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Fall in love with maths

Starry skies
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ON THE COVER

JEFF BEZOS

Amazon founder and principle donor to MOHAI's Bezos Center for Innovation

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THE NEW PHILANTHROPISTS

The majority of visitor attractions rely in part on donations to meet the cost of investment, so wooing benefactors and donors is part of the process. As more tech millionaires are made, will attractions which focus on tech-related topics find it easier to fundraise?

The leisure and attractions industries have always caught the eye of the rich and famous. It's no coincidence that musicians and film stars invest in restaurants, build hotels and buy ski resorts and Caribbean islands or that philanthropists have sunk parts of their fortunes into building some of the world's most incredible museums and galleries as legacies.

As times change, people acquire their wealth by different means and their passions – to an extent – define the kinds of attractions which get built. This is particularly the case in the US, where huge wealth resides with a small elite – The One Percent.

The Victorians explored, hunted, researched and catalogued the world as never before, so philanthropic collections from this era are heavy on the taxidermy. They were great art lovers, so we have galleries filled with amazing paintings and portraits.

In this issue we look at the new philanthropists – the people influencing the direction in which the industry develops by their choice of funding and their passions.

The first – the newly opened Bezos Centre for Innovation at the Museum of History and Industry in Seattle, Washington State, US – is featured on page 30.

The attraction, part-funded by Amazon's Jeff Bezos and his wife MacKenzie, includes content which shares and celebrates Seattle's entrepreneurial achievements: the city is home to a significant number of successful corporations, from Boeing to Microsoft – and Amazon of course.

> Tech is hot and as the growing number of tech millionaires turn their thoughts to philanthropy, tech-related attactions will prosper

Money from tech is driving many developments and skewing the attractions sector towards technology, with Google one of the most prominent donors. On page 36 we look at MoMath – the Museum of Mathematics in New York City, which had a US$2m donation from the internet giant.

Each year, through its charitable arm, Google Giving, the company donates US$100m (E72.4m, £59.6m) in grants, as well as 50,000 hours support and $1bn (E724m, £596m) in product to good causes, making it a significant force in third sector funding and attractions are in the front line to benefit.

These days, in addition to philanthropy, there's a broader than ever range of routes by which attractions come into existence, from crowd funding sources like Kickstarter to corporatelands and everything in between. Fittingly – in this age of the cult of personality – we even have attractions which focus on a celebrity: football star Christiano Ronaldo has opened a museum dedicated to himself on his home island of Madeira, Portugal as a gift to fans, for example.

But tech is hot and the emerging tech elite have shown intent to do good with their money, so donations from this source will continue to have an impact. When you consider that the Facebook flotation alone created 1,000 dollar millionaires, it's clear the money's there, meaning we're likely to see more tech-related attractions receiving funding as the new philanthropists hit their stride.

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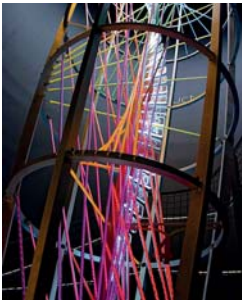

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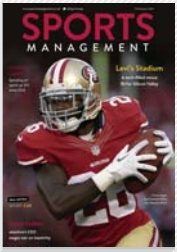

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Six Flags lines up Dubai for first international location

A Six Flags-branded theme park is finally coming to Dubai. A strategic partnership has been signed between Six Flags Entertainment Corporation and Dubai-based Meraas Leisure and Entertainment to open the park in 2017.

It will be located within Meraas' multi-theme park development in Jebel Ali. Financial terms of the partnership have not been disclosed.

Six Flags first announced plans for a Dubai theme park in 2008, to be built by another company, Tatweer. The companies also unveiled plans for a Qatar park, only for both projects to be shelved. Six Flags is once again focused on growth and is fully committed to an international expansion strategy.

Details: http://lei.sr?a=e9M5P

Construction preparations for the parks have begun

Details released for Russia's Dreamworks theme parks

Russian development company Regions Group has confirmed the locations of its three Dreamworks-branded theme parks - which it says will be the largest indoor themed amusement parks in Europe.

Amiran Mutsoev, member of the board of directors of the Regions Group, told *Attractions Management* that Nagatinskaya Poyma park in Moscow, Rzhevka in Saint Petersburg, and Polevskoy Trakt in Yekaterinburg, have been selected as the locations for the Dreamworks parks. The first to open will be the Moscow site in 2017, with total investment of US$1bn (€7.23m, £5.98m).

The total cost to implement all three projects will be approximately US$3bn (€2.17bn, £1.79bn), according to Mutsoev.

The company has signed an exclusive licensing agreement with Dreamworks Animation to use the themes of the studio's animated films, with Dreamworks designing the creative image of the park.

Meanwhile, Regions Group will construct, own and manage the parks.

Details: http://lei.sr?a=B7R4W

Italy's Bologna to house 'foodie theme park'

The Italian city of Bologna is set to become home to a US$55m (€40m, £33.4m) "foodie theme park" intended to celebrate the finest facets of traditional Italian cuisine.

The joint venture between Italian food-emporium chain Eataly – which boasts 26 stores worldwide, including a New York City megastore co-owned by renowned gastronomist Mario Batali – and the Municipality of Bologna is expected to be served up in November 2015 and will cover 86,000sq ft (7,900sq m).

The land, which currently houses several abandoned warehouses, has been provided by the city-controlled Centro Agro Alimentare. It is to be transformed into Fico Eataly World – a theme park featuring restaurants, grocery stores, food labs, an aquarium and several other food-themed features.

Bologna is best known for rambling streets and terracotta rooftops

Speaking to Italy's national online news service, Eataly founder Oscar Farinetti expressed his excitement and announced his ambition to lure over 10 million visitors a year to his attraction, inviting them to "play with this magical thing: Italian food."

With tourism a major Italian strength – more than 46 million visitors spent US$32.1bn (€23.3m, £19.3m) in Italy in 2012, according to the UN Tourism Barometer – the "Disneyland for food" marks the latest project aiming to convert the country's heritage into a money-making antidote for Italy's ailing economy.

Details: http://lei.sr?a=u6Y7T

Puy du Fou-style park for Auckland Castle

French theme park Puy du Fou has announced it will partner with Auckland Castle in the UK to create its first international location.

The historical re-enactment park – which is located in the Vendée region of Western France – has signed a deal with the Eleven Arches Trust to create a major visitor attraction in County Durham.

The project is the brainchild of entrepreneur Jonathan Ruffer, who bought Auckland Castle in 2012 and handed it to Auckland Castle Trust to transform into a world-class tourist destination as part of a £50m (US$84m, €61m) investment.

The new concept will be based on the Puy du Fou, which has both a theme park – The Grand Parc – and a spectacular night show – the Cinéscénie. It will aim to bring both regional and national history to life.

The project will be rolled out in two phases. The first features the launch of an 80-minute night show in 2016 in the style of the Cinéscénie. The show will run as a not-for-profit venture, with Puy du Fou assisting in the creation and staging of the show as an official partner.

The Puy du Fou in France won the Thea Classic award in 2012

The show will celebrate 2,000 years of regional history, drawing on the opening ceremony of the 2012 Olympics in London for inspiration. It will use Auckland Castle as a backdrop and feature large-scale re-enactments, projections, music, water fountains and pyrotechnics. The second development phase – a theme park – will open in 2020. Construction will cost £80m ($134m, €97m) and the park will aim to attract roughly 800,000 visitors a year.

Details: http://lei.sr?a=U2h3Z

 ©Cybertrek 2014

Fan bids to make Cobain's childhood home a museum

Twenty years since his tragic death, Nirvana front man Kurt Cobain could be immortalised in a museum at his former home, a site the local Mayor hopes could become as big as Elvis Presley attraction Graceland.

After the grunge star's childhood home in Aberdeen, Washington, US, went up for sale, fan and journalist Jaime Dunkle launched a crowd funding campaign to raise US$700,000 (€508,000, £421,000) to buy the house and turn it into a museum. Dunkle is determined to ensure the spirit of the band is preserved by saving the house from "the clutches of capitalist greed."

Details: http://lei.sr?a=n8Z7k

Tiananmen Square, scene of the 1989 massacre

Tiananmen Square protest museum opens in Hong Kong

The world's first museum about the Tiananmen Square massacre has opened in Hong Kong, sparking controversy.

Commemorating the pro-democracy protesters killed in Beijing in 1989, the museum is funded by the Alliance in Support of Patriotic Democratic Movements of China.

The 74sq m (797sq ft) permanent exhibition, in East Tsim Sha Tsui, will display images from the protests and the military crackdown, as well as a replica statue of the Goddess of Democracy, which was originally erected at Tiananmen Square by protesters.

However, the controversial project could run into a legal battle, with the owners of the office tower in which it is housed threatening to take action. They say the museum violates the property deed and because of its political nature, could cause nuisance to tenants. The alliance bought the fifth floor of the office building for US$1.25m (€903,146, £744,443) in December 2013. The Chinese government has prohibited all forms of discussion or remembrance of the events in mainland China, but Hong Kong falls outside this ban.

Details: http://lei.sr?a=fz17B

Bill Shankly museum in pipeline

Following the opening of the Titanic hotel in Liverpool, UK, the company behind it has proposed plans to redevelop the council-owned Millennium House to become a Bill Shankly-themed apart-hotel and museum for around £15m ($25m, €18.1m).

Signature Living is proposing a 250-bedroom hotel, complete with a museum dedicated to Shankly and 17,500sq ft (1,625sq m) of office space.

The building would house Signature Living's head office, while the Lifestyles Gym currently based in the property would undergo an expansion and be leased back by the council, under the proposals.

Bill Shankly was a Scottish footballer and coach, best known for his time managing Liverpool, which he lead to 11 titles during his run as a manager in the 1960s and 70s.

Shankly is regarded as one of the greatest football managers of all time

"Liverpool's sporting heritage is celebrated throughout the world, but we don't have a major football attraction in the city centre," said Liverpool mayor Joe Anderson.

Construction would begin in early 2015 with the scheme set for completion by March 2016 if planning is approved.

Details: http://lei.sr?a=Q6e5Q

Civil Rights Museum gets $27.5m revamp

America's National Civil Rights Museum, the converted motel where Martin Luther King Jr was assassinated, reopened its doors in April – the day after the 46th anniversary of King's death – following an extensive redevelopment.

The Memphis, US museum has undergone a US$27.5m (€20m, £16.8m) renovation – the culmination of 18-months' construction, led by architect firm Self+Tucker – to complete the remodelling of the 23-year-old attraction.

Now boasting 52,000sq ft (4,831sq m) of exhibition space, the museum features many poignant historical replicas, including one of the buses Rosa Parks sat on, touch screen displays and extensive amounts of archival footage from the civil rights era.

The wide range of interactive features reflect what curators have described as the need to target people who are "more likely to reach for an iPad than a history book".

Rosa Parks' protest sparking the Montgomery bus boycott is featured

Exhibitions take visitors on a journey through the civil rights struggle, starting with the slave trade and the notorious middle passage along which enslaved Africans were shipped across the Atlantic in horrendous conditions.

The museum features a replica of the slave ship galley, where visitors can experience the cramped conditions the shackled slaves were subjected to during their journey.

"Visitors will learn about some of the lesser known civil rights leaders through oral histories and new emotionally charged, multi-user, multi-touch interactives and visually compelling exhibitions," said museum president Beverly Robertson.

About 200,000 people visit the museum each year – including between 50,000 to 60,000 school children.

Details: http://lei.sr?a=c4c6N

Third of children can't swim: it's time to act

ALEATHA EZRA

According to a 2012 report by the Amateur Swimming Association, "one third of children in England cannot swim by the time they leave primary school".

This is in spite of the fact that the Department of Education has made it part of the national curriculum with a goal that students seven to 11 learn to swim 25m unaided. While learning to swim is a life-saving skill, some educational institutes are finding it hard to balance the needs to improve English and maths test scores while also focusing on areas that fall with physical education.

However, most drownings are still preventable. This is why waterpark owners and operators should consider playing a bigger role in the drowning prevention movement.

Here are a few ways that waterpark operators can get involved and make a difference:

- Consider launching a full-fledged swimming lesson program at your facility. Or, if this isn't possible, partner with your local aquatic centre to provide access to your facility for skill practice sessions.
- Host a World's Largest Swimming Lesson event on 20 June 2014. This is an international Guinness World Record™ attempt which provides the means to communicate with the media and consumers to convey that loss of life from drowning can be prevented through awareness and training. Visit WLSL.org to learn more and register as a host location.
- Participate in Drowning Prevention Week, a national campaign from the Royal Life Saving Society UK to promote water safety and help reduce drowning incidents.

Remember, drowning is the third most common cause of accidental death in children. Now is the time for the waterpark industry to get more involved and make a difference.

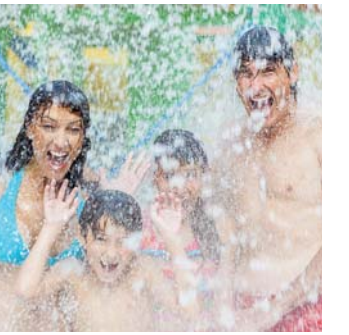
Aleatha Ezra, director of park member development, World Waterpark Association

US$89m waterpark for Toronto

A CAD$60m (US$88.8m, €64m, £53.7m) waterpark expected to operate 365 days a year is planned for the Greater Toronto Area, with hopes construction will start in 2015 for a 2016 curtain raiser.

The marbleLive project is led by Toronto entrepreneur John Barrack and marblemedia (a Canadian multi-platform content creator), who believe this summer-all-year theme park will fill a major void in the region's attractions market.

"After you go through the winter that we just went through you realise that you really need to give people of all ages something to do in the winter," said John Barrack.



The park will feature sandy beaches, wave pools and crazy rivers

The 100,000sq ft (9,290sq m) attraction expects to feature a retractable roof – enabling it to function all year – in addition to sandy beaches, wave pools, crazy rivers, restaurants and live entertainment. Although the location has not yet been confirmed, the developers have been in talks with city officials and Ontario's Ministry of Tourism, Culture and Sport to discuss the potential boost to local tourism.

Developers will choose between three short-listed locations to cater for the expected 500,000 visitors within its first year of operation and 230 full-time personnel. Aside from last year's Ripley's Aquarium launch, marbleLive claims to be the first new attraction in the area in over 25 years.

Details: http://lei.sr?a=y6v6Q

Additional surf theme for Cowabunga Bay

Las Vegas waterpark Cowabunga Bay remains on track to open this year – with Turkish designer Polin unveiling a new giant waterslide for the impending attraction.

The US$23m (€16.7m, £13.8m) Cowabunga Bay represents Istanbul-based waterpark designer Polin's first turnkey contract and largest waterpark project in the US. The park was originally scheduled to open in 2013, but construction issues created significant delays. Mid-2014 has been set as the new opening date.

An overview of the site, which is due to open in the middle of 2014

Polin says the improved waterslide attraction – Wild Surf – will be the first of its Surf Safari high-capacity waterslides, which feature a 40-degree sloped entrance, parabolic design and have been created exclusively for the Las Vegas park. The giant slide features a four-person raft that travels through the dark before dropping 55ft (17m) into the world's largest man-made parabolic wave.

Cowabunga Bay is located on a 23-acre site, segmented into three areas: Hawaiian-themed Aloha Shores; 1950s-inspired Surf City USA; and The Boardwalk. Polin has also master-planned the park for future expansion.

Details: http://lei.sr?a=V2F3p

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Malaysia harbours high hopes for eco-island plans

The Malaysian government is to bet big on the picturesque island of Langkawi, aiming to attract RM5bn (US$1.5bn, €1.1bn, £948m) for private sector investments as part of ambitious plans to make it one of the top tourist islands in the world by 2015.

The government-owned Langkawi Development Authority (LADA) is charged with converting the low-key location's pristine beaches and natural wildlife into a major draw for regional tourism.

The main site will be a new US$220m (€160m, £130m) eco-tourism attraction to be designed and developed by Pekan Artisan, which recently worked on the Malaysian live-action historical attraction Melaka Alive! Paradise Island Hotel & Gardens will be spread over 13 hectares (130,000sq m) on the main island and will be a mixed-use development with five main attractions celebrating local wildlife and culture, plus a 250-bedroom eco-hotel, retail and restaurants.

Details: http://lei.sr?a=s429R

The Bristol-based artist caused a stir in his home town

New Bansky artwork made into pop-up attraction

A new graffito by renowned street artist Banksy has been removed within hours of being found and put on paid display by an ailing community centre in Bristol, UK.

The artwork, which shows a couple embracing while checking their mobile phones, was confirmed to be a Banksy after the artist posted a photo of it on his website.

It was then removed by the nearby Broad Plain Boys' Club to be put on display inside the centre with entrants charged a viewing fee.

A sign was put up in place of the work stating: "The new Banksy piece is being held in our club to prevent any vandalism or damage being done. You are free to come and view but a small donation will be asked of you."

Temporary or overnight pop-up attractions have proved popular recently. One example, also in Bristol, includes a pop-up water slide which was installed for a day on 4 May.

Details: http://lei.sr?a=S4m8D

Record investment in EU attractions

European attraction parks have made a record investment in new rides and attractions for 2014, according to the International Association of Amusement Parks and Attractions (IAAPA).

IAAPA said new attractions worth a combined €500m (US$693m, £412m)in capital expenditure (CAPEX) would open as more than 300 amusement parks in Europe begin their 2014 seasons.

The new attractions include rides, water parks, entertainment and a series of immersive themed environments.

"2014 has seen an unprecedented investment in innovative new attractions to drive attendance from repeat and new visitors," said Karen Staley, vice president of IAAPA's European operations.

The organisation linked the expenditure to a strong performance across the continent in summer 2013, both in attendance numbers and revenue, while festive openings also grew.

A *Ratatouille* themed-dark ride and mini-land is set for Disneyland Paris

Three new parks are opening in Europe this year. Sochi Park will be located on the site of the 2014 Winter Olympic Games in Russia; Le Parc du Petit Prince in Ungersheim, France aims to be the world's first hot air balloon theme park; and Cinecittà World, in Rome, Italy will be dedicated to international cinema.

Among the new attractions opening are Angry Birds Land at Thorpe Park in the UK; a dark ride and mini-land based on the Pixar film Ratatouille at Disneyland Paris, France; and an indoor attraction at Europa-Park, Germany inspired by the popular movie trilogy Arthur and the Invisibles.

Details: http://lei.sr?a=e2e7x

Merlin landlord Leslau eyes

Property investor Nick Leslau – whose company Prestbury Investments owns a large chunk of Merlin Entertainments' real estate portfolio – will return to the London stock exchange with an IPO likely to be worth £1.5bn (US$2.5bn, €1.8bn), according to press reports.

Leslau, whose Merlin assets include Thorpe Park, Alton Towers and London's Madame Tussauds, is being backed by veteran entrepreneur Sir Tom Hunter along with LLoyd's Bank.

He acquired the Merlin attractions in 2007 through a £622m (US$1.05bn, €756m) sale and lease-back deal.

The Merlin portfolio has increased in value since, notably in November 2013,

Sites like the Leslau-owned Thorpe Park have soared in value

when the company floated and was valued at around US$5bn (€3.6bn, £3bn).

Since then, over 40 per cent has been added, taking it currently to approximately US$7bn (€5bn, £4.2bn).

This uplift is reflected in the value of Prestbury assets and the company itself, as the ripples from Merlin's successes spread out to benefit its business partners.

Details: http://lei.sr?a=X2w7Y

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Where citizens and science come to meet

ANNETTE KLINKERT

All over Europe, science-society engagement enhances the self-awareness and innovation capacities of dynamic cities and regions.

In the effort to establish European "Cities of Scientific Culture," science communication is no longer just a tool to educate the public.

Instead, it's increasingly being used as a strategic instrument for public engagement in decision making processes. By focusing on two-way dialogues, Pilot Activities within the four-year, EU-funded PLACES project functioned as innovative test beds for participation and engagement, turning cities into swirling laboratories of ideas.

In many cities, Pilot Activities catalysed debates about the role of science in open societies. They nurtured new forms of expression and created bridges between the research community, civil society organisations and the general public. Urban developers, philosophers, artists, architects, film makers, writers and poets entered the scene and inspired new methodologies and approaches among citizens and scientists.

In addition to opening research and innovation to citizens of all ages and backgrounds, the Pilot Activities encouraged scientists gain awareness of their own roles and responsibilities in regional contexts.

By getting actively involved in debates, workshops, lectures and urban development processes, scientists achieved a new understanding of political decision making processes and the specific social challenges of their communities.

If the Local Action Plans provide the masterplan for the European "City of Scientific Culture," then the Pilot Activities function as a practical "tool-box" to effectively realise this plan through a joint effort of scientists, policy makers, citizens and cultural institutions.

Annette Klinkert, CEO, City2Science, Bielefeld, Germany

Boston MoS plans 4D cinema

The Museum of Science in Boston is to open a new 98-seat 4D cinema in August. It will use technology from Toronto-based SimEx-Iwerks Entertainment, combining a high-definition 3D film with sensory effects built into the seats and cinema environment. The current 3D digital cinema at the museum will close on 30 March as a result.

The cost of installation is $2.5m (€1.8m, £1.5m), including the cost of renovating the cinema.

The museum says the films it will show will be "both educational and fun," opening with aquatic adventure *Planet Earth: Shallow Seas 4D Experience* as well as character-based offerings *Dora & Diego's 4D Adventure* and *Happy Feet 4D Experience*.

The museum began as the Boston Society of Natural History in 1830

Aspen Art Museum plans to move to a larger facility, with the new exhibition space opening on 9 August.

Jonathan Burke, vice president for visitor experience and operations at the museum, says the films aim to "innovatively incorporate" every human sense. "When a whale breaches on screen, guests will feel the ocean spray. If it's snowing on screen, it will even be snowing in the theatre," he says.

Details: http://lei.sr?a=T7S4G

Glasgow celebrates record visitor figures

Glasgow Science Centre has reaped the rewards of a busy 12 months of new collaborations and installations to achieve a record-breaking year for visitor numbers.

The centre reported 305,485 admissions since April 2013, marking a 12 per cent year on year increase that ensured this was its busiest year since it first opened in 2001.

In the last 12 months, the centre has swelled its visitor numbers through the opening of its £2m BodyWorks exhibition, entering into partnership with Cineworld to operate the Imax, starting the refurbishment of Glasgow Tower and fundraising for its next major exhibition.

Almost 76,000 school pupils from across Scotland visited last year

"BodyWorks is one of the most advanced exhibitions of its kind and has captured the imagination of children, and adults alike. It has been a big draw for our visitors across the year," said the chief executive at Glasgow Science Centre Dr Stephen Breslin.

Details: http://lei.sr?a=W2R4W

Science museums put focus on food, nutrition

As part of the EU-funded Inprofood project – which aims to bring together research, industry and civil society to solve Europe's food-related health challenges, including obesity and related diseases – Ecsite, the European network of science centres and museums, has created an engaging PlayDecide discussion game. Designed for visitors between the ages of 14 and 21, the game stimulates discussion around tough food issues such as eating disorders, food waste and sustainable eating. *Details: http://lei.sr?a=H7P7e*

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AZA efforts key to wildlife conservation

JENNIFER FIELDS

All zoos and aquariums accredited by the Association of Zoos and Aquariums (AZA) are committed to conservation. At last count, more than 2,750 conservation projects having a direct impact on wild animals were either supported or managed by AZA-accredited facilities. Furthermore, almost 600 AZA animal programs assure co-operation in animal health welfare, and management, and AZA-accredited zoos and aquariums also conduct critical research and engage the public in assisting in conservation.

AZA's latest Annual Report on Conservation Science shows that AZA-accredited zoos and aquariums contributed approximately $160 million to wildlife conservation in 2012 alone. Working in more than 100 countries, these funds, as well as staff expertise, support an extensive range of projects. These include support for anti-poaching teams that protect animals against illegal trade, research on marine mammal strandings as indicators of ocean health, engagement with communities living with carnivores, restoration of degraded habitat, training for field veterinarians, and the rearing, rehabilitation, and reintroduction of animals into their native habitats.

The projects targeted almost 700 mammals, birds, reptiles, amphibians, fish, invertebrates and flora, many of which are listed by the International Union for Conservation of Nature (IUCN) as extinct in the wild, critically endangered, or endangered in the wild.

Species supported by these conservation initiatives include iconic species, as well as lesser known ones.

By contributing to field conservation, while connecting visitors to nature, AZA-accredited zoos and aquariums work at home and around the world to protect the future of the world's wildlife and wild places.

Jennifer Fields, communications coordinator, AZA

Largest aquarium debuts in China

A new US$806.5m (€587m, £486m) aquatic theme park in China has broken five Guinness World Records on opening and is now officially recognised as the largest aquarium on the planet.

Chimelong Ocean Kingdom is the brainchild of PGAV Destinations, which served as the attraction's lead strategist, planner, designer, and product developer. It is the company's first full theme park design in Asia, although PGAV has previously designed Hong Kong's Grand Aquarium and an attraction at the Museum of Qin Terra-cotta Warriors and Horses in Xi'an, China.

Chimelong Ocean Kingdom has set five world records so far

The park, which was constructed over a three-year period, officially opened on Saturday 29 March. It is part of Chimelong Hengqin Bay Hotel, the largest ocean ecological-themed hotel in China. Both the park and the hotel are owned by the Chimelong Group, which has invested more than US$3.3bn (€2.4bn, £1.99bn) into the project. The group also operates Chimelong Paradise in Guangzhou – China's biggest theme park. As well as the largest aquarium accolade, Chimelong Ocean Kingdom has set records for having the world's biggest underwater viewing dome, aquarium window, acrylic panel and aquarium tank, containing 22.7m litres of water.

There are seven themed areas inside the park, plus rides, thousands of animals, a 5D cinema and a circus.

Details: http://lei.sr?a=y5r2r

Paris zoo champions biozone renovation

The completely rebuilt Parc Zoologique de Paris (Zoological Park of Paris) opened to visitors on Saturday 12 April – having undergone a transformation in not only design but also ethos.

The Paris zoo originally closed six years ago. Operated by the Museum National D'Histoire Naturelle (France's Natural History Museum), it is now claiming to be the most ecologically and biologically correct urban animal park in the world, as well as the most humane.

The new eco-friendly zoo is divided into five different bio-zones

At a cost of €170m ($235m, £140m), the new zoo is divided into five regional 'biozones' – Madagascar, Patagonia, Guyana, Europe and Sahel-Sudan – with the aim of offering visitors a complete multi-sensory experience. To achieve this, animals of the same natural habitats share the same enclosures where possible. "The new Paris zoo is a journey of discovery where you can grasp that the animals are part of a single ecosystem – or five different ecosystems – which survive or decline as a whole," said Thomas Grenon, director of France's natural history museum. Chrysalis, a consortium set up for the project that includes building group Bouygues Construction, is responsible for architecture, landscaping and technical design for the entire project.

Details: http://lei.sr?a=c4K6j

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English Heritage split plans prove highly controversial

There has been uproar in response to a lengthy consultation on the government's plans to split English Heritage, with nearly 600 replies querying the plans' viability.

The plan is to make the body completely self-financing, no longer reliant on tax-payer support, with English Heritage becoming an independent charity responsible solely for the management of 440 historical sites including Stonehenge, Dover Castle and Hadrian's Wall. The rest of the organisation's operations would remain within the UK government and be renamed Historic England, but the plans have drawn criticism from a number of stakeholders.

Details: http://lei.sr?a=y3e3a

The famous wall was originally built in 122 AD

Hadrian's Wall Trust to dissolve after funding cuts

Hadrian's Wall Trust – which oversees maintenance of the wall and adjoining visitor centre – is to close down within six months, after finance for the project evaporated, leaving funding support for the World Heritage Site mired in uncertainty.

Following an internal review, the trustees decided that current arrangements for the site were "unsustainable". A number of organisations are attempting to generate funds for the one of the most well-known monuments in the UK, but as things stand, maintenance of the wall could become a problem in the coming months.

"We hope and pray that resources can be found to keep the heritage site safe," commented the chief executive of the Hadrian's Wall Trust, Linda Tuttiett.

"The future is uncertain. Everyone's committed to finding a solution, but it has still not been finalised and nobody has got any money. It would be dreadful to think one of Britain's premier heritage sites was not being looked after properly."

Details: http://lei.sr?a=J5v7g

Notts Castle eyes £24m revamp

A Trust has been established to help push forward £24m (US$40.4m, €29.1m) plans for the regeneration of Nottingham Castle in the UK.

Nottingham Castle Trust is supporting plans for the castle to be turned into a leading heritage tourist attraction, with the aim to achieve this by 2019.

Its introduction is a way to attract further funding for the project on a new partnership basis with the local community and council, while ensuring that the castle and its collections still belong to the people of Nottingham.

If funding is raised and plans approved, the castle would receive the addition of a new visitor centre and improved approach routes leading to the castle.

Plans include a sharper focus on the castle's historic caves

Development work would see the opening of an interactive 'Robin And The Rebels' gallery, which would explore the region's affiliation with the idea of citizenship, as well as the myth of Robin Hood. The plans also include a sharper focus on the castle's relationship with its historic caves, with a progressive glass lift.

Details: http://lei.sr?a=z8A7K

Global landmarks at risk from rising sea levels

Famous attractions such as the Sydney Opera House and the Statue of Liberty are at risk of being lost under rising seas caused by climate change, according to a new report.

The study, published in the journal *Environmental Research Letters* looked at the impact rising sea levels would have on UNESCO World Heritage Sites over 2,000 years, but the authors warned that the impacts would be felt much sooner if measures aren't taken to reinforce flood defences.

The scientists said a global temperature increase of 3C (37.4F) by the end of the century – causing ice sheets to melt and warming oceans to expand – would see 20 per cent of the world's 720 world heritage attractions affected.

Lead author Professor Ben Marzeion, of the University of Innsbruck in Austria, said Europe's cultural treasures will be particularly vulnerable to the rising sea levels. The famous canal city Venice is at risk, as is the leaning tower of Pisa, he said, while the city centres of Bruges in Belgium, Naples in Italy and St Petersburg in Russia are all in jeopardy, as are Westminster Abbey and the Palace, according to the study.

Sites like Sydney Harbour Bridge are at risk from rising sea levels

"It's relatively safe to say we'll see the first impacts at these sites in the 21st century," Marzeion told the Guardian.

"Typically when people talk about climate change, it's about the economic or environmental consequences, how much it's going to cost. We wanted to take a look at the cultural implications."

The report examined the impact across 2,000 years as such a time frame eradicates potential anomalies, with scientists still in debate over how quickly global sea levels will rise, leading to vastly conflicting research estimates.

Details: http://lei.sr?a=u7T3z

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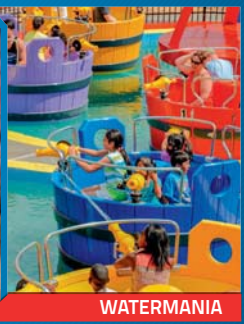

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MARIO MAMON

Mario Mamon discusses his new role as chair of IAAPA, doubling the size of his theme park Enchanted Kingdom in the Philippines and the devastation of Super Typhoon Haiyan

Julie Cramer, journalist, Attractions Management

IAAPA ROLE

What does your role as IAAPA chair involve?

It involves multiple roles. Aside from presiding over the board and executive finance committee meetings of the association, I also travel extensively around the world to represent the association in events and meetings, as well as visit as many member attractions and national associations as possible. Throughout these travels. I promote the 'One World, One IAAPA' mantra and talk about the benefits I've enjoyed as a member of association myself.

I'm also helping lead the implementation of IAAPA's 2013-15 Strategic Plan and the new governance and organisational initiatives that were approved last year by the board.

What's your background?

I wasn't born into the industry. A little over 20 years ago, my previous life was in agribusiness, sugar cane farming to be exact. We shifted our whole business and lives when our agricultural lands became very expensive to utilise for farming and converted it for other uses. With the capital that we were able to accumulate, we decided on a line of business that was almost pioneering in the Philippines – the attractions business.

I like to think my overall experience in shifting from agribusiness to amusement, including organising, building and managing a theme park from scratch has helped prepare me for this role.

I've literally gone through a rollercoaster ride with the business before getting it right after a decade and a half. Most of all, having IAAPA by my side, even before Enchanted Kingdom was opened, will help me bring a lot of insights and hands-on experience that I can share in my role as chairman.

> QUALITY EDUCATION AND TRAINING IN ALL ASPECTS ARE NEEDED AS THE INDUSTRY CONTINUES TO GROW ALL OVER THE WORLD

What are your plans for the role?

Having been part of the IAAPA "officialdom" since I was elected as third vice-chairman in 2010 has helped me prepare for the chairman's position. Moving through the various leadership roles I've developed an understanding that allows me to concentrate on various IAAPA businesses and concerns at hand.

Even though IAAPA is undergoing continuous change and evolution into a truly global association, my plans are simple ... nothing drastic and revolutionary. I'm focusing on the existing strategic and business plans and gradual implementation of the governance and organisational initiatives.

My day-to-day work involves juggling a schedule that transcends multiple time zones. My regular work schedule would be dedicated as much as possible to running the affairs of Enchanted Kingdom and our other businesses, but as the sun sets over our horizon, I shift and concentrate on matters regarding IAAPA that need my attention and the attention of the executive and finance committee and the board of directors.

Just as I try to coordinate and orchestrate our work at Enchanted Kingdom, then to the best of my ability and with the proper advice from my peers, I do the same for IAAPA.

What challenges does the industry face?

Current challenges include safety standards development and harmonisation, protection of intellectual property rights, education and training. Safety is our top priority whether it be in rides, facilities, food or merchandise.

Safety standards may be different based on which part of the world you are in. We want to encourage the consistent adoption of the existing safety standards, like ASTM International and EN, around the globe.

The protection of intellectual property rights refers to various rides and attractions, ideas and innovations, which are sometimes copied by different groups from all geographies of the world. There

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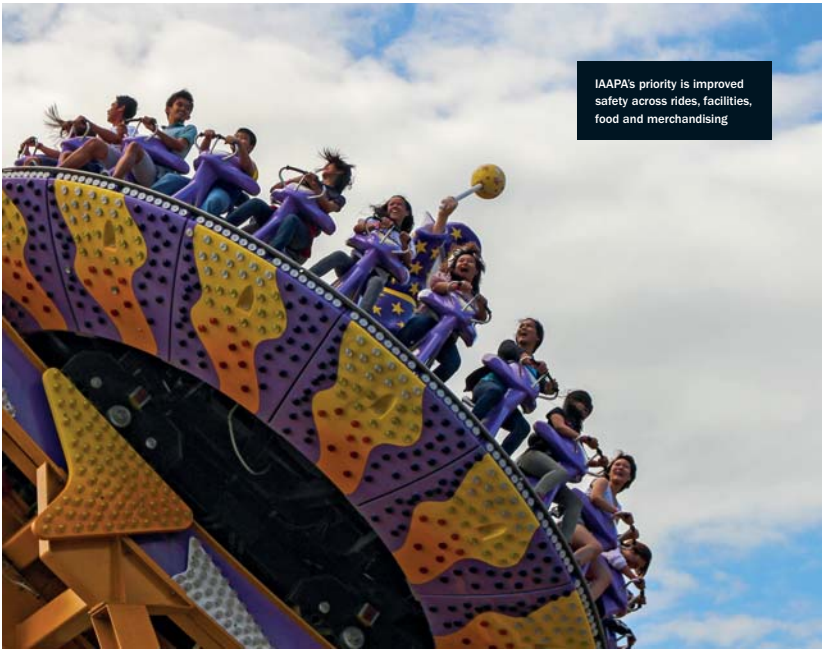

IAAPA's priority is improved safety across rides, facilities, food and merchandising

should be respect for the innovators and inventors and we need to do what we can to protect and encourage innovation.

Quality education and training, in all aspects of the industry, are needed as the industry continues to grow all over the world, especially in the Asia-Pacific region. Education and training not only hone and upgrade skill sets to meet or exceed international standards, they also prepare the next generation of workers, managers, and leaders in the industry.

What are the recent successes?

Recent successes of IAAPA include the ongoing growth and development of the association's trade shows and conferences around the world. They showcase the best and newest products and services in the industry, and provide outstanding educational programmes that can enhance the state and standard of the industry. The continuing evolution of IAAPA into a global association through the adoption of its three-year strategic plan and the gradual implementation of governance initiatives are very definitive calls to action that will benefit the industry in the years to come.

What excites you about this industry?

The main thing that excites me is that this industry transcends all generations and will stand the test of time. I'm also excited because it involves people and family, the latter being very important to me personally.

This industry is able to evolve and morph itself based on what guests want, using technology and the like, but always not forgetting superlative guest service as integral to the continued success of the industry. I'm also excited about the continued potential of the industry in its various forms of rides and attractions, entertainment, food and merchandise, to name a few.

How do you see the future?

I see the industry developing based on the needs and wants of its consumer base. Attractions operators will always be on the lookout for "what's in" and "what's not". It's a continuously evolving process.

ENCHANTED KINGDOM

Why are you doubling the size of Enchanted Kingdom?

We're doubling its size in the next five to 10 years because it's our grand plan to convert it from a standalone theme park into an integrated resort destination without the gaming component, the Disney model so to speak.

We've continuously exceeded our design-day capacity and increasing our footprint and redeveloping our existing area are the best ways to increase capacity and improve overall guest experience. It's also partly targeted to accommodate the growing number of foreign tourists making the Philippines one of their destinations in Asia. We want to evolve into a prominent regional player in the industry within five years.

With the improving and increasing inbound tourism traffic into the Philippines, we are looking at increasing this share of the market, although predominantly, our market will still be the local population. ►

Future plans for Mamon's family park include retail, dining, lodging, convention centre and waterpark

> MY LONG-TERM VISION FOR ENCHANTED KINGDOM IS TO CONVERT IT FROM A STANDALONE THEME PARK INTO AN INTEGRATED DESTINATION RESORT PATTERNED AFTER THE DISNEY MODEL OF WHOLESOME LEISURE

How's it being funded?
Funding for our expansion project will be a combination of equity, loans, and possible partnerships/joint ventures with foreign groups that may be interested and who share a common vision with what we are setting out to do.

What will be the changes?
At this point in time, it would be safe to say that we shall be redeveloping our existing park, but not before we increase the footprint by adding more themed areas and rides and attractions.

We're also adding retail, dining, and entertainment experiences, lodging for the park, a convention facility to target the growing MICE market and further on, a waterpark with a hotel. Remaining areas that we have may host institutional and business process outsourcing (BPO) campuses, especially those related to the amusement and attractions industry, like animation and film.

What will be the star attractions?
At this point in time, the expanded footprint of the theme park will include new zones, each with their signature ride and/or attraction. These zones may include a Philippine themed-zone for foreign tourists and locals; a themed zone for teens with high adrenaline rides; a signature fairy tale themed zone for our main character, Eldar the Wizard; the new world-class regional convention centre with lodging facilities; and the new full-scale waterpark with rides and slides never seen in the local market before.

What's your long-term vision?
My long-term vision for Enchanted Kingdom is to be able to convert it from what it is now, a standalone theme park attraction, into an integrated destination resort patterned after the Disney model of wholesome leisure and entertainment for families, without a gaming component.

THE PHILIPPINES

How is life after the typhoon?
The country's slowly but steadily recovering from the super typhoon. Thanks in a very big way to the very positive response of the entire international community of nations, this coping and recovery process have been greatly accelerated and supported. Having seen the devastation as it was, it clearly is a long process, but we shall overcome it, maybe sooner than later.

How did the attractions industry respond to the disaster?
Like in other industries, there was an outpouring of support and I learned that big groups like Disney, Universal, and even Ocean Park in Hong Kong contributed to their favourite charities to channel their share. As for Enchanted Kingdom, we ran our own fundraising campaign for cash and goods, and even offered an operational day's revenue to be donated to the cause. The responses were truly heartwarming, to say the least.

Was the park affected?
Being in the main island of Luzon, we were not affected because we weren't in the wider path of the super typhoon. Originally, we were on the fringe, but luckily for us, the path veered southward. We had no damage to facilities whatsoever. Indirectly, our holiday business was affected because some corporate bookings were postponed for another time or cancelled because the funds that were originally allocated for these were re-allocated to the various public and private relief efforts.

How long will it take for the industry to bounce back?
If we're referring to the amusement and attractions industry in the country, I think we have bounced back. There was a dip in November but we ended our December with the highest attendance and revenue figures in our 18-year history, and the same for January and February, 2014.

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ASIAN ATTRACTIONS EXPO 2014

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ASIAN Attractions Expo

The China National Convention Center in Beijing, China will host this year's AAE

The attractions industry is rapidly growing in the Asia-Pacific region, with large new resorts, theme parks, waterparks and other attractions in development. And as the industry grows, Asian Attractions Expo grows with it. This year's event, held at the China National Convention Center in Beijing, China, 17-20 June, will be the largest yet, with 3,500 buyers from 60 countries and 275 companies displaying products and services for the amusement and theme park industry.

Asian Attractions Expo 2014, produced by the International Association of Amusement Parks and Attractions, (IAAPA) will also offer attendees five days of education sessions in both English and Mandarin Chinese. The sessions include:-

What's new in Asia: A panel of industry experts, including Tom Mehrmann, CEO of Ocean Park Hong Kong, will discuss the new parks and attractions, rides and exhibits opening in the Asia-Pacific region.

Keeping your guests happy while keeping your employees engaged: Learn training and motivation strategies from Ocean Park Hong Kong officials to keep employees engaged and happy.

THIS YEAR'S EVENT WILL BE THE BIGGEST YET, WITH 3,500 BUYERS FROM 60 COUNTRIES

Waterpark trends and innovation: Franceen Gonzales, vice president of waterpark business development for WhiteWater West (see AM Q1 14 for Gonzales' article on waterpark trends) and Wuthichai Luangamornlert, managing director of Siam Park City in Bangkok, will provide insights into new trends and innovations within waterparks.

Entertaining your guests: Mike Davies from Universal Studios Japan and David Lightbody from Hong Kong Disneyland will give advice on entertaining stage productions, shows and atmosphere entertainment.

Maximising your retail and F&B revenues: Industry experts from Hong Kong Disneyland and Ngong Ping 360 in Singapore will advise how displays, menu selection and marketing increase revenue from retail, food and beverage.

Travelling exhibits: Heather Farnworth from the Ontario Science Centre and Ashley Larose from Science North in Canada will show how museums use travelling exhibits to drive attendance to museums.

Keynote address: Bill Ernest, president and managing director of Asia for Walt Disney Parks and Resorts will be the keynote speaker at the Leadership Breakfast. He'll discuss the industry in Asia and share his insight into Disney's expansion in the region.

Safety: In-depth learning related to safety and attractions management for seasoned attractions industry professionals.

Visitors will also get the opportunity to have guided tours at Beijing's premier attractions – Happy Valley theme park, The Great Wall of China and The Forbidden City. ●

For more information, visit: www.IAAPA.org/AsianAttractionsExpo

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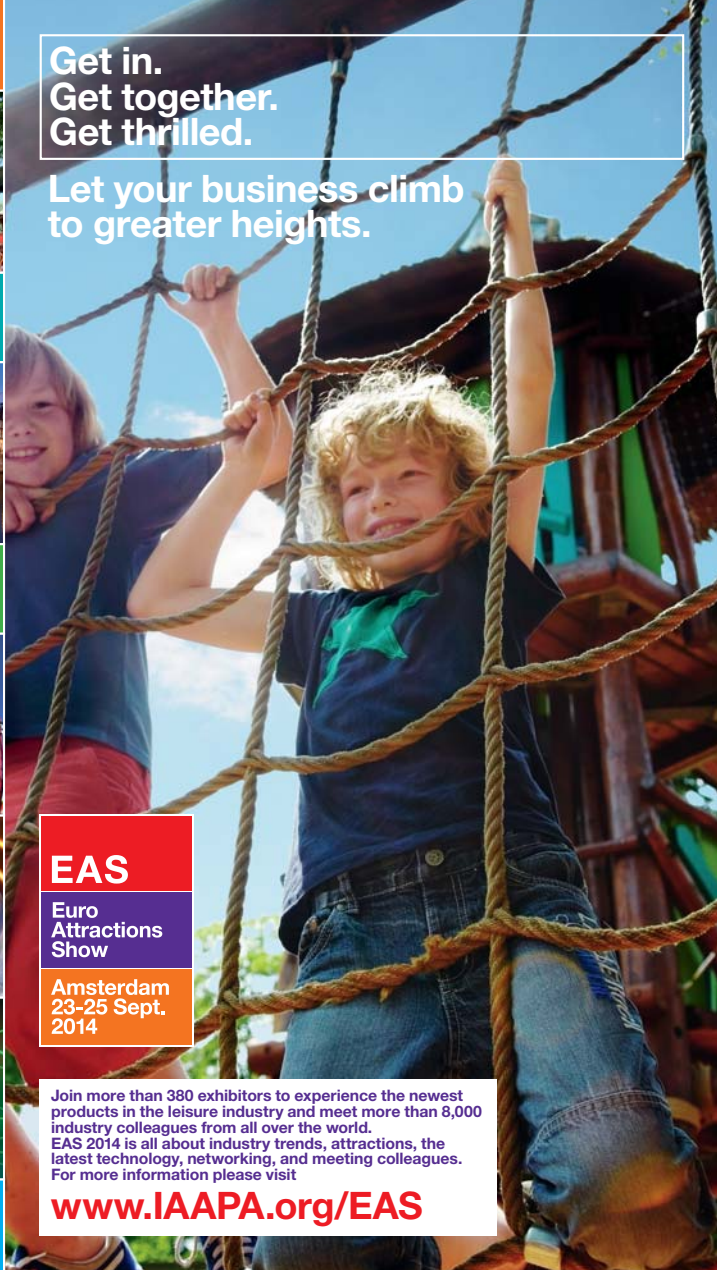

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Kath Hudson, journalist

The stories behind innovations in all sectors are on display

INNOVATIVE OPENING

MOHAI's executive director, Leonard Garfield, describes the Seattle museum's exciting new development, the Bezos Center for Innovation, named after its principle donor – Amazon founder Jeff Bezos

MOHAI's Leonard Garfield

What was the inspiration for the Bezos Center for Innovation?
When we were discussing themes, we realised Seattle has seen a persistent focus on innovation during the last 100 years: companies come to this region to invent the future. So a museum with innovation as the core theme seemed to be appropriate.

What's its main aim?
We set out to present the story of innovation and engage the community with that story, encouraging young people to discuss innovation, the tradition of innovation and how to build a future of innovation. To safeguard our own future, we want to prepare the workforce and community mindset.

It's not just about inspiring the next generation of entrepreneurs, we want young people to understand that innovation comes in all areas: not just research and development, but civic life and culture and other areas as well.

The lone inventor with a great idea is not necessarily a great innovator: innovation is a team sport.

Have you been inspired by any other museums?
There are some great innovation museums out there, including The Tech Museum of Innovation in San Jose and The Henry Ford Museum in Detroit.

However the main inspiration has come from the great innovations within our own community. We talked with several dozen history makers about what they felt was important to share with seventh graders and then we have presented their thoughts.

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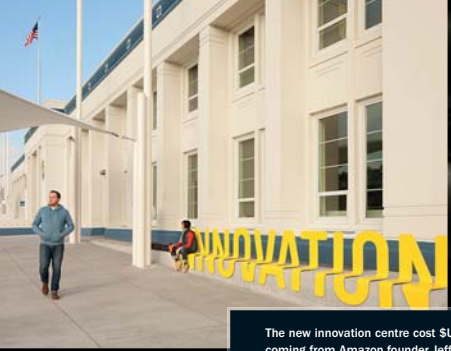
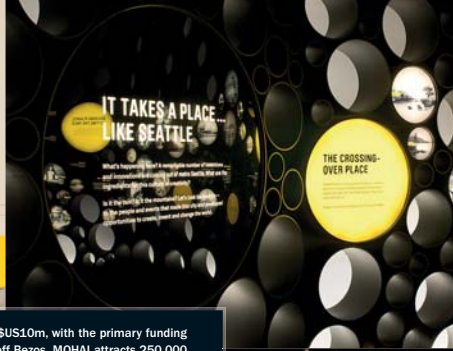
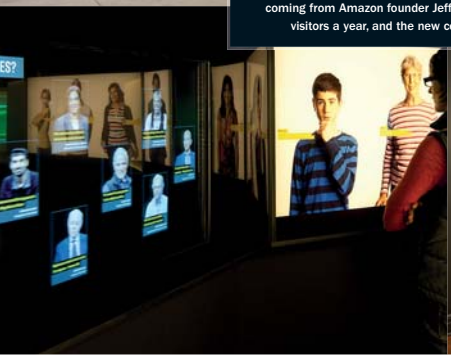
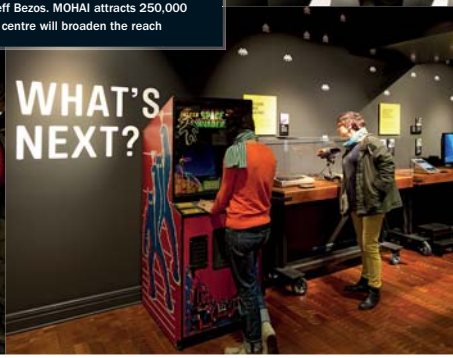




The new innovation centre cost $US10m, with the primary funding coming from Amazon founder Jeff Bezos. MOHAI attracts 250,000 visitors a year, and the new centre will broaden the reach





Jeff Bezos felt passionate about sharing the story of the history of innovation. Seattle is his hometown and being involved with this centre was a way of reaching out to the broader community

Where has funding come from?
Overall, the Bezos Center has cost US$10m (£6m, €7.3m). The primary funding came from Jeff and MacKenzie Bezos and the rest has come from general funding raised by the museum. Like all US museums, we're self-funded.

When did Jeff Bezos become involved?
We began talking to him in the fall of 2011. He became familiar with our programme and we shared our ideas and expanded the mission of the museum.

He felt passionate about sharing the story of the history of innovation with a broader audience. Seattle is his hometown and being involved with this centre was one way of reaching out to the broader community.

Among our goals was to reach young people. It's a great community, but we can't take it for granted that they all have access to information. We wanted to share the innovation tradition with them.

How involved was Jeff Bezos in the project?
Bezos inspired the development of the center and encouraged us throughout the project. MOHAI is honoured to be associated with him and the other great innovators included in the Bezos Center.

Who were the exhibition designers?
We worked with local architectural firm, Olson Kundig Architects, who have a reputation for being wonderful experimental exhibit designers. Another Seattle firm, Pacific Studio, was responsible for the primary design fabrication and San Francisco company, Stimulant, did the interactive media.

What was your brief to them?
Create something beautiful and engaging, present the rich history of Seattle and inspire innovation.

Can you describe some of the content?
The centre is a combination of exhibits, oral history, programmes and interactives, asking what does it mean to be innovative and how do we stay innovative.

The Patent Tree details patents over the past 100 years for all types of objects from umbrellas to medical equipment. There are first person oral accounts from innovators themselves about what inspired them: you can hear people like Howard Schultz, who started Starbucks, and Jeff Bezos talk about what it takes for a company to stay at the cutting edge, or hear them talk about their personal lives or the next big idea. ►

The museum is always looking to find new stories of great innovation

There's something about Seattle that has made it an unusually good place to innovate, and the MOHAI Center for Innovation will help Seattle continue on that course

JEFF BEZOS SAYS

"Look at the disproportionate number of extraordinary organizations founded in Seattle - Microsoft, Costco, Boeing, Fred Hutchinson Cancer Research Center, PACCAR - even UPS was founded here. These companies and their innovations have had a big impact on Seattle, the country, and the world.

There's something about Seattle that has made it an unusually good place to innovate, and the MOHAI Center for Innovation will help Seattle continue on that course by showcasing and teaching how industrial innovation can play an important role in human advancement. New treatments, affordable flight, a computer on every desk – the core activities of these Seattle organisations have created benefit for people at home and around the world."

► Visitors can also record what they think about innovation, and what they think will be the next challenge. They can post their ideas in a number of ways: graphically, digitally, or type ideas in response to questions from other visitors. They can also conjure up their own invention, or build a business plan and compare it with others.

What's the most popular feature?
What's Next is an exhibit which changes and discusses the future of innovation. Recently we looked at what would come next in the video game industry. Seattle is headquarters to a number of big names in the industry including Nintendo, Xbox and Valve. We invited young producers to come in and talk about what's happening and visitors had the opportunity to test games which aren't

As potential future innovators, teenagers are a key target audience

Visitors can enjoy first person insights from key innovators

ABOUT BEZOS CENTER FOR INNOVATION

With the aim of "igniting the innovator within", the Bezos Center for Innovation opened its doors at Seattle's Museum of History & Industry (MOHAI) last October.

This US$10m (£6m, €7.3m) extension to the 62-year-old museum furthers the vision of the museum to inspire people to create a better future for themselves and their communities

It believes that the preservation and exploration of the past is essential to effective decision making in the future.

Seattle has spawned many of the world's most successful companies, including Amazon, Starbucks, Nintendo. Microsoft, Expedia and Boeing.

The centre is both a celebration of this successful track record, and prepares the ground for more homegrown talent, inspiring high school kids to continue their city's legacy.

Amazon founder and CEO, Jeff Bezos – who created the largest retailer on the internet – is the principle donor, allowing the museum to become a reality.

yet on the market. Their feedback was then used in games development.

How many companies are showcased?
Hundreds. From big names like Boeing, Starbucks and Amazon to lots of companies that are still seeking venture capital. We've identified some of the most cutting edge innovation companies, and although some may not be in business next year, we expect others to be shaping the world in 10 or 20 years.

Who's the target audience?
We're a general museum, so we want to target everyone, but the main demographic we want to engage with is younger people at high school: the pre-teens and young teens who are receptive to information. We also want to reach young professionals.

How many visitors do you expect?
In the last year, MOHAI has attracted 250,000, which is more than anticipated in our business plan. It costs $14 (£8.40, €10.20) for adults, and under-15s go free.

What has been the response so far?
Visitors have participated, become members, shared ideas and attended events, so the response has been great and we will keep growing and expanding.

What sort of community and educational programmes are you running?
All young visitors get an innovation pack, in a backpack, to help them engage with the centre. We have also run classroom programmes, lectures and panel discussions and are identifying partnerships with Seattle companies.

What were the main challenges?
Getting all of the stories and artefacts in. Making those decisions was hard because there are so many stories and people and voices.

How has the Bezos Center benefited the museum?
It's the first thing you see on the visit, so whereas history museums usually start with the distant past and work up to present day, we begin our experience with today's history, leading to a deeper history, making you think of the future.

What are you most proud of?
There's a cliché in the US: build it and people will come, but in the museum world you do wonder about that! So I'm very proud of the fact people are coming, engaging and learning. ●

APPLIANCE OF SCIENCE

With three sites, Blueprint Entertainment is already Europe's largest private science centre operator. Founders Andreas Waschk and Mike Boris explain how a combination of financial savvy and rotating content is going to make it even bigger

Rhianon Howells, journalist

To anyone not paying attention, Blueprint Entertainment's arrival on the European visitor attractions scene might have happened overnight. This time last year, the private equity-backed edutainment operator was barely a blip on the industry's radar. By the end of the summer, the company had not only taken over and relaunched two high-profile science centres in Germany and Belgium – Odysseum in Cologne and former Merlin investment Earth Explorer in Ostend – but it had also opened a brand new attraction: Explorado Children's Museum in Duisburg, Germany. Together, the three sites make Blueprint the largest owner-operator of science centres on the continent.

Yet while this may all sound very sudden, the groundwork for these developments was actually being carefully laid for well over a year by the company's founders: Andreas Waschk, chairman, and Mike Boris, CEO, who set up the business together at the end of 2011.

And while Blueprint itself may be the new kid on the attractions block, Waschk and Boris themselves are far from wet behind the ears.

A one-time concert promoter, Waschk is the founder of AWC AG, a leading German consulting and development firm for leisure and entertainment projects, and now essentially a sister company to Blueprint. As CEO of AWC, Waschk has worked with big-name clients from

Blueprint Entertainment's founders Andreas Waschk (left) and Mike Boris (right)

There's no such thing as not being allowed to touch. You have to touch each exhibit to see how it works

Merlin to Ripley's. Boris, in contrast, is a Hungarian investment banker with extensive experience in funding entertainment projects. They met five years ago while exploring potential real estate deals in eastern Europe and immediately established a strong professional rapport. "We started working in a client relationship," says Waschk. "But [we had] the same opinions; we were looking at this business from a similar point of view."

At any other time, the meeting of minds might have ended there. But macro-economic circumstances deemed otherwise. "Before the financial crisis, Andy and I advised real estate developers on different attraction projects in Hungary," says Boris. "When the crisis came, those projects were put on hold. For us that was an opportunity to come up with a different story."

ROTATING CONTENT

The story the pair came up with is one that maximised their skill sets: Waschk's development and operational know-how combined with Boris' investment experience and contacts. By getting investors on board before pursuing specific projects, the pair could hit the ground running. "Many edutainment projects are difficult to find the equity for by time the idea's there," says Waschk. "That was the advantage I had," adds Boris. "I have a very good relationship with a wide network of private equity investors."

With financing in place, Waschk and Boris were free to concentrate on finding and/or developing the kind of attractions ▶

Odysseum will be only the second European venue to host Harry Potter: The Exhibition

they wanted to operate: highly interactive children's science centres. "There's no such thing as not being allowed to touch," says Boris. "You have to touch and try each exhibit to see how it works. We also have a lot of theming, which isn't usual in classic science centres."

"Many people in the industry don't think edutainment exists, but I firmly believe in doing things in an entertaining way [while also being able to] teach, explore and explain," says Waschk. "That's our mission. And no one's ever done a chain of educational science attractions for children before – which is hard to believe, as it makes so much sense, right?"

The strategy for achieving this goal is surprisingly simple: expand opportunistically with one or two sites a year (both acquisitions and new developments) and invest in content; then frequently renew it by moving it through the venues, keeping the offer fresh and footfall high.

According to Waschk, a key problem with publicly funded science centres is the lack of capital available to revitalise the attraction once it becomes tired: "The idea behind them isn't really economic. You raise the money and get the exhibition as good as you can, but we all know that doesn't take you further than three or four years before you need a major reinvestment. Investing in content, then rotating it through the venues, was the perfect synergy between Mike and me."

The idea is that while Blueprint will concentrate on operations, AWC will source and supply the additional content. The consulting and development company has already bought a huge amount of exhibits stock from insolvent operators – "we have two warehouses full," says Waschk. They hired Brit Adam Sanders, previously business development manager for Natural History Museum's planning and design consulting department, to collate it. "He's reorganising the stock into topics, looking into how it can be structured for travelling exhibitions and what kind of IP [rights] we can stick to it," says Waschk. "That's all under his control. And it'll work both ways: we want to bring exhibitions that already exist [into Blueprint venues] and also develop exhibitions that we can take on the road."

Odysseum in Cologne is an 8,000sq m adventure-based science centre with interactive exhibits in differently themed areas

MOUSE TRAP

In addition to stockpiling content, Waschk and Boris spent 2012 seeking out potential businesses and sites for their envisaged chain of edutainment centres. The first deal they were able to close, early in 2013, was Odysseum in Cologne: an 8,000sq m (86,000sq ft) adventure-based science centre with interactive exhibits spread across several elaborately themed areas, including a Jurassic jungle, Earth's orbit, the inside of a computer and a science laboratory.

First opened in 2009, the attraction held obvious appeal for Waschk, who as CEO of AWC had developed the project on behalf of the investor, Cologne-Bonn Savings Bank, before operating it in a joint venture with SMG Science Center Services. After buying out SMG last year, the challenge for Blueprint was to inject new life into the four-year-old attraction. For starters, AWC oversaw a significant redevelopment of the site, which reopened in July 2013 with a brand new exhibition called The Game: a RFID-based interactive experience that takes the visitor on a journey from the beginnings of human life right up to the present and into the future.

But the real game-changer for Odysseum – and a perfect example of a stated Blueprint aim of forming key relationships with select IP partners – has been the acquisition of one of Germany's most famous brands: a 43-year-old educational cartoon character called Die Maus (The Mouse). "Outside of Germany it doesn't mean anything," says Waschk. "But in Germany more people know it than Coca-Cola; that probably says it all."

Opened last November and bringing Blueprint's total investment in the redevelopment up to €2m (US$2.75m, £1.64m), Museum mit der Maus (Museum with the Mouse) offers 1,000sq m (10,760sq ft) of hands-on

Children engage in a range of hands-on experiments in CleverLabs, Blueprint's branded science show concept

experiences for pre- and primary-school children. Since the takeover, it's helped boost visitor numbers at Odysseum by 25 per cent, with 200,000 forecast for 2014.

Helping to bolster these numbers even further is yet another IP coup for Blueprint – the hugely successful Harry Potter: The Exhibition, which opens at the centre this October. Created by Global Experience Specialists, Inc (GES) in partnership with Warner Bros Consumer Products, the 1,400sq m (15,000sq ft) exhibition has been touring for four years, visiting Boston, Toronto, Seattle, New York, Sydney and Singapore. Odysseum will be only its second European venue, following a short stop in Sweden.

Boris admits that the interactive exhibition, which features elaborately themed sets as well as original props and costumes from all eight Harry Potter films, leans more to the entertainment than the education side of Blueprint's remit – but he doesn't apologise for it. "We have to strike the right balance," he says. "It's true there's less scientific content in this exhibition, but we expect many of the visitors to Harry Potter will also look into our permanent exhibitions."

Although Blueprint has clearly revitalised the business, Odysseum was already an established attraction when the company stepped in. By contrast, its next project was a completely new development. Explorado Children's Museum in Duisburg, Germany opened last June in the former Legoland Discovery Center in

The acquisition of Die Maus has boosted visitor numbers at Odysseum by 25 per cent

> "Outside of Germany Die Maus doesn't mean anything. But in Germany more people know that brand than Coca-cola. That says it all"

the city's old harbour. Covering 3,000sq m (32,290sq ft), the site is the first of a planned chain of Explorado-branded attractions and very much a testing ground for the concept.

Developed by AWC and aimed squarely at the three- to 11-year-old market, the museum's essentially an educational playground, where young visitors are invited to dive in and explore, without pressure to perform. Highlights include CleverLabs, Blueprint's branded science show concept, where children become researchers and engage in hands-on science experiments. Another USP is the Children's University, which sees scientists from real universities interacting with children as young as five. There's also space for travelling exhibitions.

So far, the concept is proving its worth, says Waschk, with visitor numbers for 2014 on target for 100,000. This is boosted by the fact that the school authorities have classified the attraction ►

Waschk and Boris' mission is to entertain while also being able to teach, explore and explain

as a fully educational facility, thereby sanctioning any number of school visits. But families are also buying in. "Kids love it, so we're having a lot of repeat visits," says Waschk. "And people stay all day."

EXPLORADO

While the Duisburg attraction gave Blueprint the chance to create a prototype for its planned rollout, the company's next move – the acquisition of Earth Explorer from previous owner Merlin Entertainments last June – was a no-brainer, says Waschk: "Earth Explorer made perfect sense, as it was close to the product we'd have wanted anyway."

Nor did the fact the attraction had faltered under Merlin, with disappointing visitor numbers, dampen their enthusiasm. "When it started [in 2004], it was pretty successful," points out Waschk. "But you have to change concept, and Merlin never touched anything in the building after opening, apart from adding one ride. From Merlin's perspective, [after their takeover by Blackstone] they were able to buy much bigger brands so their focus was simply on that… they just had much better opportunities with Lego and Tussauds." Even with such little attention, visitor numbers dropped only to a certain level and then stabilised, he adds.

Once the attraction's refurbished it'll be renamed Explorado, not least to alert the public to the fact there's a new offer. In addition to the updating of the original exhibitions – structured around the elements of fire, water, earth and wind – this summer will see the launch of a Science of Soccer exhibition to tie in with the World Cup in Brazil. Visitor numbers for 2014 are estimated at 100,000.

Also on the cards this summer is another Explorado project, albeit under a different guise. From 19 June to 17 August, Blueprint will be working with the University of Münster, Germany to host an Explorado Adventure Campus: an open-air play and learning park close to the city's schloss (palace). Staffed by university students, this mobile science centre serves a dual purpose – it takes advantage of the busiest 10 weeks of the year for science centres in Germany and also tests the potential for a permanent Explorado offering in the local market.

As the company continues to grow the Explorado brand, says Waschk, it will do so through a combination of these temporary exhibitions and permanent sites. Markets they're currently exploring include Berlin, Hamburg and Munich, plus Poland, Hungary, Austria and the Netherlands – but wherever they end up, 'edutainment' will remain the key.

What they mean by this, says Waschk, can be perfectly summed up in one of the most popular exhibits at Odysseum: the astronaut's toilet. "The European Space Agency is based in Cologne, and if you ask [those scientists about space travel], they'll talk about the high-tech stuff. But if you ask ordinary people what they want to know, it's things like how do astronauts comb their hair or use the toilet?"

To demonstrate this, the company's installed an original astronaut's training toilet in Odysseum – visitors sit to test their positioning while a camera inside takes a picture to show them how they've done. "You see people there, being a little shy, then someone tries it and everybody's laughing and really getting the point of how it works," says Waschk. "And that's the core message in every planning discussion we have – we ask, will it be fun getting the point? It's not only about learning; it's about the fun of learning. That's where we come in." ●

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OLYMPIC MOVEMENT

Twenty years after opening, The Olympic Museum in Lausanne, Switzerland has undergone an extensive refurbishment. Director Francis Gabet explains how it reflects the excitement and diversity of the modern Games

Julie Cramer, journalist, Attractions Management

Why did you decide on the refurbishment?

The museum first opened on 23rd June 1993 – the 23rd June being the anniversary of the famous speech by Pierre De Coubertin [the founder of the modern Olympic movement and the International Olympic Committee] at the Sorbonne in Paris, setting out his vision for the Olympics' future.

We began looking at changing things at the museum six years ago. We were having problems with the old scenography which wasn't upgradeable and generally becoming more and more difficult to maintain. It was 20-years-old, but may as well have been from another century considering how much museum technology has moved on since then.

We clearly needed hardware and software products that could link into web-based technologies and be much more sustainable into the future. We also needed more flexibility to follow the "olympic movement", creating new stories at least every two years.

How have you changed the interior?

We've increased our permanent exhibition space from 2,000 to 3,000sq m (21,500 to 32,290sq ft), which is quite significant.

We've also covered our second floor open air terrace of 1,500sq m (16,150sq ft) to accommodate all the new hospitality areas. All of these areas and gallery spaces on the second floor now have incredible views over Lake Geneva and the Alps.

(Above) The museum's collection spans the period from ancient times to the present day; (right) the redesigned outdoor spaces

What challenges did you face?

The old museum had a lot of chronological wall displays, which meant we could only really manage spaces for a 12- to 16-year time period, before we had to redesign everything.

After the London Games in 2012, the current lifecycle of exhibits was at an end and we saw it as an opportunity to change everything in a major way.

As well as redesigning the museum, we were also able to make general improvements to comply to updated health and safety standards and sustainable building practices and so on.

So we closed the doors for almost two years and reopened in December 2013.

What are the changes?

The previous museum offered quite an institutional and dated point of view. For example, when we covered issues like doping in sport it was from a moral standpoint, whereas now the battle to protect clean athletes is no longer a debate and we present the facts for visitors to interpret as they wish.

We want to offer a 360-degree view of the modern Olympic movement – and of course the Games are at the centre of that. We cover its philosophical roots and the aims of De Courbetin and the achievements of the athletes. But we also take in the thousands of people behind the scenes – the volunteers, designers, architects – who make it all happen.

How has the outdoor space changed?

We've redesigned many of the spaces and the journey through them. We think of the museum as the temple at the top of Mount Olympus, sitting on top of the hill surrounded by a beautiful, cultural park. We cleared the space nearest to Lake Geneva and opened up the west side of the museum to offer panoramic views.

We wanted the inspiring messages of the Olympics to be in evidence as soon as people entered the park. For example, we've built a staircase leading up from the lake to the museum, where the steps are engraved with the names of the Olympic torchbearers.

What's the next development stage?

During 2014, we'll be working on our digital platforms, setting up a framework that will hopefully go live this summer. This digital space will be yet another location for the museum.

On the website, there'll be an 'Olympic Journey' for people to follow. It draws on the vast amount of multimedia resources that we've used in all the permanent exhibitions in the past couple of decades.

We're re-versioning everything for our digital space, so that we can create the kind of user connections you just can't

The permanent exhibition is spread over three levels with more than 1,000 objects and 150 screens

achieve on a solid platform. Material from our rolling, temporary exhibitions will also be fed to these platforms, including much more new content suitable for school parties.

What exhibitions are coming up?

In May, we'll have a programme looking at the relationship between time and sport. For example, Olympic records are a modern phenomenon – the concept didn't exist in Ancient Greece. So we're exploring how society is changing sport and how sport is reacting to society.

In September we're planning to use our new digital platforms to have more conversations and interesting partnerships with artists and creators.

How many visitors do you predict?

The original museum attracted 180,000 to 200,000 visitors a year – the top end of those numbers during the Olympic years, especially the summer Games.

But Lausanne is Lausanne, it's not New York or London or Paris. It's not very geared towards leisure or tourism – it's much more of a business centre.

Our new museum isn't really about generating more visitors. It's more about creating a modern way of recording the Games, something inspiring and symbolic that can now easily be shared around the world on digital platforms.

But maybe in time, more people will be inspired to visit the museum also. ●

OLYMPIC MUSEUM TOUR

The museum is a modern way of recording the Games to be shared digitally

The Olympic Museum houses the largest Olympic archive in the world. Its hometown of Lausanne in Switzerland is headquarters to the International Olympics Committee (IOC).

The revamped museum now offers 50 per cent more exhibition space, employing a greater use of digital displays. The permanent exhibition is spread over three levels with more than 1,000 objects and 150 screens.

Each level revisits an essential aspect of the modern Olympic movement, finding out about Olympians along the way by means of an interactive dialogue.

Two rooms equipped with the latest teaching resources allow groups of young people to participate in educational workshops. There's also a new café on the top floor and a retail area on the ground floor.

The campus is also home to the Olympic Studies Centre, where researchers, students and journalists can access the library of extensive Olympic information and memorabilia from the official archives, books, images and artefacts.

The museum sits within a large park on the banks of Lake Geneva, with newly designed themed outdoor spaces that include creative sculptures, a garden of Olympic records, a themed Olympic pathway, and even a real athletics track that allows visitors to imagine they're competing against the last Olympic 100m champion.

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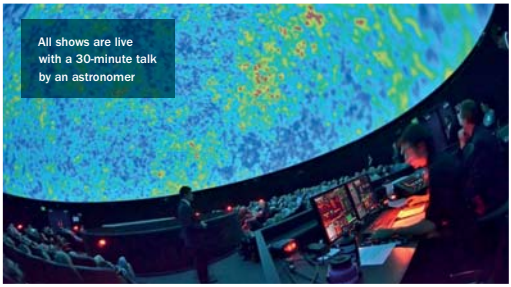

All shows are live with a 30-minute talk by an astronomer

STARRY SKIES

The newly upgraded Fiske Planetarium in Boulder, Colorado now boasts the highest specification full dome theatre in the US. Director Douglas Duncan explains how the dome's 8K resolution has transformed the user experience and opened up exciting new opportunities

The new full dome is one of only several 8k theatres in the world

Douglas Duncan
Director

How long did the development take?
The actual construction was really fast – only eight months in total. But to research the market, we spent five years studying planetariums around the world, visiting places like the Royal Greenwich Observatory in London and full dome theatres in Germany, China and the US. We opened in October 2013 and have been on an adrenaline high ever since.

Are you pleased with the results?
We're delighted with the quality. Full dome theatre technology has evolved relatively slowly and I think we've only recently reached an interesting threshold in the type of theatre that's now available. Our new 8k theatre is that threshold. It's the point where the picture technology becomes so sharp and real that there are no longer any identifiable pixels and the screen becomes so immersive the audience totally forgets their surroundings.

There are more than 100 full domes theatres around the world, but currently you can count the number of 8k theatres on one hand.

What were the dome specifications?
We worked with Sky-Skan in the US. The cost of this type of technology has really only just dropped to a more affordable level in the past year.

We've invested around US$3m (E2.2m, £1.8m) in the site and have six projectors, each being run by four computers. That's the equivalent of having 40 Blu-ray players running at once.

The dome is 8,000 by 8,000 pixels, which requires a 20m (66ft)-diameter dome with a 200-seat capacity. The screen is pretty much the resolution of Imax, yet Imax is still film and not digital.

We also have a mechanical star ball machine, produced by a new company in Japan called Megastar. At 3ft (0.9ft)-high, it looks a little like R2D2 sitting in the middle of the theatre. It's capable of projecting 20 million stars – you can actually take out your binoculars inside the dome to view them.

Also, an American firm called Astrotec have done a great job of building the dome. It's the same company that built the first dome at Fiske, which served us very well for 40 years.

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What were the challenges?
One challenge with showing astronomy content is that the sky is very black. When you project onto the screen with the kind of large commercial video projectors we use, the background appears grey. That's how stars look from a city, with light pollution – not the way we want to show them.

This may not be a problem when projecting onto a small conference screen, but it is an issue for a full dome theatre.

So, we've used a newly invented product supplied by Sky-Skan, which is basically a filter that's placed over all our projectors to improve the contrast. This way, viewers see the darkest dark and the whitest white. When we switch to full colour mode, such as when projecting a film of the Grand Canyon, it's able to switch mode to enhance these colours too.

What about your content?
At University Colorado, Boulder, we're one of the leading astronomy departments in the world, involved with the NASA missions and the missions to Mars, so we potentially have a lot of great content we can draw on and develop.

The university also has a film school, so we're able to tap into the talent of the students. They're working on some unique content production for the facility.

Currently, every show at Fiske is presented live with an astronomer giving a 30-minute presentation. We don't just cover the stars, we're also doing earth science – volcanoes and extreme weather, such as floods and tornadoes.

We're experimenting with using the dome screen as a backdrop to live stage theatre, rather than using a static set. The novelist Dava Sobel has produced a stage adaptation of her novel *A More Perfect Heaven* that's based on the life of the astronomer Copernicus. We're also working with the Boulder Ensemble Theater Company to produce a show based on the discovery of "dark matter" by astronomer Vera Rubin.

Have visitor numbers grown?
In Colorado, we have a resident population of around 100,000. The old planetarium attracted around 25,000 to 30,000 visitors per year.

Four months after opening, our income, compared to the same period last year, had almost exactly doubled. That doesn't exactly mean the visitors have doubled, as we have raised our prices by a few dollars per ticket (adult tickets now cost $10 (E7, £6) and children's tickets $7 (E5, £4)). But it does mean that attendance ►

Science on a Sphere is an astronaut's view of the earth's weather

is up by at least 40 per cent. We're open to the public on Saturdays and Sundays, with four showings per day.

During the week, the theatre serves the university (we have 2,500 astronomy students each year).

How have you marketed the new dome?
Getting the word out has been a challenge, but numbers have grown mostly through word of mouth. Once people come to see a show, they seem to really like it and tell all their friends.

And we've had great success in offering deals via Groupon and Living Social, such as offering 2 for 1 ticket deals. In our last Groupon offer, we sold a month's worth of tickets in just one day.

I think there's a branding challenge with planetariums in general. If your big, beautiful new dome is called a planetarium, rather than a digital video theatre, then people only associate it with the stars and planets, whereas of course you can project anything from volcanoes to underwater exploration.

People tend to know that an Imax is a big blank screen that you can fill with different content, but what we essentially have here is a big blank dome that can do the same.

> "We're confident we can produce high quality, compelling content and hire it out at a much lower price"

What are your plans for the future?
We really want to concentrate on moving into the production of our own digital content that can be distributed worldwide. We have a niche set up here with our wealth of scientists plus our film school.

Full dome theatres in places like New York can afford to produce content with voiceovers from movie stars, such as Tom Hanks. Hiring those movies might cost around $30,000 (£21,800, £18,000) per year. We're confident that we can produce high quality, compelling content and hire it out at a much lower price.

We have access to exclusive and exciting events, such as the next mission to Mars and work on the Hubble Space Telescope, both led by the University of Colorado. The university's linked to leading world events, so should be a world-leading communicator.

What are the trends for full dome?
I'm going to make a bold prediction. I think that 10 years from now, or as soon as the transmission of data becomes good enough, people will be able to sit in a theatre at a live viewing and watch a leading archaeologist (wearing something like Google's fish eye camera) walking through Pompeii or trekking through the Grand Canyon, giving a presentation that's projected in real time onto the dome thousands of miles away. That will make for truly compelling content.

What I'd also say is that scientists have traditionally been quite weak in communicating their work and defending their positions. They have to come out of their laboratories and focus on doing a better job of communicating their discoveries, using all the technology available to them. Not just to attract essential funding, but so they can win the public's understanding, interest and confidence. We live in a science and technology-dominated age, so it's important for everyone to understand what's going on. ●

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Twin 18-meter domes

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PROBLEM SOLVING IN PROGRESS

SOLUTION UNDERWAY

BEAUTIFUL MINDS

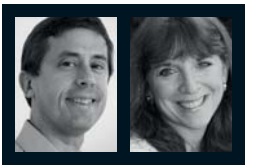
The founders of MoMath, the New York Museum of Mathematics explain how they're on a mission to get ordinary people to fall in love with maths

Rhianon Howells, journalist

On the subject of maths, Glen Whitney and Cindy Lawrence, co-founders and executive directors of the Museum of Mathematics (MoMath) in New York City, are surprisingly lyrical – they talk less about formulae, theorems and proofs than they do about beauty and wonder, excitement and falling in love. Yet despite this undisguised passion, they're the first to admit that maths has an image problem.

"Math is too often presented as a cookbook of recipes to memorise, and it's really a cultural problem," says Lawrence, a certified public accountant (CPA) who spent 16 years as national editor for CPA education provider Becker, and runs a programme for gifted maths students in her spare time. "If I go to a party and get into a conversation about what I do, people aren't ashamed to say, 'I'm terrible at math.' If I said I was an author, no one would say, 'I'm a terrible writer,' whereas to say 'I'm not a math person' is almost a badge of honour."

Through MoMath, which celebrated its first anniversary in December, Whitney and Lawrence have made it their mission to turn this common perception of maths as difficult and dull on its head. "We're not trying to shame anyone," says Whitney, a Harvard- and UCLA-educated mathematics professor and former quantitative analyst for hedge fund Renaissance Technologies. "We're just trying to show the face of math that people naturally want to engage with."



Glen Whitney (left) and Cindy Lawrence (right) teamed up to create the Museum of Mathematics

With MoMath's visitors for year one topping 173,000 (massively exceeding the projected 68,000), Whitney and Lawrence are clearly doing something right. Here, they talk about changing public perceptions, the dangers of 'maths illiteracy' and what's next for North America's only math's museum.

How was the idea for MoMath born?

Glen Whitney (GW): For about 20 years, there was a tiny math museum on Long Island. I went along, and it was sort of run down, but I had a great time. I thought nothing of it until I started coaching the math club at my daughter's elementary school. I was talking to some teachers when the topic of the museum came up and I found out it had closed down. I thought perhaps this was an opportunity to create an institution with a similar flavour and feel, but a little bit more of an ambitious mission.

Cindy Lawrence (CL): I'd also visited that museum with my family before I met Glen. Then our daughters became friends. One day, Glen was picking his daughter up from my house when he asked if I'd ever heard of this museum. I said, "Sure, I love that museum." And he said, "Well, it is no more." In the next breath he said, "But I'm going to open another math museum." And I said, "Wow, if you

✚ String Product is the museum's centrepiece. The 23ft (7m)-tall paraboloid fills the central staircase and teaches visitors about

All of the exhibits were designed for MoMath. These include the Square-Wheeled Trike (top right) and Rhythms of Life (second from top left)

GOOGLE GRANTS

Among MoMath's major sponsors was Google, which donated $2m (£1.4m, £1.2m) in 2011. In total, the internet giant awarded $12m (£8.7m, £7.2m) to seven science centres across the US and the UK in the same period.

Each year, through its charitable arm, Google Giving, the company donates $100m (£72.4m, £59.6m) in grants, 50,000 hours and $1bn (£724m, £596m) in products to good causes. These range from Global Impact Awards – focused on education and computer science; the environment; development; and empowering women and girls – to Community Impact Awards, covering not only disaster relief but also deserving non-profit organisations in the countries where Google is based.

Community initiatives include the Roberta Initiative, Germany; the restoration of Bletchley Park, UK; and The High Line, New York City.

> When you get it, the pieces fit together conceptually in your brain and you have a new perspective. You look at the world in a slightly different way than you did before that moment.

need any help with that let me know." I thought, "What fun!" In my career I didn't do anything focused on math, then suddenly here was this project that sounded like all play and no work.

What's the aim of the museum?

GW: Our mission is to change public perceptions of mathematics and share its evolving, creative, dynamic, beautiful nature. These are not words people associate with mathematics, but they give a much better description of what it really is than the ones most people would use.

Before MoMath, you launched a touring exhibition called the Math Midway. Tell us about that

CL: We got together a group of sympathetic people and held monthly meetings. Then Glen met someone involved with the World Science Festival in New York City, who said we could have a booth, and I volunteered to spearhead that initiative. I thought I'd be sitting at a table handing out brochures, but Glen's vision was to build an exhibit that would have a life beyond the festival, that would travel to other science centres around the country and be a sort of proof of concept for us. Out of that came the Math Midway, which has been travelling the country without a break since June 2009, and was in fact an excellent proof of concept. We had 3,000 to 4,000 people show up on the first day. So it really showed us, and showed people considering investing in the project, that it had legs.

The museum cost $23m. How easy was it to raise the money?

GW: I don't know that raising money is ever easy. You have to get people to share your passion and vision, get them excited, and try to meet as many people as possible. We were fortunate that our vision, and the fact that we're the only institution of our kind in North America, resonated with some people.

What are the most popular exhibits in the museum?

CL: The one that's got the lion's share of attention is the Square-Wheeled Trike. It's just such a surprising thing. We all know square wheels don't roll. So the fact that mathematics can teach you to create a track on which a square wheel will roll just as smoothly as a round wheel does on a flat surface is shocking to people, and they will line up for the opportunity to try it out for themselves.

Another is the Enigma Café, a puzzle area that's designed to feel like a café. It's amazing how many people gather in there and how long they spend.

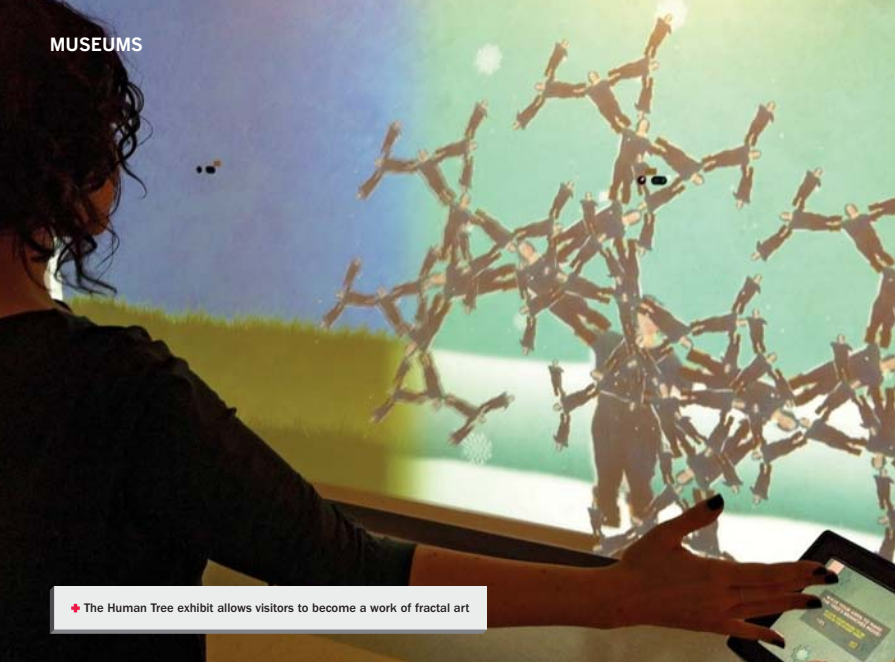
GW: One of the reasons we wanted the Enigma Café is that for folks to get into math, puzzles are one of the biggest hooks. You get your teeth sunk into a knotty problem and you want to know the solution. And when you get it, the pieces fit together conceptually in your brain – or physically in the case of a puzzle – and you have a new perspective: you look at the world in a slightly different way than you did before that moment.

Which exhibit or exhibits best sum up what you're trying to achieve?

CL: What people miss about mathematics is that it has a lot of depth: you might not like long division, but that doesn't mean there isn't some part of math that can speak to you. And there are concepts in math that can speak to people at different levels. For me, the exhibit that best exemplifies that is String Product. It's a giant paraboloid – a paraboloid is the curve you get when you throw a ball in the air – rotated to make a long bowl; it has lots of strings running through it and when you press numbered buttons they light up.

A toddler will press the buttons and get the sense that numbers are fun. Slightly older children will notice that when they press five and six, the string connecting them happens to cross the centre point at 30 – so they realise they're looking at something beautiful that somehow conveys the multiplication table. Kids who have finished algebra and know a little bit about geometry can sit down with the equation of a paraboloid and the equation of a line and work out why that has to happen. And even mathematicians who see the exhibit and didn't know about that property are delighted by it.

GW: For me, it's the Human Tree. A camera picks up your image and projects it onto a screen, but replaces your arms with a smaller picture of you, and the arms of that smaller picture with yet another picture of you, and so on, producing a pattern known as a fractal – a



The Human Tree exhibit allows visitors to become a work of fractal art

> We're one of the only science centres I know of that has opened with all of the exhibits designed completely from scratch. That was both a joy and a challenge.

pattern which is similar to itself on a smaller scale. There's a rich landscape of fractals you can make just by varying the angles and length of your arms.

Some of the key elements we use to draw people in and show them the beauty and creativity of mathematics are right there: it's visually beautiful, you see surprising patterns and you're engaged with your entire body.

What was the biggest challenge of opening the museum?

CL: We're one of the only science centres I know of that has opened with all its exhibits designed completely from scratch. That was both a joy and a challenge. We had ideas contributed from mathematicians around the world, so our first challenge was whittling those down. Then we'd create drawings and a little storyline for each exhibit and go out to companies that might be able to build it. Some got thrown out because they were too expensive, others because the fabricator had no idea how to do it – but what one company would say was impossible, another would say, "Oh, that? Yes, we can do that."

GW: We ended up with eight different contractors, when the advice was to have two or three. Managing all those different providers was a challenge.

Who or what made you love maths?

GW: When I was in grade school, I didn't like math. I found it came fairly easily to me and I got good grades, but I had no enthusiasm for it. Then one summer my parents sent me to a math camp. The very first weekend I broke my collarbone playing soccer, and from that point on I couldn't do much apart from work on the problems set in our daily math classes.

Somehow this answer would line up with that answer and I started to see patterns emerging. Then I'd get glimpses of the reasons for these structures and that would open up new vistas. I discovered that it was all really quite beautiful. Plus, I was in a community of peers who were just as excited by it as I was. So I fell in love with math, and have been in love with it ever since.

CL: I enjoyed math as soon as I realised it was something you could understand rather than just memorise, but it was a wonderful calculus teacher in high school who really made me feel that it could be beautiful.

Can you give some examples of how we use maths in everyday life?

CL: Just trying to work out the most efficient order of all the errands you need to do is very mathematical.

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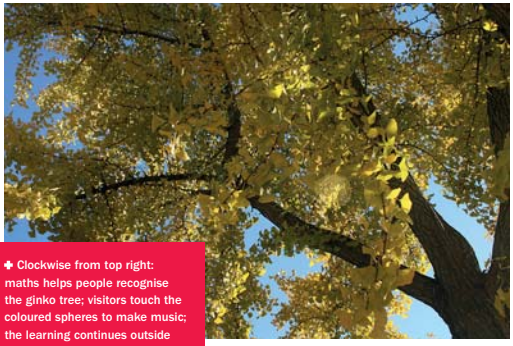
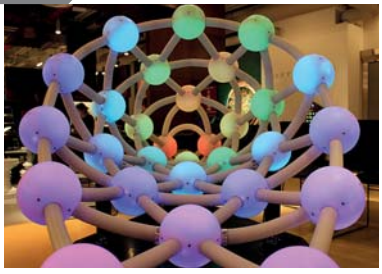


✚ Clockwise from top right: maths helps people recognise the ginko tree; visitors touch the coloured spheres to make music; the learning continues outside



I need to go to the grocery store, post office and bank and stop off at the school to pick up a child – what order should I do that in? You're using math when you make those calculations in your mind.

GW: Yes! Companies like FedEx pay mathematicians good money to figure out exactly that: what is the most efficient route from A to B.

CL: Glen does math tours that underscore the fact that math is all around us: in the timing of a traffic light, the way the subway runs. We have a place that sells ice cream shakes near the museum that has very long lines and Glen has taken people there to talk about queuing theory, or he'll talk about the math in the way certain plants grow.

GW: The gingko tree is a good example. It's a tree you see fairly often in New York City and one that everyone is able to recognise at a glance, though they don't really know why. It's because, unlike most other trees, all of the junctions of its branches are right angles. It's not something most people realise, but when you have it pointed out to you, you say, aha, there it is! It's the geometry of the tree that gives you the ability to recognise it.

What common mathematical mistakes do people make?

GW: There are certain aspects of math that people are naturally quite adept at, but there are other areas where our intuition leads us astray.

One of the most notorious is assessing risks and probabilities. An important example is in medicine, when you have a routine screening for a rare condition and you get a positive result. You ask, "How reliable is this test?" and the doctor says: "Well, it's 99 per cent accurate: 99 per cent of the time, if it says you have the disease, you have the disease." So you immediately think, "Oh no, there's a 99 per cent chance I have this disease!"

But that's not at all the case. If the disease has a frequency of only one in 10,000 in the population at large, it's actually extremely likely that you've got a false positive, just because the original disease is so unlikely. Even though only one per cent of positives are false positives, it's much more likely that you're that one in 100 than the one in 10,000 that actually has the disease.

So people do have difficulty understanding probabilities and it can lead to errors of judgement. It's called the base rate fallacy.

What's next for MoMath?

CL: We're working on a number of programme ideas right now, so we're back in fundraising mode. For example, there's a lot of interest in having a math and music concert series here.

GW: We're also commissioning our first new exhibits since we opened. One is entitled Motion Scape and will help visitors better understand the relationship between position, velocity and acceleration. The other is a dramatic lobby piece.

What drives you?

GW: The opportunity to share the beauty and wonder of mathematics.

CL: The excitement of coming up with ideas, then the pleasure of watching people enjoy the things we've created. ●

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BRAVE NEW WORLD

Can world expos really raise global awareness about what matters for the planet? Christian Lachel considers how these high profile events can use modern story-telling and technology to help create change in the world

I have many smart, compassionate, public-spirited friends. I was having coffee with one of them when this particular friend said: "The world is in trouble. We've got so many challenges it just seems overwhelming."

She almost ran out of fingers as she used them to tick off the challenges – climate change, population growth, plundering of natural resources, peak oil/dwindling fossil fuels, increased energy demand in emerging nations, and finding enough food to feed the planet. "The bigger the challenge, the less people seem to care. What actually are we doing about these things? What CAN we do?"

All great questions. Do we as individuals care about doing the hard work to ensure humankind has a viable future on Earth? Does our industry care?

I said: "First, let's acknowledge our own power. We're storytellers. It's been our job to give meaning to our world and shape a narrative that awakens the tribe to the perils that lie ahead if we don't change our behaviour. Our narrative must give a vision for a viable way forward, and inspiration that, together, we can make that vision a reality."

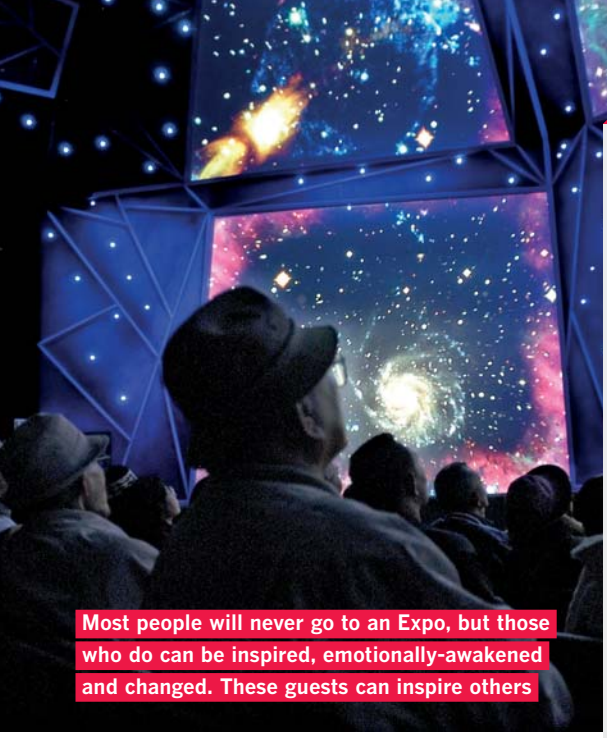
And then we talked about the cultural narrative, and we discovered a lot of evidence that we – the storytellers – DO care. We ARE doing something.

CARING FOR OUR PLANET

Let's start with the single most popular form of out-of-home entertainment ever invented, the feature motion picture – always a harbinger of cultural change. James Cameron's *Avatar* is the single most popular motion picture ever made. Underneath all the stunning special effects, the breath-taking action sequences and summer-blockbuster plotting, beats the heart of a profound environmental fable.

Avatar is about our world. In this film, a young man – crippled by war and alienated from an uncaring world, is literally re-born when he connects with a tribe of people who are one with the

James Cameron's *Avatar* is a reminder of our own world, and the need to protect natural resources



Most people will never go to an Expo, but those who do can be inspired, emotionally-awakened and changed. These guests can inspire others

natural world they inhabit. Our hero heals himself, and becomes a warrior in defence of this powerful natural world.

Want more evidence? *An Inconvenient Truth*, *World War Z*, *The Road*, *Erin Brockovitch*, and *Princess Mononoke*, by the incomparable Hayao Miyazaki. And then there are documentaries like *Fast Food Nation*, *Tapped*, *King Corn* and *Food Inc*. that highlight the world of the corporate food giants as well as the challenges of feeding the planet.

But that's just movie-making, right? Yes, but something significant is happening in our business of leisure and entertainment as well. And, as so often happens, this 'really big thing' has emerged from what seemed at the time as a small thing – an unsuccessful small thing at that.

CHANGING THE WORLD STORY

This narrative shift began in 2000 at a World Expo in Hannover, Germany.

The theme of the Hannover Expo was 'Man, Nature, Technology'. This expo ▶

Given the financial investment, Expos may only attract a limited audience, but the core messages conveyed can have a ripple effect, says Lachel

Hannover Principles
Design for Sustainability
(prepared for Expo 2000)

- **Insist on rights of humanity and nature to co-exist in a healthy, supportive, diverse and sustainable condition.**

- **Recognize interdependence.** The elements of human design interact with and depend upon the natural world, with broad and diverse implications at every scale. Expand design considerations to recognizing even distant effects.

- **Respect relationships between spirit and matter.** Consider all aspects of human settlement including community, dwelling, industry and trade in terms of existing and evolving connections between spiritual and material consciousness.

- **Accept responsibility for the consequences of design decisions** upon human well-being, the viability of natural systems and their right to co-exist.

- **Create safe objects of long-term value.** Do not burden future generations with requirements for maintenance or vigilant administration of potential danger due to the careless creation of products, processes or standards.

- **Eliminate the concept of waste.** Evaluate and optimize the full life-cycle of products and processes, to approach the state of natural systems, in which there is no waste.

- **Rely on natural energy flows.** Human designs should, like the living world, derive their creative forces from perpetual solar income. Incorporate this energy efficiently and safely for responsible use.

- **Understand the limitations of design.** No human creation lasts forever and design does not solve all problems. Those who create and plan should practise humility in the face of nature. Treat nature as a model and mentor, not as an inconvenience to be evaded or controlled.

- **Seek constant improvement by the sharing of knowledge.** Encourage direct and open communication between colleagues, patrons, manufacturers and users to link long term sustainable considerations with ethical responsibility, and re-establish the integral relationship between natural processes and human activity.

was modestly attended, and considered an economic failure for the region. It was here that thought leaders Bill McDonough and Michael Braungart re-introduced The Hannover Principles for sustainable world abundance – which were first commissioned by Hannover in 1991 and first presented at the Earth Summit's 1992 World Urban Forum.

In 2000, the Hannover Principles (see briefing box) started a revolution. They were then, and still are, audacious, thought-provoking and emphatic. The intention was to subvert that narrative and create an entirely new context for the discussion. This was a revolution. A re-boot. A new story.

The Hannover Principles inspired the US Green Building Council's green building programme called LEED, and led to creation of the Cradle to Cradle Products Innovation Institute. The institute is described as a non-profit organisation "created to bring about a new industrial revolution that turns the making of things into a positive force for society, economy, and the planet."

More importantly, the Principles sparked a cascade of inspiration for the enterprising thought-leaders heading up the next Expos. Consider the themes, always a statement of intention:

Expo 2005, Aichi, Japan – Nature's Wisdom
Expo 2008, Zaragoza, Spain – Water and Sustainable Development
Expo 2010, Shanghai, China – Better City, Better Life
Expo 2012, Yeosu, South Korea – The Living Ocean and Coast – Preservation and Sustainable Development of the Ocean and Coast.

The subject of each of these expos was rooted in the Hannover Principles – creating sustainable abundance on planet Earth. So what is the theme for Expo 2015 in Milan, Italy? 'Feeding the Planet, Energy for Life'.

Past and future Expos

2000 **Hannover,** Germany
2005 **Aichi Prefecture,** Japan
2008 **Zaragoza,** Spain
2010 **Shanghai,** China
2012 **Yeosu,** South Korea
2015 **Milan,** Italy
2017 **Astana,** Kazakhstan
2020 **Dubai,** United Arab Emirates

Ever since the World Expo in Aichi in Japan in 2005, official expo themes have all focused on nature, sustainability, creating a better world

Dubai's winning bid

On 26 November 2013, the delegates of the Bureau International des Exposition (BIE) chose Dubai as the host of Expo 2020.

Opening dates:
10 October 2020 – 10 April 2021

Theme:
'Connecting minds, creating the future'

Details
The 1,082-acre (438-hectares) Expo site, on the southwestern edge of Dubai in Jebel Ali, near Dubai's new Al Maktoum International Airport, is being designed by HOK.

HOK's design features three separate pavilions created to symbolise opportunity, sustainability and mobility, with 'innovation pods' in each thematic zone.

Inspired by the layout of a traditional Arabic souk, the design places larger pavilions to the perimeter while clustering smaller exhibit spaces toward the centre, to promote better visitor interaction.

The theme for the World Expo in Dubai in 2020, which is being designed by HOK, is 'Connecting minds, creating the future'

STEERING A NEW DIRECTION

Most people will never go to World Expo, but those who do can be inspired, emotionally awakened, and changed. These guests can inspire others. Like a single pebble in a giant lake, they can send out thought waves that ripple to infinity.

Examples abound. Great expos like the first World's Fair at Crystal Palace (1851) the Paris Exposition (1855), the Franco-British exhibition at London's White City (1908), Century of Progress in Chicago (1933) and the World's Fair in New York (1964) brought us great attractions that communicated amazing new ideas. The best of these attractions have stood the test of time, because their stories, lessons and inspirations are evergreen.

GLOBAL STORY-TELLING

In 2000, we entered the 21st Century and ushered in a new era. The concept of the World Expo evolved with the times (see Hannover Principles). The global issues we face today are large

and scary. World Expos empower a world of storytellers using the newest tools and technologies to create stories that spread life changing ideas – giving our children and children's children the best chance to create a peaceful, healthy and abundant world.

This is the great work that we in the creative and leisure industries were put here to do. As modern storytellers and creators of experiences it's our job to tackle these issues and provide meaning in the world.

The difference that we can all make is to, in the words of the great Russian thinker and philosopher, Alexander Herzen, "awaken men by dreaming their dreams more clearly than they dream them themselves".

We can tell astonishing, transformative stories – like Avatar – that awaken in guests a sense of their own power and possibility. It's why we're here.

As the American anthropologist, Margaret Mead, once said: "Never doubt that a small group of thoughtful, committed individuals can change the world. Indeed, it is the only thing that ever has." That's us, as an industry. Here. Now. Let's get busy. ●

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(Rich Procter, senior writer for BRC, also contributed to this article).

IMERSA 2014

Designing and producing programmes for commerical success was among the themes at the IMERSA 2014 summit, as consultant Ian McLennan reports

In a world of ever-increasing specialisation, it's refreshing that an organisation exists to serve a wide variety of interests, from educational to experimental to cultural to commercial, and everything in between. IMERSA (Immersive Media Entertainment, Research, Science & Arts) started with a small group of individuals whose activities in existing vehicles, such as IPS and International Planetarium Society, was deemed restrictive in terms of innovation in a rapidly evolving digital age. The common element among the people who first gathered under the IMERSA umbrella was that almost everyone was involved in designing and producing programmes for audiences to experience and enjoy under domes or other immersive environments.

Dream to Fly presents the development of aviation through the ages with a poetic narration

CONFERENCE AGENDA

In March, the fifth IMERSA conference was held – once again at the Denver Museum of Nature and Science (DMNS) – under the watchful eye and guiding hand of Dan Neafus, operations manager at DMNS's Gates Planetarium. Neafus likes to say the real purpose of these annual gatherings is to bring a bunch of his good friends together, but that belies a significantly more ambitious agenda – namely to advance the cause of promoting widespread use of dome and other immersive spaces in a variety of institutional, artistic and commercial environments. IMERSA has positioned itself as a group not only to promote that idea, but to foster educational opportunities for people to learn from each other, and to establish a culture of best practices. It's striking how many of the sessions involved codifying best practices, as well as providing common language and other

VISIT TO FISKE PLANETARIUM

During the conference, delegates visited the newly refurbished and upgraded Fiske Planetarium in Boulder, Colorado for an event hosted by Dr Douglas Duncan, planetarium director (see interview on page 44).

The old Zeiss Mark 6 projector has quaintly taken its place among old-style displays that adorn the exhibition area of the planetarium. Now, inside the planetarium's 20m (66ft)-diameter dome theatre, there's a technological transformation with a brand new Megastar II star-ball projector, capable of projecting some 22 million stars. This is complemented by a state-of-the-art Sky-Skan 8K (8,000 X 8,000 pixels resolution) digital video system, with added SCISS astronomical data sets.

The 8K system produced some dazzling, crisp, clear, and bright images, although some (not all) were dogged by the persistent dome cross-reflection problem that tends to wash some scenes out.

It's difficult to fathom why some scenes are more susceptible to that phenomenon than others that appear to be similar in content. Well, it's an art as much as a science.

Annette Sotheran-Barnett was able to see her own production *To Space and Back* for the first time in an 8K projection dome, and was moved to see the production as she imagined it should be seen, under ideal conditions.

After a brief retro-laser show in the new theatre, there was a panel talk with Chris Maytag (Fiske Planetarium), Mark Webb and Patrick McPike (Adler Planetarium), Andrew Johnston (Smithsonian Institution), Steve Savage (Sky-Skan), Michael Daut (E&S) and Staffan Klashed (SCISS).

The challenge is to create compelling fulldome content without the budget of blockbuster films such as *Gravity*

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"THE PRODUCERS ARE NO DOUBT ATTEMPTING TO DO AWAY WITH STODGY PROGRAMMING OFTEN ASSOCIATED WITH 'BORING' PLANETARIUM"

base-line nomenclature and standards by which delegates can go back to their home domes with greater abilities and greater confidence. A prime example is Neafus's comprehensive paper The Language of Immersive Cinema, which he authored in anticipation of the IMERSA conference and which will doubtlessly be widely circulated.

INCREASED ATTENDANCE

One of the best indicators of the niche IMERSA is filling is the attendance, which this year topped 200 people from six continents. Some delegates grappled with the challenge of multiple, portable domes as arty, yet commercial, operations in urban settings. Other attendees pondered the dilemma of creating fulldome productions on a relatively epic scale, but without the budget of blockbuster films like *Gravity*, which get seared into the mass audience consciousness every once in a while (this happens often enough to beg the perennial question as to whether we're collectively pushing a rope uphill or are we actually making a difference out there in the educational and cultural world?).

That dilemma was highlighted when an ambitious new production by a talented, enthusiastic and determined filmmaker, Robin Sip, was premiered. *Dinosaurs at Dusk* was shown to an appreciative, but naturally critical audience. No one could be anything but impressed by the level of detail involved in creating this live-action educational fantasy and Sip was exceedingly generous in sharing many of the behind-the-scenes production details.

To me, there was a problem with the way English dialogue was structured, as well as with some of the stilted acting. To my taste, the same effort and refined production intensity might have resulted in an end-product that was less forced, and therefore more comfortable and natural. To be fair, some of my Japanese colleagues found the dialogue and acting "very cute" and they thought it would be quite marketable in their domes. So, what do I know?

Another ambitious production aired, though not shown for the first time, was *Dream to Fly* by Copernicus Science Centre, Warsaw. The film has stunning visual effects, but suffers from a few curious content choices – specifically, graphically horrifying scenes of war planes dive-bombing ships at sea. Not the regular planetarium fare, but the producers are no doubt attempting to do away with stodgy programming often associated with "boring" planetariums. ►

Dinosaurs at Dusk filmaker, Robin Sip, shared his production tips with delegates

Natural history drama *Flight of the Butterflies* has been a huge large format hit

"ONE OF THE COMMON ELEMENTS IN THIS NEW STYLE OF IMMERSIVE PRESENTATION IS RAPIDLY EXPANDING ACCESS TO SCIENCE VISUALISATION DATABASES. THESE CAN BE APAPTED, MODIFIED AND INTEGRATED INTO COMPLETE PRODUCTIONS"

NO PLACE LIKE DOME

One interesting experiment was the transferring of a large format (Imax-style) production *Flight of the Butterflies* into the dome environment. This is a lovely human drama with a compelling storyline, super photography and pretty good acting.

Canadian producer Jonathan Barker attended IMERSA and talked about how he and his team at SK Films had re-rendered the large-format film specifically for the dome environment – making a plea for others to proactively do the same. This is one of the rare times I've seen a tender human-scale story well told and presented in a planetarium-like environment. It's commercial success has led to the production of a range of themed shower curtains. When was the last time a planetarium or dome show achieved something like that?

One of the common elements in this new style of immersive presentation is rapidly expanding access to science visualisation databases. These can be adapted, modified and integrated into complete productions, or (as I'd prefer to see in terms of taking advantage of a unique medium) presented with well delivered, authoritative, live commentary for immediacy, relevance to audiences and timeliness.

Dr Donna Cox, a leading luminary in computational science – especially astrophysics, earth sciences, engineering and related data domains, continued this theme with her keynote speech. She held us all spell-bound – as she and her colleagues have with audiences worldwide with Hubble 3D and other significant contributions to public understanding of the universe.

Mark C Petersen walked us all through the Loch Ness Productions database of worldwide dome theatres. Available online, it's a valuable resource, not only as a snapshot in time, but for spotting trends in the medium. Dario Tiverton from Italy has also compiled a fulldome data base.

It's a truism that there's no higher honour than to be recognised and celebrated by one's peers. This was true for Jeri Panek, long time representative of Evans and Sutherland Corp, who received a lifetime achievement award. At least a dozen speakers paraded in front of the open mike at the closing banquet to express appreciation for Jeri's indomitable spirit, for the many contributions she has made in the field, and for her legendary ability to make and keep friends, even among fierce commercial competitors. Jeri told some priceless stories and needless to say, she received a prolonged, standing ovation at the closing banquet.

I have it on good authority that the next summit IMERSA will again be held at Denver Museum of Nature and Science in 2015. IMERSA's board is actively involved in collaborative agreements with several like-minded, parallel organisations (including IPS, GSCA, ASTC and Ecsite) and recognises that the time has come to expand the board to take into account age, gender, geographic, topical and other currently under-represented areas. ●

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The Placemakers

What's the secret to turning an attraction into a place? TVAC's Simon Ody and Tim Rusby discuss the challenges and opportunities of creating successful destinations

(Left) Simon Ody and (right) Tim Rusby

Many clients come to us because they think they want a feasibility study, but often it becomes clear that what they really need to know is how to deliver the scheme and make it work as a place – a destination that visitors and paying guests will use, adopt, cherish and return to.

That shift from the quantitative assignment (the economics) to the qualitative (the what, where and how), is where we find our key differentiation as a practice.

We need to stress that we're not designers – TVAC is a bridge between our clients and their design teams. Our role is to provide specialist input into business plans, locate content ideas into master plans and help to make sure that the design development brief is coherent.

WHAT IS PLACE-MAKING?

The term place-making is nothing new. American sociologist Ray Oldenburg first coined the phrase the third place in the 1970s, describing third places as the anchors of community and social life. Not home (first place), or work (second place), third places are where people go to enjoy themselves.

Societies have always had informal meeting places. Oldenburg recognised the need to revive the concept at a time when communities and people were become increasingly insulated and isolated, a trend that has accelerated over recent years as people spend more and more time online.

More recently, multi-faceted retail destinations are winning the battle to capture people's leisure time; in effect becoming the default third place for many people. In Europe, developers such as Westfield and Intu are actively searching for immersive experiences and leisure products that will differentiate their malls and drive footfall.

ArcelorMittal Orbit, Olympic Park, UK – TVAC prepared the original feasibility study and business and operating plans

TVAC's work with mixed-use developers has led us to recognise that the same issues apply to the owners of even the smallest visitor attractions. The issues are the same – how can we attract more visitors and keep them coming back?

SO WHAT IS A PLACE?

The term place-making refers to the process that turns a collection of buildings and spaces into a place which visitors develop an affinity towards and return to again and again. A definition of a place in this context is a multi-dimensional destination that offers a variety of experiences for a variety of people. Successful places give us an almost visceral sense of feeling good. Sounds, smells, tactile feedback, all add to a visitor's feelings of total interaction, emotional engagement, sensory immersion and belonging.

A great place is one which we adopt as a part of our social fabric and want to share. When an attraction is a good place, we tell people about it or take others to it. Great places are accessible, visible and recognisable, sometimes in the form of a brand that is synonymous with the experience that we anticipate finding at the place.

Great places provide a sense of arrival, good way-finding, have attractive public realm and feel safe. Those who aspire to develop and manage successful places need to recognise the benefits of providing amenities which don't deliver an easily quantifiable return on capital employed. We can't calculate the financial return of a splendid fountain outside the entrance to an attraction, but the sense of arrival it engenders makes it much more than a 'nice to have'.

They react to changes in the way we communicate, use technology and interact with our friends and families.

Successful places deliver experiences that we want to enjoy time and again, especially if that experience can be enhanced by subtle variations that make each visit unique.

For attractions, the most cost effective variation is in the form of special events and seasonal programming.

(Main photo) TVAC developed Alnwick Castle's development masterplan and (below) The Lisboa Story Centre's original concept and business plan

Many operators view programming and events as an expensive seasonal chore to mark the major festivals of Christmas, Halloween, Easter and the like, forgetting that every day should be a special day for their visitors, notwithstanding which day they choose to visit.

An event or programme doesn't have to be sophisticated and expensive, just carefully thought out, properly communicated and executed with care and passion. Done well, even the simplest of programmes can inspire repeat visits and convert a potential visitor into a paying customer.

Pop Up events have become popular over the last few years. Traditionally they utilise empty shops or other buildings or spaces, for art exhibitions, restaurants or performances. They can last for a few hours, a few weeks and in some cases have become permanent fixtures due to their popularity.

SO WHY MAKE A PLACE?

There are many reasons why developers and attraction operators should consider the very real commercial benefits of place-making. When all the elements of a good place fall together, potential visitors become real visitors and will return and recommend. More visits and longer dwell times lead to better returns on investment. Top destinations and places attract complementary neighbours, increasing real estate value.

In our experience, one of the biggest challenges in projects is reshaping the thinking of the economic teams to take on board the value of every aspect of successful place-making, not just those with a tangible financial investment case. Just because an effect may be hard to define and harder still to measure, doesn't lessen its importance.

The future looks set to challenge attraction destination owners and developers with increased competition for their visitors' money and even greater competition for their visitors' time. Ultimately, the destinations that will win out are those that have truly understood the value of place-making and have invested in delivering and maintaining an exceptional place.

At TVAC we're working on both sides of this trend divide. We help developers achieve their objectives, and work with those not involved in mixed-use destinations, helping them shape their offer and development strategies so they're future-proofed and able to exploit emerging trends for their benefit. ●

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Ecsite is Europe's largest event on science communication, attracting more than 1,000 visitors from over 45 countries

ECSITE 2014

People, Planet, Peace is the theme for the 25th Ecsite conference. Member services manager Lucy Schweingruber tells us why this was chosen and what delegates can expect

Ecsite, the European network for science centres and museums, will be holding its annual conference in The Hague (Netherlands) on 22-24 May 2014. Open to all in the field of science engagement, it offers an opportunity to take the pulse of the sector and share best practice – as well as offering great networking. Ecsite President Rosalia Vargas promises "the largest crowd of creative experts ever gathered in a science communication event in Europe".

Celebrating its 25th edition, the event started with less than 100 attendees and has now grown to Europe's largest event on science communication with more than 1,000 participants from over 45 countries coming together for this special 25th anniversary edition, hosted by science centre Museon.

GLOBAL THEME

The programme offers the most diverse mix ever, with sessions ranging from practical advice on how to conceive interactive exhibits to discussions on the sector's contribution in tackling global issues linked to this year's theme of People, Planet, Peace. As Museon's general director, Marie Christine van der Sman, says: "Mankind faces enormous challenges. New scientific knowledge and technological innovation may help to prevent conflict by providing part of the solution. Science centres and museums raise general public awareness of these issues. This is the reason for choosing this theme, well-suited both to the Museon and to The Hague, as one of the host cities of the UN."

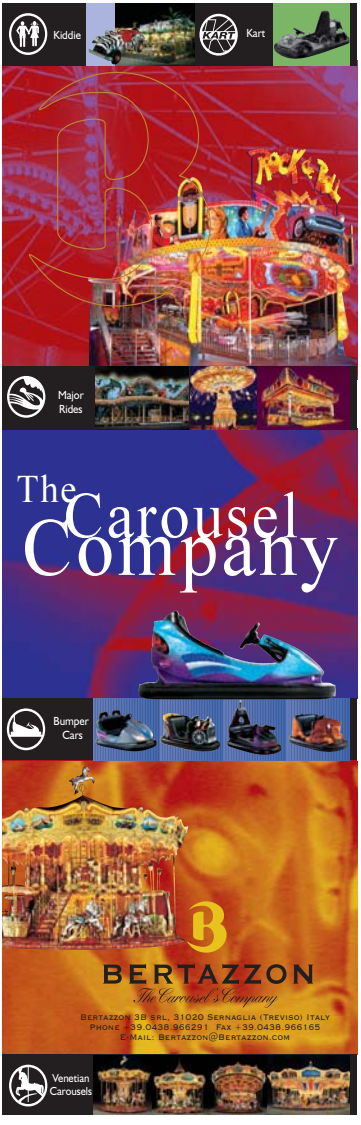
High profile guest speakers include UNESCO director general Irina Bokova and 2013 Nobel Peace Prize laureate Ahmet Üzümcü, director general of the Organisation for the Prohibition of Chemical Weapons (OPCW).

CONFERENCE CONTENT

Two-day pre-conference workshops cover topics such as visitor research, face-to-face interactions and space science. The conference itself has 80 sessions offering a huge diversity of topics, including cinemas in science centres, travelling exhibitions, marketing to teachers, teen audiences, or income diversification. More than 50 exhibitors will be showcasing their latest products and services at the Business Bistro, and participants will be able to get hands-on in two workshop spaces – the Maker space and the new Gamification space. Networking opportunities include the newcomers' breakfast and Farewell Party.

Ecsite executive director Catherine Franche urges participants to add their ideas to the mix: "Representatives from natural history museums, science centres, aquariums, research centres, universities, the private sector and civil society organisations are invited to approach this conference as their platform for exchange. Great ideas are often born from unexpected collaboration."

For more details. visit www.ecsite.eu/annual_conference



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MULTI STORY

Travelling back through time at Stonehenge, understanding what it was like to be a sailor 100 years ago and witnessing new discoveries about ancient Egyptian mummies are among the latest multimedia and AV projects

Kathleen Whyman, managing editor, Attractions Management

LIFE ON THE WAVES

A century-worth of experiences in the Royal Navy can now be heard at The National Museum of the Royal Navy's new £11.5M (US$19.3m, €14m) visitor attractions.

Located within Portsmouth Historic Dockyard, UK, home of the Royal Navy, the museum launched two new exhibitions in April. DJ Willrich worked on HMS Hear My Story, a dedicated exhibition in the new £4.5M (US$19.3m, €14m) permanent Babcock Galleries, and the re-launch of HMS Alliance. After a £7M ($11.8m, €8.5m) conservation and restoration project, the only surviving WWII era submarine is now a memorial to 5,300 submariners.

The DJ Willrich AV installation helps interpret 1,000 stories spanning 100 years for HMS Hear My Story. The centrepiece audio visual exhibit is a multi-touch timeline where six people can bring up photos, text and video footage of people and ships from the across the history of the Navy. Each of the six 46" (1.2m, 4ft) screens that form the table has its own timeline, but naval vessels from the whole period float across screens, puff steam, blow their horns and aircraft take off from carriers. As well as being of interest to all, this is a particularly valuable resource for the museum's education team. A glass top covers the screens, providing a single touch surface – and one that is easy to maintain with all the touches it receives.

"The custom built table's designed to be high enough to fit wheelchairs underneath, so all visitors can get close to the table," says project manager at DJ Willrich Nicola Jagger. "This created a challenge as there's very little space underneath to store equipment. Also, there is no natural way for the heat from the screens to dissipate, so we developed a quiet water-based cooling system to keep everything at safe operating temperatures." Touch sensors were custom built and supplied by Displaylite; Elbow provided the software throughout the exhibition and Elmwood was the lead contractor.

© THE NATIONAL MUSEUM OF THE ROYAL NAVY

The centrepiece exhibit allows six people at a time to bring up photos, texts and video of ships from history

Another particularly interactive area of the exhibition encourages visitors to vote on more contentious issues related to the Navy, such as whether women should continue to serve on submarines and whether the Navy should receive more money. Past and present sailors, families and visitors give their view before visitors vote at one of eight voting stations. Three micro computers send the votes across the network to the game PC where they are collated and visitors can see how their responses compare with others.

Elsewhere visitors are immersed in video where they see and hear what it was like to be involved in actions from the Battle of Jutland in 1916 to the Falklands War in 1982. Subtitles and British Sign Language are available on every video with spoken voice. Interactives let visitors hear more of the stories of those who have served, as well as discover where the Navy is serving now, in updatable databases.

BEER GOGGLES

The recently opened brew cinema at Stiegl Brauwelt offers visitors a visual beer experience. The walk-in cinema, which is designed as a multi-dimensional projection space, provides a fresh insight into the world of beer and its origins using a panorama film in five languages with a floor projection onto a 200sq m (2,150sq ft) surface.

The film is projected onto a semi-circular 24 x 4m (79 x 13ft) wall using four projectors, providing a seamless wide screen image. The four full-HD Panasonic projectors produce soft edge blending with an overlap of 20 per cent. The floor projection also consists of four images that overlap, which is achieved by using eight Hitachi projectors with extreme wide angle lenses. The live action movie has a total projection area of 180 degrees with 3D animations and was produced at cinema standard 5.5 K (Camera Red Epic). This achieved a quality (5120 x 2560 pixels) which is a six times higher resolution than that of HDTV. A water wall was also integrated, which can be started and stopped manually and also lit in RGB colours matching the film.

The entire installation uses AV Stumpfl show control technology and is controlled centrally using AV Stumpfl Wings Touch and Avio.

The walk-in cinema immerses visitors in a panorama film (available in five languages) with floor projection

CAPED CRUSADE

A new Batman-branded laser maze attraction has been created by SimEx-Iwerks, working exclusively with Warner Bros Consumer Products on behalf of DC Entertainment. The first of its kind, the Batman Laser Challenge expands on the laser maze model by infusing a powerhouse brand to enhance the experience and appeal to a broad demographic.

The Batman Laser Challenge delivers an action-packed adventure that features high-visibility lasers, UV lighting, branded elements, character dialogue, music and special effects.

The Batman Laser Challenge requires minimal space, has a throughput capacity of 30 to 40 guests per hour and can perform s a stand-alone attraction or as a complement to a 4D theatre.

The experience has single and double maze configurations and challenges guests to train with Batman to protect citizens of Gotham City™ from The Joker. The first Batman Laser Challenge debuted in March at the Adventuredome Theme Park in the Circus Circus Hotel & Casino in Las Vegas.

The Batman attraction uses high-visibility lasers, branding, character dialogue, music and special effects

PRECIOUS STONES

The new Stonehenge exhibition and visitor centre makes dramatic use of high resolution projection technology to help visitors learn about one of the world's most important prehistoric monuments. Electrosonic completed the audio-visual (AV) systems design and integration.

The centre, located 1.5 miles from Stonehenge itself, is the main phase of English Heritage's £27m ($45m, €33m) project to transform the visitor experience of this iconic site. To date, it is their largest ever capital investment project. (See feature in *AM Q1 14*.)

AV technology is used to give visitors an enthralling introduction to the legend of the Stones, exploring the history and debate surrounding this ancient monument. One of the main highlights is the Standing in the Stones exhibit, a 360-degree virtual experience. Installed by Electrosonic, the exhibit lets visitors stand in a virtual Stonehenge as it is today and in the past. The three-minute film, based on laser scan images of the stone circle, transports viewers back in time through the millennia, enabling them to experience the summer and winter solstices.

Standing in the Stones uses six Panasonic PT-DZ770 single chip DLP™ projectors with 1920x1200 resolution and nominal 7000 lumen light output. These are sourced from a 7th Sense Delta server via Atlona extenders. The audio chain includes a BSS BLU 100 DSP, four Crown CTs600 amplifiers and seven Tannoy Di5 loudspeakers augmented by a ceiling mounted sub bass loudspeaker.

Visitors move onto the Meaning section, which includes four portrait format 32-inch LCDs showing a linear programme on the debate around the Meaning of Stonehenge. Landscape, the largest AV element, is a giant image of the Stonehenge World Heritage Site projected onto a wall screen which shows how people changed the landscape over the pre-historic period. The exhibit uses three Panasonic PT-DX610ELKsingle chip DLP™ projectors with XGA resolution and 6500 lumen output from a 7thSense Delta server via Atlona extenders.

The centre also has an education space equipped with appropriate room control and AV facilities. The space can be divided into two – one half has a ceiling mounted Panasonic VW435NEA LCD projector with WXGA resolution, and the other half has an 87-inch Smartboard touch screen. Room control is by a Crestron MC2E controller.

AV technology is used to give visitors an enthralling introduction to the legend of the Stones

Haley Sharpe Design managed the production of the exhibition, with The Hub as exhibition fit-out contractor and Goppion as supplier of the display cases. Standing in the Stones was produced by Centre Screen productions, assisted by Studio Liddell and with a sound track by Peter Key. Content for the Meaning displays, the LCDs in the display cases and for the ticket office audio guide was produced by ISO Design, and the Landscape content was produced by Squint Opera.

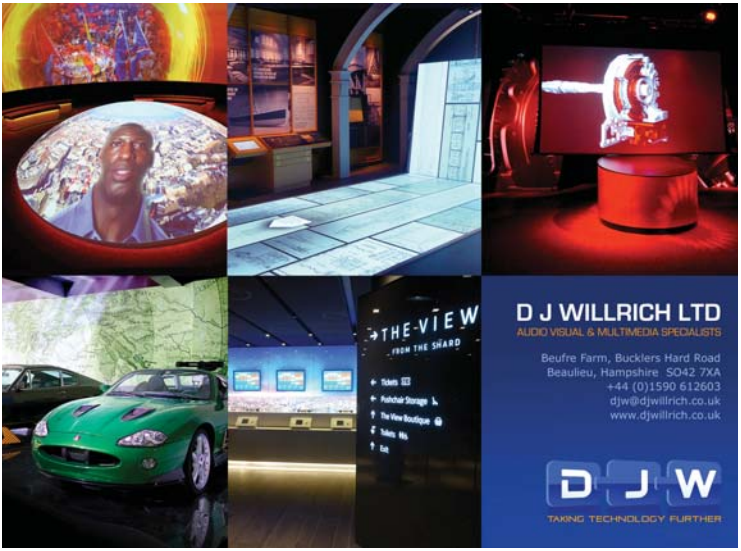
HOME RUN

Major League Baseball is celebrated at the new St Louis Cardinals Hall of Fame and Museum. Multimedia is used to showcase and explore thousands of stories, victories and heroes from the late 1800s to today. At almost 8,000sq ft (743sq m), the museum pays tribute to the great players through artefacts, storyboards, video and interactive exhibits."

Conceived and designed by PGAV Destinations, the museum walks visitors through the history of the Cardinals, from the early days of Sportsman's Park through today's celebrated stadium and team. Using a series of galleries, each stage of the museum is designed to reflect the historic stadium architecture and the period being explored, through changing photographic pallets, case designs, and park aesthetics.

Highlights of the gallery include the Broadcast Booth, where visitors can record their own sportscaster broadcast of thrilling Cardinals moments and the opportunity for fans to "interview" four recent Cardinals managers to get their different thoughts on challenging baseball topics. They can also explore touch screens, which display statistics in real-time of the current roster.

The museum showcases thousands of team stories, victories and heroes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IT'S A WRAP

A new exhibition at The British Museum unveils new discoveries from CT scanning, which tell the different stories of eight individuals who were mummified thousands of years ago.

The mummies selected for the *Ancient lives, new discoveries* exhibition cover a period of more than 4,000 years, from the Predynastic period to the Christian era, from sites in Egypt and the Sudan. The emphasis will be on revealing different aspects of living and dying in the ancient Nile valley through these eight individuals and also through contextual objects from the collection such as amulets, canopic jars, musical instruments and items of food.

Holovis worked with the museum's technical staff to install a mix of screens and projectors. These bring the exhibition's messages to life, creating engagement while being empathetic with the real life stories being told.

The new exhibition tells the different stories of eight people who were mummified thousands of years ago

Ancient lives, new discoveries follows the successful British Museum international touring exhibition *Mummy: the inside story*. For this, Holovis created a 3D 4K-resolution theatre that immersed the audience in the virtual unwrapping of a 3,000-year old mummy.

From 2011 to 2013 this exhibition travelled to venues in Virginia, Brisbane, Mumbai and Singapore, accompanied and supported technically by Holovis throughout the tour.

GOING LIVE

The ability to make instant, last-minute decisions for live events was the main requirement at The Works Theater at Carnegie Science Center in Pittsburgh when it recently needed an equipment upgrade.

The centre is dedicated to educating, entertaining and inspiring through programmes in science, sports and technology. To showcase demonstrations in The Works Theater's industrial setting, Alcorn McBride's V16 Pro top-of-the-line controller was chosen.

Doug DeHaven, AV specialist/robotics at Carnegie Science Center, paired the robust hardware of the V16 Pro with easy programming of QLab software as the multimedia cueing platform. "Our theatre has a lot of hardware," he says. "We have a 100-year-old 10ft (3m)-tall, 1.2 million volt Tesla Coil that we need to control. We also have a liquid nitrogen fog machine that takes a lot of control to make it work right. Plus two pan-tilt-zoom cameras and eight video projectors for the screens that ring the theatre. We need to run their content and turn the projectors on and off."

DeHaven specified, designed and installed the system and infrastructure and programmed the V16 Pro and touch interface. He also designed the communication protocol between the devices and systems. "We not only wanted the reliability and interfacing capability of Alcorn equipment but also the ability to make realtime show control changes for live events – we have multiple different shows in one space through the day," says DeHaven. "I found a way to marry Alcorn and QLab products to accomplish this." ●

The centre is dedicated to educating and entertaining through science, sports and technology programmes

Leisure – a vital part of today's shopping mall

Q&A with Nathalie Depetro, director of Mapic

Why are leisure and entertainment so important for retail areas today?

With online sales booming, traditional retail – whether in city centres or shopping centres – has adapted its offering and its marketing approach. The challenge now for those involved in real estate business such as Triple Five, Regions Group, Sonae Sierra, Wanda Group and Apsys, to name a few, is to redefine the idea of the shopping centre, and provide an enhanced customer experience. Customers will still visit shopping centres with the goal of purchasing, but they will also come to spend a day of fun, fellowship and leisure with family and friends. The shopping centre is a one stop shop for today's customers.

How does MAPIC showcase Retailtainment & Edutainment over three days?

Firstly, MAPIC focuses on retail real estate on a global scale. It's the only event where all types of development sites are represented: shopping centres, city centres, outlying areas, transit zones, factory outlets and leisure centres. This is a unique opportunity for leisure operators and leisure brands to meet with their peers and exchange best practices with international players and owners of different retail site types.

How will entertainment and leisure integrate in shopping centres?

In the previous century, culture, leisure and entertainment played a nominal role in the shopping centre strategy, and were perceived in some ways as merely philanthropic or charitable in nature. But in the wake of online competition, many savvy developers and shopping centre operators now perceive a major opportunity to increase footfall by rebranding the shopping centre as an event-space that encourages the public to stay longer (and buy more) while visiting the mall. Events can be focused on culture, leisure or education. ●

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In 2014, a dedicated RETAILTAINMENT zone will gather key players from the sector. Strategically located in Riviera 7, this unique area will feature pitching sessions and a café to network and do business in.

retailtainment

EAS 2014

EAS
Euro Attractions Show
Amsterdam 23-25 Sept. 2014

The exhibitors reveal what they'll be showcasing at EAS in September and what the hot topics of conversation will be

EAS is the only trade show focused exclusively on the attractions industry in Europe. Visitor numbers are expected to reach 8,500

The RAI Exhibition and Convention Centre in the beautiful Dutch city of Amsterdam will play host to the largest conference and trade show for the attraction industry in Europe – EAS 2014. Taking place from 23-25 September, this three-day event features more than 375 exhibitors showcasing the latest products and services for the industry. The event includes seminars and workshops focusing on recent developments in the industry, and is expected to attract more than 8,500 visitors from 80 countries.

"In 2009 we had one of our best shows in Amsterdam. With lots of projects going on in the north-western part of Europe, it's logical to come back," says Karen Staley, vice-president of IAAPA Europe.

In that year, EAS broke all attendance records. Show organisers are happy to be back in the RAI Exhibition Centre and look forward to reaching new attendance and exhibit numbers this year. With more exhibitors booked for the upcoming show when compared to last year, Amsterdam promises to become a spectacular event.

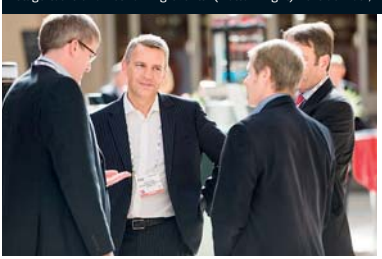
CATERING FOR ALL

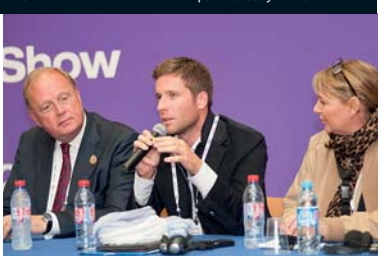
The European attractions industry continues to be very dynamic and strong. It leads in innovation and new developments in the industry, and many of the new technologies and products will be showcased at EAS.

Attendees will see products as diverse as large-scale rollercoasters and water-park products to the latest ticketing equipment, kiddie rides and plush toys. The EAS exhibition floor is extremely varied, with something for all types of facility in the attractions industry. In fact, it's the only trade show of its kind focused exclusively on the attractions industry in Europe.

EAS attracts all kinds of international attractions operators, from small to large attractions, indoor and out-

EAS is back in Amsterdam and will feature 375 exhibitors showcasing the latest products and services, educational seminars, back-stage tours and networking events. (Bottom right) Bart de Boer, Nicholas de Villiers and Amanda Thompson at last year's show





door parks, one day visit facilities and long-term destination and recreation attractions. Attendees come from theme parks, amusement parks, waterparks, indoor playgrounds, pitch 'n' putt golf facilities, aquariums, museums, camp-sites, cinemas, shopping centres and much more.

FUN AND EDUCATIONAL

This year's programme will offer exciting back-stage tours to various interesting attractions near and around Amsterdam. There'll be a vast list of educational seminars, as well as the special and fun networking events that are so popular with attendees. The conference will offer more than 24 hours of hands-on presentations by some of the most 'to-be-inspired-by' leading managers in the European attractions industry. Attendees will learn more about the latest trends in social media, pricing technologies, yield management, safety, sustainability, F&B concepts, water parks and much more.

In addition to the vast seminar programme, EAS will host a waterpark forum and an FEC/Indoor Playground Day. Both events will consist of seminars with speakers dedicated to the latest trends and developments in these industries. In the Benelux region, there are a great number of FEC and indoor playground attractions with many more new ones being developed in the upcoming years.

EAS offers attractions operators an inspiring and engaging opportunity to engage with fellow industry leaders from all around Europe and to learn how to improve their business and services offered to their guests. ●

DETAILS

For more information on EAS, please visit www.iaapa.org/EAS or contact the IAAPA Europe offices at Europe@IAAPA.org

WET 'N' WILD SYDNEY

Sydney's newest leisure attraction offers world class water rides and has 10 per cent of the population living within a 20-minute drive time. Julie Cramer finds out more about the thrills in store for visitors

Proslide's Bombora drops riders 15m before they surf up the face of a monster wave

Julie Cramer, journalist, Attractions Management

Not since the opening of the Olympic stadium in 1999 has there been such an exciting, large-scale leisure development to service the Sydney metropolitan area, according to Chris Warhurst, general manager of the new Wet 'n' Wild waterpark in Sydney.

Opened in December 2013 in Prospect, the new leisure development took 12 months to construct and lays claim to being the world's biggest waterpark, with more than 42 rides and attractions. "We have the world's first combination aqua loop and mat racer tower, the world's tallest Double SkyCoaster (a daring 250ft dry ride tower) and one of the world's largest surf wave pools," says Warhurst.

"When you're travelling at 120km an hour on our SkyCoaster – which at 75m is 10m higher than the sails on the Sydney Opera House – falling to earth and pulling 3Gs, you really know you're alive. It's terrifyingly wonderful," he adds.

Impressive numbers

The waterpark, which cost AUS$135m (US$125m, E90.4m, £74.4M) to construct, is expecting to attract up to one million visitors per full season (from September to April each year) and judging by the numbers that have raced through its doors since last December, it's well on target to achieve this. "The park is built to handle between 15,000 and 20,000 visitors a day and we've certainly been seeing those numbers since we launched," says Warhurst. "We opened on December 12th and by December 19th we'd sold 180,000 season passes."

The park's location in the most densely populated metropolitan area of Australia (25km from CBD – Sydney central business district) is helping to feed those numbers, although Warhurst's hoping to put the park on the interstate and international tourist map as well – with an expectation that around 20 per cent of visitors will come from this segment.

He says: "We're just 10 minutes away from the Olympic site and 2.5 million Australians live within a 20-minute drive of our park. With a national population of 25 million, that's one in 10 Australians who can easily access the park.

'We've designed the park to attract Sydney's different market segments, but we've also had visitors from as far afield as the UK and South America.

"The traditional tourist pathway in Sydney is the Opera House and the Harbour Bridge, but there's no reason why Wet 'n' Wild can't also be on that map. We're just 35 minutes from Sydney Airport's international terminal."

Ride selection

Once through the doors, it's unlikely that visitors will be disappointed with the array of wet attractions on offer. The park's owners, Village Roadshow, awarded equal mega tower contracts to waterpark suppliers Whitewater West and

The Wet 'n' Wild Junior Area features pint-sized versions of the park's iconic rides

ProSlide, with both companies supplying two main complexes each and ProSlide also supplying all 10 rides in the Wet 'n' Wild Junior area.

The first complex from WhiteWater West is the "world-first" Whizzard Twist™ (H2Go Racers), which takes eight mat-racer AquaTubes and winds them around each other, propelling riders into a race to the finish line. This ride is accompanied by four duelling AquaLoops™ (360Rush) for side-by-side entertainment. The second complex offers riders a multitude of experiences in a thrilling eight waterslide complex that features four MasterBlasters, called The Breakers, and Australia's first Rattler™ named the Typhoon.

From Proslide, the park installations include the T5, the first and only dark Tornado 60 in Australia, and the Bombora: TornadoWave, which Warhurst says is "arguably the most popular attraction in the park with the longest hang time and most zero Gs". Hybrid rides include the Double Bowlseye, featuring two BehemothBowl's – the first attraction of its kind in the Asia Pacific region – and the Tantrum, which features three Tornado 24 funnels.

> "We're 10 minutes from the Olympic site and 2.5 million Australians live within a 20-minute drive of our park. With a national population of 25 million, that's one in 10 Australians who can access our park"

Proslide's rides for the Wet 'n' Wild Junior area are pint-sized versions of the park's iconic rides. Warhurst says these include the "worlds first" Kidz Bowl, Australia's first Kidz Tornado 24, a four-lane Kidz ProRacer, three Kidz Pipelines, three Kidz Twisters and a Kidz MiniRiver.

New waves

Village Roadshow chose Australian wave technology company LatiTube for the construction of one of its wave rides. At 15m (50ft)-long with a 3m (10ft) curling barrel, it represents another world first, according to Warhurst.

"The design of the LatiTube allows for the ride surface to change according to a person's ability, because the surface flexes up and down – a three-year-old can boogie board and a pro-surfer can get tubed on the very same wave. It also has an enormous throughput," he says.

The waterpark also boasts Australia's biggest wave pool (by Murphy's Waves) at 8,500sq m (91,490sq ft), which offers guests a 2.3m (7.5ft) wave length. Warhurst says: "There are no sharks and no rip tides. We like to call it 'a beach ►

within reach', as people living in the western suburbs don't have easy access to the beach."

With this lack of access in mind, Warhurst says they've been working hard to develop its community links, so that youngsters nearby can use it on a regular basis, rather than as an occasional treat, and get to enjoy a beach lifestyle.

"There's a big surf lifesaving movement in Australia, with children's after-school and weekend clubs called Nippers. So we approached the organisation and gained permission to create an official Nippers club at Wet 'n' Wild.

"We now have more than 400 children enrolled and it's created a great community around the park, which of course brings both our business and the guests great benefits," says Warhurst.

Sustainable practices

Another particular feature of the waterpark is that it's been designed for optimum staffing levels to keep operating costs down. Warhurst says: "Australia has a very high labour rate when compared to countries like the UK and US. We worked with the designers to ensure that rides could have the maximum throughput using minimum staffing levels, without any compromises on safety of course."

Currently the park employs 450 staff on a seasonal basis, which includes 92 lifeguards and aquatic attendants.

Sustainability best practices have been applied both in construction and operations. All rainwater across the site is harvested and retained irrigation and general wash down. Neptune Benson supplied the filtration technology, which when used with perlite media saves more than 6.5 million litres per season compared to traditional sand filters.

WhiteWater West's 91m-long, two-person ride Typhoon is Australia's first Rattler ride

"There's a big surf lifesaving movement, with children's after-school and weekend clubs called Nippers. We approached the organisation and got permission to create an official Nippers club at Wet'n'Wild"

Wet 'n' Wild's user experience has been further enhanced with the use of waterproof RFID wristbands. Guests receive them on entry – either as temporary bands for day admissions or more robust silicon bands for the season pass holders.

The MyBand wristbands, using technology from Omni software, can be used to access the park, use lockers for a fee and make purchases from the catering and retail areas – dispensing of the guests' need to carry around credit cards, cash or tickets. Guests can manage their Myband account online, link in park photography to their social media accounts and easily pre-book experiences or cabanas or lockers for their next visit.

For a VIP experience, a certain number of higher-priced Fast Pass wristbands are on sale each day giving the user quicker, no-queue access to most of the slides and rides. At a cost of AUS$50 (US$46, E33.50, £27.55) on top of entry price, it's a premium offer that produces healthy returns for the business.

For greater comfort and luxury still, 50 exclusive cabanas are available throughout the waterpark on an all-day hire basis. Visitors can choose from a beach view cabana, a family cabana or a VIP cabana. The VIP offer includes a lounge with a television and stocked refrigerator, and access to a shared cabana concierge.

Covering a total area of 60 acres, Warhurst says there's plenty of scope for expansion at the site, and there are already various planning permissions in place for new developments – giving Wet 'n' Wild's domestic and overseas visitors even more reasons to come back. ●

ABOUT VILLAGE ROADSHOW

Village Roadshow Theme Parks (VRTP) is a wholly-owned division of Village Roadshow, which is Australia's largest theme park operator. The company has its headquarters on the Gold Coast, Australia's holiday playground, where it operates Warner Bros Movie World, Sea World, Wet'n'Wild Water World, Paradise Country and Australian Outback Spectacular.

The group also owns Sea World Resort & Water Park, a 405-room hotel adjacent to Sea World. Collectively, Village Roadshow's leisure and theme parks attract around five million guests per year – with its latest site, Wet 'n' Wild Sydney, looking likely to significantly boost those numbers.

Overseas, the company has a majority ownership in Wet 'n' Wild Las Vegas, but recently divested of its Wet 'n' Wild parks in Hawaii and Phoenix to raise capital for expansion in the UK, US and Australia.

In partnership with Guangzhou R&F properties, Village Roadshow's currently designing, constructing and managing a large marine park on Hainan Island in China, scheduled to open in January 2015.

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CONVENIENCE STORE

Improved guest experience, increased operational efficiency and a better bottom line. Liesel Tarquini explains the benefits of mobile web stores

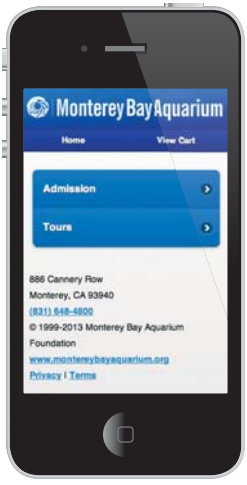
At first glance, mobile web stores for attractions may seem so 2011 trend-wise. I beg to differ – while it's been on the horizon for the past two years or more, mobile web sales continue to swell and we haven't yet seen a cresting point. This time last year, 45 per cent of American adults owned a smart phone. In one year, the number has grown a remarkable 11 per cent to more than half of all adults. Dig in even further to the core attractions demographic of 18- to 34-year-olds and that number surges to 80 per cent.

SMART USE

Smart phone ownership is only one facet of the mobile trend, however. We are, after all, far more interested in how potential guests and visitors are using their smart phones than we are in the fact that they own them. In the same one-year time frame, the number of smart phone users who report using their mobile devices to make a purchase is up 15 per cent to 34 per cent of users.

We know smart phone ownership and mobile purchases are growing across the board – it's the no-brainer of mobile. But there's also the question of perception when it comes to having a mobile web store. And it's not one to be taken lightly. Kathi Patton, senior systems analyst at the Monterey Bay Aquarium, reports perception was key to the venue's decision to implement a mobile web store: "When we were evaluating whether having a mobile web store was necessary, given we have a consumer store, our IT and web team came to us and basically said 'If you can't access it on your phone, it doesn't exist.'

"There's a definite perception among the under-40s group that everything that is anything can be done on your phone. And it's not just emailing and texting, it includes purchases large and small, including tickets to our aquarium."



In the past year, the number of smart phone users who report using their mobile device for a purchase is up 15 per cent, to 34 per cent of users

LINE UP

A simple truth is evident in any queuing line these days: nine out of 10 people in line will have their phone out to kill time. Many venues are taking advantage of this by placing signage with QR codes to their mobile stores along queue routes and even en route to the front gate from the car parks. In this way, mobile web stores have become the ultimate line-busting tool, surpassing self-serve kiosks in being both customer-friendly for guests and budget friendly regarding cost of ownership for venues.

Which leads us to additional facets in the mobile web gem: It's good for the customer experience, boosts your bottom line, opens up new avenues for business intelligence and is operationally smart. Let's unpack this statement, starting with the customer experience. When a visitor pulls out their phone while standing in line and orders a ticket, they improve both their customer experience and the visitor experience for the person behind them (with a lowly flip-phone). After all, if they're having to stand in line, the only conscionable thing to do is to offer them the opportunity to get out of it.

By enabling them to purchase a ticket when and where they want – in the car,

The Monterey Bay Aquarium in California added a mobile web store because its visitors aged 40 and under expected this type of service

When a visitor uses their phone while standing in line and orders a ticket, they're improving both their experience and that of the person behind them

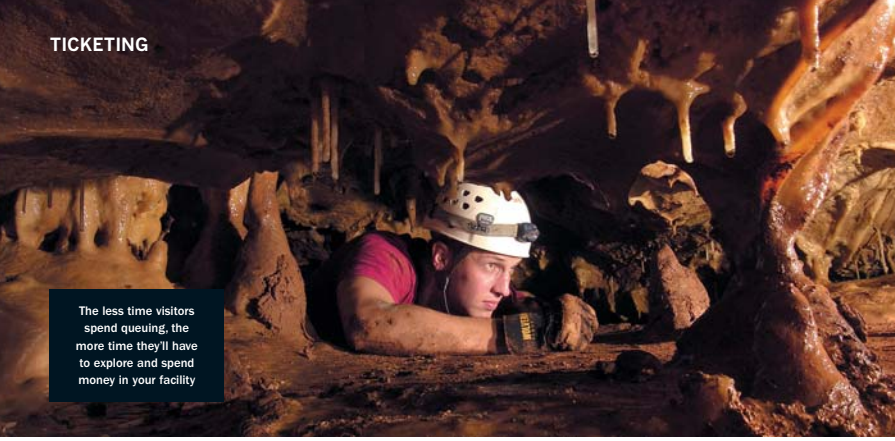
in line, in the loo – you're giving them control over their guest experience from the outset: deciding when that experience will start. And we all know the less time they spend in line, the more time they have to be tempted by the concession and retail shops and to tweet about how amazing the rides are (as opposed to how epic the line is to get into the park).

PROFIT PERKS

Mobile web sales also boost your bottom line, and not just as an additional sales channel. With less people in line, there's the potential for labour expense reduction with fewer employees manning the ticket booths. So long as a guest has their phone, they have their ticket, which means less staff time spent on ticket look-up and reprints. Did I mention there's no ticket printing for mobile tickets, thus saving on ticket stock and printer heads? Want to drive concession stand sales by offering a discount attached to the barcode on entry tickets? Your guests won't need to dig for their ticket stub – they always know where their phone is.

Then there's the opportunity for revenue through mobile convenience fees. Many venues drive sales to their mobile store by offering a discount on tickets purchased there, then offset (or even eliminate) the discount by charging a convenience fee. With regards to revenue, the favourite, of course, is to forego the discount altogether and keep the convenience fee. Let's be honest, if ever a dollar fee was worth its weight in gold, it's when it's used to ditch a wait in a line.

Aside from raising your operational IQ by reducing ticket window staff and being the ultimate line-busting tool, mobile stores add value to print ads by generating direct buying response when a 2D barcode is placed on the page. There have even been venues that report a reduction in customer service calls when



The less time visitors spend queuing, the more time they'll have to explore and spend money in your facility

Point Defiance encourages visitors to 'save money and time in line'

WHAT ARE MOBILE WEB STORES?

Consumer web stores are designed for desktop and laptop computers. Mobile web stores (and sites) are designed specifically for mobile devices – smartphones and tablets.

Mobile store functionality can be accomplished through apps or actual platform/phone independent sites.

There are differences in user experience between mobile and desktop stores. Mobile stores are streamlined and designed to work best on mobile devices: they fit mobile screens and often have print-to-phone functionality for tickets/barcodes. The difference is particularly clear when you come to a site that wasn't designed for mobile, so has very small print that users have to zoom in on to read.

The unexpected benefits of a mobile web store often come packaged in the data that it brings to you

a mobile web store went live. The reason why? Regardless of whether or not you have a mobile store, your customers will try to buy tickets from their smart phone. When your consumer web store doesn't display or function properly on their phone, call centres take the hit. In the end, you'll give them that fantastic online discount and be paying call centre staff for the privilege.

ADDRESSING THE ISSUE

Unexpected benefits to a mobile web store often come packaged in the data that it brings you. Any marketer knows that willingly given email addresses are a treasure, and the spoils abound when tickets are bought online, whether through consumer or mobile web stores. The Point Defiance Zoo and Aquarium recently realised they could leverage the email addresses collected from their mobile sales to send an online survey to guests after their visit, says Metro Parks Tacoma business and administrative services manager, Donna Powell.

"We used to pay a vendor to come on-site and do a two-week long survey of zoo guests. It was a really narrow window of feedback that we received. Now, two days after a mobile or print-at-home ticket is scanned, the purchaser receives an email in their inbox. In addition to questions about purchasing online, we're able to ask them all the questions we used to pay the vendor to ask. We're able to get that information on a real-time basis, 52 weeks a year, at little to no cost, and from a much broader audience."

This season, a major US theme park is implementing something similar with a bounce back offer that will be sent to visitors via email after their visit, encouraging guests to return to the park later in the year with discounts that can be used for special fall or winter events.

With operational savings, the potential for convenience fees and the value of business intelligence, mobile web stores provide a return on investment at a rate that leaves other more traditional sales channels in the dust. The Point Defiance Zoo & Aquarium recouped their mobile web store investment within two months of implementation: "Sixteen per cent of our total ticket sales were done online in 2013 and almost a quarter of our online sales were through mobile," reports Powell. That's 112,000 fewer visitors standing in ticket lines and a lot of potential to reduce overhead costs.

Powell concludes: "While decreasing staff costs is a goal, the ultimate driver for our mobile store was to improve the visitor experience and, without a doubt, we've done that." ●

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Mack rides for Russian theme park

Mack Rides has developed three attractions for a theme park near the city of Sochi, site of the 2014 Winter Olympics in Russia, as part of the development of the area into a vacation destination.

The rides feature a rollercoaster with four inversions, speeding at more than 100km an hour at times. Mack's also installed its Wild Mouse family coaster and a Mack tea cup ride at the dragon, fairies and castle-themed park.

attractions-kit.net KEYWORD

mack

Comfortable climate for zoo animals

The IMC Group has provided a temperature monitoring initiative to Paignton Zoo in Devon, UK to ensure animals are kept in the best possible conditions without compromising energy efficiency. The Hanwell energy monitoring system uses wireless technology to gather and transmit energy consumption data from 12 animal enclosures spread across the zoo's 80-acre site.

attractions-kit.net KEYWORD

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Neptune-Benson filters for Australian water resort

Neptune-Benson has installed an aquatic filtration system to help the Sheraton Mirage Port Douglas Resort save water and energy. The Sheraton Mirage Port Douglas Resort in Australia has replaced its two 14m-long dual sand filter systems because they were showing signs of wear. The filters were retrofitted with Neptune-Benson Defender aquatic filters. This model was chosen to produce the safest, cleanest, highest quality water possible, improve the sustainability of the hotel's pool network and reduce water waste, lower energy usage and lower maintenance costs.

attractions-kit.net KEYWORD

neptune

attractions-kit.net KEYWORD

mtfx

MTFX lightning bolts entertain queueing visitors

MTFX has created a high-voltage lightning bolt special effect for the waiting area of UK attraction Alton Tower's Th13teen ride. MTFX installed a Tesla coil to create electrifying high voltage lightening bolts at the thrills ride as part of a visual pre-show as the visitors queue.

"The thrill of this installation is that customers can be within inches of the bolts of lightning and pass by excited and unharmed," said Mark Turner, managing director at MTFX.

nWave launches two 4D attraction films

nWave Pictures has launched two new 4D attraction films, designed for theme park and attraction exhibitors worldwide. The films are based on the studio's fifth feature film, The House of Magic 3D, which opened last Christmas in theatres in France, Belgium, South Korea, Singapore and Italy.

The House of Magic: The 4D Experience and The Haunted Mansion 4D will be available this spring and Halloween respectively. Based on the animated characters from the feature film, and incorporating original material, the two 12-minute films are designed to maximise the impact of visual and special effects for the theme park audience.

To extend the experience, nWave has developed an interactive video game incorporating the film's main characters. Available in English, French, Dutch, German, Italian and Korean, it's compatible with iOS and Android devices.

attractions-kit.net KEYWORD **nWave**

attractions-kit.net KEYWORD
polin

Polin's ride is king at Santorini Water Fantasy

Santorini Water Fantasy, the US$3.25m (100m THB) waterpark add-on to the existing Santorini theme park in Thailand, opened at the end of 2013, with Polin's King Cobra as the main attraction. Featuring bold red, black and white scales, the King Cobra's impressive veneer extends along its massive 50ft (15.24m)-height and 260ft (790m)-length. The slide enables two riders to race along a circular path of twists, turns and surprises. Riders reach speeds of up to 32 mph (51 km/h) via water pressure of 3,875 gallons (14,668 litres) per minute through open and closed tubes.

Jupiter acquires Park Leisure

Edinburgh-based Jupiter Play and Leisure has acquired outdoor play equipment manufacturer Park Leisure Ltd. Based in Kent, UK.

With 30 years of experience in the play industry, Park Leisure's steel play and sports equipment will add to the natural timber product that Jupiter Play and Leisure currently supply, expanding its equipment offering.

attractions-kit.net KEYWORD
jupiter

Embed system at Al Montazah Park, Sharjah-UAE

Embed is the key POS and management systems provider for Al Montazah Amusement and Water Park, just opened in Sharjah-UAE. Al Montazah is Sharjah's first-ever family entertainment destination with 126,000sq m of fun, including a leisure park, green park and waterpark with multiple rides. The Embed system provides access control at the entrance of the park, simplifying guest experience with the full Debit Card solution.

attractions-kit.net KEYWORDS
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