# SCIENCE CENTRES

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The Millennium Commission is investing over £250 million in building new Science Centres in the UK, covering diverse topics from space to life. In parallel, a new Wellcome Wing opened last week at the Science Museum. Issues raised include co-ordination between the centres and ongoing funding.

***This POST Note explores the content of the new millennium Science Centres and the Wellcome Wing and considers their future.***

## THE ROLE OF SCIENCE CENTRES

Science Centres aim to present science to the general public in an informative and enjoyable manner. They are environments for informal learning. Some cover the whole of science; others focus on a specific area, such as geology or ecology. They are intended to serve a range of purposes, including:

- Interesting young people in science careers;
- Informing people about scientific developments;
- Engaging the public in consideration of the role science plays and its value to society.

The centres aim to make this process interesting through a variety of displays, interactive features and presentations, striking a balance between education and entertainment.

A number of smaller Science Centres have opened in the UK during the last 20 years, such as Techniquest in Cardiff, the Exploratory in Bristol and Satrosphere in Aberdeen. There are also similar galleries in established museums, for example 'Launch Pad' at the Science Museum in London and 'Xperiment!' at the Museum of Science and Industry in Manchester. These focus on hands-on exhibits, demonstrating phenomena across the whole range of science.

Millennium Commission funding will lead to a substantial increase in the number and size of UK Science Centres, bringing the UK more into line with nations such as the USA. The US-based Association of Science-Technology Centres has 550 members in 40 countries, including nature centres, aquariums, and observatories. More than 300 of these are in the US. ECSITE (the European Collaborative for Science, Industry and Technology Exhibitions) has 240 members in more than 35 countries.

## THE MILLENNIUM COMMISSION

The Millennium Commission was established in 1994 to distribute National Lottery money. Accountable to the Secretary of State for Culture, Media and Sport, it aims to assist communities in marking the close of the second millennium and the start of the third. Around £2 billion has been allocated, to capital projects, individuals, festivals and the Dome.

**FIGURE 1: DESIGN OF THE NATIONAL SPACE SCIENCE CENTRE, LEICESTER**

There were three strategic criteria for the Commission's capital awards: the projects should be of all sizes, spread across the country and accessible to all sectors of the community. As a result of this last point, many of the new Science Centres are in areas not traditionally associated with tourism.

Rather than proposing themes for capital projects, the Commission invited bids for funding in four bidding rounds. Successful bids fell into five areas:

- science and technology;
- the environment;
- education;
- communities;
- regeneration.

One in five millennium projects and schemes have a science / technology element. Over £250 million has been awarded to 14 science / technology centres. This money is for capital costs only: the centres are required to be self-supporting. Each project must also have at least 50% partnership funding - this has come from a wide variety of sources, including the European Union, regional and local authorities, the Wellcome Trust, and commercial sponsors. Many of the centres also have links with research institutions.

## SCIENCE CENTRES

The Millennium Commission Science Centres are detailed in **Box 1**, along with some of the projects which are classed in the 'environment' theme but can also be considered Science Centres.

**BOX 1: MILLENNIUM SCIENCE CENTRES**

**SCIENCE CENTRES**

**Millennium Point, Birmingham**
Millennium Commission Funding: £50m from a total of £113m.
Opening: autumn 2001
A centre for technology and learning, contributing to the economic regeneration of Birmingham. Main components include:

- Discovery Centre, a visitor attraction based on innovation in science and technology
- Technology Innovation Centre, for engineering, technology and business education
- University of the First Age, providing learning opportunities for school age children through new technology
- Hub, with social and leisure facilities including an IMAX cinema.

**The Odyssey, Belfast**
Millennium Commission Funding: £45m from a total of £90m.
Opening: spring 2001
Includes an indoor sports arena, an IMAX cinema, shops and restaurants, as well as a science centre. It is hoped to act as a catalyst for regeneration.

**@Bristol**
Millennium Commission Funding: £44m from a total of £96m.
Opening: July 2000
An urban regeneration project, to create the heart of a new cultural quarter. Integrating Explore, a science centre using hands-on exhibits, multimedia techniques and a virtual theatre, Wildscreen, looking at life on earth, including a walkthrough botanical house, an IMAX theatre, open spaces and a public art programme.

**Glasgow Science Centre**
Millennium Commission Funding: £35m from a total of £71.5m
Opening: Fully open by spring 2001
A major Science Centre, predicted to attract 600,000 visitors a year. Includes the Exploratorium Science Centre, with a planetarium and interactive theatre; an IMAX cinema; and the 100m high Millennium Tower.

**The International Centre for Life, Newcastle**
Millennium Commission Funding: £31.5m from a total of £64m.
Opened: Visitor attraction opened May 2000
Combines public understanding of science activity with research and commercial facilities in the field of life science. LIFE Interactive World visitor attraction explores human biology through hands-on exhibits and multimedia displays and hopes for 225,000 visitors per year. Other activities include Newcastle University's Institute of Human Genetics for genetic research, the Bioscience Centre for businesses and the Policy and Research Ethics Institute.

**National Space Science Centre, Leicester (Figure 1)**
Millennium Commission Funding: £23.25m from a total of £46.5m.
Opening: spring 2001
A combination of interactive exhibits and space hardware, including a space theatre. Links to Leicester University's Space Research Centre, and the visitor centre will have clean rooms for building space instruments and a satellite mission control centre. The Challenger Learning Centre (opened December 1999) will offer schoolchildren the chance to 'become' astronauts in a space station simulation.

**Magna, Rotherham**
Millennium Commission Funding: £18.6m from a total of £37.2m.
Opening: spring 2001
Visitor centre in the conversion of a redundant steel mill, with the making and use of steel as its focus. It looks at the four 'elements': earth, air, fire and water. Also space for exhibits and events. It hopes to attract 400,000 paying visitors per year.

**The Deep, Kingston upon Hull**
Millennium Commission Funding: £18.5m from a total of £37.7m.
Opening: autumn 2001
Examines the marine life of the world's oceans and seas. Includes a visitor attraction and learning, research and business centres.

**Our Dynamic Earth, Edinburgh**
Millennium Commission Funding: £15.8m from a total of £35.7m.
Opened: July 1999
Looks at planet Earth, demonstrating the natural forces which have shaped Earth and the environments which have resulted. Includes 'The Atmosphere', a venue for corporate events. Dynamic Earth has been very successful: by March 2000 more than 380,000 people had visited, exceeding projected figures by 40%.

There are also Science Centres which received less than £15m Millennium Commission funding, including:
**The Big Idea**, Ayrshire. Millennium funding of £5.6m from a total of £11.8m. An 'Inventor Centre', looking at past inventions and encouraging future inventors. Opened on 14 April 2000, and attracted triple the target number of visitors for its first month.
**INTECH 2000**, Hampshire. Millennium funding of £4.8m from a total of £9.6m. Building on the work of the established centre to provide a free, hands-on science centre.
**Island 2000**, Isle of White. Millennium funding of £2.2m from a total of £4.3m. Ventnor Botanic Gardens visitor centre opened in May 2000, and a dinosaur museum in the shape of a pterodactyl is due to open in summer 2001.
**Making It!**, Mansfield. Millennium funding of £1.8m. A science centre in a disused brewery, telling the story of Mansfield's manufacturing industries, to open spring 2001.
**Sensation,** Dundee. Millennium funding of £1.6m from a total of £4.7m. A science centre based on life sciences, opened July 2000.

**ENVIRONMENT CENTRES**

**The Earth Centre, Doncaster**
Millennium Commission Funding: up to £50m from a total of £100m, although not all of this has yet been contracted.
Opened: phase 1, April 1999. Re-opens fully February 2001.
A regeneration scheme on the site of former collieries. Innovative visitor attraction and education complex promoting environmental understanding and sustainable development. Won Tourism Project of the Year award and feedback was generally good. However, had low visitor numbers in its first season, causing significant revenue problems. The Commission provided some stabilisation funding.

**The Eden Project, Cornwall**
Millennium Commission Funding: £40m from a total of £80.3m.
Opening: April 2001
The world's biggest greenhouses, enabling people to walk through three climates: the rainforest, Mediterranean and temperate. Also enables research on plant populations. The visitor centre opened in May 2000 and visitor numbers have exceeded expectations. When fully open, the project expects to receive 750,000 visitors a year.

**Millennium Seed Bank, Sussex**
Millennium Commission Funding: £30m from a total of £81.4m.
Opening: September 2000
Part of the Royal Botanic Gardens, Kew, the Millennium Seed Bank will aim to collect the seed of 25,000 species of plants and freeze them for conservation. Also provides access for the public to view the process.

**National Botanic Garden of Wales**
Millennium Commission Funding: £21.7m from a total of £43.3m.
Opened: May 2000. Formal opening will be July 2000.
Dedicated to the sustainability and protection of threatened plant species. It includes formal gardens, a lifelong learning centre, grassland, woodland and an organically managed estate.

**BOX 2: CONTENT OF THE WELLCOME WING**

**Third floor**: 'in future' allows visitors to make decisions on issues raised by science and technology, and see the futures that arise.
**Second floor**: 'digitopolis' gives an introduction to digital technology, including current and future applications.
**First floor**: 'who am I?' introduces modern bio-medical science by looking at human identity. There will also be a link with 'real' research - scientists who need a large population of people for their studies will be able to use visitors to the wing as subjects.
**Ground floor**: includes 'talking points' - twelve exhibits aiming to be thought provoking; 'antenna', which will react rapidly to science news, with exhibits changing every few days and a continually updated science news display; and 'pattern pod' which aims to use patterns to introduce under-eights to contemporary science.
**Basement:** Launch Pad, the science museum's hands-on science centre, will be relocated from the main building.

## The Wellcome Wing

The Wellcome Wing of the London Science Museum opened on 27 June 2000. Capital costs were around £50m, of which £23m was contributed by the Heritage Lottery Fund and £17.75m by the Wellcome Trust. Further funding was provided by corporate sponsors and the Science Museum. To qualify for Lottery funding, the business plan had to show that ongoing extra costs would be met by income from extra admissions to the museum, charges for attractions such as the IMAX cinema, catering, corporate hire, sponsorship, etc. The wing itself consists of a cantilevered structure from which the floors (**Box 2**) and an IMAX cinema are suspended. Its west wall is blue glass, intended to have the effect that the floors seem to float in space.

The older part of the museum looks mainly at the history of science, medicine and technology. To complement this, the Wellcome Wing examines contemporary science. Visitors will be encouraged to engage in debate on regulation and application of modern science. Due to the contemporary nature of the wing, exhibits will have to be updated more often than in an historical museum: in some cases every day, but at least every two years.

# ISSUES

## Visitor numbers

With the large number of new centres opening, many in areas with few visitor attractions, visitor numbers are difficult to predict. For example, the Earth Centre in Doncaster has already had difficulties, due in part to lower than expected visitor numbers. For Science Centres not in traditional tourist areas, a high percentage of visitors are likely to come from the locality. Thus, exhibitions will need to change regularly to attract repeat visits. One option is the loan of exhibits from other Science Centres and museums.

## Funding

To qualify for Millennium Commission funding, capital projects had to show that they would be self-sustaining, raising enough revenue to maintain operations. Business plans from the Science Centres were scrutinised by the Commission and external consultants. A major proportion of revenue will come from entrance fees, and some of the centres have ongoing funding from local authorities. Many also have substantial corporate programmes and innovative revenue streams.

However, with any large number of projects, it is likely that some will not perform as well as hoped. Most of the centres have not yet opened, and it will be some time before it is clear whether there are long term difficulties. Several Science Centres have already had their capital grants increased by the Millennium Commission in response to problems. Funds were also initially allocated to the National Discovery Park in Liverpool, but withdrawn due to concerns over viability following a High Court ruling about rights to build on the site.

Even those that meet their visitor number targets may not be financially comfortable. As well as day-to-day running costs, particular funds will be needed for refreshing exhibits, innovation and educational projects. It has been predicted that the shortfall for UK Science Centres as a whole could reach in excess of £50m per year[1]. As an example, funding for Science Centres can be compared with that for the Science Museum, which receives a major Government grant (**Box 3**). Worldwide, Science Centres generally obtain significant revenue support from Government.[2]

Even if there is no requirement for revenue funding, there may still be a need for capital funds to ensure that the sector remains strong. Unlike museums, which can apply for capital funds from the Heritage Lottery Fund (HLF), there will be no ongoing Lottery body with a specific remit for Science Centres (although those that have a heritage element may be eligible for HLF money).

## Government responsibility

Science Centres - and other educational visitor attractions such as botanic gardens and zoos - are not classed as museums, as they do not have

[1] John Beetlestone, Science Centre consultant, in 'Better late than never', Science and Public Affairs, April 2000.
[2] From the ASTC Yearbook of Science Centre Statistics 1998. On average centres in the US obtained around a quarter of revenue income from public sources. Centres outside the US obtained about half their revenue income from public funds.

**BOX 3: FUNDING FOR THE SCIENCE MUSEUM**

The Science Museum in London is part of the National Museum of Science and Industry (NMSI), which obtains direct grant in aid from the Department of Culture, Media and Sport (see Box 4). In 1998/99 the NMSI as a whole had an income of £47.4m; £20.3m was grant in aid. Other income comes from entrance charges, research grants, shop revenue, sponsorship, donations, etc. The Science Museum currently charges £6.95 for adult entry, plus extra for special exhibitions. In 1998/99, there were 2.2 million visits to the NMSI, predicted to rise to 3.1 million by 2001/02.

**Entry charges**

As part of the Government's policy to promote access to the national museums and galleries, free admission has been introduced for children and the over 60s. The Government aimed to extend this to adults. However, this jeopardised the museums' status as businesses for the purposes of VAT recovery. Therefore, it is planned that, from September 2001, there will be a standard £1 ticket for adult entry and free admission for major benefit holders and people with disabilities. (Museums and galleries which are currently free, such as the National Gallery, will remain so).

Decisions on the introduction of the £1 charge will remain with museum Trustees. Details of Government 'compensation' for reduced admission revenue have yet to be finalised, but issues include:

- The difficulty of predicting visitor figures, given the large number of new attractions opening;
- Dealing with future price increases planned by the museums;
- Ensuring that compensation is sustained.

historical collections. This excludes them from the project funding, advice and support available to museums. However, large amounts of public money have been invested in Science Centres, and commentators have suggested that some Government support may be appropriate. Science Centres have been included in the recent Museums and Galleries Education programme from DCMS and DfEE (£3.15 million over 3 years).

No conclusions have yet been reached on which Government Department is responsible for Science Centres. Three have an interest (**Box 4**); none is currently in a position to fund any shortfall. In Scotland, Wales and Northern Ireland, devolved administrations also play a role. At present difficulties are dealt with individually - the Earth Centre received Millennium Commission stabilisation funding. But the Commission has little money left, and is likely to be wound up soon.

## Lessons learned

Many centres are currently focussed on launch, and less on continued survival. Centres undergo a Millennium Commission Business Operational Review as they near completion, to assess business plans and identify risks. The Millennium Commission thus hopes to apply lessons learned from those which have already opened, to ensure that centres can adapt should revenue fall below expectations in the first few weeks.

**BOX 4: STAKEHOLDER GOVERNMENT DEPARTMENTS**

The **Department of Culture, Media and Sport** (DCMS) directly sponsors the Millennium Commission and 17 national and non-national museums and galleries. These museums include the Natural History Museum, the NMSI, and the Museum of Science & Industry in Manchester, which have hands-on science elements. There are therefore overlaps with Science Centres.

Science Centres aim to be educational, and are thus of interest to the **Department for Education and Employment** (DfEE)**.**

The **Office of Science and Technology** (OST) in the Department of Trade and Industry has a public understanding of science role. However, the OST public understanding of science fund is only £1.25 million per year, much of which is already committed.

## Co-ordination

The Scottish Science Trust was established to co-ordinate Science Centre millennium bids in Scotland. It acts as an overarching body for public understanding of science, funded by OST and the Wellcome Trust. The Wellcome Trust has also awarded £37 million to seven Science Centres and created a network with a full-time co-ordinator.

There may be benefit in a dedicated wider network, including all the UK centres. This would facilitate sharing of best practice and enable development of joint exhibitions, educational resources, training, marketing and lobbying. Existing Science Centres, which have not received Millennium Commission funding, would also be included. It is not yet clear who would run this network, or how it would relate to the existing networks. It is possible that the National Endowment for Science, Technology and the Arts (NESTA) may become involved.

## Education

Millennium funded Science Centres could play a key role in the science education of children and the wider public. The centres will need good links with local schools, educational resources which tie in with the national curriculum and carefully considered pricing policies.

Science Centres also have the opportunity to contribute to Government aims on topics such as social inclusion and lifelong learning. There are a variety of funding sources for educational projects, for example from NESTA or the Lottery New Opportunities Fund. However, if Science Centres are not financially secure, there is a risk that education and other social goals will take second place to more profitable activities.


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**See also www.parliament.uk/post/home.htm. A list of links to science centre web pages can be found here.**