CASTEX

Guidelines for touring exhibitions in Europe

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Front cover image RBINS, Brussels

INTRODUCTION

Background to CASTEX

CASTEX (Common Approach to Scientific Touring Exhibitions) is a thematic network composed of five European natural history museums: Brussels, Paris, Leiden, London and Stockholm. The network was established with funding from the European Commission under the 'Raising Public Awareness of Science and Technology' Programme. (Castex : HPRP-CT-2001-00001)

The principal objective of the network is to create a formal framework within which to exchange expertise between institutions working together around a concrete exhibition project aimed at raising public awareness of the natural sciences.

CASTEX demonstrates a combined approach at EU level, and one of the principal deliverables of the CASTEX network is to establish guidelines of best practice for touring collections-based exhibitions in Europe.

Producing a successful temporary exhibition can be a risky operation for any museum or science centre and it demands significant financial resources in order to achieve a high quality exhibition likely to attract the maximum number of visitors.

These guidelines aim to evaluate all dimensions of this challenge, identify key factors and analyse problems and solutions in order to draw a set of practical guidelines useful to other institutions in Europe and further afield.

In a parallel project, three of the CASTEX partners collaborated to co-produce *Fatal Attraction,* a substantial exhibition using real specimens to explore communication in the animal kingdom. This exhibition will initially travel to the three partners' own venues and then to other venues. Their experience shows that co-production allows a group of natural history museums to create an ambitious exhibition without taking disproportionate financial risks and requiring only realistic contributions from each partner.

The five CASTEX partners have evaluated the constraints and benefits of working together on a unique international project and hope that this experience is relevant to all institutions engaged in the communication of science to the general public.

The CASTEX partners

Royal Belgian Institute of Natural Sciences

Based in Brussels, the Royal Belgian Institute of Natural Sciences (RBINS) has developed considerable knowledge of exhibition development. A bi-lingual institution, RBINS has many years' experience of EU project management involving other European natural history museums. RBINS is also a founding member of ECSITE, the European network of science centres and museums.

Role in CASTEX: Co-ordination and diffusion of results and leader of technical aspects

Museum National d'Histoire Naturelle, Paris

The ‘Grande Galerie de l' Evolution’ in Paris is the second most important national natural history museum in terms of biological collections in Europe. Familiar with the presentation of large temporary exhibitions, the museum has gained a wide experience of sub-contracting the building of exhibitions (writing of terms of reference; calls for tender; identification of technical skills and museological methods). In addition, it has a proven track history of visitor research that, in particular, identifies interactions between visitors and exhibit elements.

Role in CASTEX: Leader of the cultural and development aspects

Naturalis

The Dutch natural history museum in Leiden has expertise in project management acquired in the realisation of a totally new museum Naturalis, which is now managed as a private activity. This renovation has given the museum the rare opportunity of totally rethinking specimen collections and the use of new technologies for public awareness of natural sciences.

Role in CASTEX: Leader of inter-institutional and legal aspects

The Natural History Museum, London

The Natural History Museum is the CASTEX partner with the greatest experience in the field of large travelling exhibitions. It is also the largest natural history museum to have created a series of touring exhibitions over the past few years. Professional staff have solid commercial experience of touring exhibitions in Europe, the Middle East and the USA.

Role in CASTEX: Leader of user's requirement (touring)

Swedish Museum of Natural History

This natural history museum located in Stockholm is a good representative of a museum reacting to new demands from the public. The use of hands-on and minds-on exhibits combined with specimens from its large scientific collection and spectacular design will be the basis of its development for the next decade.

Role in CASTEX: Study of user's requirement (all aspects)

Withdrawn from CASTEX in 2003

Aims and objectives of the CASTEX guidelines

These guidelines are intended as an aide-memoire for institutions wishing to fund, develop, design, build and tour an exhibition in Europe.

The CASTEX partners jointly possess a wealth of skills from which these guidelines have been developed. The three museums involved in the co-production of Fatal Attraction have also contributed their specific experience to these guidelines.

Further sources of information include 14 years of touring experience from the Natural History Museum. The CASTEX workshop held at the Natural History Museum in October 2002 and the CASTEX Symposium held at the RBINS, Brussels, in November 2003 have also provided a forum for contributions to these guidelines from a wider audience.

Members of the ECSITE organisation have also contributed to the guidelines either by providing useful documentation for the Appendices or during specific sessions on touring exhibitions held at the last two ECSITE Annual Conferences in London 2003 and Munich 2004.

A research trip to North America and Canada by staff from the Natural History Museum, London, resulted in an analysis of 14 travelling exhibitions (9 of them containing collections), and meetings with museum and science centre directors, public programme managers and exhibit developers helped to further inform these guidelines. Presentation of the results of this research was formally made to the CASTEX members and reported to the EU.

These guidelines for best practice have been developed with exhibitions of between 350 m^2 and 700 m^2 in mind. They are not intended as a guide for the development of small or panel based exhibitions; however, some of the information contained herein could be useful to developers of any size of touring exhibition.

Glossary of terms used in the CASTEX Guidelines

Host Venue/Hirer	The institution receiving the touring exhibition
Exhibition Provider	The institution operating the tour – very often the Home Institution
Home Institution	The institution creating the touring exhibition to show in its own institution and then to tour

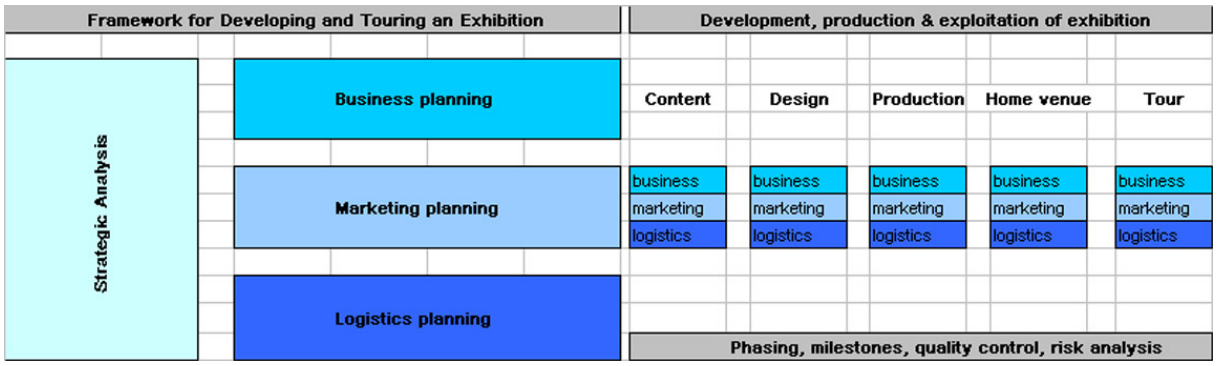
Disclaimer

The guidelines are not intended to outline the entire exhibition development process; they are designed to demonstrate how 'touring' considerations must be integrated into the process from the beginning in order to achieve a successful project.

The CASTEX partners have prepared these guidelines in good faith and do not accept any responsibility for inaccuracies, misrepresentations or omissions.

Exhibition development process

The diagram below shows the structure of the exhibition development process which is mirrored in these guidelines.



1. STRATEGIC ANALYSIS

The decision by an institution to develop a temporary exhibition that also tours to other venues for any length of time must be considered from a range of perspectives before entering the business planning process.

- How do we assess what exhibition topic should go ahead?
- What criteria for judging eventual success are needed?
- Are these criteria measurable?
- Are these criteria the same for the Home Institution as for the receiving venues?
- What are the risks associated with investing in the development of a touring exhibition?

Without considering these questions and more before investing in development of a touring exhibition, any museum or science centre can experience a disappointing project at best or a true failure at worst.

1.1 Institutional aims and objectives

The aims and objectives of any exhibition project will vary by institution but must be clarified at the start and threaded through the entire project. Clear objectives for the exhibition and the tour must also be considered holistically, within the context of the mission of the institution, and with eyes wide open with regard to the implications of a tour on the overall profitability. Success criteria for a touring exhibition can even differ within an institution, with various stakeholders (e.g. scientific researcher, marketing manager, visitor offer programme manager, content developer, collections manager, fundraiser, educator, designer, tour operator) responding to their own aims and objectives.

Identifying success criteria in four key areas will help to provide clarity in the decision-making process across the stakeholder groups:

1.1.1 Financial objectives

What are the financial objectives for the Home Institution?

- Break-even
- Profit from admissions including all costs
- Recouping of capital investment
- Recouping of all costs including staffing and capital investment
- Attracting a sponsor or investor
- Profit from auxiliary products (e.g. publishing, retail goods)
- Other

What are the financial objectives for the tour?

- Break-even from a tour
- Profit from a tour including all costs
- Building on the Home Institution break-even or profit
- Other

1.1.2 Mission objectives

If a museum or science centre has the intention of making a profit from a touring exhibition, a balance between ‘mission and margin’ must be considered. Some questions to ask:

- If the main mission is to communicate research, will the research topic be relevant and marketable?
- If the main mission is to attract new adult audiences, will the exhibition topic provide the necessary appeal to succeed?
- If a key objective is to make a profit from a tour, will the investment into the exhibition development succeed in delivering an exhibition that will drive visitor numbers in a range of institutions with differing missions?
- If the main mission is to satisfy politically driven performance indicators, will a non-commercially viable exhibition theme such as nuclear waste be worth delivering?
- If PR value as part of a wider communications strategy is identified as a key objective, how can the reputation of the institution be enhanced through a tour?

1.1.3 Communication objectives

The content and message of the exhibition must coincide with the communication objectives of the Home Institution, but if the exhibition also tours, what other communications criteria need to be considered in order to avoid risk of failure?

- Is the target audience for which the exhibition is developed a good fit in other venues?
- Is the exhibition topic of popular relevance to a broad range of cultures?
- Is the delivery of the message an easy, difficult or costly one to communicate effectively?

1.1.4 Educational objectives

The educational objectives of the Home Institution must be present throughout the exhibition process; however, for a touring exhibition it must be broad enough to be adaptable to other educational environments and sometimes cultures.

- Is this possible without compromising the objectives of the Home Institution?
- Are there easy ways to adapt educational messages within an exhibition?

1.2 Key success criteria

It is important to establish the success criteria, both for the Home Institution and for the tour.

- Are they one and the same?
- Are there tensions caused by the need to choose a topic which appeals to a broad cultural audience?
- Is the integrity of the exhibition for the Home Institution difficult to protect?
- Are important collections critical to the marketing success of a tour?
- Do the benefits and risks balance well enough to ensure an exhibition will perform successfully?

See Appendices I, II and III for three examples of success criteria for evaluating the choice of either producing or hiring in a temporary exhibition, as well as for touring an exhibition with profitability in mind.

The CASTEX partners agree that the three most important criteria for a good touring exhibition are:

- Theme
- Size
- Dwell time

1.3 Financial models for touring exhibitions

There is a range of possible financial models for developing exhibition projects and this subject has been under study during sessions at the ECSITE Annual Conference for the last two years. ECSITE members' experiences can provide the basis for evaluating common practice and learning how to improve our financial modelling. Operating in a business-like manner in the exhibitions field is an important consideration for the financial sustainability of any museum or science centre.

The mission and financial objectives of an institution drive the choice of financial model that must be developed to ensure at least a break-even touring exhibition. Even fully funded exhibitions (e.g. one touring to deliver a political institutional objective) must still account for financial risk. Exhibitions which are required to be profitable must be carefully studied from the early strategic and business planning stages throughout content development, design, production and touring phases in order to avoid risk of income loss.

1.3.1 Institutional funding

The National Science Foundation in the USA provides funding for feasibility studies and development costs for touring exhibitions which communicate science to the public. European museums and science centres choosing to develop touring exhibitions do not have such a resource of funding available to them. Therefore, the budget for an exhibition must be derived from a combination of projected income generation and institutional investment in its public programmes.

1.3.2 Other sources of income

Sponsorship, investment, grant funding, or a combination of all of these is often required to develop an exhibition project. The following are key things to consider:

- Ethical issues
- Accounting for and managing a corporate sponsor's needs
- Touring an exhibition with sponsor benefits as part of the package to a venue. For example, consider sponsor crediting and the issues which this can raise in Host Venues who may have different policies.

1.3.3 Partnerships

The advantages of working in partnership are not only financial due to economies of scale. The capital investment needed for development of an exhibition can be shared and financial risk is spread, but also a partnership of institutions can bring a variety of skills to the project. The co-production of *Fatal Attraction* is an example of this. Brussels took on the responsibility of design and build project management because of their experience and staffing levels, Leiden developed science content because of the scientific and writing talent of their staff, and Paris was responsible for sourcing a 'touring' collection of specimens as they have years of experience in collections management.

Different forms of partnership have been identified through the above-mentioned ECSITE sessions. These include partnerships between museums and media partners, and also science centres, corporate partners, and design and build companies. One such example is the partnership between The Museon, Bruns, and Northern Light for the development of an exhibition called Copyright Nature.

1.3.3 a) Partnerships in the USA/Canada

Examples of collaborative partnerships in the USA and Canada include:

Science Museum Exhibit Collaborative (SMEC). SMEC was founded in 1984 as a collaborative for the production of shared touring exhibitions. Each member is represented on a board with elected officers. Bylaws and exhibit guidelines direct the work of the collaborative. One exhibition is produced each year by one institution and SMEC members each pay an annual fee that supports the cost of exhibition production at each site. SMEC provides partial funding for each exhibition produced and additional funds are covered by the originating museum. Exhibitions are 500 m^2 or larger and may include programming and demonstrations.

The Exhibit Research Collaborative (ERC) is an association of eight science centres formed in 1985 to develop touring exhibitions. With grant support from the National Science Foundation, the ERC provides member museums with the training and additional financing to research, evaluate and build touring exhibitions. The ERC is administered by the Oregon Museum of Science and Industry.

The Youth Museum Exhibit Collaborative (YMEC) was formed in 1990 to develop shared touring exhibitions. Similar to SMEC, each member pays an annual fee that supports the work of the collaborative and funds the exhibition production. Fees are pooled and used by one member to build an exhibition. Each member is represented on a board and bylaws and exhibition guidelines direct the work of the collaborative. The board chooses project topics, and development is carefully reviewed and supported by members through ongoing communication. During its first five years, YMEC expected to build eight exhibitions. The collaborative is also planning to expand into shared programming, staff training, fund-raising and marketing.

1.4 Feasibility

A well-prepared feasibility study prior to embarking on a touring exhibition project is instrumental in ensuring success. A feasibility 'matrix' evaluating mission, financial, educational, and communication objectives is highly advisable. Some methods and key areas on which to focus the feasibility matrix are as follows:

1.4.1 Choice of topic

- Focus group market research
- Market knowledge about other touring exhibitions
- Front-end evaluation – see Appendix IV for *Fatal Attraction* topic evaluation
- Broad themes with universal interest will be more marketable than exhibitions designed for a local/national audience
- Topical science on relevant issues
- Avoid time-sensitive topics (e.g. film related topics)

1.4.2 Target audience

Developing an exhibition for the target audience you have successfully appealed to in the past is not such a challenge, but developing a project for a new target audience (e.g. teenagers or adults) and developing an exhibition which tours to a wide range of venues makes it critically important to appropriately match the content and design of the exhibition and promotional materials with the target audiences. This can be evaluated through visitor experience research.

1.4.3 Market research

Market research is more than just visitor research. A thorough research of all aspects of the market will help to evaluate the exhibition against its objectives and inform future exhibition development. Be clear about your research objectives and decide in advance how the data will be analysed. Don't try to collect too much information at once and be clear on which part of the market you are researching.

1.4.3 a) Visitor research

- Number of visitors to similar exhibitions in similar venues
- Dwell time
- How they use the space
- How they use and respond to interpretation
- How they respond to the exhibition concept

1.4.3 b) Venue research

- Number of venues with adequate gallery conditions, size of gallery etc.
- Number of venues with adequate staff skills for care of exhibit items, particularly specimens

Economic climate factors and political stability factors are also important considerations.

1.4.4 Mission

Most institutions will develop only those exhibitions that fit their own mission appropriately. The mission of other possible stakeholders, such as partners or sponsors, must be integrated into the development process with a view to also developing an exhibition that will appeal to venues where the mission may be unknown.

1.4.5 Financial

Before beginning the business planning process, the overall financial objectives of a touring exhibition must be clear to all stakeholders. In simple terms there are two basic financial objectives:

- Break-even
- For profit

As outlined under ‘Institutional aims and objectives’ (section 1.1), how these two basic financial objectives are analysed can vary in a number of ways.

Continuous review and adjustment throughout the development process and the subsequent tour will be necessary to ensure the financial objectives are met.

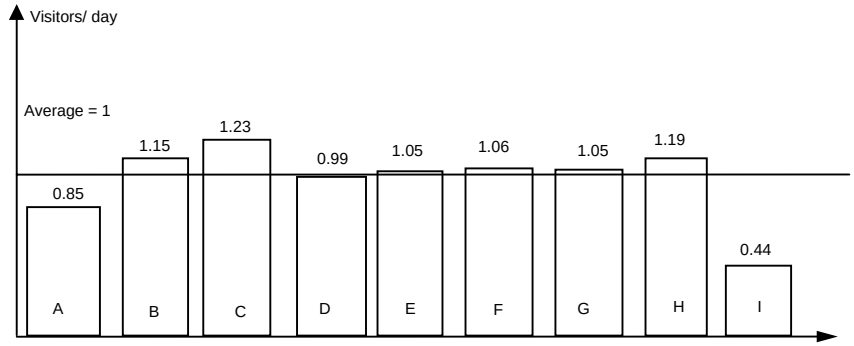
1.4.6 Cost–benefit analysis

The trend towards temporary exhibitions as a means to both increase visitor numbers and attract new audiences has been on the rise in Europe for years. Hired-in exhibitions will normally require some adaptation by the Hirer to ensure they attract its visitors and provide the educational messages that are important to its schools audience. The decision to hire in or ‘build your own’ exhibition is an important one and a cost–benefit analysis comparing both options is worth carrying out, as shown by the analysis of Heureka, the Finnish Science Centre, in 2001.

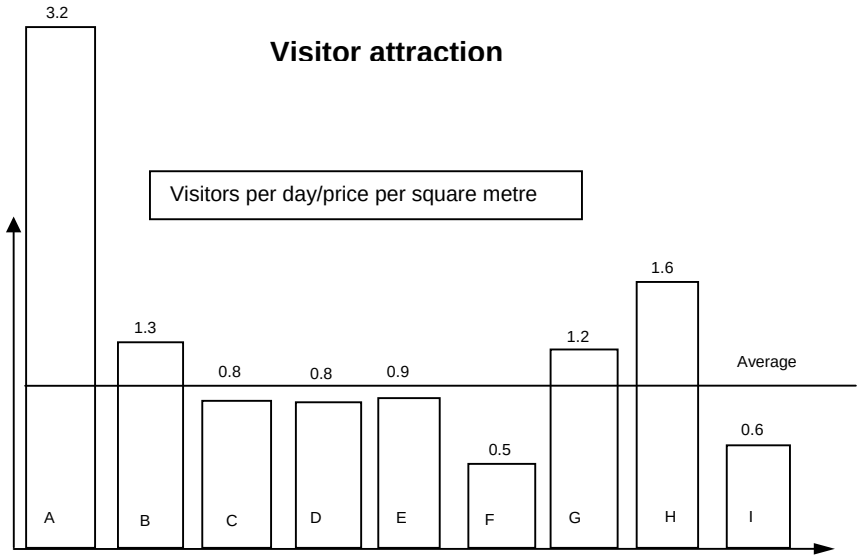
The top graph below shows Heureka’s costs of either producing its own or hiring in an exhibition as a relative price per square metre with the average price/cost shown as 1. Exhibitions A, B, H and I are those exhibitions which Heureka hired in. The lower graph illustrates the average number of visitors per day to both types of exhibitions using the average as 1. Results showed that the relative price per square metre was consistently higher for the exhibitions Heureka produced itself. The popularity of the exhibitions they produced in-house averaged about the same between themselves but overall fared better than the exhibitions they hired in.

Relative production prices

Visitors/dav



However, when Heureka analysed the two factors together, visitors per day versus price per square metre, three out of four of the hired-in exhibitions were more profitable than those they produced internally (see graph below). It is important to note that in this particular competitor analysis Heureka did not account for the income/expenditure related to a tour, a business that they have been growing for a number of years.



1.4.7 Risk analysis

It is advisable to carry out risk analysis in several areas, depending on the type of exhibition and how it is intended to be developed. Some of the risks that could be identified and then assessed for appropriate action are as follows:

1.4.7 a) Financial risks

- Reliable visitor/revenue projections are difficult to make
- Credit risk with Hirers
- Cost of debt management
- Use of revenue/cross-subsidising
- Non-performing exhibitions
- Damage/force majeure losses
- Economic and geopolitical impact on marketing and sales efforts

1.4.7 b) Collections-related risks

- Damage to valuable specimens
- High costs for transport and protection of specimens
- Limitation in number of venues who have adequate environmental controls and staff capabilities for handling specimens
- CITES approval requirements causing delays and possible denial of use of specimens for touring purposes

1.4.7 c) Staffing resource risks in other work areas

- Staff time required to manage a tour can be extensive – will it impact on other mission-related work – which is more important?
- Ongoing maintenance problems with exhibitions on the road can impinge on staff time in the Home Institution

1.4.7 d) Design/build risks: quality control and value engineering

- Design-led exhibitions can look good but not meet other more important criteria for touring
- Will the integrity of the exhibition for the Home Institution be compromised to create a touring exhibition?
- Value engineering choices during design and build stages can dramatically impact on the cost of touring or the appearance of the exhibition after a short period of touring time
- Do the design and build companies involved in a touring exhibition project fully understand the implications of a temporary exhibition which tours?

1.4.7 e) Operational risks of a tour

- Are technical staffing levels adequate and can they professionally deliver a touring exhibition to European venues?
- Managing technical work in other institutions can be frustrating and sometimes even dangerous – are there liability issues related to this?
- Can the costs of operations be realistically controlled and still provide a good service with a good technical crew?

1.4.7 f) Reputation risks

- Changes to an exhibition by a receiving venue may compromise the reputation of the Home Institution
- Will negotiating contracts with museum colleagues cause professional tensions?
- Will an exhibition, which is not 'one of the best', impact the Home Institution's reputation as it tours, or will venues understand the complexities of developing and delivering quality exhibitions?

1.4.8 Competitor analysis

A healthy strategy before embarking on the development of a touring exhibition should include a competitor analysis. Benchmarking a chosen theme against other exhibitions already in the marketplace, or in development by other producers, is simple but important. Realistically assessing your financial objectives against income projections in your chosen marketplace can be evaluated by comparing other exhibitions and their success.

By combining the competitor analysis with other factors, a thorough review can reveal helpful decision-making guidance:

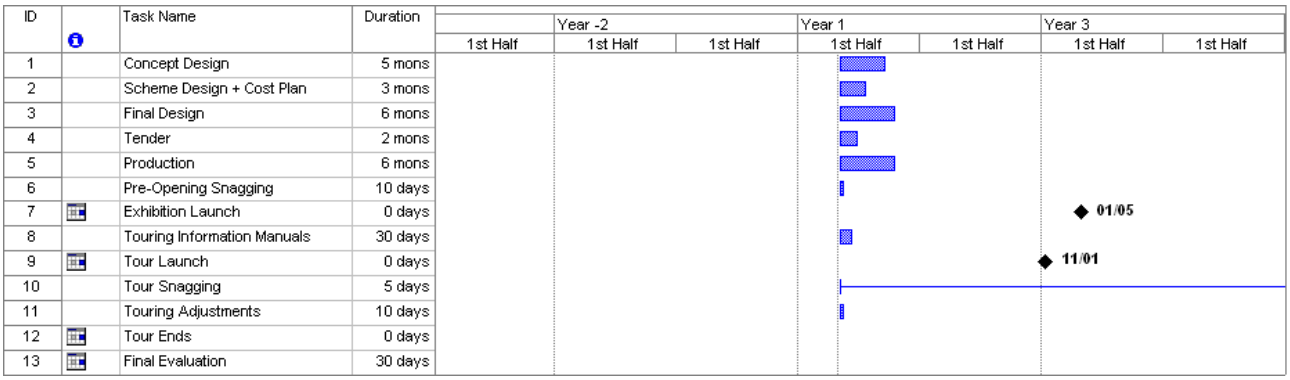
A Touring Exhibition Proposal (e.g. *Fatal Attraction*)			
Choice of financial model Break-even or for-profit touring exhibition	**Success criteria** What are they for the three co-production partners?	**Risk analysis** What are the risks for these three co-production partners?	**Competitor analysis** Are there other similar exhibitions touring in Europe? Will the exhibition be a competitive product in Europe? Or does this matter?

1.4.9 Setting milestones

Classic project management tools to ensure the delivery on time and to plan are an integral part of the exhibition development process. To evaluate the feasibility of a touring exhibition, it

must be recognised that the milestones continue beyond the close of an exhibition at the Home Institution as follows:

1. Research phase – 24 months
2. Content brief
3. Design brief
4. Schematic design – 3 months
5. Cost plan
6. Sponsorship promotion materials
7. Touring marketing promotion materials
8. Final design – 6 months
9. Specification manuals
10. Exhibition launch
11. Touring information materials
12. Exhibition snagging
13. Tour launch
14. Touring adjustments
15. Final evaluation



1.5 Establishing the development process

Considering who the key stakeholders are in the exhibition development process and including them in a process of consultation is a time-consuming but necessary process, which will ensure the best possible exhibition and if handled effectively will not limit the creative process. Many North American museums, such as the Field Museum in Chicago, have well-established systems. ‘The Field Museum Exhibition Process’, authored by Sophia Siskel of the Field Museum (Appendix V), is an excellent reference for the development of a well-balanced and efficient process.

Two key groups form part of the development process. Strategic involvement and timing issues must be co-ordinated across these two groups:

Stakeholders – internal and external

- Stakeholder input
- Communication to stakeholders
- Approvals process
- Delivery of sponsor benefits

Development and design team

- Consideration of stakeholder input
- Adjust and re-adjust concept and final design to meet maximum stakeholder needs
- Approvals process
- Accountability beyond the Home Institution launch

2. BUSINESS PLANNING

2.1 Quality control

Including quality control checkpoints throughout the exhibition process is the best way to manage a range of risks and avoid failure.

Quality control milestones should be established to continuously evaluate development and the eventual tour itself against all areas such as:

- Marketability
- Financial objectives
- Risk management
- Communication effectiveness
- Learning content effectiveness
- Operational effectiveness

2.2 Business planning

In recent ECSITE sessions concerning business planning for touring exhibitions, it has become clear that there are wide differences in how institutions account for their costs, particularly in two areas: **staff costs** and **recouping capital investment**. The importance of including these costs when calculating successful financial performance of a touring exhibition depends entirely on the mission and financial objectives of the Home Institution. With regard to staff costs, the *Fatal Attraction* co-production required 27 meeting days using 2.3 people from each of the three museums, which totals 186 working days.

The profitability or break-even performance of an exhibition for the Home Institution is often analysed separately for the subsequent tour. However, ‘life-cycle’ costing, where both are combined, can dramatically affect overall profitability. This encourages more institutions to build exhibitions, which they can first show and then tour. In other words, an exhibition at the Home Institution may not cover initial capital investment to build, but through a 4–5 year tour, such costs could be recouped if the exhibition is successful.

2.2.1 Developing budgets

The costs of developing, building and operating an exhibition at the Home Institution (generating visitors and thus income) differs from the income and expenditure of the tour.

See Appendix XV for *Fatal Attraction* co-production budget.

Income and expenditure for both can be evaluated either separately or together as a 'life-cycle' profit/loss analysis, illustrated as follows:

Home Institution	Tour
Potential sources of **income** • Admissions • Retail • Sponsorship*	**Potential sources of income** • Rental fees/revenue shares • Retail* • Sponsorship*
Costs • Content development* • Design fees • Construction costs • Specimens* • Specimen mounting • Copyright fees • Packing and crating costs • Contingency • Exhibition staffing • Security • Cost of sales to suppliers • Technical/maintenance staff • Advertising and marketing • Educational tools and materials • Special events • Insurance* • Overheads*	Costs • Staffing**:** administrative, marketing, sales, operations, technical • Adaptations • Maintenance • Equipment • Safety clothing • Transportation • Installation/dismantling • CITES approvals • Specimen transport • Specimen couriers • Specimen care • Training costs • Promotion costs • Marketing materials • Cost of sales to suppliers • Debt service/collection • Customs and documentation • Storage • Insurance • Overheads*
Surplus/deficit	Surplus/deficit
Overall surplus/deficit	

* Potential areas of income or expenditure (i.e. costs or income that may not necessarily be included or valid in developing both 'Home Institution' and 'Tour' budgets).

2.2.1 a) A few ‘Home Institution’ budget tips:

1. In the build budget, set aside 25% of the overall budget for contingency
2. Design fees are normally 10% of the overall budget
3. Design and build budgets for an exhibition which tours are thought to be approximately 25% higher than those for non-touring temporary exhibitions
4. Costs for specimens would apply if collections need to be hired in or if a new collection needs to be sourced
5. Caution is required when negotiating copyright fees in terms of length of time needed (see ‘Tour’ budget tips Point 7)
6. Copyright and associated cost of developing advertising and marketing materials for the Home Institution and how best to incorporate these materials into the tour must be considered at the ‘Home Institution’ stage
7. Choice of specimens for the ‘Home Institution’ could be different than those for the ‘Tour’, but this could change the size of cases needed etc. It is therefore advisable to choose specimens which can endure touring for the length of the tour or be swapped for similar specimens requiring a similar size of case
8. Special regulations and requirements of touring specimens, particularly CITES-registered specimens, will add to the costs and complexities of touring

2.2.1 b) A few ‘Tour’ budget tips:

1. Most receiving venues pay inbound transport, but some transport costs can be incurred if successive exhibition bookings are not realised or the exhibition must return for maintenance. Allow a contingency budget for this
2. Storage costs must be calculated and shown as a contingency budget line for times when an exhibition is not booked to provide for the double impact of extra costs of transport and storage plus lack of revenue
3. Staffing costs might need to be accounted for or there will be resource implications for an institution in other areas
4. A budget for adaptations to the exhibition is advisable unless the ‘Home Institution’ has accounted for changes which may need to be made to the exhibition once it begins touring
5. Costs for maintenance chests, tools and safety equipment must be accounted for
6. Training costs could involve technical staff receiving training from the exhibition build company for the first installation, as well as health and safety training required as part of EU regulations
7. If the ‘Home Institution’ has not secured copyright-free imagery for exhibition graphics and/or marketing materials for the correct length and geographic area of the tour, additional costs to secure these will be required

2.2.2 Touring exhibition budget

As illustrated in the ‘Developing budgets’ section above, there is a combination of direct and indirect costs which must be accounted for in assessing the feasibility of a tour that intends at least to break-even.

The direct costs will vary depending on some of the following factors:

- Exhibition type: fully turn-key or main exhibits only
- Exhibit items: specimens, electronics, interactives, audio-visual
- Skills required to install, dismantle and maintain the range of exhibits and the exhibition structures
- Successful hiring of the exhibition for a back-to-back booking schedule
- Cost of sales: costs to a supplier + recouping of capital investment

Indirect costs accounted for will depend somewhat on the financial objectives of the institution. For example:

- Will the touring staff costs be charged against the tour?
- Will the capital costs be all or partially recovered?
- Will office overheads be accounted for?

2.2.3 Profit/loss for an imaginary touring exhibition

To illustrate one method of projecting profit/loss of an exhibition which tours, the simple spreadsheet formula below compares income and costs against a 2 year, 3 year or 4 year 'imaginary' tour.

Number of years on tour	**2 years**				**3 years**				**4 years**			
Rental fees per month in 000's – **euros**	25	30	40	50	25	30	40	50	25	30	40	50
Number of exhibition months – 9												
Gross income for duration of tour	**450**	**540**	**720**	**900**	**675**	**810**	**1080**	**1350**	**900**	**1080**	**1440**	**1800**
Direct expenditure to operate tour	215	215	215	215	315	315	315	315	430	430	430	430
Marketing 8%												
Adaptations for touring 4%												
Install/exit – 3 venues/year 76%												
Repair/maintenance 12%												
Indirect expenditure												
Operational overheads	150	150	150	150	225	225	225	225	300	300	300	300
Total expenditure	**365**	**365**	**365**	**365**	**540**	**540**	**540**	**540**	**730**	**730**	**730**	**730**
Gross surplus	85	175	355	535	135	270	540	810	170	350	710	1070
Cost of sales												
Imaginary capital investment 800 euros and gaining 50% return on investment	400	400	400	400	400	400	400	400	400	400	400	400
Net surplus	**-315**	**-225**	**-45**	**135**	**-265**	**-130**	**140**	**410**	**-230**	**-50**	**310**	**670**
Net surplus per year	-158	-113	-23	68	-88	-43	47	137	-58	-13	78	168
Profit margin	-70%	-42%	-6%	**15%**	-39%	-16%	**13%**	30%	-26%	-5%	**22%**	37%

The profit/loss projection is used to analyse the following points:

- To ensure a profit against necessary costs, how much can you charge as a rental fee in order to generate this income?
- How many hire venues per year do you need to achieve your financial objectives?
- Can you guarantee the income and for how many years?
- Have you considered all of the costs?
- Do you want to break-even or make a profit and, if so, how much?

The sample spreadsheet above does not account for all of the potential costs in a touring exhibition, but is simply an example showing some of the most obvious.

Related specifically to this sample spreadsheet, we can make the following assumptions:

- The exhibition will tour 9 months out of every year
- The exhibition succeeds with back-to-back bookings for the full tour period
- Direct expenditure costs break down in the following proportions:

8% Marketing

4% Adaptations for touring

76% Installation/dismantling costs

12% Repair and maintenance

- Indirect expenditure may cover staffing, tools, insurance and a range of other costs – will it be enough?
- There are no cost of sales owed to a supplier
- You wish to recoup 50% of the 800,000 euros capital investment costs to build the exhibition and this is the 'cost of sales'
- You wish to make at least 10% profit
- European Hirers are only willing to pay 25–30,000 euros per month to hire an exhibition
- European Hirers may be willing to consider a revenue share, but this projection is based on a fixed monthly fee
- This exhibition does not return for maintenance but this is carried out as it travels

To complete an analysis of this 'imaginary' tour while considering the assumptions related specifically to this sample spreadsheet, we can make the following observations:

- A 3 or 4 year tour will be necessary to achieve at least 10% profit margin because a 2 year tour requires a charge to venues of 50,000 euros per month, which is not achievable
- This exhibition will be difficult to sell as the rental fee necessary (40,000 euros monthly) for a 3 or 4 year tour exceeds what European venues are willing to pay
- A 2 year tour will make it impossible to cover costs and recoup capital investment, and a 4 year tour is the most likely to both recover 50% of capital investment and make at least a 10% profit
- The profit is higher the longer you tour as long as the costs balance the income
- A longer tour will reduce your financial risks if you do not achieve a fully booked schedule, but you may incur more costs due to transport and storage

There may be possible solutions:

- Is the exhibition topic so strong and marketable that a revenue share between the Exhibition Provider and the venue is a risk worth taking?
- Find ways to reduce your direct costs

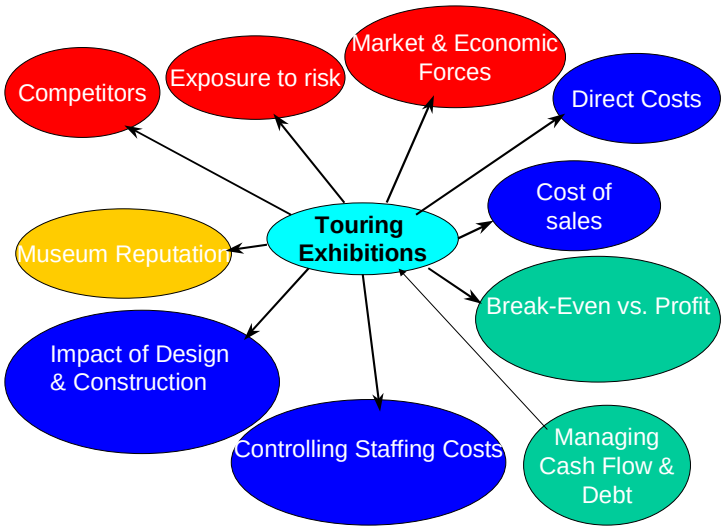
- Reduce your indirect costs if possible and acceptable
- Reduce the amount of return on capital investment
- If you must recoup this level of capital costs, reduce your direct costs by including a minimum number of specimens and a minimum amount of high-tech exhibits

In summary, the following points about developing exhibitions for tour are fundamental:

- It is very difficult to make high profits on touring exhibitions
- It is difficult to recoup 100% of capital investment costs from the touring exhibition alone – it may be possible if the 'Home Institution' income is included
- Decisions made from the choice of topic through to design and production can easily negatively impact the bottom line for an exhibition tour
- Collaboration between all key stakeholders is essential to make any profit at all
- Many of the points above also apply to touring exhibitions that only need to break-even

2.3 Internal and external risks for an exhibition tour

The chart below summarises the range of factors that can impact on the success of an exhibition which tours:



2.4 Review and adjust for break-even or profit results

2.4.1 Feasibility phase

- Available investment
- Capital costs
- Projected operational and maintenance costs
- Cost of sales
- Marketability of the exhibition

2.4.2 Development phase

- Capital available against design development
- Impact of value engineering on visitor experience
- Impact of value engineering on touring effectiveness

2.4.3 Home Institution operation phase

- Effectiveness of marketing campaign
- Admission pricing reviews as necessary
- Replacement or improvement of problem exhibits
- Preparation for tour

2.4.4 Tour phase

- Realistic pricing for fully booked schedule
- Controlling direct costs without compromising health and safety and reputation
- Adaptations to exhibition as needed for improved performance

3. DEVELOPMENT

3.1 Quality control

From the outset, with the preparation of the brief and agreement of the project management control, and continuing through the exhibition development process, the following are the key critical issues:

- Design effectiveness
- Build effectiveness
- Communications effectiveness
- Cost effectiveness
- Tour effectiveness

3.2 Design issues – general

3.2.1 Project timeline

Throughout the development process, project milestones of critical decisions and target deadlines should be tracked and enforced. There should be no retracing of steps once the decision to move into the next phase has been taken. See Appendix VI for Fatal Attraction project timeline.

Before the selection process for a designer begins, first establish what skills are needed. For example:

- 3D design
- Graphic design
- CAD ability
- Illustration
- Multimedia/web design
- Mechanical/electronic interactive design

Even marketing and promotional design and shop design may be relevant. Few design agencies have all these skills in-house, so decide which skills are critical for the success of the touring exhibition and then decide how the other support skills can best be procured.

It is likely that the 3D design skills will be the first priority, and also the knowledge and experience of delivering touring exhibitions. The design company may outsource graphic design, CAD and illustration to freelancers; however, they should certainly be directed and managed by the 3D company to ensure that the overall visual concept is consistent.

3.2.2 Procurement of designer

First assess whether the scale of the project and associated fees make it necessary to take the OJEC (Official Journal of the European Council) route. Check current EU guidelines on financial thresholds and procedures. If the project does fall within this framework, allow the necessary time to advertise for expressions of interest, short-list, issue brief, and presentations by short-listed designers.

Prior to presentations, draw up a checklist of essential criteria that the selection panel will be looking for. This should include financial stability and turnover, awareness and experience of dealing with health and safety and access legislation, strength and size of team and ability to work with other members of the project team, as well as creativity, meeting deadlines and proven experience in developing touring exhibitions. (See Appendix VII, Annex 4 CERN designer matrix.)

In the case of *Fatal Attraction*, the European Call for Tender was a two-phase operation within the 200,000 euros threshold. The fabrication call for tender was one phase only because the specification documents were so detailed.

3.2.3 Co-production

For projects that are being co-produced by a number of institutions, it is essential that each institution has a clearly defined role in the project, preferably playing to their strengths. For example, in the *Fatal Attraction* partnership the project team fully developed briefs not only for the exhibition as a whole, but for each of the interactives, including preliminary sketch designs. By developing the content and design simultaneously, this allowed the entire partnership to be in full agreement about the perceived outcomes before the designer was commissioned. In the case of *Fatal Attraction*, the designer was appointed 18 months after the initial exhibition concept was first established in September 2000. See Appendix VI for *Fatal Attraction* timeline. See also Appendix XIII *for Fatal Attraction* Memorandum of Understanding.

3.2.4 Single institution

The process defined above is probably not needed where the Home Institution develops the exhibition on its own. Communication is simpler and is more likely to have a single vision. The project team can probably afford to bring the designer into the project at an earlier stage so that there is a joint creative and intellectual development of the exhibition.

Where content and design are developed simultaneously the typical phases of this process would be:

- Development of content brief by the project team
- Recruitment of exhibition designer
- Development of concept design
- Development of scheme design
- Development of detail design
- Development of construction drawings and specification
- Tender
- Selection of contractors
- Fabrication
- Build

Therefore, throughout the development process, the designer is a key member of the project team ensuring that the content and the touring constraints are effectively integrated into the design and that the design ‘vision’ is fully realised for the Home Institution and for the tour.

3.2.5 Briefing the designer

A brief for the exhibition will have been prepared by the project team, not only for the purpose of briefing the designer but almost certainly to gain approval from internal and external and stakeholders. To avoid confusion, the brief should stipulate the common language for the project and all the documentation (e.g. English was the language used in the *Fatal Attraction* co-production). The design brief should also outline the project management and reporting relationships and should include the following:

3.2.5 a) Information about the aims and objectives of the exhibition

- Aims of the institution and aims of the exhibition in relation to institutional aims
- Target audience
- Communications objectives
- Content outline
- Preliminary storylines
- Opening date at the Home Institution
- Launch date for the tour
- Expected lifespan of the exhibition
- Suggested methods of communication: hands-on/key specimens or objects/interactive/audio-visual
- Likely touring venue type – museum, science centre, zoo, leisure facility
- Desired length of display per venue (e.g. 3 months average/6 months average)

3.2.5 b) Technical information

- Refer also to the sections on touring ‘Documentation’ (5.2) and ‘Health and safety’ (5.5) for information useful to a designer
- Constraints (e.g. dimensions, weights, security, environmental controls)
- Maximum ceiling height
- Size of exhibition in square metres
- Expected set-up/dismantling time and number of technicians and skills required
- Desired electrical system (e.g. 230v single phase/380v three phase)

3.2.5 c) Budget information

- Design budget
- Construction budget

3.2.5 d) Sources of information

- Useful websites for further information on the subject
- Useful websites for imagery on the subject

3.2.5 e) Information on selection process

Selection criteria matrix – see below and Annex 4 of CERN's Tender for Designer (Appendix VII)

Evaluated item	Weighting factor
Total cost of design	50
Preliminary design of obligatory entrance	15
Proposed overall design	10
Proposed perimeter technique	8
Physical implementation (sturdiness, maintainability, packaged volume, ease of assembling/dismantling etc.)	10
General impression (previous work done, team and CVs, implementation strategy and planning, subcontractors etc.)	7
Total	100

Weighting the designer selection criteria carries the risk that each criteria is evaluated separately when, in reality, they are interdependent. Make sure your selection criteria accurately reflect what you want from the designer.

3.2.6 Formative evaluation of concept brief

Exhibitions are expensive. The more you can ensure that the exhibition is going to be effective, the better. Alterations to exhibits are expensive after they have been built and logistically extremely difficult once the exhibition is touring. Any evaluation during development is better than none. Even if little money and time is available, a few quick discussions with focus groups in your institution can be really helpful. Use your front of house or education staff to discuss proposals with user groups (e.g. families, or teachers and school groups). Show them preliminary concept designs and ask for their views. What do they like/dislike? What interests them, what doesn't? What would they like to see/do? See Appendix IV for the topic evaluation for Fatal Attraction.

For a deeper assessment of concept designs, consider using methods available to the leisure industry to analyse the experience that an attraction will deliver to a target audience based on demographic data. Experience analysis enables institutions to tweak elements of the exhibition offer so that it delivers more of the experience priorities for each age group. It can also be used to target certain age groups or demographic profiles. In addition it can measure marketing materials against what the exhibition will actually deliver to certain target audiences. Such market analysis can also establish the value for money of an exhibition for the visitor.

See Appendix XIV for the Report on the CASTEX Visitor Studies workshop. This report gives a detailed summary of the visitor research carried out by each of the five CASTEX partners.

3.2.7 Quality control

Identify at the outset what level of quality the exhibition should have, ensuring that it fulfils your corporate needs, maximises the available budget and meets market demand. This should be the benchmark against which subsequent design proposals and cost plans are assessed.

3.2.8 Intellectual property

Ensure that all ownership of intellectual properties with designers and other parties are identified and agreed in the contract at the outset (see 'Tour' budget tips (section 2.2.1) – Point 7). It will be necessary to consider the length of a tour, geographical areas and potential sale of the exhibition at the end of the tour. Cost of extending copyright can impact a budget and this must be weighed up against potential gains.

3.2.9 Disability considerations

Many countries have legislation which requires certain standards of physical and intellectual access to be provided to facilities and exhibitions. This includes not only provision for physical disability, such as that for those visitors in wheelchairs, but also for visitors with hearing, visual and learning impairments. Appropriate exhibit heights, colour contrast, font size, captions on audio-visual programmes, induction loops, sufficient seating and appropriate lighting all help to make exhibitions accessible.

Check with national advisory bodies on the relevant legislation and recommended actions.

3.2.10 Health and safety

Many countries have national and European health and safety legislation which requires actions by the exhibition project team. This legislation is intended to safeguard the construction employees, the maintenance staff and the visitor.

Check with national advisory bodies on the relevant legislation and recommended actions.

3.2.11 Contract with the designer

A variety of contracts between the Home Institution and designer can be considered for the design development of the exhibition. However, there are two basic routes to be considered:

1. A design contract to include the following phases: content, concept design, scheme design, detailed design, tender specification and drawings, construction and installation. The design fee would be an agreed percentage of the exhibition budget (between 10% and 20% depending on the scale of the budget) available to the designer to commit for development and fabrication etc.

2. Design and build contract allows a single company or partnership to fully design, develop and build the exhibition for a fixed agreed fee

There are advantages and disadvantages for either approach. Design and build contracts have less uncertainty on liability if there are flaws or failures in the eventual exhibition. However, a design contract allows you to select a design company most appropriate for your subject and existing core project team, whilst contracting the fabrication separately through tender at a later stage from experienced and appropriate companies.

In all cases ensure that intellectual property of the design is owned by the Home Institution, and that there are penalties identified in the contract for late delivery or for design faults. The contract must also clearly state the information that the designer must provide during each stage of the development process and what documentation is required at the end of the development process (e.g. gallery layout plans, graphic identity of the exhibition, sketch plan of content, electrical diagrams, consumables list). See Appendix VIII for suggestions for Fatal Attraction designer contract points and Appendix IX for Fatal Attraction designer selection list.

3.2.12 Value engineering

During the development of scheme designs, the first cost plan should be developed. From knowledge then available regarding size, circulation, materials, use of media etc. a comprehensive cost plan can be developed which is then adjusted throughout the exhibition process as the detail specification becomes clearer. If it appears that the budget is being exceeded, then estimated expenditure on certain areas or use of materials or media etc. could be reviewed and adjusted to meet the budget. It is critical that these budget revisions do **not** compromise the tourability of the exhibition. It is therefore advisable to integrate value engineering milestones and decision-making into the development process to ensure **all** stakeholders, particularly those that are responsible for operating the tour, are consulted before budget revisions/cuts are made.

It is at these stages that the quality standards, aims and objectives etc. that were initially set in the brief are tested against the designs.

3.3 Design issues – specific

3.3.1 Content

The tone of voice, extent and depth of the exhibition content is determined by the target audience. Is the exhibition for families, adults, school groups, specialists, or possibly all groups? The exhibition must be designed so that key information for each user group is immediately accessible, communicated, understood and enjoyed. The style of language, typography and colour, plan and circulation, dwell time and capacity will all be influential.

3.3.2 Size

A decision will be required at the start of the project on the size of the proposed exhibition. What can you afford whilst maintaining acceptable quality and durability? What are your target markets and venues? It is important to bear in mind the dwell time and visitor value for money at this stage to ensure a marketable and successful exhibition.

3.3.3 Layout flexibility

The more flexible the exhibition layout is, the greater the number of venues that potentially become available to you. Ceiling height must also be considered to achieve optimum versatility. Should there be a European standard size for each exhibit item or exhibit module? The design of the exhibition must incorporate stability of the exhibit items which do not need to be secured by drilling into the ceiling or floor. See Appendix XVI for *Fatal Attraction* gallery plans in three venues.

Exhibitions designed in modules allow them to be sited at venues with several adjacent smaller galleries. The storyline of the exhibition also needs to be able to divide into different areas. If an exhibition is modular, ensure that each module's entrance or exit is changeable so that it can be configured differently in each gallery.

3.3.4 AutoCAD drawings

These are now a standard component in the designer's tool kit and essential for developing detailed construction drawings. The design company may not have this facility in-house but they should be commissioned and directed by the designer. Drawings must be made available to the touring team for inclusion in technical manuals to accompany the exhibition as it tours.

3.3.5 Simple assembly systems

Bearing in mind that assembly and dismantling time should be kept to a minimum, look for simple assembly systems. Another advantage of simple systems is that replacement parts can easily be provided should a unit fail whilst the exhibition is touring. Above all, use systems which are PROVEN for use in travelling exhibitions.

3.3.6 Collections/real objects

There are budget implications for touring valuable or sensitive display objects. Evaluate whether it is best to acquire a display object specifically for a touring exhibition or loan it from a collection. Conditions of lighting, humidity and CITES (for material derived from endangered species) will all have budget implications not only because of specialist courier costs and transport specification but also because of the additional installation and dismantling time required.

- Specimens to be displayed in the touring exhibition will ideally come from the institution's existing collection, reserve collection, or possibly on loan from another institution. However, there may be occasions when no existing specimen can be found that communicates the learning objective for the exhibit. Can you change the learning objective to suit the specimen that you have? Can you acquire a new specimen from commercial sources?
- Check the ethical policy of your institution and target venues before proceeding. In some institutions, collecting new specimens for display is unacceptable

- Replacement of iconic specimens, which are not allowed to travel, must be notified to potential Hirers. The marketability of an exhibition should not depend on the inclusion of historical or valuable specimens that are not able to leave their institution

More market analysis is necessary to establish whether the inclusion of real objects increases the appeal of the exhibition to the visitor. Can good replicas be as effective? Obviously some iconic objects will have crowd-pulling potential (e.g. the real A*rchaeopteryx* rather than a cast); however, the cost/benefit of touring such valuable items must be evaluated. Could a hands-on cast have other benefits? See below – 'Replicas'.

3.3.7 Replicas

Even if a specimen is available for display, replicas can be a very useful addition. They are relatively cheap to produce, and they require no environmental controls and probably little security. They can be shown outside display cases and can become a wonderful hands-on exhibit. Imagine trying to convey the nature of crocodile skin with a specimen in a display case and an accompanying graphic panel! A hands-on accurate replica would be much more effective as well as giving greater access for those with visual impairment.

3.3.8 Interactives

These must be included in exhibitions to achieve marketability.

- Ensure that high-tech interactives are not key elements of the exhibition. Iconic exhibit items should be low-tech to ensure that they are easy to maintain and constantly working
- Ensure that the contract with the fabricator covers maintenance and replacement issues with standards for response time and provision of spare parts. Interactives take a good deal of wear and tear from the public; they should be designed with durability in mind
- Military specification connectors can withstand many school children
- Ensure that language flexibility is designed into the interactive. Icons can be good for communicating instructions for use of interactives
- Ensure that the design of the interactive incorporates transportability – use lightweight and manoeuvrable interactives that do not require valuable time to set them up
- Give the designer of the interactives your desired operation target (i.e. % time operating without breakdowns)
- Prototype complex interactives for testing for educational message, durability, transportability and attractiveness to the public

3.3.9 Audio-visual

Use English for the hardware and computer controller language – it is widely understood all over Europe so that the venue's technicians can re-boot the computers themselves if necessary. Language flexibility and lighting levels should also be taken into consideration.

3.3.10 Graphics and text

Ensure that all copyright agreements from picture libraries, illustrators etc. are secured before commitment. Issues which affect cost include: size of final image, manner of use, potential income or return due to use, length of tour, countries to be visited.
In most countries on the tour there will be a need to change the original language of the exhibition and redisplay the text, possibly incorporating two or three alternative language options. **The design solution must resolve this in a cost-effective manner at the outset**. Multimedia programmes can more readily be developed with multi-language options but physical graphic panels within the exhibition are more difficult.

Design a graphic layout which allows up to three languages to be displayed in equal font size, even though, in some venues, not all the space will be taken up with alternative language options.

Develop a mechanism for graphic panels to be easily replaced with new ones. Anticipate the translation and likely reproduction costs and ensure they are covered within the business plan.

Bear in mind that if an exhibition contains cutting edge science, the text of the exhibition may have to be modified in line with new discoveries during the lifetime of an exhibition.

Consider the height of text panels and reading levels of the text for children.

Flexibility of text for modular exhibitions is very important. If a module can be entered from two different directions depending on layout, then the text must be able to be read from two different entrance points. Therefore, the hierarchy of text must be considered within the context of the layout of the exhibition.

3.3.11 Durability of materials

Ensure that materials suggested by the designer will be durable and will last for the life cycle of the exhibition plus the extra wear and tear of touring. Use tried and tested materials that you know are durable for the life cycle of the exhibition and will not increase the maintenance budget because of constant replacement.

3.3.12 Exhibit items in general

Ensure that each item in the exhibition can be disassembled and packed into pieces that are designed to fit through an average door size and in an average goods lift. Ensure that the design takes into account the potential need to remove certain exhibit items without impacting the entire exhibition.

3.3.13 Barrier system

Ensure that the designer bears in mind flexibility when designing barrier systems.

3.3.14 General tourability

The designer must bear in mind that the design of the exhibition, materials used, assembly systems and text replacement solution must all be developed to ensure that the exhibition can be set up in as short a time as possible with a lean team. Apart from the cost implication for the operator, no venue wants to have a gallery out of service for weeks whilst a temporary exhibition is built.

3.4 Construction issues – general

3.4.1 Contract

Ensure that the contract for fabrication between the institution and the contractor details liability, penalties for late delivery and fabrication failures. A schedule should be included which indicates when the contractor can expect to receive stage payments for work completed and approved. The contract should clearly state the documentation that the contractor must provide to ensure touring success:

- Assembly drawings and instructions
- Colour coding of exhibit items for easy assembly
- A list of consumables for each exhibit item
- Dimensions and weights of each exhibit item

3.4.2 Quality control

Throughout the development process, ensure that a full grip on quality control is maintained. Some institutions allow 2% of the capital budget for ongoing maintenance. Quality control continues into the fabrication process and should be the responsibility of both the project manager and the designer who has developed the construction specification. Ask to see:

- Samples of materials and paint finishes for approval
- Mock-ups of certain key sections
- Sample light fittings
- Sample display cases

In all of the above, look for durability, safety and ease of use, as well as quality and design integrity.

3.4.3 Controlling construction process and costs

If regular cost plans are developed throughout the development process, there should be few surprises when tenders are received. Designs and specifications should be continually assessed against the budget. However, contractors may well be able to advise on ways of reducing budgets. They have considerable experience and knowledge of available alternative supplies and methods of production.

3.4.4 Value engineering

This is an ongoing process to ensure that the allocated budget is being deployed in the most effective way whilst keeping within the given budget. For example, certain light fittings might be specified because they are extremely elegant as well as being effective. However, a cheaper light fitting might be available that is equally fit for use but which is less elegant. Consider whether the light fittings are going to be very visible. They are likely to be well above head height and behind the light source. Can money be safely saved whilst ensuring quick, safe and efficient installation of the exhibition on the tour?

3.4.5 Snagging and improving

No exhibition is ever completely satisfactory on opening day. Allow time for testing and snagging of the exhibits before the agreed opening date. Always have available sufficient spares of key elements for immediate replacement.

Improving exhibits is more problematic and expensive. Clearly if they don't work then they must be reassessed and modifications made. However, if the exhibition is already touring, modifications to the exhibit cannot be made but a complete replacement exhibit will have to be developed off-site and installed at the next available opportunity.

3.4.6 Construction procurement

Many institutions have internal facilities (e.g. joinery and paint shops, engineering workshop). Internal staff also have direct experience of how similar exhibits work in their galleries. Their knowledge and skill is therefore very valuable. Decide what internal staff resources can be made available. Bear in mind the impact of staff resources being used in the development process.

If, as is likely, construction will need to be contracted out, check the requirements to follow the OJEC procurement route. Consider whether you wish to proceed with a two-stage or single-stage tender. A two-stage tender allows the contractor to be identified and brought into the project to work with the designer and project team during the detailed design stage. This allows another experienced professional viewpoint and may help to identify and resolve any potential problems.

3.5 Construction issues – specific

Everything in the exhibition needs to last for the life cycle of the tour – up to 4 years or more. It is also likely to be installed, transported, dismantled and re-installed up to 12 times in 4 years. Contractors should consider points such as:

- Interactives – These should be low maintenance. This factor needs to be borne in mind when choosing materials and connectors. Simple mechanical interactives can convey a message as effectively as high maintenance, high-tech ones
- Lightweight materials – Insist on the use of strong but lightweight materials. There are now many alternatives to MDF, including moulded plastic which is lighter and easier to transport but just as durable
- Computers – Computers are effective in permanent exhibitions but are more difficult to tour successfully. If an exhibition contains computers, the programming, hard drive and re-booting instructions should be in English
- Consider the mobility of all exhibit items in terms of weight, size, ease of packing and transport
- Exhibit items should have electrical feed from above and below
- Remember to insist on easy access for maintenance and replacement of bulbs, connectors and consumables
- Audio-visual equipment – Use standard sizes so that transport cases are easy to source
- Packaging – Invest in good packaging so that some items can travel half-assembled. This cuts down on installation time
- Power – Consider whether the exhibition is touring to countries where transformers may be required. If the majority of tour venues have a different power supply from the Home Institution it makes sense to buy transformers for the Home Institution rather then design the exhibition for the Home Institution and buy transformers for the tour
- Keep connections to the local power supply to a minimum
- Link all exhibit items through a central control panel which can be connected to the local supply
- Consider using standard European plugs and adaptors which meet standard European safety recommendations

4. MARKETING AND HIRE CONTRACTS

4.1 Marketing touring exhibitions in Europe

The European market for touring exhibitions has changed significantly recently. There are more exhibition producers, leading to increased competition, whilst revenue generation from repeat visits has become increasingly important to Host Venues. The current economic climate also affects the pricing strategy and makes venues more risk averse.

In the past five years, competition in the European marketplace for science exhibitions has increased, with more science centres entering the market. Exhibitions developed by science centres tend to be more interactive than museum-developed collections-based exhibitions.

In addition, increasing pressure for self-generated income forces European science centres and museums to look for proven blockbuster potential in an exhibition. This factor must be taken into consideration when deciding the theme, title and design of a touring exhibition, to ensure relevance to a wider market.

The current trend is for collaborative partnerships to co-develop exhibitions. Partnerships have been created in response to two factors: a) the need for cost-effective exhibitions in the European market and b) the need for museums and science centres to generate independent revenue streams through repeat visits.

Some partnerships have identified a need for cost-effective touring exhibitions that consist of a core ‘template’ which individual hosting institutions can add to and develop themselves.

See Strategic Analysis above for more information on Partnerships.

At the same time, large, film-based, object-rich blockbuster exhibitions such as *Lord of the Rings* and *Titanic* are offering venues competitive revenue share agreements. This has proven to be very attractive to many museums and science centres in Europe. It is important to develop exhibitions which are marketable and which respond to current market trends.

4.1.1 Marketability

Ensure that during the exhibition development process the marketability of the exhibition is respected, both for the Home Institution’s target market and also for the ‘business to business’ market of potential Hirers.

In the case of co-production, awareness of marketability to each partner’s visitors must be taken into account. Using *Fatal Attraction* as an example, Naturalis aims at families with children, Brussels’ most important target audience is school groups and Paris attracts more highly educated visitors; therefore, the partners had to be prepared to incorporate different levels of information into the *Fatal Attraction* exhibition to suit these different target groups.

Curriculum activities have to be developed by each host institution to make it relevant to their particular school market. The exhibition does not need to cover **all** market segments, but be aware of the choices made during the exhibition development process in order to achieve an exhibition that can be adapted as much as possible to those different markets.

Exhibitions should be designed and developed with additional educational activities in mind. This increases the marketability of the exhibition. However, these activities, audio guides etc. must be appropriate for a wide range of educational needs in touring venues.

4.2 Marketing phases

Marketing the exhibition can be broken down into several stages of information required:

4.2.1 Launch information

This provides an opportunity for a large number of potential Hirers to experience the exhibition first hand in the first venue. If this is the exhibition producer's Home Institution then the inauguration of the exhibition provides a good showcase. Brief exhibition information sheets can be given out at the launch.

4.2.2 Information pack

This is the first level of information for a Hirer to assess the exhibition theme, the content and the budget and technical implications of hiring the exhibition. The information pack is often accompanied by a 2–3 minute video/DVD 'walk-through' of the exhibition and can include the following:

- Theme of the exhibition and target audience
- The exhibition content
- Learning outcomes
- Visitor information if available
- Press reaction and coverage
- Basic technical details
- Basic access requirements – gallery area, ceiling height, doorway widths

4.2.3 Specification manual

This provides technical information to a level whereby the Hirer can ascertain practical considerations such as whether the exhibition can fit into the space, insurance values, amount of text for translation and other information that the Hirer will require in order to put together a budget to decide whether it is possible to host the exhibition.

4.2.4 Marketing visit

This provides a chance to meet with the prospective Hirer and establish key elements of information:

- Exhibition dates
- Hire fees and contract obligations on both sides
- The Hirer's marketing strategy for this exhibition
- The Hirer's target audience and projected visitor figures/entrance fees
- Credit check procedures and financial references

4.3 Pricing strategy

A number of factors are considered in the setting of exhibition hire fees, for both fixed fees and revenue shares. When the final hire fee or revenue share has been agreed, the contract can be prepared.

Each individual exhibition hire contract should be viewed in the context of the overall business (see ‘Profit and loss for an imaginary touring exhibition’, section 2.2.3). The decision to do business with a high-risk Hirer may be taken on consideration of the overall financial position of the Exhibition Provider. If an exhibition is in storage and not earning revenue, and a higher risk opportunity arises then the decision may be made to enter into a contract with a higher risk Hirer rather than not generating any revenue at all.

Dwell time, size of exhibition and number of potential venues are all relative factors to consider when designing an exhibition to tour. The larger the exhibition, the greater the dwell time (which is good), but the fewer potential venues there are in Europe.

4.3.1 Fixed hire fees and revenue shares – points to consider

4.3.1 a) Local factors

- State of the local economy, including unemployment rates, government stability, political unrest
- Geographical location of the venue
- Local leisure activities and ticket prices (e.g. cinema tickets)
- Weather/season implications

4.3.1 b) Exchange rate

- Current euro value against other currencies and pattern over the past 3 years
- Frequency of local currency fluctuation
- Evaluation of any compelling reason for issuing a contract in any currency other than euros

4.3.1 c) Hirer’s situation

- Hirer’s experience in organising and promoting an exhibition
- Size and reputation of the institution/organisation
- Projected visitor numbers
- Average ticket price projection
- Hirer credit evaluation

  Hirer evaluation is carried out during the initial stages of a contract negotiation. Credit checks may not always be necessary, depending on the kind of institution/organisation and whether there have been problems regarding settlement of hire fees or any other debt problems in the past. Hirer evaluation may include one or more of the following:

  i) General reputation of the institution or organisation

  Has the Home Institution/Exhibition Provider worked with the Hirer in the past? How is the Hirer funded – locally, nationally? Have any other European Exhibition Providers worked with the Hirer previously? What is the general impression of the success of the

institution or organisation (i.e. professional standing, visitor numbers, website)? How long has the Hirer been in existence?

ii) References

These could include references from banks, other institutions or organisations or governments who have previously worked with the Hirer.

iii) Financial report

The Home Institution/Exhibition Provider may request the Hirer's profit and loss report of financial activity in previous and current financial years or an independently certified true copy of their latest audited accounts and bank statements.

iv) Bank guarantee

If the Home Institution/Exhibition Provider suspects that the Hirer is potentially risky, it could request the Hirer to provide a bank guarantee or a letter of credit. This, however, is not always easy to negotiate.

4.3.1 d) Market factors

- Is the hire fee or revenue share competitive with similar exhibitions from other providers?
- Is the hire fee or revenue share in line with the potential revenue that the Hirer can generate from visitor income?
- If the hire fee is too high and the visitor numbers don't materialise, will the hosting institution be able to pay?
- If the hire fee is too low is it better to store the exhibition, bearing in mind the additional costs of transporting and storing the exhibition plus no revenue from the hire

4.3.2 Revenue share agreements

The issues mentioned above are all relevant to revenue share agreements. However, there are also a few points to consider which are specific to revenue share agreements. Naturally, the Hirer credit risk assessment is all the more necessary in a revenue share agreement and the Hirer's communications with their target market should also be evaluated.

4.3.2 a) Hirer factors

- Will the Hirer pay a minimum guarantee in addition to a share of revenues to reduce the risk to the Exhibition Provider?
- Is there any reason to suspect that ticket sales records will be underestimated? For example, is there perhaps a cultural issue which would indicate that this could be a possibility?

4.3.2 b) Market factors

- Does the type of exhibition lend itself to high visitor numbers?
- Does the Hirer have a strong track record in marketing their temporary exhibitions?

4.3.2 c) Income factors

- What is the optimum percentage share of revenue for the Exhibition Provider without jeopardising the contract?
- Consider the value of using a revenue share formula which could act as an incentive to the Hirer to maximise visitation whilst earning the Exhibition Provider enough to achieve break-even point plus profit (e.g. the % revenue could be weighted in the Hirer's favour after a threshold of a certain number of visitors)

4.4 Managing financial risk – debt management

As with all businesses, there will probably be an allowance for bad debts which needs to be carried by the business on an annual basis. Hirer credit checks are a vital part of negotiating the contract. Clauses in contracts which allow a charge for interest plus additional penalty payments for late payment help to focus the Hirer's mind on the necessity for prompt payment.

4.5 Tax issues

It is important to be aware that even between EU member countries, the VAT element varies enormously. This can sometimes compromise a certain partner in a partnership.

Outside the EU, some countries charge additional taxes on income earned by foreign organisations where income is exported. This needs to be factored into quotations for hire fees.

4.6 Hire contracts

The Hire contract should clearly define the parties' responsibilities and all parameters for moving an exhibition between venues and hosting the exhibition. It should reflect the exhibition content, size and operating requirements. See Appendix X for ECSITE checklist for contracts. This document was developed in 2000 by a sub-committee of ECSITE members experienced in touring exhibitions in Europe.

- The contract should define the final result of the negotiation:
- The hire period and whether this includes the installation and dismantling time
- The unloading date and the loading date
- Other service dates and maintenance visits to be scheduled during the exhibition period
- Who is responsible for arranging and paying for insurance
- Who is responsible for arranging and paying for transport
- Equipment necessary for the unloading, installation, dismantling and loading of the exhibition and the staff support to be provided by the Hirer
- It must clearly define terms for cancellation and termination
- It must clearly define penalties payable

4.6.1 Examples of some contractual responsibilities for each party

Provider's responsibilities	Hirer's responsibilities
Installation and dismantling of the exhibition installation/dismantling	Team to assist
Technical specifications	Adequate venue – size, access
Access report confirming the exhibition will fit in the area	Installation equipment – forklift etc.
Transport to venue at Hirer's expense	Insurance
Repair if due to normal wear and tear	Marketing and staffing of the exhibition
	Safe working environment
	Access after working hours/late
	Storage of transport crates
	Security and environmental

4.6.2 Hire fees

The monthly hire fee can be negotiated depending on the length of the entire hire period. A longer hire means lower operation costs and less wear and tear on the exhibition. As a general rule, a minimum 3-month exhibition hire period gives the exhibition long enough in a venue for the marketing campaign to be effective but a short enough period to impel visitors to see it before it closes.

Establish what the hire fee includes

- Exhibition components
- Consumables – water/sand etc. for interactives?
- Costs of the installation team – flights, hotels, and per diems – are these included in the hire fee?
- Marketing/educational materials for the exhibition
- Repair services – under what conditions are these provided and at whose cost?
- Staff training for operating the exhibition

5. TOURING LOGISTICS

5.1 Access

Site inspection reports should include scale plans of the gallery and photographs. The report should also cover basic information such as:

- Area of exhibition space
- Is it on the ground/1st floor/2nd floor
- Space between columns
- Doorway height/width
- Ceiling height
- Air compressor – y/n
- Storage facilities
- Electrical capabilities
- Dimensions of goods lift
- Internet point in gallery
- Lorry access
- Maximum floor loading
- In-house graphics department
- In-house technical department

5.2 Documentation

Specification and information manuals should be produced for sending to Hirers prior to the installation of the exhibition. Technical manuals with more detailed information and drawings accompany the exhibition with the installation team. The following information is required for production of the manuals:

- Total area space requirement in square metres
- Area space in square metres of individual display modules/areas
- List of exhibit items and related equipment
- As-built drawings on CD-ROM and hard copy
- Drawings of exhibit items with details on how to assemble them using step-by-step photographs
- Transport dimensions
- Assembled dimensions
- Weights of exhibit items
- Text for translation
- CD-ROM with graphic text information, including images if applicable plus area size where text needs to be inserted

- Font size and type face
- Details on the method required to produce the exhibition text
- Specimen information including description/Latin and common name/size/what is touring and what will replace the specimen if it is not touring
- If an exhibition contains accessioned specimens or items, they must be accompanied by a loan agreement which is signed by the Home Institution and the Hirer. The loan agreement will include any specific requirements for the specimen such as environmental conditions, lighting levels and special handling etc.
- Captions with information on specimens, sizes, fonts size etc.
- Details of interactives, including text information etc.
- Assembly and dismantling instructions in English on CD-ROM and hard copy, including step-by-step instructions
- Technical and electrical requirements and installation information on CD-ROM and hard copy, including step-by-step photographs
- Power requirements for each area/module – including circuit diagrams, cable assembly diagrams with photographs of step-by-step procedure for assembly of electrical equipment and plugging in of cables
- Diagrams for all audio-visual system installation
- Air compressor requirements if applicable
- Tools and equipment required by venue to set the exhibition up such as forklift, crane, genie lift, hydraulic lift, ladders etc.
- Insurance value for each individual exhibit item
- Number of crates with dimensions and list of contents in each crate
- Packing method/instructions for each crate, with photographs of how they are packed
- Hirer information sheet for loading and unloading
- Suppliers list – including manufacturers' contact details so that distributors in each country can easily be found
- Spare parts list
- Information on display panel materials and sizes, and colour references/Pantone references, so that the Hirer can match textures and colour to blend in if they wish to add to the exhibition
- Copyright information on images, fonts etc.
- Ongoing operating information/troubleshooting sheets on CD-ROM and hard copy.
- Images of exhibition panels and overall view on CD-ROM
- Video of assembly and dismantling procedure
- Step-by-step photographs of assembly and dismantling procedure
- Fire coding compliance information

- Contact numbers of the technicians in the Home Institution for advice/help during installation (particularly audio-visual, special effects, technical and engineering specialists)

5.3 Packing and transport

- Produce a packing list, that is, an itemised inventory of all exhibit items and components. The packing list should itemise each exhibit item and crate that is loaded or unloaded onto each trailer. Crates should be marked on the outside with a number, and the packing list should list each numbered crate, its dimensions, weight and any instructions on handling or the equipment necessary to move it. The packing list should be sent to the transport company and to the Hirer, to provide a checklist to ensure that each crate/item is loaded/unloaded successfully
- Obtain weights and values of the exhibition items and components
- Colour code all exhibit items and components for re-assembly
- Packing cases should have solid wheels, be stackable, and pack flat for easy storage. Each crate or package should have a list of contents attached to the outside of the crate in easy view. This should also include any diagrams, photographs and instructions to help unpacking and repacking the crate
- Contents list of packed cases with dimensions, weights and values
- Transport paperwork/Customs requirements – packing list, customs invoice, export licence, carnet
- Scaled loading layout plan of crates to fit 13.5 tilt trailers (ideally should pack down to fit into two or three trailers in easy to handle pieces). See Appendix XI for sample loading plan
- Organise the dismantling, packing and removing from site, including arranging for forklifts and labour for loading

5.4 Ongoing maintenance planning

- A service/maintenance schedule should be planned and budgeted throughout the tour. Preventative maintenance can make an exhibition more cost effective to tour
- Emergency breakdown planning
- Repairs/replacement
- Tools and equipment which travels with exhibition
- There should be a condition report for each exhibit, including both specimens and display components. Usually a condition report will record the condition of each exhibit at entry and exit and at other specified times, and record its location and the environment in which it is displayed or stored. Condition reports for all exhibit items should be obligatory so that a proper maintenance schedule can be planned.

A full service support system has been set up at the RBINS in Brussels to handle all maintenance requirements for venues as *Fatal Attraction* tours (see http://www.naturalsciences.be/fatal_helpdesk). It is intended for the use of the *Fatal Attraction*

partners and also other institutions who hire the exhibition on its tour. It has been set up to provide immediate recording of technical complaints and to handle them in the most efficient way. The Hirer fills in a form on the *Fatal Attraction* website and this prompts them to identify exactly which interactive, specimen or display component requires attention. Three designated members of staff receive the e-mail form, and the staff member whose skills are most suited to correcting the problem responds to it. The other two staff members and the Hirer are automatically informed.

5.5 Health and safety

- Risk assessments
- Method statements
- Data sheets on hazardous materials
- Fire resistance certificates for all materials
- Safety certificates for equipment (i.e. air compressors/hoists, electrical etc.)
- Training in compliance with EU regulations for operating equipment, first aid etc.
- Health and safety equipment and clothing (e.g. eye goggles, steel capped boots)

5.6 Collections/specimens

- Check if any of the specimens are CITES listed and make the necessary arrangements.
- CITES A category
- High risk. Lender and receiving venue must both be CITES registered.
- CITES B and C categories
- Within the EU – No paperwork is required and the receiving venue does not have to be CITES registered.
- Outside EU – Certificates and import/export licences will need to be obtained plus Article 10 to display items. Receiving venue must be CITES registered. The specimens cannot travel from one country to the next; they will have to be brought back to the country of origin and be re-sent.
- Conservation issues (i.e. lighting, humidity, pest control)
- Display and packing cases to be made by specialist packers with conservation materials and sealed
- It might be worth considering wrapping large specimens (e.g. the ostrich in Fatal Attraction) in blankets rather than creating large cases for them. Large cases are difficult to handle and take up space. If installation staff can see how fragile the object is, they will handle it more carefully
- Appointing a reliable and experienced specialist transport company might be a better investment in the long term than many large cases for big specimens
- Condition reports
- Special transport arrangements, specialist curators/couriers for high value specimens

- List of replacement specimens/artwork which is in keeping with the exhibition on tour in case swaps are necessary
- List of specimens/replicas to be replaced by venues because the original specimens are too fragile to tour
- The installation and dismantling schedules must allow for sufficient time and manpower to ensure proper and careful handling of the exhibits

5.7 Crisis management

Ensure that in your dealings with a venue it is clear exactly how and when they must contact you in case of loss or damage to an exhibit item or a force majeure disaster situation. If the exhibition contains valuable specimens, the Hirer should be made aware of any priorities for rescue. Clear contact details should be provided for the Hirer so that they can contact the relevant people immediately.

5.8 Procedure once exhibition is on tour

- Review availability of exhibitions and technical staff
- Discuss and agree suitability of venue and exhibition hall
- Site inspection to be carried out to check access, whether exhibition area space can accommodate exhibition and environmental conditions
- Site report form to be completed
- Supply insurance value of exhibit items for contract negotiation
- Send specification manual or a list of exhibit items and information for Hirers
- Check whether contract has been signed and returned
- Method statements/risk assessments to be completed
- Prepare any Customs paperwork/CITES/Carnets/Country of Origin Declarations if required
- Send information/installation manuals/exhibition support information and liaise with Hirer/venue for the reproduction of graphics, audio and layout
- Accurate floor plan or layout of exhibition to be provided by the Hirer and checked to ensure the exhibit items can fit in the format the Hirer prefers
- Ensure Hirer is aware of storage box requirements
- Hirer must submit a copy of their insurance coverage document before loading and sending exhibition
- Receive deposit before releasing exhibition for shipment to Hirer
- Ensure that the exhibition hire contract is signed before the exhibition is loaded
- Make transport arrangements
- Inform venue of unloading/loading requirements, volume of transport crates for storage and date of unloading
- Schedule available technical staff

- Appoint team leader who will carry out site reports and condition reports during installation and dismantling
- Produce installation schedule and send to the Hirer and the technical team
- Arrange travel and hotel accommodation for technical staff and produce travel itinerary for staff and Hirer
- Arrange scientist courier for specimens if applicable
- Storage contingency plan if there is no follow-on venue
- Maintenance planning and reporting
- Breakdown arrangements and response times
- Weekend/holiday on call arrangements
- Refurbishment/replacement plan
- Technical manuals to be kept updated by technical team

6. EVALUATION

- Evaluation of the public–visitor figures throughout tour
- Evaluation of the exhibition by the Hirer – visitor reaction, hire fee against how the exhibition performed, service of the installation team. See Appendix I for ECSITE Success Criteria for Hiring a Touring Exhibition
- Evaluation of performance of the exhibition from a design perspective must be fed back into the development of the next exhibition
- Evaluation against strategic plan objectives/performance indicators – success or failure
- Lessons learnt and feedback into the process

7. SUMMARY AND RECOMMENDATIONS

7.1 Basic recommendations

7.1.1 Funding

Could the EU provide funding for feasibility studies and market research for a large network of European museums and science centres through the ECSITE network?

7.1.2 Future projects

Symposia under the ECSITE umbrella could provide a forum for the development of future exhibition projects across many different ECSITE member institutions.

7.1.3 Standardisation

- How easy is it to standardise exhibition development and touring across Europe with such a diversity of cultures, languages and methods?
- Could the length of the tour of any one exhibition be limited to say 5 years to avoid fatigued exhibitions being toured for too long?
- Could there be a standard for computer hardware and software for European touring exhibitions?
- Should we establish parameters and standards for crate sizes and weights, wheel specifications, heights, number of lorries?
- Should there be standards for ecological use of materials which comply with European health and safety regulations?

7.1 4 Documentation

Could there be a Europe-wide call for standardisation of certain documents relating to touring exhibitions? Should we be working towards establishing a European Facilities Report (similar to the American Association of Museums Facilities Report in Appendix XII) and a European Condition Report. The ECSITE contract checklist could be reviewed and several standard clauses could be established for exhibition hire contracts based on the experience of many institutions in Europe. Designer contracts and exhibition fabricator contracts could also carry a number of standard clauses.

7.1.5 Exchange of information

Should there be more exchange of information about potentially risky Hirers?

Should each exhibition produced by a European institution carry an evaluation sheet similar to the ECSITE score sheet in Appendix I so that valuable Hirer/visitor/operator feedback is gathered for the exhibition producer to feed into the next exhibition?

The ECSITE website (http://www.ecsite.net/) could be used as a common information resource or ‘message board’ for existing touring exhibitions and those in development.

There is a wealth of experience of touring exhibitions amongst the science centres and museums of Europe. These guidelines are a first step in the process of pooling that experience for the benefit of all. Many lessons can also be learnt from museums and science centres in the USA, where standardisation of methods and best practice has encouraged the touring of a wide variety of exhibitions.

This is not a definitive document. Feedback for future updates is welcome and the recommendations above are just suggestions as to how we might progress further with the development of best practice for the touring of highly educational entertaining exhibitions which deliver cutting-edge science to a wide public.

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The authors would like to thank all those who contributed to the content of the CASTEX Guidelines.

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APPENDICES

Appendix I

SUCCESS CRITERIA SCORE SHEET FOR HIRING A TOURING EXHIBITION

	Score (1-5)	
COMMERCIAL FACTORS		
Marketability		
Potential for return on investment		
Potential for PR coverage		
Quality of Press and Marketing information supplied with exhibition		
Potential for attracting sponsorship		
Sub-total		0
VISITOR EXPERIENCE		
General ambience		
Design aesthetics		
Accessibility of exhibition		
Amount/quality of hands-on interaction		
Range of experiences		
Fun		
Sub-total		0
EDUCATIONAL FACTORS		
Clarity of messages		
Links with National Curriculum		
Quality of Education Pack supplied with exhibition		
Sub-total		0
OPERATIONAL FACTORS		
Ease of installation		
Maintenance/running		
Ease of dismantling		
Supplier Service		
Flexibility/adaptability for different venues		
Durability of exhibition elements		
Quality of maintenance/technical information/training		
Sub-total		0
TOTAL SCORE		0

Scoring:
1: Very poor
2: Below average
3: Average
4: Pretty good
5: Excellent

Appendix II

SUCCESS CRITERIA – FAMILY AUDIENCE TEMPORARY EXHIBITIONS

Financial Criteria

Profitable through admissions
Profitable on tour
Profitable on both
Profitable through other products

Communications Criteria

Dramatic
Powerful
Relevant
Controversial
Engaging
Ambitious
Impactful
Easily accessible
Memorable
Sensational
Family

Other Criteria

Sponsorable topic
High press coverage
Strong science communication vehicle
Provides outreach opportunities
Staff exhibition development skills and expertise improved through working in partnership with other organisations

Appendix III

TOURING EXHIBITIONS CRITICAL SUCCESS FACTORS

The Business Approach for a Museum or Science Centre Touring Exhibitions Operator

- An ensured target of break-even or profit of at least 10% in hiring exhibitions to European museums and science centres

- Staffing resource levels to successfully market, negotiate contracts, tour, and maintain a broad portfolio of exhibitions and run as a department in an institution

- A competitively priced inventory of marketable exhibitions for Europe

- Risk averse operations in all activities

- The ability to respond to European markets efficiently while also operating as a museum or science centre department

- The ability to take advantage of other commercial opportunities for the institution which are linked directly or indirectly to the bottom line

- Demonstrate a level of professionalism which commands respect internally and externally and ensure the reputation of the institutionAppendix IV

Appendix IV

FATAL ATTRACTION PRE DESIGN VISITOR SURVEY, PARIS

According to adults in this survey the reproduction and life in a group are the two main reasons to communicate; that's why all social animals communicate. The adults think all animals have a way to communicate although humans don't understand all of them. For children in the survey it is the contrary; they imply that some animals do not communicate because humans can't understand nor hear them.

HOW DO ANIMALS COMMUNICATE?

In order to analyze this question, we collected answers categorized according to types of communication. In this way we can immediately recognise which types are well known. 3 out of 4 children know only two types of communication. 3 out of 4 adults know 3 types and more. Children know mainly the sound communication (5 out of 10 answers) and the visual communication (3 out of 10 answers) and none of them speak about pheromones. Adults know 3 main types of communication: sound, visual and chemical (olfactory and pheromone) senses. The tactile communication is not often pointed out by adults nor children ; electrical communication is never quoted.

Adults know more types of communication than children. The main types of communication known by all are sound and visual communication.

Type of communication	Adults	Children	A	C
	Frequency of quotation	Frequency of quotation	Rat	Rate %
Sound communication	28	20	3/10	**5/10**
Visual communication	25	12	3/10	3/10
Tactile communication	10	4	1/10	1/10
Olfactory communication	18	6	2/10	1/10
Pheromones	7	-	1/10	-
Total of citation	86	42	100	100
People who give			rate	rate
1 types	-	4	-	2/10
2 types	9	11	3/10	5/10
3 types	12	4	4/10	2/10
4 types	6	1	2/10	1/10
5 types	2	-	1/10	-
Total of persons	29	20	100	100

WHY DO ANIMALS COMMUNICATE?

Like the last question, adults know more cases of communication than the children (1 out of 4 adult s quote 3 cases or more and only every other child can do it). For children "to give a warning" and "to look for food" are the main reasons to communicate; reproduction is not on their minds; but for adults that's one of the principal reasons of communication together with "to look for food". "To preserve the territory" and the hierarchic place (rank) in the group are worries for adults. "to play, to talk" is most important for children.

Reasons of communication	Adults	Children	Total
	Frequency of quotation	Frequency of quotation	Freq.
To look for food	21	9	**30**
To look for a partner, to make babies (loves displays)	21	4	**25**
To give the alarm (against predator)	17	12	**29**
For the social cohesion, to live in a group	10	2	12
To preserve the territory	8	3	**11**
To defend the hierarchic place	7	1	8
To protect, call, love, regroup babies	6	4	10
To show affection	3	-	3
To guide the others	1	3	4
To ask for help	1	1	2
To defend oneself	-	1	1
To play	-	2	2
To talk, to say hello	-	2	2
To share their feelings (happy...)	-	2	2
Other case: To choose the right place to nest (2) ; to warm a case of sickness	2	2	4
Total of citation	97	48	145
People who give			
no case	-	2	
1 case	1	3	
2 cases	6	6	
Total for 0,1,2 cases	7 (1 adult/4)	9 (1 child/2)	
3 cases	11	4	
4 cases	7	4	
5 cases	2	1	
6 or 7 cases	2	-	

To answer the five first questions, people tend to use examples. We collect them according to animal type. As we can see, people do not refer to a lot of example (zero, 1 or 2 examples for 7 adults and 5/10 children). Pets (cats and dogs mostly), birds, and African mammals are quoted very often by interviewed persons but children use more marine mammals than the birds. Insects as primates are not very much use by children.

Fishes and reptiles are not very well known by people for their means or type of communication.

	Adults	Children	total
Birds	12	5	17
Pets	12	14	26
African mammals	9	11	20
Primates	7	3	10
Marin mammals	7	9	16
Insects	6	3	9
European mammals	4	2	6
Fishes	2	2	4
Human	1	-	1
Reptiles	-	1	1
	60	50	110

People who give:		
No example	4	2
1 example	8	4
2 examples	7	8
Rate for 0,1,2 examples	7/10	7/10
3 examples	3	1
4 examples	3	2
5 examples	1	
6 examples	2	2
7 examples		1

IS A LION ABLE TO COMMUNICATE WITH A GIRAFFE?

	YES	NO	Communication doesn't exist	Don't know	
Adults	18	5	3	2	29
Children	4	16	-	1	20
	22	21	3	4	49

Children are very sure that a lion is not able to communicate with a giraffe. Most of the time they said, "No, it's impossible"! The adults think the contrary but they are not so affirmative than the children: they try to explain which type of communication does exist between lion and giraffe.

WHY IS A LION NOT ABLE TO COMMUNICATE WITH A GIRAFFE?

Children:

- The lion is the giraffe's predator; the lion will eat the giraffe: 5
- Lion and giraffe don't have the same language, sounds: 6
- Lion and giraffes haven't got the same means of communication: 2
- Lion and giraffe don't belong to the same species, family: 8
- Lion is a carnivorous, giraffe is an herbivorous: 1
- Giraffe is too tall to speak with a lion: 1

Adults:

- Lion and giraffe haven't got the same code: 1
- Giraffe have a preservation instinct: (2)
- A lion will not say to the giraffe "Be careful I am going to eat you"

WHICH TYPES OF COMMUNICATION EXIST BETWEEN A GIRAFFE AND A LION?

- Giraffe feel if a lion would eat her or if the lion is not hungry : this is a kind of communication (7) ; its not a real communication (2) ;
- Giraffe and lion see and smell each other: its a kind of communication (2) ; there is an information between them (1) ;

- Giraffe could be afraid when she see a lion: it's a kind a communication ; it's not an evolutionary one ; It's an involuntary communication
- Lion give messages about his territory, his superiority: it's a type of communication (3) ; it's not a communication (2) ;
- - Lion and giraffe live in the same territory, this agreement is a type of communication

For children extra specific communication is not possible between two different species and it's particularly true between a predator and its prey. According to the adults Giraffe. According to the adults, the fact that each giraffes and lions live in their own territory they mark and defend, demand a communication or, at least an exchange of information between the two species.

IS A LION ABLE TO COMMUNICATE WITH ANOTHER LION?

	YES	NO	Other answers	Don't Know	
Adults	28	-	-	1	29
Children	14	2	2	2	20
	42	2	4	3	49

HOW DOES A LION COMMUNICATE WITH ANOTHER LION?

Few people explain how a lion communicate with another lion (6 adults and 8 children). The sound communication is the most quoted (12/14) and after the tactile one (5/14) and the visual (3/14) ; nobody quotes chemical communication and a lot of persons answer only one type of communication (9/14).

WHY WOULD A LION COMMUNICATE WITH ANOTHER LION?

Communication events	Adults & Children
	Frequency of quotation
Adults and children's answers:	
To look for food	11
To defend the territory	9
To look for a female	6
To alarm	6
To fight for a she-lion	6
To mark the territory	2
To play	2
Adults answers:	
For the social group's cohesion	3
To identify the dominant	9
To know where to go	1
Children's answers:	
To recognize, to take care of the babies	1
To call and to be call	1
To gather	1
To ask for help	1
	60

A lot of interviewed people understand that this question is about two he-lions and it's the reason why some say that they do not communicate (2 children answer that only a female and a male can communicate, and 2 others say that two he-lions hate themselves so they never communicate). To answer this question, a lot of children speak for the lion, as an example : "I see a big prey, come on with me we will catch it" and some time the answers are very funny.

The list of quotations is similar than the answers of the question "Why do the animals communicate ?" and with this example the interviewed persons haven't more ideas about the aims of animals communication.

LIST OF ANIMALS THAT ARE BEST AT COMMUNICATING

	Adults	Children
Dolphins	11	4
Whales	5	3
Marine mammals	2	1
Cetacean	2	-
	20	**8**
Monkeys	14	6
Primates	3	-
Chimpanzee	1	1
Gorilla	-	1
Orang-outang	1	-
	19	**8**
Mammals	4	-
Birds	6	2
Parrots	2	3
	8	**5**
Cats and dogs	2	5
Domestical animals (pets)	3	1
Horses	-	1
	5	**7**
Insects	1	
Bees	1	
Cockroaches	1	
Hants	1	
	4	
Others : Adults : Men ; animals which live in pack ; bat ; Children : Fox ; lion ; panther ; fish ; deer ;	4	6
People who give 1 example	3	6
People who give 2 examples	10	7
People who give 3 examples	7	3
People who give 4 examples	5	1
No answer	4	2

WHY ARE MARINE MAMMALS AND PRIMATES GIFTED TO COMMUNICATE?

Adults:

They are social animal, they live in a hierarchic group : 6

Their brain is developed and adapted : 3

They are advanced : 3

They are close to human : 2

They are mammals : 1

They are able to communicate with human : 1

They are able to learn the signs language : 1

They have a kind of primitive consciousness : 1

Children:

They live in a group : 1

They are intelligent : 2

They are able to learn the signs language : 1

They are close to human : 1

WHY ARE BIRDS AND PETS GIFTED TO COMMUNICATE?

Adults

They live with human, human understand them and they understand us : 3

Some birds speak : 1

Human can ear them : 1

Children

They live with human, human understand them and they understand us : 4

Some birds speak or repeat everything : 3

Other animals :

Fishes are gifted to communicate because they don't make noise (C)

Lions are gifted to communicate because they have ears and they growl (C)

Foxes are gifted to communicate because they are strong (C)

Insects are gifted to communicate because they live in social groups (2A)

The interviewed persons know that marine mammals and primates are gifted to communicate because they live in social groups, they are advanced and their brain is adapted to communicate. The case of birds and pets is different: Adults and children think they are gifted to communicate because they live with humans and their mean to communicate is close to the human's one (speaking). Examples of communication by insects, reptiles, invertebrates are not known.

STATISTIC RESULTS COMPARING BELGIUM, FRANCE AND THE NETHERLANDS

ARE ANIMALS ABLE TO COMMUNICATE?

		YES	NO	Others answer
Belgium	Adults & Children	46	1	
France	Adults	28	-	1
	Children	18	-	2
the Netherlands	Adults	14	-	
	Children	15	-	
Total	125	121	1	3
Rate		97%	3%	

ARE ALL ANIMALS ABLE TO COMMUNICATE?

		YES	NO	Don't know
Belgium	Adults & Children	20	20	2
France	Adults	19	8	2
	Children	5	10	5
the Netherlands	Adults	9	5	-
	Children	2	12	1
Total	120	55	55	10
Rate		46%	46%	8%

HOW DO ANIMALS COMMUNICATE?

Type of communication	Frequency of quotation				
	B	F	N	Total	**rate**
Sound communication	30	48	33	111	**42%**
Visual communication	19	37	32	88	33%
Olfactory communication	5	24	9	38	14%
Tactile communication	1	14	4	19	7%
Pheromones	-	7	-	7	3%
Total of citation	55	130	78	263	

WHY DO ANIMALS COMMUNICATE?

Reasons of communication				
	Belgium	France	Netherl.	Total
To give the alarm (against predator)	18	29	**19**	**66**
To look for food	15	30	**14**	**59**
Reproduction	6	25	**8**	**39**
For the social cohesion, to live in a group	9	12	5	**26**
To preserve the territory	3	11	**8**	**22**
To protect, call, love, regroup babies	6	10	2	**18**
To defend the hierarchic place	1	8		9

To talk, to say hello, say something	4	2		6
Survival	1		5	6
To guide the others	1	4		5
To play	2	2		4
To share their feelings (happy...)	1	2	1	4
To send message			4	4
To understand each other			4	4
To move, to go on travel	2		1	3
To show affection		3		3
To ask for help		2		2
Tà fight	2			2
To defend oneself		1	1	2
Other cases: To choose the right place to nest (2) ; to warm a case of sickness ; evolution ; for he same reasons that humans communicate ; to share the work ; because they are the same animals ; because we decent from animals (otherwise we shouldn't be able to talk) ; to organise, to be agree with each other	1	4	5	10
Total of citation	72	145	77	294

ANIMALS USED AS EXAMPLES IN ANSWERS

(Questions 1 to 5 of the French study and question 1 for the two others)

	Total				
	Belgium	France	Netherlands	Total	rate
Pets	31	26	6	**63**	**29%**
Birds	11	17	10	38	16%
African mammals	14	20	2	36	15%
Marin mammals	10	16	1	27	11%
Insects	11	9	-	20	8%
Primates	2	10	4	16	7%
Reared animals	7		5	12	5%
European mammals	4	6	1	11	5%
Fishes	4	4	1	9	4%
Reptiles	1	1	-	2	1%
Human	-	1	-	1	ns
	95	110	30	235	

IS A LION ABLE TO COMMUNICATE WITH A GIRAFFE?

		YES	NO	Don't know
Belgium	Adults & Children	15	26	
France	Adults	18	8	2
	Children	4	16	1
the Netherlands	Adults	4	9	1
	Children	4	11	-
Total	119	45	70	4
Rate		38%	59%	3%

IS A LION ABLE TO COMMUNICATE WITH ANOTHER LION?

		YES	NO	Don't know
Belgium	Adults & Children	47	-	-
France	Adults	28	-	1
	Children	14	2	4
the Netherlands	Adults	13	-	1
	Children	13	1	1
Total	125	115	3	7
Rate		92%	2%	6%

WHICH ANIMAL COMMUNICATES BEST?

	B	FR	NL	Total	Rate
Marine mammals: Dolphins (20) ; Whales (13) ; Marine mammals (3) ; Cetacean (2)	5	**28**	10	43	**25%**
Primates: Monkeys (23) ; Primates (9) ; Chimpanzee (2) Gorilla; Orang-outang	3	**27**	6	36	**21%**
Pets and reared animals Cats and dogs (27); Pets (4) ; Horses (1) ; chickens	16	**12**	5	33	**19%**
Birds : Birds (24) ; Parrots (6)	11	**13**	6	30	17%
Mammals: Mammals (4) Fox ; lion ; panther ; deer (2) ; elephant (2)		8	5	13	8%
Insects Insects (3) ; Bees (1) ; Cockroaches (1) ; Hants (1)	2	**4**		6	3%
Humans	3	1	1	5	3%
Fishes		1	1	2	1%
Others: animals which live in pack ; bats (2) ; male and female animal (2)		2	3	5	3%
	40	96	37	173	

ARE ANIMALS ABLE TO COMMUNICATE?

	YES	NO	Others answer	
Adults	28	-	1	29
Children	18	-	2	20
	48	-	3	49

- 2 Children don't know what "to communicate" means ; after explanation they answer "yes, animals are able to exchange information".
- 1 adult says that "To be able to" and "communication" are not good terms for animals; according to him animals "*can exchange signals"*

For all people questioned, animals are able to communicate or exchange information.

People use different types of example to answer this question:

Type of example	Adults	rate	Children	rate
An animal that communicates	3	1/10	5	3/10
An animal that communicates and how he does it	8	3/10	8	**4/10**
An Intraspecific communication example	5	2/10	1	
Means of communication	5	2/10	2	1/10
Aims of communication	-		1	
An example of intraspecific and extra specific communication	1			
An animal that communicates with men	4	2/10	-	
A mean for men to communicate with animals	2	1/10	-	
No example	-		3	
Total	28		20	

Most of adults and children use examples to answer this question. Seven children on ten give example of an animal and only 4 on 10 precise how this animal communicates (the cats miaow). Only 4 adults on ten use this way to justify the answer, and 3 on 10 give some examples of a communication between Human and animals (most of the time, it is between the interviewed person and her pet) and, by this way, they imply that "animals are able to communicate because human understand them or animals make themselves understand by human).

ARE ALL ANIMALS ABLE TO COMMUNICATE?

	YES	NO	Don't Know	
Adults	19	8	2	29
Children	5	10	5	20
	24	18	7	49

7 out of 10 adults and 1 in 4 children think that all animals are able to communicate.

WHY ARE ALL ANIMALS ABLE TO COMMUNICATE?

Only one child justify his answer and explain that communication is inborn; According to the 13 adults who have developed their answer, all animals are able to communicate because :

- To communicate is inborn : 1/13
- All animals have a mean to communicate : 4/13
- All animals have a mean to communicate but human is not able to see, to ear or to understand it : 4/13
- All animals are obliged to communicate for the reproduction (1) and, to do that they have pheromones (2) : 3/13
- All animals are obliged to communicate because they live in a group : 1/13

WHY ARE SOME ANIMALS NOT ABLE TO COMMUNICATE?

One child and 6 adults give the example of an animal which does not communicate (microbs, fishes (2), jellyfishes, amibia, cell) and 11 of them (8 children and 3 adults) give an example and explain why this animal doesn't communicate:

Children:

- Some animals can't speak (3/10) : snakes, fishes
- Some animals have no ears (1/10) : ostrich
- Human is not able to ear some animals (1/10) : fish
- Other : Fishes have no brain ; a grizzly bear can kill a baby bear ; we never see an owl speaking with another owl ;

Adults:

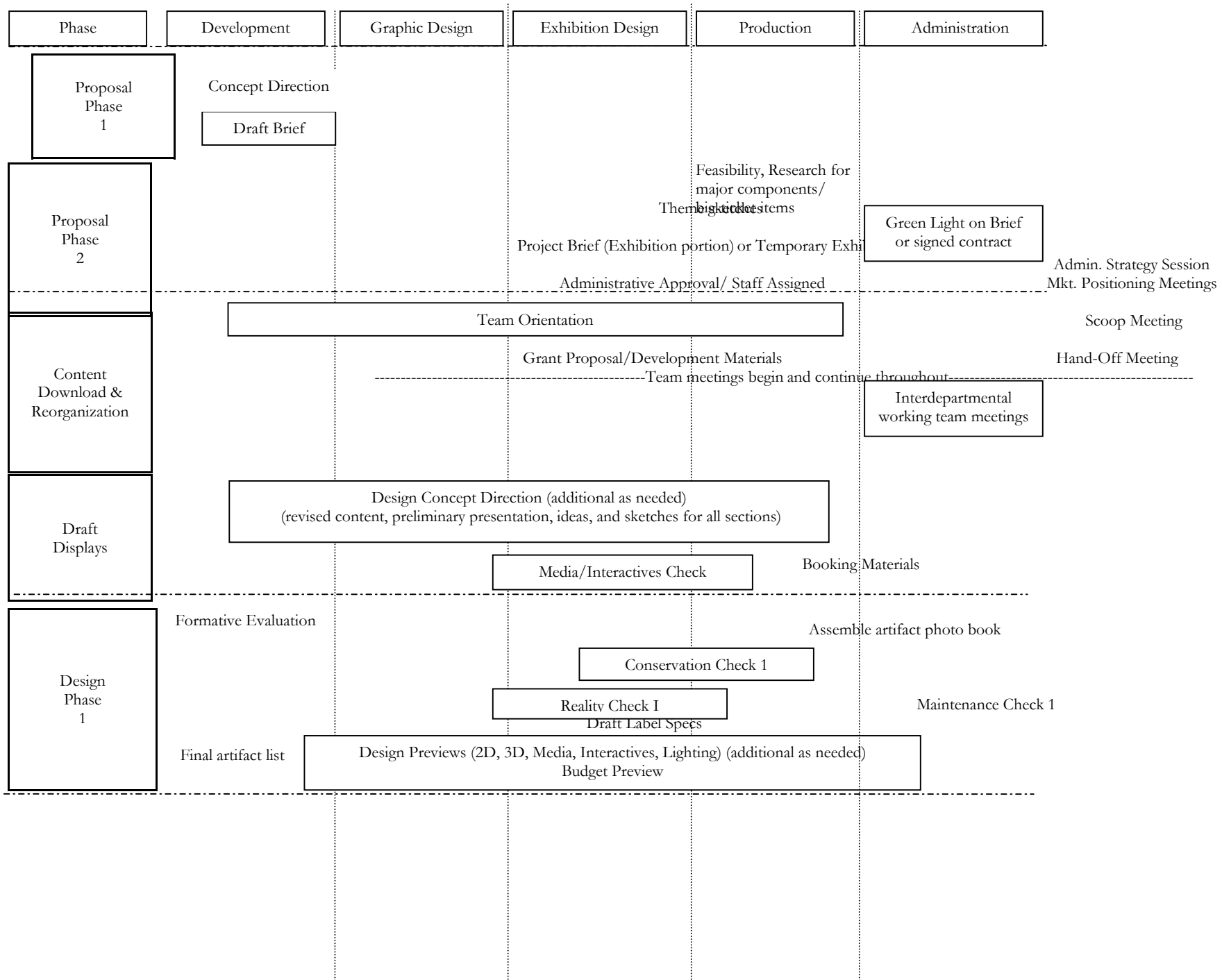
- Some animals don't need to communicate and this function do not exist
- Only the advanced animals communicate;
- Only the social animals communicate

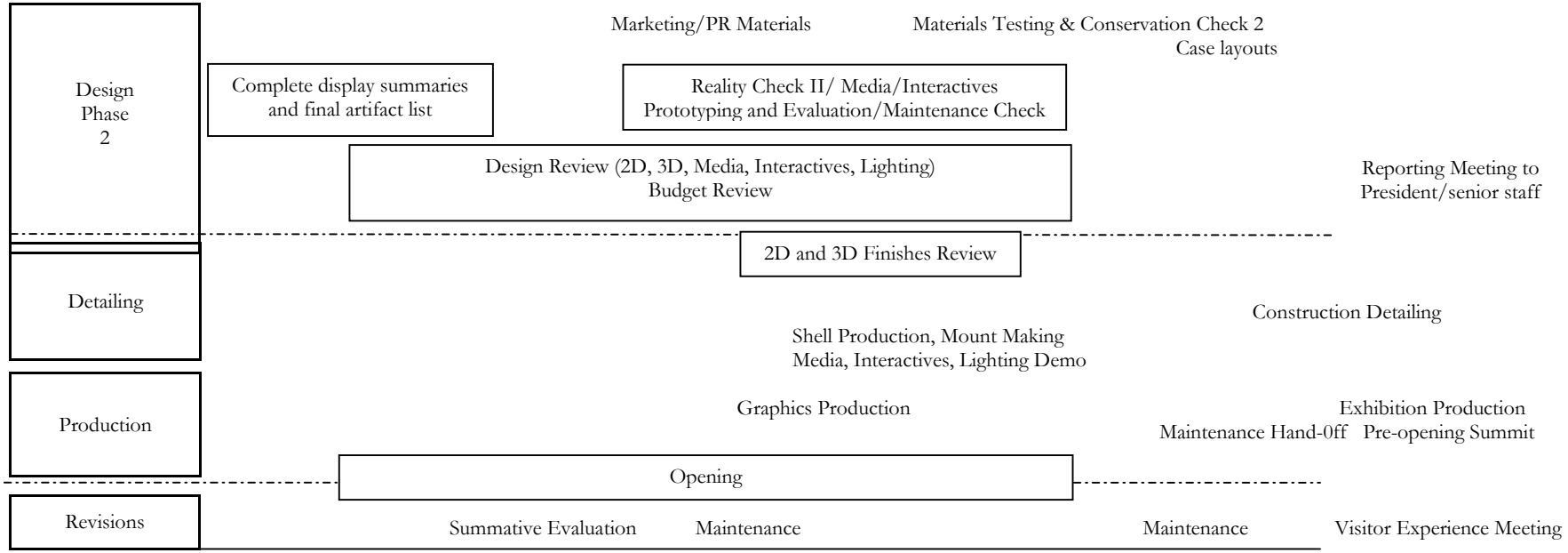
Appendix V

THE FIELD MUSEUM EXHIBITION PROCESS

Table of Contents

Overview of Exhibition Process




Design Phase 2
Marketing/PR Materials
Materials Testing & Conservation Check 2
Case layouts
Complete display summaries and final artifact list
Reality Check II/ Media/Interactives Prototyping and Evaluation/Maintenance Check
Design Review (2D, 3D, Media, Interactives, Lighting) Budget Review
Reporting Meeting to President/senior staff
2D and 3D Finishes Review
Detailing
Construction Detailing
Shell Production, Mount Making
Media, Interactives, Lighting Demo
Production
Graphics Production
Exhibition Production
Maintenance Hand-0ff
Pre-opening Summit
Opening
Revisions
Summative Evaluation
Maintenance
Maintenance
Visitor Experience Meeting

Exhibition Design and Production Milestones

Core Team

- Project Administrator
- Content Specialist
- Exhibition Developer
- 2D Designer
- Exhibition Designer
- Production Supervisor
- Exhibitions Conservator
- Exhibitions Registrar
- Media/Interactives Shop Supervisor (as appropriate)
- Lighting Designer (as appropriate)
- Media Producer (as appropriate)

Milestone Reviewers

- Vice President, Exhibitions and Education
- Manager, Exhibition Coordination
- Manager, Operations
- Manager, Exhibition Development
- Manager, 2D Design
- Manager, Exhibition Design
- Manager, Exhibition Production
- Manager, Exhibition Maintenance
- Assistant Manager, Exhibition Development
- Mount Shop Supervisor
- Education Project Coordinator for Exhibitions
- Manager, Teacher/Student Programs (as appropriate

MILESTONES

Managers' Scope of Work and Feasibility Check

Objectives:

- Set clear scope of work for Core Team.
- Ensure that scope of work is feasible for budget.
- Assign Core Team members.

Deliverables:

- Rough sketches and floorplans if necessary
- Bullet-pointed list of expectations
- Articulated institutional strategy

Attendees:

- Vice President, Exhibitions and Education
- Manager, Exhibition Coordination
- Manager, Operations

- Manager, Exhibition Development
- Manager, 2D Design
- Manager, Exhibition Design
- Manager, Exhibition Production
- Manager, Exhibition Maintenance
- Project Administrator
- Content Specialist, as appropriate

Core Team Orientation

Objectives:

- Introduce Core Team and Milestone Reviewers to exhibition.
- Deliver scope of work, schedule, and budget.

Deliverables:

- Schedule of Values (SOV)
- Schedule Overview
- Content Overview
- Artifact Information
- Target Audience
- Institutional Strategy
- Draft of Object List

Attendees:

- Core Team members (see page 4)
- Milestone Reviewers (see page 4)
- Led by Project Administrator

CORE TEAM MEETINGS BEGIN

Design Concept Direction

(Only necessary for major exhibitions and in-house designs)

Objectives:

- Establish mood and concept and gain approval to explore design direction.
- In the event that the logo/exhibition identity needs to be or has been designed for advanced marketing purposes, the 2D Designer’s concept can help to inform the 3D design direction.

Deliverables:

- Preliminary Presentation of ideas and sketches for all sections

- Thumbnail sketches, clippings, etc.
- Early concepts for media/interactives

Attendees:

- Core Team
- Milestone Reviewers (see page 4)

Media and Interactives Check

Objectives:

- Ensure all hardware is appropriate for message, compatible with Museum technical standards, and affordable.
- Ensure that cost of media/interactive content production is within scope of project.

Attendees:

- Core Team (see page 4)
- Manager of Media Services
- Manager, Operations
- Manager, 2D Design
- Manager, Exhibition Design

Conservation Check 1

Objectives:

- Review artifact list for conservation needs and call out concerns.
- To review proposed materials for exhibition design, if applicable.
- Assess mountmaking needs.
- Review photobook progress.

Attendees:

- Core Team (see page 4)
- Manager, Operations
- Exhibitions Conservator
- Registrar
- Mount Shop Supervisor

Reality Check I

Objectives:

- At 70% to address where 2D and 3D design stands in relation to budget.
- Daily meetings between Designers and Production Supervisor lead to the Reality Check where the Production Supervisor is expected to have a good sense that the exhibition being designed can be built within budget and

schedule. This information is crucial to receiving approval at the Design Preview.

- The Core Team should arrive at intended directions and continue making decisions about the direction of materials.
- The Core Team may be called on at this point to modify or change exhibition content and/or design in order to stay within budget while delivering the content in the most effective way possible.
- This milestone should prove that the manner of production selected for the exhibition could realistically be built given the time and money available.

Deliverables:

- Working knowledge of the materials proposed for each display
- Drawings for all sections
- Space plan
- Sample materials and finishes approved by Conservation
- Visual aids
- Understanding of impact of exhibition on exhibition maintenance budget/labor

Attendees:

- Core Team (see page 4)
- Manager, Operations
- Manager, Exhibition Production

Maintenance Check I

:

Objectives:

- Ensure maintenance issues are addressed during Design Phase 1.
- Discuss ideas for exhibition cases, elements, surfaces, and materials.
- Investigate maintainability of proposed ideas for cases, elements, surfaces, and materials. Exhibition Maintenance makes recommendations and suggestions. Information gathered allows for development of first draft of maintenance budget for exhibition.

Deliverables:

- Proposed solutions or changes for maintainability of exhibition cases, elements, surfaces, and materials.
- Exhibition layout and applicable drawings.
- Proposed plans for audio-visual, computers, lighting, and interactives.

Attendees:

- Manager, Exhibition Maintenance
- Production Supervisor
- Exhibition Designer
- 2D Designer (when applicable)
- Lighting Designer (when applicable)
- Media/Interactives Shop Supervisor (when applicable)

Design Preview(s)/ (3D, 2D, Media and Interactives, Lighting)

(Note: Some exhibitions may require more than one Preview.)

Objectives:

- Obtain approval for the look, feel, and flow of all elements of the exhibition, and assure that exhibition is on budget and on schedule.
- Review concept and delivery mechanisms for content appropriateness and visitor experience for all elements.
- Review general look and feel of design interface of media/interactives.
- Ensure that the design delivers the information derived from the Display Summaries generated by the development staff.
- Preview placement of artifacts, photos, labels, graphics, and props.
- Approve floorplan to ensure adequate throughput for the exhibition to meet attendance targets.

Deliverables:

- Drawings and renderings of all content
- Elevations
- Floor plans, and/or models that clearly define the elements of the display, including placement of graphic elements and location of artifacts.
- Preliminary text layouts
- Preliminary banners
- Preliminary storyboards for media and interactives
- Preliminary lighting plan
- Schedule of Values (SOV)

Attendees:

- Core team (see page 4)
- Milestone Reviewers (see page 4)

Materials Testing and Conservation Check 2

(Takes one (1) month and culminates in results reported at team meeting.)

Objectives:

- Review proposed materials for exhibition design.
- Exhibition materials are turned over to Exhibitions Conservator for testing at Preview. Testing takes one month. Must begin at least six weeks before Finishes Review.

Attendees:

- Core Team (see page 4)
- Manager, Operations
- Mount Shop Supervisor

Case/Artifact Layouts and Review (2 steps)

Objectives:

- Review all case/artifact layouts to ensure location and orientation of all artifacts and props on the base or background is 1) attractive; 2) curatorially accurate; 3) a feasible scope of work for the mountmakers; 4) conservationally sound.

Deliverables:

- Drawings with accurate plan views as well as front and side elevations that show proper orientation of artifacts and props
- Drawing appear in two steps—designer circulates draft of layouts for response then circulates final, which incorporates all comments to draft

Attendees:

- Vice President, Exhibitions and Education
- Mount Shop Supervisor
- Exhibitions Conservator
- Exhibitions Registrar
- Content Specialist
- Manager, Exhibition Design
- Project Administrator
- Exhibition Developer
- Exhibition Designer

Reality Check II

Objective:

- At 70%, address where entire design stands in relation to budget.
- Review how exhibition design will impact maintenance budget and labor after opening.

Attendees:

- Core Team (see page 4)
- Manager, Operations
- Manager, Exhibition Production
- Manager, Exhibition Maintenance

Maintenance Check II

Objectives:

- Ensure that maintenance issues are addressed during Design Phase II.
- Develop resolutions for maintainability of exhibition through discussion of plans and drawings for exhibition cases, elements, surfaces, and materials.
- Solve outstanding issues regarding exhibition maintenance, i.e. access, cleaning, pest control, ability to repair, cost to maintain, etc. Information gathered allows for a precise estimate of exhibition maintenance costs.

Deliverables:

- Maintenance budget (annual, after exhibition opens, with specifications on lifespan of major elements)
- Specific solutions or changes in design for maintainability of exhibition cases, elements, surfaces, materials, accessibility, cleaning, pest control, ability to repair, and cost to maintain
- Specific plans for audio-visual, computers, lighting, and interactives

Attendees:

- Manager, Exhibition Maintenance
- Production Supervisor
- Exhibition Designer
- 2D Designer (when applicable)
- Technical manager/supervisors

Design Review (3D, 2D, Media and Interactives, Lighting)

Objectives:

- Get sign-off on all elements of final design and budget.
- Be able to give green light to Production for construction to begin.

- Sign off on final mechanical/hardware and software/media.

Deliverables:

- Renderings
- Models
- Finished floor plan and elevations
- Final placement of all artifacts and graphic panels
- Material samples
- Final text hierarchies
- Banners/wayfinding
- D&P revised SOV
- Shell specifications
- Final hardware/mechanical specifications
- Final storyboards
- Results of prototyping or formative evaluation
- Media/interactives/lighting demo
- Case layouts, unless prior arrangements have been made
- Final label copy
- Final artifact list

Attendees:

- Core Team (see page 4)
- Milestone Reviewers (see page 4)
- Manager, Media Services

Finishes Review

Objective:

- Present for approval all (visible) finishes planning on being used in an exhibition.

Deliverables:

- Samples of all finishes, i.e., material samples including paint colors, faux finishes, wood finishes, metal samples, etc. (Note: all materials need pre-approval from Conservation.)

Attendees:

- Vice President, Exhibitions and Education
- Manager, Exhibition Coordination

- Manager, Operations
- Manager, Exhibition Development
- Manager, 2D Design
- Manager, Exhibition Design
- Manager, Exhibition Production
- Manager, Exhibition Maintenance
- Core Team (see page 4)

Construction Detail Drawings Hand-Off

Objective:

- Accept and hand off all detail drawings to build all components of the exhibition.

Deliverables:

- A full set of construction drawings for all exhibition elements to be built. Examples include:
- Drawings architectural in nature: wall building, plumbing, paint elevations, electric, etc. Plates should be accompanied with specifications and should be dimensioned no smaller than
  1/8" =1'0" scale.
- Furniture drawings with specifications and dimensions
- Painter's elevations for mural work
- Lighting plots where needed.
- Drawings showing the location of graphics

Attendees:

- Exhibition Designer
- Production Supervisor
- Exhibitions Conservator
- Others as needed

Media and Interactives Demonstration(s), Maintenance Hand-Off

Objective:

- Two weeks prior to opening, transfer information, specifications, and materials to ensure proper maintenance of exhibition.

Deliverables:

- Completed Exhibition Maintenance Form

- Paint list
- Materials/hardware list (vendor info, finishes, back-ups; audio-visual (A/V) specifications (electrical, back-up software, breaker location)
- Lighting specifications (hook-ups schedule, ON/OFF info, electrical, and breaker location)
- Computer specifications (electrical, back-up software, breaker location); access info (keys hand-off)
- Opening Week schedule
- Contact info (Project Administrator, lender contact telephone numbers)
- Maintenance Staff Walk-Thru

Attendees:

- Production Supervisor
- Exhibition Designer
- 2D Designer
- Project Administrator
- Exhibitions Conservator
- Exhibitions Registrar

OPENING!

Contents of a Project Brief

Institutional Goals

A. Communication Goals
B. Academic Goals
C. Marketing Goals
D. Education Goals
E. Financial Goals

Administration and Project Development Plan

A. Staffing
B. Advisory
C. Schedule

Market Overview

Market/ Audience Research

Exhibition

D. Exhibition Philosophy
E. Content Themes/Outlines
F. Concept Bubble Plan
G. Thumbnail Sketches/ Key Descriptors
H. Artifact Types, Space Plan

Educational Plan

Research/ Collections/ Goals

Inter-Department Coordination

I. Sponsored Programs
J. External Affairs
K. Institutional Advancement
L. Public Services
M. Auxiliary Services

Project Budget

Printed Materials: Description and Timing Process

1. Project Brief

- **What:** Document on which decision to proceed is based. Contains outline and impact for all key departments. Exhibitions create a portion of the brief that includes communication goals, content outline, thumbnail sketches, budget, and schedule for the exhibition.
- **When:** At conclusion of proposal phase, before anything else gets produced.
- **Who:** Exhibition Developer, Project Administrator, and Content Specialist(s)

2. *Grant Proposal*
    - **What:** Project Brief tailored for specific funding agencies or presentations.
    - **When:** At conclusion of proposal phase, following approval of Project Brief. Can be prior to serious design involvement. Sketches may be produced through designated team designer or through contract designer.
    - **Who:** Project Administrator, Content Specialists, Exhibition Developers, Education, and Exhibition Design.

3. *Fundraising Materials*
    - **What:** For corporate/individual fundraising. Uses Project Brief and Grant Proposal materials, but presented in a more pared down and attractive way.
    - **When:** Anytime following approval of Project Brief.
    - **Who:** Project Administrator, Exhibition Developers, 2D Designer, and Institutional Advancement.

4. *Booking Materials (as necessary)*
    - **What:** To sell the exhibition. Marketing oriented; sells exhibition to potential host venues. Contains description and specifications of exhibition. Gives a good sense of the exhibition and its mood/flavor; includes square footage, number of artifacts, security and environmental requirements, tour sponsor, costs, other relevant information.
    - **When:** Anytime after Project Brief.
    - **Who:** Project Administrator, Exhibition Design, 2D Designer, and Exhibition Developers.

5. *PR Materials*
    - **What:** Exhibition identity, “ingredients” of press kit.
    - **When:** One year in advance of opening preferred; no later than six (6) months prior to opening.
    - **Who:** Project Administrator, 2D Designer, and Public Relations.

Exhibition External Identity/PR Process

Pre-Positioning

Meeting

Objective:
•Introduce group to variables affecting design of logo/ identity/images (external identity).
•Ensure that logo/identity/images accurately reflect FM point of view.

Deliverables:
•Available images
•Existing logo, if any
•Restrictions from organizer, if any
•Exec strategy recap

Attendees:
•Dir, Sponsorship
•Dir, Advertising
•VP, Exhibitions and Education
•VP, Business Enterprises
•Project Administrator
•Mgr, Exhibition Coordination
•Mgr, 2D Design
•Web Master
• Mgr, Membership

Identity

Preview

Objective:
Sign off on look/feel of external exhibition identity and type treatment.

Deliverables:
•At least two options
•Demonstration of flexibility (horizontal/ vertical)
•Colour and black and white
•Signature images

Attendees:
•Core Team
•Milestone Reviewers

Identity Review (if needed)

Objective:
Sign off on external identity components and type treatment.

Deliverables:
•Type treatment and signature images (horizontal/vertical)
•Colour and black/ white

Attendees:
•Core Team
•Milestone Reviewers

PR Identity Selection

Objective:
PR director to give input on identity.

Deliverables:
At least 2 choices of the following, as appropriate:

•Logo/Identity
•Signature and toolkit images
•Press kit folder
•Sticker
•Letterhead
•Street banners

Attendees:
•Director, PR
•Project Administrator
•2D Designer

Positioning

Meeting

Objective:
•Finalize logo/identity, signature image, tool kit.
•Set directions for Advertising.
•Set directions of Marketing messages.

Deliverables:
•Logo/identity, tool kit
•Signature marketing image
•Marketing messages
•Preliminary advertisement

Attendees:
•Director, Sponsorship
•Director, Advertising
•VP, Exhibitions and Education
•Project Administrator
•Manager, Exhibition Coordination
•Manager, 2D Design,
•Manager, Web Publishing
• Manager, Institutional Advancement

Building Banner Review

Exhibition Graphics Review

Objective:
Sign off on exhibition graphics

Deliverables:
•Graphic schedule and budget
•Representative photo selection list

Attendees:
•Core Team
•Milestone Reviewers

Exhibition Development Process

Project Brief

Review

Objective:
• Define goals, content and parameters for exhibition.

Deliverables:
• Project Brief includes:
• Institutional Goals
• Communication Goals
• Content Themes/Outline
• Concept bubble plan
• Thumbnail sketches
• Artefact types
• Market overview
• Budget
• Preliminary space plan
• Admin. and Advisory Plans
Staffing and Implementation plans
• Web site goals

Attendees:
Senior Management

Display Preview Document

Done in conjunction with Design Concept Direction II

Objective:
• Approve display approaches and design concepts.

Deliverables:
For each exhibition area:
• Revised content outlines
• Preliminary presentation ideas
• Draft artefact list
• Area concept sketches
• Preliminary audio tour outline

Attendees:
• Core Team
• Milestone Reviewers
• Exhibition Community Partnership Administrator

Draft Display Summaries

Objective:
Streamline content; define spatial needs, information flow, and display ideas

Deliverables:
• Topic paragraphs (dummy label copy) for each message
• Messages arranged spatially to indicate order and flow
• More refined artefact list
Preliminary outline for Web content (in some cases—in larger shows this step comes after Display Summaries)

Audience:
Core Team-Boards presented in context of team meetings.

Display

Summaries

Objective:
Deliver to Exhibition Design all information necessary to define each display– final content, parameters, and artefacts.

Deliverables:
Display summary for each display contains:
• Main messages
• Artefact, specimen list
• Prop list
• Photo/ Illustration list
• Placement instructions for artefacts/props, etc.
• Label summary
• Rough draft labels

Audience:
• Core Team
• Milestone Reviewers

Final Text and

A/V Scripts

Objective:
Produce final label copy for all displays and draft scripts for all A/V elements

Deliverables:
Label copy, edited, reviewed, proofed and finalized

Audience:
• Core Team
• Vice President, Exhibitions and

Education
• Manager, Exhibition Development
• Manager of Exhibition Coordination

Review of audio tour text

• Review stop list
• Review audio copy
• Review audio recording
Attendees:
• Content Specialist
• Vice President, Exhibitions and Education
• Manager, Exhibitions Coordination
• Director of Public Services
• Manager of Education Programming

Guidelines for Writing and Review of Label Copy

Step	Notes	Label Copy Stage/Status
1. Set basic label hierarchy and lengths with 2D Designer.	If not using a predetermined label hierarchy, Exhibition Developer should think about the interpretation enough to give the 2D Designer sample drafts of the main types of labels envisioned. Exhibition Developer and 2D Designer should use these drafts to develop the label hierarchy together. Once label lengths are determined, stick to them. You can make an exception now and then, but do this only in rare instances.	
2. Find out about your Content Specialist's schedules when setting your label schedule.	The curators and other Content Specialists are frequently away doing research. Find out when they will be away and if they will be reachable. Set the review schedule to work around theirs as much as possible. If it turns out they absolutely can't review some batches, ask them to suggest another reviewer. Make sure reviewers understand the whole process used to write, review, and finalize copy. It's important that they understand when input is needed, AND that input after a deadline is not possible.	
3. Draft labels from a detailed content outline.	Labels should flow from a pre-determined content outline. This outline should be discussed with and reviewed by your Content Specialists. Keep checking against this outline while writing to make sure you're covering the main points, but not distracting visitors with superfluous information.	
4. Write draft labels.	When writing, don't use the full width of the paper. Set margins to a shorter line length. Setting the right margin at 3" rather than 1" will give a better idea of the number of lines the label will take up and how dense the copy will appear to visitors. Keep the length of drafts as close as possible to the label specifications. For a big exhibition with many labels, divide labels into batches for manageability. (Each exhibition is different. But assuming one or two short labels per page, try to keep batch to no more than 20 pages.)	DRAFT COPY

Step	Notes	Label Copy Stage/Status
5. Decide whether an editor is needed.	In some cases, an editor may be needed to work with the label copy to add clarity and a visitor-friendly voice. If no: Go to step 7. If yes: Be as explicit as possible with the Editor about what style of writing you desire. Is it casual? Playful? Formal? Witty? Be explicit with the editor regarding how much latitude they have in re-working the label. Do you want light editing, or full rewriting? Allow about one week for the editor to work with each batch.	1ST EDIT
6. Allow enough time to review the editor's work before sending to full review.	For this step, allow at least two days prior to review: • One or more days for Exhibition Developer to pre-review • One or more days for the editor to make any necessary revisions.	EDITED COPY
7. Send labels for content and readability review.	Determine the sequence of reviews needed for your project. In many cases, you will want Content Specialists to review first, followed by revisions and second review with a broader group. For large exhibitions, send labels out in batches. Don't overwhelm reviewers with too many pages to review. Attach a cover memo telling reviewers what they're reviewing and when reviews are due back. Provide information about the context in which the label will appear. This may include a verbal description, thumbnail sketches, floor plans, etc. If possible, put only one label on a page (or the labels from one exhibition element on a page). This helps reviewers understand what appears together in the exhibition, and what does not. In most cases, the following people should be included in a broad review of label copy: • Vice President, Exhibitions and Education • Project Administrator • Content Specialists • Education Department Contact • One to three "naive" readers When possible, send to more than one content reviewer. Try to allow a full week for review.	REVIEW COPY

Step	Notes	Label Copy Stage/Status
8. Collate review comments and return to editor.	If there are judgment calls or clarifications to be made based on the reviews, Exhibition Developer should make the calls and provide the editor with instructions. Consult with Content Specialists as necessary to make these decisions. Give the editor all the reviews, plus a summary copy from the Exhibition Developer with directions for how to revise the copy.	FINAL EDIT
9. Make revisions to copy based on reviews.	Make revisions to label copy as indicated by reviews and discussions with Content Specialists. Double check the revised copy before finalizing. If there were major comments, consider a quick re-review of those labels with a few key people. Have copy proofread before finalizing.	PRELIMINARY FINAL COPY (PFC)
10. Finalize Copy.	Deliver to 2D Designer, both electronically and by hard copy.	FINAL COPY
11. 1st typeset review.	Send to Vice President, Exhibitions and Education, Exhibition Developer, and Project Administrator for review.	TYPESET 1
12. Second and final typeset review.	If major substantive changes, send to Vice President, Exhibitions and Education, Exhibition Developer, Project Administrator, and Proof-reader for last review. If no substantive changes, send to Exhibition Developer and Project Administrator for review	TYPESET 2
13. Design Final Copy.	If there are other batches, return to step 2. If this is the last batch, celebrate!	DESIGN FINAL

NOTE FOR ALL STAGES OF LABEL COPY:

Add footer on all pages of each batch to indicate the stage: Draft, 1st Edit, Review, 2nd Edit, PFC or Final. This helps assure that you won't mix up the different stages. It also is essential to indicate the **date** in this footer as well.

Press Release and Advertisement Process

STEP 1

Public Relations (PR) develops a draft press release, drawing from information provided by the Project Administrator as well as other internal and external sources. This information should include accurate credit information to be included in the press materials. It is at this time that the Project Administrator should bring up any sensitivity issues or concerns about how the message should be presented.

STEP 2

PR gives draft press release to the Project Administrator, who distributes it for internal review to the Curator, Exhibition Developer, Director of Sponsorships, Manager, Exhibition Coordination any other appropriate team members. Field Museum team members have five (5) business days to request any changes. [Must ask Pat Kremer.]

STEP 3

Any changes should be directed to the Project Administrator who forwards them to PR.

STEP 4

PR will revise and return copy within 24 hours of receiving changes. Project Administrator will then route copy to appropriate person from lending institution and/or sponsors if necessary.

STEP 5

The Project Administrator receives comments back from the lending institution. The Project Administrator reviews these comments to make sure they are clear and legible and to determine if they raise significant concerns. The Project Administrator should address any concerns and make the final determination.

STEP 6

PR receives comments back from Project Administrator and incorporates the changes. PR is responsible for amending the press release to include the changes, as well as proofing the final copy for accuracy and completeness.

STEP 7

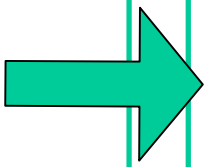
Public Relations confirms pricing with Special Projects Director for Finance (Harriet Resnick) before press kit is released.

Exhibition Interdepartmental Coordination Process

Executive Strategy Meeting

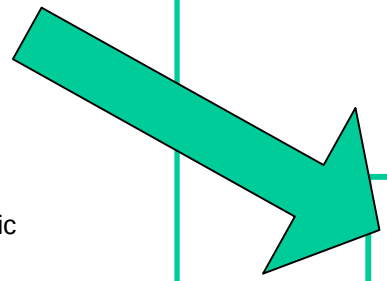
Attendees include:
•Chaired by Vice President, Exhibitions and Education
•Vice President, Business Enterprises
•Director, Public Relations
•Director, Security
•Director, Guest Services
•Content Specialist
•Manager, Exhibition Coordination
•Vice President, Institutional Advancement
•Director of Sponsorship
•Director of Membership and Auxiliary Groups (Institutional Advancement)
•Vice President, Information Technology
•Vice President, External Affairs
•Budget Coordinator
•Education Programming Coordinator(s)
•Public Relations Coordinator
•Opening Week Coordinator

Objectives:
•Preview Exhibition (Project Administrator): description, dates, location, organizer, etc.
•Determine key messages across our 4 constituencies (Group): general public; academic community; donors and friends, government agencies and foundations.
•Determine level of web presence and goals.
•Determine target audience: primary, and secondary, create attendance projection and ticketing plan.
•Create or review positioning statement and PR/Marketing Plan (Dir. PR).
•Discuss education programming (Director of Education).
•Identify Sponsorship Opportunities (Director of Sponsorship).
•Identify merchandising, special events, and food service opportunities (VP Business Enterprises).
•Sketch out opening week: elements, players, events.
•Determine budget/investment strategy.
•Identify community consulting group.
•Determine Working Team and Task Force Issues and owners.



Positioning Meetings

Determine external identity, marketing messages, and advertising approach. Occurs about ten (10) months out.



Scoop Meeting

Public Lecture, open to entire Museum, to inform about exhibition, position, and

strategy.

Occurs approximately six (6) months before

exhibition opens. Occurs twice per year, batching information about exhibitions.

Working Team Meeting(s)

Occurs soon after Executive Strategy Meeting and includes those designated to be on the Working Team from all affected Museum departments. Frequency of team meetings will depend on timing and complexity of the exhibition.
Project Administrator chairs these meetings to implement strategy and work through all operational issues. The group:
Determines owners and members of task forces.
Establishes schedule and deliverables.
Discusses capacity flow in exhibition.
Discusses queuing flow, ticketing, events, opening, programs, etc.
Ensures all support materials are consistent with image and receive proper sign-off.
Identifies open issues.
Ensures updates of on-line plan, schedule, and ensures project is on-budget and on-strategy.
If community partnership(s) will be developed, includes Exhibition Community Partnership Administrator for first Working Team Meeting.

Minutes are taken and circulated by Project Administrator.

Task Force Meetings

Owners set up and run their task force meetings, recurring as needed. Project Administrators attend all Task Force meetings. Sample Task Forces are for audio tour, difficult queuing patterns.

Conflict Resolution Meetings

As needed, Project Administrator will bring unresolved issues from the Working Team Task Force meetings to Vice President, Exhibitions and Education Programs for discussion.

Pre-opening Summit

Invitees are the same as Executive Strategy Session, plus Working Team and may include Museum President and the Director of Human Resources. Presentation must occur approximately two (2) months before opening, but can also occur periodically so that complicated logistics and open issues can be resolved.

Project Administrator and each Working Team member presents plans and designs for their department, reports on progress of implementation of strategy and cover any open issues.
Any conflicts that arise are resolved or identified for resolution.
Group ensures that investment strategy is intact.

Opening

Visitor Experience Meeting

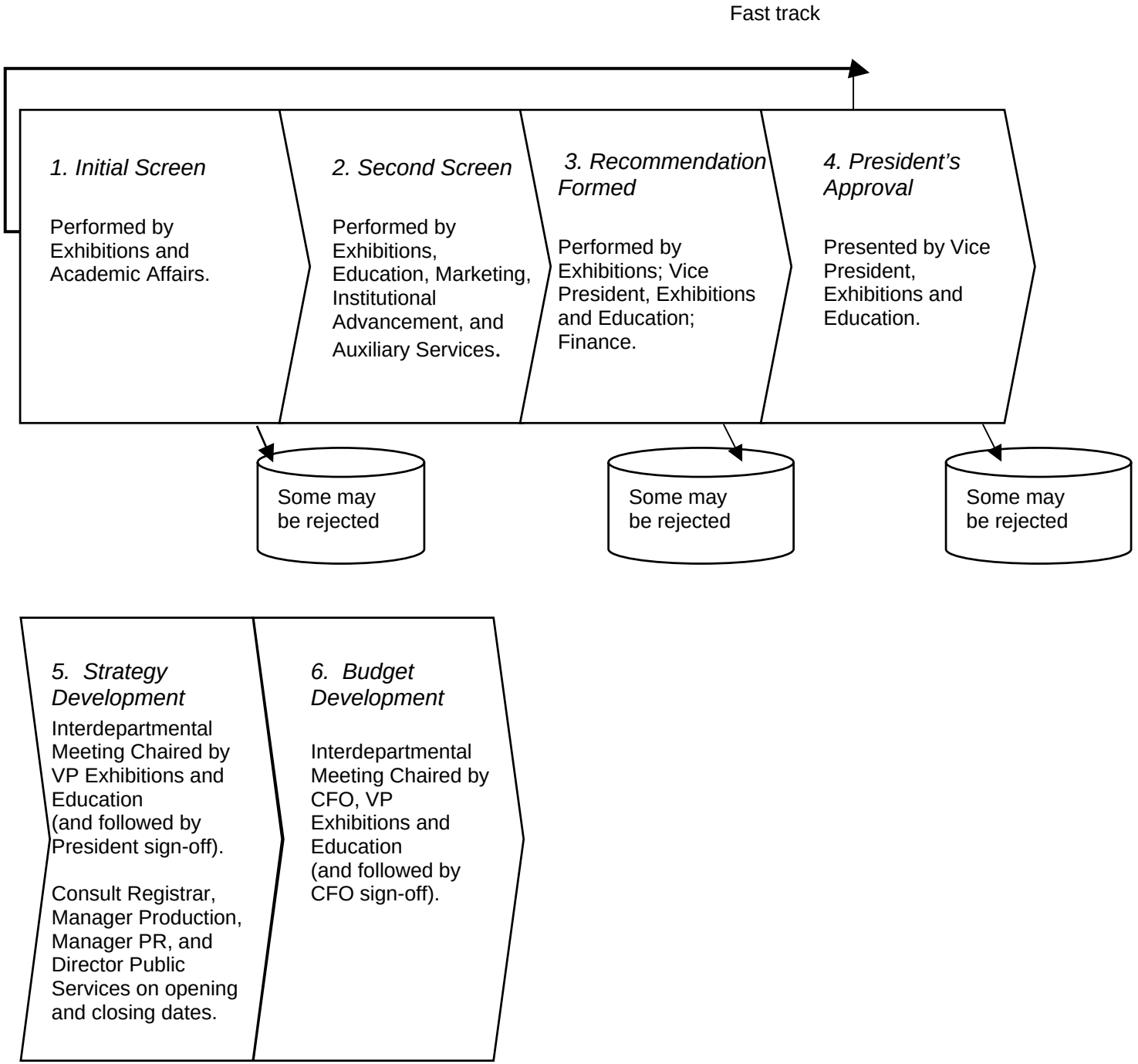
Project Administrator schedules. Participants include Working Team and directors. Always the Monday after opening and then as needed to resolve any open issues.

Meeting evaluates frontline and operational processes such as line management, ticketing, security, crowding, attendance, and special events. Modifications to the exhibition will be determined and implemented as needed.

Summative Evaluation Report

Participants are working team directors. Goal is to prepare report for executive review, if grant-funded or required.

Temporary Exhibition Selection and Implementation Process Flow



Development Process for Temporary Exhibitions Web Sites

For each Exhibitions web site, the Project Administrator will act as project manager.

The exhibition's Exhibition Developer (or Project Administrator, if project has no Exhibition Developer) will provide content.

For "Planning Your Visit" pages, Public Services will be responsible for content and project management.

Webmaster will need a minimum of eight (8) weeks to build temporary exhibition sites. Temporary exhibition sites will go live when tickets go on sale (if applicable), if not before.

Web Site Planning Meeting

Occurs after exhibition's Design Preview. Initiated by Project Administrator. This meeting should batch multiple web sites, if possible.

Roster of invitees or reviewers:

- Project Administrator
- Vice President, Exhibitions and Education
- Manager, Exhibition Coordination
- Exhibition Developer
- Webmaster
- 2D Designer
- Content Specialist
- Education Project Coordinator for Exhibitions

Exhibitions will bring (if available after Design Preview):

- Sample label copy
- Catalogue
- Logo/identity
- Signature image(s)
- Tool kit images
- Credit lines and sponsor logos
- Exhibition color palette
- Samples of exhibition graphics

Education will bring:

- Information about scope of events, public programs, and teacher programs

- Draft text

Attendees will:

- Discuss scope, budget, timeline, availability of images and text.
- Identify reviewers.
- Clearly identify web site size and its elements.
- Determine whether to develop content in house or to hire contractor.
- Seek input from Content Specialist on content.

After this meeting, Project Administrator notifies Public Services and Group Sales regarding deadline for Planning Your Visit and Hotel Packages information.

Content and Architecture Planning Meeting initiated by Project Administrator.

Roster of invitees:

- Project Administrator
- Exhibition Developer
- Webmaster
- 2D Designer (will not need to attend if all necessary exhibition graphics were relayed in previous meeting)

Attendees will create a detailed outline for the web site, and verify timeline for its production.

At this point, Webmaster must have signature and other available images, credit lines, and logos in hand.

Text is Created and Routed for Approval	**Site Design**
(Minimum 20 days, possibly more if created by outside contractor)	(Minimum 15 days)
Exhibition Developer (or Project Administrator, if no Exhibition Developer) will write text, site architecture and receive sign-off from Content Specialist.	Webmaster will develop and begin site design.
Revise text based on Content Specialist feedback.	
Once finished, Project Administrator will get approval for content from organizer.	

Layout Checkpoint initiated by Project Administrator.

Roster of invitees:

- Project Administrator
- Vice President, Exhibitions and Education
- Vice President and Chief Information Officer
- Manager, Exhibition Coordination
- Exhibition Developer
- Education Project Coordinator for Exhibitions
- Webmaster

Webmaster presents home page and sample inner page, and receives feedback.

Project Administrator will route credit line placement separately with Institutional Advancement (IA).

Also at this meeting:

Approved Content Is Turned Over to Webmaster

Exhibition Developer (or Project Administrator, if no Exhibition Developer) turns over approved content to Webmaster. This includes all text for Planning Your Visit, hotel partners, Events and Programs, and teacher materials

Web Site Production

(15 days)

During production:

Project Administrator and/or Exhibition Developer meet with Webmaster at appropriate time to determine image placements.

Review of Test Site

(5 days)

Reviewers of test site will be:

- Project Administrator
- Exhibition Developer
- Education Project Coordinator for Exhibitions
- Content Specialist
- Manager, Exhibition Coordination

- Vice President, Exhibitions and Education

Project Administrator routes corrections to Webmaster for final edits.

Final Edits/Corrections

(5 days)

Webmaster incorporates final edits and completes web site.

External Approval

(5-7 days, depending on exhibition contract)

Project Administrator routes accessible URL of revised site for external approval. Project Administrator provides to Institutional Advancement to route for sponsor(s) approval.

Site Goes Live

One or more months before exhibition opening, entire site goes live. At same time, tickets for exhibition go on sale.

Job Description: The Exhibition Developer

Exhibition Developers work with:

- Curators and other Content Specialists, to develop the exhibition's content;
- Target audiences, to better understand public knowledge and expectations regarding the topic; and
- Other exhibition team members, to develop effective methods of presentation.

Specific responsibilities include:

- Builds partnerships with curators, collections managers, and other subject matter advisors, and provides appropriate opportunities for input and review.
- Performs content research throughout process. Researches content details to flesh out and test specific elements and interpretive approaches.
- Organizes content in a clear manner and creates the initial exhibition storyline to serve as team starting point. Throughout process, creates revised storyline/outline documents to reflect team direction and progress.
- Actively participates in a dynamic, back and forth collaboration with design.
- Works with entire team (project administrators, designers, educators, fabricators, media specialists, evaluators, etc.) to explore presentation options and to assess their effectiveness and viability.
- Informs presentation strategies through working with members of the target audiences. Develops and implements visitor research studies.
- Develops artifact/specimen lists, together with Content Specialist(s). Researches artifacts and revises list to reflect team progress and direction. Works with Exhibitions Registrar and Exhibitions Conservator as appropriate to facilitate identification, acquisition, and conservation of objects.
- Provides images and other reference material to help inform design thinking and process.
- Supervises photo researcher. Assures that necessary tracking systems are in place.
- Works with design team to develop label hierarchy and formats.
- Creates label copy and draft A/V scripts, including writing draft text, coordinating edit and review, ensuring necessary translation, and finalizing copy.

Job Description: The Project Administrator

The Project Administrator is both the Museum's internal project manager for temporary exhibitions and the Museum's main contact with outside partners on these projects. S/he is the conduit of information between the exhibition team and other Museum departments. S/he not only coordinates exhibition content development, design, graphics, production and installation, but performs on-going project management including (but not limited to) leading exhibition team meetings, representing the team at Museum-wide and inter-departmental meetings, and ensuring that exhibitions are on schedule and on budget. As needed, the Project Administrator acts as the Museum's spokesperson to the press and media for these exhibitions.

As an Exhibitions Team Member, s/he:

- Reinforces institutional goals for the project and makes sure team is responsive to these goals, which form the starting point in the conception of the project.
- Facilitates the team throughout the exhibition development, design, production and installation process.
- Acts as spokesperson for the team to outside groups, and serves as conduit of information into the team from outside.
- Works closely with Managers and Vice President, Exhibitions and Education to best position team's work within the institution; prepares team and individual team members (as needed) for presentations.
- Facilitates good, positive interpersonal dynamics on the team; works as needed with individuals and the group to help eliminate roadblocks.
- Helps build team spirit and actively seeks activities and opportunities for team building outside of the project.
- Equally supports all team members in their roles of design, production, development, etc. Encourages communication between team members. Ensures quieter team members can be heard. When there are dissenting opinions, encourages team members to clearly articulate their differing points of view and work toward resolution. When needed, drives the team toward decisions to reach closure.
- Organizes meetings and develops agendas, and ensures that all team members are aware of deadlines and specific deliverables.
- Documents decisions and next steps, and notes when team members will bring deliverables back to team.
- Helps guides team to meet budgetary goals.

In addition to these responsibilities, the Project Administrator for outgoing Traveling Exhibitions also:

- Markets FM traveling exhibitions to other potential venues, soliciting new clients and building upon relationships with existing clients.
- Negotiates contracts with clients and tracks host venues' adherence to contracts and payment schedules.

- Reviews potential clients' facilities reports (with Exhibitions Registrar and Exhibitions Conservator), resolving facility issues with clients as necessary.
- Works with host venues to create successful promotions and programs.
- Coordinates with host venues and Exhibitions team members to organize installation, dismantling, maintenance, shipping, and annual refurbishment of traveling exhibitions.
- Creates, assembles, and distributes marketing and hosting materials to clients.
- Represents FM at conferences to seek new clients, publicize traveling exhibitions, and seek new incoming exhibitions.

Job Description: The Exhibition Designer

The role of the Exhibition Designer is to provide well-integrated and engaging solutions for delivering all content and displaying specimens, artefacts, models, interactives and other exhibition related elements within a given space. Each project requires research, a clear understanding of the project's intent (audience, governing thought, requests from upper management, etc.) and the ability to design within the budget and schedule parameters.

The designer is expected to meet all deadlines, providing the tools necessary for effectively communicating her/his designs. The designer is also expected to oversee the work of assistants and provide them with the proper tools (with the manager's help) and information to allow the most effective, and efficient use of their time.

As a team member, the designer is responsible for understanding the content and, early in the process, collaborates with the Exhibition Developer and lead 2D Designer through an exchange of ideas to help determine the course by which the exhibition will unfold. This first takes place in suggesting a series of design schemes for "framing" the subject (for example, the Chocolate exhibition could be done in the form of a ride, a journey, a game a restaurant, a store, etc., the story could flow from the present to the past, or be organized in terms of function, politics, spirituality, etc.). The designer will be particularly interested in content flow and will work with the Exhibition Developer in order to ensure that the unfolding (overall choreography and flow) of the experience is optimized, both in terms of content reception and quality of engagement.

Just as the team relies on the designer for her/his design expertise, the designer relies on the team as a resource for their expertise. The designer will depend on the team, as a whole, for input and feedback on design related issues. Regular, individual meetings should be established (outside of team meetings) for deeper conversations with the Exhibition Developer, the production supervisor, the 2D Designer, the media and interactives shop supervisor and media producer, etc., to discuss issues related to their part of the project. The designer will also work with Conservation to ensure that necessary precautions for artifacts/specimens are met while striving to present our collections in the best possible way.

During the design process the designer is expected to provide sketches, drawings, models, examples, etc. which show a variety of solutions to a given “problem” and actively participate in formative evaluation and prototyping. The designer should be equipped to explain the pluses and minuses of any solution presented in order to reach informed conclusions. Most of these solutions fall into the category of “delivery systems.” Delivery systems include any means (high-

tech, low-tech, or no-tech) of presenting the content and specimen/artefacts provided. The designer ensures that the method of delivery does not conflict, misrepresent, or overpower the message it serves, while also remaining committed to finding the most effective means of engaging the visitor on both an intellectual and emotional level. This includes the use of media (in any form) that provides atmospheric or environmental information, which give the visitor a sense of place, mood and other contextualizing aspects.

The lead Exhibition Designer's responsibility, as it pertains to interactives, is both formal and functional. The designer must ensure that the interactive "fits" into the design vernacular applied to the exhibition. The designer is also responsible for working closely with the media/interactives shop supervisor and media producer, Exhibition Developer, and other team members in exploring possible interactive concepts and designs that optimize choices and trajectories of addressing key (as well as "fun") content issues.

Job Description: The Production Supervisor

Under supervision of the Manager, Exhibition Production, the Production Supervisor becomes an integral part of a project team and provides leadership for all aspects of production department issues and responsibilities. Works with design, development, conservation, and registration staff, and may sometimes be engaged in direct production activities.

Responsibilities:

- Works with Manager, Exhibition Production to produce estimates of materials and labor for various tasks needing to be done.
- Is responsible for tracking the established production budget for exhibits assigned.
- Schedules the work and tasks for projects assigned. Oversees day-to-day operations of fabrication of exhibition components and determines timing for installation of artifacts.
- Manages groups of up to 25 preparators.
- May select, hire, and manage outside contractors for various tasks where appropriate.
- Writes purchase orders and participates in the purchasing process.
- Attends and may initiate project planning and tracking meetings.
- Initiates and conducts production tracking meetings.
- Works with designers, Exhibition Developers, Exhibitions Conservator, Exhibitions Registrar, and Collections Managers to implement and realize exhibition goals. Establishes milestones for deliverables due. Examples include due dates for 3D design, artifact layouts, delivery of 2D graphics for installation, and delivery of artifacts for mounting and installation.
- Suggests and/or provides reasonable design solutions, in collaboration with design group, that are cost effective.
- Provides direct supervision and training for key production staff. Participates in assigning staff to project tasks, setting up crews, designating crew leaders and making other job assignments relative to the project.

- Interfaces with various departments (i.e., FP&O, Housekeeping, Security) in the museum to expedite exhibition production.
- Ensures show opening deadlines are met.
- Participates in employee evaluation, both reward and discipline.
- Develops or helps to develop shop drawings and/or details of exhibition elements.
- Oversees workspace set-up and related health and safety issues.
- Participates in long and short range department planning and policy.
- May be asked to participate in the interview process of those applying for production positions.
- Works with Exhibitions Conservator and Exhibitions Registrar to assure conservation issues are met in the exhibition being produced. Works with collection managers, Exhibitions Conservator, and Exhibitions Registrar to assure proper handling of specimens and artifacts.
- Works closely with Exhibitions Registrars to schedule the arrival and departure of artifacts. Is responsible for load-in and load-out of all exhibition components. Synchronizes staffing plans for incoming and outgoing shipping.
- Interfaces with visiting workers/curators/dignitaries from other institutions.
- Performs other appropriate duties as assigned.

Job Description: The Lead 2D Designer

The lead 2D Designer's main goal is to communicate to the visitor the message and meaning of the exhibition. To achieve this goal the lead 2D Designer works closely with the Exhibition Designer to establish the look and feel of the exhibition and to illuminate the content as delivered by the Exhibition Developer.

Responsibilities:

- Works closely with Marketing and Public Relations to establish exhibition identity and is responsible for maintaining that identity consistently throughout all printed materials associated with the exhibition.
- Establishes information hierarchy.
- Advises Exhibition Developers and Exhibition Designer on word counts, readability, and accessibility issues.
- Provides mock-ups and sketches.
- Art directs multi-media, provides storyboards.
- Works with team to provide budgeting and scheduling.
- Assumes responsibility for procuring quotes and managing outside graphic production vendors.
- Responsible for preparation for design previews/reviews.

- Maintains graphic design standards set by institution.
- Keeps digital catalog of exhibition graphic specifications and files of finished work.

Enhancing the visitor experience with images, written word and multi-media, the best graphic design becomes the guide, voice, and style of the exhibition.

Job Description: The Shop Supervisor, Media and Interactives

In close collaboration with exhibition design teams, Manager, Exhibition Maintenance, and Manager of Media Services, create, maintain, and revise all media and interactives in permanent, temporary, and traveling exhibitions. Activities include:

- Budget and schedule exhibition media/interactives design, production, and installation.
- Provide bridge between Exhibitions and Media Services on planning exhibition technologies and determine (as part of a team) which media elements will be produced in-house and which will be sent to an outside vendor.
- Provide technical expertise and support to Manager, Exhibition Maintenance for maintenance of temporary and permanent exhibition media and interactives.
- Coordinate, with Manager of Media Services, the installation of media elements in all temporary and permanent exhibitions by Media Services technicians.
- Oversee Requests for Proposals (RFPs) and work of additional staff, contractors, or outside firms assisting in media production.
- Upgrade and develop the capabilities of the Media Integration Studio in line with the infrastructure requirements of IT and the content/design needs of Exhibitions.
- Research and identify the best equipment and technologies to meet the needs of temporary and permanent and strategize with team to develop upgrades or replacement plans for existing exhibitions.
- Research A/V tech solutions and prototype.
- Help maintain tech standards in exhibitions.
- Catalogue and archive A/V work produced for exhibitions.
- Report to IT leaders on exhibition technology issues.
- With assistance of interactives staff and maintenance manager, update FileMaker Pro database for all museum interactives maintenance needs. Utilize PDA technology.
- Work with design and education to budget, prototype and supervise fabrication of education interpretive carts.
- Monitor and interactive shop budget and assist with interactives media studio hardware and software needs.

- Work with IT; Manager 2D Design; Manager Exhibition Maintenance; and Manager of Media Services to bring new technology into the museum and also to update existing delivery systems to DVD and MP3 formats.
- Supervise Life Over Time (LOT) Media and Interactives Producer and oversee his/her participation in the following:
- Attending meetings: two (2) weekly team meetings, production meeting, production/design meeting, interactive team meeting, and computer interactive meeting.
- Formulating time and materials budget based on results from prototyping of both mechanical and computer based interactives.
- Scheduling prototyping time to coincide with batch process reviews and to formulate schedule for fabrication and installation of final interactives. Inform production supervisors and production manager of budgetary issues and concerns.
- Assisting design team in researching delivery systems based on 2D and 3D design.
- Meeting with Manager of Media Services to inform him of progress of control room and budget information.

Job Description: Exhibition Media and Interactive Producer

The Exhibition Media and Interactive Producer's primary role is to design and produce (or oversee offsite production), in dynamic back-and forth collaboration with exhibition team, media elements for exhibitions.

His/her secondary role is to budget and implement technology framework and media elements for exhibitions, working closely with the Manager of Media Services and the Shop Supervisor of Media/Interactives.

The tertiary role is to continue to provide centralized production agency functions, if exhibitions production work ever becomes temporarily light.

Responsibilities:

- Provide media production skills (video, audio, presentation).
- Coordinate media and interactive production for Life Over Time (LOT) with web.
- Research technologies solutions and produce prototypes.
- Identify and provide creative solutions to multi-media technology issues.
- Tightly integrate exhibition design and media technologies.
- Research and learn new media technologies for direct application in LOT.

Together with Shop Supervisor, Media and Interactives:

- Oversee work by outside vendors, ensuring that work is done on time, on budget, and is consistent with Field Museum objectives for content and design.
- Team with Media Services technicians to provide technology solutions.
- Report to IT leaders on exhibition technology issues.
- Coordinate, with Manager of Media Services, the installation of media elements in exhibitions by Media Services technicians.
- Upgrade and develop the capabilities of the Media Integration Studio in line with the infrastructure requirements of IT and the content/design needs of Exhibitions.
- Research and identify the best equipment and technologies to meet the needs of exhibitions and strategize with team to develop upgrades or replacement plans for existing exhibitions.

Job Description: The Exhibitions Registrar

The Exhibitions Registrar is primarily and ultimately responsible for all elements and stages for loaned objects to The Field Museum for temporary exhibition. The Exhibitions Registrar is in charge of creating, organizing and maintaining orderly forms, legal documents, files, and retrieval systems associated with the following: loans, packing, shipping, insurance, courier necessities, display requirements and storage pursuant to the care, and custody and control of the objects in perpetuity. The Exhibitions Registrar works closely with each exhibition team to ensure the safety of all artifacts and specimens on loan to The Field Museum.

Additional Responsibilities:

- Updates Museum exhibitions procedures, forms, and policies relating to objects.
- Contributes to planning of all temporary exhibitions.
- Monitors legal and ethical implications and care standards of transactions.
- Insurance liaison with Legal Counsel.
- Applies for Federal Indemnity and Immunity from Judicial Search and Seizure when appropriate.
- Reviews proposed contracts and potential venue facility reports.
- Executes all loan agreements with lending institutions including courier arrangements.
- Initiates security requirements, special object display conditions, and insurance coverage for lenders.
- Coordinates and oversees all shipping of exhibitions components and artifacts, including their delivery and collection, coordinating the logistics with the appropriate Production Supervisor. These logistics include making dock reservations, museum campus notification and driver communication.
- Arranges and oversees the packing and unpacking of all artifacts for temporary exhibition.

- Acts as owner's and/or lender's legal representative to ensure proper methods of handling, movement and storage of artifacts and specimens for temporary exhibition.
- Manages storage space for artifacts and corresponding crates behind Hall Five.
- Performs condition reports with couriers and/or Exhibitions Conservator on all incoming loans to The Field Museum and upon their return to the lender.
- Creates condition report books when appropriate and maintains the information throughout each exhibition, keeps a current object list for each exhibition and assigns object numbers as appropriate.
- Monitors artifact and specimen conditions and environments throughout duration of Field Museum exhibitions tours.
- Prepares estimates for exhibitions budgets regarding shipping, insurance, packing, crating, loan fees and courier costs.
- Negotiates with lenders, packers and shippers for safe and economical transport, packing and crating.
- Acts as a courier to accompany loans and/or exhibitions.
- Trains and assigns other appropriate Field Museum staff for courier duties.
- Compiles and updates FM's facility reports; distributes them to potential lenders.
- Contracts for outside services as needed.
- Approves all framing of objects for exhibition.
- Keeps Exhibitions archives for Registration files.
- Participates in long range planning for projects such as Hall Five and the Loading Dock.
- Maintains confidentiality.
- Represents the Museum in a positive manner to professional colleagues and the outside community.
- Coordinates in-bound and out-bound shipping and condition reporting when images are sent out for framing.

Job Description: The Exhibitions Conservator

The Exhibitions Conservator is a specialist in the preservation of objects on display. The Exhibitions Conservator undertakes and coordinates the examination, documentation, treatment, and preservation of objects requested for Exhibitions from the Anthropology Department and outside lenders.

The Exhibitions Conservator has knowledge of the physical and chemical properties of materials including effects of environmental factors and causes of damage and deterioration.

It is the duty of the Exhibitions Conservator to treat museum and loaned objects according to professional standards, operating under the Code of Ethics and Guidelines for Practice of the

American Institute of Conservation and the Code of Ethics of the American Association of Museums.

Responsibilities:

Administrative Duties:

- Represents the Museum in a positive manner to professional colleagues and the outside community.
- Reviews loan contracts to ensure that the museum can meet requested standards.
- Reviews Standard Facilities Reports from other institutions to ensure that potential venues for traveling exhibitions supply suitable exhibition conditions.
- Consults with Legal Counsel regarding legal documentation and risks to objects and exhibitions.
- Acts as contact with lenders regarding object condition and treatment, as necessary.
- Keeps conservation files on all treatment and documentation required for objects borrowed internally and externally.
- Develops and implements procedures and standards for preventive conservation.
- Functions as contact person for work between Exhibitions and Anthropology Conservation.
- Conducts research on the history, behavior and stability of object material used in Exhibitions.

Active Duties:

- Undertakes and coordinates documentation, examination, and treatment of Anthropology objects requested for exhibition, with the exception of specially funded renovations, which are handled as separate projects with dedicated conservation budgets.
- Surveys artifacts requested for exhibition, determining suitability of objects for display.
- Trains Preparators and recommends methods of handling, proper movement and storage of artwork in conjunction with the Mount Shop and the Anthropology Collections Manager.
- Evaluates environmental and object conditions in permanent and temporary galleries in conjunction with Anthropology Exhibits Collections Manager and Exhibition Maintenance.
- Supports the Exhibitions Registrar by acting as owner’s and/or lender’s legal representative to ensure proper methods of handling, movement and storage of artifacts and specimen.
- Conducts research and stability testing on materials used in exhibit construction.
- Performs condition reports with couriers and/or Exhibitions Registrar on all incoming loans to the Field Museum and upon their return to the lender.
- Couriers loaned artifacts for Anthropology and Exhibitions, as needed.

- Assists in the maintenance of permanent and temporary exhibitions.

Design and Production:

- Consults on renovation and construction in exhibit halls regarding conservation implications and potential impact on collections.
- Contributes to the planning of all Temporary and Permanent exhibitions in conjunction with Exhibition Designers, Exhibition Developers, Project Administrators, and Production Supervisors.
- This includes: specification of environmental requirements in exhibitions halls, light levels, relative humidity, case access, and choices of construction materials for use in exhibit halls and interior case construction.
- Reviews case layouts and design plans regarding conservation implications.
- Consults on preventive conservation concerns with regards to the museum environment, pest management and object storage, display, packing and transportation.
- Is responsible for conservation work requested for incoming, outgoing, and in-house temporary exhibits.
- Contributes to mount design appropriate to the object condition, working with the Mount Shop.
- Determines safe daily maintenance practices and care around the collections, in consultation with Anthropology Collections staff, Exhibition Maintenance, and Housekeeping.

Job Description: The Lighting Designer

The Lighting Designer (LD) is responsible for overseeing and executing lighting in temporary and permanent exhibitions as well as related public areas of the Museum. This may often include the supervision of outside contractors and assistants.

The LD works closely with the Exhibition Designer in order to follow the evolution of a particular exhibition design, staying aware of lighting needs, and providing accurate estimates for lighting costs, thus assisting the Production Supervisor in generating project budgets.

For each exhibition, the LD is expected to provide lighting plans, select and order necessary fixtures and equipment, and call out appropriate light levels for each exhibition (and follow contract-specific light level requirements). These should reflect current Museum lighting tech standards and work within conservation guidelines to ensure the safety of artifacts and specimens displayed.

Lighting design, production, and consultation may extend to the fabrication of interactives and other exhibition components with special lighting needs.

The LD also works with Exhibition Maintenance to preserve lighting throughout the Museum.

Project Administrator Checklist

Organizer's Schedule and Contract
For Exhibitions Organized by Other Institutions

1) If not noted in contract, confirm organizer's schedule.
   - When is Field Museum time slot on tour?
   - Is this confirmed?
   - Does scheduled arrival allow enough time for condition reporting and installation between receipt from previous venue and FM press opening? What date must FM have exhibition to next venue? Can this be met with current closing date? Consult Production Supervisor, Manager, Exhibition Production, and Exhibitions Registrar to confirm.

2) Contract Review
   - Vice President, Exhibitions and Education; Manager, Exhibition Coordination; and Project Administrator read contract from organizer and add comments. For major exhibitions, share entire contract with Director of Sponsorships.
   - Project Administrator sends relevant contract portions to Director of Sponsorship (minor exhibitions); Director, Public Relations; Director, Security; and Vice President, Business Enterprises. Ask them to submit their comments to you in writing by a specific date.
   - Project Administrator also sends contract to Exhibitions Registrar for review and comment, and relevant portions on conservation/climate issues to Exhibitions Conservator.
   - Project Administrator coordinates all contract responses, marks comments in track changes and sends to organizer. It can also save time to have an initial phone call to organizer to discuss large issues. If you do discuss issues on the phone, get all changes in writing.
   - After you and organizer have agreed on all terms, then send edited contract to Legal Counsel for his/her review and changes (send to Dan Eck and cc: Felisia Wesson on major contracts).
   - After all Legal Counsel issues are resolved create a copy reflecting these remaining changes and route for signature. The Vice President, Exhibitions and Education signs contracts with a fee up to $250,000. The Chief Financial Officer (CFO) signs contracts above $250,000. Use contract cover sheet and fill out purchase order form for rental fee and shipping, if prorated. Note payment dates and make plans to ensure payments are made in a timely manner. Vice President, Exhibitions and Education and CFO will require written sign off from Legal Counsel before signing. Attach this to packet.
   - Once both parties sign contract, make a copy for your reference, a copy for the contract binder in the Manager, Exhibition Coordination's office, and send original signed copy to Legal Counsel and Exhibitions Registrar for their files.

3) Contract Issues for Project Administrator to Consider in Review
   - Ensure that dates in the contract make sense—press preview on a Tuesday? Arrival of crates in ample time to install the show? Closing date on a Sunday, or Monday of holiday weekends?
   - Complimentary catalogue copies should be provided—at least enough copies for Vice President, Exhibitions and Education, Manager, Project Administrator, Exhibition Developer, Designers, Exhibitions Registrar, Exhibitions Conservator, and Library.
   - Does organizer send condition reports? When?
   - Is FM responsible for any mount making or do mounts travel with exhibit?

- If exhibition objects come from outside the U.S., did organizer apply for and secure Federal Indemnity and Immunity from Seizure?
- Does organizer provide insurance coverage?
- Are any educational materials provided?
- Is any Public Relations material provided?
- Are any teacher training materials included? Student activities? A suggested speaker list with contact information and fees?
- Are rights-free images provided for use in advertising and other printed materials? If not, can organizer provide contacts for obtaining image rights? Are there any exhibition images that cannot be used in printed materials? Note budget considerations for photo rights or photo researcher.
- Is there a web site FM can link to? If not, request that FM be allowed to create one, if desired.
- Is an audio tour part of the exhibition package?
- Are there any unusual requirements—i.e.—Pearls "quiet period", speakers that must be presented at the Field, existing logos that must be used?
- What staff does organizer provide?
- Are there couriers or curators who travel to FM in connection with the exhibition? Does organizer or FM cover costs for their transportation, lodging, medical/dental insurance, and per diem? Are the guests working (helping with condition reports and installation)? If so, does the contract clearly describe their duties in relation to FM staff duties? Or are they dignitaries that need to be hosted more formally?
- What is the review process for exhibition material that FM creates for the exhibition? Ensure that if organizer must review and approve materials that you specify a turn-around time for their responses, usually five-10 business days.
- Are there special requirements that Production Supervisor should be aware of—very heavy pieces? Installation requirements?
- Are cases and mounts included or does FM need to supply these?
- Are there expenses in the contract not covered by the current budget for this exhibition? Alert Manager, Operations, and Manager, Exhibition Coordination, and identify a solution within the existing budget.
- Does the contract confirm that supplementary documents—installation instructions, etc…-- will follow at a later date if they are not attached to the contract? Confirm date that documents will arrive and what will be included. Follow up.

Exhibition Department Process—Design and Production

4) Budget
   - Get a copy of the exhibition budget from Manager, Operations.
   - Does it cover everything required by the contract?
   - Check participation fees, shipping costs, insurance. Also check timing of any fees—we prefer to have fees as spread out as possible and as close to the exhibition as possible. We prefer to not have a payment due right before arrival of the exhibition, but rather just after arrival. We also prefer to have the final payment after closing.
   - Check for adequate budget needed to host couriers, curators, and guests associated with the exhibition.

- Work with Manager, Operations to reallocate funds within existing budget as needed, before the Orientation.
- Work with Manager, Operations to determine cash flow needed for this exhibition.

5) Schedule
   - Get a copy from Manager, Operations.
   - Milestone dates indicated on the schedule are placeholders. You will work with the department assistant to actually schedule these meetings. You may adjust the dates by a few days on either side, but Manager, Operations, and Manager, Exhibition Coordination must review major changes to the schedule.
   - Make sure that opening, closing, press, and delivery dates match those in contract.
   - Add in all deadlines and deliverables from Public Relations schedule in Graphics section.

6) Exhibition Department Orientation Meeting
   - Schedule this with all participants listed in Exhibition Process Documents, with help of department assistant. Consult the project schedule for the timeframe for this meeting, and be sure to secure participation of those who are difficult to schedule, such as Content Specialist and Vice President, Exhibitions and Education, first. Content Specialists may leave for long periods to do field work.
   - Purpose is to introduce this exhibition to the group, and get buy in from team members, managers and director. Be prepared to give an overview of content, artifacts, story line, and scope of work. Let Content Specialist know which meetings he or she will need to plan to attend.
   - Bring images of the artifacts and installation shots from previous venues.
   - Be prepared to discuss any Field Museum-specific components, research, and text panels to be added to the exhibition.
   - Manager, Operations will distribute schedule and D&P (design and production) budget (but not the entire budget).
   - Talk about how this exhibition fits into Museum's strategy, attendance expectations, if the exhibition is ticketed, who is target audience, and where is the exhibition before FM.
   - Discuss operational issues that will involve the D&P team—exit store, audio tour, ticketing.
   - Discuss organizer/lender requirements for conservation, lighting, temperature and humidity levels, and mount design.
   - Summarize lender's review and approval process and schedule.

7) Exhibit Department Team Meetings and Design Milestones
   - Work with other team members' schedules to set a standing weekly meeting. Determine the level of involvement of the Academic Affairs contact—first meeting, occasional meetings, or every meeting? Make sure Content Specialist(s) is/are fully briefed and the team has buy in before any milestone meeting.
   - Project Administrator sets agenda for these meetings and works with team members to ensure that they have information necessary to meet all Design and Production milestones and are preparing for them appropriately.
   - Project Administrator to be responsible for inviting department managers to join team meetings as needed to help resolve issues that team can not resolve on own.
   - Project Administrator to ensure that Exhibition Team shares design and production issues with other Museum departments as necessary.

- Project Administrator to alert Design and Production team to relevant issues from Working Team meetings.
- After Design Preview, Security, Pubic Services, and Safety reps. join team to review floor plan for safety, flow, and queue concerns.
- During milestone meetings, Project Administrator sets agenda, facilitates discussion, and summarizes former and current open issues, decisions and next steps. Project Administrator keeps meeting on track and on time. Project Administrator preps team so that meeting runs smoothly and team members are prepared with visuals, as necessary. Team members will present their material (exhibition design, graphic design, etc).
- Installation Planning Meeting (before installation)
- Dismantling Planning Meeting (before dismantling)
- "Post-mortem"

Museum-Wide Process

8) Paragraph Overview and Marketing Messages

- When an exhibition is confirmed on the Museum's schedule, write and distribute an overview paragraph. (Depending on the timing of this, Marketing Messages may already exist. If so, the medium-length message is used.)
- Paragraph should include exhibition title, dates, location, as much information as is known on content and artifacts, and any confirmed or planned audiovisual components.
- Send paragraph to Content Specialist for review and input, then to Manager, Exhibition Coordination for approval, then to director. Finally, distribute the approved paragraph to Working Team members and Directors.
- During initial Public Relations meeting clarify who will write Marketing Messages. PR should handle all but smaller exhibitions. Project Administrator will write Marketing Messages for smaller exhibitions.
- Project Administrator should draft talking points about two months prior to opening as a way to prepare for media interviews and insure key messages are communicated. Distribute to PR, Guest Relations, President, Docket group, and any others likely to be interviewed (by the press or by colleagues and contacts) such as Manager, Exhibition Coordination and Vice President, Exhibitions and Education.

9) Public Relations Deadlines

- Contact Public Relations Coordinator for the PR Department schedule for the exhibition and review this with her—not every milestone or deliverable on it applies to each exhibition so you will need to confirm specifics for your exhibition.
- Note dates on which you will need to supply PR with information, logos, and review and circulate press releases for approval.
- Ask if PR will want to do a "B roll" shoot for this exhibition. If so, discuss timing with PR and with Production Supervisor and add to Production/Installation schedules.

10) Executive Strategy Session

- Scheduled by Manager, Exhibition Coordination about 1 to 1-1/2 years out.
- Project Administrator to give preview of exhibition—content and artifact overview, dates, organizer, location. Present images of artifacts, installation shots from previous venues, anything that will give participants an idea of the look and feel of the exhibition.

- Participants discuss the level of attention, time, and resources the exhibition will receive from museum departments, identify target audiences, and key messages. Opening Week schedule discussed. Programming opportunities, strategies, and focus discussed. Discuss need for community group input.
- During this meeting, working team members from each department are identified and a schedule for first working team meeting decided.
- Prior to the meeting, Project Administrator and department assistant set up strategy document templates.
- After the meeting, participants update their portions of the strategy documents.

11) Pre-Positioning and Positioning Meetings

- Goal of these meetings is to unify our branding for each exhibition across all departments. We will review the marketing messages, select a signature image, and a tool kit of support images, and land on a type treatment ("identity") for the exhibition title (black-and-white, color, vertical, and horizontal formats) to be used in all printed pieces, advertising, marketing, and web materials.

A. Pre-Positioning Meeting

- Project Administrator informs group of any special consideration re: image use for this exhibition—limits placed by lender(s) on which images can be reproduced, permission and reproduction costs, existing logo or identity, materials other venues or organizer have created.
- Show a sample of the available images (chosen in consultation with Manager, Exhibition Coordination) and lead discussion on choice of images for signature and tool kit images. Show any pieces that have already been created by outside parties.
- Presentation should be done in PowerPoint. Work with Graphics well in advance of meeting date to provide the scans.
- Group discusses ideal look and feel of identity for the exhibition and the key ideas to be reflected in the marketing messages, based on decisions made in Executive Strategy Meeting.
- Determine all preliminary needs for printed pieces for the exhibition and date by which finished identity will be needed.
- Project Administrator circulates notes on this meeting to all participants to confirm decisions made by the group.

B. Exhibition Department Positioning Steps

- Project Administrator meets with Manager, Manager, 2D Design, and Exhibition 2D Designer to discuss decisions and preferences expressed at Pre-Positioning Meeting, and schedule next steps of work.
- Designer creates several image and text treatment approaches, working with Manager, 2D Design.
- These designs are then previewed for Vice President, Exhibitions and Education, and the Manager, Exhibition Coordination. At least two options are then presented in a separate meeting for Director of PR. After this meeting hold the Positioning meeting.

C. Positioning Meeting

- Present the identity created by Exhibitions 2D Designer and approved by VP Exhibitions and Education, Manager, Exhibition Coordination, and Director of Public Relations and finalize with group.
- Marketing messages are presented and finalized.

D. Tool Kit

- After signature image, tool kit images, and identity have been decided, work with 2D Designer to get these on the shared drive, in the strategy folder for the exhibition.

12) Scoop Meeting

- Usually held twice a year and covering several exhibitions.
- Museum staff and volunteers are invited to attend. Project Administrators present exhibition content and the Field's strategy and a fact sheet for the exhibition. Short segments of videos, slides, publications augment the presentation.
- Project Administrator can also present artifact images, installation shots from previous venues, preliminary floor plans and design drawings, exhibition identity, if designed/available.
- Department assistant usually pulls all presentations together into one PowerPoint.

13) Working Team Meetings

- Frequency of these meetings depends on distance from opening date and complexity of the exhibition. First meeting usually 1 – 1-1/2 years out for major exhibitions, 1 year or less for medium exhibitions. Small exhibitions should be batched into one meeting, as needed.
- Meetings will include representatives from each department. The Content Specialist should be invited to the first meeting and to subsequent meetings when desired by Content Specialist or as needed.
- Project Administrator leads these meetings to ensure that exhibition strategy, as laid out in Executive Strategy Meeting, is implemented.
- Project Administrator also leads efforts to resolve operational issues as they arise, organizing task forces to address these issues.

14) Pre-Opening Summit

- President and members of the docket group are the main audience for the presentations. Must be scheduled far in advance, and is cancelled if John cannot attend. Directors must be invited if they are not members of the working team.
- All presentations to focus on how strategy is being implemented and any open issues; pay particular attention to suggestions or requests made by John early on and how these have been resolved.
- Project Administrator presents exhibition design, floor plan, graphic identity, banners, and advertisements.
- Working Team Members present department plans.
- Project Administrator should make sure that working team strategy document is up-to-date before making copies.
- Be prepared to answer questions on how certain audience segments are being targeted, how donors and exhibition funders are being treated, and opening week details.
- Present snap shots of exhibition web site.

15) Opening Week

- Check in with Exhibition Department and Institutional Advancement opening week contacts on the schedule and arrangements for the first week events.
- Are all visiting curators and others for the exhibition included in opening events?
- Project Administrator should plan to be at the Museum for part of opening weekend to see first hand: gallery conditions, operations of audio tour (if any), flow, turnout, etc.

- Project Administrator and Content Specialist should be prepared to provide interviews to the press in the few weeks before the exhibition opens, during opening week, and for approximately ten days after opening. Make sure vacations don't fall during these periods. Work out a plan with Content Specialist regarding his/her fieldwork and other travel.
- Have key community members and other VIPs been invited, as appropriate? Insure that consulate's office is fully briefed and have saved the date far in advance.

16) Visitor Experience Meeting

- Always held on the Monday after exhibition opens. Invite Manager, Exhibition Coordination and let Vice President, Exhibitions and Education know of the meeting time and date in case she would like to attend.
- Focus is any issues that come up over opening weekend, especially operational—flow, crowding, capacity, security, queuing. Project Administrator polls key working team members (Visitor Services, Membership, Security, etc) for their input and feedback after opening weekend.
- Does anything need to be changed/fixed/addressed to insure success of the exhibition?

17) Scheduling Meetings– the ins and outs of scheduling meetings:

- The department assistant will schedule meetings for you if you: provide her/him with preferred meeting date, any room preference, verify attendee list, and provide a blurb about the meeting content.
- S/he will send out a reminder one day in advance of the meeting.
- It is your responsibility to confirm the proper people have been invited. Please refer to the Process Documents.
- Let the department assistant know how you would like the room arranged and if you will require any AV equipment. Prepare to arrive at the meeting location one hour in advance to test any AV.
- Key museum staff such as the president, Vice President, Exhibitions and Education, and Content Specialists can be hard to schedule. Meetings that include these staff should be planned not less than three months in advance.
- Try to avoid scheduling large meetings for Friday afternoon, or before 9am.
- The comfort level of your audience can impact the outcome of your meeting. Plan ahead.
- Rehearse your exhibitions team well in advance of key presentations. For Pre-Opening Summit presentations, make sure the strategy document is fully updated, key working team members will be there to present, and bring visuals.

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Appendix VI

FATAL ATTRACTION PROJECT TIMELINE

2000

23.03 : Directors meeting (Brussels). Discussion on values, objectives, administrative and legal framework and theme. First idea of Castex.
27.04 : Working group Kick off meeting (Paris).
29.06 : Working group meeting (Leiden). Different possibilities studied.
20-22.09 : Working group meeting (Brussels). Fatal Attraction proposal (P.Koomen) and discussions (with Mark Thery).
28.11 : Working group. Discussions on Fatal Attraction proposals and reactions of scientists.
16.12 : Peter Koomen send to all partners a first version of the synopsis
18.12 : Directors meeting (Brussels) Synopsis approval. Discussions on the agreement and on sponsoring

2001

21-23.02 : Working group meeting (Brussels). Development of Part 1. Some ideas on Part 2 to 4. First budget.
19-20.03 : Working group (Paris). Development Part 2 and Part 3.
22.03 : Directors meeting (Brussels) Discussions on agreement and on the choice of the operator.
03-04.05 : Working group meeting (Leiden) on collections (1st list and sharing of the work) and on part 2 (with Mark Thery)
16.05 : Castex Starting meeting (Brussels)
30.05 : Directors meeting (Paris) Signature of the agreement (annexes include the synopsis, a realisation schedule and a budget) ; Brussels is chosen as operator.

14-15.06 : Working group meeting (Paris) Focus on Part 3 and Part 4.
24-26.07 and 6-8.08 : Working group meeting (Brussels). Development of the Detailed Storyline.
09.08 : Enlarged Executive Committee + Operator (Brussels). Discussion on the Detailed Storyline and on the selection of designer procedure.
21.09 : The detailed storyline in preliminary version is sent to all EC members for evaluation.
28.09 : Detailed storyline evaluation round by the EC.
10.10 : Designer Specifications document (Brussels) Sophie, Camille, Erik Jan, Gisèle Roulleaux
15.10 : Intern Collections meeting (Brussels) G.Lenglet, Yves Gaumétou, Dirk Claessens , Carine, Cécile
24.10 : Production of the final version of the Detailed Storyline
29.10-2.11 : Séminaire Castex à Londres
6.11 : Meeting Cahen + Lenglet
8.11 : Directors meeting (Brussels). Storyline approval, finance, publications, sponsoring
30.11 : Dead-line for receipt of applications
05.12 : Sending proposals (Paris – Leiden – London)

2002

07.01 : Production of the final emergency list
16.01 : EC meeting – selection short-list designer
28.02 : Sponsoring meeting (Paris)
04.03 : Dead-line designers bids.
06-07.03 : Castex seminar on collections (Paris)
12.03 : Publications meeting (Brussels)
13-14.03 : Designers' oral presentations

14.03 : Selection of the designer

11-12.04 : Team meeting on interactive devices (designers, Michèle, Cécile, physicists)

16.04 : Collection meeting : collection team + designers

03.05 : delivery sketch design by designers -> forward to Paris + Leiden

14.05 : Technical visit Leiden (designers, Michèle)

15.05 : EC meeting (Brussels). Sketch design evaluation round

16 -17.05 : Castex annual conference (Brussels)

24.05 : EC meeting (Brussels). Sketch design evaluation round

29.05 : Sponsoring meeting (Sponsoring document ready, discussions on returns and contacts)

07.06 : Directors meeting (Brussels). Sate of work, state of finance, sposnoring, title, publications

11.06 : Technical visit (Paris) (designers, Michèle)

12.06 : Call for tender computer games (negociated procedure)

14.06 : Call for tender graphical design (negociated procedure)

04.07 : Sponsoring meeting

12.07 : Delivery 1st proposals Graphical design and Computer games bids

12.07 Delivery preliminary design

19.07 : 2nd Call for tendre new candidates graphical design

19 + 29 july: EC meeting evaluation preliminary design

14.08 : Choice Multimedia Developper (R2A), selection discussion made by way of e-mail

04.09 : Choice Graphical Designer, selection discussion made by way of e-mail

12.09 : Publications meeting Blandin, Cahen, Rottiers, Versini

13.09 : Kick off meeting R2A (Paris)

18.09 : Kick off meeting with C-Album (Paris, with Véronique Massenet)

26.09 : Intermediate EC-meeting on exhibition design, presentation of prototypes

Choice of the writers

27.09 : Work on budget with the designers

15.10 : Delivery Final Design

22.10 : Directors meeting

24-25.10 : EC Meeting Final Design Evaluation

30.10 : Work meeting with R2A in Brussels : definition of the general principles of the games

05.11 : Collections meeting in Brussels

14 > 16.11 : ECSITE meeting : many presentation of Fatal Attraction

22.11 : meeting between designers and people in charge of AV/info material at the RBINS

29.11 : Prenotification Call for tender fabrication (Bulletin des Adjudications)

06.12 : Présentation Fatal Attraction project to the RBINS employees

13.12 : EC meeting Choice of colours and material.

2003

mid january : approval from the Minister and Finance Officer of the calls for tender texts/procedures and administrative specifications documents

19.01 : All the specifications documents ready in French.

21.01 : All the specifications documents ready in Dutch

22.01 : Call for tender publication (European level)

24.01 : Call for tender pubication (Belgian level)

13.02 : Last day for questions for the bidders

21.02 : Kick off meeting Part 4 movie

21.02 : Answer to questions sent to all bidders

27.02 : Graphical preliminary design sent to all partners

28.02 : Texts French/Dutch/English Part 1 and Part 3 ready.

04.03 : Bids opening

07.03 : Directors' meeting

10-11.03 : Bids Furniture's and Special exhibits evaluation

21.03 : Kick off meeting Sequoia (furniture's fabrication)

24.03 : Kick off meeting Bruns (Special exhibits)

30.04 : Castex meeting (prepration of the Symposium)

08-09.05 : Shouting Part 4 movie

07.05 : Call for tender Graphical production >>> after analysis work divided between 3 firms

End May : Choice of the firms in charge of graphical production and starting of the graphical production

15.06 : All footages are in Brussels, all fees are OK
23-26.06 : Editing Short movies
End june : All technical drawings ready, furniture's made by Sequoia to be sent to Bruns OK

Official Publications

Call for tender / designer selection

- Publication de l'avis de marché : *Bulletin des adjudication*s, 26.10.01, réf. N. 14360 et *Journal Officiel des Communautés européennes*, 27.10.01, ref. 2001/208-142.706 ; corrigendum : *Bulletin des adjudications*, 21.12.01, réf. N.17162 ; JOCE, 20.12.01, 2001/245-168.206.
- Publication de l'avis de marché passé : *Bulletin des adjudication*s, 10.05.02 ref. N.5314, JOCE, 08.05.02, ref. 2002/89-069844

Call for tender / furniture's fabrication

- Prenotification *Bulletin des adjudications* le 27.11.02, réf. N 15920 ; *Journal officiel des Communautés européennes* le 29.11.02, réf. 2002/S 232-184536
- Call for tender *Bulletin des adjudications* le 24.01.03, réf. N 000770; JOCE, le 22.01.03, 2003/ S 15-011283
- Avis de marché passé BA 01.05.03, JOCE 29.04.03

Call for tender / interactive devices

- Prenotification *Bulletin des adjudications* le 29.11.02, réf. N 159919 ; *Journal officiel des Communautés européennes* le 29.11.02, réf. 2002/S 232-184535
- Call for tendet *Bulletin des adjudications* le 24.01.03, réf. N 000771; JOCE, le 22.01.03, 2003/ S 15-011261

Avis de marché passé BA 01.05.03, JOCE 29.04.03

Appendix VII

SAMPLE TENDER DOCUMENT FOR CERN'S TOURING EXHIBITION, October 2003

Part 1:
Introduction & General Information

1.1 About CERN

1.1.1CERN, the European Organization for Nuclear Research, is based in Geneva and is funded by 20 European Member States[*]. CERN is one of the world's most prestigious research centres, its business is pure science, probing the innermost constituents of matter to understand what the Universe is made of and how it works. Its research programme attracts over 6'500 scientists from more than 80 countries worldwide.

1.1.2CERN houses some of the largest and most advanced scientific instruments ever built: particle accelerators and detectors. CERN builds this research infrastructure through high-tech collaboration with other laboratories, institutes, universities and industry in the Member States.

See http://www.cern.ch.

1.2 The Present Exhibition

1.2.1CERN has a main travelling exhibition and a number of smaller topical exhibitions which visit its Member States. These exhibitions have helped communicate to the Member States the concepts and discoveries of particle physics, the Laboratory, and its research programme. The main travelling exhibition is the sole subject of this price enquiry.

1.2.2This present main travelling exhibition was designed and built in 1997 to meet the standards of a modern road-show. Between 1997 and 2002 this exhibition visited 15 venues throughout Europe and was seen by over 750'000 visitors.

1.3 Reasons for a New Exhibition

1.3.1The content of the present exhibition dates from an older the era. The *Large Hadron Collider* (LHC) project which is CERN's main activity for the coming years, is not represented. This is the main justification for a new exhibition.

1.3.2The presentation of CERN's scientific activity to the public should be brought up-to-date with current perceptions and advances in science communication. Fundamental research is not just the business of scientists, *understanding science can create amazement and wonder; it is an emotional experience*. This is the reason for an imaginative approach.

1.3.3There is a lack of students entering scientific studies. The new exhibition is aimed at 14–17 year old students and members of the general public who are curious about science. The exhibition should be especially appealing to young students. Visitors should get the impression

[*] the 20 Member States are Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, the United Kingdom. India, Israel, Japan, the Russian Federation, the United States of America, Turkey, the European Commission and UNESCO have observer status .

"*CERN is important and interesting to you*". The implicit main message is: "*Fundamental research is worth doing*"

1.4 Conclusions from the Market Survey and Possible Approaches

This price enquiry follows the market survey in which your company's reply qualified.

1.4.1Analysis of the replies to the market survey shows that given CERN's financial constraints it may be unrealistic to design and produce a completely new exhibition. Therefore this price enquiry is for an innovative design to produce an exciting exhibition, possibly new, but possibly using some of the existing support structures, that combines freshness of approach, a lively awareness of contemporary trends and the intellectual rigour demanded by the subject.

1.4.2 If the new exhibition incorporates elements of the existing exhibition, some of these will require refurbishing. In addition several new elements will in any case be required to present the LHC and to improve the overall visitor's experience. The minimum necessary new elements are:

- *a catching and obligatory entrance to the exhibition*
- *a perimeter to distinguish it from the context of its venue*
- *a model of the LHC tunnel*

1.4.3The exhibition content must satisfy the Design Specification given later. The scientific content must be presented in an accessible fashion, but must still remain true to scientific facts.

1.4.4The new exhibition must be delivered for the end of July 2004 (the first venue is planned for early August 2004).

1.5 Relation with the Design Consultant

1.5.1CERN wishes to collaborate with a design consultant for the implementation of this project and is looking for a company with a proven record of producing high impact exhibitions on issues in contemporary science. Final development of the complete exhibition will be done in close collaboration with the selected design consultant after the award of the contract.

1.5.2CERN's Education and Communication Advisory Board (ECAB) is the deciding body. The ECAB created the Exhibition Content Group, composed mainly of physicists with an interest in public communication. The Exhibition Content Group selects the scientific content of the exhibition and watches over the scientific accuracy of the designs proposed by the design consultant. However the final approval of all content will lie with the ECAB.

1.5.3Therefore the bidder is *strongly encouraged to contact CERN to discuss details* of the Design Specification before submitting a price offer. CERN wishes to ensure that no doubt exists on the interpretation of the Design Specification and what is expected of the design consultant in the implementation of the new exhibition.

For questions on the **Design Specification**, contact	For questions on the **Technical Specification**, contact

Price Enquiry for CERN's Travelling Exhibition

Part 2:
Design Specification

2.1 Aims and Concept

2.1.1The CERN travelling exhibition is aimed at 14–17 year old students and members of the general public who are curious about science. The exhibition should be especially appealing to young students.

2.1.2The exhibition should stimulate interest in and support for particle physics research. It should communicate the excitement of fundamental research and the importance of basic science in maintaining and furthering the quality of life of an advanced society.

2.1.3The emphasis should be on giving the visitor a memorable, entertaining and emotional experience. There should be enough parts where there is "something to do" rather than only things to look at or read.

2.1.4The exhibition should have a spectacular and attractive entrance presenting some of the Mysteries of the Universe. The entrance is both an introduction and a stimulation for the visitor to want to know more about our Universe, CERN, and the results and applications resulting from CERN's research. The entrance is a new area which should be the focal point of the new design.

2.1.5The rest of the exhibition should convey an image of CERN as one of the most exciting research centres in the world, today and tomorrow. It should give a coherent picture of CERN and its research facilities.

2.1.6Each section should contain spectacular images and contemporary graphics as well as audio-visual, multimedia interactive displays, models and objects where suitable.

2.1.7Where possible, "hands-on" exhibits should be included. These will be used to show some of the basic concepts used in CERN's accelerators and detectors as well as for transmitting knowledge about some of the basic laws of particle physics.

2.1.8The life span of the exhibition will be between 5 and 10 years. It is therefore important that the design, while being modern and attractive, does not become rapidly outdated.

2.1.9Note: in the majority of cases the venues will be a Science Museum or Science Centre, however CERN can be requested to install the exhibition in "ad hoc" locations provided by Member States' institutions. These spaces are not necessarily equipped as exhibition halls, do not always have easy access and can lack aesthetic appeal, for example a workshop or the foyer of a University building.

2.1.10 Note: as specified later (3.1.4), all texts must be presented in the language of the venue. The design should minimise costs due to text changes from one venue to the next.

2.2 Contents

2.2.1The visitor will enter the exhibition through an *obligatory entrance* display. This shall be a virtual trip back through time from the familiar now to a point a few fractions of a second after the Big Bang. The trip has a very specific linear story. Its display should be such that the visitor will

not skip parts of it, hence displays further in the story should not distract from spending time at earlier ones. The preliminary design of the entrance is a key part for evaluating the price offers. Its story is specified in detail in Annex 1.

2.2.2The obligatory entrance displays the current mysteries in physics: ***why*** we do research in particle physics. After the entrance the visitor can freely move in any of three sections:

- particle accelerators and particle detectors, ***how*** we do it,
- Member States of CERN, history of CERN, world-wide collaborations of physicists: the ***endeavour***.
- effects of pure research: education, technology, cooperation, culture: the ***utility***.

Finally, the visitor exits through a section which gives a *summary*, reminds the visitor of the entrance experience, and presents memorabilia.

2.2.3The exhibition should be clearly distinguishable from other exhibits in the surrounding venue by the use of some *perimeter technique*, left to the designer. Through this technique the new exhibition should create the impression of a special "CERN environment" setting it clearly apart from other exhibitions present at the venue. The visual appeal of the exhibition should not be dependent on its environment.

2.2.4The creation of identifiable environments should be considered for the sections, especially for the entrance.

2.2.5A full-size replica of the inside of a section of the tunnel of the Large Hadron Collider (LHC) accelerator should be included (approximately 3 metres long). This section should show the components used in the accelerator. It should convey a sense of the size of the LHC machine. The LHC tunnel is a tube 3.80 metres in diameter on the inside and 27 km in circumference. It is entirely located underground, so the outside of the replica is not relevant and may be used in any way.

2.2.6An animated display should be built representing a detector sitting in one of the collision points of the LHC. It will be placed next to the LHC tunnel replica, so the visitor will get an idea of how the particle beams circulate in the LHC accelerator and collide in the detector. Two of the LHC detectors (ATLAS and CMS) are huge, 40m long and 20m in diameter. A generic detector model showing the main parts of a modern particle detector should be included in this section. Pictures can be found at http://atlasexperiment.org/ or http://cmsinfo.cern.ch/. Ideally the model should show the arrival of the particle beams from both sides and their collision in the centre of the detector by some form of animation.

2.2.7The exhibition should contain:

- interactive computer-based presentations
- hands-on presentations
- models and objects
- large spectacular images from CERN

Spectacular photographs should be used. CERN has a comprehensive library of photographs covering its 49 years of existence

(see http://www.cern.ch/info/Press/PhotoDatabase/)

Several short video films (2–3 min.) should be shown (material is available in CERN's video library or could be produced from new scripts).

Interactive computer-based presentations (3 to 4 in number) should run on computers or on DVD players. Interactive computer presentations exist which could be adapted/updated to suit the new story line or match the design.

Some objects used in CERN's experiments or accelerators will also be shown. Display cases and/or supports will be necessary for the majority of these items.

2.2.8Every effort should be made to convey the messages in an exciting and interesting format.

2.2.9Since texts will have to be translated into the language(s) of the Member State where the exhibition is shown, it is *imperative to propose how texts can be changed* easily and economically wherever they occur (panels, videos, computer interactives, ...).

Part 3:
Technical Specification

3.1 General Parameters

3.1.1The new exhibition will cover approximately 250m^2 ; it will not be higher than 2.8m. It should be of a modular format allowing for a modest reconfiguration to adapt to venues of various sizes and shapes.

3.1.2The exhibition should be grouped physically into sections each with its theme, see story lines in Annex 2.

3.1.3Some of the elements of the existing exhibition should be considered for re-use in the new exhibition:

- the main structures
- certain models and interactive displays
- certain interactive computer presentations

However their inclusion will be totally dependent on the new final overall concept developed by the selected design consultant.

3.1.4The exhibition will in most cases be bilingual (the language of the venue and English), and the languages will change from venue to venue. Therefore a special effort should be made to:

- minimise printed text in favour of using computer-driven programmable displays
- use attractive non-text media to convey the key messages
- use solutions where texts, whether on screens or on panels, can be changed easily for the next venue, at minimum cost.

3.1.5Objects and models should be of a light but robust construction. They should stand up to frequent transportation and be quick and easy to assemble.

Enclosing the exhibition, using a perimeter technique, should be seriously considered and is in fact recommended. This will avoid interference from neighbouring activities/exhibitions.

3.1.7It should be possible to include a small amount of material (panels and objects) from physics institutes of the venue. This should be displayed on an adjacent structure which is **NOT** part of the main exhibition.

3.2 Supporting Structure and Lighting

3.2.1The exhibition can be built from existing proprietary display systems, or from equipment specially designed for this project, or a combination. Elements of the existing exhibition are available for inclusion into the new design, notably the structure.

3.2.2Off-the-shelf systems should have a foreseeable availability of a minimum of 5 years, to allow for repairs updates and expansion.

3.2.3The electrical system should be adaptable to either a 230V-single phase or 380V-3 phase mains supply.

3.2.4The exhibition lighting can use either standard lighting, or a low voltage long life halogen system, or a mixture. The existing exhibition lighting system could also be incorporated into the new design. Some elements will require refurbishing.

3.2.5All electrical components must have standard European plugs and adapters, and must be relayed back to a central control panel or panels which will be connected to the local domestic supply. Connections to the local domestic supply should be kept to a minimum.

3.3 Operation, Maintenance and Safety

3.3.1Operation and maintenance should require minimal specialised training. If necessary, the designers will provide such training and an instruction manual.

3.3.2The exhibition may spend up to 3 months at a venue. Therefore, operation and maintenance must be simple and the need for replacement components must be kept to a minimum. A minimum stock of basic replacement items should be included in the "maintenance kit". All such items should be easily obtainable in, or rapidly deliverable to, any European country.

3.3.3All of the major structural stand material should have a life of at least 2 years or 10 venues before needing replacement.

All interactive exhibits must be thoroughly tested to avoid inconvenient or costly breakdowns. The exhibition should be conceived so that interactive elements can be removed in the event of breakage or breakdown. A removal should not leave an obvious hole or reference to the removed element.

The exhibition should conform to the fire and safety requirements currently in force in exhibition halls, science museums and science centres within the CERN Member States. Thes fire and safety requirements should be based on the most stringent at present in practise.

3.3.6Vandal-prone equipment should be avoided.

3.3.7The exhibition should be accessible to persons with disabilities (wheel chairs).

3.3.8The electronic sources of all graphics and texts that may need language changes from venue to venue will be in formats that are either open standards or that are agreed upon by CERN.

3.4 Packaging

3.4.1 The complete exhibition should be packaged into/onto strong light weight easily transportable trolleys, crates and cases.

3.4.2 All freight cases shall pass through an opening 1m wide by 2m high. The cases should be on wheels, light and easy to move by 2 persons when filled.

3.4.3The packaged volume of the entire exhibition is an evaluation criteria. The overall volume, when packed, should fit into one large truck and trailer, approximately 80 cubic metres.

3.4.4 All of the exhibition elements MUST be packaged in such a way as to avoid damage during transport and storage.

3.4.5 All crates and cases should be designed so as to be easily transportable with a palette trolley and/or fork lift truck.

3.4.6Larger crates and/or trolleys should have large strong wheels with brakes incorporated.

3.4.7All of the packaging should be designed so that the individual cases can be stacked easily on one lorry with trailer.

3.4.8 All audio, video and DVD material should be packed into strong light weight aluminium flight cases. Each of the flight case covers should be easily removable, allowing for quick and easy installation of these "rack type" elements.

3.5 Logistics

3.5.1 The exhibition travels throughout the CERN Member States. Special attention should be given to minimising the difficulty of transport, installation/dismantling, maintenance, repairs, replacement and storage.

3.5.2It is most likely that a facilities management service will be contracted to install and dismantle the exhibition at venues.

3.5.3Transport between venues will be assumed by a trans–European transport company. The transport will be arranged and managed by the CERN Travelling Exhibition Manager

3.5.4The complete exhibition should be installed in a maximum of 3 days and dismantled in a maximum of 2 days by a team of not more than 4 people. The CERN Travelling Exhibition Manager is included in the 4 people and will have a supervisory role as well as a partially active part in the installation of the exhibition.

3.5.5Ideally the exhibition will visit each of CERN's 20 Member States once every five years, that is 4 to 5 venues per year. It should not have to return to CERN or to the exhibition builder(s) more than once a year for servicing.

Price Enquiry for CERN's Travelling Exhibition

Part 4:
Relations with CERN

4.1 Contracts

Building the new exhibition will have two major phases: *design* and *construction*. They will be *logically* and *financially* separate: a design consultant works on the first phase, a set of subcontractors implement the second. The entire work is supervised by a single company which does the design part. The cost of the design phase must by kept under XXX,XXX CHF.

The selected design consultant will be expected to provide a detailed breakdown of all cost estimates before the final production of the exhibition. The production phase will only start after agreement with CERN on how and where the budget will be spent. During the design phase different options shall be discussed to make the best use of the available funds. The budget will be spread over several separate contracts (see 4.1.5 and 4.1.6).

The overall budget for the construction and realisation of CERN's new travelling exhibition is XXX,XXX CHF. This sum should also include all packaging.

4.1.3CERN reserves the right to contact specialised developers to buy or build scientifically oriented "hands-on" presentations should the selected design consultant have difficulties to conceive or produce such elements. The cost of these will be taken from the budget.

4.1.4CERN reserves the right to terminate the contract with the design consultant at any point during the design stage if the selected design consultant does not meet the conditions agreed with CERN.

4.1.5An initial contract will be drawn up to cover all aspects concerning the design of the exhibition.

4.1.6After acceptance of the design, production schedule and final cost estimations, further contracts will be drawn up to cover the various elements and stages of production.

4.2 The Design Consultant and CERN

To complement the selected design consultant, CERN will provide its own internal teams (ECAB and the Exhibition Content Group) responsible for the overall content and final content approval. CERN's Exhibition Manager will ensure the day-to-day interface with the team of consultants.

4.2.1The selected design consultant will form a team to:

- develop, design and produce an inspiring overall concept which will convey the intellectual aims of the project;
- develop and produce the detailed content that illustrates the story line;
- manage and administer the project in all its aspects from design through to the completion of production and delivery;
- assume responsibility, using a graphic designer, for the overall style and corporate image of the exhibition.

4.2.2The services of other specialist consultants (artistic, audio-visual, hands-on, computer interactive etc.) should be considered and included where necessary.

4.2.3On selection of the design consultant CERN will:

- provide details of the story line as required, and as needed to adapt to an evolving design
- assist in managing the evolution of spending
- directly manage contracts with subcontractors for the building of the exhibition
- check that implementation conforms to the required safety rules

NOTE: the selected design consultant will be expected to accept liability and responsiblity for any elements included from the existing travelling exhibition material as well as for the new elements.

4.3 Submission Requirements

The price offer should include as a minimum:

- The concept/design of the obligatory entrance to the exhibition, conveying the story specified in Annex 1.
- An overall design strategy for the entire travelling exhibition, as specified in the Design Specification.
- Drawings and/or models which show clearly the design intent.
- Visuals showing how and where the exhibition incorporates objects, models, interactives, videos, graphics and photos.
- Proposed colour schemes.
- Proposals for how the overall exhibition environment could be created, with particular thought given to presentation of the perimeter technique.
- A proposed solution for the quick and easy change of language for the texts, titles and interactive computer presentations.
- Reference to which items from the existing exhibition will be re–used
- Reference to whether an off-the-shelf system will be used for the new elements or whether these will be custom built.
- A preliminary budget breakdown into design phases, construction phases and delivery, inclusive of all fees.
- Presentation of all sub-contractors. CERN reserves the right to refuse any sub-contractor.
- A strategy for maintenance of the exhibition over a period of at least five years.
- A brief description with CV of the key members of the consultancy team and their respective duties.
- A preliminary planning schedule.
- Estimations for the design and construction of at least one hands-on, one interactive; and one DVD/Video presentation (approx. 2 minutes) per section of the exhibition.

4.4 Possible Story Line Evolution

4.4.1 The story lines given in Annexes 1 and 2 are not necessarily final in their details: they may have to be adapted if certain parts prove impossible or too expensive to implement.

4.4.2 Several brainstorming meetings will be necessary between members of the CERN Exhibition Content Group and the selected design consultant to finalise the various options and media required to implement the story lines.

4.5 Timetable

4.5.1 The time between the issuing of the price enquiry and the deadline of the response may be used for contacts with CERN for clarification of scientific and technical issues.

4.5.2 Following the reception of all proposals some candidates may be invited to come to CERN for a competitive "pitch".

4.5.3 The selection of the successful candidate will be made by a jury of evaluators who will complete a copy of the evaluation matrix given in Annex 4. This matrix shows the evaluation criteria and the weighting factors that will be used.

4.5.4 The details of the design will be finalised in discussions between the selected consultant and the CERN Exhibition Content Group. This should be completed not later than end February 2004.

4.5.5 May 2004 will be used for debugging and packing of the exhibition.

4.5.6 The exhibition must be completely constructed for inspection by the exhibition manager by the 30th June 2004.

4.5.7 Provisional acceptance by CERN will follow the debugging and packing of the exhibition.

4.5.8 The exhibition will be delivered and installed in the first venue, date and place to be confirmed. Target date 1st August 2004.

4.6 Summary of Price Enquiry Goals

In the answer to this price enquiry, CERN expects the bidder to show:

- evidence of creativity and imagination through the preliminary design of the entrance part,
- evidence of creativity and imagination through the proposal for overall design,
- understanding of the internal CERN exhibition development process,
- understanding of the technical needs of a large internationally travelling exhibition,
- that CERN will get excellent return on investment and value.

Annex 1
Story Line for the Obligatory Entrance

A1.1 Introduction

This is the detailed scientific content of five stages in the development of our universe that should be presented in the entrance to the exhibition. The *preliminary design of the entrance is a key part of the submission* to the price enquiry.

The bidders are invited to contact CERN if anything in the description is not clear. CERN understands that the description is given in a fairly strict scientific language, but it is precisely the designer's challenge to translate the facts, as weird as they may be, into an exhibit that can be understood by the public without losing factual rigour.

Numbers are given, but it is not necessary to use these numbers as such in the exhibit: other means can be used to convey the time spans, temperatures and space sizes, leaving the numbers out entirely or relegating them to small panels.

A1.2 The Five Stages

From the Big Bang to now, the Universe went through many changes separated by periods of relative quiet. We want to present the five most important ones, what we know about them and what remains a mystery that physics research at the LHC will try to uncover.

The stages are presented in reverse order. The objective is to let the visitor get progessively closer to the Big Bang, give an impression of the Universe getting hotter and smaller, and finally let the visitor arrive at a point where everything is still mysterious.

To understand something of the other sections of the exhibition (described in Annex 2) the visitor should not skip any of the five stages.

The five stages are:

Stage 1 - "Now": 13'700 million years after the Big Bang

Our present visible Universe is very big (about 25 billion light years in diameter), very old (13'700 million years), and very cold (about 2.7° above absolute zero = -270°C). The *known* ingredients are radiation (light, microwaves), and matter (planets, stars). All of the Universe is filled with the "Cosmic Microwave Background" radiation, which is very uniform except for tiny ripples, which are the imprints of the Big Bang. These ripples give strong indications that there must be additional components in the Universe which are called "dark matter" and "dark energy". These *two unseen ingredients* dominate our Universe (they account for 96%!), and we have at present no idea what they are. Our planet and we are made of atoms such as carbon, oxygen, or nitrogen. What is their origin?

Stage 2 "Creation of the Earth" 9' 200 million years after the Big Bang

The Earth and the Solar System formed from the debris of an old star that had reached the end of its life and exploded violently. In that explosion many new types of atoms were formed out of the fusion of hydrogen and helium, and then thrown into the surrounding space. This "star dust" then collapsed again, millions of years later, under the influence of gravity. In the centre, light atoms like hydrogen and helium formed our Sun, while the heavy atoms like iron and nickel formed the core of the inner planets of the Solar system. But when did the first stars form?

Stage 3 "The First Stars" 200 million years after the Big Bang

The first stars started to form out of hydrogen and helium that was produced during the first minutes after the Big Bang. It took all that time (200 million years) until tiny density fluctuations could grow into the seeds of these stars.

Stage 4 - "The First Atoms" 380'000 years after Big Bang

The Universe then was much smaller and much hotter than today! Its diameter was only about 700'000 light years (smaller than the distance to our neighbour galaxy Andromeda), and its temperature was more than 3300 °C! At around 380'000 years after the Big Bang, the temperature fell below a critical threshold, and stable atoms could form without being ionized.

Before that time, the Universe was filled with particles such as protons and electrons, and deuterons and helium nuclei. Light was emitted in collisions of these particles, but it could not propagate freely, because it was quickly absorbed again by charged particles. Astronomy cannot look back beyond this point because the Universe was opaque: accelerators like the LHC will allow us to study the period before this time.

Stage 5 "The First Second" The Big Bang produced particles and the Laws of Nature
[THE MYSTERY BOX]

During the first second after the Big Bang, the Universe went through several phases of its evolution. We study the different phases by colliding particles in accelerators: concentrating energy to create temperatures that correspond to the situation of these early phases of the Universe. The most powerful machine ever constructed for approaching the first trillionth of a second after the Big Bang is called the "Large Hadron Collider" or LHC and is being constructed at CERN. It will answer questions like:

"What is the origin of the Laws of Nature"
"How did the known particles obtain their properties (e.g. mass, charge, spin, decay mode)"
"What is the origin and nature of dark matter and dark energy"
"Why is our Universe so well suited for the development of life"

Annex 2:
Story Lines for the Other Sections

A2.1 Main Aim

The main aim of the exhibition is to convey to the public that "CERN is important and interesting to you".

CERN's research in High-Energy Physics and the understanding of the origins of our Universe should be conveyed at a level which is understandable to the 14–17 year old student and to the general public. An implicit main message should be:

"Fundamental research is worth doing"

A2.2 Sections Overview

The Exhibition is divided into the entrance described in Annex 1 and three free-flow sections:

- particle accelerators and particle detectors, ***how*** we do it
- Member States of CERN, history of CERN, world-wide collaborations of physicists: the ***endeavour***
- effects of pure research: education, technology, cooperation, culture: the ***utility***

A2.3 Particle Accelerators and Detectors (how)

Note: these two topics, accelerators and detectors, could also be shown in two separate sections depending on the final configuration of the exhibition.

A2.3.1 Accelerators

Here visitors see the principles of particle acceleration, preferably with some hands-on and/or interactive displays where they can experiment with a model.

To be conveyed:

- we accelerate and collide subatomic particles
- these energetic collisions recreate the high temperature in the Universe right after the Big Bang
- the LHC, CERN's new accelerator uses superconductivity both for the accelerating elements and for generating the magnetic fields that keep the particles on their orbit.

This is also the place to show the LHC tunnel model.

Note: be careful to avoid confusion between the extremely low temperatures of the superconducting LHC magnets and the very high energies (temperatures) in the collisions.

A synthesised fly-through of the LHC tunnel is in preparation at CERN. It is based on a detailed engineering model of the tunnel as it will be with all the equipment in it. It will not be interactive but may be in stereo 3D.

A spectacular photo of the actual size of the LHC with respect to its surrounding landscape should be shown (e.g. **http://cdsweb.cern.ch/search.py?of=hd&f=970__a&p=000003787MMD**)

There could also be a hands-on showing the outline of the LHC on top of various European cities.

A2.3.2 Detectors

To be conveyed:

- detectors are the eyes with which we see the traces of the particles produced in the collisions
- detectors identify particles, we recognise them from observing their path and their energy
- the different sub-detectors work together to analyse and study particle collisions
- a "generic detector" shows how this happens

The scale model showing the collision in a generic detector is in this section, but is placed close to the LHC tunnel model.

The visitor can play with some models/hands-on of particle detection mechanisms.

Since a real LHC detector is over 20m in diameter, it would be impressive to show a real size slice of it. This may be done by a model that represents a wedge cut out of a slice from ATLAS or CMS (not built from the real materials though). Such a slice would have to be mounted on a supporting wall of 10m long.

A 3D synthesized fly-through of an experimental cavern is in preparation, there may be a 3D virtual reality interactive fly-through.

A2.4 Member States, History, Physics Collaborations (the endeavour)

This section is essentially devoted to photos, video clips, historic objects and explanations. It is potentially boring, but has to be included. The liveliest part could be a set of videos of interviews with young students or scientists who work at CERN.

Stress the importance of continued exploration and the adventure aspect of the CERN undertaking.

A2.5 Effects of Pure Research:
Education, Technology, Cooperation, Culture (the utility)

To be conveyed:

- the government collaborations
- the need for interdisciplinary skills
- the engineering and technological challenges
- examples of technological spin-off such as WWW, medical applications, the GRID
- additional values: cultural, educational, applicational

This is more attractive than A2.4 since some objects and possibly hands-on can be positioned here. An identical copy of the world's first WWW server is available. Working medical applications might be built. Interesting films of the underground engineering works can be shown.

A2.6 Conclusion and back-reference to the Mysteries of the Universe.

Left to the designer.

One could think of giving the leaving visitor some personal physics facts, such as the number of quarks in his/her body by weighing, or the total energy liberated if he/she annihilated with an antimatter twin. Ideas to be discussed with the Content Group.

A small souvenir shop could be placed here, or a small stand could be built for placing in the venue's museum shop (if it has one). Items sold or given away could include brochures, fact sheets, books, CD-ROMs, Tee shirts etc.

Annex 3:
Existing Exhibition

A3.1 Description of the Existing CERN Exhibition

A3.1.1 The present CERN travelling exhibition is structurally composed of four free-standing quadrants. These quadrants are constructed from a metallic structure of anodised aluminium. Plans and photos will be made available.

A3.1.2 Each quadrant has a central area constructed of wooden frame walls covered in vinyl, and an eye catching central display.

A3.1.3 Mounted around the inside of the outer rim of the quadrant are large graphic displays.

A3.1.4 Text panels, in two languages, are overlaid onto the graphic panels

A3.1.5 Models, interactive presentations and "hands-on" exhibits are placed in front of many of the graphic panels.

A3.1.6 Decorative panels are mounted around the outside of the quadrants.

A3.1.7 Each quadrant is covered with ceiling panels.

A3.1.8 Each quadrant has its own electrical supply and control panel.

A3.1.9 The complete exhibition is lit by a low voltage halogen lighting system.

A3.2 Refurbishment of Existing Exhibition Elements

A3.2.1 If any elements of the CERN's existing travelling exhibition are re–used in the new travelling exhibition, the selected design consultant shall completely assemble the existing exhibition.

A3.2.2 This will enable the selected design consultant to:

- understand the present concept
- accurately evaluate the elements to be retained
- accurately evaluate the material to be refurbished
- accurately assess how the elements can be incorporated in the new concept

A3.2.3 If any or all of the existing elements are incorporated into the new exhibition then any of the following refurbishment work items could be necessary.

- re-anodising part or all of the existing aluminium structure retained
- re covering all of the vinyl walls of the central sections, if retained
- refurbishment of all ceiling panels
- refurbishment of all of the low voltage halogen lighting
- refurbishment of any retained model, "hands-on" or interactive
- refurbishment of any support or plinth relative to above objects
- refurbishment of or replacement of any damaged packaging

A3.2.4 If elements of the existing exhibition are to be used in the new concept CERN will arrange and pay for the transport of the complete exhibition from its storage area to the workshops of the selected Design consultant.

A3.3 Role of New Elements in Existing Support Structure

A3.3.1 In the event that the new exhibition is composed of the existing exhibition support structure and a selection of new material, the new material would be used for some or all of the following:

- the introductory area
- the model of the LHC tunnel
- a complete set of new graphics and text panels
- a complete new set of decorative panels

- the incorporation of large plasma screen displays and more interactivity
- new models, interactive presentations and "hands-on"
- the confinement of the exhibition within perimeter walls or a closed area
- new text panels and messages
- a summary/conclusion to the exhibition

Annex 4:
Evaluation Matrix

The selection of the winning bidder will be made by a jury who will for each offer give a value between 1 and 5 to each item in the list below, whereby 5 is best. The values will be multiplied by the weighting factors given in the table below. The offer with the highest score will be taken.

Evaluation Matrix:

Evaluated item	Weighting factor
Total Cost of Design	50
Preliminary Design of Obligatory Entrance	15
Proposed Overall Design	10
Proposed Perimeter Technique	8
Physical implementation (sturdiness, maintainability, packaged volume, ease of assembling/dismantling, ...)	10
General Impression (previous work done, team and CVs, implementation strategy and planning, subcontractors, ...)	7
Total:	100

___ (end of price enquiry document) ___

Appendix VIII

FATAL ATTRACTION DESIGNER CONTRACT POINTS

Designer agreements can be detailed or just setting out the general principles for working with a designer, leaving the details open to be finalised later in discussion with the designer. This is a general brief for the design agreement. It is far from complete but it outlines some points to consider.

Agreement for the design of *Fatal Attraction*

Parties,

KBIN,…….(further referred to as OPERATOR)

and

Designer…….(further referred to as DESIGNER)

considering,

-The natural history museums of Brussels, Paris, Leiden are cooperating to develop a travelling exhibition;

-Brussels, as operator, will perform the executive work

-Design to be made

-Result of (European) tender procedure

agree as follows,

1. Definitions

…
…
…

2. Subject of the agreement

This agreement comprises the design of the travelling exhibition *Fatal Attraction* (*working title*). In this agreement, the rights and obligations of the OPERATOR (as principal) and the DESIGNER (as contractor) have been defined.

3. Performance, design process

This clause should describe the design process from briefing of the designer to the drawing up of the specifications e.g.

The DESIGNER undertakes to supply a sketch, preliminary and definitive design and detailed building specifications for Fatal Attraction. The design process consists of four phases, separated by evaluation rounds. The four phases of the design process are described in paragraphs 3.1 to 3.4. The evaluation rounds are described in paragraph 3.5

3.1 Sketch design

In the sketch design the DESIGNER will put forward ideas for the three-dimensional design of the exhibition. Based on the starting points for design (Clause 6), the DESIGNER will provide two (?) alternatives describing/visualizing the general atmosphere of the exhibition. For the exact deliverables, see clause ?? .

The sketch design gives a general idea of the exhibition. It is not necessary that every component of the exhbition is taken into account: it is the general atmoshere/look and feel of the exhibition that is important (is it going to be an exhibition with a 'high tech' look and feel or is it going to be an exhibition with a 'traditional, romantic' atmosphere? These are the questions the designer has to find an answer to in this phase).

3.2 Preliminary design

The preliminary design will result in a presentation of one of the alternatives developed in the sketch design in more detail. Each component of the synopsis will be taken into account. In the preliminary design the DESIGNER will incorporate the comments on the sketch design as collected in the evaluation round.

In the preliminary design the designer works out the general idea for each component of the exhibition. At the end of the preliminary phase, you know what the exhibition is going to look like.

3.3 Definitive design

In the definitive design the DESIGNER will detail each component of the exhibition (use of material, finish etc.)

At the end of the definitive design you know **exactly** what the exhibition is going to look like, in detail.

3.4 Specifications

In the specifications the DESIGNER will work out the definitive design to fit the production method(s) of the OPERATOR. The requirements for the specifications have been laid down in Appendix XX.

> **The difference between 'specifation phase' and definitive design is that when the specifications are ready you do not only know what exactly the exhibition is going to look like, but you also know how the exhibition is going to be built. The writing of the specifications should be aimed at 'translating the definitive design towards your production model'.**

3.5 Evaluation rounds

Between 3.1 and 3.2, between 3.2 and 3.3 and between 3.3 and 3.4 evaluation rounds will be organised. In these evaluation rounds the current design will be evaluated by the OPERATOR and the natural history museums of Paris and Leiden. During the evaluation rounds the DESIGNER can be/will be asked to present the current design to the OPERATOR and the natural histroy museums of Paris and Leiden. The comments will be collected and written down by the OPERATOR and handed over to the DESIGNER at the start of the next phase in the design process.

The reason for describing the evaluation rounds is to give the designer an idea of how the evaluation is going to be organised.

4. Deliverables

This clause should describe what deliverables have to be provided by the designer for each phase for example:

4.1 Deliverables sketch design

At the end of the sketch design, the DESIGNER has to provide the following deliverables:
-description (in English) of the exhibition;
-floor plan(s)
-4 artist's impression (1 general overview of the exhibition, 3 characteristic details)
-basic financial calculations
-…

4.2 Deliverables preliminary design

At the end of the preliminary design, the DESIGNER has to provide the following deliverables:
-scale model, 1:20
-….
-….

etc.

All deliverables have to be presented in English.

Perhaps it is a good idea to describe what deliverables the OPERATOR has to provide after each evaluation round: How will the feedback be delivered?

5. Time schedule

A time schedule for the design process should be included in the Agreement. It is important to write down fixed dates, but is also important to formulate what happens to the time schedule when a date mentioned in the agreement cannot be met. That means that when for example the start of the preliminary design phase is delayed by two weeks, the preliminary design can only be delivered two weeks later than scheduled in the original planning. The designer will then have no excuse to say: "well, we started two weeks later with this phase, but some of my key personel are on holiday at the end of this phase, so the delivery of the preliminary design will be 4 weeks later, instead of 2 weeks".

6. Starting points for design

*Synopsis
*Requirements for travelling exhibition, transportability, measurements, weights - Appendix

*Requirements with regard to objects?
*Requirements for the specifications
*the design proposal made by designer in call for tender procedure?

Design must be based on these starting points.

5. Fee, payment schedule

Payment schedule directly related to deliverables and approval of design – no fixed dates.

6. License, intellectual property rights

It is important to settle the license to use the design and all the deliverables (like drawings and artist's impressions) in the agreement.
*for travelling exhibition
*use design in fundraising and publicity material, also for all likely touring countries/regions.

7 Right to adapt design without approval of designer

Designers do not like this clause, but it is worth considering negotiating it into the agreement if possible. If for example during the construction of the exhibition it becomes clear that a design is much to expensive to produce, allow for the possibility to able to adapt/adjust the design without any difficulties with the designer. Normally, the designer will be involved in such adaptations, but if there are 'communication issues' with the designer it is useful to have a clause in the Agreement stating that you have the right to change the design without approval/involvement of the designer.

8. Indemnification

The DESIGNER indemnifies the OPERATOR against all consequences, including financial consequences, of any infringement by the designs or any parts thereof of any rights of third parties.

The OPERATOR indemnifies the DESIGNER against all consequences, including financial consequences, of any infringement by the material brought in by the OPERATOR or any parts thereof of any rights of third parties.

NOTE: This is an important clause. It ensures that if the designer 'steals' his ideas from a third party, he will be responsible for it and not the OPERATOR.

9. Communication between OPERATOR and DESIGNER

Include a schedule of meetings that the designer is expected to attend for example every two weeks to discuss the progress of the work. Allow for flexibility so that if, during the process, once every two weeks not necessary, the frequency of the meetings can be reduced. By stipulating the frequency in the contract, it is included in the fixed price and cannot therefore be charged additionally. Include that the minutes of these meetings are part of the agreement.

10. Changes to the agreement

It is always wise to include a clause saying that changes to the agreement only are valid when they have been agreed in writing.

11. Exhibition budget

It is our experience that it is not so easy to ensure that the designer makes a design that, when produced, fits our budgets. When you have a design that is too expensive

to produce, you have to call in the designer to adjust the design to make it cheaper. A great part of what you earn (by designing a cheaper exhibition), you then lose because you have to pay the designer additionally.

12. Dissolution

Most of the time we include a clause in our agreements with designers that offers the possibility to end the agreement after the first evaluation round. If the designer appears to be 'the wrong choice' you then have the possibility to get out of the designer/agreement without too much trouble.

The OPERATOR shall be entittled to dissolve the agreement, provided the OPERATOR reimburses any costs and expenses proven to have been incurred by the DESIGNER. In case this agreement is dissolved before the work on the preliminary design has commenced, the costs and expenses referred to shall not exceed EURO XXXXX, exclusive/inclusive VAT.

13. Governing law

This agreement and al acts resulting therefrom shall be governed by xx law.

14. Various

*Working language/deliverables: in English
*Annexes: part of agreement
*If a clause is not valid: parties will try to act according to the spirit of the clause and the rest of agreement stays intact

Appendix IX
FATAL ATTRACTION DESIGN CANDIDATES REVIEW - EDITED SAMPLE

Company, association	Attest social and fiscal obligations	Balance sheets last 3 years	Relevant turnover	Organization chart, CV's, description of technical equipment	Competencies	Experience	Methodology	English	If associated, have associates included required documents?	Verdict	Remarks
	Included	included	included	Included	ok	ok	ok	ok	n.a.	1 INCLUDE	Good candidate
	Included	included	included	Included	ok	ok	ok	ok	n.a.	1 INCLUDE	Good candidate
	Not included	only of last two years	included	Included	ok	ok	ok	ok	n.a.	2 MAYBE/ INCLUDE	Good candidate if formal requirements are met
		not included	not included	Included	ok	ok	ok	ok	n.a.	2 MAYBE/ INCLUDE	Would be a suitable candidate if formal requirements were met
	included, in their language only	very little information	very little information	included (no charts)	ok, some doubts	ok	ok	some doubts, may have to work with a translator	yes	2 MAYBE/ INCLUDE	Would be a suitable candidate if formal requirements were met.
	included, in their language	included	included	Included	ok	ok	ok	ok	n.a.	2 MAYBE/ INCLUDE	Some documents only in their language.
	Included	included	included	Ok		ok	ok	ok	n.a.	2 MAYBE/ INCLUDE	Does not seem to meet all formal requirements, but could be a good candidate

Appendix X

ECSITE TOURING EXHIBITIONS CONTRACTS CHECKLIST

1. CONTACTS OF THE PARTIES
   - the legal names of the Institutions, addresses (and if the Lessor is not the Owner, the name and the address of the Owner will be added)
2. DEFINITIONS
   - definitions of the terms used in the agreement like Exhibition, Location, Exhibition Period, Term
3. LEASE
   - object of the Lease
   - arrival and departure dates
4. EXHIBITION CONDITIONS
   - exhibition area, languages, heights, electricity, lighting, gallery
   - conditions, other technical specifications, guiding, service
5. PAYMENTS AND INSURANCES
   - rental fee, payment schedule (including reservation fee, possible revenue sharing, timing, late payment conditions)
   - transportation costs
   - transportation insurance and exhibition insurance costs
6. OBLIGATIONS OF THE LESSOR

   The Lessor shall
   - be responsible for condition of the Exhibition when delivered
   - be responsible for readability of the texts and deliver them for translations
   - deliver the service manual and unique spare parts
   - ensure in co-work that the exhibition layout is well functioning
   - identify and inform about the details concerning the Exhibition and the transfers (the equipment for transfer and loading, for example), see Appendix 1
   - install and make the necessary modifications of the computer programs and make the text prints for actual language selection
   - arrange the transfers to and from the Location
   - inform about the insurance and the transfer insurance values
   - supervise the set up and the closing down of the Exhibition and give instructions and advice for service and guides
   - arrange the lists and values for transfers and for custom formalities
   - be responsible for all necessary permits, copyright and the rights of the presentation concerning the Exhibition

- set information available on necessary safety and security regulations and permits
- inform about sponsorship contracts
- deliver marketing material
- not make alterations and improvements

7. OBLIGATIONS OF THE LESEE

The Lessee shall

- provide and maintain the Exhibition conditions as specified in Appendix 1
- provide material to make the Layout of the Exhibition
- make all necessary translations for actual language selection
- provide sufficient number of staff and equipment for exhibit transfers
- be responsible for the maintenance of the Exhibition
- inform as fast as possible if staff from the Lessor is needed for repair and service
- arrange the general illumination
- store the packing material for the Period
- keep within view the Name and the Originator of the Exhibition
- mention the name of the Originator in all published mater
- report the number of visitors
- report about marketing functions
- conservation of the exhibitions
- house the Exhibition during the Exhibition Period
- have no rights to make copies and modifications otherway than on by written permission
- defend the Lessor against any and all claims, action, proceedings, damages or liabilities arising from the use of the Exhibition

8. SANCTIONS AND TERMINATION

- termination conditions
- repossess possibility
- refusal after signing
- lack of delivery

9. CO-OPRATION OBLIGATION

- mutual communication
- sponsorship co-operation shall be specified
- marketing and educational co-operation concerning schools and general publicity
- condition inspections and reports
- refining and repairing co-operation
- licence and exclusivity to the Exhibition

- shop, merchandise and other second spending opportunities
- mutual hospitality
- Force Majeure reservation from each side

10. SELECTION OF THE EXHIBITION, ACCEPTANCE
    - selection and acceptance the Exhibition without changes

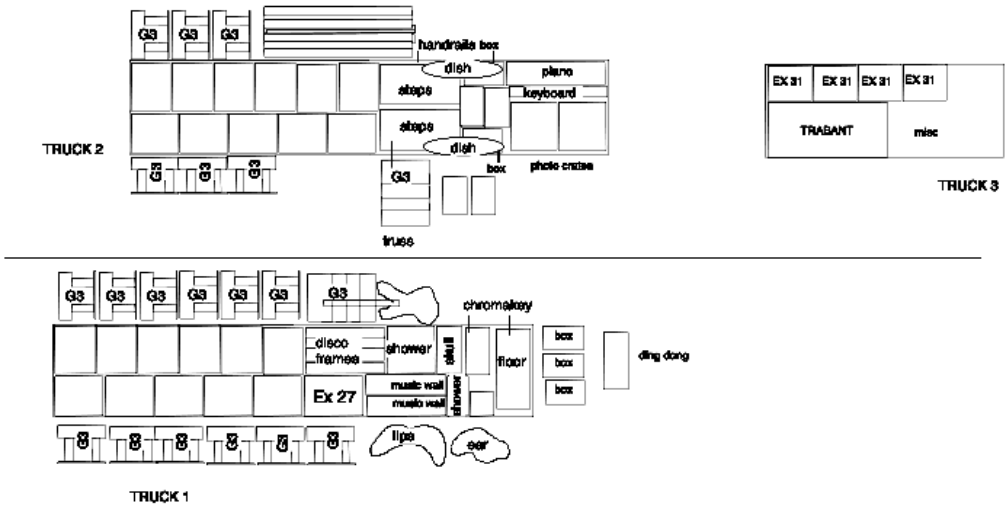
11. OWNERSHIP
    - ownership will remain in any case without changes
    - safe of the ownership
    - the things which belong to the ownership

12. MISCELLANEOUS
    - any invalidity shall be kept individual
    - any waiver shall be kept individual
    - definition of the parties of the Agreement
    - agreement in two different languages shall have identical value
    - the agreement shall be made according to the laws of the Lessor's Country

13. SPECIFIED CONDITIONS FOR THE EXHIBITION
    - recommended area and the minimum area needed for the Exhibition
    - the maximum size of a part of a single exhibit
    - the specifications of electricity (voltages, power consumption, the need of full time voltage, possible special arrangements for electrical disturbances, sockets, if internal net or not)
    - lighting arrangements (if internal lighting, if daylight allowed, general lights or not, a special lighting…)
    - gallery conditions if necessary (humidity control, maximum light level, temperature ranges, alarms, supervision
    - technical specifications like the maximum floor loading, the biggest part to be moved, the maximum heights or the exhibits, the need of mounting of the exhibits, the need of compressed air, water, sewer and internet connections
    - service (daily set up and service)

Appendix XI

SAMPLE LOADING PLAN



Appendix XII

STANDARD FACILITY REPORT – Adopted by the Registrars Committee of the American Association of Museums, 1998

NOTICE

IT IS UNDERSTOOD THAT THE INFORMATION INDICATED IN THIS FORM IS CRITICALLY CONFIDENTIAL AND WILL BE USED BY THE POTENTIAL LENDING INSTITUTION ONLY IN EVALUATING FACILITIES OF POTENTIAL BORROWERS AND IN PREPARING APPLICATIONS FOR INDEMNITY. THIS FORM MUST BE STORED IN A SECURE LOCATION AND NO COPIES ARE TO BE MADE OR DISTRIBUTED WITHOUT THE EXPRESS CONSENT OF THE SUBJECT INSTITUTION. THIS FORM MUST NOT BE DISTRIBUTED VIA FAX.

INSTITUTION NAME:

Please attach a floor plan of the museum, indicating:

- where borrowed object(s) will be displayed
- receiving area
- location of reception areas
- location of portable fire extinguishers, fire suppression and detection systems

Floor plan attached ☐ Yes ☐ No

Please indicate the system of measurement used to report dimensions and weight capacities for your museum:

☐ English measure (feet, inches, miles, etc.)
☐ International System of Units (IS) (meters, centimeters, kilograms, kilometers, etc.)

1. GENERAL INFORMATION

1.1 Is your institution currently accredited by the American Association of Museums? ☐ Yes ☐ No

If yes, date of most recent accreditation decision

1.2 Check the type(s) that best describe your institution:

☐ Museum (non-profit)
- ☐ Aquarium
- ☐ Arboretum/Botanical Garden
- ☐ Art
- ☐ Children's/Youth
- ☐ General
- ☐ Historic House
- ☐ History
- ☐ Natural History/Anthropology
- ☐ Nature Center
- ☐ Science
- ☐ Zoo
- ☐ Other (specify)

☐ University
- ☐ Museum or Gallery
- ☐ Student Center/Union
- ☐ Library

☐ Cultural Organization
- ☐ Library
- ☐ Religious Institution
- ☐ Civic/Exhibition Center

☐ Department ___ ☐ Fair Building
☐ Other (specify)

☐ Other *(specify)*

Geographic Profile

Contact your local fire department and/or municipal building department for assistance in answering questions 1.3 through 1.6.

1.3 Is your building located in an earthquake or earth movement prone zone? ☐ Yes ☐ No

Please consult the map in the printed report to determine the number corresponding to the area in which your building is located. Use the blank below to indicate the seismic zone number listed on the map.

Seismic Zone

1.4 Is your building located in an area designated as a flood zone or next to a body of water which can overflow its boundaries? ☐ Yes ☐ No

If so, what is the flood rating for your building?

Explain rating method:

1.5 Is your building located in an area subject to other natural catastrophes such as hurricanes, tornadoes, or severe windstorms? ☐ Yes ☐ No

If yes, is your building equipped with working storm shutters? ☐ Yes ☐ No

If yes, what types of shutters?

1.6 Is your institution in a designated brush zone? ☐ Yes ☐ No

Staff and Major Contractors

1.7 Use the matrix below to provide information on key museum staff members who will work with temporary or traveling exhibitions. Provide both work and home numbers for employees. Under employment status, please indicate if employee is a full- or part-time staff member or is a contractor. If employee is a contractor, provide the name of the contracting firm or organization. Please provide the specialty of curators and conservators. Attach a continuation sheet if necessary.

POSITION	NAME	TITLE	TELEPHONE/FAX NUMBERS	E-MAIL ADDRESSES	EMPLOYMENT STATUS (F/T, P/T, Contractor)
Director (Chief Exec. Officer)			Work: Home: Fax:		
Security Supervisor			Work: Home: Fax:		
Registrar I			Work: Home: Fax:		
Registrar II			Work: Home: Fax:		
Shipping/Receiving Officer			Work: Home: Fax:		
Curator I	Specialty:		Work: Home: Fax:		
Curator II	Specialty:		Work: Home: Fax:		
Conservator I	Specialty:		Work: Home: Fax:		
Conservator II	Specialty:		Work: Home: Fax:		
Customs Broker			Work: Home: Fax:		

2. BUILDING CONSTRUCTION, CONFIGURATION AND MAINTENANCE

General

2.1 Please indicate the dates your original building and any subsequent additions were completed. Use an “x” to indicate the gallery/areas where loan items will be stored and displayed.

	Date of Completion	Loan Item Storage Area	Loan Item Display Area
Original Building			
Addition 1			
Addition 2			
Addition 3			

2.2 What type of building materials were used for your original building?

[Indicate "x" where appropriate]

Original Building	Adobe	Brick	Concrete	Glass	Safety Glass	Steel	Stone	Wood	Fabric/ Carpet	Other (specify)
Exterior Walls										
Interior Walls										
Floors										
Ceilings										
Structural Supports										

What type of building materials was used for subsequent additions? Attach an additional sheet if necessary. [Indicate "x" where appropriate]

Addition 1	Adobe	Brick	Concrete	Glass	Safety Glass	Steel	Stone	Wood	Fabric/ Carpet	Other (specify)
Exterior Walls										
Interior Walls										
Floors										
Ceilings										
Structural Supports										

2.3 Indicate ("x") the most appropriate description of your building and any additions. Contact your local fire department or municipal building department for assistance, if necessary, in answering this question.

Type I -- Fire Resistive	Type II -- Non-Combustible	Type III -- Ordinary	Type IV -- Heavy Timber	Type V -- Wood Frame

Original Building					
Addition 1					
Addition 2					
Addition 3					

If your original building or any additions are Type I -- Fire Resistive, is there a sprayed-on fire retardant? ☐ Yes ☐ No

2.4 Are all structures free-standing? ☐ Yes ☐ No

If no, provide a physical description and the purpose of the larger structure into which it is incorporated and how museum access is restricted/monitored:

2.5 Are you undergoing renovation at this time? ☐ Yes ☐ No

2.6 Do you anticipate any construction or renovation projects during the proposed loan period? ☐ Yes ☐ No

If yes, explain:

2.7 How many floors does your building have?

If more than one floor, indicate mode of access between levels:

☐ Stairs ☐ Elevator ☐ Other (*specify)*

Are floors divided by three-hour fire doors? ☐ Yes ☐ No

Temporary Exhibition Space(s)

2.8 Indicate the layout of your temporary exhibition area(s):

☐ One large room ☐ Series of small rooms

☐ Other (*specify)*

2.9 What is the load capacity of exhibition gallery floors (if it pertains to the loan object(s) in question)?

2.10 Are any temporary exhibition spaces located in public activity areas such as lobbies, lounges, hallways, libraries, cafes, classrooms, etc.? ☐ Yes ☐ No

If yes, describe:

2.11 Are the temporary exhibition areas used only for viewing? ☐ Yes ☐ No

If no, what other function(s) do they serve?

2.12 Are there any water fixtures or accessories such as plumbing pipes, sprinkler systems, water fountains, etc., located in or above temporary storage or exhibition areas? ☐ Yes ☐ No

If yes, describe:

2.13 Do you have a modular wall partition/panel system? ☐ Yes ☐ No

If yes, indicate means of support:

☐ Supported at floor and ceiling ☐ Supported only at floor

Indicate the materials used in construction:

2.14 Describe the type and location of public activities that take place in your building, other than exhibitions:

Do these activities take place in temporary exhibition galleries? ☐ Yes ☐ No

2.15 Are eating and drinking ever permitted in:

Temporary exhibition galleries?	☐ Yes	☐ No
Temporary exhibition storage?	☐ Yes	☐ No
Receiving area?	☐ Yes	☐ No
Temporary exhibition preparation area?	☐ Yes	☐ No

If yes, please explain:

2.16 Do you make routine inspections for rodent, insect and micro organism problems? ☐ Yes ☐ No

If yes, describe means and frequency:

2.17 Do you undertake routine extermination/fumigation procedures? ☐ Yes ☐ No

If yes, describe methods, products used, and frequency:

Describe what course of action you would take if and when an infestation occurs:

2.18 Please supply details of how the exhibition area is managed during an exhibition with regard to routine lamp replacement, cleaning procedures, and checking of equipment:

Shipping and Receiving

2.19 What are your normal receiving hours? ___

2.20 Can you accommodate a delivery at times other than these hours? ☐ Yes ☐ No

2.21 How are large shipments received?

2.22 What is the largest size vehicle your loading area will accommodate (if it pertains to the loan objects in question)?

2.23 Do you have (or have access to) the following? Please "x" all that apply and provide requested details, if they relate to the loan item(s) in question.

☐ Shipping/receiving door	(dimensions: H ___ W ___)
☐ Raised loading dock	(height from ground: ___)
☐ Dock leveler	
☐ Forklift	(weight capacity: ___)
☐ Hydraulic lift	(weight capacity: ___)
☐ Crane	(weight capacity: ___)
☐ Ramp	(length: ___)
☐ Scaffolding	(height: ___)

☐ Other (specify: ___)

2.24 What is the maximum size crate your shipping/receiving door can accommodate?
(H ___ W ___ D ___)

2.25 If you do not have a shipping/receiving door or a raised dock, how do you receive shipments? *(Describe loading area and indicate on attached floor plan)*

2.26 Is your loading area: ☐ Sheltered ☐ Enclosed ☐ Neither

2.27 Describe security precautions taken in your loading area:

2.28 Do you have a secure receiving area separate from the loading area? ☐ Yes ☐ No
(Dimensions: L ___ W ___ Ceiling H ___)

If yes, is this area used only for exhibition objects? ☐ Yes ☐ No

If not, please describe other uses.

2.29 How is access to the receiving area controlled?

2.30 Where do you usually unpack/repack/prepare objects for exhibition? *(Indicate by numbering all appropriate items in priority order, with 1 being the space most frequently used.)*

_ Receiving room
_ Exhibition preparation room
_ In-house packing facility
_ Exhibition galleries
_ Storage area
_ Outside packing facility

2.31 Do you utilize an off-site packing/preparation facility? ☐ Yes ☐ No

If yes, indicate the most appropriate description:

☐ Museum property
☐ Rented commercial space
☐ Commercial space contracted as needed
☐ Other (specify)

Indicate distance from your institution:

What is the mode of transportation between the two facilities?

Does a professional museum staff member always supervise packing/unpacking? ☐ Yes ☐ No

What is the title of the staff person responsible?

2.32 Where do you usually store loaned objects before they are installed? (*Indicate by numbering all appropriate items in priority order, with 1 being the space most frequently used.)*:

_ Receiving room
_ Exhibition preparation room
_ In-house packing facility
_ Exhibition galleries
_ Storage area
_ Outside packing facility

2.33 Do you have a freight elevator? ☐ Yes ☐ No

Interior dimensions: L ___ W ___ Ceiling H

Load capacity:

Storage

2.34 Do you have a secured storage area for temporary exhibition objects? ☐ Yes ☐ No

Interior dimensions: L ___ W ___ Ceiling H

Dimensions of door: H ___ W ___

Is it:	Separate from your permanent collection storage	☐ Yes	☐ No
	Locked	☐ Yes	☐ No
Alarmed		☐ Yes	☐ No
Climate-controlled		☐ Yes	☐ No

(See Section 3 for detailed environmental information)

Who has access/keys?

How is access controlled?

2.35 Do you have fire detection and/or suppression systems in your temporary exhibition object storage area? *(See Section 4 for detailed information on fire protection)* ☐ Yes ☐ No

Describe:

2.36 Do you have a highly secured storage area for precious small temporary exhibition objects? ☐ Yes ☐ No

If yes describe:

2.37 Where do you store empty crates? *("x" all appropriate)*

☐ On-premises ☐ Off-premises

If on-premises, is area:
☐ temperature-controlled
☐ pest-controlled
☐ humidity-controlled

If off-premises, is area:
☐ temperature-controlled
☐ pest-controlled
☐ humidity-controlled

3. ENVIRONMENT

Heating and Air Conditioning

3.1 Is your environmental control system in operation 24 hours a day, 7 days a week including times when the museum is closed? ☐ Yes ☐ No

Is there a back-up system for your environmental control system? ☐ Yes ☐ No

If yes, how long can it operate?

3.2 Indicate the type and location of your environmental control systems *("x" all appropriate)*:

	Temporary Exhibition Storage	Temporary Exhibition Gallery	Throughout Building
Centralized 24-hour temperature control			

system			
Centralized 24-hour humidity control system			
Centralized 24-hour filtered air			
Simple air conditioning (window units)			
Simple heating			

3.3 Describe cooling system:

	Type	Year Installed or Upgraded
In temporary exhibition galleries		
In temporary exhibition storage		

3.4 Describe heating system (i.e., convection, forced air, solar):

	Type	Year Installed or Upgraded
In temporary exhibition galleries		
In temporary exhibition storage		

3.5 Are portable heating devices used anywhere in your facility? ☐ Yes ☐ No

If so, what kind and where?

3.6 Describe humidity control equipment:

	Type	Year Installed or Upgraded
In temporary exhibition galleries		
In temporary exhibition storage		

3.7 Do you use any additives (i.e. corrosion-inhibitors, water treatments) in your humidification system? ☐ Yes ☐ No

If yes, explain:

3.8 Who monitors and services the environmental systems?

☐ Staff
☐ On maintenance contract
☐ Called repair as needed

3.9 How often are the environmental systems monitored and serviced?

3.10 What are the recorded temperature and relative humidity ranges in your:

	Temporary Exhibition Galleries		Temporary Exhibition Storage	
	Temperature	% RH	Temperature	% RH
In Spring/Summer				
In Fall/Winter				

3.11 What is the maximum usual variation percentage within a 24-hour period in your:

	Temporary Exhibition Galleries		Temporary Exhibition Storage	
	Temperature	% RH	Temperature	% RH
In Spring/Summer				
In Fall/Winter				

3.12 Who responds to environmental control system problems?

☐ In-house personnel ☐ Contractor
☐ Other (please specify):

3.13 Are records of the variations in temperature and relative humidity kept? ☐ Yes ☐ No

3.14 Do you have the ability to adjust your temperature and relative humidity levels to meet the needs of different types of objects? ☐ Yes ☐ No

3.15 How many of each of the following do you have available and how often are they calibrated?

	Number available	Frequency of calibration
Recording hygrothermographs		
Psychrometers		
Hygrometers		

3.16 Do you monitor and record temperature and relative humidity levels on a regular basis in:

Temporary exhibition galleries? ☐ Yes ☐ No
Temporary exhibition storage spaces? ☐ Yes ☐ No
Display cases containing environmentally sensitive material? ☐ Yes ☐ No

If yes, by what means: ☐ Recording hygrothermographs
☐ Other (specify):

Indicate frequency:

Who is responsible for monitoring these levels?

3.17 Are the environmental conditions in temporary exhibition galleries: *("x" the most appropriate)*

☐ Individually controlled
☐ All controlled as part of the entire building or with several other rooms

3.18 Are the temporary exhibition storage areas: *("x" the most appropriate)*

☐ Individually controlled
☐ All controlled as part of the entire building or with several other rooms

3.19 How closely are loan objects positioned to heating, air conditioning, or humidification vents or units?

Describe:

Lighting

3.20 What type of lighting do you utilize in the temporary exhibition galleries? *("x" all appropriate)*

☐ Daylight
☐ Windows
☐ UV filtered
☐ Fluorescent
☐ UV Filtered
☐ Incandescent

☐ Equipped with shades or drapes
☐ Skylights
☐ UV filtered
☐ Equipped with shades or drapes

☐ Tungsten
☐ Iodide
☐ Quartz
☐ Other *(specify)*

3.21 Do you have a light meter? ☐ Yes ☐ No

If yes, what type:

Do you have a UV meter? ☐ Yes ☐ No

3.22 How low can you adjust your light levels (# of foot-candles)?

3.23 Is your institution capable of building vitrines with special requirements upon request? ☐ Yes ☐ No

3.24 Are display cases equipped with dust filters? ☐ Yes ☐ No

3.25 Are display cases ever internally lit? ☐ Yes ☐ No

If yes, what type of lighting is used in the display cases *("x" all appropriate)*:
☐ Fluorescent ☐ Incandescent ☐ UV filtered ☐ Fiber optic

3.26 Are objects in display cases safeguarded against ultraviolet rays and heat build-up from interior lights? ☐ Yes ☐ No

If yes, how: ___

4. FIRE PROTECTION

Contact your local fire department or municipal building department for assistance, if necessary, in answering questions 4.1 and 4.2 and 4.15.

4.1 What is the fire rating of your building (e.g., A1)?

4.2 Is the entire building protected by a fire and/or smoke detection/alarm system? ☐ Yes ☐ No

If yes, indicate type (ion detectors, etc.):

If no, describe areas not protected:

4.3 Do your institution's fire detection/alarm systems employ components listed by Underwriters Laboratories? ☐ Yes ☐ No

Are the systems installed according to UL standards? ☐ Yes ☐ No

4.4 Are all emergency exit doors equipped with alarms? ☐ Yes ☐ No

If yes, indicate type:

Do doors automatically unlock when a fire alarm is activated? ☐ Yes ☐ No

4.5 How are the systems checked?

By whom?

How frequently?

4.6 How is the fire/smoke detection/alarm system activated? *("x" all appropriate)*

	Temporary Exhibition Galleries	Temporary Exhibition Storage Areas
Self-activated heat detection		
Self-activated smoke detection		
Control panel		
Manual pull stations		
Water flow switches in sprinkler system		

4.7 Who does your fire alarm system alert? *("x" all appropriate)*

- ☐ In-house central station (proprietary system)
- ☐ In-house audible devices
- ☐ Local fire station--direct line
- ☐ UL/FM-approved central station *(specify company)*
- ☐ Other *(specify)*

4.8 Indicate the type(s) of fire suppression system(s) in operation where loaned object(s) will be **received**, **stored** and **exhibited**: *("x" all appropriate)*

Sprinklers

	Received	Stored	Exhibited
Wet pipe			
Dry pipe			
Delayed action			
Pre-action			
Other			

Location(s):
Year installed
Are the staff and guards trained in shut-off procedures? ☐ Yes ☐ No

Gaseous fire suppression systems

	Received	Stored	Exhibited
Halon			
Clean agent			
Other			

Location(s)
Year installed

Fire hose cabinets per local fire code	Received	Stored	Exhibited

Are fog nozzles installed? ☐ Yes ☐ No

Portable fire extinguishers	Received	Stored	Exhibited

Specify type (e.g., pressurized water, carbon dioxide, dry chemical, foam, Halon, acid, other)

4.9 How often are portable extinguishers tested?

4.10 How frequently is the staff trained in the use of portable fire extinguishers?

4.11 In what areas and under what conditions is smoking allowed in your building?

4.12 How far is your institution from the local fire station?

4.13 How long does it take the fire department to arrive at your facility in response to an alarm?

4.14 How far is your building from the nearest fire hydrant?

4.15 Is your local fire station staffed 24 hours a day? ☐ Yes ☐ No

What is the town class number for the fire department? (NB 4, NB 5, NB 9)?

Is there an on-site fire brigade? ☐ Yes ☐ No

Has the fire department visited your facility and met with you to pre-plan a course of action should a fire occur at your facility? ☐ Yes ☐ No

Date of the last visit by the fire department for pre-planning:

4.16 Do you have an established fire emergency procedure? ☐ Yes ☐ No

If yes, how frequently is the staff trained in this procedure?

5. SECURITY

Guards and Access

5.1 Do you have 24-hour human guard security (as opposed to periods of electronic-only surveillance)? ☐ Yes ☐ No

If no, would your institution be willing to hire additional guards, if required? ☐ Yes ☐ No

5.2 What type of security personnel does your institution utilize? *("x" all appropriate)*

- ☐ Security employees of your institution
- ☐ Other staff
- ☐ Contractors from an outside service company Name of company
- ☐ Students
- ☐ Volunteers/docents
- ☐ Other (specify)

5.3 Do you have a trained security supervisor in charge at all times? ☐ Yes ☐ No

5.4 Are your security personnel specially trained for your facility? ☐ Yes ☐ No

If yes, briefly explain the extent and duration of their training:

5.5 Are your guards *("x" all appropriate)*

☐ Armed?
☐ Pager-equipped?
☐ Other (specify)
☐ Radio-equipped?
☐ Phone-equipped?

5.6 Do you conduct background checks on guards prior to hiring? ☐ Yes ☐ No

Do you perform honesty testing on prospective or new employees? ☐ Yes ☐ No
Do you perform background checks on prospective or new employees? ☐ Yes ☐ No

5.7 Indicate the number of guards normally on duty:

	Throughout Building		In Temporary Exhibition Galleries	
	Stationary	Patrolling	Stationary	Patrolling
During public hours (day/evening)				
When closed to the public, but open to staff				
During closed hours				

5.8 How many galleries are assigned to each guard?

5.9 Is a guard assigned during installation and dismantling? ☐ Yes ☐ No

If no, can one be, if required? ☐ Yes ☐ No

How is access restricted during installation and dismantling of temporary exhibitions?

5.10 How often are temporary exhibition galleries checked when closed?

By whom?

How is the frequency of these checks ensured (e.g., checkpoint system, etc)?

5.11 How often are "checklist" checks made of the objects in temporary exhibitions?

Who is responsible for these checks?

5.12 Do you make a photographic record of objects within each temporary exhibition gallery? ☐ Yes ☐ No

5.13 Do you maintain records on internal movement and relocation of borrowed objects? ☐ Yes ☐ No

5.14 Are security personnel stationed at all entrances and exits to the building during open hours? ☐ Yes ☐ No

If no, explain:

5.15 Indicate the positions/titles of those individuals authorized to sign for the removal of museum objects from the building:

5.16 Is every object entering or leaving the building signed in and out by security personnel? ☐ Yes ☐ No

5.17 Are the contents of bags, briefcases, etc. checked upon entering and exiting? ☐ Yes ☐ No

Is there a hand carry size restriction? ☐ Yes ☐ No

If yes, what is it?

What is your policy on use of tripods in temporary exhibition galleries?

5.18 Do you have a sign-in/sign-out procedure for guards and after-hours personnel? ☐ Yes ☐ No

5.19 How many staff members have keys to exterior doors?

Specify positions/titles:

5.20 Are exterior perimeter checks of the building carried out? ☐ Yes ☐ No

If yes, by whom and how frequently? ___

5.21 Do your staff (paid and volunteer) and special guests wear identifying badges when in non-public areas of your building? ☐ Yes ☐ No

5.22 Do you have an emergency response plan? ☐ Yes ☐ No

Do you have a disaster recovery plan? ☐ Yes ☐ No

Please list the date of the last revision **for each**:

If your institution utilizes such plans, how frequently is the staff trained in their implementation?

5.23 What emergency procedures are observed in the case of theft or vandalism?

Physical and Electronic Systems

5.24 Do you have an electronic security alarm system in operation throughout the building? ☐ Yes ☐ No

If no, specify which areas are **not** protected:

5.25 What types of detection equipment are in operation *("x" all appropriate)*

☐ Magnetic contacts
☐ Photo electric beams
☐ Ultrasonic motion detectors
☐ Sonic sensors
☐ Break glass sensors
☐ Other (specify) ___
☐ Microwave motion detectors
☐ Passive infrared motion detectors
☐ Pressure mats on switches
☐ Closed circuit TV
☐ Water detection devices

5.26 Is your institution's security system certified by Underwriters Laboratories? ☐ Yes ☐ No

Are its components listed by UL? ☐ Yes ☐ No

5.27 Where does your detection system sound an alarm? *("x" all appropriate)*

☐ Proprietary central station
☐ Local audible alarms
☐ Local police--direct line (*if ALL systems do not automatically register at the police station, indicate which ones do not)*

☐ UL/FM central station *(specify company)*
☐ Other *(specify)*

5.28 Do exterior doors open directly into the temporary exhibition area? ☐ Yes ☐ No

If yes, indicate locking mechanism:

5.29 Are there windows in the temporary exhibition area? ☐ Yes ☐ No

If yes, what type of physical security (e.g., bars, gates, mesh) protects them?

5.30 Are all the building's exterior openings (including entry/exit doors, windows, roof doors and air ducts) secured and alarmed? ☐ Yes ☐ No

If no, explain:

5.31 How are your security systems tested?

How often?

Who undertakes these tests?

5.32 Are tests conducted to determine the adequacy and promptness of human response to alarm signals? ☐ Yes ☐ No

If yes, how frequently? ___

5.33 Are records kept of all alarm signals received, including time, date, location, action taken and cause of alarm? ☐ Yes ☐ No

Who is responsible for keeping these records?

5.34 How are fragile, small or extremely valuable objects protected?

Check all appropriate:
☐ Acrylic vitrines
☐ Glass vitrines
☐ Wall/permanent cases
☐ Free-standing cases *(specify construction)*:
☐ Locked cases
☐ Cases secured with exposed screws
☐ Cases secured with covered screws
☐ Cases secured with security screws
☐ Cases with sealed seams
☐ Alarmed cases (specify type)
☐ Other (specify)
If none of the above, is your museum willing to borrow or construct secure cases? ☐ Yes ☐ No

5.35 How are small wall-mounted objects affixed to the wall to deter theft? (e.g., security plates, etc.)

5.36 What hardware is used to hang large, framed works?

5.37 Can framed objects be individually alarmed, if required? ☐ Yes ☐ No

5.38 Indicate methods utilized to deter public access to large exposed objects:

6. HANDLING AND PACKING

6.1 Do you have personnel available for loading and unloading? ☐ Yes ☐ No

If yes, how many? ___

6.2 Do you have staff specially trained to pack and unpack objects? ☐ Yes ☐ No

If yes, how many?

Supervised by whom?

What type of training is provided?

Do volunteers or interns handle borrowed objects? ☐ Yes ☐ No

If yes, how are they trained and who supervises their work?

6.3 Are written incoming and outgoing condition reports made on all objects? ☐ Yes ☐ No

If yes, by whom?

6.4 When do staff use gloves for handling objects?

6.5 Is matting and framing carried out by your staff? ☐ Yes ☐ No

If no, indicate by whom:

6.6 Does your institution have a van or truck appropriate for transporting loan objects? ☐ Yes ☐ No

If yes, provide dimensions of: Door (H ___ W ___)

Interior (L ___ W ___ Ceiling H ___)

Is the vehicle *("x" all appropriate):*

- ☐ Air-ride
- ☐ Climate controlled
- ☐ Equipped with an alarm system
- ☐ Equipped with movable straps
- ☐ Equipped with lift gate

6.7 For the movement of objects, which companies (either air or ground) have given consistently good and conscientious service to your institution?

Company Name	Contact Individual	Telephone Number

7. INSURANCE

7.1 Which company provides insurance for your institution?

Broker's name:

Address:

Telephone number:

Fax number:

7.2 How long have you carried insurance with this company?

7.3 What coverage does your policy for borrowed objects provide? Please "x" all that apply:

- ☐ All-risk museum coverage, wall-to-wall (while on exhibit and in transit), subject to the standard exclusions
- ☐ Coverage against burglary and theft
- ☐ Coverage against fire
- ☐ Coverage against rising water and water damage
- ☐ Coverage against natural disasters (i.e., earthquake)
- ☐ Coverage against mysterious disappearance
- ☐ Coverage against employee dishonesty

7.4 What are the applicable non-standard exclusions of your policy affecting loans?

7.5 What are the deductible limits of coverage for borrowed objects?

7.6 Have there been any individual damages or losses over $5,000 to permanent, loaned or borrowed collections incurred during the last three years (whether or not a claim was filed)? ☐ Yes ☐ No

If yes, state the date of damage or loss, circumstances and cause, extent of the damage or loss, whether there was litigation or subrogation to determine blame or negligence (add additional sheet, if necessary).

What precautions have now been undertaken to prevent any further incidents?

8. LOAN HISTORY

8.1 List several temporary exhibitions you have recently hosted:

Exhibition Title/Organizing Institution	Year

8.2 List other institutions you have borrowed from recently:

Name of Institution	Object Type	Year

9. ADDITIONAL INFORMATION AND COMMENTS

10. VERIFICATION AND RESPONSIBILITY

THE UNDERSIGNED IS A LEGALLY AUTHORIZED AGENT FOR THE SUBJECT INSTITUTION AND HAS COMPLETED THIS REPORT. THE INFORMATION INDICATED PROVIDES A COMPLETE AND VALID REPRESENTATION OF THE FACILITY, SECURITY SYSTEMS AND CARE PROVIDED TO OBJECTS (BOTH OWNED AND BORROWED).

Signature _____

Typed Name

Title

Date

PLEASE SIGN AND DATE BELOW TO INDICATE THAT THE INFORMATION PROVIDED IN THIS DOCUMENT HAS BEEN REVIEWED FOR ACCURACY AND HAS BEEN UPDATED WHERE NECESSARY WHEN IT IS REISSUED.

SUBSEQUENT REVIEWS:

Signature	Title	Date
Signature	Title	Date
Signature	Title	Date
Signature	Title	Date

Appendix XIII

FATAL ATTRACTION MEMORANDUM OF UNDERSTANDING

DRAFT

MEMORANDUM OF UNDERSTANDING

BETWEEN:

1. L'Institut royal des Sciences naturelles de Belgique - Koninklijk Belgisch Instituut voor Natuurwetenschappen, represented by Daniel Cahen, Director
2. Muséum National d'Histoire Naturelle (France), represented by Jean-Claude Moreno, Administrator
3. Stichting Nationaal Natuurhistorisch Museum – Naturalis (Nederland), represented by Wim van der Weiden, Director

Hereinafter referred to as "*the parties*" or "*the partners*"or the "*co-contracting museums*"

I. PREAMBLE AND CONTENT:

From a series of informal discussions between the directors of major European Natural History Museums the idea arose of museums collaborating to set up thematic travelling exhibitions jointly.

This would mean, with a more and more demanding public and the increasing competition from private operators, pooling the knowledge, skills and the financial means of each of them and, should this be brought about, certain pieces from their collections allowing attractive exhibitions of high quality, from both the scientific and museographic points of view, to be offered to visitors, and the sharing of the expenses and risks inherent in such a project.

In this perspective, and carrying out the pioneering work in this matter, the natural history museums of Brussels, Paris and Leiden have initiated discussions concerning the joint design, accomplishment and operation of an original exhibition with the theme of *"animal communication"*.

This exhibition will first be presented to the public in the museums of each of the partners, the objective being to authorise later, according to terms to be decided, presentation of this exhibition in other museums of institutions who will request it.

During a preparatory phase the parties have examined the feasibility of the project and the principal elements for starting work on it. They have, on that occasion, reached an agreement on.....[1] embodying their preliminary discussions (annexe 1).

These discussions have ended with the adoption of a provisional exhibition project (annexe 2) as well as the appointment of the Museum of .....[2] as the exhibition operator.

The objective of this agreement is to determine the conditions and terms for the co production of the exhibition and its presentation.

As mentioned in the memorandum of understanding (annexe 1), the exhibition on **animal communication** is a common project of the Brussels, Paris and Leiden museums of natural history. However, this project will be a case study within the CASTEX network. Besides, both CASTEX and the present project will be operating within the ECSITE association, as a special group of interest.

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[1] To be completed

[2] To be completed

II. AS A CONSEQUENCE OF WHICH THE FOLLOWING HAS BEEN AGREED:

Article 1 - Objective

The objective of this agreement is the co production, comprising the design and realisation of a travelling exhibition on the theme of "a*nimal communication*" as described in appendix 1, and to study the possibility of hiring this exhibition to other museums.

Article 2 - Duration of the agreement

Without prejudice to Article 12, this agreement comes into effect on the date it is signed and it will expire at the end of the circulation of the exhibition in the three partner museums. If the exhibition is hired to other museums, a new agreement will be made for this specific case.

Article 3 - Definitions

The terms "*executive committee*" and "*committee of directors*" are defined in the annexed agreement reached on ....[3]

A scientific advisory board composed of scientific experts in the field of animal communication will advise both committees on the scientific options available.

The "*operator*" means the .....[4] Museum, charged with carrying out or having the actual production itself carried out for all the parties.

Article 4 - Mission of the operator

4.1 The operator is in charge of the design and production of the exhibition in close collaboration with the executive committee; he will appoint the "*project manager*", either from among his own personnel or from outside them. The role of the project manager is defined in Article 5.

4.2 If it is necessary to agree to a public tender procedure, the operator will prepare the tender specifications (and the documents for competitive bids, etc.) and start the tendering procedure after approval of the tender specifications and the contract type by the committee of directors.

4.3 The operator informs both committees at least every two months about the progress of the work and state of finances.

4.4 The committee of directors is responsible for determining the limits of other matters delegated to the operator; the operator's mission lasts as long as the agreement.

Article 5 - Mission of the project manager

The project manager will produce a definitive and detailed project, including also a definitive budget, a schedule and a payment schedule with the help of the executive committee. Information concerning further circulation of the exhibition, after its presentation in the museums of the partners are also to be included.

The project manager will report the progress of the project to the executive committee with whom he will meet at least once a month; the executive committee will in turn report to the committee of directors.

The definitive project produced by the project manager, under the direction and supervision of the executive committee with advise of the scientific advisory board will be submitted by the executive committee to the committee of directors for approval.

---

[3] To be completed

[4] To be completed

Article 6 - Intellectual property rights

Each of the partners will require members of its personnel and external contractors to relinquish in its favour all the intellectual property rights they have in connection with the design of the exhibition.

The contract agreed with the project manager will provide for the same relinquishment of intellectual property rights.

Intellectual rights are shared in common by the three partners.

Article 7 - Agreement to transactions

If external companies are called in to the work, for goods or services, for the production of the exhibition, the European regulation concerning public transactions and the arrangements in force the operator's country shall be respected.

Article 8 - Methods of decision making

8.1 The decisions in the executive committee are taken unanimously, each delegation has a single voice, whatever the number of members of which it is composed.

8.2 The responsibility for making a decision in the case of inability to reach a decision at the executive committee level is with the committee of directors.

8.3 The committee of directors takes all its decision unanimously; each partner casting a vote either on the occasion of a meeting of the members, or based on a written procedure, by letter, fax or e-mail.

8.4 When presenting the exhibition in its own museum, each partner is free to add, at its own expenses, some new section to the exhibition providing that it does not alter the scientific content or museographical presentation and that this new section does not present any risk for the conservation of the exhibition and the collections presented.

Article 9 - The exhibition budget

9.1 Contents of the budget

The budget covers the production of the exhibition. It includes the remuneration of the project manager, the possible exhibition catalogue, major charges of maintenance, freshening up the exhibition between two presentations, charges for transport and its insurance, setting up and taking down the exhibition.
The budget does not include insurance for the exhibition as such not for civil responsibility, daily or minor maintenance, guarding and ticketing the exhibition, local promotion, unforeseen or temporary local condition, or extra costs necessitated by local differences with the basic technical requirement of the exhibition.

9.2 Contributions from the partners

Each of the partners contribute equal parts of the definitive exhibition budget, approved the committee of directors. Each partner covers the given value of the exhibition by an appropriate insurance for the time of presence of the exhibition in its own premises.

Contribution in nature will not be taken in account except when they provide a better quality for a better price. In such a case, the executive committee will proceed to the financial evaluation of such contributions and will submit it to the committee of directors.

The financial contributions are made according to the definitive payment schedule.

Proposals for budgetary adjustment, if need be, may be formulated to the committee of directors by the executive committee.

9.3 Subsidies and sponsoring

All of the subsidies or gift generally of any type obtained in support of the exhibition as such diminish the financial contribution of each of the partners.

However, subsidies and gifts linked indissolubly to the presentation of the exhibition in only one of the co-contracting museums pass exclusively to that museum.

9.4 Allocation of the revenues

The revenues consist of the admission fees[5] and possibility of the income of the sale of catalogues and of the merchandising performed jointly by the parties.

The revenues obtained by one partner by means of expenditures not in the budget are retained by that partner.

The joint revenues are allocated with priority to the reimbursement of the contributions of each of the partners. To this end, each party will account monthly for the revenues obtained during the presentation of the exhibition in its premises and proceed to reimburse the contributions equally on an agreed term.

9.5 Sharing the benefits and any losses

Any benefit redeemed after integral reimbursement of the contribution of each party is shared between the partners pro rata to the contribution by each of them to the total receipts.
On the hypothesis that the total of the revenues will not cover the reimbursement of the part contributed by each of the partners, the revenues generated by a possible later presentation of the exhibition in other museums will be allocated to it with priority.

Any losses will be supported in equal parts by each party, without prejudice to the responsibility of each of them.

Article 10 - Insurances

A joint insurance will be taken to cover the transportation and the presentation of the exhibition within the museums of the partners.

Article 11 - Leasing the exhibition to third parties

Leasing the exhibition beyond the partners is an important issue of this common project. Therefore it is of prime importance that the partners, simultaneously with the preparation of the exhibition, should study the technical, economical and other requirements for a circulating exhibition. Partners must be fully informed of these requirements before the first presentation of the exhibition.

Article 12 - Lot of the exhibition at the end of the agreement or at the end of the tour

The exhibition is owned in common by the three partners.

At least 3 months before the end of the third presentation in the partner's museum, the committee of directors will decide the lot of the exhibition (touring, dismantling, selling, and so on).

[5] Deciding the entrance charge - for discussion: the partners should agree a promotion level and entrance charge to equalise the receipts as far as possible. N.B. Naturalis should make a proposal.

After touring the exhibition (i.e. after presentation in the museums of the partners and after circulation in other museums or institutions), the committee of directors will decide the lot of the remaining elements of the exhibition, including collections specially made for it.

Article 13 - Applicable law - Disputes

13.1. The present agreement is subject to the national law of the partner designated as the operator.

13.2 All disputes concerning the formation, the interpretation, the execution or the dissolving of this agreement will be judged by a group of three arbitrators, each party designating his own, through its director; the three arbitrators designated electing a president from amongst themselves.

The partner who wishes to submit the dispute to arbitration will notify this to the other partners by registered letter and indicate the subject of the dispute and the name of the arbitrator he has chosen.

The other partners should designate their arbitrator within 15 days of the receipt of this notification.

Arbitration will take place in the country of the operator and in the English language.

The decisions of the arbitrators are those of the majority and given as the last instance.

13.3 Article 13.2 will come into application in the case where the agreement will be ended by one of the parties and continued by the other two parties. In a similar hypothesis, each party designates his arbitrator, these two then appoint a third arbitrator to preside. If there is disagreement about the choice of the third arbitrator, this will be the subject of a request by the most diligent party to the judge presiding in the first degree tribunal in the place of establishment to make an appointment.

Article 14 - Unilateral termination

During the production phase a partner[6] may only terminate the agreement unilaterally[7] with the agreement of the other partners with a reasonable period of notice[8] and a negotiated financial settlement[9]. If an agreement can not be reached, the procedure described in article 13 will apply.

Article 15 - Rights and obligations of the partners

15.1 Rights

With the reservation of sharing in the benefits (cf. article 9.5), the partners enjoy equal rights; designation of one of the partners as the operator does not confer supplementary rights on him.

Each of the partners may obtain, by simple request, adequate information about the state of progress of the project, the incomes and all other matters concerning the agreement. The partners will avoid making excessive requests for information and checks.

15.2 Obligations

Each partner is required to contribute financially and materially to the success of the joint project.

They will ensure that they observe scrupulously the payment periods in the definitive payments schedule[10].

Article 16 - Language

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[6] Discuss the case where the operator withdraws
[7] Should the reasons for termination be given? To be discussed
[8] To be discussed
[9] To be made precise
[10] See note 9

The original of this present agreement was written in English.

* *

*

Made at ....., on ....., in three original versions, each party having received its own.

Appendix XIV

CASTEX VISITOR STUDIES REPORT

CASTEX SEMINAR, 26 – 27 February

EVALUATION AND PUBLIC STUDIES

Contents

LIST OF PARTICIPANTS

BELGIUM, Natural History Museum, Brussels

- Dominique Baugard, in charge of visitor studies
- Els Dever, sponsoring manager
- Hugo Vandendries, head of educational unit

FRANCE, Grande Galerie de l'Evolution, Paris

- Sophie Grisolia, museologist, exhibitions department
- Florence de Torhout, responsible for touring exhibitions
- Frédérique Lafon, in charge of the Observatoire Permanent des Publics (visitor studies)
- Camille Pisani, Head of exhibitions department

GREAT BRITAIN, Natural History Museum, London

- Gail Nolan, Gallery manager of the Earth Galery at the Natural History Museum in London. Responsible for looking after the maintenance and development of mainly the permanent exhibitions, although involved in some temporary exhibitions as well.

THE NETHERLANDS, Naturalis, Leiden,

- Hans Dautzenberg, Head of marketing and public relations. Responsible for marketing communications, population and visitor studies.
- Peter Koomen, head of office for development of cultural projects like Fatal attraction. Also involved in the preparation of new exhibitions for opening in 1998 and the visitor research done at the time.

SWEDEN, Swedish Museum of Natural History, Stockholm

- Petra Nordin, Public relations and marketing manager of exhibitions
- Goran Adenskog, Responsible for Corporate communication and marketing, and sponsoring

BRIEF EXAMPLE OF A JOINT TOURING EXHBITION: FATAL ATTRACTION

Presented by Peter Koomen

Fatal Attraction is an exhibition that began more than two years ago, as a joint project between three museums, Brussels, Paris and Leiden. The idea was to do something on animal communication. The first step was to come up with a story. It soon became obvious that finding a definition of animal communication on which everyone agrees is difficult. Finally, the communication involved in bringing together mates, male and female was decided on. Not only is it an interesting topic, it also involves many different types of communication, as well as the question of evolutionary balance. If you have to attract a partner, you have to give off a signal to let her, as well as other animals, know you are, while not getting eaten in the process. This is the fatal aspect of fatal attraction.

The exhibition is divided into 4 parts:

1°) Signals used to attract partners, visual, auditory, olfactory, even electricity. Many children and adults have a very narrow view of what animal communications are about.

2°) Why are there so many kinds? Because there are so many kinds of environments, each with its own constraints. This is a more physical part of the exhibition with experiments exploring which types of signals are adapted to which types of environment.

3°) Social Aspects. When you give off signals, others can mimic you, or find you and eat you.

4°) Application to human behaviour.

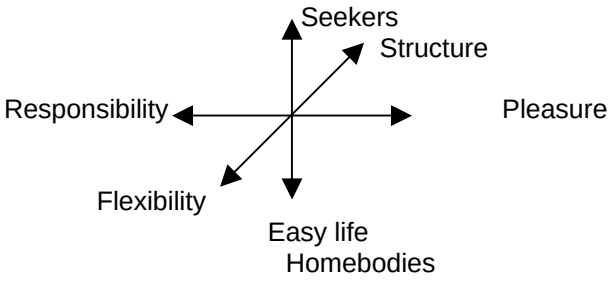
The overall is intended to be a bright and fanciful exhibition with lots of interactive displays. The exhibition is now in the process of standard European procedure of trying to find a designer. Within 2 weeks eight will have to be chosen out of thirty. Eventually the real work will begin, the exhibition will be designed, and then constructed by Brussels. Hopefully, this will be one of the first exhibitions on a European level, and others will follow with other museums. It will be one of the first travelling exhibitions using elements, that is to say animals, from collections. One of the characteristics of this type of exhibition is the number of arrangements that much be made. Test case within the CASTEX project, and that things we learn from the CASTEX project will serve the exhibition.

PRESENTATION OF VISITOR STUDIES

SWEDISH NATURAL HISTORY MUSEUM, STOCKHOLM

Presented by Goran Adenskog

The Swedish Natural History Museum did an internal study to determine the values of visitors and non-visitors. They took part in an international investigation by Seafull International, a Swedish firm. The investigation was called the “western model for meeting global changes in the market place”. The life and experiences, lifestyle preferences, demography, attitudes and behaviour of visitors and non-visitors were investigated. 25 values make up the Western model, which helps to predict future behaviour.



Several types of values appear along these axes:

- Seekers, those who seek to understand life and human possibilities.
- Homebodies, those who like an easy life, who don’t question much societal or world issues.
- Responsible people, people with strong integrity, team leaders looking out for the common good, involved in society as a whole
- Pleasure, risk takers, they like to have fun, sensations, they seek pleasure.
- Structured people, those who like, organisation, money, teams and team leading
- Flexible people, who see the system as a whole.

The Swedish tend to the easy, quiet life, leaning a little toward the responsible end, a little toward the pleasure end, but not much toward the seeker end. The Swedish model has been compared with Finland, Norway and Denmark, with whom there are some differences. Denmark is already tending toward the more European values of seeking and flexibility. It has also been compared with the rest of Europe, where the upper values tend to dominate, especially in Spain and France. It is quite interesting to see differences between Scandinavia and Europe, but also between individual countries. It is significant for communication.

This is part of an international investigation carried out at the end of 2000 throughout the Western world. The museum added their own questions on museums in general and their own museum in

order to sharpen their arguments and communication toward their own target groups. There are 9 million people in Sweden. Judging from a sample population of 2000, 43% sometimes visit museums, and 2% visit them regularly. In all, 45% visit museums, which is considered surprisingly high for Sweden. Most fall within the responsibility and easy lifestyle range. Cultural interest France is probably higher, no doubt explaining that 70% of the French visit museums.

People were asked whether or not they had visited museums in Stockholm. The Model shows which type of people go, and which don't. Results for the IMAX theatre differed somewhat. Results were compared with other museums in Stockholm, to see what types of people visit what types of museums. Those who go to history museums do not have the same values as those who visit art museums. Reasons for *not* visiting museums in Stockholm were also investigated, with replies varying from "it's too far" to "I'm not interested", giving an idea of the number of potential future visitors. The models also allow us to see what kinds of visitors are satisfied and dissatisfied.

The model has been especially useful for communications. The kind of media consumed was investigated; which newspapers, television, private or public radios are listened to. Partly because of the results, the museum has changed its channels for communication, dropping advertising in the metro and aiming, for example, at smaller, more targeted papers (though their message 'knowledge through experience' has remained unchanged). This is important when budgets are limited as they usually are, and cost efficient communication is necessary. Membership in various associations or societies is also valuable, for many have their own papers and it's usually cheaper to advertise in these papers.

People are also asked whether they have seen the Museum's advertising and communications. Their goal is for 95% of the population to be familiar with the name of the Natural History Museum. For the time being, only 24% of the population knows a science department exists at the Museum, even though 2/3 of the people in the museum, 150 in all, work there. This is considered a big shortcoming, because the science department adds value. People complain about paying taxes and entrance fees on top of it, but do not realise all the research that goes on behind.

Discussion

During the discussion all agreed on the interest of such an investigation, especially for touring exhibitions, in terms of both marketing and the exhibition itself. Some concern was expressed at how to make an exhibition that would appeal to countries whose values and interests are so disparate. It appeared that it was best at the exhibition level to try to please all populations, but to tailor additional activities and especially the marketing and communications strategies to meet the specific values of each individual country.

The importance of communicating on museum research also came up. In Sweden, people complain about paying taxes and entrance fees on top of it but do not realise all the research that goes on behind the scenes, and the government has requested they communicate more. In London, visitors ask to see the connection between research and exhibitions, and how it contributes to their lives. In Brussels, labs propose open-house days once a year. But scientists

are, understandably, too busy communicating their work to the sources of finance that will allow them to continue that work, and have no time to communicate it to the public. Exhibitions would be one way of doing this, but communication remains poor to non-existent between scientific and exhibition departments.

It also appeared for all museums that only a small percentage of the collections were on exhibit, In Sweden, not one out of 1000 of the collection's 9 million objects are on display. Temporary exhibitions appear to be a good way of showing both more of the collection, and communicating on museum research. Internet serves the same purpose, as do special activities that do not necessarily involve exhibitions.

Goran Adenskog agreed to send copies of the models.

NATURALIS, LEIDEN

Presented by Hans Dautzenberg

The Natural History Museum itself is old, founded in 1820, but the new building, open to the public, was only opened in 1998. The collection consists of about 10 million objects of which, like Stockholm, only 0.01% are on display. The 25,000 m2 Museum draws about 250,000 visitors per year, a quite successful figure.

The marketing and populations department is responsible for marketing strategy, marketing communications and marketing "intelligence". In order to keep up the great success of the first year, visitor studies were conducted to know who was coming and why they liked it, if they liked it. The plan began with a quantitative visitor study, which is repeated twice a year, as well as marketing research. A qualitative study was also carried out, with a panel of four discussion groups of about ten people, including visitors and non-visitors, with and without children. Several issues were discussed: attitude toward the museum, in which terms they spoke about it, what they had heard and expected, and what their experience was. The name Naturalis was new to people and a large promotional campaign was undertaken when opening in 1998. People expected to see nature of course, but beyond that, what people expected varied widely. A lot of people thought Naturalis had only dinosaurs and fossils, for example. When people were also asked to associate a colour with the museum, many answered "brown". Naturalis is not brown! An outside bureau was used to select the respondents.

The next step was a quantitative study to monitor visitor satisfaction, geographical origins, and travel time. Four surveys were conducted in 2000, two last year, and two will be this year.

The following results were drawn from the first 5 surveys. Naturalis was most often rated good or very good, with an index of 4.4 on a scale of one to five, while another visitor study of 20 museums in the Netherlands showed 4.0 to be the average.

Visitors are asked to rate the museum as a whole, but also the individual permanent exhibitions and any temporary exhibitions taking place. Ratings for permanent exhibitions varied, with those

most visited receiving highest ratings, so not every visitor sees every exhibition. Temporary exhibitions are variably visited but draw consistently high ratings. Facilities (toilets, restaurants, parking…) are rated less highly, but then visitors do not expect much from them to begin with. On the other hand, on opening, the toilets were obviously not well enough indicated, for the most frequently asked question on the part of visitors was where the toilets were. Pay desks, toilets and bookshop rated well, while routing and restaurant rated less well.

Regression analysis reveals some low-rated exhibitions that do not contribute much to the overall rating of the museum, and some low-rated exhibitions that do. Obviously, the latter are given priority in terms of improvement. Some are rated high even though their overall contribution is low, in which case they are kept as they are. Those that are rated high and contribute greatly are important because if you lose on their rating you lose on the museum's rating. One exhibition on ecosystems was very important to the overall, was rated low, and had to be changed. Most temporary are rated very high and also contribute to the overall museum rating. Some facilities are poorly rated but have little impact.

Findings showed it was necessary to improve the exhibition's "views of nature" and "ecosystems", to improve treasury and routing, and otherwise to keep up the good choice of exhibitions.

Findings on reasons for visiting revealed that word of mouth was very common, with much more impact than a newspaper article. Most come because they actually want to visit Naturalis. Many come to give their children, or themselves, something to do, or a combination of these reasons.

Most visitors travel slightly over an hour or less to get to the museum. Very few visitors travel further. The average visit lasts two hours. Forty percent of visitors have a yearly museum pass that allows free entry to almost all of the museums in the Netherlands. About 33% of visitors have already visited Naturalis, a figure that has remained constant. About two-third of visitors are sure or very sure they would like to return to Naturalis.

Most visitors are from Leiden or northwestern Netherlands and the large cities. Very few foreign visitors come, perhaps because there are no Rembrandts or tulips! Though Leiden is small, 120,000 inhabitants, it has 5 national museums. Museums are its main attraction. People who come to Leiden to visit Naturalis may also visit other museums and the rest of the city. But when people come to Naturalis, it is to see the museum, not because they were already in Leiden or just wanted to go out. To get people to the museum it has to be known, but for the moment only about 40% of the people in the region have heard of it. When people do come, it makes up a half-day outing.

Telephone marketing research of 567 people in May 2000 investigated how well known the museum was and what people expected to find there. When asked to name ten museums, 7% spontaneously mentioned Naturalis, and 3% mentioned it first. When asked to recognize museums from a list, 42% had heard of Naturalis.

Most visitors who knew of Naturalis are frequent museum visitors.

It was concluded from the study that Naturalis was not well known enough, 42% was considered insufficient, because only 12% of those who have heard of the museum have come to it. At this rate, there will be fewer visitors over the years. As of early March, the museum had 87% of the previous year's visitors for the same period. The goal is to make a more significant impression on people's minds. When they want to go out, they must think Naturalis. One way of doing this is by creating a sense of urgency, "if you don't go now you'll miss something" - like a baby dinosaur. Temporary exhibitions have this effect.

One last figure, when the sun shines on the Netherlands, attendance drops!

Discussion

Brain was a risky exhibition, which had little to do with a natural history collection, yet was a major success. By word of mouth, it drew visitors even outside the holidays. People seem to like exhibitions with a simple storyline. And then, everybody has a brain.

Temporary exhibitions attract people to museums. They are also constitute "news". Naturalis doesn't have a large budget for communication, and therefore needs to use a lot of free publicity. News is the best way of getting it. New exhibitions are always news.

NATURAL HISTORY MUSEUM OF BRUSSELS

Presented by Dominique Baugard

The following presentation of visitor studies is organized around three points.

- 1) Structure, important because the type of structure determines the type of study and results obtained
- 2) What kind of evaluation? How does the museum get to know its visitors?
- 3) Description of Public.

Structure

At the Brussels Natural History Museum, there is no real structure for the evaluation of museum visitor. Since the mid 1990's, at which time no study of Federal museum visitors had ever been undertaken and the need was felt to better know the public and to integrate that knowledge into exhibition management and museum management in general D. Baugard has been alone to conduct studies. She is also responsible for studies at three other museums in Brussels, the Royal Fine Arts Museum, the Royal Museum of Art and History, and the Royal Museum of Central Africa. All four are federal museums, meaning national as opposed to regional or city museums. Two are centred on art, and two on the sciences, even though the African museum houses a large collection of African art.

The original objective, determined by the authorities of these four state museums, was to compare the visitors of each museum. A project for the creation of “Permanent observatory of Federal Museums visitors” is currently underway, and additional means will soon be allotted. This means one more person and a greater number of more highly targeted studies.

Type of Evaluation

The types of evaluation are applied to all four museums, but here Baugard will focus on Natural History Museum. The first tool consists of visitor attendance figures, which reveal whether permanent or temporary exhibitions are being visited, whether visitors are adults or children, on their own or with a group. But this is insufficient. It does not, for example, reveal the geographical origins of the visitors. For this it is necessary to carry out visitor surveys.

The original objective was to build a database for later use. Baugard therefore developed a series of questions on visitor habits, their number of visits, level of satisfaction, conditions of visit, sources of information and socio-demographical background. The very important, one year study was undertaken by a team of pollsters from December 1996 to November 1997 to show seasonal variations. Two thousand two questionnaires were collected for the four museums, corresponding to information on 4,700 visitors. At the Natural History Museum, the 450 questionnaires collected actually corresponded to more than 1,300 visitors, since the questionnaire was distributed to one person in each group of visitors. These figures are important, because the questionnaire was long – nine pages – and lasted from fifteen minutes to more than one hour. It’s important to mention that the questionnaire was aimed only at independent visitors, not at organised groups. Other surveys were later conducted on these groups.

Later, other studies will be carried out on specific populations of visitors. For the moment, one has begun on visitors who come on the first Wednesday of the month, when entry to the four museums is free. The object is to find out if they are regular visitors to the museum or if they come only on free Wednesdays. Some formative evaluations are carried out, as are sommative evaluations. The latter are particularly useful in determining why an exhibition is not successful.

Who are the visitors?

Here again there are several types of tools:

- annual attendance based on entry figures,
- attendance for the last ten exhibitions
- description of group visitors
- description of independent visitors.

Annual attendance changes little from year to year. There is a decrease in the summer months, largely due to the importance of groups to the Museum. The museum receives 200 to 250 thousand visitors per year. Forty percent are adults, Sixty percent are children (groups and individuals taken together). The annual curves for independent visitors remain relatively constant, while group attendance varies somewhat more from year to year, but especially within a year, depending closely on season. This is because of the number of school groups. Independent

visitors make up for the summer low period, as well as for other periods of school holidays, when their numbers actually increase.

Of the last ten exhibitions, those that received the most visitors per month were those that did not last long. This could imply that the longer an exhibition lasts, the more visitors lose interest, and does not increase the overall number of visitors. It's also interesting to compare the attendance figures for the permanent and temporary exhibitions (tickets for temporary exhibitions give access to permanent halls). It's about 50/50, which shows that renovation of the permanent halls must not be overlooked.

Group and individual visits represent 50/50 respectively. 90% of groups consist of school children, the remaining 10% include senior citizens, cultural associations and so on, very few tourists. School groups are composed as follows: 10% aged 3-6, 35% aged 6-12, 28% aged 12-15, 24% aged 15-18 , 3% at university or equivalent level. Twenty-five percent of group visitors are local, from Brussels, 40% are Flemish, 35% are Walloon, again, very few foreign groups.

As for individual visitors, 67% visit with their families, 12% come alone which is very few compared with the other museums - especially art museums, 13% as part of a couple, and 8 % with friends. The primary motivation for more than half of the respondents is to bring their children. This same motivation is given by only 4% of visitors to Royal Fine Arts Museum. The average age of individual visitors is young, aged 27 compared with 40 for the Fine Arts Museum, and one-third of visitors are under 15. The individual public is also local and national, 44% are residents of Brussels, 24% from Flemish regions, and 20% from Walloon regions, with 12% foreign visitors. The Royal Fine Arts Museums attracts 52% foreign tourists. The foreigners come mainly from France, the Netherlands, Germany, Austria, the UK, and the USA. The educational level varies. Six % of the Belgian population has a university degree, whereas 35% of National History Museum visitors do. The foreign visitors are even more so. Many individuals are students. Very few inactive people – housewives or the elderly – visit the Natural History Museum, though the latter do visit the Fine Arts Museum. These are publics to be developed, because they have time.

Three out of ten respondents are visiting the museum for the first time, 24% are regular visitors, most of whom have been at least once or twice that year, and the majority are visitors who have been to the museum before, but who come less than once a year, the latter are primarily temporary exhibition goers. Sixty-eight % of the individual public say they intend to come back to the museum, 1% say they will never come back, 31% hesitate. The latter are yet another public to be 'conquered'.

Discussion

The Brussels museum receives more on the weekend, whereas school groups come during the week. The curves are complementary over the year, and during the week. Wednesday afternoons children often come with their grandparents or non-working mothers.

Someone commented that it appeared that for Brussels as for Naturalis, individuals favoured the temporary exhibitions, while school groups attended the permanent ones. Baugard replied that it depends on the temporary exhibitions in question, some are better suited to groups than others.

Peter Koomen and Hans Dautzenberg, speaking for Naturalis, suggested that while temporary exhibitions are very important people expect to see them, they are not in themselves a reason for going to a museum, but a stimulus to see the rest. They also said they have created 11 exhibitions a year, including two major ones. They try to create the large exhibitions, and rent the others, though not many natural history exhibitions are available.

Camille Pisani suggested that each participant provide certain information, to which others added;

- number of employees, for public and other services,
- surface areas for permanent and temporary exhibitions
- number of temporary exhibitions per year
- annual attendance
- figures for school groups and individuals
- budget
- the number of permanent exhibitions (or rooms) and how long they are intended to remain.
- Entrance fees
- Populations for countries and cities where each museum is found.

NATURAL HISTORY MUSEUM OF LONDON

Presented by Gail Nolan

The following presentation will give a general view of evaluation at the Natural History Museum of London, and a more detailed look at different types of evaluation and what is hoped to achieve through these evaluations. Museums should ask themselves a number of questions. The first of which is why museums should undertake evaluation of their exhibitions? What purpose does it serve? Does the museum need to know how many people are visiting the Museum or a particular exhibition, or is the quality of visitor experience more important? The museum should ask:

- What are the aims and objectives of the exhibition?
- Who is the target audience?
- How can the museums intentions be translated into reality when planning new exhibitions?
- Has the visitor enjoyed the experience or learned anything new?
- What are the criteria for success and at what point does evaluation take place?
- Most importantly, how is success evaluated, What methodology?

The development of an exhibition is a highly complex and dynamic process involving curators, conservators, project managers, finance and marketing staff, designers and scenic artists. By the time the exhibition has been launched, the original aims may have been lost, or perhaps they were not very clear to start with?

Did the exhibition team have different ideas about what the exhibition should be or what kind of audience it would appeal to? Perhaps the designer's ego got in the way or the marketing staff changed the focus so that the educational messages were lost? Perhaps the subject matter was not sufficiently appealing, so it was not surprising when nobody came or the press gave it such a bad review!

These situations are much more common than one might imagine, even in the most prestigious museums. The Natural History Museum is not immune to these problems. The reason some exhibition fail to live up to expectation is that everyone has different expectations. It is therefore important to ensure everyone develops a shared vision of the exhibition so that:

- The aims and objectives are clearly stated and agreed by the project team
- The target audience is agreed with the marketing department
- The content of the exhibition is structure to meet the needs of the audience
- The educational and communication messages are explicit
- The design provides and environment appropriate to the subject and audience
- The marketing campaign is targeted at the right level
- The exhibition delivers what is promises.

The Evaluation Process

The Natural History Museum uses various types of evaluations. We are basically trying to measure how effective those exhibitions will be, effective in terms of connecting with the audience as well as achieving the museum's own aims. The following types of evaluation are used at the Museum:

- - Concept (front-ended) evaluation Occurs at the early planning stages
- - Development (formative) evaluation During the exhibition development
- - Final (summative) evaluation After the exhibition has opened

The Natural History Museum of London, like the other museums heard, does general visitor studies. Visitor data is collected, providing the number of type of visitors, when they come, at what time of day they come, size of party, and general demographic information such as age, sex, social class, where they live or how far they have travelled to get to the museum. The museum has many years of records going back so it is easy to see the past and make assumptions about future trends. This said, the Natural History Museum, like other London museums, has just gone

free to visitors, which changes the picture entirely. Visitor numbers are shooting through the roof at the moment and it's not sure the museum can sustain those numbers for long, probably not.

The museum also evaluates the buildings, how accessible they are for the physically disabled. This again is important at the moment in the UK. The museum must comply with new legislation. The museum also looks at how socially inclusive the exhibitions are, whether they are reaching all sectors of society, including disadvantaged groups, people from different ethnic minorities, and perhaps people who would normally not come to museums at all, how can the museum attract them? It's a new area where much work remains to be done.

Concept (Front-ended) Evaluation

Concept evaluation is concerned with the evaluation and testing of ideas by:

- Examining the original concept or idea and the development of the brief
- Agreeing a clear set of aims and objectives – what it is intended to achieve?
- Testing of the brief, business plan and audience appeal
- Development of an appropriate marketing strategy
- Allocation of a budget capable of achieving the exhibition aims
- Managing everyone's expectations for the exhibition – these can often differ
- Ensuring compliance with the museum's mission and exhibition policies
- Gaining approval from senior management

This early stage of evaluation is generally under-developed among museums. Although the Natural History Museum does do this kind of evaluation, they do not do it for every exhibition to the level perhaps they should. All museums have budget restraints that keep them from doing all they'd like, but it does make one look at museum proposals in much more detail and in a more critical light. Examining a lot of existing material can help as well:

- Looking to the past experience of the museum, what worked and what did not?
- Examining the existing audience profile and market information
- Researching current theory, published literature and the experience of other museums
- Testing the concept on the proposed audience (whether existing or new, at home or for an intended tour) with questionnaires and focus groups
- Developing a robust business plan which will deliver income, if required
- Clarifying the brief and the aims and objectives so that everyone is clear exactly what the exhibition is intended to achieve
- Planning the criteria, programme and funds needed for subsequent evaluation

If the exhibition is intended for touring, the design concept will have to be tested on your touring market, taking into account the various needs of that market, which can vary enormously between countries, where the public often has different expectations. Clearly there are a lot of additional demands on touring exhibitions.

The Natural History Museum in London always conducts this internal type of front-end evaluation, but often it's difficult to get all those involved on a set of shared aims or on the target audience. The important thing is to make sure everyone has a look at the evaluation that's been done and understand why a particular exhibition is being done and why it's being targeted at a particular market so that, even if everyone doesn't agree, they at least see the logic behind it.

Once the museum has completed its own internal examination of the exhibition concept, the next phase it to test those ideas on visitors. The Natural History Museums uses two main techniques for this: 1.) Visitor questionnaires and ; 2.) Focus groups.

Questionnaires are inexpensive to do and easy to implement because they can be carried out by the museum's own staff. They can let you know quickly whether what is being planned will have general appeal. The disadvantages are that respondents generally answer a fixed set of questions that they can't answer outside of, so it's not easy to explore resistance to a concept. Also, only existing audiences are being tested, not potential ones, unless an outside marketing research company is brought in. Finally, visitors sometimes give answers they feel the museum wants to hear, especially regular visitors.

Focus groups are very useful in testing new audiences and helps to explore concepts in more detail and depth. For this, the museum employs the services of a marketing research company because it is slightly more difficult to set up. They are very helpful for refining concepts, and for testing the particular audience the exhibition is aimed at. If the museum has a great idea, it can also help to find the right audience for the product. The perceived value can also be investigated. The disadvantages are that it is much more expensive to set up. Some museums do do the investigations themselves, but generally it's preferable to employ a marketing research company, even then, only small sample groups can be used because of the cost. Sometimes the findings of the focus groups can be taken with too much enthusiasm, distorting the original aims of the exhibition concept. Sometimes exhibitions have a very strong educational purpose and it is the mission of the museum to educate on a particular subject, so sometimes the museum does exhibitions that don't necessarily have wide appeal. Again, it is important to know why an exhibition is being done. Is it purely for educational purposes, does it have to cover its cost, does it have to make a profit for the museum?

Development (Formative) Evaluation

The next phase is once the development process of the exhibition is actually underway. The advantage here is that something tangible already exists that can be shown the visitors. Testing consists of:

- Examining the team working methods and planning processes for the exhibition

- Development of the scripts, interpretative content and exhibition ‘look and feel’
- Testing exhibition concepts and transmission of ideas and educational messages
- Prototyping interactive exhibits and ‘mock-ups of a selection of displays
- Evaluating design proposals to ensure they suit both subject and collections
- Monitoring the quality of the finished construction drawings and the script
- Will the exhibition achieve basic criteria; will it be delivered on time and to budget?

This phase is also important for selecting the appropriate media. The exhibition team should consider:

- What knowledge is the exhibit intended to convey?
- What is the appropriate medium for delivering this knowledge?
- Will an audio-visual presentation or interactive exhibit work best?
- How can the exhibition be paced so there are a variety of experiences?
- Can such an exhibit function independently or do you need to reinforce the ideas presented in several different ways? Obviously if you’ve got someone with a hearing impairment, that visitor will not benefit from an audiovisual display and so on.

Once a suitable media has been chosen, ‘mock-up’, or model, is made of the exhibition that contains mechanical parts able to answer the following questions:

- Are the chosen materials and construction techniques strong enough to withstand constant use by visitors?
- Can the mechanical parts be easily obtained and replace if they break down?
- Will it be easy to transport and erect if it will form part of a touring exhibition?
- Is it easy to understand and safe for the public to use?
- Does it effectively communicate the desired concept or information?

This is a refinement process that is looking at a particular communication methodology, at how that process can be improved. A prototype is a cheaper version of a mock-up, where you don’t necessarily have to build up the entire exhibition in its final form. There are several advantages:

- It is inexpensive to produce and can often be constructed by the museum itself
- It allows the exhibit to be refined, rebuilt and tested again if necessary
- It can be tested on museum staff or perhaps their children so do not have to involve the wider public
- It is a useful exercise to complete before any mass-production (at which point the more expensive and accurate mock-up can be produced to mimic the final exhibit in every detail).

As a recent example of formative evaluation carried out in her department, an interactive wave tank was to be built. A similar exhibition already existed at the museum but didn't work very well, and for which no evaluation had been carried out. This time we began at the beginning, testing different quantities of water and sand and so on, first in theory, then in the workshops using a mechanical device. When they were happy with a prototype developed with the manufacturer, a full scale mock up was done, and is now being produced and will be tested again out in the gallery. Museum engineers were present at every step and can therefore make any necessary adjustments if need be.

This sort of evaluation is important for touring exhibitions, which are intended to last five or six years, being erected and dismantled at different venues. A lengthy process but very useful.

Summative evaluation

The final evaluation type at the museum is the summative evaluation, carried out after the exhibition has opened to the public. At that point the following can be evaluated:

- Whether the original aims and objectives of the exhibition were successfully achieved – if not, what were the reason for this?
- How the exhibition development process was managed – ca the process be improved next time?
- Whether the funding allocated to the exhibition was adequate – where could savings have been made or what additional funding would have been beneficial?
- If the design and construction of the exhibits to a satisfactory standard what remedial action needs to be taken?
- Whether the marketing campaign is attracting the expected number of visitors – what else can the museum do to create press interest and promote the exhibition?
- What lessons can be learnt for future exhibitions?

Summative evaluations are carried out with the public as well as staff, and is one of the most important kinds of evaluations to do. Because what the public thinks is what counts in the end. Usually when visitors spend time at an exhibit it's because they find it interesting, but it can mean they don't understand it.

In conclusion, a major evaluation project was carried out recently at the Museum. In 1996 the Museum opened its first phase of a new wing, the Earth galleries. Three galleries were the object of this first evaluation. Their objective was to change public perception of geology as a dull subject, with too much text. The main aims of the study were:

- To identify who was visiting the new galleries – the traditional academic audience or the broader audience the museum wished to attract
- To find out if the exhibition content was appropriate to the people attending
- To decide if the galleries succeeded in changing perceptions of geology amongst visitors

- To consider how the galleries could be improved and what could be learnt to aid the design of the next phase of the galleries.

A great was found out about how the galleries were working:

- The profile of visitors to the Earth Galleries had changed as intended, to a much broader audience, including those with little prior knowledge of earth sciences
- A significant increase in visitor's interest in earth sciences was recorded, the galleries were considered interesting, dramatic and exciting and perceptions of geology had become more positive than preciously
- The level of information was pitched correctly and the dramatic, interactive areas were especially popular
- However, some visitors found the galleries confusing, perhaps lacking an obvious conceptual framework and parents found it an effort to keep younger children interested and engaged
- Some individual exhibits were quite puzzling, and would have benefited from more formative evaluation to check the public could understand the content quickly and simply

Many visitors felt the signs and gallery plans were insufficient and some found the overall design and gallery layout difficult to comprehend. This was one of the reasons the museum decided to redo the wave tank.

Conclusion

These are the types of evaluations used at the London Natural History Museum. They are not used for every exhibition or gallery for reasons of funding. But they do help tremendously when used.

Discussion

Given the impossibility of conducting all of these types of evaluation on all exhibitions, it was asked how the London Museum decides its priorities. The Museum does front-ended evaluation most of the time because it can use museum staff and resources. The formative evaluation will again be carried out largely in-house with some central experiment or questionnaire. Summative evaluations are not often carried out on galleries because it tends to be a more expensive process. The Earth galleries evaluation was carried out in 1996, three other major galleries have opened since, none with this extent of evaluation. But what was learned from the first galleries was applied to those that followed. They use a lot of students, many doing museum studies.

Focus groups help the museum to better target their exhibitions and audiences

Ideas for exhibitions at the London Natural History Museum come from a number of sources. Often through the curators, but not necessarily. In all cases they must go through a process of evaluation and meet the mission of the museum (the most important criterion). They must appeal to the audiences and the museum must, of course, have the resources to do the exhibition. Sometimes other museums propose exhibitions. The overall mission of the London Museum is to educate and make collections available to as wide an audience as possible, and to be a favourite visitor destination. It is also to research the collections and make them available to the public.

Changes in services must be made to accommodate people with disabilities, whether those be hearing or visibility impairments, learning or physical disabilities, in compliance with 1994 legislation and within a certain time frame. By 2004, changes must be made to the physical building so as to ensure the exact level of service to those same groups as to people without disabilities. Someone commented that it was very difficult in an art museum to make a painting interesting to the visually impaired, asked what exactly could be done in a Natural History museum. The English legislation says museums must do what is reasonable, but does not define what that might be. Very few people use Braille, so this would be a costly, inefficient solution. Another participant suggested making exhibitions expressly for the visibly impaired. But that might make it inaccessible to someone else.

Someone else asked how, in the museum's efforts to include a broad public, they deal with problems such as the reaction of Muslim children before exhibitions on evolution. The Museum can only present the facts as they are known, but cannot take into account different religious beliefs, though it might be a good idea to acknowledge they exist.

For a long time, the London museum's department of research and development took initiative for the evaluations, but their budget has been cut. It now depends on who has the money: sometimes the exhibitions department, sometimes the marketing department.

Non-visitors are sometimes surveyed, though probably not as often as they should be.

Nolan was asked if all these evaluations really worked better that just doing an exhibition on gut feeling. Her answer was yes, even though she admitted that science doesn't always have all the answers…

SPECIAL PRESENTATIONS

GRANDE GALERIE DE L'EVOLUTION, PARIS

Presented by Frédérique Lafon

The Grande Galerie de l'Evolution, located in the Jardin des Plantes, is part of the National Natural History Museum, which was founded at the time of the French Revolution. The Grande Galerie in its present form dates to 1994. In preparation of its opening, visitor studies began in 1989 among users of the Jardin des Plantes, the most likely visitors of the Grande Galerie to come. From 1990 to 1992, a front-ended study was conducted on the how visitors to the Jardin perceived evolution, based on an exhibition at the time entitled On a marché sur la terre, which prefigured the forthcoming Act II of the Grande Galerie. The study evaluated how visitors understood the texts, and especially what their existing ideas of evolution consisted of. The Grande Galerie was designed partly based on the results of these studies.

Today's Observatoire permanent des publics was created at the time the Grande Galerie opened in 1994, mainly to carry out quantitative studies on the sociological make-up of the public, based on ticket sales. In the first year, the Galerie received one million visitors. Since then, the number of visitors has levelled off at approximately 600,000 visitors per year.

In 1995, the vigipirate plan was instated. Aimed at curbing terrorism, the plan forbade schools to take public transportation within Paris, and to visit museums. This was a big handicap in the opening stages of the Galerie, and it is only this last couple of years that school visits have begun to pick up again.

There are several other galleries in the Jardin des Plantes notably the galleries of paleontology and mineralogy, the Menagerie, and the Tropical Greenhouses. In all, the Jardin des Plantes attracts between 1 million and 1.2 million visitors per year (except free entries). When the Grande Galerie opened, it was feared that the others would suffer a drop in attendance. The opposite proved true, especially in the first year.

The Grande Galerie regularly compares its figures with those of the other science museums in Paris, in particular the Cité des Sciences, which draws 1 million visitors per year, the Palais de la Découverte and the recently renovated CNAM (the industrial arts museum). For the last three years in particular, the Grande Galerie has done very well, while the Cité des Sciences has seen its attendance drop, and the CNAM has not done well at all since reopening, with fewer than 150,000 visitors per year.

As with Brussels and Leiden, attendance is seasonal (though independent of the weather). The curve is identical for all museums in Paris, with a peak in April, over the Easter holidays, and a low in September.

Ticket sales

There are three types of tickets at the Grande Galerie: 1.) Permanent collection only; 2.) Temporary exhibition only; 3.) a combination ticket. It is easier to attract regular visitors to

temporary exhibitions if they do not feel obliged to purchase a ticket to the permanent exhibition as well.

Visitor distribution studies from 1994 to 2000 revealed that 90,3% of tickets sold were for the permanent exhibition only. The remaining figure of 10% for temporary exhibitions might seem insignificant, but it nevertheless represents 65,000 to 100,000 visitors per exhibition. This of course depends on the duration of the exhibition and when it is programmed. Short exhibitions, like one held on Egyptian scholars, draw a large crowd daily, while longer exhibitions draw fewer. It should be noted that the Galerie has only one temporary exhibition hall, 900 m2. In general, there is only one exhibition per year, lasting from 7 to 12 months, except the Egyptian exhibition, which lasted only four months.

For long exhibitions, there is a steady decrease over time in sales of single temporary exhibition tickets. Combination tickets are purchased mainly by people who are visiting the Grande Galerie for the first time, and who take advantage of the visit to see the temporary exhibition at the same time. In July/August combination ticket sales are high, due to the number of non-resident tourists, both French and foreign. It is therefore important to program temporary exhibitions for the summer months.

Fewer than 100,000 school children per year, representing about 16-18% of yearly attendance figures. Again, this figure was even lower in 1995, about 12%. Groups of adults represent only 1,7%, added to the school groups, this makes less than 2 visitors out of ten who visit the Grande Galerie as part of a group. This is radically different from Brussels where 50% of visitors attend with a group. The Grande Galerie is therefore mainly an individual cultural experience.

Group attendance to the temporary exhibitions is even lower. This is probably because they don’t last long enough for teachers to work them into their yearly schedule.

The Observatory

The Observatoire permanent des publics surveys approximately 1,500 visitors per year about the permanent collection, and another 500-600 about the temporary exhibitions. Ongoing surveys are conducted six days per month, throughout the year, so as to get an overview that takes into account periodicity. The survey lasts approximately 10 minutes, the questionnaire containing about 50 questions aimed at determining visitor socio-demography, their degree of satisfaction in terms of the museum itself but also services such as the boutique. There are also open questions as to what the visitor likes or dislikes and so on.

When, at the opening of the Grande Galerie visitors were asked whether they had ever been to Jardin des Plantes, a third replied they had not, and that they came for the first time intrigued by the Grande Galerie.

Another third were already familiar with the Jardin des Plantes, and came to see the Grande Galerie renovated, though many had not been to the Jardin for twenty years. As of 1996, one-third of visitors to the Grande Galerie are returning visitors.

The difference between first-time and returning visitors to the Jardin des Plantes and the Grande Galerie is important, revealing many sub-groups each with its own specificity. First-time visitors are essentially - 50% - French or foreign tourists to Paris, whereas those already familiar with the Jardin come from Paris or the suburbs. Returning visitors to the Grande Galerie are local in majority. These differences are reflected elsewhere in the questions. First-time visitors are more

likely to complain about the routing. Returning visitors will go straight to the ticket counter without stopping at the information desk.

Of first time visitors to the Grande Galerie, 11% are working class, but very few of these become regular visitors. This is a problem the Grande Galerie must try to resolve. Among those who visit the Grande Galerie, the tropical greenhouses and the menagerie, the socio-economical levels are more heterogeneous than for those who visit the galleries (evolution, paleontology and minerology), who are in a higher bracket. There is here, a question of relation to live collections that needs to be investigated.

It is also interesting to note that when people come for the first time, it is most often without children. Twice as many returning visitors come with children. In 50% of cases, the children are less than six years old, which means the Grande Galerie is perceived as a place suitable for children of this age. This is something that needs to be taken into account, since for the moment, only one small room is especially aimed at them. On the other hand, a growing number of activities are being offered during the school holidays, and as might be expected, the number of children is on the rise.

Half of temporary exhibition visitors have already been to the Grande Galerie. This implies that temporary exhibitions establish visitor loyalty. Eight years after opening, when visitors are asked what attracted them to the Grande Galerie, most continue to reply that it was the gallery's renovation that brought them. The constant figure of one-third first-time visitors is a healthy sign.

Sixty-four percent of temporary exhibition visitors come from Paris or the suburbs. Temporary exhibition visitors also tend to be older, with 26% over 55 years of age, compared with 10 % for the permanent collection.

All of these studies are carried out in-house. Sometimes they are conducted with a target group in mind. In 1998 we carried out a study on foreign visitors (15%) to determine in what language the audio-guides should be translated. Foreigners were primarily, in order of greatest number : German, English, Italians and Spanish.

Another evaluation was carried out among non-visitors (one-third of the French population does not visit museums), revealing the importance of the Grande Galerie's notoriety. Seven out of ten provincials and nine out of ten Parisians had already heard of the natural history museum and the Jardin des Plantes. Of those, four out of ten provincials and six out of ten Parisians say they have already visited the Grande Galerie or the Jardin des Plantes.

Of a representative population, a study was made of what image the French have of the natural history museum. Like for Sweden, the image is mainly that of a place to be visited, to see an exhibition, animals, or dinosaur bones, whereas the research carried out in the museum is unknown to most of the public.

Visitor profiles

The public is more or less young, with more and more young children. Men make up 45% of visitors, women 55%. This is related to the subject matter. At the Palais de la Découverte, a physics and mechanical museum, the majority of visitors are men, whereas the life sciences appeal more to women. Educational level is high, with 3 out of 5 visitors having spent at least three years at university. A third of visitors have some scientific background. When compared with the general population, visitors to the Grande Galerie would appear an elite. Most are actively employed, and of those, most are in managerial or executive positions. Of those who do not work, most are university students.

One of three visitors has already visited the Grande Galerie, of those, half have been at least three times. Regular visitors also frequent the other galleries of the Jardin des Plantes, but since 1989, a small but increasing number bypass them.

From the beginning, the notoriety of the Grande Galerie has been a major factor in attracting visitors. Few people just stumble on to it.

One of our studies has shown that while people know about the Grande Galerie, they have a difficult time recalling its name, La Grande Galerie de l'Evolution. Even when Grande Galerie is retained, evolution is not. Before opening, the name was tested, and shown not to be the best in terms of recall, but it was chosen anyway. In July 2000, a poster campaign was launched showing the gallery's caravan of animals, that is to say the most identifiable aspect of the gallery's content. The campaign seems to have helped people make the connection and retain the name.

Visits are thorough. Three out of four last 2 hours. The two most popular parts are the caravan of animals and the hall of threatened and extinct animals, though few people actually get to the latter because of poor routing. This is being improved. One problem revealed through studies is that, while the original order for visiting the levels was intended to be 0-1-3-2, visitors chose the more logical order 0-1-2-3. It also became evident that returning visitors began with the most difficult "acts", working their way to the least difficult.

Eighty percent of visitors are satisfied or highly satisfied. The visit is considered a cultural activity, only the family groups view it as entertainment.

The four strong points of the Grande Galerie are considered to be the: 1.) presentation and ambiance; 2.) building and architecture; 3.) collection of naturalized animals; and 4.) educational presentation.

The four weak points are: 1.) lighting; 2.) routing and lack of a connecting thread; 3.) comfort; and 4.) entrance fee.

In addition to the ongoing surveys carried out since 1994, summative studies have also contributed to the improving the Grande Galerie in response to visitor expectations, especially in terms of welcome and comfort.

Discussion

H. Vandendries commented that the Brussels museum's popularity with children has always attributed it to the attraction of the dinosaurs, of which the Grande Galerie has none. F. Lafon and C. Pisani replied that people visiting the Grande Galerie with small children stay about an hour, most of which is spent at the marine and terrestrial displays. The Grande Galerie is like an immobile zoo where people with children can be content just to look at the animals. In the public view, nature and animals are associated with children. The large library at the Cité des sciences, has actually merged their zoology and children's sections.

P. Koomen asked if the Grande Galerie was doing something to change the elitist trend. Lafon and Pisani replied that while the Grande Galerie would like to change it, nothing is actually being done at the moment. The Cité des Sciences once had the same problem, and by doubling the surface designed for children, uneducated parents came more frequently. Children are a motor for bringing adults, and when the latter are relieved of having to explain things, they seem more willing to come. Theoretically, the Grande Galerie has room to quadruple the surface for children, but there are two main obstacles. The first is architectural; the educational services would need to be moved elsewhere and so on. The second is financial; it would cost from 1,5 to 2 million Euros to implement. In the meantime, the explanations of evolution and biodiversity could be simplified so that anyone able to read could simply read them to children.

The question of extending gratuity to children over four also came up. Some museums are free one Sunday per month. A study at the Louvre revealed that the public on free Sundays was not at all the same as on other days. They are less educated, less used to attending museums. Gratuity implies doubling the personnel available to the receive the public, especially since visitors attracted by the free entry are a more fragile group, requiring more effort, and are less likely to return. Also, the Grande Galerie has on occasion held "open house", with more than six thousand visitors in two days. This creates difficult viewing conditions, further dissuading an already fragile public from coming back. One possibility would be to sell combination tickets for the Grande Galerie plus another gallery or the menagerie for example.

G. Nolan added that gratuity at the London Natural History Museum had caused dramatic changes. The number of visitors has risen sharply, and people do not do the same sorts of things, nor do they spend as much time. People used to spend the entire day at the museum, lunching and so on. Now they go to three different museums in an afternoon. They no longer lunch at the museum, nor do they spend in the gift shops. People come more often, but only see the dinosaurs, for example. It also creates maintenance problems; as many as 21,000 visitors have come through on a single day (for 23,000 square meters of exhibition space). Also, people no longer come through the main entrance into the Life Gallery, but use entrances closer to the neighbouring museums. The museum is compensated for the loss of ticket revenue based on previous attendance figures, but the costs are now higher, and they've lost the commercial benefits of the restaurants and gift shops. At the same time, the problem is compounded by the

new difficulty of finding sponsors, due to competition from the large number of museums created for the millennium.

DISCUSSION ON EVALUATION METHODS

Introduction F. Lafon

Different evaluation methods

The first studies possible are quantitative, based on ticket sales, comparisons with other museums on both local and national scales. The methods based on ticket sales contribute to the cultural and ticket policies of the establishment. The curves of visitor admissions that result can help to program publicity campaigns, temporary exhibitions or simply opening hours, or logistics such as how to organise personnel. For some they may reveal particular trends related to weather.

Then there are the actual visitor studies, determining visitor (and non-visitor) biographical profiles, visitor expectations and satisfaction, visitor motivation or lack thereof, and determining the establishment's image.

Methods include visitor surveys in the form of questionnaires (self-administered or administered by pollsters), telephone polls, and outside studies with representative group samples.These allow for a better understanding of visitor satisfaction expectations and consequently improvement of displays and exhibitions, and general facilities.

Qualitative evaluations

There are also the qualitative studies. Front-ended evaluations give an idea of how the public perceives a certain subject, their general knowledge of it, and what they might expect from an exhibition on the subject. For example, two years ago the Grande Galerie did an exhibition on the natural history of the brain. Early on in the front-ended evaluation it was clear that what people wanted most from an exhibition was to understand the human brain. This did not fit with the Grande Galerie's mission. The exhibition eventually focused on the animal brain, but a series of conferences and activities were added which took into account the desire to learn about the human brain, within and outside the museum.

Formative evaluations take place during the development of the exhibition to test its ergonomics, its clarity, impact of an exhibition name for marketing purposes. A few years ago the Grande Galerie did an exhibition entitled "Islands", a word which appeals to everyone. The posters were highly attractive. But when the public saw the name and posters, they thought vacation, whereas the exhibition dealt with the effect of insularity on species and endemism.

Then there are the summative studies, after an exhibition's opening, which evaluate visitor comprehension *in situ*.

Several methods of qualitative evaluation exist, including individual or group surveys, professional analysis, monitoring of visits by following visitors or even by filming them on video such as the Grande Galerie did during the exhibition "Footsteps on the earth". Even the visitor's book can give a good indication of the public's overall reception of an exhibition.

Front-ended studies help in the elaboration of the exhibition design, formative studies optimise the latter or make changes to it, and the summative studies allow for *in situ* validation. Marketing studies are rarely conducted by the Grande Galerie.

How then, can these evaluations help itinerant exhibitions in the context of CASTEX?
The Swedes' study was very interesting in revealing the different expectations according to country. In the case of Fatal Attraction a study has already been undertaken in Paris, Brussels and Leiden. But what other evaluations might be possible?

Juggling different countries and museums

In the case of Fatal Attraction visitor perception of animal communication was evaluated and, hopefully, used by the exhibition designers, but differences between visitor habits in the different countries were not taken into account. It might be a good idea to have specialists from potential exhibiter museums comment on the synopsises, to see whether a Spaniard, for example, would consider it suitable for the Spanish public. This wasn't possible with Fatal Attraction because of time, but there was also a legal question. It seems there was a problem with diffusing the synopsises before a scenographer had been decided upon. The problem was that this type of evaluation was suggested during the process of selecting a scenographer. So that everyone had an equal chance, they all got the synopsis at the same time. In France, once all eight candidates had received the synopsis, it was not a problem to distribute it elsewhere, but for the Belgians it would have been. Cultural and legal differences of this kind should be considered in the future. Ideally, any changes to a synopsis should be made before the scenographer is chosen.

It was suggested that while itinerant exhibitions must indeed be designed with due consideration to differences between countries, the individual museums must also be considered, since different museums within the same country also have different audiences. It would be a good idea to list target museums and study their needs, which would help to plan the thematic layout of the exhibition. The exhibition proposal should then be evaluated on those particular audiences.

A CASTEX questionnaire is in the planning for different museums, but not a targeted list. On the contrary, the list is intended to include a broad range, including leisure parks, theme parks, science centres, natural history museums, zoos, etc. But this is indeed too broad.

The CASTEX project is intended to map the problems that may be encountered when planning a travelling exhibition, so it is interesting to realize that when you want to do a visitor survey, it may be blocked be some European rules or regulations. With Fatal Attraction, the idea from the start was to do an exhibition for three museums, in hopes that others will be interested. The reasoning was that it is impossible to aim to please too great a number, but that if it works well in three museums, it may work well in others. The audiences of the three museums involved were taken into consideration, but not tested.

All in all, it was pointed out that defining which audiences a museum already reaches is one thing, but to say which audiences a museum wants to reach through an exhibition is quite another. The target group can be common to all museums involved in the creation of an exhibition.

Juggling different audiences within exhibitions and museums

The London natural history museum's travelling exhibition department takes into account the audiences of other museums, but even when planning an in-house exhibition, the section of audience being targeted is considered. If the core audience consists of families, planners will look for lively, colourful, interactive displays. If adults are targeted, it will be very different. So even within a given institution, there may be many markets.

Many different audiences may exist. In Leiden, family groups dominate, while Paris focuses on higher level education. But the main difference between the three museum markets targeted for Fatal Attraction involves school groups. Brussels has 50 % of school groups, while Paris only 6 % (for temporary exhibitions). In Paris, there is very little room to accommodate them. Interactives intended for individual visitors are insufficient for school groups, and they are always attended by a museum lecturer. The participants seemed to agree that guided tours are not the best way for school groups to visit a museum, but schools always ask for them. In Brussels, the groups are often given an introduction to an exhibition, then left free to visit on their own, mingling with individual visitors. This eases pressure on school teachers who are often reluctant to visit an exhibition if they must explain it to their students on their own.

Questionnaires or treasure hunts always spark children's interested and keep them occupied with the lesson at hand. Live actors may also be a solution, targeting general audiences or school groups. But actors are difficult to include in a travelling exhibition, and are only relevant in some circumstances, such as exhibitions involving the history of sciences, (there is a theatre troop in Paris specialised in museum performances).

It was suggested that one way to deal with differences in school group attendance would be to plan special activities intended specifically for these groups, which are not necessarily a part of the exhibition itself. Also, if an exhibition is designed for a family audience, nothing prevents including material in layers to allow a higher-level audience to delve deeper into the subject, or children to follow treasure trails for example. Layering exhibitions allows not only for appealing to different museum audiences, but to different audiences within a museum.

Another solution is to tell the same story in different ways, as for the third part of Fatal Attraction (how to make yourself known to your partner but not your enemy). One large computer can be used for demonstrations, smaller systems surround it, each giving the same message but in different ways, using different animals for example. This keeps the interest of individual visitors, who may want to see them all, but also conveys the intended message to school groups, even if the children do not see all of them.

KARINE LANGLOYS – An example of visitor research at the Grnade Galerie de l'Evolution: The relation between visitors and naturalized collections

The usefulness of artificial collections

Artificial collections reduce the need for renewing collections and concerns about preservation. They are especially useful for itinerant exhibitions, where real specimens can be easily damaged during repeated transport and installation. They are not, however, without limits. This research was conducted to determine how visitors perceive real and artificial specimens, and whether the real or artificial nature of a specimen effects the visitor's understanding of the message the specimen is intended to convey.

Museum specimens fall under four categories:

- Real specimens that appear to be real;
- Real specimens that appear to be artificial;
- Artificial specimens that appear to be real;
- Artificial specimens that appear to be artificial.

Four specimens, each belonging to one of the above categories, were chosen as examples:

- Real/real, the giraffe displayed in the caravan is one of the naturalized animals from the old collection that was restored.
- Real/artificial, the caravan's hippopotamus is also from the old collection, but after restoration it's smooth, shiny appearance makes it look artificial.
- Artificial/real, the basking shark of the Marine exhibition is made of resin, but many visitors think it's real.
- Artificial/artificial, the giant squid is difficult to mistake for a real specimen.

Survey

The first question asked of visitors was simply "Is this a real animal?". The answers provided by the visitors questioned for the study helped to determine the categories. The two categories in which a specimen looks like what it actually is (real/real and artificial/artificial) correspond to no, or very little, error on the part of the visitors, whereas as the other two led to error. This implies that whatever the nature of the object, the exhibition designer must keep in mind that the visitor may be mistaken. It's not because an object is real that it will be perceived as such.

The survey consisted of 15 questions. Twenty visitors surveyed per display was considered sufficient for our purposes.

For the most part, visitors easily perceived the true nature of each specimen. They also perceived the designer's intention in using either real or artificial specimens, whether it be because the animal is too rare, or impossible to naturalise and so on, as well as the messages concerning

eco-system and biodiversity. Diversity was even better perceived in the case of the artificial specimens, not because they were artificial, but because the animals they represented were less well known than the giraffe or hippopotamus for example.

Artificial specimens can therefore very well be used in exhibitions, where they are accepted and understood by the majority of visitors. But certain precautions must be used, as the following example will show.

Example: the Giant Squid

The replies of the twenty visitors surveyed raised a number of problems. To start, fourteen of them expressed, at some point during the interview, doubt as to the existence of squid this size in the wild. Five actually refused to believe it. Three-fourths of those interviewed wondered whether a model of this kind had its place at the Grande Galerie, and for some it caused doubts that extended to real specimens. Some assumed it was an enlarged model, for others it was a means of attracting visitors, still others thought it must be extinct. The visitors said they would have preferred a real specimen, because at least they would not have doubted its existence. In spite of this, more than half caught the intended message of biodiversity. Therefore, the message concerning the animal itself did not pass, but the message concerning the animal's place in the environment did.

It can be deduced that the notion of scale is extremely important when presenting artificial specimens, even familiar species, as an example of five small-scale models of rhinoceros shows. The models are intended to convey a message about endangered species, which was well perceived by visitors, but some of them actually said they were not surprised the rhinos in question were endangered, given their small size compared with large rhinos.

Discussion

To resolve the problem of scale, it was suggested that not only the artificial nature of artificial specimens be mentioned (already the case at the Grande Galerie), but the scale also clearly indicated, and perhaps a model of human included for comparison.

Another example of a problem in scale was an giant model of a grain of sand, intended to show the fauna living within. It was the only place in the Grande Galerie visitors were allowed to touch an object, and not many ventured to do so. Visitors were invited to enter into the model, where the sand fauna were represented. Outside was an even larger model of the head of a pike with its mouth wide open, intended to show that fish feed on the fauna in question. It didn't work, and they had to do a tremendous amount of work on it to make it understood. It would seem that visitors have a hard time switching between real and artificial, and varying scales.

Mistakes can be made for other reasons, and there are many types of visitors. Some at the Grande Galerie begin below with the marine display, where most specimens are artificial. When they move on to the other displays they continue to assume the other specimens as well are artificial. Others are almost repelled by the idea of real specimens, and would prefer that all were artificial. Still others are disappointed to learn that not all of the specimens are real.

MARIE CLAIRE HABIB - Qualitative Studies at the Cité des Sciences et de l'Industrie

Marie Claire Habib has, for the last several years, has done exhibition evaluation and visitor studies at the Cité des Sciences. Last year she summarized the methods used by her service for qualitive studies, in addition to the studies of the Observatoire permanent des publics. The Cité's quantitative figures are relatively stable, which facilitates observation of changes or concentration on certain visitor categories such as groups or children. But the Cité also investigates other directions using different methods.

These methods are largely based on qualitative surveys and analysis of open questions such "What do you think of the exhibition you've just visited?" or "Did you use the interactives and if not, why not?". The goal is to understand the quantitative results, by observing visitor practices and utilisation and investigating how they feel about what they're seeing or what former knowledge they had of a subject. Criticisms voiced by visitors are also important for marketing purposes.

One study last year summarized the methods used by various cultural establishments, beginning with the analysis of textual data, questions such as "Why do you visit museums? Why do you prefer art museums? Science museums ?" etc. The idea of a museum is often associated with the fine arts, but in the case of the Cité des Sciences, motivation changes from a desire to see "something pretty" to a desire to remain up to date on latest changes in technology and "progress" in general. Aware that people visit sciences museums out of a thirst for knowledge, detailed investigations may be carried out on small sample groups of 10 to 15 people, showing just how they "use" the elements of the exhibition. This was done with the children's exhibitions, where the children were asked how they liked the activity they were involved in, if it was enjoyable, in what way they learned something from it, what difficulties it may present, in general the child's perception of what he or she is visiting.

These studies reveal different levels of visitor learning, enjoyment, previous knowledge and expectations. Most of the time, they are used for evaluating the impact of temporary exhibitions, allowing for a better appreciation of why people come for a particular theme, and also to improve exhibition design. Indeed, temporary exhibitions being the ideal place to test new ways of conveying information, new museum design, even new ways of writing text to make scientific notions accessible to the public. This type of study is therefore useful for exhibition designers.

Other methods are more classic, such as following the circuits chosen by visitors. The Cité des Sciences is a large establishment, with many problems involving spatial and conceptual orientation. Following circuits can help to understand how people choose one theme or exhibition over another, how much time is spent at each, and in general, and they use the overall space rather than the elements of one particular exhibition. One study a few years ago monitored the circuits of adults who'd previously agreed to be followed. The protocol was not easy to develop, the adults were to be followed without interference, but visits proved long, between one and five hours, and visitors more or less "forgot" they were being followed after a while. The visitor was then asked to comment on his or her reasons for spending more time at one exhibition than another, for example. Where an observer may have thought a visitor was lost, it often turned out the visitor had stopped before a display that was particularly interesting for personal or professional reasons.

The study revealed a few types of visitor circuits:

- Exhaustive, where the visitor wished to see everything and spent but a short time before each display,
- Centred, where on the contrary, the visitor spends most or all of his time at a particular temporary exhibition
- Limited, where the visitor chooses to see a certain number of exhibitions, but not all.

These methods are highly structured, but relatively simple to implement. The time spent before each display is noted, which has led to some surprises. For example, the time spent before interactives and videos is very brief. Also, young adults, especially those working in fields related to new technologies, have a way of moving easily from one exhibition to another, most as if they were in a hypertext.

Front-ended evaluations enable exhibition designer's to plan exhibitions with visitors' previous perception of a subject in mind. The Cité developed a two-year programme on "life" including an exhibition on the brain, another on genes and another on human transformations (prosthetics, robotics, artificial intelligence, etc.). Some time ago, various focus groups outside the museum, and in fact outside of Paris, had already been surveyed to see what they would expect from exhibitions relating to biology. Interest was shown in the latest research in subjects relating to everyday life such as health, aging, and filiation, and also in basic knowledge of classic themes like cognitive or natural sciences. The study was carried out too early, in the sense that the Cité did not yet have a specific project to test, but it does give food for thought.

The three themes brain, genes human transformations arose in the course of other investigations. One, a global project called the BIOCOM, a committee for reflecting on the "challenges of life", for which the Cité des Sciences questioned fourteen scientists from universities, the Pasteur Institute, etc., as to what were the major messages, in terms of biology, that should be conveyed to the public today. Basic questions such as that of evolution were considered of major importance to them, as well as history of science. Members of an association for biology and geology teachers were also questioned.

Sometimes studies are carried out by outside firms.

The risk of visitor studies is that they are not taken into account when it comes down to actually developing exhibitions, when designers are confronted with other constraints.

Discussion

C. Pisani pointed out that the relation between evaluations and production has a long history. First of all, evaluations diagnose problems, but do not find solutions for them. It remains to find ways around the shortcomings detected. Secondly, summative evaluations of an exhibition can, in a certain sense, serve as open-ended evaluations, without recourse to an entirely new protocol for

each upcoming exhibition. As G. Nolan already said, the first step in planning an exhibition is to ask if something like it has already been done, whether it worked, and if a similar theme has been treated within the museum or elsewhere. If the Grande Galerie were to follow this type of logic, they would stop doing historical exhibitions commemorating naturalist expeditions, which have always flopped in terms of the public, except for the exhibition on Egyptian scholars, but then Egypt has the appeal of dinosaurs.

It was suggested that centralising or exchanging temporary exhibition catalogues and studies would be useful. F. Lafon replied that such evaluations at the Grande Galerie have generally served internal purposes, and that while she would be willing to provide them to anyone who needed them, but unless they are actually published, it is difficult to make them broadly available.

M.C. Habib said that evaluations may serve varying purposes. The Cité des Sciences held an exhibition on forests, originally from the Finnish museum Eureka. When she suggested doing a study to the person responsible for bringing in the exhibition, she was greeted with little enthusiasm. She nevertheless did a small study, where it was found that one out of two museum visitors made their way to the exhibition, despite the fact it was very poorly located and publicised. It attracted a lot of families because there were lots of activities, machine-like manipulations that pleased children. Trees are in themselves a big attraction, like Egypt or dinosaurs. Getting back to exchanging studies, after ten years in the studies and prospective department, Habib feels this is indeed a major problem. Some studies are made available to students and researchers at the history of science media library at the Cité. But once a study is finished, it's nearly impossible to put it into a form utilisable by all the parties who could actually benefit from it. Administrators would need a one-page summary, journalists three pages, researchers three volumes, etc.

F. de Torhout drew attention to a paper, prepared for a conference at the Museum, on the different methods used at the studies department, focus groups, interviews with scientists, and summative evaluations, and interviews with members of biology and geology teachers associations. The text is available to the participants.

G. Nolan inquired as to how the Cité des Sciences managed to keep the content of permanent exhibitions such as "Medecin", up to date. Habib said that particular exhibition was created in 1992, and has always been criticised, not by the public, but by the institution itself in the sense that it does not keep up to date. But surprisingly, what seems to interest the public most, are the displays on medicine around the world. The BIOCOM exhibitions are intended to complement the permanent displays with more up-to-date views of biological issues. At the same time, the one on genetics may become permanent itself. Because the Cité des Sciences has no actual permanent collection, what to keep and what to get rid of becomes a tricky question. Visitors wait for a pretext to come, they need exhibitions to be presented in a novel way, but whether the exhibition is temporary or permanent is less important.

Coming back to the monitoring of visitor circuits, the Grande Galerie made similar observations, accompanied by recordings of visitor reactions to exhibition design and content, lighting, and so on. This "intellectual" circuit is complementary to the geographical one, and allowed the

investigators to understand why visitors were spending time, or not, at the various displays, and whether they were getting the overall message of the Grande Galerie. Visitors to Acts II and III of the Galerie, very dense in text and visuals, were revealed to spend only 10 seconds on the average before each display, which at first appears very little. Thanks to the recordings, it became clear that despite the brief time spent, visitors were grasping the messages. It appears to work by a sort of reactivation of the visitor's previous knowledge of the subject. The fact of seeing a title like "Mendel and his peas" is enough to spark the visitor's memory.

LUCIEN MIRONER - The main characteristics of the French museums and their visitors

Bibliography :

Mironer, L. Cent musées à la rencontre du public, France Editions

Mironer, L. 1998, Les visiteurs de quatre muséums, Lettre de l'OCIM n° 25, jan-fév.

Lucien Mironer carried out an investigation on one hundred French museums and their visitors. It began in 1990 when the French museums' visitor department requested he develop a method which would allow, museums, even the most modest, to become better acquainted with their visitors. The method had to be scientifically valid and inexpensive. The corollary being that the museums must themselves be able to collaborate on the method and participate in the operation. Self-administrated opinion polls immediately came to mind. They'd already had good results (a high rate of reply) with a survey diffused through the Postal system, particularly one concerning contraceptives carried out two years earlier, to which 70% of gynecologists and obstetricians solicited for what was a long, highly technical questionnaire, replied. They also knew that museum visitors are highly involved in what they are doing when they go to a museum, highly attentive to the collection, and the environment they are visiting, and so we were not worried about their willingness to fill out a questionnaire. It soon became evident that the greatest difficulty would concern involving the staff at the reception, who had no training in the field, and who were often not predisposed to contributing to what they consider surplus work. They therefore had to make sure that while the survey remained perfectly serious and scientifically valid, it was also extremely simple to apply, because if it were too complex, it would never work.

The method

The survey was intended to determine the characteristics, expectations, and the level of satisfaction of museum visitors, which makes for something rich, with a lot of questions. The survey would obviously not fit onto a single page. But Mironer was convinced that the length of the questionnaire was not a problem, as long as it is interesting. It appeared that the more the questionnaire focused on the visit itself, the better it would be. It was decided that by giving such a focused questionnaire to the visitor as he or she arrived, and asking them to fill it out at the end of the visit before leaving, it gave the visitor the chance to assess their visit, thereby integrating the study in the visit itself.

For a quantitative study, a representative sample of the visitors must be questioned. Therefore all the individuals of the population to be studied must have the same chance of being polled. The selection had to remain free of the possible choice by those passing out the questionnaire. Let's take the example of a museum receiving thirty thousand visitors per year, if say three thousand were to be surveyed, one questionnaire per every ten visitors would need to be distributed randomly. The easiest way of doing this was to refer to the number on the ticket. For example, every time a ticket ending in 0 comes up, the person selling the tickets opens a questionnaire and hands it to the visitor along with a short letter and a smile, asking the person to read the letter before visiting the museum. The visitor, intrigued, reads the letter, for example " The Natural History Museum is doing a survey among its visitors in order to better meet their expectations. We would be grateful if you would fill out the questionnaire at the end of the visit and deposit it at such

and such a place before leaving the Museum. In appreciation, we would like to offer you a souvenir of your visit". This last part is important for two reasons. Firstly, it's an incitation to reply. But especially, the promise of gratification registers in the visitor's memory. Two hours later when the visitor looks at the questionnaire, realizes it is directly related to the visit and fills it out, he or she will take it to the designated spot, where someone will collect it and in return offer the respondent a sachet of two or three postcards or a poster along with a word of thanks. It's simple and convivial, and the rate of reply is extremely high, in over twelve years of study, and more than 120 museums, rate of return averages between 60-80%. There were three exceptions where the rate was closer to 40%, in all three cases the staff had been totally uncooperative throughout.

The 60-80% average is largely superior to polls conducted face to face, where, in the case of museums, only one out of two visitors, at most, leaving a museum accepts.

Of course there are museums where the tickets are not numbered and it is necessary to proceed differently, in which case it's possible to count the visitors, checking them off one by one at the entrance, etc. The essential condition is that the person be chosen randomly, and not because the person handing out the questionnaire thinks a visitor looks more competent to reply, or more available, etc., but that each visitor has the same chance at being selected. The other aspects of random selection are purely secondary. Accidents inevitably happen, and are a part of the random method. But distributing questionnaires to the elderly with the idea that they have more time to answer, or to students more likely to have understood has nothing to do with random accidents, and must be avoided at all cost.

Between 1991 and today, 120 museums have used this type of questionnaire. A certain number are still using it. It's called *Observatoire permanent des publics*. The "permanent" is somewhat abusive. It may remain in place permanently. At the Louvre, for instance, an *Observatoire* has been in place for 8 years, and plays an essential role for the museum, because it informs the museum on visitors that are not accounted for at the entrance, but that accompany those who are. Through those who reply, it is possible to reconstruct part of the public that does not. Generally, the survey lasts one year, twelve consecutive months, which allows for all types of visitor flow, and particularly foreigners and out-of-towners who make up seasonal tourists. Following the twelve month period, the results are analysed, corrections can be made to the museum's offer, and the suvey can be taken again. The new results serve to see if the changes have been effective. It's easy to see that if applied before and after on a more systematic basis, the Observatoire permanent des publics is a survey protocol that can, once it has become a part of the routine of the entrance staff, be used on a permanent basis, and the questions adapted when needed. It allows for regular measurement of visitor appreciation and satisfaction of reception, prices, opening hours, presentations, documentation, lighting, services. It can provide a precise idea of changes in the socio-demographic profile of visitors, and to see if objective, such as attracting more young visitors or more foreign tourists for example, have been reached. This implies that foreign visitors can be questioned in their own language, which in turn implies that the questionnaire has been translated. Obviously, if only tourists who speak French can reply, the sample is not representative of all foreign tourists. These are secondary aspects which do complicate the system and make it more costly, but they are also important. The eternal problem of museum surveys is cost, budget, and while the benefits of such surveys are widely recognised, the practise is not yet widespread.

The museums

The museums surveyed in France are often large, important museums by the sheer number of visitors such as the Louvre, or Orsay, but also small, regional museums, including natural history museums. Seven regional natural history museums were studied, Le Havre, Nantes, Bordeaux, Bourges, Grenoble, Dijon, and Strasbourg. Three-fourths of the questions posed are essentially the same for all, though adapted to each museum, one-fourth are specific to it. The questionnaires contain four dense pages. The data collected for each museum were exploited in classic manner, systematic analysis of all responses according to geographic origin ("Do you intend to come back soon" obviously does not hold the same signification for visitors in their region and for foreigners, for example).

So, five types of questions were posed: 1°) socio-demographic characteristics and geographical origin of visitors; 2°) Antecedents to the visit, previous visits, publicity etc.; 3°) Circumstances of the visit, alone or accompanied, part of a group, with family or friends, visit planned in advance or on the happened upon., length of visit, 4°) Level of satisfaction, concerns the reception, information, auxiliary services, comfort, lighting and of course content, etc.; 5°) Readiness to return within the next few years, and within the next 12 months.

After the first 6 months the museum receives a report with detailed tables, and at term, a complete report with all tables of results analysed according to geographical areas, day of week, period of the year, the fact of having visited, or not, a temporary exhibition that was being held, or not, at the time, whether the visitor came alone or with others, accompanied by children under 15 or not, and other variables. The sum of information after a year is extremely rich, and for each of the points studied it is possible to have a profile not only for all of the visitors taken as a whole, but for the different types of public that compose it. Parents of school children, senior citizens, 15-24 year olds, locals or tourists, all of this is useful in terms of marketing. The types of information consulted by the visitor in the months before the visit, the impact of advertising campaigns, etc.

The publication of *Cent musées* allowed us to go even further and to draw up a synthesis. We considered that these hundred museums made up a sort of sampling, perhaps not representative, but certainly indicative of French museums. Museum profiles were derived from visitor responses. There were museums where more than 50% of visitors were women, others where they were only 35%, others where young people were more or less present, and so on. Each museum had its own socio-demographic profile and through highly sophisticated computer analysis of the profiles we were able to arrive at a typology of the museums themselves, indicative of French museums on the whole.

This typology revealed five major types of museum:

1. Museums in Ile-de-France visited primarily by tourists. This is the most heterogeneous of the categories. Most of them are large, and are part of what draws tourists to the area. They draw a lot of visitors, because of the shear numbers, visitors are poorly received. These are the museums most gratifying because of their collections, and least so by the reception and other services offered. We find the Chateau de Fontainbleau, the Louvre, the Orsay, the Picasso museum, etc. Visitors feel compelled to visit them, are greatly impressed by the collections, but complain much more often of the services. The Orsay for example, is the museum where the reception is considered worst of all, but it is also the museum where people are overall most satisfied. Which makes one think about the notion of reception. It's usually taken on a first degree, whether ticket sellers smile or scowl. But after two hours of great visit, the visitor apparently forgets the surly welcome and leaves satisfied.

2. **Regional museums worth discovering.** Concerns small, poorly known museums, visited almost purely by accident by people vacationing in the area, who had never heard of the museum before, and who did not foresee returning, at least not in the next few years. This included any number of chateaux and other interesting, small museums, unknown on the national level, and less so internationally.
3. **Emblematic Museums of history and identity.** Similar to the last, they constitute a showcase for tourists on the region or town where they are located. The Museum of Cognac, for example. The theme often strong and emblematic of the region. Their notoriety is greater than for those in the second category. Their public is not numerous, but the museum's existence is known thanks to tourist guides who speak more about them than those without an emblematic dimension.
4. **Museums of science and technology visited by families.** It is in this category that we find Museums of Natural History. Oddly*, all* of the science and technology museums fell under this category, which is visited significantly more by families (parents, children, cousins, siblings…) than other museums. These museums also receive a majority of local visitors and very few tourists. This is a problem. Why don't tourists come? Some cities in other countries have Natural History museums that do attract tourists, both nationals and foreigners. In any case, the Natural history museums in the larger French cities, Dijon, Bourges, etc. could almost certainly be attracting more toursists. The fine arts museums, on the other hand, do attract tourists, even those who have no knowledge of art, while something keeps them from going to natural history museums. This raises the question of the status of the natural sciences as opposed to the status of art in our societies, in tourism, and in the cultural policies of the towns themselves, etc.

   Other characteristics of this type are corollary. Since there are a greater number of families there are a greater numbers visitors aged 35 to 49, corresponding to the age of parents. In other museums this age group is less present; usually the age is stable between 20 to 40 years old, with visitors over 40 in decline. This is in itself another problem because the privileged age for visiting museums would logically be after the active age, but museums are not comfortable enough and adults of this age were not sufficiently educated in this sense earlier in life, and then there is a turning in on oneself, but there are a lot of ways that visitors over 50 could be, and should be drawn in. We let people over 69 go if they like, or take them in a bus, herd-like, which is not necessarily the best way to visit, nor even the least tiring. A senior citizen who has been repeatedly exhausted visiting museums in uncomfortable circumstances will eventually stop going.

   Most people professionally active. Knowledge of the establishment dates to long before the visit, usually because this population also tends to be local. Visitors to these museums also tend to be return more regularly than to other types of museums. Word of mouth is a more common reason for visiting these types of museums. The principal motive for a visit, a particularly important factor to analyse, is the desire for discovery, to learn something, which is not the same as curiosity, which itself is something other than the sheep-like before of some tourists that we often, mistakenly, associate with the term. People return to this type of museum in order to deepen their knowledge of the collection or some aspect of it. Temporary exhibitions are also an important motive. The third motive is to show others. This is a common motive in all museums, 15-20%, but it is not experienced in the same way in art museums and in science an technology museums.

   Overall, this type of museum is characterized by family visits and a good-natured spirit, it would seem it is on the average more reassuring, less intimidating than art museums with prestigious collections. This museum type also shows a length of visit superior to others, on the average two hours for forty percent of the visitors. We can deduce that visitors are interested in the displays, that they spend more time at them, that the information is more complete than elsewhere, and that visitors read it, indeed visitors reply more often on the average that they are satisfied with the information they find here, and, as might be expected, that they will return within the next 12 months. This is important because one of the main complaints of museums in France is the quality of information, and greatly effects overall rating from 5% to one out of three visitors dissatisfied.
5. **Museums with visitors who come regularly for temporary exhibitions.** All of these museums have a following of loyal visitors returning regularly for temporary exhibitions. This means these museums organize regularly temporary exhibitions, some of them to a point which mains them resemble exhibition galleries more than actual museums. For some of them, visitors come only to see the temporary exhibitions, almost never seeing the permanent collection. This can pose a problem, in that it negates the institution of the museum itself, This is often the case of art museums. and also because temporary exhibitions draw visitors through publicity, if the museum doesn't have

the means to advertise its temporary exhibition, it won't even have these visitors. The ideal is a symbiosis between the temporary exhibition and the permanent collection by which the temporary draws visitors to the permanent, and that the permanent collection gives visitors the desire to see temporary exhibitions which develop certain aspects of the permanent. These museums pose the problem of the veritable vocation of the museum.

Three-fourths of the questions on the questionnaire are common to all museums, though adapted to each. One-fourth are specific to each. They can at any time to formulate a questionnaire differently for a museum. Five major themes were evoked. They are the basics every museum must know. It is possible to include a more specific problematic but is takes room. What is essential with an self-administered questionnaire such as this, particularly in the cultural domain, is that is closer to introspection than dialogue. The visitor reads a question, and if it is perfectly clear and he or she feels they have something to say about it they make the question their own as if they were asking themselves. The visitor is invited to participate in a process of self-elucidation and introspection. When all is well done, they go further than they would in a relation with a pollster, who asks the questions more or less clearly, who expects a answer, and faced with whom the visitor's first response is not to lose face. So self-administered questionnaires in the cultural domain is a most noble and interesting approach that should be privileged, though for the moment it is tends to be considered as a low-cost solution to be used when the means for something better are lacking. More it goes, the more I'm convinced that this approach, when well-prepared and highly detailed, is particularly well adapted to this type of study.

A word about Boutiques

1°) Without doing a survey, it is obvious that in the last 10 years the products sold in boutiques have greatly improved, more attractive, more interesting and more of them.

2°) There are two phenomena of which it's necessary to be aware. First, museums tend to want to make money off boutique for both good and bad reasons. To the degree that visitors are not taken for idiots, it is legitimate. As long as the museum sells interesting things with some relation to the visit which will allow to valorize the visit and leave the visitor with a palpable souvenir. Secondly, the visitor needs to buy something for two reasons, first in order to remember the visit, but also because the visitor has just spent two hours before often marvellous objects that have left him with a more or less strong desire for appropriation. A postcard leaves the visitor with a souvenir. Also, the consumer has just spent all this time in a cultural world where money is nothing and he comes out feeling enriched but small and insignificant in his outside role as consumer. On leaving the museum, the visitor will pull out his wallet to express himself in the way it is possible for him, through money. For a few hours he will have identified with, projected himself into the works and objects before him, on leaving he'll express himself through the means available to him. Psychologically, it's important to have boutiques that allow the visitor to put his hand in his pocket. But not everyone has a lot of money to spend, so it's important not to overdo it with only pricey items or cheap items that lose all cultural value as souvenirs.

Conclusion

The most useful, pertinent, truest and most necessary conclusions for taking action in the field of museums for the enrichment of the visitor and the valorisation of the collections are common sense conclusions, but which are confirmed by the study of 120 museums:

1. In a large proportion of cases, to offer visitors an plan of what to do when they arrive, for usually they do *not* know what to do. When museums do this, the plan is usually is usually, shallow, conformist, purely formal. A choice of possible visits should be offered. Make the visitor understand that if he or she likes such and such a thing, they should use such and such a plan, etc. The corollary to this is that a museum visit takes preparation, but no one prepares, except maybe tourists.
2. There are two types of visit, a meditative type oriented toward reflection on the collections and specimens, contemplation, and a collective type that is more of a pleasant family stroll through a sumptuous or surprising set where the exchange among individuals takes priority.
3. There is no single way of explaining things. All types of psychologies are present, all types of information must be proposed. There are people who can't read standing up, others who can't stand headphones, others who like to stick documents in their pockets for later reading. This also means giving the visitor indications as to what is essential and is less so. In front of certain displays a bibliography could be provided, or indications as to where other specimens can be viewed.

A museum visitor expects not just to be informed, but enchanted.

90% of the times, the open questions you see are not analysed, for simple reason of budget. Mironer suggests that museums use their own personnel or students to analyse them.

Discussion

For M.C. Habib, how visitors like to be welcomed to a museum varies greatly. Five percent of visitors to the Cité des Science would like a kind of circuit after which the child would be rewarded with some kind of souvenir. One-third of visitors would like to be very well received on arrival at the museum, with visits suggested according to their interests or age. We also have a number of visitors with certain knowledge of sciences already who wish to remain free to visit unassisted, on their own or with their children. There are also those who like *in situ* demonstrations. It's difficult to generalize.

L. Mironer replied that while they have not carried out qualitative research on museum visitors, they have carried out a great deal of quantitative research on the museums. A commentary on percentage results implies reflection. The analysis of quantitative results is necessarily qualitative. He has arrived at absolutely qualitative considerations. An eminent scientist once said "A little science leads one away from God, a lot of science leads one back to Him." One might say that a little surveying leads away from common sense, a lot of surveying leads back to it.

Appendix XV

FATAL ATTRACTION BUDGET

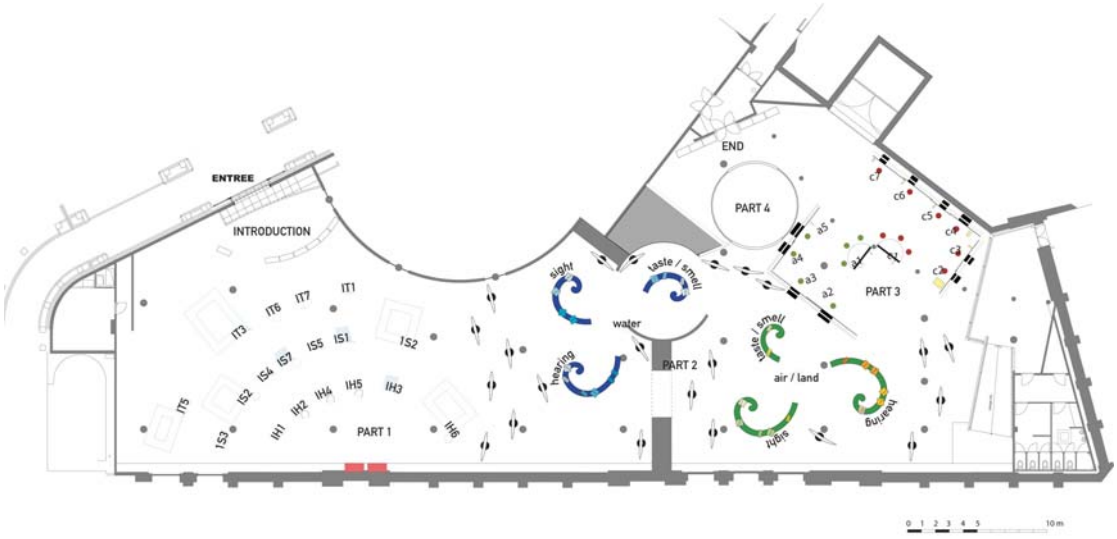
FATAL ATTRACTION -STATE OF EXPENSES

Wages	€ 100,000.00
Designers fees	€ 129,351.40
Graphical design	€ 29,119.78
Illustrations	€ 7,100.00
Computer games	€ 50,791.73
Exhibition texts	€ 11,750.87
Part 4 movie	€ 75,000.00
Short movie (fees + editing)	€ 21,550.00
Animated movie	€ 15,000.00
Furniture/Special Exhibits	€ 560,000.00
Sound production	€ 2,500.00
Graphic printing	€ 25,000.00
AV Info Material	€ 95,000.00
Collections	€ 40,010.00
Photos rights	€ 27,000.00
Insurance	€ 7,000.00
Legal adviser's fees	€ 12,980.00
Sponsoring	€ 8,443.00
Maintenance	€ 25,000.00
Adaptation travelling	€ 50,000.00
Moving and setting down/up > Leiden > Paris	€ 128,322.00
Margins	€ 59,081.22
Various	€ 20,000.00
TOTAL EXPENSES	**€ 1,500,000.00**

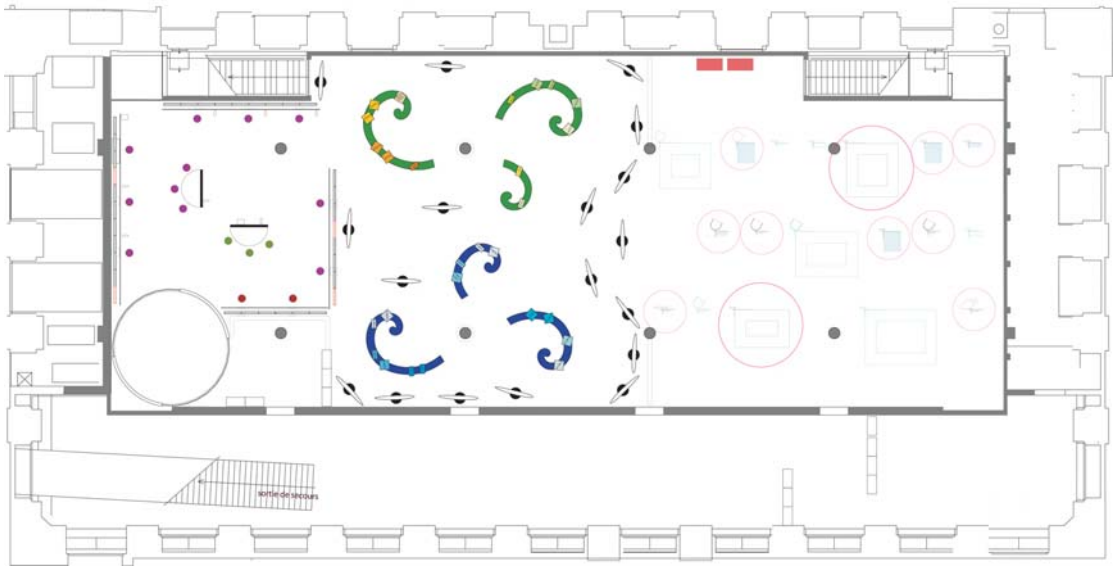
Appendix XVI

THREE FATAL ATTRACTION GALLERY PLANS

Brussels



Paris



Leiden

Appendix XVII

CASTEX COLLECTIONS REPORT

Grande Galerie de l'Evolution, Muséum National d'histoire naturelle, Paris

LIST OF PARTICIPANTS

BELGIUM, Natural Sciences Museum, Brussels
- Dr. Olivier Retout, International Relations, CASTEX co-ordinator
- George Langlet, Curator of vertebrates

FRANCE, Grande Galerie de l'Evolution, Paris
- Pierre Yves Gagnier, paleontologist, assistant head curator, in charge of collections.
- Florence de Torhout, responsible for touring exhibitions, in charge of Castex organisation in Paris
- Jacques Maigret, marine biologist, curator responsible for conservation of collections, whose service is intermediary between the heads of collections in the various laboratories of the museum, and the exhibition department.

GREAT BRITAIN, Natural History Museum, London
- Mike Fitton, head of collections in entomology department, also current chair of museum's collection management theme with an overview of curation of collections throughout the whole museum.
- Gordon Rankmore, head of exhibition research and design, whose team is responsible for development of permanent exhibitions as well as temporary, touring exhibitions.

THE NETHERLANDS, Naturalis, Leiden,
- Peter Koomen, head of office for development of cultural projects like Fatal attraction. Also involved in the selection of collection for the original exhibitions in 1998

- Willem Beekhuizen, manager of public collections and educational loans within and without the Netherlands.

SWEDEN, Swedish Museum of Natural History, Stockholm
- Eva Dalberg-Malick, responsible for bringing in foreign exhibitions

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Introduction
by Jacques Maigret

The goal of the CASTEX seminar is essentially to discuss collections, use of collections, and more specifically the use of collections in international touring exhibitions. This raises a number of questions:
Understanding the impact of collections on the public.
- Can a natural history exhibition exist without specimens, that is to say using only artefacts, models, audiovisuals, etc?
- Will an exhibition using specimens better convey a message than one without?
- Can dead specimens convey a message about living subjects such as biodiversity and the protection of nature?

Selecting which specimens to use.
- How to determine a code of ethics?
- What does national and international legislation have to say? (ex. France has special restrictions protecting the fauna of French Guiana, where most central and South American species can be found. This complicates importation of specimens from these regions)
- Will these numerous, varied and complex constraints tend to encourage exhibition designers change the intended message of an exhibition and look for an easy way out by using artificial specimens, videos, etc?

This last point is of utmost importance for natural history museums. Can museum designers become entirely independent of museum scientists and curators, producing collection-free exhibitions? J. Maigret suggests that the members of CASTEX would not agree on the latter. Collections are what make natural history museums competitive compared with other forms of science and technology institutions. Efforts should be concentrated on constructing exhibitions that use natural history collections.
Last year, for example, J. Maigret and Pierre-Yves Gagnier participated in an exchange with the museum of Edmonton in Canada, whose director said he would like to do an exhibition on extinct species. The Natural History Museum has three hundred years worth of specimens, whereas Edmonton is relatively young. The immediate reaction of the two French curators was to say “Never would we allow such precious specimens to travel!”. Edmonton’s director pointed out that art museums send off Van Gogh’s, even the Mona Lisa. If all necessary precautions are taken, why not let such specimens travel? Not sending them is certainly the easiest way to go. Sending them would involve an important infrastructure and cost would be high, but perhaps the educational value is worth it. Since

the encounter in Edmonton, the natural history museum in Paris has endeavoured to change its own values, and has almost come around to the same point of view. Last year the museum said no, this year it says under the right circumstances perhaps…

Over the next three years, CASTEX will meet again. At term it should have broached the following "international" subjects:

- Cultural differences in the use of collections
- Questions of national patrimony governing exchange
- Ethics, collections require specimens, is it still ethical to produce specimens today? Under what circumstances?
- Legislative. Each country has its own laws on nature conservation and international conventions govern use and exchange of species.
- Techniques of exhibition. Exhibiting rare specimens implies special conditions of conservation, handling, transportation, etc. This raises risks of deterioration, as well as cost of exhibitions (packing, safety, insurance).

The calendar, which is open to modification, is broken into several phases:

Phase n°1

June 2002
Recommendations from seminar

Phase n°2

June – December 2002
Exchange by e-mail on topics discussed at seminar

Phase n°3

November or December 2002
In November, the Ministry of Research is organising a seminar on the management of collections in Europe. It would be a good idea to organize the second CASTEX meeting two days before or after, so that members may participate in both. Report from the second meeting will be made and discussed by e-mail, as for the first.
May 2003
Third meeting to assess topic 3 and produce recommendations

Phase 4°

November 2003
Meeting to discuss topics 3 and 4, followed by a final report on the use of collections in scientific exhibitions.

Presentation of Collections by Each Museum

NATURALIS, LEIDEN
Presented by Willem Beekhuizen

The following presentation includes a short history of the natural history museum of Leiden and the origins of the collection and a brief overview of the use of the collections for scientific and especially educational purposes.

History of Naturalis

The museum, now called Naturalis, began as the National Natural History Museum in 1820. The Minister of education at the time, a certain Mr. Falk, advised the king that rather that rather than having the collections scattered over the universities, there should be one central national museum similar to those in England and France.

The first director of this Rijksmuseum van Natuurliijke history was Coenraad Jacb Temminck, and ornithologist of international reputation and a good friend of Mr. Falk, the Minister of Education, which proved of great importance to the foundation of the museum.
The museum was formed by combining three existing collections:

- Louis Napoleon's old *Cabinet du roi*,
- Leiden University's collection,
- Temminck's private collection of birds and mammals

The aristocratic Temminck had many friends in the government and used them as much as possible for lobbying in the interest of the museum. Dutch diplomats in foreign posts, medical and pharmaceutical personnel of the Dutch overseas armies and many others were asked to collect for the museum, a common practise at the time
Some officials, like Philip von Siebold, were officially charged with collecting for the museum, in addition to their normal duties.

Temmincks activities soon bore fruit an within a short time the museum could compete with the best foreign museums. Temminck was always very active in increasing the collections by purchasing and exchanging with other museums.

In 1858, Temminck was succeeded by Herman Schlegel, who added extensive collections from all over the world.

However, during this period the government's interest in the museum diminished. Secret plans were made to dispense with part or all of the museum, and in 1878 the geological and mineralogical collections were split off and established as a new Museum for Geology and Mineralogy, a situation which lasted until the 1980's. By that time, the natural history museum persisted only as a zoological museum, housed in an old, inadequate building.
The next director fought for a new building, and in 1912 one was built, and there the museum remained until 1998. During that period, the collection lost importance, and the museum had trouble keeping its staff until Dr. Boschma came along. Dr. Boschma had what the former directors lacked: tact diplomacy, and charisma. Under him, the museum awoke from its lethargy.
By the time Boschma died, the museum has once again become an active scientific zoological institution of international renown. But for hundred years, the museum had been closed to the public. Only in 1998 did the museum leave its old building for the new one in Leiden, and Naturalis opened the doors to a new and extensive public exhibition. The museum therefore shifted from a purely scientific institution to a public one, where the scientific collection and its staff nevertheless continue to play an important role and it seems likely that the two facets will continue to exist side by side in the future.

The collections

The collections are growing rapidly by both active and passive acquisitions. The collections can be seen in its six different exhibitions. A great part of the specimens are obtained expressly for this purpose. The most important reason is the vulnerability of the specimens. Long term exhibitions can cause constant bleaching, and the partly open (i.e. no display case) style of exhibition also makes them vulnerable to dust, mites, etc. Naturalis therefore tries to avoid using the scientific collection for display. For the first few years, specimens from the scientific collections were used, especially vertebrates, but these have been almost entirely replace by new specimens.

But vulnerability is not the only reason for replacing the specimens. Many, especially the vertebrates, are not in the right position. This was a problem for Fatal Attraction. Groups like molluscs and coelenterates were specifically obtained for exhibition in the years preceding the opening. The specimens used can be damaged by light and replaced after six or ten years. Some had to be made. Unique specimens, cannot, of course be replaced.

The geological and paleontological specimens from the scientific collections are still largely used, but also obtained especially for their display quality. When, after a few years, exhibitions are dismantled, the specially obtained materials will usually go to the educational loan collection, but during exhibition they remain under the responsibility of the collection keepers. In

Outgoing foreign loans

While hundreds of scientists visit the collections at the museum every year, loans may also, under special conditions, be made outside the museum and even internationally. In this case, it the collection keeper decides whether to accept a request, sometimes in relation with the museum director. For loans outside the European Community, special permission is needed by the head of the department.

Loans are usually not made for more than one year, and for type specimens, only three months. Depending on the importance of the loan, specimens will be transported by borrower, courier, professional transporters or by mail. Before shipping, the loan administrator must receive the signed loan agreement, which states that the borrower promises to safely return the loan and to inform the museum of any legal or administrative obstacles that might prevent such a return.

Naturalis also makes loans for educational or non-research purposes. A special educational loan department fills requests of this kind, which are usually made by other museums (natural history or general) and natural history visitor centres, but sometimes schools or groups otherwise natural-history oriented. In most cases, loans of this kind involve European fauna, and are limited to the Netherlands (foreign loans involve too much administrative time).

Specimens from the scientific collection are sometimes requested for exhibitions outside the country. Recently, a large number of specimens from the Von Siebold-collection, one of the Naturalis' most valuable collections, were loaned to Japan for nine months. This very special loan was made in the context of three exhibitions on the 400 years of close relations between Japan and the Netherlands, and preparation of the loan began three years before the loan was actually made.

For all loans, the borrower must first provide a detailed project description, specifying the specimens requested, the purpose, the duration, and guarantees concerning climate

control, safety, transport, costs, etc. Naturalis appoints its own project leader, who compares the information with the museum's conditions (type specimens, for example) are not loaned for exhibition purposes and determines which adjustments should be made.
In the case of Japan, the Japanese borrowers visited the collections several times in order to make their selection, and the specimens were set aside. Lists were compiled with collection numbers, stands, description, etc., as well when the specimens were removed from the general collection and by whom. The borrower then makes the final request and the actual loan is prepared.
Because many loan specimens fall under some kind of legislation (CITES, national law, etc.) release paperwork, which can take months, is begun at the same time. The borrowers do the same in their own country and send us certified copies of their forms, and insurance policies, in advance.
For important loans such as the one to Japan, specialized art handlers are entrusted with the packing and transportation, and Naturalis requires that a courier from its own museum accompany the loan when transported, from the Netherlands to the country of destination, but also from museum to museum if the exhibition is to be shown in several locations. Before packing, the objects are carefully inspected, cleaned or restored if necessary, stabilised, and photographed. The specialists, under the supervision of museum advisors, pack specimens. Special condition reports are filled out at various stages of transport to ensure that even the slightest changes will be noticed and recorded early on. The museum courier who accompanies the shipment handles customs within the Netherlands and assists with customs in the country of destination on arrival. At the exhibition location, the courier will first check climate and safety conditions, then coordinate the unpacking and installation of the objects. After the exhibition, the same process will be followed in reverse. On return to Naturalis, the specimens will be carefully inspected and, like with all incoming specimens, disinfected, re-inspected, and placed back in the collection.

Throughout the entire process, there is close interaction between Naturalis' project leader/ collection manager and keepers on the one side, and the borrowing project leader on the other. The project leader at Naturalis keeps the director and associate directors informed. A final report, delivered to all parties, concludes the loan.

Questions

Is there a National heritage act in the Netherlands regulating objects of natural history?
A National Heritage Act applies to Natural History collections, limiting exports to under to under 200,000 Euros. But over that, it is still possible to request a special permit, which is usually granted.

How Many people are involved in the process?
For the Japanese project, involving the vertebrate and geological departments, the curatorial and technical staff, the courier and so on, in all about ten people at some point or another, not including the Japanese team, the art handlers, etc.

What do you do if you cannot check borrower's conditions (light, etc.) beforehand?
With Japan, there were two possibilities. Trust what they claimed to be the conditions, or go there to check. Because of the distances and costs involved, it was decided the conditions would only checked on arrival. It turns out their procedures conditions are even

much stricter than Naturalis'. It was a good experience for Naturalis because and the Japanese involved are very experienced with loans, whereas it is new for Naturalis.

Would you be willing to rent an exhibition? In France, collections are State property and legislation prevents charging loan fees.
In the Netherlands too, collections are State property, but there is no legislation governing loan fees. Naturalis prefers an exchange basis, but that probably won't last. Opinions are divided. The concept of renting is becoming more popular in the Netherlands. For now, costs go to the borrower. Naturalis currently has a number of objects on loan from other museums free of charge, because they also lend to others free of charge.

SWEDISH MUSEUM OF NATURAL HISTORY, STOCKHOLM
Presented by Eva Dalberg-Malick

The Swedish collection is very large, approximately nine million specimens within the museum's ten scientific departments. In the past, the exhibition department has used the scientific collections but as the years go on the old animals are beginning to show their age. In February, a permanent gallery on Swedish nature opened, for which new specimens were made.
On the other hand there are a lot of scientific loans going out to scientists all over the world, which are handled pretty much the same way as for Naturalis. There is no exhibition collection per say. The exhibition department separated from the scientific departments in 1965. Until the new wing and exhibition galleries were built, the old exhibits, mounted animals and plants had been used. The vertebrates of the exhibition collection, used mostly for the permanent galleries, have come little by little. For insects and fossils, the scientific collection is still used. So very few of the museum's specimens are actually exhibition specimens, and no specimens are loaned for educational purposes.

Discussion

Swedish regulation concerning natural history collections as national heritage
Yes. Historical specimens, for example, generally cannot be sold, loaned, etc. The experts decide. Recently, the museum that houses the clothing of the royal court and wanted to borrow a symbolic old lion, mounted in 1720, with its paw up on a ball. The professor in charge of the lion agreed, as long as the lion was insured for one million Swedish crowns, the cost of insuring King Carl XII's uniform with which it was to be displayed. It was agreed. But that was within Sweden. It would probably be impossible to make such a loan elsewhere. Incidentally, loan fees cannot be charge in Swedish, but loans must be insured. But then, if a specimen is lost, it is lost, regardless of insurance.

Insurance, NASA, and the French Natural History Museum
For an exhibition on meteorites, the French Natural History Museum wanted to borrow moon rocks. NASA refused to set a price on the rocks for insurance purposes. They did, however, set very strict conditions on the loan. This perhaps valorises the specimen even more. When the Museum lent the historic elephant of the Duc d'Orleans to Berlin, it's insurance value was set at 500,000 Francs, whereas in reality it is priceless.

Insurance, Vermeer at the National Gallery in London
In London, the Vermeer exhibition at the National Gallery took five years to negotiate. The administrative aspects were not an issue, but the security and insurance agreements were very long to arrive at. Major art attractions such as this are becoming increasingly costly and difficult to organise. But if they can find ways to deal with 'unquantifiable' collections, so can natural history museums.
In addition, for a lot of natural history objects you can't apply a value to them because it's actually illegal to trade in them. But other risks can be insured. For example, insuring against the loss of income from future exhibitions that will not take place because a specimen has been destroyed or damaged.

NATURAL HISTORY MUSEUM, LONDON
Presented by Mike Fitton and Gordon Rankmore

History

The Natural History Museum was originally founded as the British Museum in 1753, when a certain Mr. Sloane, left his collection to the nation on condition that the nation purchase them. The government therefore raised 20,000£ in the lottery to set up the museum, which opened in Bloomsbury in 1759. The first fifty or sixty years year unhappy ones for the natural history collection. By the turn of the century, the British Museum had a very bad reputation for losing its specimens. The keeper of the collection at that time, Dr. George Shaw, had a series of bonfires of infested and deteriorated material. Consequently, learned societies began to make their own collections. By the mid 19th century, conditions improved, and the collections grew greatly, and by 1870, they actually ran out of space.

In 1881, the Natural History Museum was created in South Kensington to house the collections of botany, zoology, entomology, paleontology and mineralogy. The museum has no ethnographic collections, which remained in Bloomsbury, along with almost all of the natural history library. The board of trustees remained the same for both institutions until 1963, at which time the Natural History Museum became a separate entity with its own board of trustees. Although the Museum functions as a civil service, museum employees are not civil servants, but employees of the board of trustees, which gives a degree of independence from the government, though most funding historically has come from government sources.

The main growth of the collections occurred during the 20th century. About 1900, the collection included some 4 million items. By the end of the 20th century, the Museum had 70 million items: 6 million specimens in the botany department, 28 million in the entomology department, another 28 million in the zoology department, 7 ½ million in paleontology, ½ million in mineralogy. In addition, to specimens in the life and earth collections, the Museum has large collections of artwork and manuscript material, with the UK's third largest collection of art on paper.

Current collections

Most acquisitions result from the research of the staff, which includes more than 300 active scientists, but also from private collector donations and bequests. The rate of acquisition has dropped in recent years, because the Museum has moved away from making general collections to focusing on acquiring materials either *for* particular research projects or *from* people building up high quality collections. Current growth is less than 0.5% per year.

Of the 300 scientists, about 100 are charged with managing and developing the collections. As with most other natural history museums, most specimens were collected for research purposes, and though historically there's been a link with the public galleries, the Natural History Museum in London created a separate exhibition department in the 1970's. One of the unfortunate consequences was a greater separation between the public side and research side. While efforts are now being made to bring the two sides together, views often remain diametrically opposed. This is true even among the scientists themselves. When a specimen is requested for an exhibition, some refuse categorically, while others agree without even enquiring about display conditions. In addition, there are several departments, each with its own paperwork conditions.

In the last two or three years, there have been major efforts to harmonize loan conditions. The basic starting point is that any specimen should be allowed to be exhibited. It's a matter of defining the process and conditions, and identifying and overcoming problems. All of the museum policies are now being put together in a synoptic way, keeping in mind that each discipline has its own separate problems. Progress has also been made on condition reports.
In the UK, the Natural History Museum is the only institution that has an exhibitions department that takes the responsibility and ownership of identifying, developing, and owning the permanent exhibitions in the Museum. This is done in consultation with the science department, but on the exhibition department's own authority. Most other institutions will develop exhibitions but what they do will be largely dictated by the relative science departments.

The Galleries
The Natural History Museum, as it exists today, is a mix of the former Natural History Museum, and the Geological Museum, with which it merged ten or fifteen years ago. Together they are called respectively the "Life" galleries and the "Earth" galleries. The part which houses the Life galleries was built in the 1880's and though as architecture it appeals greatly to the public, it also imposes major constraints in terms of how to use the space and how to introduce specimens into the galleries.

English Heritage, a very strong conservation lobby, keeps a very careful eye on what the Museum intends to do with the space. Issues such as blocking natural daylight, which was one of the major features of the original building, is very contentious. What was good architecturally at the time is not good for today's purposes. The main entrance to the Life galleries is used as a concourse for people to familiarize themselves with the building, while the small displays in the bays indicate the nature and variety of the galleries and circulation. The Museum is very limited in how it can use that space, and cannot introduce new displays, because it goes against the original architecture, controlled by the conservation bodies.

The Life galleries themselves have been developed piecemeal, with no master plan, over the last twenty years. The last major permanent exhibition introduced was the dinosaur gallery, which opened about ten years ago. In contrast, the Earth galleries are housed in a 1930's building and when the two museums merge, a master plan for the whole area was conceived of. Seven new permanent exhibitions have been developed in the Earth galleries. Attention now must be turned to the Life galleries.

In the central hall is an information kiosk that visitors can use to access the selection the bays and galleries and the displays in these bays, called the treasures of the Museum, identified as probably the most significant objects in the collection. Printed material, fossils and taxidermy work require a variety of environmental, energy and security controls. The mammal area, in the 1930s building, is one of the only areas where there are large displays, such as the whale. The dinosaur gallery, opened ten years ago, is still the most popular exhibition.
Incidentally, the Natural History Museum has been heralded as one of the top five attractions for visitors to London, with 1.7 million visitors a year. A substantial number of those visitors are families living within a 30 or 40-mile range of London. The others are

pretty much equally divided between UK visitors from further away, foreign visitors and school groups. The work of developing the exhibition is carried out in consultation with the educational officers. They are not designed specifically for the education market, but the education staff exploits what is on display and communication media on hand. Exhibitions are therefore largely targeted for a family audience, with a reading age of twelve to fourteen.

As with the building, the original showcases are subject to major constraints. They cannot be moved, for instance. In some of the galleries, the importance of keeping the historic condition has been recognized, such as the marine and fossils exhibition, which has changed little since the 1880's, displayed in the Victorian cases with which they were originally conceived. So the Natural History Museum may be known for its multimedia and robotics displays, but fairly traditional displays remain extensive throughout. Interestingly, the minerals gallery is also very much as it was, and is the object of a growing lobby by conservation groups, not to preserve the building, but the tradition of display, even though on a good day, the 1000m2 gallery receives no more than 5 or 6 visitors. The space could perhaps be better used. There is no doubt as to the importance of preserving traditional displays, but there is a question of scale.

Touring exhibitions

The Museum also does touring exhibitions, often-using special display cases developed specifically for such exhibitions. In some cases, such as the "Voyages of Discovery" exhibition shown at the Museum three years ago and now touring America, there are highly sensitive, highly valuable, highly prestigious specimens, collected by Cook and others in the 18th and 19th centuries, and requiring major environmental and conservation controls. The exhibition was prepared with the knowledge it would be touring four museums in America. In other cases, exhibitions are prepared for London, but open, after five years, to touring previously unspecified countries, Europe, the Middle East, even commercial venues. This kind of exhibition, driven by market forces, are more susceptible to compromises for the sake of earning an income. This is something CASTEX should perhaps analyze, whether to go for market forces or for educational arenas.

In the UK, the Natural History Museum is the only institution that has an exhibitions department that takes the responsibility and ownership of identifying, developing, and owning the permanent exhibitions in the Museum. This is done in consultation with the science department, but on the exhibition department's own authority. Collections used in the temporary exhibitions are on loan to the exhibition department. Most other institutions will develop exhibitions but what they do will be largely dictated by the relative science departments.

Discussion

Loans to specific museums, touring exhibitions open to unspecified institutions

The question of how to remain in control of loans or exhibitions when they go to a museum or venue which is not well known to the loaning institution is crucial. Even when precautions are taken, it is easy to lose control, and specimens sometimes end up in locations where the conditions are not ideal. The Grande Galerie recently had a problem sending specimens to Bogotá, where on the Columbian side the correct administrative measures, such as CITES, were not taken.

Complexity of legislation

Not only international laws, but national laws are very complicated, and museums must work hard to sort them out. Britain is lucky in that the State Environment Department has produced guidelines for zoos, botanical gardens and museums with provisions.

The status of museum collections in Britain

In Britain the distinction remains grey. If a Charles Darwin beetle is sent as part of a scientific loan, it is packed and sent. If it is sent as part of a touring exhibition, it will be taken through the export license procedure. So the purpose of the loan determines to a large extent its status. The status of museum collections is not at all clear. With national museums, the board of trustees is usually the legal owner of the collection, but the extent to which they may dispose of the materials is governed by acts of parliament. But the status of collections in other museums is often a source of dispute. There is an idea that collections are held in trust for the public, but there have been cases in recent years where local authorities, local government sold off part of collections to raise cash for other activities and the collections of some private museums which have gone bankrupt have been sold to cover their debts. All of these problems seem to come to the fore when discussing touring exhibitions.

ROYAL INSTITUTE OF NATURAL SCIENCES, BRUSSELS

Presented by George Lenglet

History

The 18th century collection of Charles de Lorraine contributed to the creation of the Museum. With time, the city of Brussels was unable to keep up the collection and left it to the State. At this time, the nobleman, lawyer and politician De Buse Degesigny became member of a commission to decide whether the State would take on the collection or not. It did, and he became the first director of what at the time was called the Belgian Natural History Museum. Created in 1846, the collections were transferred in 1889 to a building originally intended as a convent. But in the same park was the zoo, where people danced in the evenings, and the nuns considered the lodgings unacceptable. In 1905, a new gallery was built to house Belgium's fossil collection following the discovery of iguanodons. Later the museum developed thanks to the efforts of a director who found the funds to erect the main building. Construction began in 1935 but was interrupted because of the war. It now houses the museum laboratories and administration. Across from it is a smaller building where the collections are stored. In the 1990's, a new building was constructed to house the permanent and temporary exhibitions.

This succession of buildings has been a problem, because none of the architects involved has ever taken into account the buildings he was adding on to. The buildings are entirely independent, the floors and stairways lying at different levels, with no coherent communication between them. It was only with the construction of the last building in the 1990's that an entrance was place on ground level. In the 1990's, four sperm whales beached on the Belgian coast, and the museum was asked if it wanted them. The answer was no, partly because the museum didn't have the personnel to naturalize them, nor the money to have it done elsewhere, but mainly because not one door anywhere in the Institute allowed for the passage of a sperm whale skull.

The Collections

The museum's first director was an amateur ornithologist who had an extensive collection of birds. As the museum developed, it was decided to display all of the naturalized animals for the public, while the scientific collection was sent to the conservatory. Between the two world wars, the museum was renamed the Institute of Natural Sciences, and was granted the status of research institute. From that moment, the scientists working there lost all interest in public education and all specimens went straight into the scientific collections. This means that with few exceptions, all of the specimens on display are at least eighty to a hundred years old.

The specimens conserved in alcohol are stored in rooms devoid of heat sources and electrical outlets. As with other museums, there are two types of specimens, those mounted for public display, and others for the scientific collections. There is a conservatory for skins and skeletons where specimens are kept in boxes and drawers. Unfortunately, the Belgians used to really like oak, not realising that oak rejects tannins. There were problems with shell the collections. Also unfortunate, the mounted specimens are stored any which way. Originally all mounted specimens were intended for public display, and no storage space was ever designed for them. Skeletons posed a similar problem, most have been dismounted to reduce volume.

The museum public consists of 70% school groups, with a majority of families on the weekends. This great majority of young audiences has led to certain amusing concessions in presentation. An imaginary boutique presents reproductions of whale-derived products (no real whale products were used in order to avoid problems with animal protection organisations). One collection consists of hunting trophies donated by a private party. The public does not really appreciate what they perceive as a hunting room, but the Museum didn't feel in a position to refuse such a well preserved collection. In addition, at the time, there was space to be filled. In the 1980's the convent building was renovated at great expense. The idea was to do dioramas in every room. When the rooms were completed, there was no money left, and the displays had to be filled. The Arctic room is presented in the form of a diorama, with the Arctic on one side and the Antarctic on the other, and the sound of wind giving an impression of cold.

Loans

Scientific loans are made to other institutions and, with certain guarantees, loans are made to other Belgian institutions for exhibition purposes. Loans may also be made for educational purposes. In general, few loans are made outside Belgium.

The Institute of Natural Sciences is a national institution headed by the Scientific, Technological and Cultural Service. This service depends directly on the Prime Minister, and regroups all the national institutions both scientific/technological and art-oriented. As administrators, they wish to standardise the institutions, including a loan form that would be common to all. Obviously, considerations for loaning a painting are not the same as those for loaning a naturalised animal or a mineralogical specimen. The last few months the individual institutions have been able to introduce annexes for their particular circumstances.

As for the status of natural history collections as Belgian national heritage, it is not at all sure that they are considered as such, which is a problem. Even within the museum, it sometimes seems difficult to convince people of the inestimable value of the historic specimens.

Additional comments

The museum has a gallery specialised in the fauna of Belgium, which it is difficult to fill for lack of specimens, competence, and money. The same is true for a marine ecosystem exhibition on mathematical models of the North Sea. The mineralogical collection will soon have its own, very nice gallery. The best pieces in the collection are the 29 iguanodon skeletons which will be displayed in the large, soon-to-be-restored gallery dating from 1905. For once, sufficient funds will be provided (Belgium is a federal State undergoing strong regionalisation and consequently it is difficult to get Federal pluri-annual funding at the moment). It will take about 5 years, but this should be a spectacular exhibition. Other animals will also be displayed, somewhat in the same spirit as the Grande Galerie in Paris, regrouped by theme.

The terms museum and institute have been, and generally are, used interchangeably, whereas "museum" should designate the parts open to the public, while "institute" refers to the research departments and that part of the collection which is not exhibited.

GRANDE GALERIE DE L'EVOLUTION
Présenté par Jacques Maigret

History

The National Natural History Museum is a complex institution, with the same questions of collections, research and museum arising as for the other museums present. Created in 1635 as the *Jardin du Roy*, it is almost 400 years old. Originally, it was created outside the city walls in order to get out from under the authority of the Church, which ran the Sorbonne. More than a garden park, it housed collections, offered anatomy classes, etc.
Created out of conflict, conflict has continued to mark its history. It took on its what was pretty much its present form in 1793, in the wake of the revolution, at which time its statutes were drawn up, statutes that changed little until around 1985. Since then, the statutes have changed four times, but it somehow has a hard time emerging from the old regime.
The structure has just been reformed, though not yet applied, so it may still be said there are 26 laboratories ranging from ichthyology to others without collections, such as biochemistry. There are four main galleries open to the public: zoology, mineralogy, botany, paleontology, as well as the Museum of Man, the botanical gardens in Paris and the provinces, four zoological parks, and two marine laboratories with aquariums on the coast. There has been no centralisation of the galleries; each has been dependent on a given laboratory, often without its own specific personnel, which often led to degradation of the collections. This was the case with the gallery of zoology, which until 1964, when it closed due to degradation, was run, or rather neglected, conjointly by the laboratories of ornithology, mammals, entomology, etc.

Collections

It was often claimed the collection consisted of 100 million specimens with 50 million insects, 17 million herbarium pages, etc. This figure is being re-evaluated, and would appear to be closer to 70 – 75 million specimens. Each laboratory manages its own collection and loans according to its own policy. This leads to a mix of research and expertise of collections, which rightly belong to the scientific field, and management of the collections, which should be the responsibility of curators.
The Museum is a national establishment, with French legislation governing questions of "national heritage" which does not make the difference between paintings, monuments and naturalised animals. Sometimes this is convenient, and the Museum has, in the past, classified collections of insects, for example, as national monuments. In 1945-48, all institutions of art and science were placed under the Ministry of Public Instruction, but over time, the Ministry was divided into two, with one for education and the other for culture. Fine arts, history and technological collections came under 'culture', while scientific and natural history collections came under education. Management of the respective collections fell to, on the one hand to museum curators, and on the other hand to scientists.

Exhibitions

The Grande Galerie was opened in 1994, after long discussion on which specimens should be used for public display. At this time, the notion arose of a museum collection, separate from the scientific collection. It seemed like a solution at the time, but it leaves the door open to any number of problems. There is, perhaps, some work to be done on

how the specimens are documented, some would seem to serve solely scientific or display purposes, may some may serve both and indeed all were originally intended for scientific research. In any case, specimens should be available for both. Rather than create two separate collections, it would be preferable to consider collections in their historical context. The history of a collection begins with the collecting of specimens, followed by research, then conservation of the specimens? It is at this last stage that they enter the sphere of the museum.
In the Grande Galerie, the exhibitions consist almost entirely of specimens loaned by the laboratories. The conservation department is the intermediary between the laboratories and the exhibition department. This is a useful situation, but the conservation department often finds itself in conflict with the exhibition department because of certain criteria of conservation, in which case exhibition designers tend to prefer to use models and avoid using the collections altogether.

The 26 laboratories have just been regrouped into nine departments, six laboratories of pure research, and three for the diffusion of knowledge including one that covers all of the galleries of the Jardin des Plantes, one that covers the living collections (zoological parks and botanical gardens), and the third which is the Museum of Man. In general, the structure is becoming more centralised. The collections will be managed by a special department, but at the same time remain under the authority of the research laboratories. At the same time, the general attitude is that once a specimen has been displayed, it is no longer a scientific specimen, so the debate remains open.

Discussion

Precisions on display of scientific collections at the Grande Galerie
Little by little, specimens prepared specifically for exhibition in the Grande Galerie, have been replacing scientific specimens. In any case, specimens belonging to the scientific collections are returned to them when an exhibition is dismounted. Indeed, even specimens on display can be reclaimed for scientific purposes. While this is rare - contemporary science has little use for a 200 year old stuffed elephant – tissue samples have been taken from the Quagga, for instance. The attitude that once a specimen has been displayed it is no longer a scientific specimen is therefore entirely mistaken. On the other hand, when the Grande Galerie acquires its own specimens, as was the case recently with a Saudi gift of two white oryx, they remain part of the Grande Galerie's inventory, even though the laboratory of mammals has no white oryx of it's own.

What constitutes scientific heritage? Ex. Poppy
If a scientist picks a poppy in a field on a Sunday afternoon and presses it at his lab on Monday, the poppy is not patrimony. If, however, he discovers it is a new species of poppy or that is has cancer curing properties for which he wins a Nobel prize, that same poppy becomes scientific heritage. But if all the poppies everywhere are classified as such, museums would soon run out of room and money to keep them. A choice must be operated at some point.

Casts and models versus collections
Casts and models may sometimes be an easy way out for exhibition designers, but they do have value. Firstly, they may be the most effective way of delivering a given

communication objective. Secondly, naturalised specimens are fragile, while casts allow visitors to touch something. In the U.K., casts and models are used for reaching people with poor eyesight, for example. On the other hand, the Grande Galerie, as a museum, is asked by the government to show its collection, not models. In France, there are a great many nature centres developing around the country, which often use models. The specificity of the Natural History Museum is its collection. For the blind, the Grande Galerie has made some naturalised specimens available to the touch, but for a giraffe, whose neck quickly extends out of reach, a model is indeed more communicative.

The Natural History Museum Darwin Centre

In September, the London Natural History Museum is planning to open the first phase of what they call the Darwin Centre, the second phase being due in four years from now. The principal aim of the phase I building was to replace the Spirit collection, which was housed in a derelict building and condemned as unsafe, as well as to bring up to date the facilities for scientific work. The idea was originally developed about four or five years ago, followed by clear indication on the part of the government that the project should give the public greater access to the collection and research. Part of the space was therefore allotted to public use.

Given the fact that part of the goal is to give enhanced workspace to the scientists, public access to the collection will remain fairly controlled, and limited to three areas. Twice an hour, there will be guided tours for small groups of eight to ten to see areas of the collection not previously on display and to give an understanding of the scientists at work. The most significant part however will be the access to public debate. There is a strong belief within the London Natural History Museum that science doesn't always provide answers, nor should it. There will always be subjects of ongoing research and discussion. Those kind of issues can't be explored within exhibitions, but only through debate. On the main floor, there will be public presentations by scientists twice a day. These will be promoted in advance, but largely dependent on visitors present in the museum at the time. The Museum anticipates reaching an audience of twenty to fifty within the space available, but for some of the more significant presentations, there will also be live webcasting, to other institutions, museums and to schools. Some will be recorded and archived so that over the years these topics will become available worldwide. Coinciding with the opening in September, the Centre is coordinating a three-way live debate with the Exploratorium in San Francisco and the Museum's field station in Belize. This style of science communication will be expanded in the phase II building, to open in four years.

The building itself is six or seven story high glazed atrium space. On one side of the atrium, every floor is glazed, with side entrances to the collection, accessed by the scientists in the normal course of work, so the public will see how that resource is actually used. The other side of the atrium are the staff labs and so on. On the principal floor, in addition to the presentations, there will also be links to other parts of the building and laboratories which are not open to touring, as well as fixed displays and an information computer programme developed in twelve languages, which will give an indication of the antiquity and diversity of the collection and promote the current research undertaken by the scientists. Again, this will be made available on the Web.

The reaction of the scientific staff is varied. Some embrace the idea as being how it should be. More and more, scientists are being asked to explain their work to the public and in

Britain, most research grants have a condition that the researcher explain their work in a way that will aid in the public understanding of science. So this is an ideal opportunity to do that. There has been a certain amount of negotiation with the scientific staff to encourage them. Some see it as an addition to their job description, others remain reluctant. To support them, additional educational staff is being recruited as intermediaries between the scientists and public groups.

The overall aim is to bring the public into an active collection and research centre, beyond the traditional gallery experience. Phase I has the Spirit collection, which is mainly the zoology department, while phase II will have the entire botany and entomology department.

Natural History Collections: Methods of Conservation

Introduction by Pierre-Yves Gagnier

There is a tendency in Paris to say there is no difference in conservation for exhibitions and for reserves, but in reality there is a big difference. In the various museums, what interest does the scientific staff show in conservation methods? Are conservation methods limited only to international recommendations and empirical experience, or are better methods being investigated? In Paris, if we know that 55% humidity is recommended for most collections, and that minerals containing iron require dry environments, details concerning the specific requirements of other collections, such as shells for example, are sorely lacking.

Again, is there an interest in researching improved means of conservation for collections?

The Dutch experience

About a year ago, Naturalis developed a document on dealing with collections, aimed particularly at people new to the subject. The museum staff is aging, and many are soon to retire. The idea of the document was to record their knowledge before they go. There are chapters on collecting, how to build collections, how to get rid of them, preparation and conservation, collection management, use of collections, annexes, and a bibliography. For it, we used a lot of our own experience, but also the experience of other institutions in connection with publications. It will be added to. Unfortunately, it is only available in Dutch.

Naturalis does not do much research of its own, but there is the ICN, a Dutch institute for research on museum collections, which works on art collections but also problems relating to natural history collections, such as problems with salt in preparation fossil bones, lights, display paints, and fading of colours. They sometimes do specific work for Naturalis on a paid basis. They also provide useful guidelines. The institute has a series of publications, some in English, many of their staff work in Australia, South Africa.

In brief: Paris, London, Brussels, Stockholm

Normally the French should do this kind of research at the Museum, but the team is too small, and time to short. Consequently, they apply general recommendations, and readjust when there is a problem. The Ministry of Culture manages art collections, which have their own conservation research laboratories. Sometimes it is possible to use some of their information, for conserving paper documents, for example. The Museum spends time on control, but not on research for improving control.

Like Paris, the London Natural History Museum only follows basic guidelines. For them, light is a major problem. There is in interest in improving techniques, and the Museum has

been trying unsuccessfully for the last two or three years to budget money for conservation research. So far, research has remained amateurish because of the lack of resources. Curators interested in improving lighting experiment by placing leaves on their window sills. Only the paleontology department has its own conservation unit, but the head of that unit which have a wider remit up, and there is hope that this will further the cause of conservation research throughout the museum

The Belgians don't have the means to carry out such research, and most of the staff is not aware of the need for it. Langley proposed building a bibliography on the subject, but for the moment, he is the only one to contribute.

In Sweden there is research underway on pest control, using gas in display cases in place of air, for example. But there is just one woman, independent, working for the regional office at museums throughout Sweden, on both art and natural history. Concern for conservation varies from department to department.

Acquisition of specimens

If someone needs a fox, and the Museum has to restore an old one, the cost of restoration is superior to that of buying a new fox specimen from a taxidermist. How is the budget best spent? What is most ethical? For the Dutch, this poses no problem. If the goal is to give an idea of what nature resembles outside, showing the old collection is problematic. Naturalis draws the line at killing animals for display purposes, but if one is lying in a freezer somewhere or dies in a zoo, it is okay to use. They follow their own rules for collecting, they do not, for example, take human skeletons, which have no place in the collection.

Paperwork

Generally, if the paperwork is well prepared, shipping specimens poses no problem. It must be done though. Recently, for the French exhibition on "emerging from the waters", specimens were loaned in their display cases to the French Embassy in Bogotá, Columbia. They arrived there with no problem, but when it came time to send them back, the Embassy had not done their paperwork. Eventually, with the help of the CITES bureau in France it all worked out. It is more of a problem with older specimens, which pre-date CITES, though it is still possible using the registrar as proof of the animals entry in the collection, but usually these specimens do not travel anyway.

The French Natural History Museum can only loan, not sell specimens. Recently, they found a sought after sea otters at a research centre in California which agreed to send it, but CITES intervened and said that, as an endangered species, it would first have to be given to an American museum, then loaned to the Grande Galerie, but would always remain an American possession.

Natural History as National Heritage

Where natural history collections are considered as national heritage, this implies active conservation. Obviously, the participants of the present seminar consider natural history collections as scientific, historic heritage. CASTEX might be used to promote such research, perhaps even to instigate European recommendations on the subject.

In France laws governing national heritage make collections inalienable, they cannot be sold. A collection that becomes inventoried at a museum will never leave it. Even if an object is destroyed, it remains in the inventory. According to French law, the only exception to this inalienable character was renewable natural history collections. A new law concerning collections has just seen this phrase dropped, which implies that natural history collections will indeed be acknowledged as national heritage, and the Museum may finally have money to conserve them.

For the Dutch, there is no question as to the national heritage status of the collection. This has definite advantages. An inspection agency controls the quality of conditions, but they also give advice for improvement, and the Museum can use their support to ask for additional funds. Naturalis is split between different ministries; the collections depend on one, the buildings on another. At the moment, the Dutch are having problems with temperature and humidity in one of the old buildings, which falls under another ministry. It needs restoring, and the Naturalis has asked the agency to inspect it and speed things up.

Other outside agencies

Naturalis is privately run, the collection is owned by the State, but Naturalis is paid to manage it. In France, where the Museum is national, Museum staff serves as its own expert in terms of acquisition and control. In Canada there is an institute charged with research on the conservation of all cultural “possessions”, which also has a role of advisor. In the U.K., there is a national audit office, which doesn’t actually check the collection, but the procedures. They do not offer constructive advice as Naturalis’ assessors do. Nor is there is a national institute for conservation. The British Museum does have an important conservation department, which will undertake research for the Natural History Museum if they are commissioned to do so.

Problems encountered

One of the reasons people are so wary about displaying specimens is the very lack of knowledge on conservation. Light and major factors vibration are, transport, handling by non-experts. Curators from the London Natural History Museum follow specimens all the way to the display cases, installing them themselves. If a specimen is sent for research purposes, one must just trust that the person on the receiving end is also an expert, and will handle it well. But of course there is much less control. Even within the Museum there

are conflicts, insect people didn't want the bird people handling there insects, and vice-versa. Scientists were specially trained for handling.

The storerooms for the Museum are below ground, under the Grande Galerie. There are problems with humidity, and, because of the proximity to the Seine, flooding, resulting in mould. The flooding damages six or seven years ago did bring attention to the risks. London has had problems with pests. At Naturalis, the scientists are responsible for the collections, and feel more responsible for them.

Conservation: an overall lack of rigour

It would appear that in general, even on an international level, the approach to conservation of natural history collections conservation is not very rigorous. In international conferences there are surprisingly few papers on the subject. It's odd that, as scientists, the natural history field would be so backward in terms of conservation research, whereas as museums such as the Louvre in Paris, has an extensive conservation laboratory. This is a topic, which should be broached at the upcoming meetings.

The problem is in part one of training. There is a lack of research and knowledge, but even once that knowledge has been gained, there remain problems of physical handling. If there were international guidelines and standard training for handling, it would help with logistics. Also, when no one travels with items being transported, no one claims responsibility. It is important to send a trained courier. This is a special problem with touring exhibitions going to several venues.

Condition reports

The London Natural History Museum uses condition reports with annotated illustrations, kept as simple as possible. Usually, when the specimen arrives at its destination, the receiving end has a trained conservator on hand to inspect the arrival along with the London museum's attending curator. This process is only used for exhibitions, not for scientific specimens

Naturalis uses short descriptions and photographs, along with a custom checklist that has improved over the years, limited to one page. So far, it is only used for scientific specimens leaving the country.

The Grande Galerie has been discussing this type of process for two or three years, without result. They do use pictures of specimens used in temporary exhibitions that are on loan *to* the museum. But for outgoing specimens, there are no official checks. It's difficult to say if its because of a particular attitude within the museum, or because there really is a need for a structure to do the work properly. The conservation staff already manages too many things at once. It works on trust basis, and works fairly well, but could

be more efficient, and we don’t have the time or the personnel to develop the right strategy.

Conservation and terms of loan

Exhibitions, whether temporary or touring, are building, or at the least, assembly projects. The construction industry runs notoriously late on deadlines. One major risk with exhibitions is placing specimens in displays at the very last minutes, displays whose original specification were perhaps not met because the builders were short of time. It was suggested that one term of agreement might be to say that a specimen will not be released for exhibition until the conditions have actually been met, not just agreed upon. It’s important to allow sufficient window not only for installing specimens, but also for readjustments. Things always go wrong.

At the Grande Galerie, no specimen is installed in an exhibition without supervision. Depending on the size of the exhibition, a period of several days to three weeks is scheduled to this purpose. Installation of an exhibition is under the responsibility of the exhibition, but the conservation department must pre-approve the plans. It is more difficult to do exhibitions with outside sources. For example, for an exhibition on polar expeditions, the museum borrowed objects from an association, made up of a group of friends who arrived with objects in their pockets, and objects thought lost, were just carried off by their owners or friends of their owners! But all in all, things go smoothly. For outgoing specimens, detailed conditions must indeed be clearly specified in the loan agreement. It is clear that museums cannot rely on gentlemen’s agreements, even for scientific loans.

Status of Collections in Permanent and Touring Exhibitions

Introduction

The question of typology of collections has already been raised. To develop the subject, should there be different collections for different, user-defined purposes (permanent exhibitions, touring exhibitions, research)? What difference in collection is made between permanent and touring exhibition (use of casts and models, etc.)?

Collections are a Natural History Museum's specificity

What makes natural history museums unique from documentaries or other communication aids are the specimens themselves. Also, when the public sees a specimen they expect it to be from the collection, and not prepared for temporary display. Historical specimens may be faded and mounted wrong, but they are entities in their own right, representing a certain time, a certain place, which cannot be replaced by another animal of the same species. Historical specimens in a natural history museum are like original manuscripts in a library. (Whether it is useful to preserve so many specimens and original manuscripts in this age of genetic codes and e-books is another matter…)

In renovating the paleontological building in Brussels, the objective was clearly to exhibit the collection, and to explain, using computer graphics, how old bones are used to understand how an animal runs, swims. The gallery is a good example of using the existing collection to convey, simultaneously, messages of patrimony, biodiversity, natural history, systematics and taxonomy. In Paris, everyone loves the Grande Galerie, yet there are few specimens under a hundred years old. The innovative scenographer, using the existing collection, came up with something that is almost unanimously appealing and meaningful. Why can the same not be done for temporary exhibitions?

The specimen paradox

It is rare to find a specimen that suits one's communication objectives, yet this is where the specificity of the natural history museum lies. Natural history museums are intended to showcase collections and to use them to communicate scientific knowledge. At the same time, most specimens are old, and cannot convey relevant educational messages. This leads to the creation of new specimens, new collections.

In Paris, permanent exhibitions generally use the existing collection, and scientists don't differentiate between exhibition types. But for temporary or touring exhibitions, even if there is a desire to use the existing specimens, new specimens are created to meet the needs of the scenographers. This creates conflict between the conservation department, who would exhibit museum specimens regardless of their position, and the exhibition

department, who puts the accent on a given theme for which it needs specimens in certain positions. Generally the exhibition department prevails.

Arguments for creating new collections for touring exhibitions

Naturalis is less attached to using its collection. They were lucky before opening in 1998 to have one staff member who knew all the taxidermists in the Netherlands, and was able to fill, not all of their wish-list, but maybe half of it. The above questions have also arisen in the planning of Fatal Attraction. Originally, Fatal Attraction was to use existing collections, but when it came down to it, nobody wanted to let their collections go due to the risks involved. Collections created specifically for touring exhibitions can be reinforced for that purpose, using resin, for example. Using such collections therefore reduces the risk involved in transporting precious historical specimens. Most importantly, collections prepared especially for exhibitions such as Fatal Attraction would be useful, because none of the existing specimens are in the right position to communicate the message. In addition, One problem involved with creating collections for joint exhibitions is who owns them, and how are the materials are divided up afterward?

Educational/Conservation conflicts: the Grande Galerie

At the Grande Galerie, the first step in planning temporary exhibitions is to choose a theme. The theme chosen, scientists are consulted, and the project is on its way. Only then is a list of the specimens drawn up, and handed over like a shopping list to the conservation department only this kind of shopping list is impossible to fill. At the same time, the conservation department realises they have a hard time keeping up with the synopsises and scenography. So when they complain about getting a shopping list after-the-fact, they are nevertheless aware of their own shortcomings. Paris has had problems with minimum distances or display case conditions. Conservators require one thing, scenographers deliver another, putting specimens at risk. This is often due to budget considerations, but even where thousands of euros may be spent on an audiovisual presentation, means for suitably protecting specimens are always lacking.

At the Grande Galerie, the exhibition department does not, itself, decide on exhibition themes. The choice is a political one, that effectively does not take into account the collection. Exhibitions at the Grande Galerie are also subject to bids. Therefore the Museum has not always made its final choice in terms of museography before entering into financial agreements, which creates all sorts of problems, such as those mentioned above.

Reluctant Scientists and risk reduction

Researchers are increasingly pressured to show their work to ensure their shrinking budgets. In biology, taxonomy and systematics are losing ground compared with fields like molecular biology. Yet the relation between scientific departments and exhibition departments is conflicting. Those in charge of collections are reticent to loan them because collections because of the many risks involved. When Naturalis was being developed, some of the curators even managed to claim half of their specimens as type specimens so they could not be used for exhibitions (Naturalis does not exhibit type specimens). Why? Because the specific requirements and guarantees for such an arrangement have never been clearly defined. In Brussels, only the taxidermists are allowed to install them.

One or several collections?

Some feel the question of providing adequate safety measures for protecting exhibited specimens is systematically brushed aside, leading to a situation of two extremes in which permanent exhibitions use existing collections on the one hand, and on the other temporary/touring exhibitions use specimens, that they create, only to “justify” their presence in a natural history museum.

In Britain, most research scientists bring in material and work with them long before deciding whether it becomes part of the permanent collection or is thrown away. No difference should be made between collections, but if it seems obvious that a specimen created for an exhibition will not make it beyond the tour for which it was intended, it should not be registered the collection to begin with.

There is also the question of educational collections intended for handling by children. Should these collections be separate collections? Not necessarily. Some specimens from the permanent collection are good-looking specimens, but not particularly valuable (it would not be a good idea to make educational loans of historical specimens) The important thing is to teach respect. Recently, Paris acquired a number of spotted cat skins confiscated by customs. The educational department requested they be used for children to sit on. The request was denied. It would have given the wrong message.

It must be kept in mind that there are also two types of loans, loans to equivalent museums where risk is minimal loans to unknown venues not previously determined.

Deontology

The creation, and even the purchase of new specimens poses the question of ethics. If a museum orders a specimen from a taxidermist, he might call a hunter to meet the request.

Recently the Grande Galerie needed three animals for exhibition. Having been unable to find them in zoological parks, and to avoid the ethical question of taking animals from the wild, they called a breeder in the Rocky Mountains and sent two of the museum's taxidermists to collect the animals, which they assumed had already been killed for other reasons. When they got to the ranch, they were told to pick whichever of the living animals they'd like to stuff. The taxidermists came back somewhat traumatised. It is possible to procure animals from outside sources, but is it right to do so?

Naturalis has avoided this problem by asking the taxidermists what they already have available, without revealing their wish list. On the other hand, they do show their wish list to zoos, which are unlikely to kill their animals to meet the museum's needs. Demonstrating animal communication in Fatal Attraction requires very specific specimens. Sometimes alternatives can be used, in which case they are. But sometimes they cannot. For Naturalis, the question is whether to show the collection or show how animals look outside, which, in its own way, is also a sort of ethical question.

London's experience

Coming back to exploiting existing permanent collections for temporary exhibitions, it should be considered in terms of visitors. In London, there is a greater proportion of visitors are families, but there are also subject experts. Permanent exhibitions must appeal broadly. This can be done in many ways. With permanent exhibitions, museums try on the one hand to tell a certain story that will increase scientific understanding in the family audience, and on the other show diversity to subject experts, for whom access to the core collection is paramount. The touring exhibitions developed in London aim much more at a family audience, using thematics and story-telling, casts and models, and other aids. How specimens are shown therefore depends on who is being addressed. Generally speaking, touring exhibitions are aimed at families, permanent exhibitions at subject experts. Fatal Attraction would appear to be more directed to a family audience, but using the collections of the three host venues, and where this is not possible, new specimens must be acquired.

London's Predator exhibition was developed as a touring exhibition destined for Europe. Because of an agreement with a Japanese firm, three robots were to be included. It was decided that for the exhibition's purposes, the robotics would be most attractively used to animate a shark, a chameleon, and a spider. The storyline was then based on what features of predatory behaviour the robotics could best demonstrate in each of these animals, and then looked through the collections to find specimens to support that storyline in their own way. So the specimens were not acquired specifically for the exhibition, with the exception of a Harris Hawk, which was purchased from a taxidermist.

Collections used in the temporary exhibitions are on loan to the exhibition department. In the case of touring exhibitions, the foreign institution is held responsible. London's touring exhibitions are almost exclusively developed *without* specific venues in mind. Types specimens are not included in such exhibitions. It is very important to identify those objectives from the beginning, because clearly, developing exhibitions for known venues in America, is a very different matter than developing one for which it may be tempting to win a profit by allowing it to go to a venue in Dubai of which the loaner knows very little.

Ideally, use of collections is part of a development process, with scientists and interpreters working in tandem and negotiating changes. In London, there are two or three key people from the exhibition, education and commercial sides who develop an idea for a temporary exhibition, beginning with a simple proposal that identifies very simply the objectives, target audiences, budget, business plan, the working theme to be explored and possibly a working title. It also identifies key specimens that are known to be available to support the exhibition. That proposal is then approved by the head of the department and the director. An interpretive brief allows for research to identify additional resources including additional specimens that might be available to support the overall storyline. At the same time the storyline is developed, sometimes early on, as with the Predators, sometimes much later on, as with Camouflage. Within the overall framework, there is flexibility in the choice of a theme depending on the availability of specimens to support it. Flexibility is the key point. Sometimes there are critical messages which cannot be supported, in which case the moral issue of finding an external resource arises, and either other specimens are found or photos, models, etc. are used in place.

In practise, the Museum frequently jumps from the Business plan to a detailed design, because the short development period of twelve months doesn't always allow for such research time, though this has just been extended to two years because of the need to find sponsors. It is unlikely the extension would ever have been made on the grounds of sensible development. The Museum has about 500m2 and 700£ per square meter for developing exhibitions. In comparison, Dinosaurs is over 1000m2, and today the production cost would be 3000£ per square metre. Yet temporary and touring exhibitions, because of the wear and tear they will have to withstand over time, deserve as much.

Suggestions

At Naturalis, some very cooperative and when collecting new specimens for the work, they brought them back with exhibition in mind. This was the case with sponges and corals. Other curators, for exhibition purposes, accepted specimens that they would never have accepted otherwise, for example, good shell collections with missing labels. Naturalis also has a lot of connections with zoos, and even customs for confiscated animals. The person in charge of educational loans has bought prize-winning specimens from taxidermy

contests. Networking is very important. These might be strategies for the future. For the moment, Fatal Attraction is the exhibition that three museum have tried to make jointly. There are bound to be problems, and the resistance scientists offer to “shopping” in their collections is one of them. Often suitable specimens are available, but when they are not, it is not a reason to drop an exhibition subject.

These reunions can be used to determine common policies. Perhaps it would be possible to coordinate with zoos, which could be an excellent source of rare animals, for example. New legislation in France, for example, should make it obligatory for zoos, on veterinarian’s approval, to give natural history museums endangered animals when they die. At the same time, the freezers of most museums are already full. Perhaps it would be possible circulate the lists of animals available in view of exchanges.

From the point of view of London’s exhibition department, it is better not to draw clear rules, but to make in-depth assessment of each situation as it arises, what are the environmental and handling conditions, etc. Most problems can be addressed if they are recognized and understood. The important thing is to open dialogue with the scientists.

There is for the moment a gap between research and diffusion of knowledge that must be breached. Perhaps exhibition departments should try to get scientists more involved, and ask them to make unique suggestions based on their collections, for exhibitions no one else can do. In any case, both exhibition and scientific departments should anticipate more, and only trained conservation staff should be allowed to handle the specimens during an exhibition, This last point should be a condition of any loan.

Use of Collections for the Dissemination of Knowledge

Introduction

This topic was largely broached in the course of the previous discussions. The original idea behind this topic header was the use of concept over collection in exhibitions. The problem of old collections representing the last centuries' views of nature was brought up, but how, then can they be used in exhibitions?

Do Museums need collections to convey their message?

In the case of Fatal Attraction, the message is about the relationships and communication between animals of the same and different species in the context of reproduction. In order to illustrate this lively theme, the museums are going to display dead, immobile animals that in some cases were made expressly for that purpose. Is this really the best way?

But the question, "Do museums need collections to convey their message", is a dangerous one. It leaves open the possibility of a negative answer. The question might better be posed this way, "considering that museums have this rich patrimony of natural history specimens, how can we use it to raise public awareness and scientific knowledge?" Without collections, natural history museums will end up mere science centres, losing their specific market.

This, on the other hand, makes museums sound as though they are trying to justify the existence of their collections, indeed their own existence. Exhibiting collections is not just an alibi. A collection is cultural, historical, it is testimony to what was, is, and may be later. They serve many purposes, scientific, educational, and they may serve unknown others later.

The diverse nature of exhibitions

To start, a number of museums decided that rather than organizing temporary exhibitions that only showed once, it would be a good idea to have them tour. Museums want to hold natural history exhibitions that include collections. The question is not whether they will use exhibitions as a means of disseminating knowledge, they have to. The idea is to always make better exhibitions. An exhibition is one of the only possibilities for combining 3-D objects, films, pictures, animations, interactives, and texts together to give visitors an impression of animal communication, better perhaps than taking them into the rainforest, where they would be able to observe very little. An exhibition basically exploits different media, sights, sounds, texts. One weakness with museums is that people get physically drained Mixed media break down time in different ways and makes exhibitions more digestible than single methods of delivery.

Alternative ways of disseminating knowledge: The Web

An exhibition is only one means of disseminating of knowledge. Changing technology makes way for disseminating knowledge to a much larger profile that would not otherwise have access to the collections. It cannot, of course, replace the Museum, but it is an important and separate media. The Web can also provide international links. The scope is colossal. The London Natural History Museum's website draws ten times more visitors than the Museum itself. In Sweden, the botanical department has begun to make its herbarium available on the Web with text descriptions, and historical specimens are being added. It too has become quite popular.

At Naturalis, there is a project for making photos and descriptions of type specimens available on the Internet. Naturalis already has an internet site within the school network, a growing project on visitor's 1000 most frequently asked questions (though not up to 1000 yet). It has been stopped though, because the people who had to fill the database were assailed by questions. Digital images of all exhibition objects did exist, but somehow were lost, though all of vertebrates are still available. Naturalis is now working on a networking system that other organisations could access as well.

In France, on the other hand, not 50% of households have Internet. It remains elitist. The basic visitor cannot yet be reached this way, and it is even more unlikely that the Web will reach the two-thirds of the French population who never visit museums, thus far has not served to attract visitors. It is, of course, important to be ready for the explosion of the media to come, and has been useful in preparing the visits of schoolchildren, with very positive results. Websites must change, or they dies. The Grande Galerie's website, which is pretty much a virtual copy of the Museum, is not losing visitors, but it is no longer growing.

The Web may prove useful in unexpected ways. Eventually, the collections will have to be documented, photographed at least. A few years ago at a conference in Mexico, the French were asked what they planned to do about returning specimens to the countries whose patrimony they'd exploited. Making them available on the Web is one way of responding to such political issues.

It was suggested that were an administrator to hear such arguments in favour of the Web, he might say, "Great, let's put all that on the Web, and get rid of the high-maintenance collections. No one would say such a thing about paintings. At the same time, perhaps

part of the collections should be got rid of, and the rest better valorised. Without destroying Mona Lisa, a few of Leonardo da Vinci's sketches could be stored in the attic.

For the moment, it is cheaper to keep specimens than to digitalise them.

Jurassic Park: an attention getter

Knowledge of dinosaurs has never been better served than by Jurassic Park. The film sparked interest, sending queues of children and adults to visit the paleontological galleries of Paris, London and Brussels. Spielberg may have had a larger audience, but the film, like the Web, is not reality and would not have had the same impact people not been able to visit museums to see "the real thing", in all their size and anatomical detail.

A few years ago, the San Diego Zoo, pressured by anti-zoo animal defence groups, did a study which revealed that, compared with a visit to the zoo, people, and children in particular, quickly forgot what they see on documentaries, and do not retain differences between species. In this sense, museums are comparable to zoos. The object is irreplaceable.

Ways in which to use collections

Collections can be used for exhibitions about the diversity of given group such as porpoises or turtles. Naturalis had a very good collection of breeding birds with which they were able to do an exhibition, but not a touring exhibition. For touring exhibitions like Fatal Attraction, the starting point is the story (in this case animal communication), not an overview of a group of animals, which would involve a large number of specimens that curators, at Naturalis at least, would not want to have travelling around.

Problems with using collections usually arise from stuffed birds and mammals, and new specimens are sometimes needed for exhibition purposes. But most invertebrates come from the scientific collections, fishes can be cast and so on. These have been richly used at Naturalis, and could be for travelling exhibitions.

The Brussels museum did an exhibition about animals of the city (parks, sewers, etc.), aimed at small children, which serves as an example of what can be done with collections. Originally conceived as a temporary exhibition, it is now 2 ½ years old, and is still such a huge success that it will no doubt be made permanent. It consists very simply of a great density of specimens, mostly placed at child height, around which children can circulate freely and lot at them from every angle, and binoculars made available to observe birds hung from above.

At the Grand Galerie, the temporary exhibition *Nature Vive*, was somewhat similar, using only animals from the collection. In such a case, it's a question of finding the right angle to pull it off, but it is possible. The permanent exhibition has displays about the collection. Where the historical specimens come from, a bird that was given by the Empress Josephine, for example. And also how they are naturalized.

Visitors find it interesting, even amusing to know that one hundred years ago, taxidermists who had never seen species alive were stuffing them in the wrong positions. But they must be told. It was suggested the museums do an exhibition on taxidermy 100 years ago!

It took thirty years to get the funding to re-open the Grande Galerie, but the fact it was possible to do something so spectacular with such neglected old specimens created a whole movement in France for renovating other natural history museums. Last year, a fantastic, very contemporary show was staged in the Galerie about the specimens. There was a lot of debate originally, but it was a huge success, and conveyed the mission of the museum marvellously.

Reaching the amateur naturalist

There is another audience, intermediary between visitors and scientists. These are the well-informed, amateur naturalists. This is a group that is sorely overlooked in Paris, where motivated amateurs who come in with photos or specimens to identify do not find much help.

Naturalis has an information centre especially for responding to visitor questions, which includes a reference collection which is complete for vertebrates, and a small library for identification of shells and minerals. Their present problem is to find the balance between bringing people in and keeping them out. The drawers are wearing out. Changes have been made so that people visit the galleries first, and only those who are really interested seek it out. Unfortunately, it is not developed enough for most knowledgeable amateur naturalists. It is also useful for school children, since the new Dutch educational system encourages students to find their own answers. Also, many of the questions that were supposed to be answered by the centre are now being asked by e-mail.

It was suggested that the Web allows a large number of naturalists to access scientific collections that there's no room to display. There is the question of what information is to be provided, but there are plenty of possibilities. For example, a 3-D virtual field guide to the birds of Britain

Arsenic and radioactivity

There was a problem in Paris recently of a laboratory technician suffering from arsenic poisoning as a result of handling specimens. There are new measures being taken to ensure that specimens used for exhibitions or educational purposes will have been checked before. This has been reported in Canada, as well as Brussels. At Naturalis, ten to thirty old specimens have traces of arsenic but they are not to be touched. Only newly prepared specimens are loaned, so there is no problem there.

The London Museum was prosecuted a few years ago for having radioactive minerals exceeding the limit in the public gallery.

Conclusions and Planning for the Future

Possible themes for future CASTEX workshops:

All practical topics on the first list proposed, below, deserve further attention. Some institutions have a vested body of knowledge in one area or another that could be disseminated to others.

- commissioning further research on dissemination of information
- standardizing of loan forms and reports
- further research required on environmental issues concerning display (?)
- the possibility of developing better guidelines for specimen handling, perhaps even training for specimen handling
- the possibility of developing contractual agreements regarding loans and handovers, and recognition of installation schedules and sufficient windows
- the development of risk assessment guidelines, listing possible risks and methods for relieving them
- standard condition report system

To this list was added the following recommendations

- Procedures for the elaboration of exhibitions
- Harmonising Exhibition/Collection relations
- Determining at what point in the development of an exhibition are specimens selected, which also implies defining to what degree are the collection keepers associated in the process
- What types of conservation research could be developed within the institutions

- What concrete, shortcut procedure could be used to quickly determine whether specimens needed already exist within other one's own or other collections, without constructing an elaborate database. Request forms, etc.?

These suggestions were summarised in the following three points, for which Fatal Attraction could be considered an experiment:

- On the one hand there is the question of conservation that could be the topic of a specific workshop,
- General Policy, including Exhibition/Collection relations
- European policy concerning collections

The above was recapitulated as follows:

1) Selection of Collections, How, and at what moment of conception of exhibitions (both permanent and temporary but especially the latter because of the specific problems involved) are specimens chosen? How tom harmonise conceptors and conservators.
2) Loans of Collections, Acknowledgement of installations, of conditions of conservation in order to reduce risks, common loan forms, etc.
3) Specimens Collecting, where do they come from, deontology
4) Research on technology and training in regards to preparation and conservation
5) The Web, how collections meet the needs of Internet and vice-versa
6) Conclusion, How can natural history collections be classed as world heritage or other.

A need to refocus on the CASTEX mission

Some objection was raised to the above categories as being too broad for the CASTEX programme, which is intended to focus on touring exhibitions, not to solve all the problems involved with natural history collections. There are other networks for these problems.

Whether or not to put museums collections on the Web for example, is only an issue for CASTEX if Internet is to be used in combination with touring exhibitions. Similarly, researching new methods of preparation or collecting animals from zoos are only issues for CASTEX if new, sturdier specimens are going to be made for touring exhibitions, since such specimens in themselves hold no interest for scientists.

In the future, CASTEX should focus on finding solutions to the problems encountered in developing touring exhibitions. For example, finding specimens suitable for a touring

exhibition is a problem, and therefore an issue for further discussion and resolution. The directors of CASTEX member museums have already agreed to share the collections, the question now is how.

It was suggested that one of CASTEX's first tasks should be to come up with very specific guidelines and requirement concerning the loan of specimens used for touring exhibitions, i.e. they cannot be removed from their display cases (totally avoiding manipulation), etc.

Standardisation of loan forms and reports

Sweden has its own very specific forms and would not be ready to exchange them for European ones. It was suggested that at the next workshop, each museum present its own forms and recommendations In addition to specimen reports, venue reports describing conditions at each institution would be equally useful.

Natural History as world heritage

What is patrimony? Some say if the State pays, a collection is patrimony. But because of the number of their number, it is impossible to consider all specimens as patrimony. Collections cost a fortune to keep up, but it is the responsibility of the museum to care for them. Of the millions found in museum drawers and on museum shelves, there are some moth-eaten specimens that are perhaps not worth conserving, and could, after review by an appropriate commission, be destroyed. For the moment, this is not the case in Paris, where specimens sometimes end up in the rubbish bin.

Having collections recognised as universal patrimony might involve international organisations. UNESCO's World Heritage programme for environment provides sites with international status and funding for their conservation. World Heritage has also been instrumental not only in raising funds, but in raising awareness about the selected sites. Perhaps a similar system should be adopted for natural history as well.

This are also the OCDE and the GBIF (Global Biodiversity Information Facilities) with BIFs on the national level. In Europe there is the European Network for Biodiversity Information, and at the moment there is an European project called Fauna Europa which is compiling an exhaustive inventory of Europe's fauna. Perhaps museums could exploit article 8 of the Convention of Biodiversity that promotes public awareness, because that is a museum's "business", that's what it does its collections.

In France a project called Gecko was under development with the idea of regrouping natural history museum collections and the information provided by the various flora and fauna organisations that focus on biodiversity. For the moment, it hasn't really taken off. Those who are compiling the database on biodiversity are reticent regarding the natural history collections.

Within the context of a program called ARI (Access to Research Infrastructure), the European commission funds Brussels, London, Paris, Madrid, Stockholm and Copenhagen, so that researchers can study their collections. Originally, the argument was that collections should be tools and infrastructure for research. This later changed be include an entire institution as the infrastructure, not just its collection. Perhaps this type of arrangement might be used for museologists, as well as scientists.

Organisations of this kind could be invited to participated in the next workshops.

Conservation and Preparation, and collecting expressly for exhibitions

Conservation, techniques and training should be discussed. Everyone seems to agree there is knowledge scattered here and there in laboratories, and elsewhere, that might be lost if not recorded. How could this be capitalized upon? The answer to this question may be the answer to conflicts between exhibition and collection departments.

Not only conservation, but techniques of preparation should also be discussed. Soft-bodied animals, marine invertebrates for example, are still being preserved in jars of formaldehyde, and while decorators now have techniques for naturalizing plants, museums do not. This last point raises the question of whether museums really need to spend time and resources on researching new methods of preparation and conservation when taxidermists and others around the world, outside museums, are doing it so well.

None of the museums present collect specifically in anticipation of exhibitions, but sometimes exhibitions are so specific that new specimens must be found. In London, when collections of no scientific value are offered by donors, if the latter agree, they are given to the educational department.

Web Research and other studies

The London Museum is planning to improve its website. Before doing so, they intend to do research on who uses the Web, how and why, and what they're looking for. It might be

interesting to combine information for an overview of natural history web use throughout Europe. They would like to know if any other institutions are planning to do similar research.

The Brussels museum in currently engaged in a new project financed by the European commission's science and technology programme. This is a major research project conducted by a well-funded Greek team of knowledge management computer system developers. Part of the team, from Manchester and Leicester, works on semiology and organisation management, sociology museums. Several natural history museums are involved in this experiment, with Olivier Retout as moderator. This two-year research project is just beginning. The first part will involve an analysis of semiologist on how the museums involve work, at all levels of the museum. It may be too ambitious a task, but it is a start, and it may help museums resolve some of the problems that have been set out. Within this project, many things can be envisaged, 3-D imagery, digitalisation of collections, cyber technology.

Suggestions for next workshop

The French Ministry of Research has scheduled a colloquium on collection management at a European (independently of the Natural History Museum) level for 19-20 November. CASTEX could be organised the 21-22 for those who might wish to attend both.

The themes: 1) the relationship between exhibition conception and the reality of collections and 2) recommendations for loans, conditions, forms, reports, etc.