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VOL 16 Q3 2011



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THE ANNUAL TEA/AECOM THEME INDEX SHOWS HOW ATTENDANCES FARED IN 2010

JIM REID-ANDERSON

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ON THE COVER:
Turning around Six Flags, p22

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ATTRactions MANAGEMENT

EDITOR'S LETTER

GREAT LEADERSHIP



Building international-scale attractions is a complex business and we've seen repeatedly that when things go wrong, they can go very wrong.

The Hard Rock Theme Park, which has such a troubled history, is an unfortunate example of how a US\$400m investment can fail in a very short time if the business model's wrong – even with a great brand behind it.

We're hearing that this park could reopen soon under new management, so it's a question of whether they'll be third time lucky, or whether there's something too fundamentally wrong with the location or the actual attraction for it to be fixed.

Sound management can make a massive and critical difference to businesses of this type, so the owners of the park – in Myrtle Beach, US – are rightly focusing on finding a new management company to relaunch it and haul it into profit.

In this issue (page 22) we take a look at Six Flags which operates 19 theme parks in the US, Mexico and Canada and is in the process of reinventing itself through great management after a difficult few years. We talk to Jim Reid-Anderson, the Brit brought in by the board as CEO, following its emergence from Chapter 11 in April 2010.

"Once people see you're real and truthful, even if you're telling them something they don't want to hear, they begin to support and believe in the company again. It's about building trust." Jim Reid-Anderson

At the time Reid-Anderson joined Six Flags, the company had US\$1bn worth of debt and in his words, needed to "adjust its thinking and priorities". A firm believer in the power of people, he says a major focus has been "rebuilding employee and investor pride in the company." There's also been a review of all areas of operation.

Significant change has already been made and Six Flags has announced an increase in revenue of US\$4m (7 per cent) in Q1 of 2011, with a 1 per cent increase in attendance, an 11 per cent increase in ticket revenue and a 10 per cent increase in in-park sales of merchandise and food and beverage.

Reid-Anderson has taken a robust view on investment, believing it vital to success. He plans to spend US\$90m a year – or 9 per cent of revenue – on new attractions, saying: "this is a complete change of direction for the company – I believe guests like new things and we'll have something new, every year, in every park."

Having people of this calibre coming into the attractions industry is vital for our future success. Reid-Anderson – an executive with a career in international business – had previously turned around a medical technology company, taking it from Chapter 11 to a US\$7bn disposal to Siemens, so his cv was pretty iron cast. Six Flags did well to attract him to the business, because hiring and keeping great management talent at this level is the most important challenge currently facing our industry.

Liz Terry, editor, twitter: @elizterry

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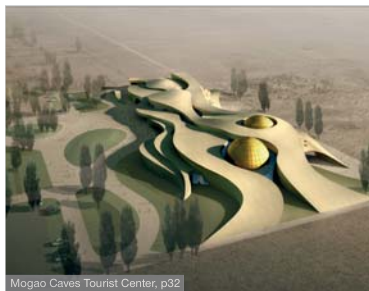
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For suppliers of products and services in the worldwide attractions industry, turn to page 84

To be or not to be, that is the question

HANNAH
CARMICHAEL



Forgive the out of context Shakespeare quote, but it's appropriate in these difficult times when all expenditure is under continuous scrutiny.

Decisions on where to reduce costs are always a thorny issue when it comes to internal debate, exercising the minds of managers who will need to justify their decisions to themselves and others.

One of those decisions will be whether or not to continue, or decide to join, as members of a trade association. Frequently allocated as a marketing cost, the decision falls within the 'what is the return' category – and quite rightly so.

Obviously there are variations in the support services available from trade associations and all too frequently the decision rests on subjective analysis. In reality, the decision needs to include close examination of your input into your relationship with your association.

BALPPA members have just returned from their summer conference in Cornwall. A strong gathering from across the UK, and some European colleagues, spent valuable time together discussing the various issues facing our sector. There's no doubt that the somewhat hackneyed term 'networking' featured strongly in the benefit of attending and while that's a very important benefit, it's by no means the only benefit.

BALPPA is the eyes and ears of the privately-operated attractions sector. We continuously monitor proposed legislation, examine developments in health and safety, provide support with CRB compliance, represent the interests of members on key committees and boards and offer individual support via our highly experienced management committee.

But, perhaps the most overlooked consideration in the decision process is how you make the most of your membership. It requires more than the use of a well established association logo – the more effort you put into making BALPPA work for you, the greater the benefit.

To be or not to be, that's an important question and worthy of careful thought.

Hannah Carmichael, membership services manager, BALPPA

Brighton's historic pier to be sold

PETE HAYMAN

GVA Humberts Leisure has confirmed that Noble Group, the owner of Brighton's Pier, UK, has put the attraction up for sale for the first time in more than 25 years.

Noble Group has owned the Grade II*-listed structure since 1984 and has helped transform its commercial fortunes, with 18 themed attractions and rides, two amusement arcades, retail and entertainment outlets currently on offer at the pier.

Noble Group development director David Biesterfeld said: "Brighton Pier has re-established itself as one of the UK's leading attractions in one of the country's most popular and forward looking city resorts."

"More than eight million visitors come to Brighton annually and its status, as London by the Sea, the resurgence of British tourism



Brighton Pier's commercial fortunes have been transformed since 1984

and the forthcoming Olympics represent an exciting opportunity for further increasing the number of visitors to the pier."

The disposal of Brighton Pier will include the sale of the entire issued share capital of the Brighton Marine Palace and Pier Company, established by Act of Parliament in 1888.

Jeremy Reed named new CEO of BALPPA

TOM WALKER

The British Association of Leisure Parks, Piers and Attractions (BALPPA) has named Jeremy Reed as its new chief executive.

Reed, who is currently the visitor operations director for English Heritage's North of

England region, will take up his new role at the beginning of September.

In his current role, he has been responsible for the overall management of the 121 properties in the English Heritage portfolio in Yorkshire, the North East and North West.

Drayton Manor Hotel opens to guests

PETE HAYMAN

Drayton Manor Hotel – a new 150-bedroom hotel at Drayton Manor Theme Park in Staffordshire, UK – has opened its doors to guests.

The hotel boasts 11 Thomas and Friends-themed family rooms, which include décor inspired by the character and specially-designed Thomas the Tank Engine bunk beds.

Two restaurants will also be on offer at the Drayton Manor Hotel, including the Parklands Restaurant and the Parklands Brasserie, along with two bars and a themed playground.

A senior management team has been appointed to run the hotel, which includes Martin Wright as general manager. Wright said: "The Drayton Manor Hotel is a major



Martin Wright (top centre) heads the hotel's senior management team

multi-million pound investment for the Drayton Manor Theme Park.

"The hotel will also be a venue for corporate events and private functions, which will complement Drayton Manor's existing facilities."

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Zoos and Aquariums as Economic Engines

LINDA CENDES



In a tough economic climate, it's important to remember that attractions aren't stand-alone entities, but are closely linked with, and supported by, local and national suppliers.

Vendors, restaurants, hotels and construction firms all benefit from the presence of attractions and their visitors.

To capture the critical economic impact that its members had locally, regionally and nationally, AZA commissioned economist Dr Stephen Fuller. He concluded:

"The cumulative economic impact of the 212 US AZA-accredited zoos and aquariums is \$16bn and 142,000 jobs"

"Annual spending by zoos and aquariums for operations and capital projects generate significant economic benefits for their host jurisdictions. These benefits build from the initial outlays, as they're re-spent across the breadth of the economy... These benefits also generate earnings to the benefit of workers and support job growth locally, regionally and nationally."

The cumulative economic impact of the 212 AZA-accredited zoos and aquariums in the US is: US\$16bn (£9.8bn, €11.25bn) in economic activity; \$4.7bn (£2.9bn, €3.3bn) in salaries and wages; and 142,000 jobs.

"Zoos and aquariums are important economic engines," said Jim Maddy, president and CEO of AZA. "Not only are they deeply committed to science education and wildlife conservation, but they generate jobs and support local communities."

Today, economic messages resonate with government officials and the general public. By conducting their own studies, zoos and aquariums can prove just how vital they are as contributors to the larger economy.

Linda Cendes, program assistant, communications, AZA

€15m Sea Life Centre for Rome

PETE HAYMAN

Merlin Entertainment has revealed that it will open a new €15m (£13.3m, US\$21.7m) Sea Life attraction as part of the Municipality of Rome's Second Tourist Pole development.

The operator has secured an agreement with Mare Nostrum Romae S.r.l. for the aquarium, which will be located in the Acquario di Roma retail and leisure complex and will complement a 4D theatre and Mediterranean exposition – both of which will also feature marine-based elements.

Work has already commenced on site and it's hoped that the Sea Life site will open in spring 2012. The centre will feature a tropical ocean tank with underwater tunnel and more than 30 displays of marine life.

Nick Mackenzie, managing director of Merlin's property and development group, said:



An underwater tunnel experience – like this Paris one – is to be created

"We believe that Sea Life will greatly enhance the shopping and entertainment experience."

"Our commitment to build a Sea Life aquarium underlines our belief that Rome, and particularly the Acquario di Roma, is a perfect location for what we hope will be our first attraction here with more to follow."

Chester Zoo 'biodome' plans on hold

TOM WALKER

Chester Zoo has shelved its plans for a new £90m Heart of Africa biodome attraction, saying that the project will now form a 'latter part' of its £225m (£254.5m, US\$368.9m) Natural Vision scheme.

A zoo spokesperson told *Attractions Management* that the biodome had been postponed due to government cuts and that another part of the Natural Vision would take priority and open as the first phase of the redevelopment.

The spokesperson said:

"The biodome has been put on hold and will now be a latter part of the Natural Vision project. The Islands project has been brought forward and this will now be the first phase with a pencilled in opening date of 2014."



The attraction said Heart of Africa would be developed at a later stage

Connected by a boat ride, the Islands project will pull together some of the zoo's existing animal species to create a themed experience. It will include educational exhibits, play areas, restaurants and village-style food stands.

US attractions in animal conservation boost

PETE HAYMAN

SeaWorld and Busch Gardens will invest more than US\$1m (£610,000, €690,000) in the conservation of endangered animal species.

Funding will be distributed by the SeaWorld and Busch Gardens Conservation Fund, which

was established eight years ago and has already granted more than US\$8m (£4.9m, €5.5m).

The latest round of grants are to be shared by more than 100 projects across the world, such as a programme to reintroduce endangered cheetahs back to the African wild.



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Katie Foster, online at a theme park with The Cloud

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Theme Park News

Queensland theme park adds new thrill ride

PETE HAYMAN

Dreamworld in Queensland, Australia, has announced that it's to launch its new thrill ride – BuzzSaw – this year as part of efforts to mark the attraction's 30th anniversary.

Adding to the park's existing 'Big 6' thrill rides, BuzzSaw will see guests seated in an open carriage and held by a single waist harness to leave the upper body exposed.

Starting with a 46m (151ft) vertical climb, the peak of the experience will see visitors' centre of gravity flipped before being "dangled" upside-down 15-storeys in the air.



The theme park is to anchor Aquaba's new resort

Star Trek theme park planned for Jordan

TOM WALKER

Rubicon Group Holding (RGH), a Jordan-based diversified entertainment group, has been appointed to design and produce The Red Sea Astrarium (TRSA), a 184-acre themed resort located in Aqaba, Jordan.

The US\$1bn (£610.1m, €690.1m) resort will be anchored by a Star Trek theme park developed by Paramount Recreation.

According to RGH, the Star Trek park will deliver multi-sensory "23rd-century experiences", such as a space-flight adventure with real-time immersive experiences.

New theme park planned for Chongqing

MEG PROOPS

A theme park intended to present the history of the Communist Party in China is to be built in Chongqing municipality, according to the *Chongqing Evening Post*.

The Red Classics Theme Park is to cost ¥2.5bn (£236.8m, €268m, US\$388.2m) and will comprise a performance section, a business section and a theme park.

The theme park development is expected to be completed within the next four years, and will then aim to cater for between 30,000 and 50,000 visitors each day.

d'strict unveils Live Park concept

TOM WALKER

South Korea-based creative design company d'strict has previewed its Live Park concept at the IAAPA Asia Expo event held in Singapore.

Live Park is d'strict's new entertainment platform for theme parks and visitor attractions in which visitors interact with various 4D adventure scenarios to create their own unique adventure.

d'strict CEO Eunseok Chey said that the product was "a new genre crossing over performance, exhibitions and gaming with its advanced 4D technology".

The three-acre (12,140sq m) interactive zone is based on eight attraction zones comprising 13 adventures, three mixed reality performances and three mobile and web integration service platforms. It will have a capacity for 250 visitors to simultaneously create their own avatars



Live Park is a platform allowing visitors to interact with 4D experiences

that guide them through a series of bespoke experiences including multiplayer games, quests, adventures and performances.

Using one of the world's largest 360 degree 3D screens and a 150m x 9m (492ft x 30ft) supersized screen, players can engage in a fully immersive experience via mobile devices.

Mixed results for global sector in 2010

TOM WALKER

The ongoing global recession, challenging weather periods and "modest investment" by operators resulted in mixed results for the international theme park sector in 2010.

The annual TEA/AECOM *Theme Index* shows that a number of North American parks experienced falls in attendance numbers while Asian parks, which struggled in 2009, reported increases in their visitor numbers.

Compiled in partnership between the Themed Entertainment Association (TEA) and consultants AECOM, the annual *Theme Index* is designed to record the visit numbers at all major world parks and is used as a benchmark to assess the state of the industry.



Wizarding World of Harry Potter in Orlando, US, was a top performer

The report also lists the top 25 most visited theme parks. As with previous years, Disney parks dominate the top 25 list, occupying the top eight positions and with a further three parks in the table. (See p26 for full report)

US\$43m boost for Ark Encounter scheme

PETE HAYMAN

Plans for Ark Encounter, a US\$150m (£91.5m, €103.5m) Creationist-themed park in Kentucky, US, have secured a tax boost.

Kentucky Tourism Development Finance Authority have approved plans to grant the

project up to US\$43m (£26.2m, €29.7m) of sales tax incentives towards its creation.

Due to open in 2014, the attraction will be built by The Troyer Group and will be owned by a private limited liability company that is investing US\$125m (£76.3m, €86.3m)

Theme Park News

Poland to get new theme park

PETE HAYMAN

Plans have been unveiled for Adventure World Warsaw – a major 240-hectare (593-acre) theme park scheduled to open at Grodzisk Mazowiecki, Poland, in spring 2014.

More than 100 firms, including AGS Architects, Vekoma Rides Manufacturing and Jora Vision, are set to be involved with the project, which will incorporate more than 25 attractions.

The theme park will also comprise two hotels, the country's largest aquapark and an entertainment area with cinemas and eateries. The theme park itself will be divided into five themes, with working names including Castle Island, Creature Lagoon, Adventure Harbour, Land of Legends and Polski Plaza.

A consortium of private and institutional investors registered in Luxembourg – called



Castle Island is one of the zones planned as part of the new theme park

Las Palm – will fund the project, which will cost around €400m (£353.6m, US\$579.4m).

Las Palm board president Peter Jan Mulder said: "The construction of the park will commence in spring 2012. We expect approximately two million visitors annually in the first phase of the Adventure World Warsaw project."

Green Lantern ride debuts at Six Flags park

PETE HAYMAN

Six Flags Magic Mountain near Los Angeles, California, US, has opened its 18th coaster, and the third of three new rides for 2011.

Called Green Lantern: First Flight, the extreme thrill ride has been developed with

Warner Brothers Consumer Products and DC Entertainment. The two-minute ride comprises a vertical zigzag pattern in an eight-person car, with guests rotating independently of others.

It also features three 360-degree spins. (See *interview with Six Flag's CEO on p22*)

Destination resort theme park for Russia

PETE HAYMAN

Moschanko Investment Group (MIG 2000), the California, US-based company, is behind plans for a new destination resort theme park development earmarked for Russia called Magic World Russia.

MIG 2000 revealed that Gary Goddard Entertainment Design, ProFun Management Group and (it) Brand Studios are among the groups that will be working on the project.

Covering more than 600 acres (243 hectares), the development is to incorporate a number of theme park concepts, hotels, dining options and entertainment venues.

MIG 2000 is in talks with Hollywood studios over the construction of a studio-branded park as part of the scheme, with Paramount or



Facilities for families with young children are among MIG 2000's plans

Universal seen as "priority" choices. A Magic Family Park for families with young children, Nanopolis Children's park, offering an "edutainment" experience and separate water parks for adults and families are planned.

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Waterpark News

Rise up to the challenging times

ALEATHA EZRA



Pool and waterpark operators within the US got a wake-up call with the release of a survey looking at parents' attitudes on showering before swimming. Conducted by the CS Mott Children's Hospital at the University of Michigan, the poll found that of the 865 parents surveyed, only 26 percent felt it was very important to take a shower before swimming. In contrast, 64 percent said it was very important for children to avoid swallowing the water they swam in.

With the Center for Disease Control reporting increases in recreation water illness within the US, this is an area where increased education for both waterpark staff and guests needs to be stepped up.

This issue really has no geographic borders either. The World Health Organization made the following recommendations in its *Guidelines for safe recreational water environments: swimming pools, spas and similar recreational-water environments volume 2*, released in 2000:

Pool operators can help prevent fecal contamination of pools by encouraging pre-swim showering and toilet use and confining young children to pools small enough to drain in the event of such an incident. The education of parents of small children with regard to good hygienic behaviour at swimming pools is another approach that may prove to be useful for improving health safety at swimming pools and the reduction of AFRs.

Operators throughout Europe have been preaching this message through park policies and pool signage for years. Yet, it's important that the worldwide water leisure industry remain vigilant on this issue and not allow lachadassical attitudes among parents and patrons to prevail.

The solution must be a collaborative effort between park and pool operators and parents that focuses on simple preventive measures. These include showering thoroughly before swimming, taking children on bathroom breaks, reminding children not to not swallow the water and not swimming if ill with diarrhoea.

Aleatha Ezra, membership manager,
World Waterpark Association

Six Flags park opens Riptide Bay

PETE HAYMAN

Six Flags Great America in Gurnee, Illinois, US, has announced the launch of its new 4-acre (1.6-hectare) water park expansion – Riptide Bay at Hurricane Harbor.

Hurricane Harbor, which first opened in 2005, has now expanded to cover 20 acres (8.1 hectares) with the addition of Riptide Bay.

New slides installed as part of the extension include Mega Wedgie and Dive Bomber, which both feature a Skybox launching capsule that sees the floor open underneath riders.

Dive Bomber features a five-storey free-fall into a looping slide ahead of a further five-storey journey at speeds of up to 40mph (64.4kmph). Mega Wedgie includes a five-storey, 80-degree experience at similar speeds to Dive Bomber. Wipeout enables groups of two



Riptide Bay comprises the doubled-sided Surf Rider surfing simulator

to four people to speed through 400ft (122m) of tubes and ends with a 35ft (10.7m) drop.

Surf Rider offers a double-sided surf simulator that allows two surfers at a time. There's also a new 14,000sq ft (1,301sq m) family activity pool – Monsoon Lagoon. (See interview with Six Flags' CEO on p22)

Turkey waterpark launches new ride

TOM WALKER

Aqua Fantasy Waterpark – part of Aqua Fantasy Hotel and Spa near Izmir, Turkey – has unveiled its latest ride, which has been designed especially for the attraction.

Istanbul-based Polin has designed, manufactured and installed the 14.7m (48.2ft)-high experience, which comprises a double-tube slide with twin uphill sections.

The addition of the new ride comes a year after two other experiences were installed at the park by Polin.

Aqua Fantasy Waterpark manager Muharem Atilla said: "Due to the high amount of excitement that the two slides we added last year brought, we were interested in adding another slide from Polin."



The new 14.7m-high, double-tube slide has twin uphill sections

Polin senior architect Zeynep Canbaz added: "The great thing about this design is that it uses the same tower as the previous slides and it works without water jets. This lowers the operating costs of the waterpark."

Expansion for two South Korea waterparks

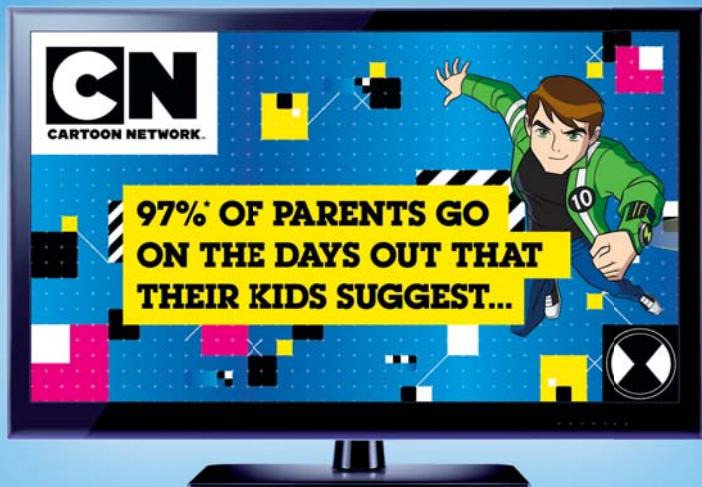
PETE HAYMAN

South Korea's Samsung Everland Caribbean Bay and DaeMyung Vivaldi Ocean World are to benefit from expanded facilities.

WhiteWater West has supported both schemes and Family Python – part of the

Megatube Series (see p48) – has been added to the offer at DaeMyung Vivaldi Ocean World.

Samsung Everland Caribbean Bay, South Korea has undergone its third project since its 1995 launch and has added four AquaLoops built with SilkTek fibreglass bodies.



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*Source: Turner Media Innovations, Holiday & Day-Out research 2011

New attraction for Empire State Building

PETE HAYMAN

A new visitor experience has opened on the 80th floor of the Empire State Building in New York, US, to explore the history and construction of the landmark.

Carol Willis of New York's Skyscraper Museum is curating the new installation, which looks at three themes – speed, scale and steel – in relation to the building.

Artefacts include reproductions of photographs of more than 3,400 people who worked on the project, along with documents and architectural sketches.



A concept vision of how the museum could look

Four teams to draw up Alberta museum plans

PETE HAYMAN

Four teams have been invited to submit plans for the design and build of the Royal Alberta Museum in Edmonton, Canada.

EllisDon Construction Services; Graham Design Builders; PCL Construction Management; and Ledor Design Build (Alberta) are the four to be invited.

Due to open in 2015 at a cost of CA\$340m (£219.8m, €248.8m, US\$360m), the new Royal Alberta Museum will boast 36,000sq m (387,501sq ft) of gallery space – twice as much as the existing attraction.

Glasgow's £74m Riverside Museum launches

TOM WALKER

The £74m (£84.8m, \$120.4m), Zaha Hadid-designed Riverside Museum has opened in Glasgow, UK (see feature on p70).

Glasgow Life operates the attraction on behalf of Glasgow City Council, which houses more than 3,000 exhibits across 150 displays and is Museum of Transport's third home since opening in the 1960s.

BAM Construction started work on site in 2007. Interiors and theming company Mivan delivered the fit-out and Event masterplanning the internal design.

Museum of Liverpool opens

PETE HAYMAN

National Museums Liverpool (NML) has unveiled the new £72m (€82.5m, \$117.2m) Museum of Liverpool – one of the largest new-build museum developments in the UK for more than a century.

Designed by Denmark-based architects 3xN, the iconic new facility is also one of the first national museums in the world to focus on the history of a regional city.

The Museum of Liverpool will be unveiled in phases, with the first now open and featuring the Atrium and the Global City, Little Liverpool, Wondrous Place, Skylight and The People's Republic galleries. Four more galleries will open later this year.

BRC Imagination Arts, Haley Sharpe and Redman Design are among the companies to be involved with the creation of the exhibitions.



The new £72m attraction (right) was designed by Denmark-based 3xN

NML director David Fleming said: "The Museum of Liverpool is all about telling the stories of the city and its people. This includes times of struggle such as the Toxteth riots, the triumphs of our musical exports including The Beatles and the dramatic histories of our football teams." (See preview in AM Q2 11)

New Dinosaur Hall opens at LA museum

PETE HAYMAN

Natural History Museum of Los Angeles County, US, has unveiled its new 14,000sq ft (1,301sq m) Dinosaur Hall.

The new facility features the T. rex growth series at the heart of the experience, which comprises a fossil trio of the youngest known baby, a juvenile and a young adult named Thomas, one of the world's most complete specimens.

Among other attractions in the new Dinosaur Hall is a Triceratops, a Stegosaurus, an Allosaurus, a 68ft (21m) long-necked Mamenchisaurus and large marine reptiles. Interactive touch screens will allow visitors to take part in simulated palaeontology and learn about senses and sounds based on a CT scan of a dinosaur brain.



The T. rex growth series is at the heart of the museum's new experience

The opening of the Dinosaur Hall marks the mid-point of the Natural History Museum's 'institutional transformation', which is to include the launch of an exhibition looking at South California's natural history in 2012.

Museum of World Buddhism opens in Sri Lanka

PETE HAYMAN

Sri Lankan president Mahinda Rajapaksa has officially unveiled the Sri Dalada International Museum of World Buddhism in Kandy.

The attraction – located on the site of Sri Dalada Maligawa – allows visitors to explore

the history of the Buddhist faith and has been shaped with contributions from 17 countries.

Nepal, Pakistan, India, Afghanistan, China and Thailand are among the Buddhist countries to contribute towards the establishment of the museum, which opened on 20 May.



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Science centres and museums: agents of change for European cities?

ANTONIO GOMES
DA COSTA



One city aims to address childhood obesity by educating citizens and advocating for nutritious school meals.

Other cities are planning: a new public transportation system; updated garbage disposal and recycling methods; redesigning green areas to protect biodiversity; and a health program with local hospitals.

All these projects deal with science in society issues at the local level. This is the essence of PLACES (Platform of Local Authorities and Communicators Engaged in Science), an FP7 project involving 79 European cities and regions.

Launched in June 2010, the four-year project is guiding science centres and museums to play the role of facilitator in helping local leaders address local challenges using science-based problem solving.

This means science centres and museums will have an impact on the daily lives of people in their communities. PLACES'

"The project guides science centres to help local leaders address challenges using science-based problem solving"

over arching goal is to grasp the conditions and initiatives that support strong scientific culture in Europe and translate these ideas into science communication policies.

What's the link between scientific culture and culture? And how can scientific culture manifest in European policy making?

At the project's conclusion in 2014, local and European Union-level recommendations will be assembled into a blueprint for building European Cities of Scientific Culture by establishing science communication policies based on the experiences of each participating city and region. Visit www.openplaces.eu to find out more.

Antonio Gomes da Costa is the coordinator of the PLACES project for Ecsite

New-look planetarium for TAM

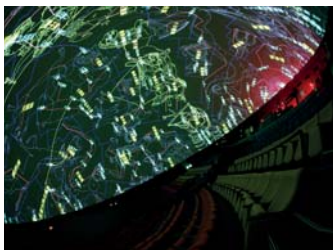
PETE HAYMAN

Taiwan's Taipei Astronomical Museum has opened its new-look planetarium, featuring a new Fidelity Black full-dome system supplied by UK-based Global Immersion.

The attraction comprises 12 Zorro projectors from Rockwell Collins and also acts as an Omnimax venue due to its status as one of the largest dome theatres in Asia.

Global Immersion worked with Taiwan-based Dacom Technology Co in the initial stage of the scheme, which has maintained the multi-purpose venue's two existing display systems. The new digital full-dome system has increased the theatre's flexibility and allows three separate media programmes to "immerse and engage" visitors.

Global Immersion's Tony Scott said: "Taipei Astronomical Museum is another prime



Global Immersion worked with Dacom Technology Co on the scheme

example of a client of ours who is seeking to transition their immersive space into the next generation of astronomy education.

"While the new hardware configuration produces unrivalled performance, what matters most is the truly incredible experience this digital theatre system will offer audiences."

Council backs BMAG/Thinktank merger

PETE HAYMAN

Birmingham Museum and Art Gallery (BMAG) and the UK city's Thinktank science attraction are poised to merge into a new single trust.

Birmingham City Council (BCC) has approved a business case for the formation of a charitable trust to take over the attractions, as well as other council-owned museums.

A report put before BCC's cabinet on 11 July said that combining BMAG and Thinktank would improve the city's standing among other global museums.

The Thinktank trust board's already agreed to transfer services into the single trust, following a meeting held on 22 June. The charitable trust will be wholly-owned by the council.



The science centre will merge with BMAG as part of a new single trust

BCC cabinet member for leisure, sport and culture Martin Mullaney said: "We're looking at exciting new opportunities for the city's museums in terms of fundraising and collaborative working."

Newfoundland science centre work commences

PETE HAYMAN

Memorial University of Newfoundland has shut the public education programme at Canada's Ocean Sciences Centre (OSC) until 2013.

The closure is to allow for work to take place on a new CA\$16m (£10.3m, €11.8m, US\$16.9m)

cold-water and deep-sea research venue at the OSC's Logy Bay site.


More than 15,000 visitors access the centre's public education programme each year, which is now closed until 1 January 2013 while the construction process takes place.

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Work starts on New York museum scheme

PETE HAYMAN

A groundbreaking ceremony has been held to mark the start of construction work on a new home for the Whitney Museum of American Art in New York, US.

The attraction has already raised US\$508m (£309.5m, €350.8m) towards the total US\$720m (£438.7m, €497.1m) cost of the Renzo Piano-designed scheme.

Forming part of a public-private regeneration of Manhattan, the 200,000sq ft (18,581sq m) museum is to be built on a site acquired from the City of New York.



IMAGE: THERESA SACKLER FOUNDATION/RENOZO PIANO

The scheme will meet 'sharpened' legal demands

Van Gogh Museum to undergo renovation

PETE HAYMAN

Axel Rüger, director of the Van Gogh Museum in Amsterdam, Netherlands, has confirmed that the attraction is to undergo an renovation from the end of 2012.

The work is to comply with "sharpened" legal requirements set out by the Dutch government and will help ensure the condition of the building and the safety of visitors.

Adjustments to meet greater security needs for visitors and exhibits were partially completed in 2010, with the forthcoming renovation to comprise the second phase.

Wales' new £6.5m National Museum of Art opens

PETE HAYMAN

Wales, UK's new £6.5m (£7.4m, US\$10.6m) National Museum of Art has opened its doors at the National Museum Cardiff.

The new attraction has enabled the Amgueddfa Cymru - National Museum Wales' collection of works go on show in a single series of integrated galleries for the first time in the institution's history.

Six new contemporary art galleries will be housed in The West Wing - the largest area of its kind in Wales, having only had one gallery on offer before.

Serpentine Sackler plans backed

TOM WALKER

Proposals for the extension of the Serpentine Gallery in London's Kensington Gardens, UK, have been approved.

The directors of the gallery appointed architect Zaha Hadid to design and create the new gallery in 2010, with the planned extension now scheduled to open in 2012.

As part of the project, the Grade II-listed The Magazine building of the gallery will be renovated to house collections. The project, to be known as the Serpentine Sackler Gallery, was made possible by The Dr Mortimer and Theresa Sackler Foundation, which gave the largest single gift the Serpentine Gallery has received in its history.

Due to open ahead of the 2012 Games, the new art gallery will provide more than 880sq m (9,500sq ft) of galleries and social space.



The proposed extension to the attraction is scheduled to open next year

The Serpentine Sackler Gallery aims to present the "stars of tomorrow" across a range of disciplines, such as dance, design, music, performance and technology. The gallery will also use the space as a "test site for new ideas" and forge new partnerships between the arts, creative industries, sciences and education.

Sydney's MCA to reopen in March 2012

PETE HAYMAN

A major art attraction in Sydney, Australia, is to reopen in March 2012, following a AU\$53m (£35.4m, €40.1m, US\$58m) overhaul.

Construction work started on the redevelopment of The Museum of Contemporary Art (MCA) in August 2010, with architect Sam Marshall and the New South Wales Government Architect behind the design of the project.

An additional 4,500sq m (43,438sq ft) of space is to be created as part of the development programme and will increase the MCAs total size by nearly 50 per cent.

The project will comprise three new galleries, refurbished existing facilities and the National Centre for Creative Learning to



The new-look Museum of Contemporary Art will launch in March 2012

feature two studios and a 120-seat lecture theatre. Meanwhile, new venue spaces will be added to the top of the existing building to offer views overlooking Sydney Harbour and the city's Opera House.

Bremen move for Tate Liverpool director

PETE HAYMAN

Christoph Grunenberg is to leave Tate Liverpool, UK, to take up the post of director of Kunsthalle Bremen, Germany.

During his decade-long tenure at Tate Liverpool, the attraction welcomed more than

one million visitors during the city's successful European Capital of Culture year in 2008.

Grunenberg also chaired the Turner Prize jury four years ago - the first time that the prestigious exhibition and award ceremony had been held outside London.

Heritage status for 25 new sites

TOM WALKER

Wadi Rum Protected Area in Jordan; Historic Bridgetown and its Garrison in Barbados; and Fort Jesus in Kenya have been named among 25 new World Heritage Sites.

The new locations have been selected from an original list of 35 nominees by the United Nations Educational, Scientific and Cultural Organisation (UNESCO).

Selimiye Mosque Social Complex at Edirne, Turkey; The Persian Garden, Iran; the Citadel of the Ho Dynasty in Vietnam; and the The Residence of Bukovinian and Dalmatian Metropolitans in Ukraine are also among the 25 additions.

The new sites comprise three natural properties, 21 cultural and one mixed site, with the World Heritage List now numbering 936 sites – 183 natural sites, 725 cultural and 28 mixed.



Fort Jesus, Mombasa, Kenya, has been named as a World Heritage Site

The news was welcomed by country delegates and state officials – including Jordan's Queen Rania who expressed her excitement on the micro-blogging website, Twitter: "So proud Wadi Rum has join UNESCO World Heritage List! That tallies Jordan's total of World Heritage sites to four!"

MoU to boost Singapore's museums sector

PETE HAYMAN

Singapore's National Heritage Board (NHB) Academy has secured a new Memorandum of Understanding (MoU) with the Tourism Management Institute of Singapore (TMIS) and the Smithsonian Institution (SI).

The MoU is designed to raise standards and will see the academy will work towards the development of heritage professionals.

A Memorandum of Agreement with the SI will also create a new training curriculum for professionals over a two-year period.

£10.2m funding for four heritage projects

PETE HAYMAN

Four UK projects – including a revamp of Colchester Castle Museum – have been awarded a share of £10.2m (£11.6m, US\$16.7m) from the Heritage Lottery Fund.

The museum has secured £3.2m (£3.6m, US\$5.2m) for an extensive refurbishment of the historic attraction. In Belfast, Northern Ireland, the Nomadic Trust has been awarded the same confirmed amount for the restoration of the last remaining White Star vessel – SS *Nomadic*.

Other confirmed awards include a grant towards plans for a permanent exhibition of the life of British composer Benjamin Britten in Aldeburgh, Suffolk, and a grant for Lytham Hall in Lytham St Anne's, which will fund



Colchester Castle Museum netted a £3.2m (£3.6m, US\$5.2m) grant

restoration work to remove the building from English Heritage's 'at risk' register.

Meanwhile, the HLF has also announced that initial support for other schemes, including a Battle of Bannockburn visitor centre

£55m fund to benefit UK arts/heritage groups

PETE HAYMAN

A new £55m (£63m, \$89.5m) Endowment Fund has been established in the UK to help arts and heritage organisations work to secure their long-term financial stability.

Groups will be able to apply for grants to support endowment fundraising, which will be decided by the independent panel to match funds sourced from private donors. It's thought that 50 organisations will benefit from the fund – part of the £100m government, Arts Council England and Heritage Lottery Fund Catalyst project.



The facility will let guests view restoration work

US WWII museum unveils US\$3.2m facility

PETE HAYMAN

The National WWII Museum in New Orleans, US, has officially unveiled its new US\$3.2m (£2m, €2.2m) John E. Kushner Restoration Pavilion.

Members of the public have the chance to experience a permanent, behind-the-scenes look at how the attraction restores and preserves Second World War artefacts.

It forms part of a US\$300m (£183m, €207m) expansion of the museum and is named after John E. Kushner, a local enthusiast of Second World War history.

Dudley Zoo secures redevelopment funding

MEG PROOPS

Dudley Zoological Gardens (DZG) is a step closer to a £1.5m (£1.7m, \$2.4m) overhaul of its four Tecton structures after securing a first-round pass from the Heritage Lottery Fund (HLF). DZG was awarded development funding of £123,000 (£140,000, US\$202,000) and has two years to submit detailed plans towards a full grant.

The attraction contains the world's largest single collection of Tecton buildings, named after the modernist architects chosen to design the zoo in the 1930s.



JIM REID-ANDERSON

After declaring bankruptcy in 2009, Six Flags achieved a \$4m increase in revenue in the first quarter of 2011. The theme park operator's CEO tells Kathleen Whyman how he turned the company around in just one year

Receiving a job offer to become chair, president and CEO of a company that's just emerged from Chapter 11 bankruptcy and has US\$1bn (£614m, €696m) worth of debt, probably wouldn't sound that appealing to most people. For Jim Reid-Anderson, however, it was an exciting proposition.

As the world's largest regional theme park company with 19 parks across the US, Mexico and Canada, Six Flags Entertainment Corporation had been struggling financially since the early 2000s. Despite selling off its European assets and several of its US parks, the company continued to flounder and eventually filed for bankruptcy in June 2009, emerging in April 2010.

Reid-Anderson was approached shortly afterwards and began working for the company in August 2010. But what was it that made this role so attractive to him? "I was a little concerned to start with because I'd read in the press that the company had had a tough financial path," Reid-Anderson explains. "But once I did the due diligence, I became rapidly convinced that joining Six Flags was a great opportunity. It has a fabulous history, a solid foundation and very dedicated employees. It just needed to adjust its thinking and priorities."

"That initial assessment has been reinforced since I joined the company," he continues. "This is a great company coming out of a stressful financial situation with

a tarnished external reputation. Since joining, I've been pleasantly surprised by many things, but especially the passion and talent of our employees. I've always believed employees are a company's greatest asset and that's our strength at this company. We have a very bright future ahead of us."

DEBT CORRECTOR

It's no surprise that Six Flags coveted Reid-Anderson for the role, as his previous experience proves he's the right person for the job. Significant roles in F&B and entertainment around the world taught him about consumer behaviour, the importance of innovation, understanding pricing strategy and customer satisfaction. Then, from 2002 to 2007 he was chair, president and CEO of Dade Behring, a medical technology company, which, in 2002, was entering a bankruptcy process similar to Six Flags.

"It was a really good business with a bad balance sheet," Reid-Anderson says pragmatically. "I took the company through that process, we emerged and went on to sell the company for \$7bn (£4.4bn, €5bn) to Siemens. A large part of our success was rebuilding employee and investor pride in the company," he continues. "It's exactly the same at Six Flags. It's a great company with a great brand that needs a bit of support to bring it back to where it should be."

Progress has already been made, with the company announcing an increase of \$4m (£2.5m, €2.8m), or seven per cent, in revenue in the first quarter of 2011 compared with 2010. This was as a result of a one per cent increase in attendance, an 11 per cent increase in ticket revenue and a 10 per cent increase in in-park sales.



(Left) Six Flags Magic Mountain has three new attractions this year, including the ride Superman, Escape From Krypton

In contrast to the former policy of two new rides a year across the group, there will now be something new in every park, every year



"Our first quarter was great," says Reid-Anderson proudly. "Having gone through bankruptcy, many people thought this company was doomed. Instead, we've grown our revenue and substantially improved our financial position."

The CEO credits this to focusing on being the leading regional theme park company. To gain the increases in attendance and revenue necessary to achieve this goal, Reid-Anderson knew it was essential to add new experiences. He plans to spend about \$90m (£56m, €63m), or nine per cent of revenue, a year in capital, the bulk of which will be on new attractions. This is a complete change of direction for the company, as previous form was to invest in just a couple of new rides a year throughout the whole 19 parks. "That limits the excitement you can create for your guests," Reid-Anderson says. "I believe guests like new things. We'll have something new, every year, in every park."

MR SIX

Next, pricing came under scrutiny. The company had been offering increasingly

"Having gone through bankruptcy, many people thought this company was doomed. Instead, we've improved our financial position"

greater discounts, which Reid-Anderson felt was unnecessary. "That was going too far, so we've been more disciplined around pricing and discounting," he explains.

The company's marketing strategy has also been updated. "The campaigns weren't getting through to our target guests," he says. "They were very focused on a character called Mr Six, who was created years ago and dances in the park in the adverts. By concentrating on Mr Six, we'd lost sight of the park." Now the parks have become the heroes of Six Flag's advertising and guests can see exactly what they'll get when they come to visit.

The use of Mr Six is just one example of where Reid-Anderson feels the company lost track of what it does best. In trying to become a broader, media/entertain-

ment company, it had lost focus. "We're a regional theme park company and we're good at it," he emphasises. "We're going to be the best at that, deliver fantastic guest service, run our parks safely and efficiently and offer new attractions so our guests keep coming back."

CUT BACKS

As well as adding to the company, Reid-Anderson has also had to make some cuts. This has affected staff to a degree – the number of full-time staff was reduced by 10 per cent last year. But the main reductions have been as a result of operating more efficiently. "The company had never really looked at its capital spending from an overall return on investment perspective," says Reid-Anderson. "By doing that ▶



Under Reid-Anderson's direction, Six Flags is focusing on being a great regional theme park operator, offering fantastic guest service and running its 19 parks safely and efficiently

► we can be more diligent in how we spend money." Key differences include changing from national to local media advertising and using its immense buying power as leverage to reduce supply costs.

Operating days have also been reviewed. Previously the company was open on several days when it didn't make sense to be open and was losing money. Now its schedules are more in line with other regional companies. Activities that were non-core have also been eliminated, such as children's barber shops, which cost millions of dollars to set up and run.

MORALE

Restoring employee morale and pride in the company and restoring investor trust have been the biggest challenges.

"To do this we were honest and open with both parties," says Reid-Anderson. "We gave them the strategy and vision and then we set about executing it. Your word is your bond – tell people what you're going to do, then do it." This approach is backed up with regular employee sessions in which staff are invited to ask questions. "Once you do that and people see you're real and truthful with them, even if you're telling them something they don't want to hear, they begin to support and believe in the company again," Reid-Anderson says. "It's all about building trust. They have a right to know where we're going."

In return for their loyalty, all employees were awarded stock options. "Over the years a lot of benefits had been taken away from people. We've reinstated many of

those benefits and staff are much more upbeat and supportive," he adds.

SCORE

To further involve staff, Reid-Anderson has implemented a system around the acronym SCORE, chosen as a homage to the British football team Tottenham Hotspur. He grew up in England and relocated to the US in 1988, but remains a football fan.

SCORE has been rolled out across the company to showcase the changes being made. The S represents sound strategy – and communicating it to employees and the outside world. C is for communication: "Open, honest communication with employees and the outside, so people understand our direction," says Reid-Anderson. "I email the employees every week telling them good news and bad news and I get hundreds of responses back, all of which I reply to." Next is organisation, making sure quality leadership is in place and everyone's roles are clear, followed by rewards and recognition. "We tell our employees that they've done a good job and take care of them, as I would want to be taken care

"Once people see you're being honest, even if you're telling them something they don't want to hear, they believe in the company again"

ABOUT JIM REID-ANDERSON

HOBBIES?

My family first. I don't play golf because, with four kids, it wouldn't be right to be out for several hours at a time. I try to swim every day. I love to travel, primarily with my family. I love movies and I love music.

FAVOURITE FOOD?

The best of British – shepherd's pie, bangers and mash and fish and chips. But it's hard to get proper fish and chips in the States.

FAVOURITE FILM?

Young Frankenstein, the Mel Brooks film. I was shocked at how good a job Daniel Craig did as James Bond, so I also really like *Casino Royale*.

WHAT DRIVES YOU?

Taking care of my family and working in an environment where I can be with great people and have fun.

HOW WOULD YOU DESCRIBE YOURSELF?

Down to earth and approachable.

HOW WOULD OTHERS DESCRIBE YOU?

I hope, down to earth and approachable.

WHAT'S THE BEST PIECE OF ADVICE YOU'VE EVER RECEIVED?

Take care of the people you work with. If you do that, they will take care of you.



Six Flags Over Texas' showcase ride is the Texas Giant. The renovated attraction was reported as being: "The smoothest coaster in the world"

of," he explains. "Finally, E is for execution, making sure we do what we say we're going to do. That's the core of how we turned the company around and focused it on what we needed to do. I've oversimplified it, but you can make things too complex. By using SCORE, people get it."

WALL STREET

He's earned the respect of his staff, but there's another group Reid-Anderson also wants to get on his side. "One big challenge is continuing to educate Wall Street about how great this industry is," he says. "Generally speaking, investors don't fully appreciate everything theme parks have to offer from a value perspective. Sometimes they view the industry as capital intensive with minimal upside for growth. In my view, this industry offers tremendous value due to its recurring revenue, high margins and opportunity for growth."

Reid-Anderson's strategy and key imperatives have been very well received by his colleagues across the company. The focus of the company has changed from short-term fire fighting to long-term and he's put

into place the first ever five-year, long-range plan for the company, with capital being driven by what the parks need rather than what the CEO wants. Now that the share price has gone up – from \$30 (£19, €21) a share to \$36 (£22, €25) in the last year – and Six Flags has had multiple credit ratings and agency improvements, people on the outside are looking at the company differently. "We've made people inside and outside very happy. But, although things are going to plan, we're very grounded," says Reid-Anderson. "I don't want to get complacent – we need to stay focused. People have so many options to entertain them. Our job is to make sure that visiting Six Flags is at the top of their list to do."

Top of Reid-Anderson's list is his family. "I work very hard and I love my job and the company, but I also make sure I take time for my family," he says. His new role has been a big hit with his four children – three boys and a girl aged 11, 13, 16 and 20. "When I told them I was considering the role at Six Flags they literally pinned me down and told me I had to take the job, so the decision was made for me," he laughs.

THE FUTURE

This year is Six Flags Over Texas', the company's flagship park, 50th season anniversary and celebrations are being held throughout the season. It's not the only thing the company has to celebrate. Having reduced Six Flags' debt by a third to \$800m (£497m, €564m) in his first year as CEO, Reid-Anderson is confident that the company is well positioned for the future. A future that he's completely committed to leading.

"I take roles because I want to enjoy what I'm doing," he says. "At Dade Behring I was proud to work in an industry that made people better. Now I'm proud to work for a company where the sole goal is to make people happy. That's different from most industries and is very rewarding."

"People need a respite, somewhere to go to get away from day-to-day pressures," he continues. "This business provides an escape. I love the fact that we're in the business of creating happy memories for people. I'm really pleased I accepted the job." I have a sneaking suspicion that Six Flags is even more pleased. ●



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**AFTER THE SUCCESS OF 2009, HOW DID THEME PARK AND WATERPARK ATTENDANCES
FARE IN 2010? DAVE CAMP ANALYSES THE RESULTS OF THE 2010 TEA / AECOM THEME INDEX**

With 2009 being such a strong year for theme parks, it was always going to be a challenge keeping the performance up in 2010 – and so it proved for many operators. The ongoing global recession, some challenging weather periods, and generally modest investment by operators combined

to produce mixed results in the 2010 TEA / AECOM Theme Index.

This is the eighth year that we've prepared the report and every year we obtain new and updated information to help us provide as accurate a picture as possible of the theme and waterpark industry. While we recognise that admissions are

only one element in the success of an attraction, they do represent a measure of relative popularity and the report has become an important reference point.

THE GLOBAL PICTURE

The performance rollercoaster led to last year's big risers on the global top 25 parks list – North American parks – lose some visits, while the Asian parks, which struggled in 2009, surged upwards in 2010.

Table 1 shows numbers for the leading global parks and their changes compared to 2009. As with previous years, Disney parks dominate the list, occupying the top eight positions and with three other parks in the table. Admissions to these 11 Disney parks equate to 62 per cent of the total visits to the top 25 parks.

The biggest improvement occurred at Islands of Adventure where admissions grew from 4.6 million in 2009 to 5.9 million in 2010 thanks to the opening of the Wizarding World of Harry Potter within the

TABLE 1: TOP 25 AMUSEMENT PARKS/THEME PARKS WORLDWIDE (2010)

Rank	Park and Location	2010 Attendance	% Change
1	Magic Kingdom At Walt Disney World, Lake Buena Vista, Florida	16,972,000	-1.5%
2	Disneyland, Anaheim, California	15,980,000	0.5%
3	Tokyo Disneyland, Tokyo, Japan	14,452,000	5.9%
4	Tokyo Disney Sea, Tokyo, Japan	12,663,000	5.5%
5	Epcot At Walt Disney World, Lake Buena Vista, Florida	10,825,000	-1.5%
6	Disneyland Park At Disneyland Paris, Marne-La-Vallée, France	10,500,000	-2.6%
7	Disney's Animal Kingdom At Walt Disney World, Lake Buena Vista, Florida	9,686,000	1.0%
8	Disney's Hollywood Studios At Walt Disney World, Lake Buena Vista, Florida	9,603,000	-1.0%
9	Universal Studios Japan, Osaka, Japan	8,160,000	2.0%
10	Everland, Gyeonggi-Do, South Korea	6,884,000	11.6%
11	Disney's California Adventure, Anaheim, California	6,278,000	3.0%
12	Islands Of Adventure At Universal Orlando, Florida	5,949,000	30.2%
13	Universal Studios At Universal Orlando, Florida	5,925,000	6.1%
14	Lotte World, Seoul, South Korea	5,551,000	22.4%
15	Hong Kong Disneyland, Hong Kong Sar	5,200,000	13.0%
16*	Seaworld Florida, Orlando, Florida	5,100,000	-12.1%
16*	Ocean Park, Hong Kong Sar	5,100,000	6.3%
18	Universal Studios Hollywood, Universal City, California	5,040,000	26.0%
19	Walt Disney Studios Park At Disneyland Paris, Marne-La-Vallée, France	4,500,000	-2.6%
20	Nagashima Spa Land, Kuwana, Japan	4,465,000	-5.0%
21	Europa Park, Rust, Germany	4,250,000	0.0%
22	Busch Gardens Tampa Bay, Tampa, Florida	4,200,000	2.4%
23	Yokohama Hakkeijima Sea Paradise, Yokohama, Japan	4,023,000	-6.0%
24	De Efteling, Kaatsheuvel, Netherlands	4,000,000	0.0%
25	Sea World California, San Diego, California	3,800,000	-9.5%

Note: * indicates a tie. Attendance figures are estimates, based on company information, annual reports, published information and from reliable TEA/AECOM industry and tourism sources. Per cent changes for 2010 for certain parks are based on adjusted/updated figures for 2009, thus not directly comparable to published TEA/AECOM list for 2009/08 or previous reports. Source: TEA and AECOM



**Movie Park in Germany is among
Parques Reunidos' portfolio, which
makes it the fourth largest operator**



New rides, such as Saw at Thorpe Park, have helped Merlin consolidate its position as the number two theme park operator

park. This attendance increase of 30 per cent is a remarkable achievement, made even more incredible by the fact that the new area only opened in June 2010. The magical influence extended to Universal Studios Florida, where a six per cent attendance growth was seen in 2010.

Korea bounced back strongly in 2010 with the two big parks, Everland and Lotte World, both showing double digit admissions increases and a rise up the global rankings. In Hong Kong, Disneyland grew admissions significantly on the back of its fifth year celebrations to reach 5.2 million. Ocean Park also had a record year reaching 5.1 million visits in 2010.

EUROPE

In Europe, after the bumper 2009 season, 2010 was a mixed affair with a few parks showing increases or holding their attendance, and a significant number finding it tough to maintain their attractiveness.

Poor early season weather in parts of Europe and the football World Cup had an impact on visitation in 2010. Another factor is that at European parks, and many of the regional global parks, admissions are driven primarily by local area residents. With 2009 being the year of the staycation for many people, parks saw a surge in

The performance rollercoaster led to last year's big risers on the top 25 parks list lose some visits

TABLE 2: TOP 20 AMUSEMENT PARKS/THEME PARKS EUROPE (2010)

Rank	Park and Location	2010 Attendance	% Change
1	Disneyland Park At Disneyland Paris, Marne-La-Vallée, France	10,500,000	-2.6%
2	Walt Disney Studios Park At Disneyland Paris, Marne-La-Vallée, France	4,500,000	-2.6%
3	Europa Park, Rust, Germany	4,250,000	0.0%
4	De Efteling, Kaatsheuvel, Netherlands	4,000,000	0.0%
5	Tivoli Gardens, Copenhagen, Denmark	3,696,000	-4.5%
6	Port Aventura, Salou, Spain	3,050,000	1.7%
7	Liseberg, Gothenburg, Sweden	2,900,000	-7.9%
8	Gardaland, Castelnuovo Del Garda, Italy	2,800,000	-3.4%
9	Alton Towers, Staffordshire, England	2,750,000	3.8%
10	Legoland Windsor, Windsor, England	1,900,000	0.0%
11*	Thorpe Park, England	1,850,000	3.4%
11*	Phantasialand, Germany	1,850,000	-5.1%
13	Futuroscope, France	1,825,000	7.4%
14	Parc Asterix, France	1,663,000	-8.6%
15	Legoland Billund, Billund, Denmark	1,650,000	0.0%
16	Mirabilandia, Italy	1,505,000	-7.3%
17	Slagboren, Netherlands	1,464,000	-6.9%
18	Flamingoland, England	1,400,000	-1.3%
19	Heide Park, Soltau, Germany	1,350,000	-3.6%
20	Parque De Atracciones, Madrid, Spain	1,347,000	-10.2%

Note: ** indicates a tie. Attendance figures are estimates, based on company information, annual reports, published information and from reliable TEA/AECOM industry and tourism sources. Per cent changes for 2010 for certain parks are based on adjusted/updated figures for 2009, thus not directly comparable to published TEA/AECOM list for 2009/08 or previous reports. Source: TEA and AECOM

► attendance from local visitors. However, to keep these people coming back, ongoing investment in new rides and attractions is needed. With the recession still with us, most operators didn't spend heavily for the 2010 season. This lack of investment further impacted the 2010 attendance figures.

While the chart may appear to make depressing reading, the total attendance to the top 20 European parks in 2010 is the same as it was in 2008, so the parks effectively returned to their stable operating positions in 2010.

NORTH AMERICA

North America had a particularly mixed 2010. The big winner was Universal, in particular Islands of Adventure where Harry Potter's magic led to a 30 per cent admission rise through six months of trading. Universal Studios Florida also benefited from a Potter echo, while in California the reopening of much of the back lot tour after the 2008 fire, plus the new King Kong 360 3D attraction helped Universal Studios Hollywood to a 26 per cent increase.

By contrast, the SeaWorld parks struggled with the SeaWorlds in Orlando, San Diego and Busch Gardens all seeing attendance declines. At the top, the Disney parks pretty much held steady.

ASIA

Korea and Hong Kong spearheaded Asia's growth in 2010 although China's parks, and most of Japan's, also recorded increases. Everland and Lotte World added a combined 1.7 million visits to the two parks while the two Hong Kong parks added 900,000 visits last year.

The opening of OCT East in Shenzhen saw it enter the top 10 with an impressive 3.5 million visits without cannibalisation



Universal Studios Hollywood had a 26 per cent increase thanks to its new King Kong 360 3D attraction

TABLE 3: TOP 20 AMUSEMENT PARKS/THEME PARKS NORTH AMERICA (2010)

Rank	Park and Location	2010 Attendance	% Change
1	Magic Kingdom At Walt Disney World, Lake Buena Vista, Florida	16,972,000	-1.5%
2	Disneyland, Anaheim, California	15,980,000	0.5%
3	Epocot At Walt Disney World, Lake Buena Vista, Florida	10,825,000	-1.5%
4	Disney's Animal Kingdom At Walt Disney World, Lake Buena Vista, Florida	9,686,000	1.0%
5	Disney's Hollywood Studios At Walt Disney World, Lake Buena Vista, Florida	9,603,000	-1.0%
6	Disney's California Adventure, Anaheim, California	6,278,000	3.0%
7	Islands Of Adventure At Universal Orlando, Florida	5,949,000	30.2%
8	Universal Studios At Universal Orlando, Florida	5,925,000	6.1%
9	Seaworld Florida, Orlando, Florida	5,100,000	-12.1%
10	Universal Studios Hollywood, Universal City, California	5,040,000	26.0%
11	Busch Gardens Tampa Bay, Tampa, Florida	4,200,000	2.4%
12	Seaworld California, San Diego, California	3,800,000	-9.5%
13	Knott's Berry Farm, Buena Park, California	3,600,000	8.0%
14	Canada's Wonderland, Maple, Ontario	3,380,000	7.0%
15	Kings Island, Kings Island, Ohio	3,112,000	3.7%
16	Cedar Point, Sandusky, Ohio	3,051,000	3.7%
17	Hershey Park, Hershey, Pennsylvania	2,891,000	3.0%
18	Busch Gardens Europe, Williamsburg, Virginia	2,800,000	-3.4%
19*	Six Flags Great Adventure, Jackson, New Jersey	2,700,000	2.5%
19*	Six Flags Great America, Gurnee, Illinois	2,700,000	10.2%

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of the other parks in Shenzhen. Universal Singapore was only open for part of 2010, but was close to making the top parks list.

The emergence of China is the dominant feature of the region. Five years ago, there were only two Chinese parks on the list. New entries since 2006 have been OCT East, Happy Valley Beijing and Chimelong Paradise, as well as Hong Kong Disneyland.

With more parks planned there, including Disney and Universal parks, we expect the dynamics of the region to change further over the next few years.

LATIN AMERICA

The Latin American parks are more modestly sized than those in other parts of the world, but for the most part they continued

TABLE 4: TOP 15 AMUSEMENT PARKS/THEME PARKS ASIA-PACIFIC (2010)

Rank	Park and Location	2010 Attendance	% Change
1	Tokyo Disneyland, Tokyo, Japan	14,452,000	5.9%
2	Tokyo Disney Sea, Tokyo, Japan	12,663,000	5.5%
3	Universal Studios Japan, Osaka, Japan	8,160,000	2.0%
4	Everland, Gyeonggi-Do, South Korea	6,884,000	11.6%
5	Lotte World, Seoul, South Korea	5,551,000	22.4%
6	Hong Kong Disneyland, Hong Kong	5,200,000	13.0%
7	Ocean Park, Hong Kong	5,100,000	6.3%
8	Nagashima Spa Land, Kururama, Japan	4,465,000	-5.0%
9	Yokohama Hakkeijima Sea Paradise, Yokohama, Japan	4,023,000	-6.0%
10	OCT East, Shenzhen, China	3,530,000	21.4%
11	Happy Valley, Shenzhen, China	3,050,000	8.9%
12	Happy Valley, Beijing, China	2,734,000	17.8%
13	Window Of The World, Shenzhen, China	2,651,000	12.8%
14	Dunia Fantasi, Jakarta, Indonesia	2,400,000	-4.0%
15	Chimelong Paradise, Guangzhou, China	2,400,000	0.0%

Note: "*" indicates a tie. Attendance figures are estimates, based on company information, annual reports, published information and from reliable TEA/AECOM industry and tourism sources. Per cent changes for 2010 for certain parks are based on adjusted/updated figures for 2009, thus not directly comparable to published TEA/AECOM list for 2009/08 or previous reports. Source: TEA and AECOM



■ ■ The attendance increase of 30 per cent is a remarkable achievement, made even more incredible by the fact that the new area only opened in June 2010 ■ ■

Admissions to Islands of Adventure grew to 5.9 million thanks to The Wizarding World of Harry Potter

to grow in 2010. Six Flags Mexico retained its top spot although Hopi Hari's dramatic increase in admissions, as a result of new rides and economic growth in Brazil, saw it rise to a close second spot.

WATERPARKS

The waterpark market has seen significant changes in recent years with the emergence of new parks in Asia and the Middle East. Disney still sets the standard and Orlando remains the world capital, with four of the top seven waterparks being there, but Asian parks are pushing hard.

Strong growth was seen at Everland, Sunway Lagoon and Atlantis Jakarta, but it wasn't just Asian parks that had a great 2010. In the US, Water Country and Noah's Ark also posted impressive increases.

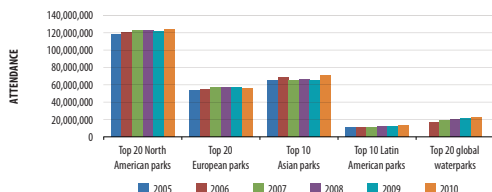
The importance of waterparks to tourist markets can be seen from the presence in the list of parks such as Wet 'n Wild Water World in the Gold Coast along with Aquaventure and Wild Wadi in Dubai.

TABLE 5: TOP 10 THEME PARK CHAINS WORLDWIDE (2010)

Rank	Park and Location	2010 Attendance (million)
1	Walt Disney Attractions	120.6
2	Merlin Entertainments Group	41.0
3	Universal Studios Recreation Group	26.3
4	Parques Reunidos	25.8
5	Six Flags Inc.	24.3
6	Cedar Fair Entertainment Company	22.8
7	Busch Entertainment	22.4
9	Oct Parks China	17.0
8	Herschend Family Entertainment	9.6
10	Compagnie Des Alpes	9.0

Note: Attendance figures are estimates, based on company information, annual reports, published information and from reliable TEA/AECOM industry and tourism sources. Source: TEA and AECOM

GLOBAL ATTENDANCE TRENDS - TOP THEME PARKS AND WATERPARKS (2005-2010)



GLOBAL ADMISSION TRENDS

One of the most impressive features of a review of attendance trends from 2005-2010 is how resilient the global industry has been to the recession. Apart from the European parks group, which fell back slightly in 2010 to 2007 levels, all other groups had record levels of attendance.

Clearly, attendance is only part of the picture – and we know that many parks are offering a wider range of discounts to attract visitors than they did pre-recession – but the fact remains that even during tough times, people still want to visit theme parks and waterparks.

OPERATORS

The 2010 figures show that Disney remains way out in front of the rest in terms of total group attendance, and Merlin has consolidated its number two position. Competition for third spot is fierce and Harry Potter has helped Universal Studios Attractions leapfrog Parques Reunidos into third position.

Ongoing investment, consolidation and growth among leading operators have seen all except Busch and Compagnie des Alpes increase admissions. Overall, the top 10 groups attracted 318.7 million guests in 2010, a three per cent increase on 2009.

WHAT DOES 2011 HOLD?

We expect another challenging and mixed year. The Asian market has been impacted by the earthquake and tsunami in Japan. Tokyo Disneyland is 10 per cent below target for the year having been closed for more than a month following the tragedy, and other parks have suffered similarly. A cold start to the year across much of the

TABLE 6: TOP 20 WORLDWIDE WATER PARKS (2010)

Rank	Park and Location	2010 Attendance	% Change
1	Typhoon Lagoon At Disney World, Orlando, FL, USA	2,038,000	-1.0%
2	Blizzard Beach At Disney World, Orlando, FL, USA	1,872,000	-1.0%
3	Chimelong Water Park, Guangzhou, China	1,800,000	0.0%
4	Caribbean Bay At Everland Resort, Gyeonggi-Do, Korea	1,736,000	19.7%
5	Aquatica, Orlando, FL, USA	1,500,000	-6.3%
6	Ocean World, Gangwon-Do, Korea	1,375,500	5.0%
7	Wet 'N Wild, Orlando, FL, USA	1,223,000	-1.0%
8	Wet 'N Wild Water World, Gold Coast, Australia	1,175,000	7.3%
9	Aquaventure, Dubai	1,040,000	6.1%
10	Sunway Lagoon, Kuala Lumpur, Malaysia	1,000,000	10.3%
11	Summerland, Tokyo, Japan	925,000	0.5%
12	Schlitterbahn, New Braunfels, TX, USA	882,000	-2.0%
13	Atlantis Water Adventure (Taman Impian Jaya Ancol), Jakarta, Indonesia	850,000	18.1%
14	Water Country USA, Williamsburg, VA, USA	784,000	12.0%
15	Beach Park, Brazil	739,000	8.2%
16	Ocean Park Water Adventure, Jakarta, Indonesia	700,000	New Entry
17	Wild Wadi, Dubai, U.A.E.	690,000	2.2%
18	Noah's Ark, Wisconsin Dells, WI, USA	637,000	30.0%
19	Adventure Island, TamPa, FL, USA	626,000	4.3%
20	Deoksan Spa Castle, Chungcheong, Korea	583,000	5.0%

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TABLE 7: TOP 10 AMUSEMENT PARKS/THEME PARKS MEXICO-LATIN AMERICA (2010)

Rank	Park and Location	2010 Attendance	% Change
1	Six Flags Mexico, Mexico City, Mexico	2,000,000	2.0%
2	Hopi Hari, Sao Paulo, Brazil	1,983,000	32.2%
3	Playcenter, Sao Paulo, Brazil	1,700,000	0.0%
4	La Feria De Chapultepec, Mexico City, Mexico	1,470,000	5.0%
5	Fantasilandia, Santiago, Chile	1,166,000	6.0%
6	Parque De La Costa, Tigre, Argentina	1,100,000	0.0%
7	Beto Carrero World, Santa Catarina, Brazil	1,030,000	3.0%
8	Parque Mundo Aventura, Bogota, Colombia	990,000	-8.3%
9	El Salitre Magico, Bogota, Colombia	957,000	-4.3%
10	Plaza De Sesamo, Monterrey, Mexico	931,000	-5.0%

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region will also have an impact on figures.

By contrast, the US market has started pretty well. Harry Potter has continued to work his magic for Universal in Orlando with a 15 per cent increase in Universal parks' revenues for the first quarter of 2011. Six Flags has reported a one per cent increase in admissions for Q1 2011 over the same period in 2010 (see p22).

In Europe, the warm start to the year across much of the continent helped operators to a strong start to the season. This is especially true in the UK where the combination of warm weather and extended public holidays in April led to bumper early

season admissions at some parks.

So, the recessionary attendance roller coaster looks set to continue into 2011. With the summer months of July and August being the most important for most parks, operators will be hoping that they're heading up to the crest of the ride. ●

David Camp, director, economics, AECOM

The full report can be downloaded from <http://www.teaconnect.org/teaecom-2010-global-attractions-report> or <http://www.aecom.com/What+We+Do/Economics>



Disneyland parks make up 11 of the top 25 amusement parks and theme parks visited worldwide during 2010

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CAVE PAINTINGS

A thousand years of story telling are being brought to life at the Mogao Caves Tourist Center in Dunhuang, China. The creators, Silkroading's Chen Jianjun and Sky-Skan's Steve Savage, tell Kathleen Whyman how they're taking audiences virtually into the caves

At a religious and cultural crossroads on the Silk Road, in Gansu province, China, lie the Mogao Caves – a system of 492 temples spanning 2km south-east of the centre of Dunhuang.

Showcasing Buddhist art created over a period of 1,000 years, the paintings tell the stories of merchants, travellers, governors and kings and queens – a historic 'who's who' – while highlighting the breadth of art that was happening a millennium ago.

The caves are a famous historic and cultural destination, and a UNESCO World Heritage site, and receive 6,000 visitors a day in the peak summer time, many of whom have travelled vast distances. But, to protect the wall paintings, visits have to be restricted – the heat and humidity that people naturally create destroys the delicate artwork – and lighting is by torch only. As a result, the beautiful images are hard to see and are witnessed by relatively few.

However, this is soon to change. Thanks to the combined efforts of the Dunhuang Academy, award-winning documentary director and CEO of Silkroading Jianjun Chen and Sky-Skan's president Steve Savage, the paintings are being reproduced in a life-size fulldome film.

Designed to accompany a large scale theatre pre-show detailing the history of the caves, the experience will launch at the new Mogao Caves Tourist Center in 2012. Currently being built, the new centre will allow visitors to see the historic art in all its glorious detail for the first time.

PRESERVATION

The idea for the centre, and the accompanying Dunhuang Research Institute, first took shape in 2003 when the Dunhuang Academy requested a meeting to discuss ways of preserving this national treasure of great historic significance. Senior members of the government of the People's

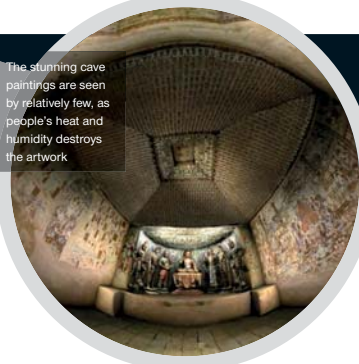
Republic of China were invited to attend the meeting, as was Silkroading's Chen, who suggested that the caves would be best preserved digitally and presented in a dome show.

"At that time no one in the meeting had seen a fulldome show," Chen recalls. "And I'd never made a dome show! But everyone liked the idea of being able to see the inside of the caves in a digital dome and accepted the idea." Silkroading was asked to take the first steps towards making a dome show, which was to digitise the inside of a select number of caves.

PREPARATION

Chen and his technical team started photographing and laser scanning the caves in 3D, so they could reproduce them with a quality equal to being there. Trying to overlay high resolution photos onto scans

The stunning cave paintings are seen by relatively few, as people's heat and humidity destroys the artwork



The building has been designed to resemble a sand dune and the interior décor will incorporate earth tones



"In many ways it's a better experience than being in the caves, as it's well lit and you can see things on the ceiling that you can't get close to"

of the statues and cave surface models presented many challenges, but Chen managed to work through them. "At the time there weren't any full-dome shows available that had been created from photography and scans, so this was pioneering work from the very beginning," he says.

A short demo was rendered to give the project team an idea of the results they could expect. "There were still many problems with the techniques for combining different media into one high-quality image," says Chen, "but, the demo was rendered at 3,200 by 3,200 pixels – the highest resolution at that time – and shown to a selection of industry experts."

The next step was to bring full-dome specialist Sky-Skan on board. Steve Savage recalls the four-day trip he made from Boston to the caves. "I saw 15 caves in one day and was exhausted at the end of it," he laughs. "But it gave me an appreciation of



A dome theatre was chosen to show the film for its similarity to a cave's environment

what the academy had accomplished in capturing the art in digital form, so that it can be shown in a different way rather than trying to jam all these people through the caves. We calculated that they need two 8k theatres running in tandem to handle 6,000 visitors a day, plus two large format screens for pre-shows."

In 2009, a team of 40 people worked at the Mogao Caves for seven months to carry out very detailed laser scanning, high resolution digital photography and mural stitching. Thirteen caves were scanned at less than 1mm accuracy and photographed across every piece of their surface. "Bearing in mind that some of these caves are 60m (180ft)-high and 30m

(90ft)-wide, this was a phenomenal undertaking," Chen points out.

By now Chen's team had been experimenting with different formats for two years to ensure they got the right resolution to do the incredibly detailed artwork justice. "Eventually they decided to make a 10k by 10k test," says Savage. "We had to change our software as we'd never rendered anything so big, but can now deliver a 10k by 10k image on the dome in an 8k by 8k system. We looked at the images on that and it was fabulous."

"In many ways it's a better experience than being in the caves as it's so well lit and you can see things on the ceiling that you can't get close to in the caves."



THE EXPERIENCE

The new building is currently being constructed and will have two large screen theatres and two digital domes, each with a 200-seat capacity. The two 15-minute films will only be shown at the visitor centre and nowhere else in the world.

Visitors will first see the large format pre-show film about the history of the caves and the digital preservation work being carried out (shown with Sony SXR T-110's in large format configuration). They will then go through to the 16m dome for *The Splendors of Buddha's Palace* show – a tour of three of the largest caves, which takes visitors virtually inside them and brings the paintings' stories to life.

The first cave tells the story of Skyamoni's life story before he became a Buddha. The second cave shows a dance and concert scene, which represents the Tang dynasty, and the final cave's pictures depict a party of the gods in heaven.

ABOUT MOGOA CAVES

The first caves were dug out in 366AD as places of Buddhist meditation and worship. The Mogao Caves are the best known of the Chinese Buddhist grottoes and, along with Longmen Grottoes and Yungang Grottoes, are one of the three famous ancient sculptural sites of China.

The dome theatre was chosen for its similarity to a cave's environment. "When the audience sits in the dome theatre, it's as though they're in the actual cave, which provides audiences with a more immersive experience," Chen says. "We're not just providing an entertainment show," he adds, "we're giving visitors the opportunity to gain an appreciation of the art." The building has been designed to resemble a sand dune and the interior décor will incorporate earth tones. There won't be any fluorescent lighting to further enhance the illusion of being inside the caves themselves.

After the two shows, visitors will be taken to the caves themselves where they will have a much greater appreciation and understanding of the artwork, thanks to the films they've just watched.

The visitor centre is a 10-minute drive from the caves. Its distance isn't because of the risk of building work damaging the caves, but because they wanted the visitor centre to be on the main road and the caves are off the beaten trail.

THE CHALLENGES

For Savage, the greatest challenge is dust. "We're in the desert and it gets into everything," he says. "Our main worry is how we're going to keep things clean."

For Chen, the digital preservation of the caves was his most painstaking task. "To apply the high resolution photographs (60 high resolution photos per square metre)

"To recreate each cave in such incredible detail, in a format suitable for a digital dome, has pushed the boundaries of digital preservation"

to the curved images of statues and walls from the scans, and then add texture, has required solving many problems," he explains. "To then recreate each cave in such incredible detail, in a format suitable for a digital dome, has again pushed the boundaries of digital preservation to new levels. To achieve all of these things and create the dome show at 10k by 10k pixel resolution is, we believe, a world first."

To achieve this technical breakthrough, Chen's team had to become a professional digitising and dome production team, getting involved with software development, automatic processing, data control, texture mapping and splicing, before modelling all these methods together.

Thanks to their determination to portray the cave paintings in their full glory, these ancient and treasured paintings can now be enjoyed for another 1,000 years. ●

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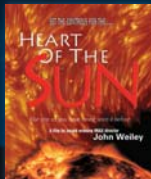
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PHOTOS FAR LEFT AND MAIN: PICTURE NICK WOOD FOR LAND DESIGN STUDIO © 2011

Dinosaurs in their habitat is the focus of the Natural History Museum's new exhibition, which has attracted tens of thousands of visitors. Kathleen Whyman learns how these prehistoric creatures were brought to life

A ROARING TRADE

Showcasing dinosaurs in their environment with the animals and plants that were around at the time is the aim of London, UK's Natural History Museum's (NHM) latest temporary exhibition, *Age of the Dinosaur*. The result is an exciting display of seven animatronics moving among the vegetation that would have been their home millions of years ago.

Visitors also get to delve into part of the vast collection at the London, UK, museum, via the accompanying exhibition, and learn more about the Jurassic and Cretaceous period. "We want to give our visitors a fun time, as well as show and help them understand the evidence behind the science that goes on here at the museum," explains interpretation developer Georgina Bishop.

"This display explains how we've pieced together the scenarios that we have."

To achieve this, the NHM's in-house team brought in Land Design Studio Ltd. The brief was to design two world-class, world-touring exhibitions in one – an immersive, experiential exhibition with scientifically accurate themed habitats and animatronic dinosaurs, plus a more didactic science-based, linear exhibition. "It's fair to say that this was a slightly unusual and yet extremely challenging brief, but one we were keen to meet," says associate director John Blanchard.

THE CONTENT

The animatronics side of the exhibition offers a multi-sensory experience. The vibrating ground creates the illusion that the dinosaurs are coming to get you, and smell, misting and a sound track further enhance the experience. "We combined everything to make people feel immersed in the environments," says Bishop.

The Jurassic area features a camarasaurus and the earth's first bird, an archaeopteryx. In the Cretaceous area, visitors meet a velociraptor, a protoceratops and a gallimimus, before being confronted by a tarbosaurus and an oviraptor.

It was working around the animatronics that was the biggest challenge for



PHOTOS ABOVE: CENTRE AND LEFT: NATURAL HISTORY MUSEUM

Visitors can create an online scrapbook by collecting virtual specimens and dino facts



T-rex's cousin, the tarbosaurus, roars as it hunts for prey among the vegetation in a scientifically accurate themed environment

Blanchard. "These very realistic, life-size creatures thrash about in the space, so to accurately capture them throughout the stages of development was critical," he recalls. "We also had to combine the various elements of narrative sequence, theatrical sequence, habitat extent, lighting, sound, special effects and visitor reach – visitors love to pull out teeth and claws!"

The exhibition has been designed to integrate both the specimen-rich areas with the environments to provide a seamless journey. Similar specimens to the animatronics are displayed in the information areas. "By looking through the specimens, people can piece together the evidence and understand why we thought the fern looked like that or why we chose a particular colour for a dinosaur," Bishop explains.

"We've been able to have the fun and thrills and spills of the environment and have layered in the information for people to access if they want to," she continues. "You could go round and just read the label titles and have a great experience, but if you're particularly interested and want to delve a bit deeper, you can read about the science that goes on here at the museum and find out more about the specimens and where they were found."

Given the wide range of material available, as well as the vast period of time

"WE MATCHED THE DINOSAURS UP SO THAT, IN THEORY, THEY COULD HAVE BEEN IN THE SAME ENVIRONMENT AT THE SAME TIME. WE CHOSE PLANT AND MEAT EATERS SO PEOPLE SEE THE DIVERSITY OF THE SPECIES"

(dinosaurs were on earth from the Triassic period 251 million years ago until the end of the Cretaceous period 65.5 million years ago), I wonder if it was difficult selecting which dinosaurs and eras to display. Bishop explains that they focused on dinosaurs that lived at the same time. "In the immersive environments, we feature five dinosaurs that were found in Mongolia during the Cretaceous period," she says. "We matched them up so that, in theory, they could have been in the same environment at the same time. That helped us narrow down our selection. We chose a range of dinosaurs – some plant eaters and some meat eaters – so people could see the diversity of the different species. We wanted a big wow at the end, hence why we chose the tarbosaurus. It's a very close cousin of the T-rex."

THE TECHNOLOGY

Apart from the small bird, the archaeopteryx, which was made by a UK company called Crawley Creatures, based in Buckingham, the animatronics were made

by Japanese company Kokoro Company Ltd. "We have a long-standing relationship with them," says Bishop. "They continuously improve and make their animatronics ever more realistic." The animatronics are controlled by pneumatics and incorporate state-of-the-art servo technology.

In the interactive area, information and images are projected down onto a flat tabletop and touch sensors in the tabletop allow people to use the interface easily.

TOURING EXHIBITION

The exhibition took 18 months from the initial idea to its opening and can fit into spaces from 650sq m (7,000sq ft) to 1,000sq m (10,700sq ft).

Being a touring exhibition, it had different design criteria to a permanent one. "Our objective was to deliver an experiential show that's robust, adaptive, functional and can tour the world," says Blanchard. "Touring exhibitions have to be sturdier than permanent exhibitions. Robustness is one of the key driving factors of touring show design, as each component from



ALL PHOTOS THIS PAGE: NICK WOOD FOR LAND DESIGN STUDIO © 2011

The exhibit includes illuminated habitat depictions and the life size replica of a camarasaurus' leg and shoulder bone (on the right)

► a wall to a showcase has to meet this primary requirement. Once the show is on the road it has to be carefully broken down, packed into crates, loaded onto containers, shipped, then the reverse process happens at the other end."

The fact that the artefacts will be on tour helped Bishop decide which of the millions of specimens behind the scenes in the palaeontology department to include in the

exhibition. "The exhibition will be touring for up to 10 years, so we needed to include specimens that were able to participate in the tour," she says. "Also, the specimens needed to be visually interesting to visitors and allow people to make links with today. For example, there's a starfish in the underwater area, so people can see at a glance what it is, but can find out more about its life and how it died by reading the label.

It's important that the specimens are visually arresting as well as telling a great story."

Blanchard is delighted with the finished article. "We're pleased with the whole exhibition – from the beautiful fossilised specimens, to the interconnecting timber walls, to the Japanese animatronics," he says. "However, one stand-out element from a design point of view is the large backlit tensile-fabric walls. These have worked out really well for us, as they satisfy both the touring brief in their light-weight adaptability and the sustainability brief with the integral LED lighting. They also meet the experiential/science brief, as they form illuminated ambient backgrounds (accurate habitat depictions) to the overall experience and the specimens."

Age of the Dinosaur received 20,000 visitors in its first 10 days and Bishop is pleased it'll be seen by millions more people outside of London when it starts its global tour. "We're always refreshing our offer at the museum and want to exhibit new, different collections that people haven't seen before and give them a new experience," she says. "We have a permanent, very popular dinosaur gallery, which isn't going anywhere. Having Age of the Dinosaurs as a touring exhibition allows more people to see our specimens and learn about the scientific story."

The exhibition will be at the NHM until 4th September. It will then tour within the UK for several years before going overseas. The age of the dinosaurs is upon us.

"HAVING AGE OF THE DINOSAUR AS A TOURING EXHIBITION ALLOWS MORE PEOPLE TO SEE OUR SPECIMENS, LEARN ABOUT THE SCIENTIFIC STORY AND UNDERSTAND THE EVIDENCE BEHIND THE SCIENCE"



The displays explain how scientists at the NHM piece together the scenarios they have

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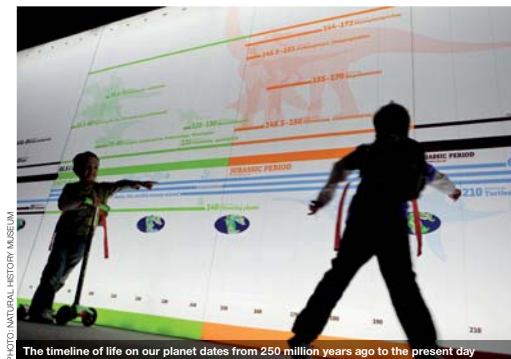


PHOTO: NATURAL HISTORY MUSEUM

FIRST PERSON EXPERIENCE

Kathleen Whyman



An unseen beast snarls eerily in the distance. The air is dank and heavy. The ground begins to tremble. I swallow nervously. To my right, the foliage moves, and a head, attached to an extremely long neck, swerves towards me. The mouth opens and the camarasaurus bellows loudly. I can't help but jump, much to the amusement of the group of school children behind me. The camarasaurus eyes me for a moment before turning its attention to the lush plant life that forms its habitat. The children giggle and move on, eager to see the next animatronic dinosaur, but I remain, transfixed by the creature before me. Clearly it's not real, but animatronic wizardry is such that I can't help but be blown away by how lifelike the dinosaur seems. And by how scientists can possibly know so much about these extinct creatures. I struggle to find out what my daughter does at school each day, so for people to glean facts about what happened 65.5 million years ago is staggering.

My admiration continues as I visit the other animatronic dinosaurs, each in a themed area, mirroring what would have been their natural habitat. The big finish is a gigantic *torosaurus* (T-rex's cousin) roaring above an oviraptor, which valiantly tries to protect its eggs. The attention to detail is superb and the way the dinosaurs move is stunning. Although a family attrac-

tion, I'd be wary of bringing very young children, unless they're particularly fearless, as I suspect they could be terrified – or perhaps that's the appeal.

The animatronics are just one element of the exhibition though. It also offers an easy to understand timeline of life on our planet dating from 250 million years ago to the present day. Specimens include a 140 million-year-old turtle shell and a stegosaurus's tail spike dating back 151 million years. A pile of fossilised dinosaur faeces, from which prehistoric leaves have been extracted, is another highlight, which is bound to be popular with children.

The exhibition also showcases fossils of dinosaurs, plants and water reptiles with as little, or as much, information available as you're interested in reading.

Many of the exhibits are hands-on. One that was proving particularly popular with the school group was a computerised scrapbook that you create by collecting games, virtual specimens and dino facts. By scanning the barcode on your ticket, the information is stored and can be viewed online at home.

Unable to get near the gadgets, I was content to touch the life-size cast of a T-rex's footprint and discover that my hand is the size of just one of its claws.

At the end of the exhibit, visitors are reminded that humans have only been around for 100,000 years, and asks what we think the dominant species will be in another 65 million years. Luckily the museum shop was the next stop, so I was able to absorb myself in the merchandise before my head started hurting from pondering the answer to that question. ●



ECSITE 2011

ANNUAL CONFERENCE

The theme of freedom perfectly complemented this year's venue of Copernicus Science Centre in Warsaw. Four of the 860 who attended the event explain why this conference is so important to the industry

HANS GUBBELS

EC SITE PRESIDENT
DIRECTOR, DISCOVERY
CENTER CONTINUUM,
NETHERLANDS



Why was the theme freedom?

Each theme must apply to all aspects of science centres and museums. As the event was held in Warsaw, Poland, freedom was a very relevant theme. The city was completely demolished during World War Two and its citizens rebuilt it. Don't forget that Poland only achieved democracy in 1989. This is an example of people taking freedom into their own hands.

This spirit is shared by science centres and museums – giving people the freedom to access knowledge and learn at their own pace. In an era of information overload, it's essential that people have the freedom to access correct and reliable information about science and technology.

One of our keynote speakers, Michael Jones, chief technology advocate at Google, talked about the positive and harmful effects of knowledge in the internet age. He seemed to really support science centres and museums as beacons of truth in the world's sea of information.

What was the feedback?

Overwhelmingly positive, with particular appreciation for the staff at Copernicus Science Centre who staged an extremely well organised and spirited event.

I was very happy with the organisation, the venue, the quality of the programme and the mind set of the participants. I don't know of many conferences where such an intense program goes so well hand-in-hand with an informal and social atmosphere.

What were the highlights for you?

Firstly, the opening event speech from Dr Mamoru Mohri, executive director of Miraikan (The National Museum of Emerging Science and Innovation), Tokyo,

Japan, and two-time NASA mission astronaut and former astronaut with the Japan Aerospace Exploration Agency (JAXA). He talked about how his science centre is making reliable information available to a confused and frightened public after the Japanese earthquake and Tsunami in March 2011. His presentation gave valuable insight into how science centres can be socially active organisations.

The second highlight was having the opportunity to reaffirm what a great family the Ec site community is. People were genuinely happy to see each other and exchange ideas about their work.

Thirdly, after two years of work with our members, the board and our new strategic planning commission presented Ec site's first strategic plan, giving the organisation a clear direction for the next five years.

Why was Copernicus chosen?

Eastern Europe has become a particularly exciting market for science centres and museums. The Copernicus building



PHOTO © ECSITE

had not even been completed when it was agreed that they would host the conference in 2011, so this involved a lot of trust and faith in their emerging institution.

Ecsite's Strategic Plan for the next five years involves an element of encouraging science centres and museums, both small and large, in Eastern Europe. Choosing Copernicus as our venue was a very positive step in this direction.

What will next year's theme be?

The theme will be Space and Time, unlimited. Time and space – literally and symbolically – confront science centres and museums with fundamental challenges, options and opportunities.

We'll be examining ways in which we can use these two concepts to communicate science in new and innovative ways that are relevant to our audiences.

The conference will be held at Cite de l'espace, in Toulouse, France, from 31 May to 2 June, 2012. The call for proposals opened in July 2011.

ROBERT FIRMHOFFER DIRECTOR COPERNICUS SCIENCE CENTRE



As host, what was your experience?

There were great participants, great topics and great sessions. We were very pleased and we enjoyed it – that was the key to success. It was a fantastic opportunity for us to present our science centre and our city. Being host was very rewarding.

What feedback have you had?

Our hands-on exhibitions were praised for their high quality and innovation. Dr Mamoru Mohri, director of Tokyo's Miraikan and a former astronaut, complemented our planetarium, particularly the star projector, as offering one of the best views of the night sky on the earth. The building's industrial design and clear structure has proved

(Top left) Copernicus Science Centre, the venue of the conference; (above) networking at the Business Bistro

to be a good venue to present exhibitions and host conferences. This feedback was very satisfactory for the whole team.

What were the main challenges?

The main challenge was to organise two large events at the same time – the Ecsite conference and the Science Picnic, which took place on the last day of conference.

The Science Picnic is an open-air communication event with more than 100,000 visitors in a single day. To cope with both, we created two independently operating task forces and it worked perfectly.

What advice can you give hosts?

To organise such a big event – or in fact two events – we needed a dedicated team who perceived organising the conference as an adventure and the opportunity to network with colleagues from other countries. ▶



PHOTO © ECSITE

(Above) Nocturne at the Copernicus Science Centre. Delegates got to test the new exhibits at this evening event

AUDREY O'CONNELL

HEAD OF PLANNING AND DESIGN CONSULTING
NATURAL HISTORY MUSEUM, UK



How was Ecsite 2011 for you?

This was the 21st Ecsite conference I've attended and it was one of the best.

It's reassuring that natural history museums continue to have a clear place within this community and that, despite having different philosophies, they continue to work collaboratively with science museums and centres on a range of topics.

What were your highlights?

Michael Jones' keynote speech. He talked about some of Google's new and incredibly impressive projects. I was surprised by the political stance of projects such as Map the Fallen, an online memorial honouring service members who have died in Iraq and Afghanistan. It was a revelation for me that Google's so interested in museums. The talk highlighted how the company's continuing to develop and give people the power to explore.

Robert Firmhofer was elected Ecsite president, and is the first president from this region of Europe to represent the network. It was impressive to see more delegates from eastern European countries, who were keen to contribute and gain exposure to lessons from across Europe.

What could be added?

If I were to suggest improvements, I'd like to see more encouragement, and perhaps opportunities for delegates, from outside museum and science centre industries to engage with our industry. Not everyone can take a booth in the Business Bistro, and finding opportunities to make those links, would be a win-win for all.

Although the programme has gone from strength to strength, it'd be good to have more sessions in learning best practice in museum operations and sustainability, including essential topics such as development and fundraising, marketing, communication or catastrophe planning.

What was your experience?

I contributed to a session on the opportunities and challenges of international relationships. It was heartening to hear other speakers and delegate's accounts of similar experiences and how they responded to the challenges of different cultural settings. There was a lot of interest in the NHM's touring exhibitions and planning design consulting businesses across Africa and the Middle East.

This year's conference reinforced my belief that it's a truly fantastic network and opportunity for personal and professional growth, as well as a business opportunity.

This event showed that, despite its growth from 200 delegates 10 years ago, to more than 850 now attending, Ecsite continues to foster a family feel within the organisation, yet it achieves this with an ever-growing professionalism.

ERNESTO PÁRAMO
DIRECTOR, PARQUE
CIENCIAS, SPAIN



What was your experience?

The staff at Copernicus Science Centre worked really hard during the conference and gave everyone a warm welcome.

Poland is a very dynamic country, which is going through a period of enormous boost and you can see that in the new museum. This positive atmosphere added enormously to the event.

What was your aim?

It was very important to meet heads of museums with whom we have joint projects – the telephone is very impersonal.

I also wanted to approach new companies and see some temporary exhibition productions. The Business Bistro is a great opportunity to meet up with 20 companies that show you the best they have to offer.

My aim is to involve more Spanish museums and companies in Ecsite. Now, more than ever, we need to be in Europe and internationalise our activity. Our museum is in Granada, in the south of Spain and Europe, but we don't want to be peripheral – we all win through collaboration. ●



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EURO ATTRACTIONS SHOW

London, UK is this year's venue for Europe's largest conference and trade show for the attractions industry. Some of the exhibitors reveal what they'll be showcasing at the event

The Olympia Exhibition Centre in West London, UK is host to the Euro Attractions Show (EAS) 2011, the largest European conference and trade show for the industry, in September.

The seminar programme will include topics such as safety, social media and human resources and will feature prominent theme park professionals who will discuss the latest development and trends in the industry. For the second time, EAS will host the Theme Park Legends seminar. John Collins (Pleasure Park, Madame Tussauds), Colin Dawson (BALPPA, Thorpe Park) and Olivier de Bosredon (Grevin et Cie) will tell their stories, recount their successes and discuss both the present state and future of the attractions industry.

EAS offers operators the opportunity to get inspiration for new attractions and

ABOUT EAS

Venue The Olympia Exhibition Centre in London, UK

Dates 27 – 29 September 2011

Register www.eas-expo.org



products, ranging from F&B and retail to roller coasters and rides. More than 8,000 visitors are expected with 300 companies exhibiting, up from 265 last year.

Mats Wedin, chair of the IAAPA Europe Advisory Committee says: "Going to London for EAS is a natural progression for IAAPA and the Euro Attractions Show. With our strong relationship with BALPPA (The British Association of Leisure Parks, Piers & Attractions) and the large number of attractions in the United Kingdom, it's one of the best places to take EAS."

Jakob Wahl, programme manager for IAAPA Europe adds: "We've had very good feedback that the British industry is happy that we're hosting EAS in London. This is also clear from the number of stand bookings. The decision was made by our Manufacturers and Suppliers Subcommittee and the Advisory Committee, so there has been strong support from everyone involved within IAAPA Europe to bring the show to London. This can be seen as being representative for all our 850 members in Europe."

THE EXHIBITORS

GATEWAY

Visitors will be able to see the latest module in Gateway Ticketing's Galaxy Product Suite, Galaxy Loyalty.

Gateway's Loyalty module is designed to capture the on-site spend of membership or season pass holders. The data from these transactions is used to improve marketing ROI and increase in-park spending per caps.

For non-members who sign up, the Loyalty module provides a great tool to capture demographic information to help operators convert them into members. Customer's are incentivised to sign up for the program via discounts or free product offers that are awarded for points earned through spending at the park.

Working with Gateway's Galaxy Revenue Generation software suite, IBM Cognos BI tool or JCA BI tool, the Galaxy software can be used at all revenue collection points. Spending habits are tracked at individual level through the Loyalty card and this data is aggregated into a business intelligence tool's data warehouse for detailed analytics.

Just two months after implementing the Galaxy Loyalty module, Cincinnati Zoo, US reported a 25 per cent higher spending by Loyalty members.



Parques Reunidos' Bobbejaanland uses the ClarityLive solution (right)



CLARITY

Clarity will be featuring its ClarityLive for Entertainment technology – a suite of point of sale (PoS) based software solutions for improving the performance of a wide range of attraction venues by focusing on guest engagement.

By seeking to improve the guest experience, Clarity's solutions improve the efficiency at the front gate or ticket booth, the secondary spend and the engagement and spend post-visit. Solutions can include generic and bespoke, modular management software applicable to all entertainment related sectors to enhance the guest experience and drive daily business performance. This is backed up by Clarity's support services.

At the PoS, ClarityLive provides fully integrated solutions for ticketing, reserved and general admission, advance booking, third party sales, internet and mobile sales. The ClarityLive multi-channel capability enables the use of kiosks, mobile devices, stored value, ticketless schemes and the internet.

Developed on Microsoft .NET and other mobile-aware platforms, Clarity's web-based and mobile products aim to offer flexibility for managers and staff within multi-site and multi-channel businesses. The software is used by Merlin Entertainments, Six Flags, Universal Studios Florida, cinema operator Gaumont Pathé and Parques Reunidos.



The jungle-themed Water Garden offers a lap pool, shallow waterfalls and pools interconnected by body slides and a lazy river tube ride

FORREC LTD

Masterplanners Forrec Ltd will be showcasing its waterpark project at Centara Grand Mirage Beach Resort. Located on Wong Amat Beach and Naklua Beach, North Pattaya in Thailand, the 30,000sq m waterpark is part of a 66,000sq m resort, which re-imagines a lost jungle paradise of water, tropical plants and adventure. On arrival, visitors become part of a romantic jungle story about an ancient tribe that revered and celebrated nature.

Originally commissioned by Centara Hotels and Resorts to design a tropical garden for the new hotel, Forrec recognised an opportunity to differentiate the resort by creating a complete, immersive experience that would include the entire hotel property.

An underlying narrative unites all elements, from the entry gate to the beach front – landscape, recreation areas, graph-

ics, furniture, restaurant menus, room keys and even activity programming.

To weave this themed environment together, Forrec applied the skills of its in-house architects, landscape architects, interior designers, illustrators, graphic designers and writers. The design of the elaborate jungle Water Garden required many models, sketches and drawings to resolve the complicated three-dimensional sequences of spaces.

The Water Garden is the resort's main feature and is a jungle sanctuary of tropical plants, splashing water and pathways. Special elements include: a Ceremonial Platform, where a torch-lighting ceremony takes place every evening; shallow waterfalls and pools interconnected by body slides; a meandering lazy river tube ride; a children's play area; and a lap pool, which also serves as a venue for water sports.



Forrec masterplanned the Centara Grand Mirage Beach Resort's new Water Garden

HAYSTACK DRYERS

Haystack Dryers is launching its 2012 global spec Haystack Cyclone Dryer.

The 2012 Cyclone Dryer offers regional modular packages. For example, it can facilitate coin acceptance for France, RFID or bespoke cash and credit card solutions within the US.

Having won awards from IAAPA and WWA, every dryer uses the Hepa air filter and UV sterilisation air cleaning systems. The pre-scrubbed and sterilised air is heated and boosted through low noise cross flow fans prior to ducting to oriented outlet channels. This creates the drying vortex which, when combined with the infra-red heating system, ensures all guests warm up and dry off.

The environmentally friendly 2012 global spec Cyclone Dryer is used at SeaWorld San Diego, Legoland California, US, Movie World Australia and Liseberg Theme Park in Sweden.



The Dryer is used at SeaWorld San Diego



RAINBOW PRODUCTIONS

Rainbow Productions will be profiling two keys services at EAS. Firstly, visitors will be able to see examples of bespoke walk-about mascot costumes designed and manufactured by the company.

Costumes are commissioned by clients to take advantage of associated benefits. This includes taking their brand into a live environment to interact with children and parents in a lively, eye-

catching way. This can be for photo opportunities, to keep families entertained while queuing or as the focal point to develop merchandise lines.

Also, the company will be highlighting its range of hireable children's characters represented under licence on behalf of rights owners such as Warner Bros, Twentieth Century Fox and the BBC. Newer properties include Rastamouse, The ZingZillas and The Piplings.

Rainbow Productions' hireable characters include the colourful ZingZillas

LAGOTRONICS B.V.

Lagotronics will be showing its latest TRIG2 design, an outside usable Trig shooting device created to resemble a Magic Wand.

Used at Heege Tower in Potts Park, Germany, four visitors at a time can use the wands to collect points by aiming at targets hidden in trees around the tower. The system is completely separate from the Heege Tower installation and works using batteries and wireless technology. It has been designed to be an easy and affordable way for operators to upgrade existing ride systems.



OPENAIRE

OpenAire, the designer, manufacturer and installer of custom retractable roof enclosures and operable skylights, will be featuring a number of projects, including the world's largest aluminum-domed waterpark in Donetsk, Ukraine.

At 26m (86ft)-high and 85m (278ft) in diameter, it's the first retractable dome of its kind. The project is currently under construction and will be featured as part of EAS's Waterpark Forum.

OpenAire will also be featuring some of its most recent projects, including Batumi Plaza, a luxury rooftop pool which is part of a multi-use facility located in the Republic of Georgia.

GAMMA DATAWARE

The latest issue of Gamma LeisurePOS provides visitor attractions, museums, art galleries, heritage sites and historic houses with a fully integrated solution to help them manage: admissions and ticketing; Gift Aid; bookings and event management; membership CRM; retail and catering PoS; stock control; mail order; and web ticketing (either fully managed and hosted or not).

Improvements in functionality include the option to select different user views in the bookings and event management module; improved user interface for both front of house and back office; and flexibility within the front of house interface, such as the size of on screen buttons and their location on screen.

Software used is a Sequel Server platform on either a LAN or WAN network using the latest Microsoft .NET framework. PoS hardware is the latest tried and tested technology, as is that used in hand helds, kiosks or turnstiles.

Gamma will also be showcasing its generic web ticketing option and bookings web interface.



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VECTOR

Vector will be showcasing two new attraction experiences at EAS - Lazer Maze and SniggleHunt.

Lazer Maze transforms a darkened room into a challenge, as players have to negotiate their way through a space criss-crossed with a seemingly impenetrable mesh of lasers.

Music, sound effects and pulsating lights add to the excitement.

Players have a limited time to get through the maze. The quicker they get through without breaking beams, the higher their score.

Guest capacity of the walk-through Lazer Maze is 100 people per hour. The maze is fully mobile via the Lazer Pillar, so can be rolled into an empty room when required and, when not in use, doesn't tie up the floor space.

SniggleHunt is a treasure hunt game, which can be played in a variety of areas, from a large soft play structure, to several acres across a park. Visitors to the venue are given a magic Sniglet, which communicates with Sniggles. Every time they find a Sniggle, they get points, which are stored in their Sniglet. At the end of their visit, they take their Sniglet to the SniggleHunt kiosk and redeem their points. The aim is to build up the best score they can over several visits.

Lazer Maze is due to be installed this autumn in a well-known UK soft play and SniggleHunt will be going into sites in the US and Europe.



Vector's Lazer Maze requires players to weave in and out of laser beams



A recreation of the Tardis is among the attractions at The Doctor Who Experience

PHOTO: LIA M. GARNER

SARNER

The best way to showcase a project is for people to visit it. And that's precisely what guests to EAS will be able to do with Sarnar's Doctor Who Experience, as the attraction is based at Olympia Two.

Featured in AM Q2 11, the interactive, 25-minute experience is an immersive, timed, dark walk show that uses film-making techniques and 3D to plunge visitors into the world of the cult sci-fi tv series.

Sarnar will also be profiling its latest projects, which include the recreation of a cramped gun turret with its crew at

action stations. The project is a permanent addition to the historic ship HMS Belfast, a branch of the Imperial War Museum.

Sarnar uses lights, imagery, sound, smoke effects, movement and smells to recreate the atmosphere and conditions of what it would have been like to fight at sea in 1943.

The company is also creating an immersive exhibition aboard Norway's most famous ship, the FRAM, which recreates the freezing conditions and extreme emotions that the famous Arctic and Antarctic explorers Adamson and Nanson had to endure in the early 1900's.

NORTHERN LEISURE GROUP / KIDDY RIDES

Now in its 25th year of business, Northern Leisure Group / Kiddy Rides will be exhibiting its latest coin-operated children's ride, Joey JCB.

Licensed from JCB, the digger ride is made from high quality gel coat. It has an entrance on both sides to allow easy access and ease positioning of the ride on site.

An 17" LCD touch screen offers the choice of two videos, which are selected at the beginning of the ride. Interactive push buttons are simulated onto the screen featuring six of Joey's coolest phrases. Two joysticks with sound effects help replicate the sensation of digging in an actual JCB. Video clips reflect either the driver's point of view or show footage of the 'Dancing Diggers' routine.

The company will also be showing its Scalextric ride, Sing-A-Long Bus, and its most successful ride of 2010, the Peppa Pig Ride.



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The visitor centre has been designed to be as close to carbon neutral as possible

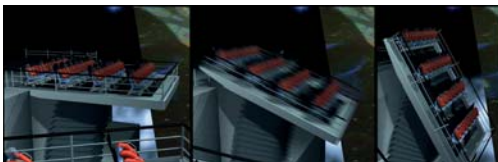
SATURN PROJECTS GROUP

Saturn Projects will be profiling its work on the award-winning, environmentally-friendly Stanwick Lakes Visitor Centre, located in Northamptonshire, UK. The centre has a timber frame construction and is built on stilts on a flood plain with a striking, curving slate and sedum roof. Saturn focused on the building's green credentials, including rainwater harvesting, a sedum roof, a ground source heat pump from the lake and solar roof panels.

The company's aim was to help make the centre as close to carbon neutral as possible while enhancing its beautiful setting.

The centre, which includes a cafe, outdoor amphitheatre, children's indoor play area, gift shop, education wing and function room, recently won two awards. The MKSM Excellence in Building & Open Space Design Award was given to recognise best practice in building and open space design. The project also received the Building Design Award for Northamptonshire from the Campaign to Protect Rural England (CPRE).

EAS attendees can also learn about the newly launched division, Saturn Imagineering, created to expand the company's specialist services within the themed industry.



SIMTEC SYSTEMS GMBH

Simtec will be profiling Hexaflyte, its next generation of flying theatre. The indoor simulator attraction starts with a roller-coaster-type drop. Accelerations of more than 1g create the illusion of a real flying experience during the immersive ride.

The attraction storyline can be customised to suit any vehicle and Simtec's technology can work with both real life action footage or computer animation.

The theatre consists of a half dome projection screen set up around one or

two 6-degree-of-freedom (6-DOF) motion platforms. The motion system has been designed to make it possible to enter the platform in horizontal position, take the seat and lock the safety bar.

From this position, the motion platform drops into the cinema into a near-vertical arrangement of the seats. Combined with the moving scenery, riders experience the sensation of flying.

Simtec will be showcasing the Hexaflyte system as both a motion unit and a turnkey simulator ride attraction.

THEMING AND ANIMATRONICS INDUSTRIES SA

Visitors must prepare to be afraid at TAA Industries' stand, as the company will be profiling its new Dracula Dark Ride.

The themed ride was developed with ABC Engineering / ABC Rides Switzerland, and explores the Transylvanian history and myths before taking riders to Count Dracula's castle. Passengers are propelled forward, backwards and sideways at varying speeds before crashing through an obstacle. The tracks divide, taking one half of the riders to a graveyard and the other half into the bedroom of a female vampire.

Covering approximately 250m (820ft), passengers enjoy 13 scenes, including the pre-show, enhanced with animatronics, light, sound and special effects.

Twelve wagons, taking six people each, can cater for 745 visitors an hour.

TAA will also be showcasing its dark ride Van Helsing's Factory, which was installed at Movie Park this year. ●



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LEISURE INDUSTRY WEEK

Attractions professionals are invited to explore 'where innovation meets inspiration' at this year's Leisure Industry Week

Play & Attractions at Leisure Industry Week (LIW) in the UK is designed to bring together senior buyers and decision makers from the UK visitor attractions industry.

With a theme of 'where innovation meets inspiration', exhibitors include suppliers of rides, turnstiles, theming and special effects, high ropes courses, play equipment and wave machines.

The show celebrated its 22nd year in 2010 and attracted more than 9,500 visitors and 300 exhibiting companies.

THE ZONES

The Play Innovation Zone, which launched last year, is back to showcase suppliers of varying sizes, who will profile their new products and latest innovations to visitors.

The Magical Fairy Land is a purpose-built fantastical live play feature that can be tailor-made to suit a variety of attraction venues. It will also offer the opportunity to take advantage of marketer Russell Play's wealth of industry knowledge.

The new Theme Factory aims to help attractions develop compelling and exciting experiences for their operations. Guests are also welcome to the Outdoor Demo Area and Attractions Industry Party.

EDUCATION VILLAGE

The 150 hours of seminar content in the Education Village include talks from representatives from Cartoon Network, Vision XS and DP Associates.



Visitors to LIW can network and discover and try out new products in a fun environment



Turner Media Innovations and Cartoon Network will give two seminars focusing on the influence children have on the activities and attractions families choose. Another discussion will look at the growing success and popularity of licensed attractions, drawing on their experience from the Ben 10 Rollercoaster and Cartoon Network street at Drayton Manor. In addition, the National Farm Attractions Network (NFAN)

will present a rural and countryside attractions seminar programme.

While the organisers have made every effort to cater for the entire spectrum of attractions professionals, Play & Attractions is just one of the seven sectors within LIW. Visitors are encouraged to explore the entire show to discover for themselves the varied crossover opportunities which exist between the sectors. ●



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SHOW PREVIEW

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More than 1,500 waterpark professionals have already signed up to attend the WWA's 31st event in October. We speak to some of the exhibitors



Family Python

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WHITEWATER WEST

The Family Python is the signature attraction in WhiteWater's Megatube Series.

At 43ft (13m)-tall and 430ft (131m)-long, the attraction is a multi-sensory overload of twists, turns and drops. Built for two- to six-person rafts, the Family Python swallows riders into its 20ft (6m) enclosed Megatube where they oscillate up and down during the exhilarating experience.

The structure is manufactured using WhiteWater Composites Siltek fibre-glass. The company's closed-moulded process ensures that each piece created has consistent thickness, reinforcing its strength and durability.



Costing between \$1m (£615,000, €700,000) and \$3m (£1.8m, €2m), the attraction can be easily adapted to fit in with a specific park's design and chosen vehicle and capacity.

Several Family Python rides launched internationally this summer and many more will be opening over the next year.

THE SEMINARS

An extra day has been added to the educational program, as well as two new workshops: Magical Selling Skills: A Sales Workshop and Inclusion U: A Guide to Welcoming People With Disabilities. Attendees will have their choice of more than 50 breakout sessions covering topics including: The

Domino Effect: Managing A Crisis in the Social Media World; Maintenance Magic: How to Hire & Train Maintenance Techs for Waterparks; Come One, Come All! Mastering the 3 Ring Circus of Events, Promotions & Public Relations; and No Money, No Problem! Low Cost and No Cost Ways to Keep Your Park.



POLIN WATERPARKS & POOL SYSTEMS

Polin will be featuring a new King Cobra thrill waterslide, the new Racer series Surfstream, Creeksurfing, Splashcinema and RTM (Resin Transfer Molding) innovations in the sector of waterparks.

A model of King Cobra will be on display with a simulation video and a model of the Racer Series. King Cobra enables riders to race in two double tubes along a circular path with twists and turns before being

dropped into a pool alongside each other. The ride has been installed in Djobga Waterpark, Russia and Cobra Kingdom Waterpark, Maxx Royal, Antalya, Turkey. Another five contracts are about to be signed, plus, by mid-2012, there will be three King Cobras in Asia, two in the Middle East and one in America.



EMPEX WATERTOYS

Empe will be focusing on its new waterpark product Aquacircus, which has just been installed at Aquatoy city in the Illica Spa and Wellness Resort in Cesme Turkey.

The children's area hosts a new array of water play features from Empe Watertoys, which have been combined into a water playground called Aquacircus. The climb and slide structure provides a myriad of different slide experiences and 45 creative interactive activities. Spray features include Aquaclunes, spray clowns, Aquajetz, interactive Watertoys and Aquatons.

Designed for children up to the age of 12, the playground also features



Aquaverters, a plastic water diverter designed with minimal moving parts to spray water in different directions.

Aquacircus is fabricated from composite and speciality plastics with no metal parts for superior corrosion resistance, low electrical and heat conductivity.

Empe has created a line of interactive watertoys under the trademark Aquanetics. Children can turn a wheel to produce sprays and kinetic effects such as pelton wheels, spinners, gears and pinwheels to create an effect of water motion. ●



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DIFFERENT DIMENSIONS

Earthquake-proof, water resistant and spine tingling were among the criteria for the latest selection of 3D attractions on the market, as Kathleen Whyman discovers

HUNTIK AND MAUS AU CHOCOLAT

Alterface has recently installed two interactive dark rides offering 3D films with special effects.

Players use guns to help battle against monsters on the ride Huntik, located at the new Rainbow Magic Land in Valmontone, Italy. The ride is based on a cartoon tv show, in which the heroes use magical powers and allies to explore strange locations, find lost treasures, and battle evil.

Using Rainbow Studio's film, Alterface provided the interactivity, guns, show control and audio/video system to enhance the excitement. Players fire at the monsters on the 8m by 5m (26ft by 16ft) screen, but lose points if they shoot the friendly characters on film. The motion-based carts act as simulators with bumps, drops and acceleration. At one point the cart seems to accelerate in a chase, actually turning the players, just as a real 4D simulator would. Riders get a feedback of the points they've earned in real time and receive a photo at the end with their score printed below.

Each of the nine carts can take eight players at a time with an estimated throughput of 800 players per hour. The ride lasts for 4.5 minutes and has a footprint of 3,400sq m (36,500sq ft). The theming was done by Art Project, the audio by Vida Studio and the ride system is from Hytechology.

Aimed at the family audience is 3D ride experience Maus au Chocolat at Phantasialand, Germany.



Riders battle monsters in dark ride Huntik



A snow blizzard, water spray, air blast, low smoke and seat movement are among the 4D effects in Ice Voyage

Wearing 3D glasses, guests are carried through a number of room environments in the Imperial cake factory, which has been infested with mice. Points are scored for every mouse hit. At the end of the ride, guests are given their total scores below a photo taken of them during the ride.

Created with 3BDA and ETF, the ride has a footprint of 1,800sq m (19,000sq ft). Nine trains of three carts each seat four players. The game runs for six minutes, giving a throughput of 960 players per hour.



In Maus au Chocolat, laser guns are themed as icing piping bags

INTERNATIONAL ANTARCTIC CENTRE

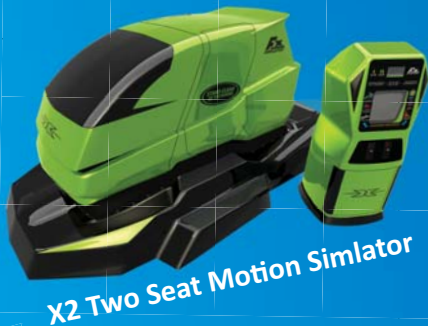
Providing an earthquake-proof theatre was among the criteria for Simworx's latest installation at the new International Antarctic Centre in Christchurch, New Zealand.

The two films currently being shown – *Ice Voyage*, which takes visitors to the Antarctic to experience the ice and wildlife and the family adventure film, *The Curse of Skull Rock* – are both 4D offers.

Ice Voyage, which is the first 3D movie to be filmed in the Antarctic and was produced by the operator, incorporates seat movement, low smoke, air blast, water spray and a snow blizzard.

"The client was very focused on producing a film that takes you on a ice voyage to the Antarctic. The brief was to make it as realistic as possible," explains Simworx's managing director Terry Monkton. "We delivered an experience that enhanced the film they produced by delivering the necessary seat movements and 4D effects to ▶

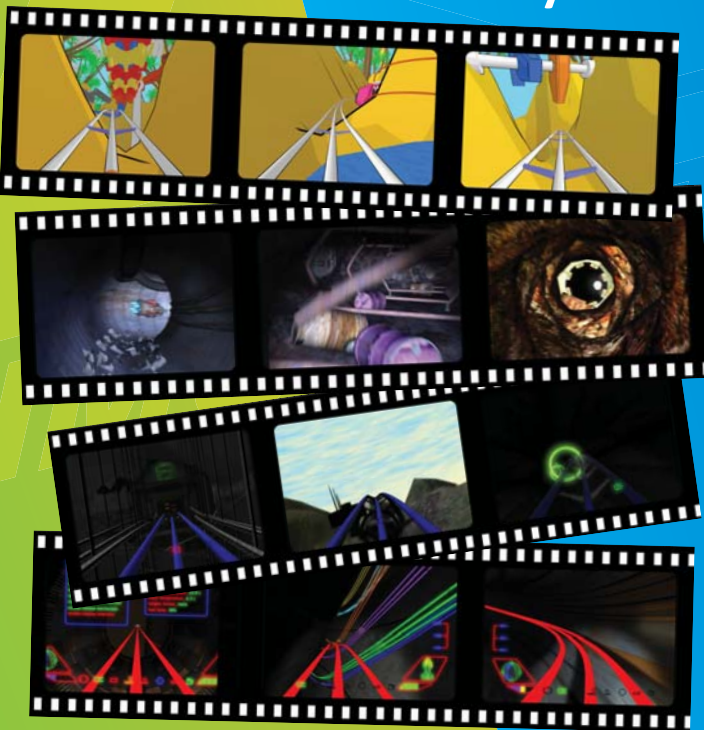
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Additional effects, which are used in the digital, high-definition, 3D *The Curse of Skull Rock* include aromas and bubbles.

A touchscreen panel manages the DMX show control system. "The operator just selects the film and the controls load the appropriate effects," says Monkton.

To make the theatre earthquake proof, Simworx created grandstands using tubular steel with a higher tensile strength steel than would normally be used. (The grandstands also had to be specially designed to fit into the unusual shaped room – six-sided, instead of the traditional square or rectangle.) Fixtures to the walls were reinforced so they won't come free easily. While there hasn't been an earthquake since the theatre was built, it has been put to the test, as Monkton explains: "They've had some tremors, but the operator hasn't mentioned anything coming loose!"

The International Antarctic Centre hasn't had to endure an earthquake yet, but the theatre has survived a few tremors



WATERSHOW

The world's first 5D waterpark attraction has opened at Austria's biggest waterpark Aquapulco. Designed and built by Kraftwerk, the 5D experience, called Watershow, continues the newly renovated waterpark's pirate theme.

Kraftwerk has taken advantage of the fact visitors watch the 5D film in their swimwear by incorporating effects involving a lot of water.

This is possible thanks to the company's specially designed seats and a largely technical-free theatre.

Kraftwerk's managing director Markus Beyr says: "The new waterpark attraction will be one of my focuses for potential waterpark clients around the world. The feedback so far has been phenomenal."

Visitors to the first 5D waterpark attraction will be thankful of their attire as the effects involve water

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► LONDON DUNGEON'S VENGEANCE

Guests are taken back to a séance held in a haunted Victorian house at the London Dungeon's new 5D laser ride Vengeance.

Set at 50 Berkeley Square, London, UK, in the 1800s, the house is reputed to be the one of London's most haunted properties at the time. A high-definition 3D film, created by Threshold Animation Studio, will see spirits come to life amid special

4D effects, such as rotating movements. Alterface provided the ride system and the effects, which include a laser shoot-out, enabling guests to fire at the spirits using a Victorian-style revolver.

The London Dungeon is operated by Merlin Entertainments Group and all of its experiences are based on real historical events. Guests are met by a butler or maid, who explains the background of the house and its inhabitants, three of which are documented in history as having died mys-

teriously or been driven mad in the house. Guests are taken through to the ride, set in a heavily themed Victorian parlour, which seats 25 people and runs for five minutes.

They meet one of the most famous mediums of the age, Florence Cook, who starts the séance, but things go wrong and the spirits are released and want to wreck revenge. Using their themed laser guns, riders shoot at the spirits while the seats spin around to disorient them. The 4D effects include smoke, strobe lights, wind, leg ticklers representing an infestation of rats and water spraying when ectoplasm shoots out of the medium's mouth. Eventually Florence manages to get the spirits back into the vortex and riders exit the tour and go straight into the next experience at the Dungeons.

Vengeance opened in May and is one of only three of this type of ride in the world – the others being in Holland and Texas.

"Our designers liked the ride system and wanted to incorporate a heavily customised version into the Dungeon," explains the London Dungeon's marketing and communications executive Matthew Clarkson. "The film is a combination of live action and CGI. The aim was to ensure the film's not too polished to create the illusion that visitors really are involved in a séance in the 1800s. The film integrates guests, so shooting the guns triggers effects, vibrations or a reaction on screen."



Guests use Victorian-style revolvers to shoot at spirits in this séance set in the 1800s

ASYLUM 5D

Created to fill a gap in the market for quality horror/thriller experiences, Asylum 5D is a haunting experience with paranormal activities that produces an eerie journey, aimed to chill viewers to the core.

Distributed by The Juice, working on behalf of Virtual Magic and Budgast SC, the film portrays a spooky walk through an old Victorian asylum. Gradually, the abandoned institution comes to life with ghostly people in pyjamas, graveyards, tombstones and skeletons. A variety of 4D special effects have been incorporated to play tricks on visitors' minds.

The POV production comes in two versions – as a 15-minute attraction or a seven-minute ride experience.

Launched at the end of 2010, Asylum is already installed at a number of attractions and has proved popular in Eastern Europe



Viewers will be "chilled to the core" by Asylum 5D

and Asia. It is playing in House of Kathmandu in Majorca and will be shown at Babbacombe Model Village in the UK as part of the Halloween event. Licences are available on an annual or seasonal basis or as part of a corporate package. ●

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PASSAGE OF TIME

On 10 June, English Heritage opened the doors to its new Second World War attraction Operation Dynamo: Rescue from Dunkirk. The network of Secret Wartime Tunnels stretch for 60m (200ft), 26m (85ft) deep underground behind the white cliffs of Dover, UK.

Audiovisual technology is used throughout the eight zones to re-create the drama of the Dunkirk evacuation. The highlight of the attraction is Rescue from Dunkirk, Casemate Z, where special effects have been used to dramatically present the events of 26 May to 4 June 1940.

Twenty-three projectors create giant images that run the entire length of the space, augmented by spectacular lighting effects. German fighter planes appear to speed down the entire length of the tunnel, immersing visitors in a recreation of the action on the Dunkirk beaches. Another scenario shows silhouetted figures hunched over a table as they plan the evacuation from within the tunnels. Danish company Kvorning Design &

The Secret Wartime Tunnels that were invaluable during WWII have now opened at Dover Castle. Electrosonic's Robert Simpson explains how they helped bring them to life

Communication produced the new attraction with Electrosonic as the AV systems integrator. The two companies worked closely together from the initial design stage. "As a team we've created one of the largest permanent projection setups in Europe," says director Arne Kvorning. "The experience is absolutely breathtaking and brings the history of the tunnels to life."

The prime mover behind this project was English Heritage. The unique challenges faced in bringing this project to realisation included dealing with a listed building, the climate and the fact that no surface has a straight edge to project images onto.

THE SHOW

Run as a pulsed show, parties of up to 30 people are taken through the eight zones. These contain original news-reels and recordings – the result of two years of painstaking research and testimonies from veterans of both the beaches and the tunnels. Special effects deliver a vivid account of what the British prime minister at the time, Sir Winston Churchill, called: "A miracle of deliverance."

Zones one to five use a pulsed visitor flow system, allowing each group to experience the shows in succession. At the end of each presentation, traffic lights indicate that it's time to move on to the next section. Throughout the attraction, caption panels are in English, French and German and, where voice commentary is used, induction loops are fitted for the hard of hearing.

THE WAR BEGINS

The show starts in the War Begins waiting area – every nine minutes a sergeant major-style voice instructs the group to move on to the War Begins Cinema.

This space is themed as an underground briefing room, complete with a mock 16mm projector and blackboard. The film, which is actually shown electronically, describes the events leading up to the war. The blackboard prop is revealed to be an LCD panel covered in black gauze, which is used to give French and German subtitles to the presentation.

BATTLE OF FRANCE

After the film, visitors leave the cinema and walk through corridor-style tunnels to a space where a live presenter gives orientation information and draws attention to the graffiti on the tunnel walls.

The Battle of France presentation follows in a large space themed as an under-

The War Begins Cinema is themed as an underground briefing room. Subtitles appear on the "blackboard" LCD panel





Challenges faced
in bringing this
project to realisation
included dealing with
a listed building, the
climate, and the fact
that no surface has
a straight edge to
project images onto

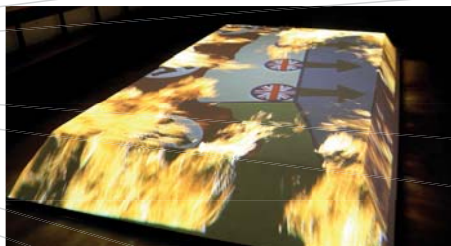


ground war room. The film describes the battles in France that eventually resulted in the need for evacuation. Two walls of the space show archive footage from the battle and animated graphics are projected onto a low table in the centre of the room. These reinforce the commentary by illustrating, for example, the balance of forces and the troop movements.

The Battle of France table is in the form of a low truncated pyramid. A Panasonic 6300 projector is used to project images onto the table surface. However, at the



Giant images are projected onto the tunnels showing the planning (middle), the rescue (top) and the bombings (bottom)



In the Battle of France presentation, images describing the battles that led to the need for evacuation are projected onto the top surface of a pyramid-shaped table. When the story reaches its peak, the pictures spill over the table to fill the sides of the pyramid

- end of the presentation, as crisis mounts and reaches its peak, images spill over the table to fill the pyramid sides.

RESCUE FROM DUNKIRK CASEMATE Z

The main attraction is Rescue from Dunkirk Casemate Z (zone 5) where the events of the rescue are presented in dramatic fashion. The Casemate is a tunnel space 60m (197ft)-long, and the story of the evacuation is narrated by actor Kenneth Cranham, accompanied by the voices of veterans of the time. Giant images run the length of the space, augmented by spectacular lighting effects. The 23 Optoma EX785 pro-

jectors used to screen these images are computer controlled to ensure synchronisation and to warp and blend the separate projected images into one long picture.

AUDIO

The audio system was designed by Electrosonic to meet the requirements of Kvorning's sound designer. Sound is used not only for narration and special effects, but also to draw people through the space.

AFTERMATH ZONE

After the main show, visitors enter free circulation areas that show how the tunnels were used from the summer of 1940 onwards, especially in the Battle of Britain.

The Aftermath zone shows operations rooms for artillery and anti-aircraft control. The final main zone shows actual communications equipment of the time, including repeater stations and the telephone exchange. The lighting, based on the original luminaires, but with LED simulation of filament lamps, is particularly evocative.

The exhibits are supported by ambient audio, display panels and video labels that show films demonstrating how the spaces were used. All the screenings have English, French or German sound tracks.

In an exhibition (and learning space) above the exit gift shop there are additional interactive displays overlooking Dover Harbour. A series of listening points allow visitors to hear testimonies from veterans.

Since opening the experience, English Heritage has experienced positive results. The attraction has seen an increase in net income, in both paying and non-paying visitors and in membership subscriptions. ●



DOVER TUNNELS HISTORY

Dover Castle, known as The Key to England, is one of the most famous fortresses in Europe. In its role as guardian of the nearest landing point to mainland Europe, the castle has seen unbroken active service for more than nine centuries.

The tunnels were begun in 1797 when Britain faced the possibility of invasion by Napoleon Bonaparte's French army. Known as the Cliff Casemates, they formed a safe underground barracks for British troops.

Since then, the tunnels have accommodated generations of British soldiers, contained huge quantities of gunpowder and rockets and acted as the regional headquarters for the Army and Royal Navy. Most importantly, it was the place from which, in 1940, the rescue of the British army and allies from Dunkirk was planned.

ABOUT OPERATION DYNAMO

The Dunkirk evacuation, code-named Operation Dynamo by the British, was the evacuation of allied soldiers from the beaches and harbour of Dunkirk, France, between 26 May and the early hours of 3 June 1940. British, French and Belgian troops had been cut off by the German army during the Battle of Dunkirk in the Second World War.

During the nine days, a total of 338,226 soldiers (198,229 British and 139,997 French) were rescued by the hastily assembled fleet of 850 boats.

Operation Dynamo took its name from the dynamo room in the naval headquarters below Dover Castle, which contained the dynamo that provided the building with electricity during the war.



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LED is an increasingly popular element in lighting displays. Kathleen Whyman asks the industry experts about the benefits for attractions and what the pros and cons are

SEE THE LIGHT

PAULA DINKEL

lighting consultant, US



Energy costs are a big reason for the popularity of LED. There's pressure to reduce the use of incandescence lamps and to lower energies, which LEDs do. Plus they're low maintenance and don't need replacing as often, which reduces operational costs. This is also

ideal for fixtures in locations that are hard to get to. For example, in attractions where there's water, it's good to have fixtures that you don't have to access very often. But, up-front costs are higher, as they're more expensive to install and, eventually, replace.

LEDs offer flexibility and programmability, which is fun for lighting designers and can create a big impact. The appeal is the huge range of colours that you can achieve with RGB (red, green, blue) LEDs in fixtures. However, because of the vibrancy of the colours, it's hard to get some subtlety.

Newer technology isn't the best choice for attractions because it hasn't been proven to have durability over a long period of time. LED has been used in attractions for about 10 years, so is a reliable fixture.

We're all waiting for the next new thing after LED. Every 10 to 15 years something new leaps forward. LED has been the latest, but there's got to be more coming because there's so much pressure relating to energy conservation.

What would be useful are lights that move, are smaller and are very sturdy."

ROBERT SIMPSON

founder director,
Electrosonic, UK



The pros of LED lighting are new lighting possibilities, energy efficiency and colour. The cons are non-standardisation and exaggerated performance claims.

Fluorescent lighting (at around 80 L/W) will remain a prime light source for a long time, but some vendors are now offering LED strips to replace fluorescent lamps. This is only justified where a special colour is needed, or where an absolutely continuous line of light is needed, or where the luminaires must work at low temperature.

The problem with LED is that it has been oversold. In new lighting schemes a lighting designer can, in principle, make good use of LED, but trying to use it as a retrofit source may result in disappointment.

Many schemes have failed disastrously because the life expectations weren't met. Users have then discovered that they can't get exact replacements because the original vendor has gone out of business or changed the model. LEDs fail catastrophically if they get too hot, and some manufacturers haven't got the expertise to



Electrosonic designed, installed and programmed LED displays at Kuwait 360 Mall

design proper thermal management within the luminaire. It's vital that users get proper guarantees both of lifetime and the availability of replacements.

A corollary of this is that, at present, there are few standards in LED lighting; you can't go out and buy the equivalent of a 60W bulb and expect it to be the same from any manufacturer. This must change.

LED luminaire manufacturers may quote the luminaire light output under unreasonably favourable conditions. Light output goes down significantly with an increase in temperature and, to a lesser extent, with life. There are industry standards specifying how lumen data is to be presented but not all manufacturers follow them. My advice is to try before you buy."



(Above) Lumenal's LED lighting was used to enhance the visual experience at Bristol Aquarium; (below) Lumenal's strip lights and LED lamps

MARK MUIR

director, Kay Elliott



With the continuing development of the product, LED is becoming more and more popular.

There's now greater scope available to the designers in the colour temperatures available. Whereas you could specify warm white or cool white in the early years, now you can specify degrees of Kelvin with confidence. The potential for a myriad of colours from a simple fixture is great and it can all be controlled simply using DMX or DALI protocols.

LED technology uses a lot less energy than traditional sources, so it's attractive to venues and centres for its low energy consumption. The unit life of an LED is potentially much longer than traditional sources so, again, that's a benefit to venues and attractions for its low maintenance demands and costs.

With the more up-to-date technology, LEDs compare well with the new single source units. Previously they had multiple LEDs to accumulate the wattage required and this caused shadowing of subjects. Fortunately for the industry, this is now becoming a thing of the past.

I've found LED lighting very useful for installation in attractions where maintenance is a big factor. Also, they're very useful for in-tank aquarium lighting due to their low heat output and control versatility.

The initial purchase costs can be off-putting to begin with, but these are far outweighed by the low energy consumption and low maintenance in the long run."



NICK WRAITH

managing director, Lumenal



Advancements in recent technology have raised the performance of LED lighting up to, and often above, that of conventional sources, such as fluorescents, metal halides and halogens.

Spotlights, ceiling recessed lamps, strip lights and tension fabric light boxes are all useful tools for highlighting various different elements within attraction buildings, from museum showcases and wall-recessed units to branded signage and aquarium tanks.

LED lighting delivers this high quality light output without simultaneously emitting ultra-violet (UV) light. UV light is emitted by conventional light sources and can fade or degrade

the materials it illuminates, whereas LED doesn't. Also, as LED lighting doesn't emit infrared light (heat), it can be beneficial for climate controlled displays and showcases.

Display lighting needs to be adaptable to changes in layout and display contents. LED fittings' flexibility allows fittings to be designed around the display, instead of the display around the lighting. The fittings can be made slimline and compact enough to remain hidden within the smallest of shelves and shallowest of alcoves. Fittings' sizes can also be designed to suit individual displays, ensuring that display items towards the ends of shelves or units are illuminated as well as those in the middle.

The spread of light emitted by LED fittings can be manipulated using optical lenses, allowing beams to be directed and focused more intensely onto specific features or points of interest. Alternatively, a different lens can distribute the light at less intensity over a wider area for a more general spread of light across a whole unit."



(Left and below) Martin Professional used LED lighting in its displays at Liseberg Amusement Park in Sweden



MORTEN GJØTZ

business area director, theme parks, Martin Professional A/S



Theme parks have to be at the forefront of technology to provide an extraordinary visual experience that makes a long-lasting impact and beats what's available in the in-home experience. Creating a unique night-time identity, and offering guests something better than the home entertainment experience, is a key challenge that dynamic lighting helps

theme parks to create. LED-based lighting makes it affordable and efficient.

LED lighting is perhaps the most important element in today's dynamic lighting displays. Superior colour consistency, high brightness and minimum power consumption are just a few of the highlights.

LED provides an energy-efficient alternative to traditional discharge lighting. LED consumes far less energy, has a longer life and doesn't contain environmentally harmful materials, such as mercury and heavy metals. Theme parks are a high-energy consumption industry and we should therefore be looking at the significant envi-

ronmental benefits of using LED fixtures. If we could replace traditional HID lamps with LED products, tonnes less carbon would be released into the atmosphere.

Until now, profile lights have used traditional high intensity discharge (HID) lamps that are costly to replace, contain mercury and have a life span of only 3,000 hours, necessitating frequent replacement. Today, LED lights deliver up to 8,000 lumens of output; light levels previously achieved only with high-energy discharge lamps. LEDs also have a life span of 25,000 hours and offer superior electronic dimming and strobe effects and flicker-free operation."

GLENN SMITH

managing director, Sky-Skan



LED lighting has had a profound impact on the lighting industry as a whole. From architectural accents, to theatrical stage lighting, the ability to add colourful maintenance-free lighting anywhere it's needed has enabled designers to create amazing installations.

With costs dropping, and quality on the rise, LEDs are popping up in everything these days from solar lanterns to LED mesh covering entire buildings.

The benefits are many. Mainly, you can get intense lighting with low power and

much less heat than conventional lighting. Nowadays, even white LEDs can be had with warm colours resembling halogen or cold resembling fluorescent – all in a compact package that's not fragile and doesn't contain toxins.

I was recently interviewed on camera and even that lighting used LED clusters.

They're also proving to be quite useful in the planetarium industry. We line the base of domed projection screens with LED fixtures for ambient lighting effects, and direct spotlights can be tucked into small spaces to highlight a stage area. Even the star projectors found in the centre of some planetariums have LED light sources, providing crisp white star images. These can be very precisely controlled and don't change over time like Xenon or

Halogen light sources. With LED lifetimes being quoted at anywhere from between 10,000 to 50,000 hours, LED lighting is also basically maintenance-free, which lets us concentrate more on content.

Early units solicited complaints of cold colours or unnatural illumination, but I think that those issues are all but gone, apart for some products from the very low-end of the market. But, even cheap incandescent lighting had less than optimal performance in the past.

LED lighting is here to stay and I am amazed, almost on a weekly basis, at the creativity of some companies in creating new and innovative lighting products using LEDs. I'm going to Shanghai in a few weeks and I look forward to seeing how the LED capital looks this year!"



(Above and below right) Robe moving lights and Anolis LED fixtures were used to illuminate Bath Abbey

PETR KOLMACKA

sales manager, Anolis,
Czech Republic



The new white light properties available with the latest LED technology provide incredible opportunities. It's known that different colours, and colour temperatures (of between 2800K and 6800K, for example), can evoke a variety of feelings and emotions. These can be used in areas to help visitors relax, unwind and de-stress.

The manufacturers of high quality LED sources can now reach a CRI of 93 per cent (colour rendering index, which shows the fidelity with which colours are perceived by the human eye), compared to a conventional light bulb that has a CRI of 100 per cent. This is a vast improvement on the first developments in LED technology. These improvements will continue as LED technology advances, which it is – constantly and quickly.

Very careful consideration should be given to choosing a supplier of LED light sources, as the installation of the LED and its cooling system is crucial

for full efficiency, durability and meeting the target specified by the investor. The boom in LED manufacture has attracted many emerging companies, often with little or no knowledge in the field of LED application. The cheapest options can turn into a false economy in terms of bad advice and incorrect application/functionality.

This, unfortunately, results in more replacement costs and investors losing confidence in using new technologies."

JIRI SAROS

Robe lighting SRO, marketing
and communications manager



LED lighting has opened up a new range of choices and creative possibilities for lighting designers and specifiers. The range of what's available is amazing – there's an LED fixture of every size, colour, shape and output.

The constantly reducing cost of LEDs means that they will rapidly start replacing standard incandescent, and possibly other types, light bulbs and light sources.

If an operator is considering using LED, the scale of the project must be considered. How many hours will the fixture need to be on and is it for an outdoor project or an indoor installation?

On any project, particularly large ones,

the specification should always be for high-grade, professional LED fixtures and control products in this context.

Be aware of being too cost-driven and research thoroughly before making a specification or purchase. There are a myriad of LED products available in all price ranges and you get what you pay for, to some extent. Some are better made than others and many cheap-and-cheerful products are on the market, which are less suitable for more rugged, professional applications.

Sometimes it can be a complex and protracted process to find and decide on the best brands to suit your project." ●





TRAVEL GUIDE

A 1900s street and a 30m train are among the attractions at Glasgow's new Riverside Museum. Esther Dugdale, creative director at Event Communications, describes the design to Kathleen Whyman

WHAT IS THE RIVERSIDE MUSEUM?

The Riverside Museum opened in June and replaces the Glasgow Museum of Transport, in Scotland, UK, which closed last year. Housed in the new building by Zaha Hadid, Riverside isn't a purist transport museum focusing on the technical development of vehicles. Instead it explores and celebrates the social history relating to the transport collections and people's experiences of travel. As well as showcasing the transport collections, the exhibitions offer a broad range of archives, costume and fine art objects. These are all displayed together to tell people's stories.

The operator, Glasgow Life, is a large organisation with a great deal of professional content and collections staff.

WHAT WAS YOUR DESIGN?

Event designed approximately 5,700sq m (61,354sq ft) of museum exhibitions for Riverside, covering more than 100 story displays and a broad range of 'key attracts'.

The story displays are presented using a flexible exhibition display system. The system can be configured to allow the collections and their interpretation to be presented in multiple, dynamic ways to draw out and tell those human stories. The



system allows the displays to be regularly and cost-effectively updated. It includes plinths, showcases, graphic displays, walls, monitor and interactive housings, frames, barriers and lighting – all the elements required to create displays around the vehicles and the varied objects.

In terms of the designs of the displays, we were looking at a curved, floating layer that echoes the curve and edge line of the Zaha building. It's like an extrusion that flows. We use it both horizontally and curving up vertically, while waveforms and ribbon structures use the same fluid, zig-zag that the building has.

WHAT ARE THE KEY ATTRACTS?

We designed and then worked very closely with Zaha Hadid Architects to deliver the key attracts. These are a series of major impact features that are built into, fixed to

or suspended from the building structure. We have a number of dynamic displays using the ship model collections, including a moving conveyor set into the first floor wall, which displays 36 ship models with triggered audiovisual, plus a 7m (23ft)-high projection of one of the colossal ships launching on the River Clyde.

Other key attracts include a 16m (52ft)-wide, suspended, circular velodrome displaying more than 30 push-bikes. It's a continuous circulating strip (a Möbius strip) suspended in the main volume of the building. It's very dramatic and has already become one of the icons of the museum.

There's also a recreation of a 1900 street – a feature of the previous museum, which was extremely popular. Here we've been able to create a much bigger and more accessible street where visitors can go into all the shops. These include a boot makers,

(Clockwise from top far left) the museum's 30m train; a suspended, circular velodrome displaying 30 push-bikes; the Zaha Hadid-designed building, which captures the fluidity of the River Clyde; all the shops in the 1900s street can be visited

a pawnbrokers, a furniture makers, a photographers, a pub, a subway platform and an Italian café. Objects displayed within the shop settings put the collections into context. The cobbled street features horse drawn hearses, trams and vehicles. The street is something that was much loved in Glasgow that's now been much improved.

WHAT INTERACTIVES ARE THERE?

Visitors can play Top Trumps with the motorbike collection featured on one wall. There's also a large wall of cars displayed on floating platforms off the Zaha steel



"When displaying social history material and the collections around them, the difference in scale between a ticket and a 30m-long train can be quite challenging "

THE SUPPLIERS

The companies that Glasgow Life and Event worked with to create Riverside Museum:-

- Beck Interiors - the 1900s recreation street
- Mivan - the main flexible display systems
- Sisco - hardware
- 55 Degrees - software
- Conservation by Design - showcases
- Tony Jones - mounts
- Eura - vehicle axle stands
- Dodd Engineering - moving conveyor for ship models
- Engage and Machine Shop - manual interactives
- Service Graphics - graphic production and installation



► structures. The sounds of the cars have been recorded - slamming doors, beeping horns and windscreen wipers. Using baton technology, visitors can play the cars like an orchestra. There are many interactives for children, plus AV and ICT displays.

WHAT WAS THE INSPIRATION FOR YOUR DESIGN?

The inspiration is always the stories we're given to tell. As storytelling is the principle drive, we want to show off the collections to their best advantage.

These are social history stories and we've used the flexible display systems, with some bespoke elements, to emphasise the content, whether it's the way in which objects are displayed or the backdrops against which they're seen. For example, there are cars with the top section lifted off so visitors can see inside to learn the story of the mechanics. We've got cases with revolving speedway drivers and mechanical, moving skateboards - this way the objects are brought to life.

Another display is Tram Dancing. In the 1950s and 60s, many Glaswegians went out dancing on Friday and Saturday

nights, travelling into town on the trams. The women wore their cocktail dresses. To reflect this, the tram is displayed alongside a sweep of circular cases featuring revolving dresses from the period. The idea is that they're dancing to the tram. We had a lot of fun with the stories and I think people will be quite entertained by them. There are stories that will be familiar to different generations - some are relevant to young people, while others will remember catching that tram in their cocktail dresses.

While we've been playful with vehicles and other objects, there are some displays that look at sad incidents, such as transport crashes and disasters. We've taken the mood and the pace up and down, which is quite a challenge in an open place. We've tried to make it as varied as possible.

WHAT ARE THE CHALLENGES WITH DISPLAYING SUCH LARGE ARTEFACTS?

One of the factors is allowing people to get to them in a safe way. We use large ramps and lifts so they can get up to a level where they can appreciate them. And visitors can also get on several of the vehicles.

Although the brief asked for flexibility so that displays can be changed, the logistics of moving large trains is complex, so there are elements which are unlikely to move and we design around those.

When displaying social history material and the varied collections around them, the difference in scale between a ticket or a uniform and a 30m (98ft)-long train can also be quite challenging. In some instances we use large numbers of small items to create a presence.

HOW DID YOU WORK WITH THE ARCHITECT?

We were commissioned at the beginning of the project, in 2002, to undertake a masterplan for a new transport museum.

The masterplan outlined the concept and all the requirements of the functioning museum and informed the architectural brief. It set the space requirements, the conditions for the collections and the technical requirements. Glasgow Council then held an architectural competition, which Zaha Hadid Architects won. From then on we worked alongside Zahas, as they designed the building and we devel-



(Top left and centre) a 1900s street has been recreated with accessible shops and the traffic of its time; (bottom left) the tram that used to take Glaswegians out dancing at the weekend; (above) the wall of cars can be played like an orchestra

oped the internal displays. We interfaced with them on all elements, down to every shadow gap and plug socket location.

WHAT'S THE BUILDING LIKE?

The building is a very distinctive, cathedral-like space. The principal appeal was the fluidity of the building, which captures the sense of the Clyde – the fluidity of the city's river coming into the city – combined with the idea of velocity and speed. From an aerial view, the building has an extraordinary sweep. Glasgow wanted an iconic, high profile, signature building.

Our displays fit within the building, using the height and the curves. We've worked closely with Zahas on aesthetics so that our displays and the building are integrated.

It's a big, dynamic experience, most of which is in one, large, fluid open space.

There's a mezzanine display and a bridge that you can walk down and look out across the main hall, but it's mainly one big volume. You get a real sense of activity – a vista of vehicles.

We've worked closely with the structural engineers to be able to do things that are different, such as have a train protruding from the upper balcony out over the space, as though it's shooting out into the air.

The old transport museum was very popular in Glasgow and we hope that the new version will blow people away and be an exciting addition to the city. ●



Photo courtesy of Lenny Warren
Warren Media

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STREET SMART

Mobile overlays are primarily experienced using a mobile device, such as a smartphone or tablet. They require the user to be in a specific location to trigger content, answer questions or perform some other type of activity.

I looked at a range of projects – from an independent alternate reality game, to an emerging gaming platform backed by the big players Google Ventures.

One app promises to add a new adventure to a classic theme park. Two other projects repurpose archival materials to make history come alive on the spot. All of the apps I looked at run on at least a 3G iPhone. However, I've noticed that there's also an Android version.

THE SURREAL STORIES OF SAN FRANCISCO

The Jejunite Institute game requires players to go out into the streets, explore the city, and complete tasks that unlock clues to other tasks. The San Francisco-based creators of the game, Nonchalance, describe themselves as a hybrid art consultancy with expertise in situational design.

I had a fantastic time decoding their riddles and searching for clues ranging from bizarre to whimsical. While the Jejunite Institute experience doesn't use an app per se, it is heavily location and web based. It takes a low-tech approach to location-based storytelling, and this is its charm.

The quirkiness of the Jejunite Institute storyline matches the eccentricity of the tasks and plays brilliantly against the backdrop of everyday downtown San Francisco.

As smartphone technology becomes more widely adopted, a whole new world of possibilities is opening up for storytellers to take their shows into the streets.

Mark Hayward reviews some of the latest apps



The city has another Bay Area overlay – Time Shutter. The app allows you to recreate historic photos of San Francisco on the spot and create “now and then” transitions.

Using the iPhone's GPS-enabled Google Map, it tracks your progress as you navigate among 250 historic photographs located on your map. These images are taken from the major postcard publishers that were active in San Francisco in 1900.

When you come upon an image you'd like to recreate, the map directs you to the best location to reshoot the image from. One view I chose to recreate was Down Sutter Street. By standing on the corner of Sutter Street and Grant Avenue and looking through the camera on my iPhone, I was able to view a transparent overlay of the historic image on the current view through the phone's camera. I could scale the current image to match the historic one almost exactly before snapping the picture.

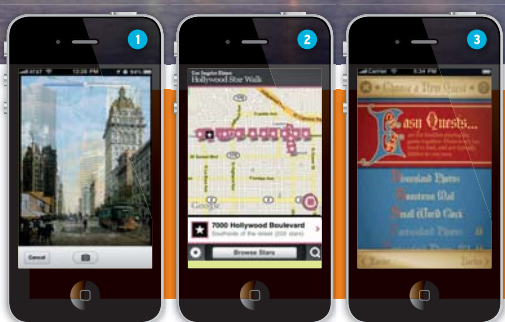
Time Shutter blends the present and the past in an interesting visual way. All the functions are intuitive and work well, but I can't help but feel that a narrative or game element might make it more compelling. Still, it's easy to spend an afternoon walking around Union Square, imagining the San Francisco of long ago.

CHASING HOLLYWOOD STARS

Now let's zip down the West Coast to Tinseltown. Tens of millions of fans walk the star-studded terrazzo sidewalks of Hollywood Boulevard every year. But how many of them realise that they're walking on a 15-block-long public monument to the achievements of the entertainment industry – the Hollywood Walk of Fame?

The Los Angeles Times decided to try to make this realisation easier with its Hollywood Star Walk app. This app is essentially a complete location-based guide to the 2,400 honorees, including biographical information and photographs, all culled from the archives of the LA Times. The app includes an augmented reality feature that helps you locate specific honorees by using the iPhone camera.

I chose to track down Marilyn Monroe's star. I used the search function of the app to find her name and map her star. By activating the augmented reality function, I was able to use my camera to find the virtual star hovering near the intersection of Hollywood Boulevard and Highland Avenue. Once I arrived at her star, I opened her biography on the app. It included a photograph and description of her life and work. A link at the bottom allows you to see



- 1 The Time Shutter app allows users to recreate historic postcards of the streets of San Francisco
- 2 Hollywood Star Walk helps users locate the star they want to find and learn more about the honorees
- 3 Wishing Stars enables users to take on 14 quests in a treasure hunt-style game throughout Disneyland

related stars, accessing a list of Monroe's famous co-stars and collaborators who are also featured in The Walk of Fame.

While the app is perfectly functional, one thing was missing. As The Walk of Fame is all about motion pictures, tv, music and radio, the app would have benefited from some media. Video or sound clips would have made the experience more dynamic, especially for younger users.

FINDING STARS AT DISNEYLAND

While there's no lack of Disney-based content in the app store, primarily for games and shows, there are, surprisingly, no official apps by Disney for any of its theme parks. In the last few years, a variety of unofficial apps have emerged. These range from park guides and maps to wait-time managers. A notable exception is an app called Wishing Stars.

This is a type of scavenger hunt you play with your iPhone while at Disneyland. The app itself is free and comes with two free quests. These come in easy, medium or hard categories and must be purchased separately. The storyline for the app is that wishing stars have been shattered and the fragments are hidden all over Disneyland. Your job is to find the fragments and reas-

semble the stars. There are 14 quests, each ending in a wishing star.

I chose to do the New Orleans Shop Search Quest. I was given a list of images of five distinctive shop signs hanging in the park's themed New Orleans streets. My task was to find the signs and enter street addresses from the corresponding shops.

I found four of the five addresses from the signs, but the fifth was trickier. The "how about an easier clue?" button, merely read: "Sorry, I don't have any other clues. Maybe try asking a Disney cast member?" So I broke down and asked a human being for help. It turned out that the shop sign I was looking for was covered by construction scaffolding. I guess that's one of the hazards of playing an unofficial app.

The production value of Wishing Stars is very high. The graphics and sound effects felt right at home within the Disney brand. The user interface was intuitive and responsive, but I was surprised that there was no map of the park. I found myself having to go back and forth between Wishing Stars and another map app for the park.

Overall, Disney should be taking a close look at what the San Francisco-based makers, The Future of Pinball, LLC have created in their own backyard.

THE EXPANDING APPSCAPE

In just two years, the number of apps being sold has grown from 30,000 to 300,000. In the first half of 2010, the total mobile app market reached \$2.2bn (£1.3bn, €1.5bn) and it's forecast to reach \$15bn (£9.2bn, €10.5bn) by 2013. Businesses and individuals are starting to populate this digital environment in ways that are hard to predict. The barrier to entering the app market is getting lower, meaning that more diverse voices can be heard, but this doesn't necessarily mean a higher level of quality.

In the app market, there's a tendency toward technology for technology's sake, especially here in California. This emerging landscape holds incredible possibilities for how users interact with stories of all kinds.

Marketers and advertisers will be among the first to carve out space in this new territory. Businesses and institutions that have a strong stake in storytelling, such as theme parks and museums, should consider how their stories would translate into a mobile experience. These projects are just a tiny sample of some of the incredible mobile overlays being created today. ●

Mark Hayward, principal and founder, Idea Monkey, Inc., @ideamonkeyinc



The conference was held at the top of the Heineken building above The Heineken Experience



Dolfinarium Herderwijk's John Ruisch

BRINGING SATE TO EUROPE

No story, no glory was among the themes at Europe's first Storytelling, Architecture, Technology and Experience conference. Lesley Morisetti describes the show's transition from the US to Europe



Back in May 2009, I received an invitation from TEA to join a new conference committee led by Jan Maarten de Raad of Jora Vision. Following the growing success of TEA's annual Storytelling, Architecture, Technology and Experience Conference (SATE) in the US, the Europe and Middle East Division of TEA decided it was time to bring SATE to Europe.

The aim was to deliver a conference programme which would be a catalyst to industry debate and to create an environment where 'competing' suppliers and operators were comfortable addressing common topics in an open and collaborative manner. Key to bringing SATE to Europe was a desire to learn from the US experience, but to make the conference intrinsically about Europe.

Two years on, and with considerable perseverance on the part of the TEA and SATE Europe teams, the first SATE Europe

conference took place in June 2011 at the Heineken Experience in Amsterdam.

The venue was perfect. Dedicated conference space at the top of the Heineken building with views over Amsterdam, a successful attraction below (the Heineken Experience) to keep us grounded in the core rationale of SATE, and a bar with free flowing beer – what more could we want?

The conference opened with chair Reinoud Van Assendelft de Coningh welcoming keynote speaker, Disney legend Marty Sklar, who talked us through some of the "best advice I ever heard". From his early days as a journalist through his 54-year career with Disney, Sklar has met many inspirational people and he charmed the audience with the words of wisdom he's gathered during his working life.

STORYTELLING

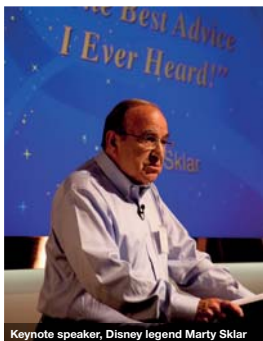
The importance of story came through as a clear message, starting with Sklar's early

days at CBS Television when Don Hewitt, creative and executive producer of *60 minutes* briefed his reporters by saying: "Tell me a story," through to Shaikie Wienburg, the founding director of the Holocaust Museum in Washington DC, who told Sklar: "You can go to any museum to see stuff. The great museums show you stuff, but they tell you a story".

No Story, No Glory was the theme of SATE's first session, which considered the magic of storytelling. The session was chaired by Hester Kloosterboer of The Smile of Experience and Jora Vision's Marjolaine van de Stolpe. Their excellent session started by giving the audience a virtual haircut through earphones (so realistic, I was convinced I was actually getting a short back and sides at one point!) and then showed how the addition of a story has transformed a traditional dolphin show at the Dolfinarium Herderwijk, with the added benefits of new retail sales relating to the story and a much stronger, emotion-based, word of mouth impact.

Wouter Dekkers of Movie Park Germany introduced the next part of the story session by giving a very open and honest account of how the park worked hard to replace the Warner Bros characters with new intellectual properties (IPs). His advice was to focus on proven success stories,

The aim was to create an environment where 'competing' suppliers and operators were comfortable addressing common topics in an open and collaborative manner



Keynote speaker, Disney legend Marty Sklar



Session panellists discuss the importance of putting storytelling before technology

as it's much harder to create your own IP from within a park, and to pick IPs backed by strong marketing programmes. He also stressed the importance of using the IPs to create strong experiences, but not let them take over the whole park.

Wouter's presentation led into a debate on the role of characters and IPs within attractions. Marty Sklar told us that timeless stories are very rare, so you need to be confident that an IP-led attraction will be able to pay back on its investment while the appeal of the IP is still high. He also told us that George Lucas pushed for Star Tours to be put into Disneyland, as he saw it as a way of keeping his characters alive.

ARCHITECTURE

With the importance of storytelling firmly embedded in our thoughts, we progressed to Architecture, chaired by Ray Hole of Ray Hole Architects, with co-chair Evelynne Villame of Loisirs et Marketing. Denis Laming opened his talk on Futuroscope by admitting that the first mistake was to design the main Futuroscope building before having a clear view on its content. While this wasn't ideal from an attraction experience perspective, it did result in an iconic structure which helped establish the associated business and education parks – 26 years on the attraction continues to expand and grow its visitor numbers.

Michel Linet-Frion from Center Parcs and Jacques Ferrier of JFA Architecture argued the case for architecture which puts the guests first. Peter Slavenburg of Northern Light challenged the audience with a future where experiences no longer need new structures to house them, as augmented reality allows stories to be played over existing buildings.

Timeless stories are very rare, so you need to be confident that an IP-led attraction is able to pay back on its investment while the appeal of the IP is still high

The opening day of the first SATE Europe ended with a tour of the Heineken Experience, the first of many glasses of Heineken, and a boat trip ending at Boom Chicago. Courtesy of Kees Albers of Unlimited Snow, we were treated to a hilarious evening of improvisation in the world of social media, which proved that good humour is truly international.

TECHNOLOGY

The second day started with Technology, but not as you know it! Dave Patten, head of new media at the Science Museum, UK, explained how the role of technology is to enable a story to be told about an object. His presentation was a pragmatic look at the ways technology is helping the Science Museum to improve how it tells the stories of its collections and how he's seeking to add other senses, such as sound and smells to enhance the experience.

His message was echoed by David Willich, the session chair, and the other speakers, including Rob Wyatt of Artisan Design and Chris Conte of Electrosonic, who all stressed the importance of starting with a story and letting technology follow.

EXPERIENCE

As my co-chair, Juliana Delaney, of the Continuum Group, reminded us, our industry is nothing without visitors. Together

we ran the final session of the conference, Experience, which considered how to ensure success at both the launch and over the lifetime of an attraction. It also stressed the importance of listening to potential and actual visitors to achieve this.

Duncan Campbell, of Merlin Entertainments, gave us an insight into which factors are really important in evaluating the potential for the development of new visitor attractions. Tim Baker, of Touchstone Partners, explained the methods he's using to help attractions determine the audience potential for temporary exhibitions. And Tony Sefton of Vision XS quizzed the audience on the influence of culture on behaviour. Dirk Lubbers from Heineken then showed that he had a good understanding of his audience when he illustrated the importance of brand immersion by handing out glasses of Heineken during his presentation.

So did the first SATE Europe achieve its aims? Bob Rogers of BRC Imagination Arts sums it up by saying: "The first SATE in Europe succeeded beyond all expectations and has already established its own uniquely European flavour."

"The attendance, the quality of the speakers and the intelligence of the dialogue was remarkable." ●

Lesley Morisetti, director, LM Associates

TURNER ROUND



Margate in Kent, UK, was once a glorious Victorian seaside resort, much loved by the painter JMW Turner, who claimed that Margate had “the loveliest skies in Europe”.

The town has since spiralled into economic and social decline, so the April opening of Turner Contemporary – a £17.4m (€19.7m, US\$28.2m) modern art gallery that’s been 10 years in the making – was a very exciting development.

The Victorian art critic John Ruskin called the controversial painter “the father of modern art”, and it’s this legacy of pushing boundaries (think the Turner Prize) that has informed the direction of Turner Contemporary since day one. Rather than dedicating itself to Turner’s work, the gallery will instead focus on pieces that have been inspired by the artist.

The project is made even more exciting because of the controversy that’s plagued it along the way: the original architects were sent packing in 2006 when costs spiralled out of control. And it’s not just a visitor attraction, but the driving force of a multi-layered plan to regenerate the town.

Turner Contemporary, a gallery dedicated to work inspired by the eponymous artist, has opened in Kent, UK. Rhianon Howells finds out why it took 10 years to create and why it won’t be focusing on Turner

GRASS-ROOTS MOVEMENT

It was from a grass-roots desire to reverse Margate’s downward trajectory that the idea for Turner Contemporary was born. “One man, John Crofts, is credited with the idea,” says director Victoria Pomery, a former senior curator at Tate Liverpool who joined the fledgling project in 2002. “John was a member of the Margate Civic Partnership, a group that was very concerned about what was happening to the town. He came up with the idea [for the gallery] in the 90s and did a lot of research into Turner, and his relationship with Margate and Kent.”

Crofts discovered that not only had Turner attended school in Margate as a boy, but that he had returned to the town throughout his life – attracted by its lovely skies, but also by the charms of one Mrs Sophia Booth, the landlady of the guest-house where he stayed and with whom he

had a life-long affair. More than 100 of his paintings, including many of his famous seascapes, were inspired by the east Kent coast. The idea, though, was never to create a gallery dedicated only to Turner.

Sadly, Crofts died in 2009. But his dream gained momentum when both Kent County Council (KCC) and the national Arts Council bought into the idea. “KCC was very interested in culture-led regeneration,” says Pomery. “And the Arts Council was interested in improving the cultural infrastructure of the south-east, particularly Kent, which suffers from its proximity to London – the argument being that people could get their cultural fix in London, even though until recently it was a good two hours away on the train. So various things came together at the same time.”

As a result, in 2001, KCC commissioned a feasibility study, before immediately launching an international architectural



The two-storey building has been designed to represent a row of artists' studios with interlocking, shed-like structures

PHOTO: RICHARD BRANT/ARCADE IMAGES



Daniel Buren's *Borrowing and Multiplying the Landscape* creates a giant porthole

PHOTOS LEFT, BELOW LEFT: DAVID GRINDORCE



competition. The winners, Norwegian architects Snohetta and British collaborator Stephen Spence, came up with a design that put the gallery at the far end of the town's harbour mouth, where it would have been prey to the full force of the sea.

It was a romantic vision, but not a realistic one, and when the costs of delivering it rose from £7m (€7.9m, \$11.3m) to £55m (€62.3m, \$89), Snohetta and Spence were sacked.

It was a serious setback for a project that Pomery and her team had spent years generating popular support for, by hosting small-scale exhibitions and events in the town, and working closely with local schools and groups. "It's no secret that when I arrived in Margate in 2002 a lot of people were asking, 'Why do we need an art gallery? How's it going to help us?'" she says. "We worked hard to change people's minds by working within the community and saying, 'This is relevant to you and your families. It's a fantastic resource, and it can also do other things, like bring new visitors to the area.'"

Luckily, their efforts paid off. "After the



Each exhibition will include a work by Turner (above), while the majority of pieces will have been influenced by him (top)

first scheme was abandoned in 2006, we had a big public meeting. People were saying, 'We want a gallery now, we just want to know when it's going to happen'. So that was a real change [from 2002]."

The project also benefited early on from some high-profile support – from Nicholas Serota at the Tate (the gallery is one of 18 Plus Tate partners nationwide) and also

from Turner prize-winner Tracey Emin, who grew up in Margate and came back to open the gallery, with musician Jools Holland, on 16 April.

"Tracey has been an amazing ambassador for us over the years," says Pomery. "She gave us a work last year [a pink neon sign reading 'I never stopped loving you'] which we were able to auction, and she talks about Margate and Turner Contemporary wherever she goes." An exhibition of Emin's work is scheduled to be shown at the gallery next year.

NEW LOOK

Following the Snohetta and Spence debacle, Pomery – who wasn't involved with the earlier appointment – worked closely with KCC to find another firm to deliver a visionary design that was also within budget. David Chipperfield Architects was, she says, a unanimous choice.

The resulting building has been funded by KCC (£6.4m, €7.25m, \$10.4m), Arts Council England (£4.1, €4.6m, \$6.6m) and South East England Development Agency (£4m, €4.5m, \$6.5m), with the

PHOTO RIGHT: COURTESY OF VICTORIA GALLERY AND MUSEUM, UNIVERSITY OF LIVERPOOL



PHOTOS LEFT AND RIGHT: DAVID GRANDORGE

Huge windows allow the sunlight to flood in. Mechanical shutters are used when works need artificial light

"We're not the Turner Gallery, we're Turner Contemporary. We're here to demonstrate Turner's influence on contemporary practice"

► remainder raised by the non-profit Turner Contemporary Trust from a variety of private and public sources. It's much more modest than the earlier scheme, sitting further inland (though still within a stone's throw of the sea) on the site where Mrs Booth's guesthouse once sat.

The two-storey building comprises a series of interconnecting, shed-like structures with sloping roofs, meant to evoke artists' studios. Outside, it's sheathed in white, opaque glass which changes colour with the light. Inside, it's all polished concrete and white walls, with sunlight flooding in through the huge lobby window facing the sea, as well as through numerous windows and skylights in the study rooms and first-floor galleries (there are mechanical shutters in place for when works need to be displayed with artificial light). "The gallery faces due north, as of course does Margate, which isn't often the case of holiday resorts in the northern hemisphere," Chipperfield told the *Guardian* newspaper. "This means we get the light that works best for artists and the artworks."

Another of Chipperfield's aims was to make the art as accessible as possible. The positioning of the amenities reflects this: the shop's within the lobby, so can be easily by-passed; the café and its terrace sit just outside the gallery's main entrance, overlooking the Margate sands. Somehow, the whole design manages to be bold yet unpretentious, minimalist yet inviting.

Of course, it's not only the building, but what's inside it, on which the success of Turner Contemporary depends. The challenge of ensuring the gallery has high-quality content isn't made easier by the fact there's no permanent collection. "We don't have a budget for collecting, we don't have a policy for collecting and the building hasn't been designed with the large-scale storage necessary," says Pomery. "Getting the loans is a time-consuming process... but for me, [the advantage of] temporary exhibitions [is that] they allow one to think about different audiences, different themes and different artists."

Pomery also defends her decision not to open the gallery with an exhibition dedicated solely to its namesake's works – instead choosing to delay plans for a big Turner show (Turner and the Elements) until January next year. "We're not the Turner Gallery, we're Turner Contemporary. It's important to set out what we're here to do, which is to demonstrate Turner's influence on contemporary practice," says Pomery. "But we're committed to making sure there's always a Turner present."

In line with this, there's one Turner painting in the Revealed: Turner Contemporary Opens exhibition, and there will be up to 12 in the next show, Nothing in the World but Youth, which opens in September.

HEART OF THE COMMUNITY

One criticism directed at the gallery by some reviewers is that, based on this first exhibition, there's not enough in it to warrant the train journey from London. Pomery disputes this. "You need to spend time with these pieces," she says. "They're not easy works by any stretch of the imagination, and they're multi-faceted. More isn't necessarily better; it's not about filling up the spaces with as much as we can jam in."

Pomery's also keen to stress that although showcasing great art is a key aim for the gallery, it's not the only one. "Learning is absolutely central," she says. "The gallery has to be at the heart of the community... and without the learning element, it isn't going to work." Thus, much of the space is used for running workshops and courses for local people of all ages and backgrounds. Pomery's particularly proud of the Cultural Ambassadors scheme, which, in association with the University for the Creative Arts, is enabling people with very little education to access art foundation and even degree courses.

Another aim is to support the regeneration of the town. The project has clear benefits in terms of raising the town's profile and attracting investment, but according to Pomery, it's also about winning hearts and minds: "Regeneration



The gallery faces due north, meaning it gets the light that works best for artists and their artwork

isn't just about improvements in the urban environment, it's about engendering civic pride. On the opening weekend, there was a palpable sense of excitement and joy that something was happening here, that Margate had turned a corner."

Nor does this enthusiasm appear to be dying down. The gallery attracted 100,000 visitors in the first six weeks of opening – almost a third of its first annual forecast of 156,000. Of these, 24 per cent came from Margate and a further 24 per cent from the wider Thanet area, and 80 per cent of visitors said they're very likely to return.

Pomery knows there are challenges ahead, not least due to the current climate

of cuts. The running costs of the gallery are around £2.2m (€2.5m, \$3.6m) a year, of which 85 per cent is being provided by KCC and Arts Council England, with the remainder to be raised by the Turner Contemporary Trust and the gallery itself.

"It's our job – mine, the staff's and the trustees' – to make sure we're sustainable, and we're thinking of ways to be more entrepreneurial," says Pomery. "Some of the spaces have been designed to be used not only for lectures and musical events, but also for corporate events, weddings and parties, so that's what we'd like to do."

The other challenge is making sure the quality of the art remains consistently high,

so the visitors keep coming – and coming back. Rodin's *The Kiss*, on loan from the Tate, will be installed at the gallery from October this year until September 2012, and there's a detailed programme in place through to the end of 2013 – after that, Pomery admits, it still needs work.

She's in no doubt, however, that it's worth the effort. "I think it's amazing what's been achieved in this community," she says. "Margate is an absolutely magical place, it's got so much potential, and it's so tragic what's happened to it over time... it's such a delight that people are really enjoying this gallery, and if it can change things in a small way, I'm thrilled." ●

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Focus on zoos



Going really wild with Timberplay

DierenPark Zoo in the Netherlands has used products from Timberplay's natural equipment range to create a really wild indoor play space.

Inspired by the Weaver Bird's nest and developed by Timberplay's parent company, Richter Spielgeräte, it features climbing nets and water features, bridges and bespoke play huts.

The overall aim of the development was to provide an opportunity for children to become little monkeys

themselves and it incorporates a lot of sand play – ideal for children of all ages, particularly when combined with a miniature building site.

The space has achieved the objective of increasing dwell time within the zoo, which itself has had the effect of boosting secondary spend. A further benefit has been a significant increase in visitor numbers.

fun-kit.net KEYWORD timberplay

Sutcliffe Play's concrete transformation

In a move designed to improve the overall visitor experience and increase footfall, Battersea Park Children's Zoo in London has seen the installation of a new play area.

In conjunction with the zoo's owners – the Heap family – a large concrete space at the attraction has been transformed by outdoor playground equipment company Sutcliffe Play. A landscape has been created with the aim of encouraging children to play, discover and learn.

More than 40 pieces of equipment have been installed, allowing children



to experience many different forms of play including sensory, interactive, challenging and natural.

As a result, not only have visitor numbers increased but the zoo has experienced a boost in food and beverage and retail sales as well.

fun-kit.net KEYWORD sutcliffe

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Cleveland Zoo releases its own iPhone app

Powered by inSitu Solutions, an application developed by Quebec-based Kanvasys, a new iPhone app is to be released by Cleveland Metroparks Zoo in Ohio, US.

Designed to ease navigation, it will improve the zoo experience by providing detailed GPS-enabled maps, allowing visitors to pinpoint their exact location and guide them around exhibits and animals. This will include a map for the zoo's new US\$25m (£15.5m, €17.2m) African Elephant Crossing exhibit.

The app also provides fun animal facts, points of interest, information about special events and the location of amenities such as washrooms, concession stands and gift stores.

Over the summer, the zoo will make updates available, with plans to add – among other topics – customised tours, horticulture garden information, videos and zoo history.

An Android version could be available by the end of the year.

fun-kit.net KEYWORD kanvasys

Keeping a track on visitor spending

Open Frontiers has released its latest version of TimePOS, the EpoS till module of its web-based visitor management system, Time Pursuit.

The focus of this version is to sell and track secondary spend and behaviour against individual visitors and members. It can be used for guests booking online, phoning in advance or when on a site as a walk-up.

Through a simple browser accessible dashboard, operators will be able to see real-time tracking of admissions, activities, services and retail for all sales channels. This links the



two key performance indicators of visitor arrivals and spend per head.

Further 'experience points' can be added to include exit interviews and on-site activities, with Chelsea Football Club being a launch partner at its new Stamford Bridge museum.

fun-kit.net KEYWORD timepos

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