that the messages and recommendations in this strategy are taken forward collaboratively and on a national level.	●	●	●	●
<b>3. Map and understand the use of ICT in the Scottish museum sector</b> Survey the use of ICT in the sector, in order to produce an accurate picture of strengths and weaknesses.		●		
<b>4. Celebrate and share best practice</b> Promote best practice in the use of ICT throughout museums by identifying and disseminating detailed case studies and providing opportunities to celebrate success.		●	●	●
<b>5. Encourage additional investment</b> Monitor and evaluate results of implementing the strategy to develop the case for further investment, including from business sponsorship.	●	●	●	●
<b>6. Advocate and communicate the role played by ICT in the contribution museums make to people's lives</b> Promote the role and contribution of ICT in driving up quality, increasing users, building capacity and increasing the performance of museums.	●	●	●	●

# Priority 1: Users

	Increasing users	Building capacity	Improving performance	Driving up quality
<b>1. Encourage a better understanding of user requirements by museums</b> Enable museums to understand what different user groups expect and require from electronic resources, allowing museums to produce material that is accurately targeted to meet user needs.	●			●
<b>2. Encourage research into virtual museum audiences</b> Ensure that audience research takes electronic users into account where possible.	●			●
<b>3. Encourage flagship ICT projects that improve the experience of visitors</b> Identify innovative and exceptional ICT projects within Scottish museums, and promote them as exemplars for the wider museums community.	●			●
<b>4. Establish the profile of museums as centres of technological excellence</b> Encourage museums to embrace technology that improves the public perception of museums as bodies that embrace ICT and use it to innovate and inspire.	●			●
<b>5. Encourage e-learning</b> Enable content creation based on collections information to increase educational and lifelong learning resources available electronically.	●			●
<b>6. Encourage e-tourism</b> Enable content creation for web sites aimed at attracting tourists to Scottish museums.	●			●

# Priority 2: Infrastructure

	Increasing users	Building capacity	Improving performance	Driving up quality
<b>1. Increase the uptake of internet connections among museums</b> Raise awareness among museums of the possibilities that broadband presents, and support them in adopting it when it becomes available to them. Where broadband is not currently available, museums should still be encouraged to take up narrowband internet connections.			●	
<b>2. Encourage the sharing of ICT resources through partnerships</b> Facilitate mutually beneficial partnerships that allow the sharing of ICT resources including equipment and associated expertise.		●	●	●
<b>3. Increase online publishing by museums</b> Overcome the barriers associated with publishing material on the web, by promoting cost effective and simple opportunities that museums can take advantage of.	●			●
<b>4. Encourage the strategic hosting of content on the web</b> Encourage larger organisations to consider sharing access to web hosting facilities with museums.	●			●
<b>5. Increase access to museum knowledge through portals</b> Ensure that relevant portals from the cultural sector and beyond have access to material from Scottish museums.	●			●

# Priority 3: Software systems

	Increasing users	Building capacity	Improving performance	Driving up quality
<b>1. Increase the use of appropriate and usable collections management systems</b> Ensure that there is an increase in the number of museums using computerised collections management systems appropriate to their requirements.			●	
<b>2. Ensure that best value is made of collections management systems</b> Support museums in making best use of collections management systems to ensure that knowledge about collections is created, managed and disseminated in an efficient way.			●	●
<b>3. Ensure that museums can make knowledge about their collections available</b> Address electronic documentation backlogs as a way of making knowledge about collections readily available.	●		●	●
<b>4. Agree technical standards at a national level</b> Ensure that common technical standards are agreed and adopted nationally by the museums community.		●	●	●
<b>5. Encourage the joint procurement of systems</b> Encourage museums to form partnerships involving the joint procurement of software systems.		●	●	
<b>6. Increase access to content management systems</b> Encourage larger organisations to make content management systems available on a distributed basis.	●		●	●

# Priority 4: Skills

	Increasing users	Building capacity	Improving performance	Driving up quality
<b>1. Sharing skills</b> Encourage the sharing of ICT-related skills and awareness, both within the museums community and externally.		●		●
<b>2. Ensure that relevant training is available to museums</b> Ensure that training opportunities are available to museums, in a range of ICT-related fields and at different levels to increase the general threshold of ICT awareness.		●		
<b>3. Ensure that museum staff have the skills to make knowledge available on the web</b> Increase awareness among museum staff of the issues and options for publishing material on the web.	●	●		●
<b>4. Ensure that frameworks for ICT decision-making are available</b> Ensure that a range of practical toolkits are available to help museums make informed decisions on a wide variety of ICT-related issues and problems. These may include software systems, technical standards, IPR management and e-commerce.		●		●



# Glossary

## **21st Century Government**

A vision where the delivery of public services and public information in Scotland is characterised by citizen focus, a choice of means of access, convenience, effectiveness and continuous improvement by using technology.

## **Broadband**

An internet connection that is faster than a standard narrowband dial-up connection. The speed of data transfer over an internet connection is measured in kilobits per second (Kbps). Standard dial-up internet connections typically run up to around 56 Kbps, whereas broadband connections are much faster, currently running at anything between 512 Kbps and 2000 Kbps.

## **Collections management system**

Software that enables museums to manage information about their collections.

## **Content management system**

A database which organises and provides access to all types of digital content.

## **Digitisation**

The process of converting objects and documents, such as photographs, manuscripts, printed text and artworks into digital form. (mda definition)

## **e-commerce**

Buying and selling goods and services on the internet.

## **e-learning**

Learning in which ICT is integral to its delivery, engagement with participants and outcomes.

## **e-tourism**

Using e-commerce within the tourism industry for marketing, online booking, etc.

## **End users**

Users of value-added electronic material such as curriculum based learning resources and interactive gallery displays.

## **First tier users**

People who use unprocessed electronic material, such as documentation records or digital images in order to create the value-added products used by end users.

## **Full Disclosure**

A cross-domain initiative to develop a national strategy for the retrospective conversion of documentation data and the retrospective documentation of library, archive and museum collections throughout the UK.



## **ICT**

Information and Communications Technology, a phrase used to describe technologies that handle information and aid communication. In this strategy we have used a deliberately far-reaching definition of ICT that encompasses both core museum functions (e.g. collections management), and wider uses of technology in museums.

## **ICT Masterclass**

The ICT Masterclass programme was developed by Learning and Teaching Scotland to support local authorities and schools in the development of their ICT integration strategies. Participants were sent on an intensive ICT training course, provided with a laptop and encouraged to disseminate training and good practice to others.

## **Infrastructure**

In this document, infrastructure refers to the ICT hardware and software used by museums. In our priority areas, we have deliberately separated collections management and content creation systems from other infrastructure, because they are important enough to require separate consideration.

## **Intellectual property rights (IPR)**

Intellectual property refers to creations of the mind: inventions, literary and artistic works, symbols, names, images, and designs used in commerce.

## **Interoperability**

The ability of computer systems to exchange data and work seamlessly with each other without special effort on the part of the user. This has become increasingly important with the emergence of the internet in recent years.

## **Internet**

The internet is a worldwide system of computer networks. Many different applications are available on the internet, including e-mail and the world wide web.

## **JANET**

The Joint Academic Network is a network infrastructure that links higher and further education institutions in the UK.

## **Mainstreaming**

In this case, the use of ICT to underpin the day-to-day workings of an organisation.

## **Multimedia**

A term typically used to describe the combination of text, sound, and/or motion video delivered on computers.

## **People's Network**

A lottery funded project which has connected all UK public libraries to the internet.

## **Portal**

A web site that is intended to be a gateway or entrance to the web.

# Glossary (continued)

## **SSDN**

The Scottish Schools Digital Network aims to deliver a secure computer network that will connect Scottish schools together and give access to online services and resources.

## **Technical standards**

These define how museums should create electronic resources such as digital images, e-learning material and collections descriptions. Agreed technical standards are essential because they allow electronic information to be shared, retrieved and sorted in an open and compatible way. They also ensure that electronic resources are created to a consistently high quality.

## **Total cost of ownership**

A calculation designed to help people assess the true costs involved with buying ICT equipment, after taking into account factors such as purchase price, support costs and training.

## **Value-added**

Building added features on to basic electronic material, e.g. enhancing object level documentation records, in order to produce resources of higher quality and usefulness that may be charged for.

## **World wide web**

The world wide web (often shortened to “www” or “the web”) is made up of pages that can be linked together on the internet. Today, the web consists of over four billion pages that can be viewed on many different devices, from computers and televisions, to mobile phones.

# Further browsing

## **ICT projects in Scotland**

Accessing Scotland's Past

[www.accessingscotlandspast.org.uk](http://www.accessingscotlandspast.org.uk)

Am Baile, The Gaelic Village

[www.ambaile.org](http://www.ambaile.org)

Charting the Nation

[www.chartingthenation.lib.ed.ac.uk](http://www.chartingthenation.lib.ed.ac.uk)

Drawn Evidence

[www.drawn-evidence.dundee.ac.uk](http://www.drawn-evidence.dundee.ac.uk)

Hamilton Palace reconstruction

[www.rcahms.gov.uk/hamilton](http://www.rcahms.gov.uk/hamilton)

LEMUR

[www.abdn.ac.uk/lemur](http://www.abdn.ac.uk/lemur)

The Glasgow Story

[www.theglasgowstory.com](http://www.theglasgowstory.com)

Visual Evidence

[www.visual-evidence.ac.uk](http://www.visual-evidence.ac.uk)

What Clicks?

[www.hunterian.gla.ac.uk/what\\_clicks](http://www.hunterian.gla.ac.uk/what_clicks)

## **Selected museum sites**

Aberdeen Art Gallery and Museums

[www.aagm.co.uk](http://www.aagm.co.uk)

Burns National Heritage Park

[www.burnsheritagepark.com](http://www.burnsheritagepark.com)

Dunbeath Heritage Centre

[www.dunbeath-heritage.org.uk](http://www.dunbeath-heritage.org.uk)

Dundee Heritage Trust

[www.rrsdiscovery.com](http://www.rrsdiscovery.com)

Glasgow Museums

[www.glasgowmuseums.com](http://www.glasgowmuseums.com)

Hunterian Museum

[www.hunterian.gla.ac.uk](http://www.hunterian.gla.ac.uk)

National Museums of Scotland

[www.nms.ac.uk](http://www.nms.ac.uk)

## **Other sites**

CANMORE

[www.rcahms.gov.uk/canmore](http://www.rcahms.gov.uk/canmore)

Full Disclosure

[www.bl.uk/concord/fulldisc-about.html](http://www.bl.uk/concord/fulldisc-about.html)

HATII

[www.hatii.arts.gla.ac.uk](http://www.hatii.arts.gla.ac.uk)

JANET

[www.ja.net](http://www.ja.net)

mda

[www.mda.org.uk](http://www.mda.org.uk)

Museums Computer Group

[www.museumscomputergroup.org.uk](http://www.museumscomputergroup.org.uk)

People's Network

[www.peoplesnetwork.gov.uk](http://www.peoplesnetwork.gov.uk)

SSDN

[www.ltscotland.org.uk/ssdn](http://www.ltscotland.org.uk/ssdn)

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text is available on request.



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