

SCIENCE CENTRES IN THE UK

Produced at the request of the Interdepartmental Steering Group on Science Centres,
FOR DISCUSSION WITH J CARPENTER,
DEPARTMENT FOR CULTURE, MEDIA AND SPORT, 21/11/01

INTRODUCTION

A Report, "Science and Discovery Centres Survey: 2000", was prepared for ECSITE-UK by the Policy Unit of the Wellcome Trust, and published in March 2001. Fifty centres provided information about the nature and extent of their activities, together with financial and other quantitative information.

In response to an urgent request from the DCMS some further questions have been addressed during November 2001. It should be borne in mind, however, that two constraints have limited our ability to respond:

- Within the time scale available, only 20 centres were able to provide information
- Several recently opened institutions do not have information for a complete operating year; they also recognise that the "launch year" provides unreliable data for forecasting the subsequent operating environment.

In relation to **funding**, the above Report concluded:

"The contribution of different revenue streams to the centre budgets was complex and hard to summarise. Nevertheless, it appeared that admission numbers and sales were generally the most important sources of income. In some cases (generally museums) Government and local authority funding was more important. In other cases Millennium funding and funding from trusts and the private sector also provided a major component of income."

This last sentence refers, of course, to non-recurrent income.

The following table summarises information for 39 centres:

Budget	<£100k	£101k-£500k	£501k-£1m	>£1m
No of centres	13	11	3	12

SMALL, MEDIUM-SIZED AND LARGE CENTRES

Science and discovery centres in the UK can be assigned to a number of categories, both by size and – in some cases – by specialism.

Data from ECSITE-UK's most recent enquiry leads to the following narrative:

A **small centre** has an annual turnover less than £0.5 million, or in some cases less than £100,000. Visitor numbers lie in the range 5000-50,000. Unless supported by a larger umbrella organisation, they are struggling to survive – but for want of relatively small sums of money.

Many small centres serve a strictly local audience, for example within a London borough or a rural community. Participation by schools forms a higher percentage of their visits than with medium or large centres. Admission charges are of the order of £1.75 (child) and £2.50 (adult). Exhibition areas are small, typically 500 sq metres or less, and additional classroom or other educational facilities are not common. Most small centres do not undertake outreach activities, but some do.

A **medium-sized centre** has an annual turnover in the range £1.5-2.5 million per year, and receives 200-250 thousand visitors. Operating costs are of the order of £10 per visitor.

More than two thirds of the visitors to medium-sized centres come from within 1 hour's drive time, and the population within this area is 1-1.5 million. Schools form an important share of their business, perhaps as high as 35%. Admission prices lie in the range £2.00 to £8.00 (child in cheapest centre to adult in most expensive centre). The physical size of the exhibitions in these centres can be as great as the "large" centres, ie 3000-4000 square metres, but may be as low as 1800 sq metres. All have additional educational facilities, such as classrooms, laboratories, planetaria, lecture theatres, discovery rooms and temporary exhibition space. Medium-sized centres tend to have extensive educational outreach programmes.

A **large centre** has an annual turnover of at least £3 million, and has probably opened within the last two years. It has therefore not yet reached a stable operating pattern, and neither its visitor numbers nor revenue requirement can be accurately predicted. Large centres have typically received some tens of millions of capital investment, and face considerable costs for the maintenance and refurbishment of sophisticated buildings and out-sourced exhibitions. Visitor numbers lie in the range 350,000 to 1.75 million, but are likely to stabilise in the range 250,000 to 750,000 until there is further major investment. The operating cost per visitor is likely to be somewhat higher (say £12/head) than that of the medium-sized centre. Admission charges are in the range £3.00 to £9.50.

Large centres tend to be in densely populated locations, with several million people living within one hour's drive time. They have a wider reach than the smaller centres, and receive perhaps 50-60% of their visitors from the "one hour" area. Schools represent 15-20% of their business, though there are extensive educational facilities in addition to the exhibitions, e.g. laboratories, classrooms, large format film theatre, planetaria. Exhibition space is typically in excess of 4000 sq metres, and 10-20% of this may be available to receive temporary visiting exhibitions.

SPECIALIST SCIENCE CENTRES and the MUSEUMS

The UK has many science centres which cover a wide spectrum within the STEM (science, technology, engineering and mathematics) agenda. Others, however, have a more specialist remit: the National Space Science Centre and the Eden Project are two recent examples, but there are a number of others. Even the "specialist centres", however, are committed to a wide educational remit. It would be an oversimplification to consider them as separate providers or as the beginnings of a pattern which might lead to national coverage in a range of "scientific content" areas. They have to be "generalists" as well as specialists.

A number of established museums have "science centres" within their buildings. Launch Pad and Flight Lab were two early examples at the Science Museum, Xperiment at the Manchester Museum of Science and Industry is another. These facilities are interactive galleries which are more or less integrated with the rest of what is offered at the museum, and have distinctive schools programming and (in some cases) outreach activities. In a number of cases they operate within an existing funding relationship with the DCMS.

CURRENT and BREAK EVEN TURNOVER

It is impossible to make more than a rough estimate of the "current total turnover of science centres", but it is believed to be of the order of £50-£60m (if you exclude the National Museums from this estimate).

Since the science centres are normally non-profit organisations set up as "companies limited by guarantee" and registered as educational charities, they must conduct their affairs in such a way as to bring in a balanced budget. The current income of some science centres currently lags behind its annual liabilities by an amount which is not yet clear in relation to its true requirement. This situation arises because the new centres have not yet met the challenges of

- Living within a reduced admissions income in the period following a high profile introduction to the market
- Working harder to create sponsorship opportunities once the centre is no longer the newest attraction in the locality
- Establishing a predictable figure for building management and operating costs
- Resolving potentially costly disputes with contractors for buildings and contents
- Refreshing and refurbishing exhibitions and furnishings
- Establishing a pattern of income generation which relates to non-visitor services (eg facilities hire, exhibit rental, consultancy etc)

CURRENT GEOGRAPHIC and POPULATION COVERAGE

With the exception of the National Museums and the Eden Project, which are major tourist attractions, the science centres typically draw 65-75% of their visitors from within a one-hour drive, and most of the rest from within 2 hours drive time. It must be recalled that science centres have arisen for a number of opportunistic reasons (of which the availability of Millennium Commission funds was the most significant). Other than the Millennium Commission's general remit to ensure a balanced regional distribution of its funding, there was no strategy to ensure that science centres were located in such a way as to achieve geographical coverage.

NUMBER OF SCIENCE CENTRES SUPPORTED BY OTHER EU/G8 COUNTRIES

Except in the USA, where there are just a few “self-sustaining” science centres, there are no centres which operate in the for-profit sector and achieve surpluses or indeed a balanced budget entirely through “earned income”. The terms “self-sustaining” and “earned income” require some examination, however, as some centres which claim not to rely on public funding have buildings (and sometimes staff) which have been provided at public cost. “Earned income” is sometimes taken to include local or national government money, paid over as part of a contractual agreement for the supply of educational services.

Limited data is available for government support of centres in other EU/G8 countries, and we are aware that Peter Anderson will be providing information relating to North America, in particular.

In Europe the pattern is extremely diverse. The science centre in Copenhagen earns nearly 80% of its revenue from non-government sources, while its counterpart in Paris is at the other end of this spectrum: it receives more than 90% of its income from central government. Virtually all the income for the science centres in Barcelona and Madrid comes from La Caixa, a banking and insurance group. European comparisons thus provide little help for policy-making in the UK.

EDUCATIONAL ACCESS AND THE CONTRIBUTION OF SCIENCE CENTRES

Science centres in the UK are fundamentally educational institutions. They have informal education at the heart of their missions, and in relation to the formal education system they provide support for teachers and enriching experiences for pupils.

In relation to their approximately 11 million visitors each year, the science centres contribute actively to the ‘education and lifelong learning’ goals of both Westminster and the devolved governments, for instance:

- Social inclusion – for those who may be disadvantaged economically, physically, intellectually or emotionally
- Lifelong learning – from pre-school to post-retirement
- Support for teachers – especially those non-specialists in primary schools
- Family learning – for leisure visitors and for home-schooling families
- The cultural role of science – as part of an informed and democratic community
- Stimulus – for pupils and teachers, parents and children, providing motivation which is the key to successful learning
- Preparation for adult and working life – through activities relating to both vocational and domestic futures

A separate list of activities currently undertaken by science centres can be provided on request, but the **perceived value** for visitors is almost always expressed in terms of

- Access to experiences which are not otherwise available to schools or families
- Freedom to explore scientific phenomena ideas according to their own preference and direction (the “visitor-led” experience)
- Enjoyment and stimulation – the encouragement of realising that anyone can explore science, that this is not a specialised area confined to highly trained people in white coats – and the sense of personal empowerment which this brings
- Motivation to further exploration and learning
- Direct support for learning schemes to which the visitor is already committed.

LINKS WITH HIGHER EDUCATION

Almost all science centres, large and small, have extensive links with higher education. Some of these links relate to the expert advice which is available from the HE sector, but more frequently there is a close relationship between the learning and teaching programmes of the science centre and the HE institution. Science centres provide an environment in which undergraduate students of sciences and engineering, business, architecture, design etc. can explore the practical application of these disciplines and undertake small scale projects. They contribute significantly to the pre-service and in-service education of teachers and, in one case, a science centre provides a Master’s degree course in Communicating Science in collaboration with a local university.

STEM DELIVERY

All science centres are – to a greater or lesser extent – engaged in “STEM delivery” although a number of them are not familiar with the STEM phrase! (Science, Technology, Engineering and Mathematics.) Science centres work closely with Education Business Partnerships, with Learning and Skills Councils (and their forebears) and have a relationship with local SETPOINTS where these make geographical and organisational sense. A number of science centres also work closely with their local branch of the Association for Science Education.

CONTACTS

Dr Melanie Quin
Executive Director
ECSITE-UK: the Science and Discovery Centre Network
the BA, 23 Savile Row
London W1S 2EZ

T +44 (0)20 7973 3179
E melanie.quin@the-ba.net

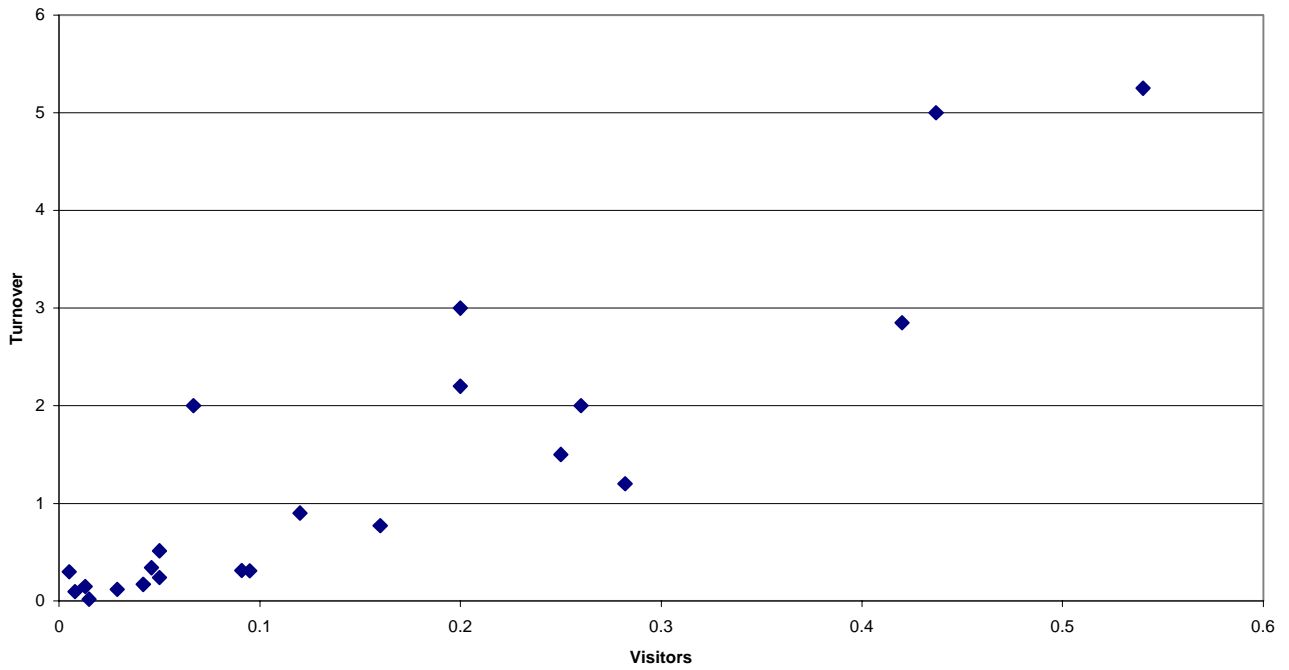
Colin H Johnson
Chairman, ECSITE-UK
Director/CEO, Techniquest, Stuart Street, Cardiff CF10 5BW

Telephone: +44 (0) 29 20 475 475
Direct line: +44 (0) 29 20 475 461
Fax: +44 (0) 29 20 482 517
E colin@techniquest.org

APPENDIX 1 follows

APPENDIX 1: GRAPHS OF TURNOVER, FLOOR AREA AND VISITOR NUMBERS

Turnover (£ million pa)/ Visitors (x 1million pa)



Visitors pa/Area (sq m)

