

Attractions management

VOL 19 Q1 2014

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VOL 19 Q1 2014

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£27m landmark
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Czech Republic's first
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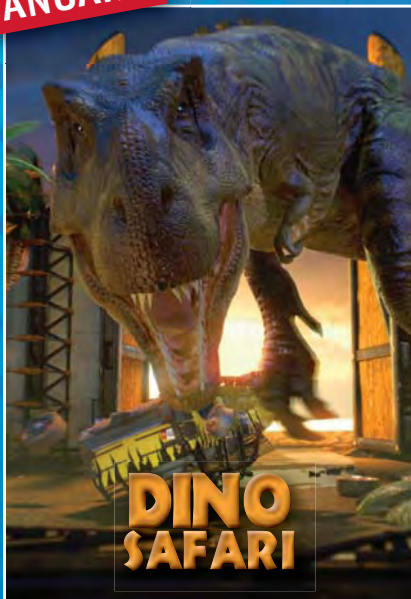
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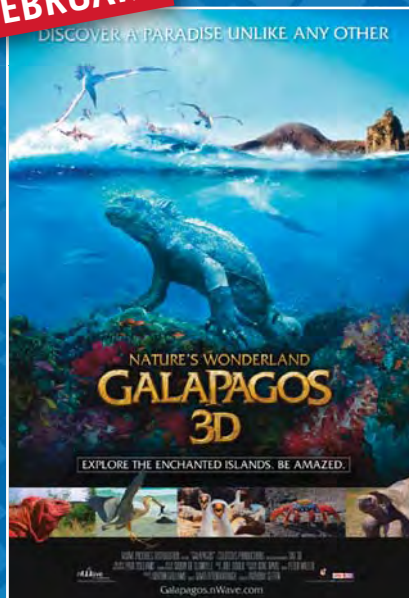
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CREATING WEALTH

Great companies like Merlin Entertainments generate whole ecosystems around themselves, with employees and their families, shareholders, investors, suppliers, stakeholders and customers benefiting from the wealth, energy and opportunity they create

In this issue of *Attractions Management* we pause to take a special, in-depth look at Merlin Entertainments, following its successful floatation in November last year and news it's been named New Company of The Year 2013 at the London Stock Exchange PLC Awards (page 30).

Great companies generate whole financial eco-systems around themselves and a look at the numbers gives clues to the extent of that developing around Merlin.

Although its value at floatation was around \$5bn, it's already added \$1bn to this, as well as reporting trading figures with an EBITDA of £390m and an increase in operating profit of 12.3 per cent on like for like revenue growth of 6.7 per cent.

Merlin employs 22,000 people and thousands who were shareholders at the time of the floatation

benefited from it. In addition, 3,000 employees have taken advantage of a sharesave scheme introduced in January.

In his report on page 32, Deloitte's Nigel Bland examines the organisations and individual investors who've benefited from involvement with Merlin. It's a long list, including investment vehicles such as Apax, Blackstone, CDC, CVC, DIC, F&C/Graphite, HPE, Kirkbi A/S and Pearson, the former owner of The Tussauds Group.

Two represented private money: DIC who invested for the crown prince of Dubai and Kirkbi for Lego's founders, while Bland says HPE was owned by BT's pension fund, so those with BT pensions will benefit from this slice of investment.

The money came from all over the world: current fund CVC raised 46 per cent of its investment in the US, 17 per cent in Europe and 16 per cent in the UK, with the rest coming from Asia, the Middle East and Canada, so Merlin's powers of wealth generation have benefited investors globally.

And the company generates value in other ways too. As a facility-based business, Merlin strikes property deals according to what's appropriate, and those involved – such as Prestbury, which did a sale and leaseback deal with

Merlin in summer 2007 – have seen the value of their covenants strengthened by the increase in value.

But with Merlin, the end-game is always the customer. Nearly 60 million people enjoyed the attractions last year and Varney told us he was adamant the floatation should be open to them, say-

ing: "Some people tried to talk us out of having a retail offer because of the huge administrative burden involved. But this is a company people really want to own shares in – we sold 12.5 per cent to the general public."

Those of us with long enough memories and faith in the industry recall the days when it commanded no respect among investors or governments and being called a Mickey Mouse business was an insult. How times have changed. Varney and his team have turned this right around and you feel they're really only just getting started.

Liz Terry, editor, twitter: @elizterry

Those of us with long enough memories and faith in this sector recall the days when being called a Mickey Mouse business was an insult



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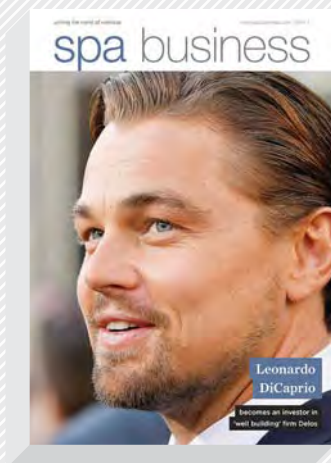


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Web gallery:

For suppliers of products and services in the worldwide attractions industry, turn to page 94

Theme park

Dinosaur theme park opens its doors in Australia

Palmersaurus – a dinosaur theme park – has opened within the grounds of the Palmer Cooloom Resort in Queensland, Australia.

The park was funded by Clive Palmer, the Australian billionaire who is also behind plans to launch a replica of the Titanic. It contains 160 dinosaur models, some animatronic, ranging from 2.5m (8.2ft) to 22m (72.1ft) in length and up to 10m (32.8ft) high.

Australia Zoo owner Terri Irwin (see profile in *Attractions Management* Vol 18, Issue 3 2013), who helped to officially open the park, praised the ambitious project and said it would bring massive tourism benefits to Queensland's Sunshine Coast.

Details: <http://lei.sr?a=j3Q6v>



More than US\$300m is being invested into the park

Construction starts on Fox World in Malaysia

In a groundbreaking ceremony in December, Twentieth Century Fox Consumer Products revealed its Malaysian theme park will be called Twentieth Century Fox World.

The attractions giant is undertaking the project in partnership with developer Genting Malaysia and it is slated to open in 2016.

More than \$300m is being invested in the 25 acre resort to create an immersive visitor experience, representing characters and stories from Fox properties, such as Ice Age, Rio, Predator and Night at the Museum. Experiences will include a mix of media-based rides, thrill rides, dark rides, children's rides and water rides. There will be associated shops and themed F&B outlets.

"Being the first of its kind in the world, Twentieth Century Fox World will be built on a grand scale that consists of unique and creative concepts featuring more than 25 rides and attractions of a cinematic nature," said chair and chief executive of Genting Malaysia, Tan Sri Lim Kok Thay.

Details: <http://lei.sr?a=b7h2K>

Grand Texas Theme Park gets opening date

Plans to bring a massive entertainment complex and theme park in Houston, Texas, US have taken a step forward after an opening date of Q1 2015 was set.

The new complex will consist of Grand Texas Theme Park, Big Rivers Waterpark, Downtown Texas, Wakeboard Lake, Baseball Stadium, hotels and a concert and event center.

The US\$118m (£76m, €88.8m) Grand Texas Theme Park will include not only a theme park, but also a water park, amphitheatre and paintball arena. Also included will be an equestrian centre.

Big Rivers Water Park should open for Q1 2015 and Grand Texas Theme Park in Q3 2015 with hotels and other accommodations coming online sometime between those two dates.



The US\$118m (£76m, €88.8m) Grand Texas Theme Park opens in 2015

Park representatives have said that they are looking into incorporating the design into the natural setting. The Montgomery tract, located in New Cairny is the site slated for construction.

Additional developments including restaurants would add a further US\$95m bringing estimates up to around US\$220m. The project is

slated to create more than 2,000 long-term jobs and more than 1,600 jobs during the construction phases. The Grand Texas Park is designed by US-based firm BDR Design Group, which most recently worked with entertainment franchise Rovio on Angry Birds Land Sarkanniemi in Finland.

Details: <http://lei.sr?a=K5G8j>

Six Flags expands share repurchase plans

Six Flags Entertainment Corporation has announced that its board of directors has approved a plan to allow the company to repurchase an incremental US\$500m (£307m, €367m) of its stock.

Since February 2011, the theme park company has repurchased nearly \$800m (£491m, €588) worth of its own stock.

"Our Board of Directors and management team are confident in the company's future growth prospects and our ability to generate strong recurring cashflow," said Jim Reid-Anderson, chairman, president and chief executive officer at Six Flags.

"In addition to our solid operational performance and nearly five percent dividend yield, an expansion of our stock repurchase plan provides us yet another way to deliver value for our shareholders."

Six Flags owns 18 regional theme parks across the United States, New Mexico



Six Flags will repurchase an additional US\$500m of its own stock

and Canada. The company is responsible for US\$1.1bn (£675m, €801m) in revenue and has been in existence for over 50 years.

Six Flags continues to expand into 2014 with its new thrill rides Zumanjaro: Drop of Doom and New England SkyScreamer, which will break height records. In addition the new Goliath

ride is being billed as the tallest, fastest, and steepest wooden rollercoaster in the world and will take riders up a 165ft (50m) lift hill, then plunge them down a 180 ft (54m), 85 degree drop.

Construction on the coaster began in September 2013. The ride is slated to open late May 2014.

Details: <http://lei.sr?a=6X5X7>

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Waterpark

Waterparks make waves in Europe

ALEATHA EZRA

New waterpark projects and additions continue to come online at a steady pace throughout the European market. Take, for example, the investment of €10m (US\$13.6m, £8.3m) that PortAventura made in its Costa Caribe Aquatic Park in 2013. Considered one of Europe's leading destination resorts, the park welcomed 3.8 million people in 2012 and anticipated a double-digit increase in attendance thanks to the expanded waterpark area.

The World Waterpark Association (WWA) has been following this trend in countries like Spain and the UK and sought to bring its popular educational programme to the Spanish market for the first time. To that end, the WWA hosted its Waterpark Symposium, offered in English and Spanish, as part of the Piscina Barcelona International Aquatic Exhibit. More than 55 waterpark developers and operators attended the educational and networking event, hearing ideas from international experts in the waterparks field.

Attendees who came from 13 countries, spanning three continents, to participate in this inaugural event enjoyed a variety of topics: Roger Currie of Neuman-Aqua looked at the need and process of upgrading the attraction content of waterparks, with emphasis on ageing waterpark facilities that aren't living up to their full revenue potential. Fred Bouvard, GM of the soon-to-be-launched Splashworld, shared ideas on creating and implementing a successful marketing plan. Damien Latham of Majid Al Futtaim Leisure discussed attractions management and shared strategies on how to create the safest environment for guests.

In addition, WWA president Rick Root discussed what's driving the success of the waterpark industry in the global market.

Aleatha Ezra, director of park member development, World Waterpark



Third Splash Kingdom for Texas

Splash Kingdom Waterparks will be adding to its portfolio of Texas, US venues after Greenville City Council voted to allow the creation of a park off Interstate 30.

The project – on Roy Warren Parkway – is expected to act as the anchor for the 63-acre Greenville Towne Center shopping development in the south of the city, with several restaurants reported to have expressed interest in opening nearby.

The site of the park is also adjacent to a planned 14-screen cinema.

Negotiations were ongoing for some time between Splash Kingdom; the Greenville Board of Development; and III:I Emerging Market Partners, LLC, the developers behind the Towne Center project. Ground was broken at the beginning of February, with the aim of opening in time for the third quarter of 2014.

It is reported locally, however, that the proposed



The new site joins an existing Wild West-themed park in Hudson Oaks

agreement only requires the park to be open by Q3 of 2015. It would feature an aviation theme, with at least one major waterslide, a lazy river, a wave pool, a children's wading area, offices, play structure with slides surrounded by interactive water toys, a food and

beverage facility, cabanas for rental, and pavilions for private parties and events and shops.

Splash Kingdom already operates waterparks in Canton and Hudson Oaks, both in Texas, as well as Shreveport, Louisiana.

Details: <http://lei.sr?a=s9C4k>

Waterpark to be added to Gaylord Rockies

The 1,500-room Gaylord Rockies hotel and conference centre in Aurora, Colorado, US is to include an extensive indoor/outdoor waterpark, according to an announcement by developer RIDA Development Corp. of Houston.

The US\$25m (€18m, £15m) plan envisages two water slides and a range of pools, plus a family play zone, a lazy river and a 'Colorado hot springs' experience.

RIDA says the 1.9m sq ft (176,500sq m) resort – situated on an 85-acre site to the east of Denver, costing at least US\$800m (€585m, £480.5m) and to be operated by Marriott International – is expected to attract more than 450,000 new visitors to Colorado annually.

The Gaylord brand focuses mainly on the conference

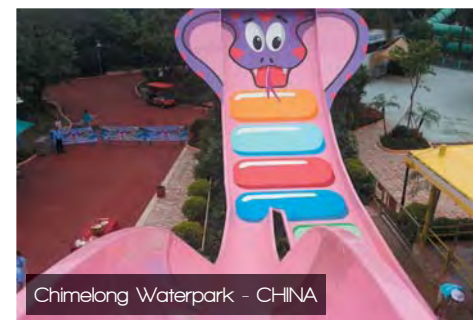
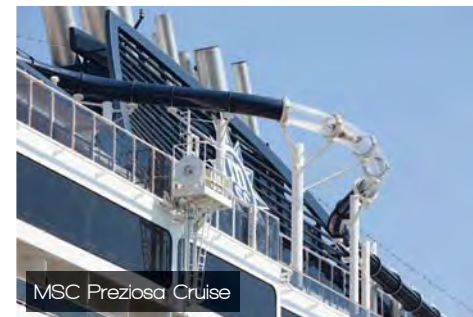


The resort and its waterpark are expected to attract 450,000 visitors annually

and convention business and RIDA president Ira Mitzner says: "A water amenity should encourage convention attendees to bring along family members, resulting in longer stays in Colorado."

The construction and design of the new resort will be in the hands of Minneapolis-based Mortensen Construction and HKS, which is headquartered in Dallas, Texas, US.

Details: <http://lei.sr?a=H7H4M>



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Picsolve announces new US\$13m investment

Picsolve has announced a US\$13m investment from Moonray Investors – part of Fidelity Worldwide Investment.

The image capture firm says the investment will help it achieve its vision for guest-experience photography in leisure.

With 20 years' experience, the company has expertise in designing end-to-end photo and video capture and distribution platforms to support retailing experiences, with interactive products such as GSX.

Picsolve showcased GSX and its digital product suite for the first time at IAAPA 2013 Attractions Expo in Orlando, Florida.

Guests to the Picsolve stand had the opportunity to experience the GSX digital solution, which enables clients to provide customers with fully integrated and seamless purchasing of photos and merchandise.

Picsolve offers ride photography and video, waterpark photography and immersive Green Screen Technology.

Details: <http://lei.sr?a=E3W5S>



The original ship sank after hitting an iceberg in 1912

Plans revealed for life-size Titanic simulation in China

A Chinese theme park, located in the landlocked province of Sichuan, has revealed plans to create a life-size replica of the Titanic, which will simulate the conditions experienced during the ship's tragic sinking in 1912.

Proposed by the Seven Star Energy Investment Group, the project will see the creation of a ship to house a simulation that will allow several hundred people at a time to feel what the disaster was like.

It is thought that the mock vessel will cost in the region of RMB1bn (US\$165m, £100m €120m) to create.

"When the ship hits the iceberg, it will shake, it will tumble," said Su Shaojun, chief executive of Seven Star. "We will let people experience water coming in by using sound and light effects... They will think, 'The water will drown me, I must escape with my life'."

Details: <http://lei.sr?a=7C2v6>

Merlin reports steady growth in 2013

Merlin Entertainments plc enjoyed a positive year in 2013, with the attractions company reporting like-for-like revenue growth of 6.7 per cent.

Merlin, which saw a successful launch on the London Stock Exchange in November, also posted an overall year-on-year visitor increase of 10.9 per cent across its range of attractions.

Other figures show a jump in EBITDA from £346m (US\$575m, €421m) in 2012 to £390m (US\$648m, €474m) by the end of last year, as well as an operating profit increase of 12.3 per cent.

The company has invested £95m (US\$158m, €115m) in its estate and says this has underpinned its growth.

In addition, Merlin cites the roll-outs of its midway attractions across the world last year, with further openings due, including Shrek's Far Far Away Adventure – a partnership with Dreamworks – which was announced in February 2014.



Chief executive Nick Varney is confident about the company's future

"With seven new attractions in 2013, we're making good progress towards our stated long-term aim of a geographically diversified business, generating revenues equally across Europe, the Americas and Asia Pacific," said CEO Nick Varney. "The flotation has given us the platform for the next stage

of development and we're better placed to continue to build this robust, diversified business, based on our iconic attractions and determination to deliver memorable days out for our millions of visitors in 22 countries, across four continents." Turn to page 30 for our Merlin special.

Details: <http://lei.sr?a=Z5s6c>

Shrek attraction coming to London

Merlin Entertainments has agreed a deal with Hollywood studio DreamWorks Animation to open attractions based on the Shrek movies, with next year's London opening scheduled to be followed by five more locations around the world.

The attractions will take visitors on an interactive adventure featuring characters from the franchise and will see an initial roll-out of the six attractions up to 2023, with the London opening expected during Q3 of 2015.

The announcement marks the first time Merlin has worked with DreamWorks to create a branded entertainment attraction based on a globally recognised franchise.



There will be an initial roll-out of six Shrek attractions up to 2023

The 2,000sq m (21,500sq ft) attraction will be based around a completely new story written by the DreamWorks team and will include characters from Shrek, as well as others from Madagascar,

Kung Fu Panda and How to Train Your Dragon. In addition, there will be a rotating exhibition area for various DreamWorks releases and a branded retail outlet.

Details: <http://lei.sr?a=M8w7A>



3D/4D ATTRACTION AND RIDE FILMS



A space rendez-vous with Rosetta

MARIA ZOLONTONOSA

Can science centres and museums build common tools to cover the most exciting 2014 space events at the European level? Ecsite and the European Space Agency (ESA) are taking on this task with the 'Hook up with Rosetta' campaign.



Launched by ESA in 2004 and now with 10 years of space travel behind her, Rosetta will become the first Space probe to accompany and observe a comet approaching the sun. Rosetta will also be the first mission to dispatch a lander on the surface of a comet's nucleus.

The Ecsite Space Group – a consortium of museums and science centres committed to advancing space science communication – devised the Rosetta campaign and the main tools for science centres and museums to cover the special rendezvous between Rosetta and her comet.

The tools include: an exhibition created by Cité de l'Espace, Toulouse, France, educational activities developed by Science Centre NEMO, Amsterdam, Netherlands and events led by Parque de las Ciencias, Granada, Spain. These resources will be accessible for free to all Ecsite members.

The exhibition from Cité de l'Espace features all digital files which can be printed and made into an affordable modular exhibition comprising 2D or 3D panels.

Workshops will help science centres and museums to interpret the idea of Rosetta's comet as a time capsule; the information Rosetta extracts from her comet promises insight into the origins of the solar system. Not bad for a single space probe.

Each event in the Rosetta campaign corresponds to significant moments in the mission. Events blasted off on 20 January 2014 when Rosetta woke-up after 957 days of space hibernation.

Maria Zolotonosa, project manager, Ecsite

Science centre seeks new home

An educational group looking to acquire an art museum in Aspen, Colorado, US, wants to transform it into a new not-for-profit science centre.

The Aspen Science Center has put on community programming for the last five years and is seeking to make science more accessible and to find a permanent home in the Old Power House building currently occupied by Aspen Art Museum.

Aspen City Council recently began a public consultation about what should happen to the building when the art museum leaves, with the Science Centre proposal likely to figure highly in those potential plans.

Should it be selected to lease the property, the Science Centre will fill the 7,200sq ft



The potential home for the science centre currently houses an art gallery

(668sq m) area with a rotating exhibition space, a kitchen area for classes blending science and cooking, a coffee kiosk, a science classroom space with sinks and bunsen burners, plus a workshop for using electronics.

The Science Center estimates the new building would come with about a US\$300,000 (£183,000, €219,000) annual operating budget, plus US\$3m (£1.8m, €2.2m) in start-up costs.

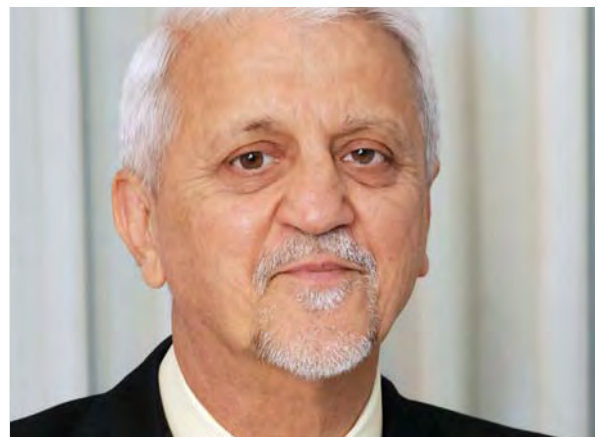
Details: <http://lei.sr?a=Q4K7a>

More science museums needed in India

The governor of the Indian state of Goa has called for the creation of more science museums, especially in rural areas, in order to give young people the chance to learn from scientific findings.

Bharat Vir Wanchoo was speaking at the 13th All India conference of heads of science museums and centres, where he highlighted that museums provide living evidence of the achievements of the country, while also playing an important role in education.

The governor was quick to highlight the important role that science can contribute towards the sustainable use of natural resources, suggesting that the creation of more



The governor highlighted science's contribution to sustainability of resources

museums would help to aid progression in the region.

The two-day conference was put together by the National Council of Science

Museums, in accordance with India's ministry of culture, department of science, technology and environment.

Details: <http://lei.sr?a=H7d7k>

London's Science Museum releases new app

London's Science Museum has released an iPad app that gives users the chance to explore 14 different interactive journeys specially crafted by its curators.

The Journeys of Invention app, developed with Touch Press, allows for the exploration of over 80 objects from the museum's collection, including journeys inside the

Apollo 10 Command Module and the Enigma Machine.

Users are given two free journeys, with 12 others being offered as an add-on package.

Details: <http://lei.sr?a=Q4K7a>

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Saving species and engaging people

JENNIFER FIELDS

The primary goal of zoos and aquariums accredited by the Association of Zoos and Aquariums (AZA) is to save species and engage people. As poaching has reached its highest level in decades and continues to increase, this goal is more important than ever before.



In 2012, poachers killed more than 35,000 elephants for their tusks. The US is the second-largest consumer, behind China, of illegal animal products like elephant ivory, rhinoceros, and tiger bone.

Recently, the US Fish and Wildlife Service (USFWS) destroyed around six tonnes of elephant ivory that had been seized over the years by the government. This sent a clear message to wildlife trafficking criminals that the US will disrupt and prosecute those who prey on and profit from the deaths of elephants.

AZA supports a US ban on ivory trade and is partnering with USFWS to develop a creative use for the crushed ivory to educate the public about the threats that poaching and illegal trade pose to elephants and other at-risk species.

In the past century, four of nine tiger subspecies have also become extinct in their natural habitats. The Amur, Malayan and Sumatran tiger subspecies managed through the AZA Tiger Species Survival Plan® (SSP) are believed to number fewer than 500 in the wild as the result of poaching and habitat loss.

Since it first launched in January 2012, more than 30 AZA-accredited zoos and aquariums and related organisations have contributed more than US\$150,000 (£91,000, €110,000) to the AZA Tiger SSP Conservation Campaign.

AZA-accredited venues attract more than 180 million visitors annually, putting them in a position to help stop the demand for products from the illegal wildlife trade.

Jennifer Fields, communications coordinator, AZA

Plans revealed for New Doha Zoo

A masterplan design has been revealed for the New Doha Zoo in Qatar, with the 75-hectare attraction planned to provide visitors with a sustainable focus on the natural and climatic features of three different continents.

The project is the culmination of work between the Arab state's Public Works Authority (Ashghal), newly-appointed construction supervisors KEO International Consultants and HHCP+PJA, with the total cost of the development thought to be in the region of QR230m (US\$63m, £38.6m, €45.9m).

The zoo will feature an 'Africa Safari' section, which is characterised by savannas, while an 'Asia Woodland' will feature mountains and forests. A 'South American Rainforest' quadrant will be typified by dense, rain-soaked forests, with visitors



The new attraction will be built in Doha, Qatar's capital city

being given the same sensory experiences often found in sub-tropical climates.

Visitors will be able to explore the park using different safari methods, varying from car trips, trekking on foot through safe passages and outings by boat.

The attraction will also feature an educational

training centre for animal care, while also allowing researchers and practitioners to gain first-hand experience of working with both the zoo's animals and exhibits.

Construction is expected to begin this year, with completion scheduled for 2017.

Details: <http://lei.sr?a=C7s2d>

Penguin colony comes to Birmingham, UK

Birmingham's National Sea Life Centre, UK, is to see the opening of a new £2.5m attraction in time for Easter. Penguin Ice Adventure is being designed to give visitors a unique opportunity to come face-to-face with a colony of Gentoo Penguins.

Visitors will be taken on an expedition into the Antarctic landscape, where they can watch from a number of viewing platforms as the birds dive and play in their icy environment.

There will also be the chance to see the penguins being fed three times a day and to join in a range of interactive experiences.

Amy Langham, general manager at the centre, said: "Penguin Ice Adventure promises to be very different.

"The birds - which are classified as near-threatened on the International Union for



The Antarctic and its penguins are coming to Birmingham in 2014

Conservation of Nature Red List - have been bred together at Sea Life Centre Melbourne as part of our Breed, Rescue, Protect programme.

"We want to inform and educate our visitors about the hardships that sea and marine creatures face, whether

as a result of global warming, threats from mankind or natural occurrences, but at the same time we want people to meet this colony and get to know the penguins as they thrive in their carefully created habitat."

Details: <http://lei.sr?a=S2G6C>

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Museum & Gallery

Museum of Science Fiction planned for Washington DC

A new museum exploring the world of science fiction is being planned for Washington DC, US, expected to open at some point in 2017.

The Museum of Science Fiction will cover a broad sampling of science fiction across literature, television, film, music, video games and art.

The museum is going through a three-stage construction process, with the facility being introduced to interested parties through an online medium, with a 3,000sq ft (279sq m) preview museum being created before the final facility is put together.

Details: <http://lei.sr?a=Q6h6y>



The reopening comes as part of a rebranding scheme

US\$69m renovation work on Queens Museum completed

The Queens Museum, New York, has officially reopened following US\$69m (£43m, €51m) worth of renovations, which have seen the doubling of museum space, the addition of new gallery and exhibition areas, as well as a new artistic facade and an additional educational component being installed.

Grimshaw Architects – with Ammann and Whitney – renovated the 105,000 sq ft (9,754sq m) museum in order to integrate the attraction with its location in Flushing Meadows Corona Park.

The reopening comes as part of a rebranding scheme in which the attraction has changed its name from the original Queens Museum of Art, as it bids to attract 200,000 visitors a year in its new format.

The work has allowed Queens to cater for an expanded permanent collection of art and cultural exhibits, while there are also spacious temporary galleries and expanded educational and public events spaces.

The museum provides art exhibitions, while also placing focusing on the educational benefits of public programming.

Details: <http://lei.sr?a=x4g4Z>

Ronaldo opens Ronaldo museum

Footballer Cristiano Ronaldo has announced that he is opening a museum devoted to himself.

The museum will be located on the Portuguese island of Madeira, where he was born, and be used to showcase memorabilia from his career, including trophies, footballs and photographs.

Ronaldo attended the opening on 15 December in person and called the “CR7” Museum a ‘gift’ to his supporters.

Ronaldo began his footballing career as a youth player at local club Andorinha, before moving to CD Nacional.

In 2003 he was signed for Manchester United for a fee of £12.24m, and in 2009 became



Cristiano Ronaldo opened his self-dedicated museum as a ‘gift’ to his fans

the then most expensive football player in history when he moved from Manchester United to Real Madrid in a deal worth £80m.

Ronaldo is still at Real Madrid, having recently

signed a new contract with the club until 2018.

“I have room for more trophies,” said Ronaldo speaking at the opening. “If the Ballon d’Or comes, there is room.”

Details: <http://lei.sr?a=2Q9D5>

Madame Tussauds coming to Singapore

Merlin Entertainments has announced that it will take over the management of Sentosa’s well-known Images of Singapore (IOS) attraction, while also introducing its own iconic Madame Tussauds to Asia’s leading leisure destination.

Merlin has entered into a partnership with resort managers the Sentosa Development Corporation, to help upgrade the existing attraction and also install a new leading feature to the resort island in Singapore.

The two attractions will run side-by-side, with Madame Tussauds Singapore opening at Imbiah on Sentosa in 2014.

Merlin is to introduce a significant investment programme to relaunch IOS as an exciting, contemporary world-class attraction, which can be enjoyed by both local Singaporeans and international visitors of all ages.

Madame Tussauds Singapore will be Merlin’s first Singapore-based attraction, with the



Madame Tausads is opening its first location in Singapore on Sentosa

facility allowing visitors to meet and to interact with their heroes in waxwork form.

The attraction will be the first Tussauds outside of London to have its own ride.

“Asia is currently the most important growth area of the world for Merlin, and we are delighted to be working with the Sentosa Development Corporation to not only rejuvenate and re-establish IOS, but also to bring one

of our best known attractions to Singapore – Madame Tussauds,” said Meike Schulze, Divisional Director of Merlin Entertainments plc Midway Attractions in Asia.

Madame Tussauds Singapore will join other popular and successful Madame Tussauds in Asia, with existing attractions currently in Hong Kong, Shanghai, Tokyo, Bangkok and Wuhan.

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

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Edinburgh Castle named top UK heritage attraction

Edinburgh Castle, Scotland, UK, has been named the top UK Heritage Attraction for the third year in the British Travel Awards.

The historic attraction was the only Scottish attraction to make the shortlist and is Scotland's number one paid-for tourist attraction, attracting more than 1.2 million people a year.

"To win this award three times in a row confirms that Edinburgh Castle's fascinating history, dramatic location and panoramic views have an enduring appeal for visitors of all ages both in the UK and around the world," said Fiona Hyslop, cabinet secretary for culture and external affairs.

Details: <http://lei.sr?a=x7Y7W>



The palace generated £11.6m during the tax year

Buckingham Palace urged to become more profitable

British MPs have criticised the Royal Household for mismanaging its finances, calling for Buckingham Palace, London, UK to be opened to paying visitors more frequently to help balance the books.

The Public Accounts Committee found the Queen received £31m (\$51m, €38m) from British taxpayers in the 2012/13 financial year for official duties, but Buckingham Palace required a further £2.3m (\$3.8m, €2.8m) from its reserves due to overspending, "leaving a balance of only £1m (\$1.7m, €1.2m) at 31 March 2013 - a historically low level of contingency."

The committee, chaired by Margaret Hodge, concluded the Royal Household is "not looking after nationally important heritage properties adequately."

Its report stated that in March 2012, 39 per cent of the royal estate was "below what the household deemed to be an acceptable condition," adding that Buckingham Palace needs "to get a much firmer grip" on how it plans to arrange and pay for repairs.

Details: <http://lei.sr?a=H3v8Z>

Stonehenge opens visitor centre

Global icon Stonehenge, UK has a new exhibition and visitor centre, aimed to transform the site from a quick stop off and photo opportunity into an immersive visitor experience, giving a sense of what it was like to live back in the Bronze Age. (Turn to page 48 for our full report)

This marks the first phase of English Heritage's £27m project to transform the visitor experience of the site, which receives one million visitors each year.

Visitors can now see original artefacts which Neolithic and Bronze Age people used on a daily basis, as well as two 14th century manuscripts, which are among the earliest known drawings of the monument in existence.



The new Stonehenge visitor centre is 2km from the iconic stone circle

The new exhibition also includes the first ever reconstructed face of a 5,500-year-old man, who was found buried in a long barrow 1.5 miles from Stonehenge.

A 360-degree virtual experience lets visitors stand in the stones and allows them to experience both winter and summer solstices.

Details: <http://lei.sr?a=f6t5i>

Mail Rail could get lease on life as attraction

Plans are afoot to take a disused underground mail line in London, UK and transform it into a tourist attraction.

The London Post Office Railway – known as the Mail Rail – was approved by an Act of Parliament 100 years ago and in its heyday would carry 12 million postal items a day between Whitechapel and Paddington, but it was shut down – bar a skeleton staff for maintenance purposes – a decade ago.

Plans include using a converted mail train to carry passengers through the 6.5m (10.5km) underground network in tunnels 7ft (2.1m) in diameter to create a mail rail experience as part of a new £22m British Postal Museum charting 400 years of social and communications history.

The proposals submitted to Islington Council would see visitors board trains at Mount Pleasant and ride a section of the tunnels. For the project to be successful however, the team behind it need to raise



London's Mail Rail tunnel could be brought back as a tourist attraction

£2m from sponsors by the end of March to secure Heritage Lottery Funding.

New York's High Line saved an abandoned 1930s elevated railway and reinvented into a linear park, which is one suggestion for the disused Royal Mail tunnel. In 2012, London Mayor, Boris Johnson launched a green infrastructure competition which was won by London-based architectural firm Fletcher Priest,

which suggested an underground mushroom park could be built along the length of the disused tunnel.

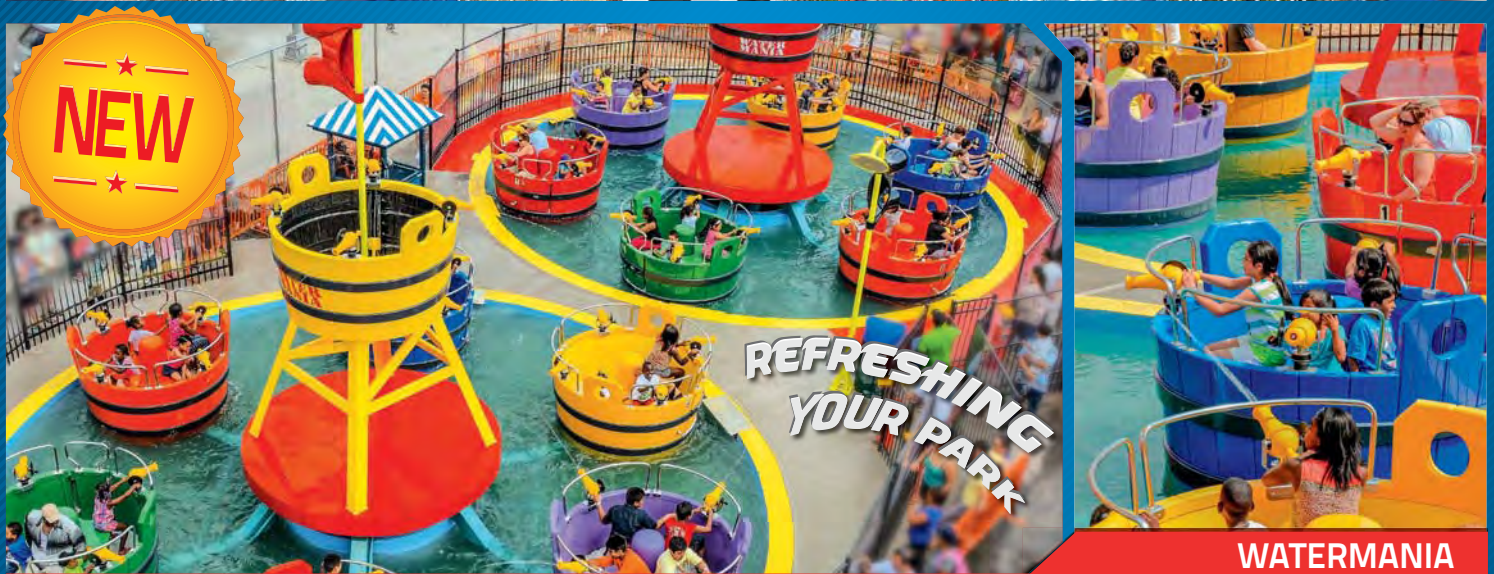
Islington Council is expected to make a decision on proposals next month and if approved, the attraction would be fully open by 2020.

More information on linear parks is available on p17 of the *Leisure Handbook 2014* available here: <http://lei.sr?a=J3VoM>
Details: <http://lei.sr?a=S3K9E>

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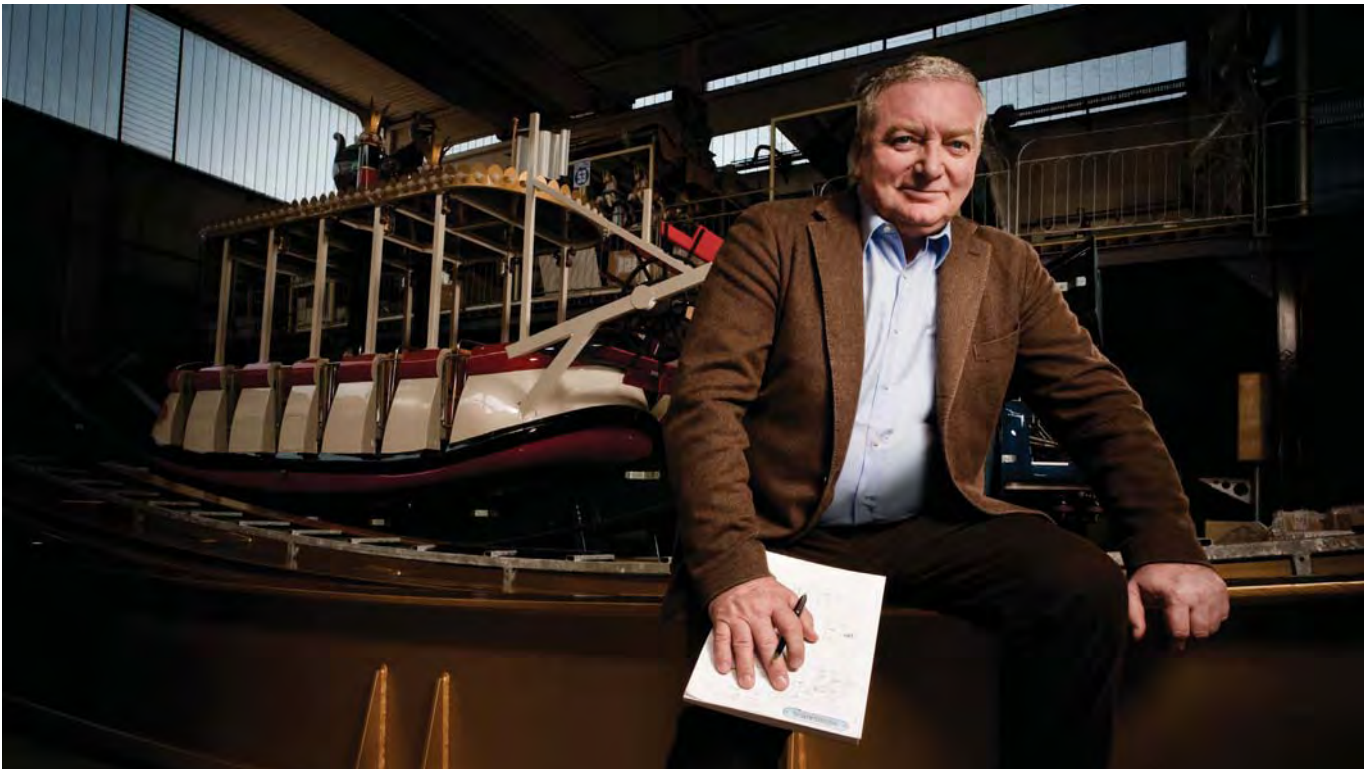


www.zamperla.com

ALBERTO ZAMPERLA

The Italian entrepreneur is getting international attention for his plans to build a new cultural visitor attraction in the heart of Venice. He talks to Liz Terry

Liz Terry, editor, Attractions Management



Zamperla wants share his passion for Venice and its history through a new attraction, which is proposed for San Biagio Island

Alberto Zamperla's passion for Venice is infectious – the history, politics, philosophy and sheer energy of the Venetians through the centuries have captivated and inspired him.

When news broke about his audacious proposal to build an attraction in Venice, the world's media pounced and magazine and newspaper headlines screamed "theme park plan for Venice", with reports rather disparagingly calling Zamperla – head of third-generation Italian ride manufacturer Antonio Zamperla SpA – a 'fairground designer'.

Historians were up in arms at the prospect of a theme park inappropriately located in this jewel of a city, but the reality of Zamperla's plan

is different in intent from the media scaremongering and he puts forward a robust case when we sit down to talk.

His dream is to create a cultural hub to welcome visitors and celebrate the history and culture of Venice. "Lots of people don't understand how the city came to be", he says, "so we plan to tell the story of Venice and to celebrate and record its culture and traditions".

If permission is given, the attraction will be built on San Biagio Island in the Venetian Lagoon, just a 300m, eight-minute boat ride from the city's rail and cruise ship connections.

Previously used as the location for a rubbish incinerator, the land – which is owned by the state of Italy – has lain unused and badly contaminated for

many years, to the point that Zamperla estimates he would need to spend €8m (US\$11m, £6.5m) to clean the site before development work on the attraction could begin.

THE WAY AHEAD

His first challenge is to establish a need: with so much history on view, surely a visitor attraction would be an unnecessary and artificial intrusion? But Zamperla argues that in spite of its splendours Venice fails to offer an experience which meets the needs of today's tourists and that the city is sorely in need of a gateway attraction.

"Where can you go in Venice to learn about its history?" he says. "The Italians love history – Venetians love history –



The City of Venice has been welcoming tourists for a thousand years to enjoy its mystery and charm. They'll have the opportunity to enjoy a new addition, if Zamperla's plans for a cultural hub and historical attraction (below) come to fruition in 2017



and we want to give them the chance to find out more about this amazing place.

"Imagine a city that for 1,000 years has never been occupied – and furthermore, has been democratic the entire time," he says. "This is something to celebrate, because Venice shows the power of people working together and there are great lessons – that are still relevant today – to be learned from the past.

"For example, when a new Doge [chief magistrate] came to power in Venice, he was democratically elected and at the time of his appointment, the Venetian commissioners assessed his wealth. When he died, they estimated it again and if it had increased, the difference was confiscated by the government. This meant that if the Doge benefitted

financially from his time in power, his family had to give the money back: what a great example to politicians today! We want to share this kind of history."

THE WAY FORWARD

Initial planning permission is being sought for the creation of a four-hectare park which will be divided into three areas, as Zamperla explains: "The first area will be dedicated to the Venetian Laguna (Lagoon), which was very important in creating the way of life of the Venetians and protecting the city. We want to look at its strategic importance and also its traditions: inside the Laguna there are 50 different methods of fishing, for example, and we need to record them for posterity."

The second area will focus on the history of Venice in past centuries, when it played a pivotal role in Europe, and will feature subjects such as the Battle of Lepanto in 1561, when the Republic of Venice, as a member of the Holy League, took on and defeated Suleiman the Magnificent.

The third area, says Zamperla, will be about Venice's famous Mardi Gras. "We're going to celebrate it all year round," he says. "There will be people with masques and music and a recreation of the magic of the festival."

Very much on-trend, there will also be a big wheel, giving views of Venice and – says Zamperla – the development will have a substantial theatre "because Venice is missing a theatre". ►



The attraction would include three areas: one explaining the history of the Venetian Laguna (Lagoon), the second a celebration of the history of Venice in the past centuries and the third, a year round Mardi Gras – the classic masqued Venetian festival

- The project must be self-financing, so will include paid-for leisure attractions along with the heritage and museum elements, with ticket prices yet to be set.

Phase two of the scheme – another carrot for the planners – will involve the redevelopment of a nearby area of wasteland as a garden: “In Venice there’s a lack of places to relax that are green and beautiful,” says Zamperla, “We’ll rent the land from the state, create a garden, take care of the security and cleaning and open it for public use. Running a city like Venice is very expensive and the city’s only park is dirty and badly run. Ours will be beautiful.”

UNIVERSITY PARTNERSHIP

With so much historical accuracy required to realise the vision, Zamperla turned to academia for support, agreeing a partnership with Professor Carlo Carraro, the magnifico rettore [chancellor] at the Ca’ Foscari University of Venice. The project is a joint venture between Zamperla and the university.

This tie-up gives the scheme heavy-weight backing, which it appears will be necessary as Zamperla prepares to do battle with those who are set against it: “Objections are coming only from the intellectuals,” he says. “After we went public, those organisations whose aim is to keep traditions alive and to stop things changing came out against it – but we’ve also had good support for the project, so we’re going to press on and present it.”

The scheme is well advanced for this reason: “I had the vision two years ago,” says Zamperla, but we had to keep it a secret, because we didn’t want to give our enemies time to attack. Politicians

are not brave, they wait for the opinion of the public – it’s frustrating.”

I ask if the project has a champion within the government? Zamperla says it does, but would rather not give names, although the fact it’s estimated to have the potential to create 500 jobs and involve an investment of €80m (US\$110m, £66m) may go some way towards persuading them.

PLANNING PERMISSION

“We’re building this cosmopolitan centre in an area that was a dump – a brown-field site,” says Zamperla. “Under the city’s zoning I can create an amusement development there and it will improve

Venice is one of the only
cities where planners
could contemplate
delivering half a million
trips a year by water taxi

the area. We don’t need planning permission to do that, just a building permit to go ahead with it.”

The biggest potential obstacle is the unknown nature of the ground and the not insignificant matter of the cleanup costs: “At the moment, we’re checking how much cleaning we need to do and how much weight we can put on the land,” says Zamperla. “As I said previously, we estimate it will cost €8m just to clean the ground, but if we discover it’s going to be more than that, unfortunately that will scupper the project and we won’t be able to do it.

“We’re getting on with construction drawings,” he says. “We want to push on with the scheme and do it quickly. The plan is to open for Mardi Gras 2017 if things go well, it would be a two-year project – a year to create the plan and a year to build it, because construction takes longer here, for obvious reasons.”

HOW MANY VISITORS?

Zamperla’s estimate of 500,000 visitors a year will be based on all transportation being done by boat, given the island’s proximity to Venice’s transport hub: “Over 20 million tourists visit Venice each year,” he says, “three million of these come by cruise liner and will disembark 300m from us, so 500,000 visitors isn’t a big percentage of that total. We believe it’s achievable.”

Venice is one of the only cities in the world that could contemplate delivering half a million return trips a year by water taxi, and Zamperla has done a deal with the water ferry operator: “We have an agreement with them to bring people by boat – this is the company from the municipality that’s in charge of water transportation,” he says. “They’re happy with the deal, as it will help them optimise their capacity and yield.”

I ask Zamperla how disappointed he’d be if the Venetian project doesn’t go ahead and he’s both philosophical and realistic, saying: “I passionately believe in the project and it would be a dream to make it happen, but I’m also a realist, and if at any time it becomes unviable, we’ll walk away from it.” Whether the project goes ahead or not, it’s exciting to see attractions industry businesses stepping up with such ambitious ideas and not being afraid to go after them. ●



Elsewhere in the Zamperla empire

Antonio Zamperla Spa is a theme park industry veteran, heading up one of the only truly global ride design and manufacturing businesses.

The company has a network of eight offices around the world and in addition to designing rides for the major theme park operators, also has the contract to manage two attractions in New York City, the Victorian Gardens in Central Park and – since 2010 – the world famous Luna Park in Coney Island.

I suggest to Zamperla that these two management contracts are a well-kept secret and he explains the twists of fate which brought his business to be working with [now former] New York City mayor Michael Bloomberg.

“My son went to the US to open an office,” he says, “and came to the attention of city officials who invited us to tender for the management of Victoria Gardens.” The company won the bid and city officials were sufficiently impressed to issue a further invitation when the tender came up to run the newly reconstructed Luna Park in 2010.

“We encountered protests when we won the Coney Island contract,” says Zamperla. “Some Americans said ‘why do we want these Italians here?’ But Bloomberg said he believed we’d do a good job – he stood by us.”

“Coney Island was the site of the first Luna Park in 1903,” says Zamperla. “It’s

an historic location. The Luna Parks were a romantic notion from the novels of Jules Verne and are based on the mystery of the trip to the moon: the opening of the Luna Park in Coney Island was followed by others around the world, many of which are still operating today.”

The original park burned down and closed in 1944 to be replaced by other amusements. Then in 2005, the Coney Island Development Corporation published a revitalisation plan, with the intention of preserving and growing the historic amusement area and creating a mixed-use neighbourhood with retail and housing. “Brooklyn was the borough with the highest



Company founder Antonio (3rd from left) and son Alberto, on his right

▲ The Italian company won the bid to manage the reinvented Luna Park at Coney Island in New York

unemployment,” says Zamperla, “and Bloomberg wanted to do something to help, by rejuvenating Coney Island.”

By July 2009, the City had passed a Coney Island re-zoning plan, enabling the development of the brand new Luna Park which opened in May 29, 2010. It has 19 attractions, all designed and manufactured by Zamperla.

But the Coney Island contact wasn’t all plain sailing: “When we arrived, people had been putting up buildings without permits and we had to reclaim the area, install metres and take over the bars, restaurants and amusements on the boardwalk,” says Zamperla.

“There were protests and teething problems with local troublemakers and the police had to guard the area at night, but things gradually improved and today the area has been transformed.”

Hurricane Sandy hit hard: “We were overwhelmed by dirty, salty water and sewage,” says Zamperla. “We realised we’d have to rewire and replaster to avoid problems cropping up in the season – and we’d it done by March.”

Today, Luna Park continues to develop, with new investment planned. Zamperla says: “We’re adding a thunderball rollercoaster next. It’ll be open by May 2014 for the new season.” ●

MERLIN MAGIC

From small beginnings, Merlin Entertainments has become a hugely successful global brand, floating on the London Stock Exchange last November at a value of £3.5bn. We look at the company's meteoric growth since 1999 and talk to CEO Nick Varney about the future

INTERVIEW

Nick Varney

CEO, Merlin Entertainments



Varney says two-thirds of his time will still be focused on the core business and new projects

How did you feel immediately after the IPO of Merlin?

Standing on the balcony at the London Stock Exchange, with the clock counting down, was a very emotional moment. Naturally, we were all delighted with the response from investors and the media.

We were a private-equity owned company for 14 years, which was brilliant, as no other funding model could have helped us develop the business in the way that we have. But I always believed it was our destiny to become a public company. We've never made a secret of the fact that we wanted to be market leader.

Did it go the way you expected?

It has pretty much been reported as a textbook IPO. We were nine times oversubscribed at the price we floated at, and the value of those shares rose by around 10 per cent shortly after launch. That's where it should be.

COMPANY FACTS

- Based in the UK, in Poole, Dorset
- 22,000 (including seasonal) employees worldwide
- 59.8 million visitors worldwide in 2013
- 3 Operating Groups – Resort Theme Parks, Midway and LEGOLAND Parks – all supported by the Merlin Magic Making creative team
- 100 attractions, 10 hotels and 3 holiday villages in 22 different countries, on 4 continents

You don't want the share price to rise so quickly that it looks as though the shares were undervalued – neither do you want them to be overpriced. I think we were well advised.

Some people tried to talk us out of having a retail offer because of the huge administrative burden it entails. But this is a company that people really want to own shares in – we sold 12.5 per cent to the general public.

Will the floatation change the business?

Day to day not at all – it's business as usual. The important thing is that it will enable us to focus on long-term ownership and investment in our brands. With private equity backing, there's always a shorter term view, with businesses being bought and sold every three to five years. If we're investing \$200m in a new Legoland park, for example, we really require a much longer-term perspective.

What are the other benefits to Merlin becoming a public company?

The general public are very familiar with our brands – but they may not have



CEO Nick Varney describes the IPO at the London Stock Exchange in November as 'an emotional moment' in the company's history

"The leisure industry has long suffered from a perception of being a Cinderella industry, and it's been massively undervalued as a key contributor to the economy – so I hope Merlin can become something of a sector champion"

heard of Merlin Entertainments. The IPO will have greatly raised our profile and visibility as a major public leisure company (Merlin Entertainments is now listed in the FTSE 250).

This means we're more able to converse with key decision makers – in government for example – and talk about pressing issues such as tourism taxes, investment, jobs and training.

The leisure industry has long suffered from a perception of being a Cinderella industry, and I feel it's been massively undervalued as a key contributor to the economy – so I hope Merlin Entertainments can become something of a sector champion.

Also, we've already seen a significant increase in the quality of people who are applying for jobs with us. This can only add to the amazing and dedicated teams of staff that we already have working across all our brands.

How did your team react to the flotation?

They're very excited about the future. We have incredible staff engagement, and they have a great passion for what they do – from those at the front line who stay up all night nursing sick seals, right up to management level. Around 1700 of our 10,000 permanent staff were awarded shares on the basis of long service or outstanding contribution. It was great to see them benefit from the IPO.

Will your role or the company change?

Our company mission statement from the early days was "to build a high growth, high return, family entertainment business based on strong brands and a global portfolio which is naturally hedged against the impact of external forces".

We've always been guided by that. When Merlin was first formed, our brands were almost entirely UK-based. In 2010, 2 per cent of our turnover came from

Asia Pacific. By the end of 2012 it was 14 per cent, with 20 per cent from North America. In 10 years' time, I expect to see our brands and turnover evenly spread across Europe, the US and Asia.

A third of my time will be now taken up with corporate and new shareholder activity, which still leaves two-thirds to focus on the core business and new projects. You can also expect to see a lot more from our creative R&D division, Merlin Magic Making, which will soon be revealing a new midway brand* and a whole host of ancillary products for leisure parks in the next couple of years.

*On 25 February Merlin announced a joint venture with Dreamworks for the creation of a network of six attractions called Shrek's Far Far Away Adventure.

What's the secret to your success?

Having a great team behind me, an audacious vision, and a lot of luck!

ANALYSIS

Merlin and the money men

by Nigel Bland

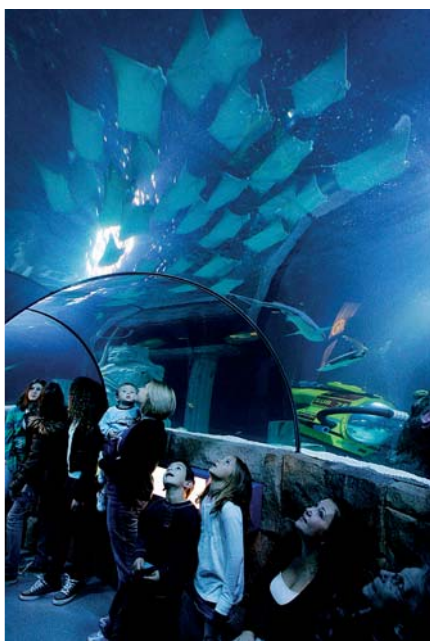
The rise of Merlin to be a truly global operator of attractions has required many investors and nearly all have made very significant returns along the way.

The most recent investor prior to the company's floatation last November was CVC Capital Partners Ltd, manager of a €10.8bn (£8.9, US\$14.7bn) leveraged buyout fund, which bought a 28 per cent stake in Merlin in 2010, in a transaction that valued the company at £2.25bn (\$3.7bn, €2.7bn). The floatation valued the company at £3.5bn (\$5.7bn, €4.2bn) and so, while only 30 per cent of the equity was sold on floatation, we can add CVC to the list of investors that have done well out of investing in Merlin.

So how has Merlin become a £3.5bn company in less than 15 years? As CEO Varney has said, "it started with a fish..."

The origin of the Merlin brands

In 1974 housewife Annabel Geddes opened the London Dungeon as "a new concept in education and entertainment for the whole family". Five years later, David Mace founded the first SEA LIFE centre in Oban. The Dungeons expanded



The company's SEA LIFE attraction is the No 1 global aquarium brand



The Dungeon concept began in 1974, and Merlin now owns eight sites worldwide

Blackstone acquired Merlin for £102m... and soon there was an opportunity to double the size of the company – that opportunity was Tussaud's

slowly, with York opening in 1986 while SEA LIFE grew more rapidly with nine units open by 1992.

Meanwhile in 1981, the Foreign & Colonial Enterprise Trust (F&C) established a direct investment fund by raising £10m (\$16.6bn, €12.1bn) on the London Stock Exchange. The three businesses were to come together in 1992, under the name of Vardon Attractions, with F&C backing an experienced management team (David Hudd and Nick Irens) to "acquire high profile leisure assets and then grow the operations organically".

To attract such funding you must have a proven concept and be able to show it can be expanded while generating an attractive return on the capital employed.

F&C (now known as Graphite Capital) did well from its involvement, initially providing cash to buy the Dungeons and continuing to support the company as it acquired the SEA LIFE centres, a bingo business (Ritz Bingo) and a caravan park business (Parkdean). With the parent company listing on the LSE in late 1992, expansion was also supported by other institutional shareholders.

First buy-out

When the business was sold in 1999 to a management buy-out – backed by Apax Partners – for £47m (\$77.9m, €57.1m), F&C generated 2.4 times its investment.

At this point there were 23 SEA LIFE centres and the two Dungeons, with the management team now led by Nick Varney. The plan was to continue the rollout across the UK and Europe but management also needed to reduce the number of sites in the UK, with some of the older ones being located in seaside resorts where tourism was declining.

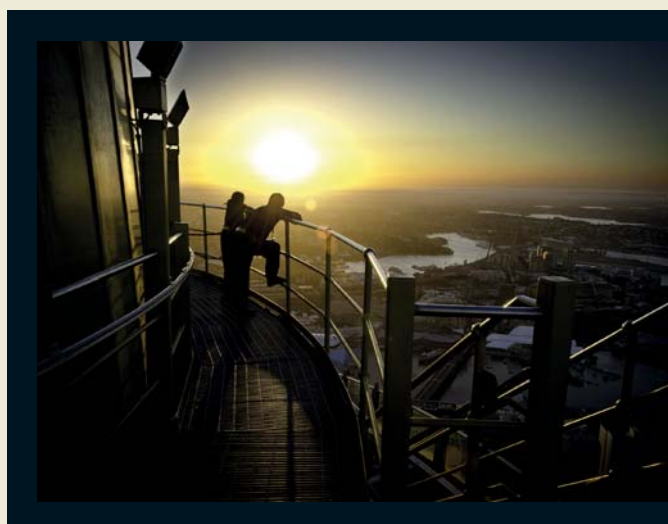
This is a common challenge experienced by many multi-site leisure businesses which expand rapidly on the back of readily-available capital, only to find returns are diminishing and a tail of marginally profitable or loss making units has developed. For some businesses this can be terminal, but not for the renamed Merlin Entertainments which weathered the storm and emerged stronger after another round of refinancing in 2004.

Apax did less well than Graphite, selling for £55m (\$91.1m, €66.6m) to Hermes Private Equity (HPE), making a modest return. However, what they and management had achieved was a clean, attractive business that was on the verge of becoming significantly cash generative.

The profit in 2004 was around £10m (\$16.5m, €12.1m) but the group was expanding by 2-3 units per year at a construction cost of circa £3m (\$4.9m, €3.6m) per site. This meant that, even in 2004, there was no free cash available and there was an element to which they



Clockwise from top: Visitors having fun at Gardaland in Italy; Madame Tussaud's; and the Sydney Tower – acquired in 2005



MERLIN TIMELINE

1999 - 2013



1999

- Merlin Entertainments Group formed via £47m MBO from Vardon

2000-4

- Continued expansion of the SEA LIFE Centre brand in Europe, including at Disneyland Paris as first third-party attraction brand for Disney resort
- Visitor numbers up 25% since buyout to over 5 million

2004

- Earth Explorer launched in Belgium (sold 2013)
- Merlin now Number 1 attraction operator in Germany
- Secondary buyout backed by Hermes Private Equity

2005

- Blackstone purchased Merlin for £102m
- LEGOLAND (LL) acquisition makes Merlin No 2 in Europe/No 9 in world

2006

- Italian acquisitions: Aquatica Water Park, Milan; and Italy's No 1 theme park – Gardaland
- Merlin Now No 1 European Visitor Attraction Operator/ No. 6 Worldwide

2007

- LEGOLAND Discovery Centre – the first of a new indoor interactive attraction opened in Berlin in April 2007
- May – Acquisition of Tussauds Group takes Merlin to the No 2 visitor attraction operator in the world

2008

- Acquisition of The London Aquarium in May – reopens as SEA LIFE London Aquarium in 2009 after £5m refit

2010

- Buys Cypress Gardens, Florida, with plan to turn it into the 5th LEGOLAND park

2011

- Acquires 6 top Australian/ NZ attractions in Sydney Attractions Group in February
- LEGOLAND Florida opens

2012

- Completes acquisition of Living and Leisure Australia: includes 10 major attractions
- LEGOLAND Malaysia opens

2013

- Sells Earth Explorer to Blueprint Entertainment
- Merlin Entertainments floats on the London Stock Exchange

2014

- Announces deal with DreamWorks for six Shrek attractions before 2023

- were betting the company every year on the success of the new ventures.

However, the investment model had been tried and tested by this stage and the business now fully understood the way to ensure good financial returns.

Going global

In 2005 management were drawing up a much more ambitious plan to create a global player. This plan involved bringing together midway and destination attractions to give a diversified portfolio of brands and formats to create a global platform. To achieve this plan, much deeper pockets were required, as the plan envisaged acquiring larger businesses such as Legoland (which was on the market) and The Tussauds Group.

One financier interested in this type of ambition was Blackstone, one of the largest private equity firms in the world and the Merlin management team approached them with their expansion plans.

The expansion of private equity in the 80s and 90s had created an elite tier of fund managers whose excellent investment track record had enabled them to raise ever increasing funds. Blackstone started with \$400,000 (£242,000, €293,000) in 1985 and now has circa \$250bn (£151bn, €183bn) under management. With funds of this size, fund managers proactively research markets to see if they can bring together a number of players to create a more powerful, market leading business.



Merlin's midway brands, such as The Dungeons (above), will be further rolled out globally

Things now moved fast, with Blackstone acquiring Merlin for £102m (\$165m, €121m) in early 2005 giving Hermes a substantial profit in a relatively short period of time. Blackstone then funded the acquisitions of Legoland at a price of €375m (£309m, \$512m) and Gardaland at €470m (£387m, \$642m). The profitability of these assets was

significantly improved on acquisition, maintaining the momentum of the rapidly growing business. The family fund behind Lego retained an investment, but the new capital was from Blackstone and from the debt markets – and soon there was a new opportunity which was to double the size of the company. And that opportunity was The Tussauds Group.

BRAND PORTFOLIO

MIDWAY

- Madame Tussauds (15)
- The EDF Energy London Eye
- Sydney Tower Eye including 4D cinema and SKYWALK
- Blackpool Tower
- Weymouth Tower
- Dungeons (8)
- LEGOLAND Discovery Centres (10)
- No 1 global aquarium brand - SEA LIFE (45, excluding those linked to theme parks) These include: Underwater World (Queensland); WILD LIFE Sydney Zoo; Manly SEA LIFE Sanctuary, Sydney; WILD LIFE Hamilton Island, Queensland; Kelly Tarlton's SEA LIFE Aquarium, Auckland, NZ; Busan Aquarium (South Korea); Siam Ocean World (Bangkok); Chang Feng Ocean World (Shanghai); Turkuazoo Aquarium, Istanbul, Turkey

- 2 Ski Resorts (Mount Hotham, Falls Creek) and 2 Fly Treetop Adventures (Otway, Illawarra) in Australia

LEGOLAND Resort Theme Parks

Denmark, UK, Germany, California, Florida and Malaysia. Many with hotels, holiday villages and waterparks

RESORT THEME PARKS

- Gardaland, Italy's number one theme park, including hotel and SEA LIFE
- Gardaland Aquapark, Milan
- Alton Towers Resort, UK, including two hotels and an indoor waterpark
- Thorpe Park
- Chessington World of Adventures, including hotel
- Heide Park Resort, Germany, including hotel and holiday village
- Warwick Castle, UK

Earlier – in 18th century France

Marie Tussaud was an artist who lived during the French Revolution, who had a talent for making waxworks. She started touring with her waxwork collection in the early 1800s, finding a permanent home for it in London's Baker St in 1835. That was largely that for another 143 years until the business was acquired by S Pearson and Son (listed as Pearson plc), an engineering company that built the Blackwall Tunnel and then diversified into media. Pearson also owned Chessington and during its 20 years' of ownership added Warwick Castle, Alton Towers and Thorpe Park to the portfolio.

Tussaud's was sold to Charterhouse Development Capital (CDC) for £352m (\$582m, €427m) in 1998. The company raised £200m (\$331m, €242m) through a bond issue and overall a further £300m (\$496m, €363m) was invested in improving the product, supporting the London Eye and acquiring Heide



Merlin's leisure portfolio is diverse and global, and includes the iconic London Eye attraction on the South Bank

Park in Germany. After a failed attempt to list on the London Stock Exchange, the business was acquired for £800m (\$1.3bn, €970m) by Sheikh Mohammed al-Maktoum, the crown prince of Dubai, through his Dubai Investment Capital (DIC) vehicle in 2005.

The big consolidation

Blackstone and the Merlin team decided to bring the two businesses together (rather than refinance Merlin) and in 2007 bought The Tussauds Group for £1bn (\$1.6bn, €1.2bn), creating the second largest player after Disney in the global attractions industry. Following the acquisition, the company entered into a sale and leaseback with Prestbury Investment Holdings, selling the freeholds of Madame Tussauds London, Thorpe Park, Alton Towers and Warwick Castle to raise £622m (\$1bn, €754m).

Whilst Blackstone held the majority of the equity, both the family fund behind Lego (Kirkbi A/S) and DIC owned significant minorities, while a wide group of senior management also held shares.

Who made the money?

While the list of investors is long (Apax, Blackstone, CDC, CVC, DIC, F&C/ Graphite, HPE, Kirkbi A/S, Pearson plc) this is only a list of the investment vehicles. Of these, two represent private

LOOKING TO THE FUTURE Merlin's future projects and plans include:

- Midway rollout of brands such as Madame Tussauds, LEGOLAND Discovery Centre, SEA LIFE, the Dungeons, Shrek's Far Far Away Adventure and Eye attractions into suitable locations across Europe, USA, Far East/Asia and beyond, including creating clusters of attractions in key locations
- Transforming existing theme parks into destinations, with the inclusion of accommodation and second gate attractions
- Development of new LEGOLAND theme parks (Dubai is currently under development)
- Strategic acquisitions that complement existing portfolio – with emphasis on North America, Europe and Asia/Pacific

money – DIC investing for the crown prince of Dubai and Kirkbi for the founding family of Lego. HPE is the odd one out, as at the time it was owned by the BT pension fund, so a lot of the benefits will go back to those with a BT pension. It's worth noting that at the time of the floatation, Blackstone/ CVC and Kirkbi retained significant interests in Merlin.

The other five private equity firms (Apax, Blackstone, CDC, CVC, F&C/ Graphite) all raise funds from a wide variety of sources. For example, the current fund being invested by CVC raised 46 per cent of its money in the US, 17 per cent in Europe and 16 per cent in the UK, with the balance coming from Asia, the Middle East and Canada. So Merlin's success has been supported by capital from all over the world.

This is one of the benefits of increasingly efficient global financial markets, far removed from the highly structured investing that contributed to the global financial crisis. Some of the infrastructure evolved contemporaneously with Merlin's increasingly rapid expansion.

For much of this journey the management team has remained the same – a remarkable achievement considering the scale of change and the range of shareholders they've had over the years. ●



Nigel Bland leads the travel and leisure corporate finance team at Deloitte, advising operators and suppliers in the attractions industry on disposals, acquisitions and capital-raising. Email: nbland@deloitte.co.uk

MERLIN

Secrets of success

1. Leadership

Talk to Merlin CEO Nick Varney's team and they're rightly proud of him and also respectful – of how hard he works, how he manages to get straight to the heart of things and of how well he knows the business. Importantly though, he also seems to hire great people and empower them to get on with it.

2. Staying grounded

In an often 'political' market which is sometimes characterised by showmanship, Merlin is a resolutely sensible company. However, its endearing lack of pretension shouldn't deceive – the Merlin team are driven and competitive, but it seems they believe that actions speak louder than words.

3. Surgical investment

Varney is very clear on what it takes to create profits and avoids investment fads, keeping a clear eye on the returns.

This is especially important as the company ventures into emerging markets, where investments can be perilous. Many factors – including the underlying demographics – have to be right for Merlin to launch or acquire.

A wide range of factors have combined to drive this world-class operation, from a steely customer focus to regular reinvestment, says Attractions Management editor, Liz Terry

4. Lean head office

Many people do a double take when you tell them the second biggest attractions operator in the world after Disney is based in a (nice but) fairly modest, shared office in Poole in Dorset, UK. They expect something more high profile.

But the decision to keep nimble and lean at the centre has served the company well and enabled it to focus on operations, investor relations and growth.

5. Harnessing brands

When Varney arrived in the industry, his mantra was brand, brand and more brand and he's been unwavering in his faith in their power to build businesses ever since.

It's an approach which has seen the company develop a portfolio of national and global properties, both by organic growth and by acquisition.

In all, Merlin has 12 brands and 100 plus attractions in Europe, the US and Asia and a recently announced deal

with DreamWorks to build Shrek's Far Far Away Adventure – themed midway attractions – shows that this philosophy continues to underpin strategy.

Being brand-focused has ensured Merlin has remained customer- and consumer-focused and has given the company huge PR and marketing clout.

Buying into the LEGOLAND brand was the cherry on the cake, as it's regularly listed as one of the top 10 in the world.

6. Global perspective

Varney has led his team fearlessly and without hesitation into global ventures and seeks opportunities wherever they make sense according to the business model.

He throws himself wholeheartedly into these ventures – learning languages to get closer to partners and stakeholders – and the company has succeeded in transplanting its culture wherever it goes, which is no mean feat given the geographical diversity of its growing portfolio.

Nick Varney and his team are building a diversified global business

Merlin has a policy of continuous investment to ensure each attraction gets improvements to infrastructure and new features each year





Merlin and Dreamworks will launch Shrek's Far Far Away Adventure opening six attractions over the next nine years. The first in London in 2015

PHOTO: DREAMWORKS

7. Scalability

Having a strong suite of brands at its fingertips has enabled the Merlin team to grow the businesses steadily, to take advantage of development opportunities in a wide range of markets and world regions and to develop attractions of varying sizes and types.

Merlin attractions are divided into three groups: resort theme parks – the larger businesses; midway attractions – the mid-scale operations, such as SEA LIFE and Shrek; and LEGOLAND.

When it comes to global roll-outs, having such a diverse, well-balanced portfolio of properties enables Merlin to respond to a wide range of opportunities.

With everything from LEGOLAND Discovery Centres, which work well in urban locations, to major standalone theme park brands, the company has a great menu to choose from.

8. Spreading the risk

When it comes to risk and stability, Merlin has built a diversified portfolio.

From a location point of view, the company has invested in a range of businesses which span northern and southern hemispheres and indoor and outdoor locations, as well as year-round and seasonal businesses: it's involved with everything from ski resorts to pop-up operations and waterparks to hotels.

Having such range ensures that if any one market, season, location or attraction type falters for any reason, or is affected by external influences, the overall businesses is buffered from the negative trading impact that ensues.

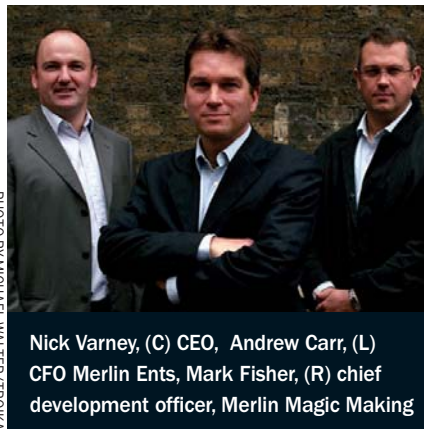


PHOTO BY MICHAEL WALTER/TROIKA

Nick Varney, (C) CEO, Andrew Carr, (L) CFO Merlin Ents, Mark Fisher, (R) chief development officer, Merlin Magic Making

9. High point of entry

One of the reasons Merlin has been so attractive to investors is the high level of investment needed by operators to be able to compete in much of this market – especially the larger theme parks and resorts.

In some leisure markets – bars, and health clubs, for example – the amount of capital needed to set up a new business is extremely small, making them far more vulnerable to competitive attack.

Merlin, with its substantial investment needs, has placed itself in a position where competition is less likely to emerge.

10. Sound investor relations

Growth has been funded by a series of private equity deals and a sale and lease-back on part of its property portfolio.

Those involved have done well and the company's stock market floatation in November 2013 was the final seal of approval from the investment community.

The first results following the float were strong, with an EBITDA of £390m.

The team has worked hard with investors, personally briefing them and choosing backers to ensure a good fit. "We couldn't have done it without Joe Barratta and Blackstone," says Varney.

11. Hard work

Varney and his team are still driving their operation as though it's a start-up – even after all these years. This intensity has created and sustains great momentum.

12. Hard noses

The team don't back away from tough decisions. Redundancies happen when they're needed to maintain profitability and sites are disposed of if they don't perform. Being able to deliver on tough decisions keeps the company on track.

13. Teamwork

Varney says Merlin's success is in part a result of great work by the top team: Andrew Carr, Mark Fisher, Glenn Earlam, Nick Mackenzie and John Jakobsen.

14. Continuity

Having the founder of a business at the helm as it grows can be a hindrance unless their vision grows with it.

Merlin's investors are fortunate Varney (and his team) have stayed the course, providing continuity to enable the growth which took the company through its floatation to the \$6bn+ valuation. Nice work.



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SCIENCE IN THE SKY

The new planetarium at the Techmania Science Center in Plzen is the first 3D planetarium to be built in the Czech Republic. We find out more about the project and how it will enhance the science attraction's offer

Julie Cramer, journalist, Attractions Management





Vlastimil Volák

CEO
Techmania
Science Center

Why did you decide to build a new planetarium?

We wanted to come up with new ideas to help popularise science and extend Techmania's more informal tools of education. So we decided to create a very special planetarium – the first 3D Planetarium in the Czech Republic.

How much has been invested in the project?

When reconstruction of additional areas of the science centre as a whole is finished in June 2014, overall investment in the project will be about CZK 600m (US\$30m, £18.1m, €22m). European funding for the building and equipment of our 3D Planetarium was around CZK 140m (US\$6.9m, £4.2m, €5m).

What benefits will the new planetarium bring to Techmania?

With the help of the 3D Planetarium, we can extend the offer of popular science for our visitors. Physics, astrophysics, chemistry, mathematics, as well as biology, geography and geology are now the wonderful fields of knowledge we're able to communicate to visitors. We can also focus on attracting more visitors. In the first month of opening, over 10,000 visitors came to the new attraction.



The team from Techmania have created 27 hands-on exhibits for the new Space area



The Science on a Sphere exhibit is housed in a mini-theatre within the planetarium site

What are its unique features?

There are three main features. Firstly, the 2D and 3D full dome projections offer a great variety of educational movies. Secondly, the Science On a Sphere technology in its own separate mini-theatre [where projections are made onto a suspended globe] enables original ways of presenting scientific as well as wider educational issues.

Finally, the Space exhibition, containing 27 interactive exhibits made by the Techmania team, guides visitors around the elements of space and its exploration. With all these features, our main aim was to offer interactivity, fun and great educational value.

What shows will you be offering?

There are both 2D and 3D movies – some of them we purchased and others we've made ourselves. The 'Heaven above Plzeň', for example, is a show explaining the constellation of stars in the sky in different seasons. We also have the Gyroscope Show, which explains G-force and disorientation in orbit. We're open seven days a week, and all the show and movies we offer run on a daily basis.

How many visitors do you expect to attract to the new planetarium each year?

In March, there will be newer parts of the science centre open, so we hope and believe we'll finish 2014 with around 200,000 satisfied, entertained and well-educated visitors.

What kind of tickets and prices do you offer?

We offer full price, reduced price, group and family tickets. You can visit the Space exhibition and the Science On a Sphere show separately, or just go to see the 2D and 3D programmes. There are variations for all the target groups that Techmania attracts.

What are your future plans at Techmania?

The future is clear: we want to become an integral part of informal education for schools and the public in the Czech Republic. Our goal is to maintain our variety of interactive exhibitions, and produce quality scientific shows, workshops and lectures. We aim to be the leader in science communication in the Czech Republic, promoting science and technology as well as we possibly can. ►

► PLANETARIUM



Glenn Smith

Managing director
Sky-Skan Europe,
planetarium
designer/installer

How long did the project take?

From the initial public tender for the project, it's taken around two years. Sky-Skan took over when the main contractor delivered the finished building to our specification in July 2013. Then we installed the dome, Definiti® 3D projection system, and other technology.

Early on in the project, we worked with the client to develop the right technical spec and content as part of a 'no obligation' inquiry for proposals and design enquiries. Nine months before opening we also provided a production system complete with a mini dome and fish-eye projector, so that Techmania staff could get used to the technology and workings of the planetarium before opening day. This is an option that we always offer our clients.

Is it your first planetarium project in the Czech Republic?

We also upgraded the Prague Planetarium to digital in 2009. It's one of the largest in Europe. The Techmania project is the country's first 3D Planetarium.

What technology has been installed?

We've installed a passive 3D system using two sets of dual Sony SRX Series cinema projectors at a 4K resolution. This means that if you draw a line anywhere across the meridian of the 14m-diameter dome, the screen will always be 4,000 pixels

There's also a 5.1 surround sound system using JBL speakers, and a wireless infrared headphone system so the facility can show the films simultaneously in two other foreign languages alongside the Czech language. Sky-Skan CoveEX LED lighting is installed at the base of the dome, which washes it with special effect colours. Skeie from Norway supplied the seating.

Did you provide content?

Our system is delivered with a vast amount of content already on it, and we also have a distribution department for pre-rendered shows and



Techmania aims to offer interactivity, fun and great education

movies with over 200 titles available. For this project, the client also wanted two ready-to-go shows available in the Czech language.

What were the challenges of the project?

The dome is tilted 15 degrees, which gives viewers a more immersive experience but presents its own challenges regarding the seating. Seats had to be rigged on a tilted, stepped floor, to allow the focal point of viewers to be in different places – for example, high on the dome when a show is on or down front-centre when there's a lecture or concert.

We devised a great seating plan with Skeie, and the end result is a very comfortable viewing experience. Visitors simply use their body to move their seat

– when they want it to tilt, it tilts, and it's easy to hold in any position. As the seat only moves in the space it occupies, it's not necessary to have large gaps between seat rows.

What, in your view, is next for the world of planetariums?

We've been delivering planetarium projects with around 8K resolution in recent years, even including one in 3D. These have over 30 million pixels on the dome, which gives a stunningly real effect. It's approaching the limit of the human eye, as there are really no discernable pixels anymore.

The price has been prohibitive in the past, but we're seeing the cost gradually come down as the technology allows us to do more with less equipment. ●

GROWTH OF TECHMANIA

The Techmania Science Center in Plzen covers an area of approximately 30,000sq m. The site occupies a number of restored historic buildings on the former premises of the SKODA car

company, creating a new urban leisure space close to Plzen's city centre.

The development of Techmania has been in stages, with the exhibition space expanding from 3000sq m in late 2008 up to 10,000sq m by June 2014. The Techmania Science Center 3D Planetarium opened in November 2013 and is housed in a unique historic building dating back to 1917.



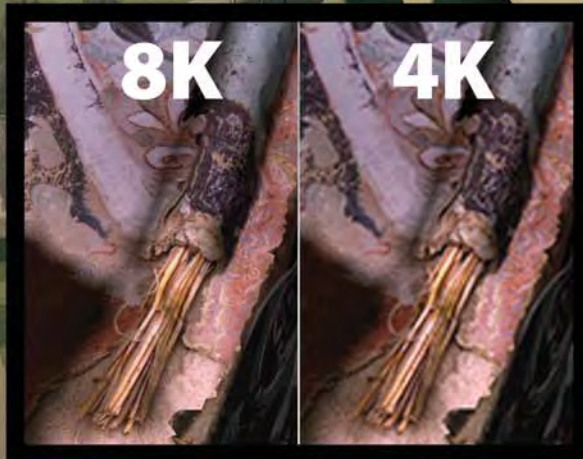
Techmania and the new planetarium are on the site of a former SKODA factory

Plzen is one of the larger cities in the Czech Republic and is famed as the home of Pilsner Urquell beer. The city has been undergoing a renaissance in recent years and in 2015 it will be the European Capital of Culture alongside Mons in Belgium.

This is 8K.

Mogao Caves Visitor Center, Dunhuang, China

Twin 18-meter domes



LSST Corporation

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MUSEUMS

SEA VIEW

A love of art and the environment led to the creation of two underwater museums, which provide homes for coral and sea life. Eco sculptor Jason deCaires Taylor describes his ocean floor projects

Kathleen Whyman, managing editor, Attractions Management





Clockwise from top: The underwater sculptures become a natural home to coral and reef fish; while the sculpture material isn't costly its sheer weight makes the logistics of installation expensive; Jason deCaires Taylor wants to educate visitors on ocean ecology

What was your inspiration?

I'm a sculptor and was mainly working on land and with the landscape. I was creating objects that had no functional purpose other than their artistic value – the world's cluttered enough, we need more of a reason to make things.

I came across the idea that if I worked underwater, these objects would not only discuss the boundaries of art, they'd create habitat space for sea life and be beneficial to the environment. That was the main driving force.

How did you get started?

The first museum was in Grenada in 2006. I grew up in Spain, Portugal, Malaysia and the UK and happened to be living and teaching scuba diving in Grenada at the time.

I'd had the idea for the underwater sculptures for a while, so looked into how feasible it was and presented the concept to the local government. They were sceptical, but interested, so I started small with a couple of pieces and added to it. It kept growing and more people started to help and support the project. Over the

course of two years I built the first underwater sculpture park which contains 65 individual works and is called Grenada Underwater Sculpture Park.

The government of Mexico, after seeing this project, invited me to address some of the problems they have with high levels of tourism in Cancun. MUSA (Museo Subacuático de Arte) opened in 2009 and has 510 permanent sculptural works.

How do the museums benefit the environment?

Prior to the museum, there was only one good snorkelling area in Grenada. All the boats would congregate in that area and there was damage to the reef from people jumping off boats and kicking corals and it was slowly deteriorating. I created another snorkelling site nearby to relieve some of that pressure – coral grows on the sculptures and fish live around them.

It was a similar objective in Cancun. The area has more than 750,000 visitors each year, so the objective was to try and manage those people and minimise the impact to the reef. The government wanted to start closing sections of the

reef down to allow them to rejuvenate and thrive, but the business community threatened to sue the government for closing down their economy and insisted on an alternative offer. It was at that point that they contacted me.

How has the community benefited?

The statistics are amazing. In Cancun, the diving has increased by 30 per cent in a few years and now gets over 80,000 visitors annually. In Grenada, the area never used to have visitors, but now gets 20,000 people a year. Seventy per cent of divers go to the museum site rather than the original reef. It's in the top three TripAdvisor ratings and got voted by *National Geographic* as one of the Wonders of the World.

What are the sculptures?

Predominantly I use figurative forms, with concepts of humans working in harmony with nature. I strive to bring in themes of the threat to the reef and how we're oblivious to what happens under water. I've sculpted a guy on a sofa watching TV, showing the irony of the way we live and ►



Many of deCaires Taylor's sculptures attract more divers to the museum site and away from endangered reefs (top); the sculptor in his studio (right); most of his creations are of the human form (bottom)



- how we're so focused on our little worlds that we forget the bigger picture.

There are hundreds of sculptures ranging from *The Silent Evolution* – a crowd of 450 people which informs visitors on the various stages of reef evolution; a series of suburban dwellings designed to house individual marine species; *The Listener* – a lone figure assembled entirely from casts of human ears and a recording device to monitor the reef; and *Reclamation*, an angelic female form with wings that are propagated with living purple gorgonian fan coral.

One of the large installations – *The Silent Evolution* – took me two years and an amazing amount of hard work and I was really pleased with it. Then I did a piece called *Banker*, which is a guy with his head in the sand, and that got just as

much response and it only took a month to make and was really easy. I've learnt that you can have very potent images that can say just as much as the big, arduous projects.

What's your message?

I hope people have more of an understanding of and more respect for all the amazing things that are happening underneath our oceans and have that in the forefront of their minds. Some of our coral reefs could be the first eco systems we lose if we continue with the problems associated with global warming.

What are the costs?

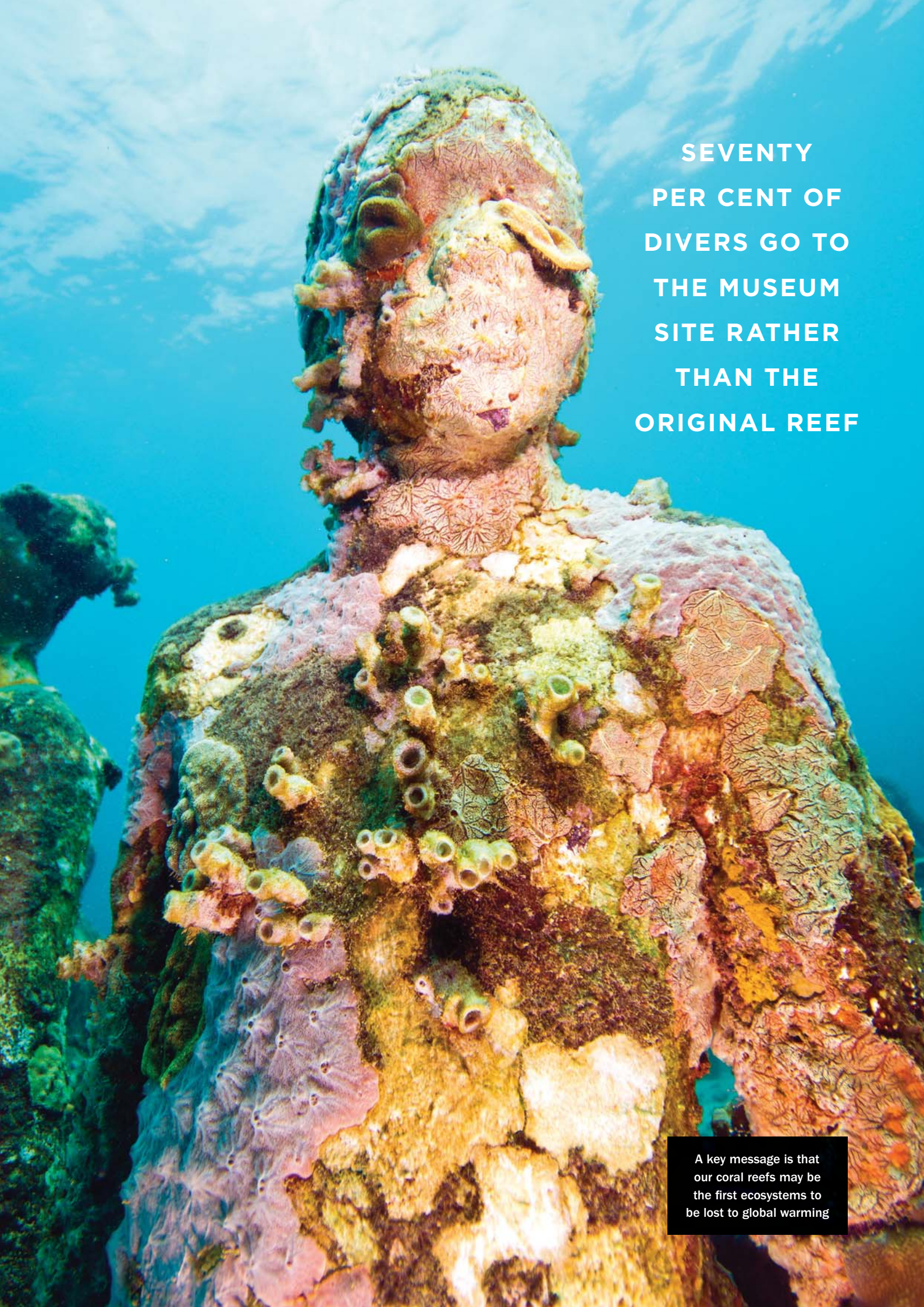
The construction isn't expensive because the materials aren't dear, but the installations are costly. We want the sculptures

to weigh as much as possible so that they stay in place on the seabed and are very resilient – they're planned to last for hundreds of years, so need to be very well constructed – but the heavier they are, the more expensive the logistics become. It's a balance between working the two out so it becomes possible.

How are the sculptures secured?

They're drilled into the ocean floor, but we rely on the weight to help out. We have to keep the centre of gravity very low. It's a completely new environment to work in and is subject to different forces.

There have been some terrible artificial reef projects where people haven't fixed things well enough. One project around the coast of Carolina, US used old car tyres. The first storm that came along ►



SEVENTY
PER CENT OF
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ORIGINAL REEF

A key message is that
our coral reefs may be
the first ecosystems to
be lost to global warming

MUSEUMS



The sculptures are designed to last for hundreds of years and so have to be very well built. They're also drilled into the ocean floor for extra stability



I STRIVE TO BRING IN THEMES ABOUT THE THREAT TO THE REEF AND HOW WE'RE OBLIVIOUS TO WHAT HAPPENS UNDERWATER



The creative process: Working from a live model, deCairnes creates a cement sculpture that attracts coral and plant life underwater

- ripped them out, rolled them over the reef and destroyed all the coral, so it's really important to ensure they're fixed.

What are they made from?

They're made out of specialised marine cement that's 20 times more durable than normal construction cement and impervious to the salt water.

I can't use metal as it would corrode and break down. Ninety per cent of public sculpture has some kind of metal in the armature or construction, so the challenge for me is to design objects differently. I use armatures made out of inert fibreglass and geo-textiles.

How are the sculptures protected?

Mainly through education. We ask the guides to explain that these are artificial reefs and have signs underwater asking people not to touch the sculptures. But nowadays, everything's a photo opportunity – people stand next to the sculptures and put their arms around them for a photo and then we get a breakage.

What are the challenges?

Firstly, is getting permission. Before starting, I have to do a very strict envi-

ronmental impact assessment for the government. That's quite a difficult part of the process, depending upon the location – it's very difficult to get permits in America, for example.

Navigating the weather and schedule deployment is always difficult. If a dense wind falls it makes it far harder to work.

Another challenge is the unpredictable nature of the sea. It can work in my favour – I might find some beautiful pink sponges and amazing coral growing, which is fantastic.

But there can be undesirable effects. We had an issue where we went along one day and all the sculptures were completely covered in thick algae. We couldn't see anything at all, which was worrying. We cleaned it off half of them and three months later, the ones we'd cleaned had grown back worse, whereas the algae had started to disappear on the ones we hadn't touched. That was quite a lesson in not messing with things too much. A year later the algae had gone completely from all of them.

There are so many factors that could have caused it, but the likely culprit was pollution from surrounding hotels; it was beyond our control.

What are you working on now?

I've just finished working at MUSA and have relocated to Europe. I'm very interested in working in different destinations. I'm in talks with people in Florida, Malaysia, and the Maldives. It's fascinating because each place has very different conditions and the works would evolve very differently according to location.

One of my aims is to advance the technology and research that allows more marine life to colonise the sculptures and create works that are more interactive for visitors. I'm currently devising some installations that start on land and then go into the sea. I'm also doing some pieces that rise out of the water so people can dive off them and others with lights so people can scuba dive at night.

I've plenty of ideas, which I can't reveal yet, but at this moment in time I've just begun a exciting project off the coast of Lanzarote in the Canary Islands. The crystal blue Atlantic waters surrounding the island are home to a completely different marine ecosystem and the large scale project will discuss the topic of climate change and migration. It is supported by the Achenbach Art Foundation and the regional government. ●

COMPLETING THE CIRCLE



Almost 50 years after the first visitor facilities appeared at Stonehenge, and more than a decade after the site's presentation was called 'a national disgrace', a new £27m visitor scheme is hoping to silence the critics and impress the crowds

Julie Cramer, journalist, Attractions Management



Loraine Knowles
Director of Stonehenge

“We needed to build something that was a positive addition to the World Heritage Site”

The Stonehenge site has sparked much controversy in the past. How does it feel to have reached this point?

It's been a long, challenging project but we're thrilled with the results. Ever since English Heritage (EH) formed in 1984, it's wanted to improve the Stonehenge visitor experience. The Public Accounts Committee once called it “a national disgrace” and I'd have to agree with them.

I first went to Stonehenge as a student in the 70s, and it was the first site I visited after joining EH in 2003. I'd been working on exciting developments in the museums sector, and couldn't believe nothing had changed at the Stones.

I didn't appreciate at the time WHY nothing had changed, but having headed up the project for the past five years, I now know the challenges involved!

What were the key challenges for EH?

The first challenge was finding a location within the World Heritage site that all the stakeholders could agree on. That took from July 2008 to January 2009.

We also needed to build something that was going to be a positive addition to the World Heritage site, without it having any adverse visual or environmental impact.

Our brief was always to build something that could be reversed if it needed

to be. We were conscious when we started the project that we might find precious archaeological remains once building started. Actually we didn't, but we still proceeded to build in this way.

The proximity of roads around Stonehenge has also been a major problem hasn't it?

Yes, the A344 cut through the site. When Stonehenge and Avebury were put on World Heritage Site register in 1986, the government said it would close that road – that finally happened in June 2013.

It took so long because it was a fundamental part of all the schemes put



The building is designed to have minimum impact on the landscape (above); new exhibits (bottom left); reconstruction of a Neolithic man (bottom right)



forward since 1986 which didn't proceed. When the Airman's Corner scheme got planning permission we still had to apply for a Stopping Up order for the road, which went to a public inquiry.

We still have the A303 running very close to the site, but that's had a whisper surface applied to it and it's now noticeably quieter, which is an improvement.

How has the project been funded?

The £27m (\$45m, €33m) Stonehenge Environmental Improvements Programme is the largest capital project ever undertaken by English Heritage. It has been financed almost entirely by Heritage Lottery Fund money (£10m – \$16m, €12m), English Heritage commercial income and philanthropic donations, including significant gifts from the Garfield Weston Foundation, the Linbury Trust and the Wolfson Foundation.

What does the centre replace?

The visitor facilities at the Stone Circle dated back to 1968 and were totally inadequate for what's expected of a visitor attraction today. They consisted of a basic concrete building housing a shop and catering unit, and various Portakabins for staff facilities and toilets.

Although all these were down in a dip, if you approached the site from the north or west they jarred against the landscape.

As we did an overnight switch to the new centre in December 2013, these facilities had to remain in place, but over the next six months they'll be dismantled. By summer, Stonehenge will once again be standing alone in its natural grassland.

What can visitors expect?

We've conceived the building as literally a stopping off point on the way to the Stones, which now lie 2km away. It's all

about getting people to the Stones and vastly improving their understanding and experience of them and the landscape, which contains an extraordinary number of prehistoric monuments.

We now have an interpretative exhibition about Stonehenge that people can either visit before or after they see the Stone Circle, or both. We'll also be displaying Stonehenge artefacts, such as some of the tools used to build the monument – on loan from nearby museums – at the site for the first time.

People visit Stonehenge with some basic questions: who built the Stones, why did they build them and how did they build them?

We're setting out the latest knowledge in response to those questions. We don't have all the answers but there's ongoing research about Stonehenge and we engaged a number of leading academics

The centre sets out to offer the latest knowledge on Stonehenge: what it is, why it's there, who built it



- to help us tell the story. Some of those archaeologists are featured in the exhibition itself, talking about the various theories surrounding the ancient site.

Do you expect dwell times to increase?

Visitors previously spent around 45 minutes to an hour, and we expect that to increase to around two hours. That time could even be extended when the weather is good, as people now have the option to walk all the way to the Stones, or start from a National Trust viewing point and walk the final kilometre, passing other key ancient monuments on the way.

Do you expect numbers to increase?

It's never been an objective to increase visitor numbers, due to the sensitivity of

the site. Plus we've been limited with the size of new car park we've been able to build. Stonehenge has been attracting around one million visitors per year, on a 70/30 international-domestic split. We expect that to rise to around 1.25 million and we'll manage that on a timed ticketing system, so people will now have to book in advance to be sure of entry.

The visitor centre was the first phase of the development. What comes next?

The new centre was the main phase, and for the next six months we're concentrating on restoring the natural landscape, as well as building a new exhibit of Neolithic houses in our external gallery space.

We advertised nationally for volunteers to build them and we got a great

response. Visitors over the next six months will be able to watch them being constructed, and when finished by Easter 2014 they can go inside – there'll be fires lit and replicas of the type of furniture and implements used at that time.

Will your role as director change now the site has opened?

When all the phases of the development are complete, this role will come to an end. I've been working on this project since 2008 and it's been the biggest challenge of my career to date.

I've enjoyed getting things done and working closely with all the people and groups involved. Stonehenge WAS a national disgrace, and finally we've had the opportunity to put things right. ● ►

TIMELINE

The long road to a 'new' Stonehenge



1930

This photograph (left) shows the approach along the A303 (with the A344 to the right) in about 1930

1968

First facilities, car park and pedestrian under-pass built

1979

Dept of Environment sets up Stonehenge working party to look into future management of the site



Greener fields

The building is sensitively designed to sit lightly in the landscape and could, if necessary, be removed leaving relatively little permanent impact on the ground below.

This was achieved by constructing it on a concrete raft, which in turn sits on an area of 'fill' with minimal cutting into the soil. The construction used slender steel columns, lightweight framed walls and semi-external spaces – allowing the foundation depths to be minimised.

The building has a high BREEAM rating (the industry standard assessment system for sustainable building design and construction), and is designed to maximise energy efficiency, minimise carbon emissions and pollution, and reduce water consumption.

Features include: An open loop ground source heating system; perforated roof to allow more warmth in winter and more shade in summer; mixed-mode ventilation – the building will be naturally ventilated if external conditions allow; and 'grey water' will be used for the bulk of water required at the visitor centre.



Volunteers are building replicas of Neolithic houses in the outdoor gallery (left); The 360-degree theatre is a star attraction (right)



PHOTOS: CLARE KENDALL/ENGLISH HERITAGE

1983

English Heritage (EH) is established. Chair Lord Montagu pledges to "find and implement a permanent solution"

1986

Stonehenge and Avebury put on UNESCO's World Heritage Site List. Includes commitment by UK government to close the A344

1991

EH submits outline planning application for a visitor centre at Larkhill, which is refused

1992

EH launches design competition for a new visitor centre, and submits a planning application of a design by Ted Cullinan. Later withdrawn.

1993

The presentation of Stonehenge is described as "a national disgrace" by the National Audit Office and Public Accounts Committee

1996

EH submits bid to Millennium Commission for a Stonehenge Millennium Park, but the bid is turned down



Precious objects linked to Stonehenge (above), and found on or near the ancient site, are on show for the first time. Many artefacts are on loan from local museums



Alisdair Hinshelwood

Director, Haley Sharpe Design
visitor centre designer

How did Haley Sharpe Design come to be involved in the Stonehenge project?

Through a competitive creative tender issued by English Heritage in 2009.

What was your brief?

To work with EH to find ways to express the importance of Stonehenge in its wider historical, cultural and landscape context, and to create a step-change in the way in which visitors experience this significant World Heritage Site.

How have you told the Stonehenge story?

We've recreated past landscapes through virtual technology, presented differing perspectives on the meaning of the Stones, and brought real archaeological objects back to the site that express human presence during the prehistoric

period, when Stonehenge was of most importance to our ancestors.

What are the most striking features of the centre?

One of its most compelling features is the 360-degree interactive theatre. Everybody wants to stand in the middle of the Stones, but clearly because of the problems with erosion, it's never been possible for all visitors. Through technology, visitors are now able to do this realistically in the digital theatre.

EH commissioned a digital scan of the Stones some years ago – showing them in minute detail – so we had a valuable, ready-made asset when we appointed the software company Centre Screen to develop AV for the theatre. Visitors can now travel back in time to experience three key periods of human activity at Stonehenge, and see it in all four seasons.

How long does the experience take?

It's been designed so that visitors don't have to go through the centre at all – they may simply choose to go directly to

the Stones. Once they are at the centre, our brief was to create a space where the key messages of Stonehenge could be distilled into a 15-minute visitor experience – simply to manage the large volume of people who visit the ancient site each year. So we had to simplify messages and make them high impact. Of course, visitors can spend as long as they want in the space.

What were the main challenges?

Dealing with the conditioning requirements in a BREEAM-rated building and planning a narrative that delivered the key messages within the context of the visitor profile and numbers.

Will visitors see any 'firsts'?

It's the first time that prehistoric objects from Stonehenge and the surrounding landscape have been displayed in the World Heritage site. There's a huge amount of satisfaction in bringing these items (on loan from museums in Salisbury and Wiltshire) back to where they were left thousands of years ago. ●



The new centre is expecting around 1.25 million visitors in 2014

1998

EH chair, Sir Jocelyn Stevens, makes another EH attempt at launching a Stonehenge Masterplan, including plans for a 2km cut-and-cover tunnel for the A303 and visitor centre at Countess East

2000 – 2003

Under chair Sir Neil Cossons, EH pushes forward a scheme at Countess East and improvements to the A303 involving a bored tunnel.

2004

After a public inquiry, Dept of Transport announces A303 tunnel will be adopted

2004

Planning application submitted for a new, semi-subterranean visitor centre at Countess. Planning permission granted in March 2007

Dec 2007

Government announces cancellation of A303 tunnel scheme meaning visitor centre scheme must also be abandoned



WHAT'S THERE?

The new construction at Airman's Corner comprises the visitor building designed by Denton Corker Marshall, an ancillary building, coach and car parks, and shuttle embarkation point.

The galleries, café, shop and toilets are housed in a pair of single-storey 'pods' – one glass, one timber-enclosed – beneath an undulating canopy roof that reflects the rolling hills of Salisbury Plain. Local materials have been used wherever possible, including locally-grown FSC timber, sweet chestnut cladding and Salisbury limestone.

The building will be linked to the Stones by a low-key visitor shuttle system running along the existing road surface of the A344 (now closed to public traffic). By Easter 2014, a cluster of Neolithic houses will open as an external exhibition beside the centre, recreated using rare evidence of domes-



The 3D exhibit takes visitors back through three key historic periods

tic buildings from prehistoric England recently unearthed near Stonehenge.

During the first half of 2014, the existing car park, visitor buildings, road and fencing close to the Monument will be demolished and grassed over

INSIDE THE CENTRE

A 360-degree virtual, immersive experience will let visitors 'stand in the

stones' before they enter a gallery presenting facts and theories surrounding the monument through various displays and nearly 300 prehistoric artefacts. Archaeological finds on display are on loan from the Salisbury and South Wiltshire Museum, the Wiltshire Museum, and the Duckworth Collection, University of Cambridge. All were found inside the World Heritage Site and many are on public display for the first time.

One of the highlights is a forensic reconstruction of an early Neolithic man, based on a 5,500-year-old skeleton from a burial site near Stonehenge. Also on display will be two rare 14th Century manuscripts, including some of the earliest drawings of the monument, Roman coins and jewellery, and early surveying equipment

'Set in Stone? How our ancestors saw Stonehenge', is the first temporary exhibition, charting centuries of debate – from 12th-century legends to radiocarbon dating in the 1950s.

Jan 2008
Government asks EH to draw up a new scheme

Oct 2009
EH submits planning application for a visitor centre at Airman's Corner. Permission granted in June 2010

Jan 2012
All road orders to close the A344 granted

July 2012
Work on the new visitor centre begins

June 2013
Work to decommission the A344 starts

Dec 2013
New visitor centre opens

Jan 2014
Existing car park and facilities start to be removed

June 2014
Landscape near Stonehenge will be restored; project completed

THE HISTORY CHANNEL

Protecting heritage and providing a communication channel are the International Council of Museums' aims, as president Hans-Martin Hinz explains

What is ICOM's role and aim?

The International Council of Museums (ICOM) is a public interest organisation and was established in 1946, right after WWII. The idea was to organise a worldwide communication tool among museums and museum professionals. ICOM has two main tasks.

Firstly, the protection of culture and heritage in museums, collections and in general, especially in conflicting areas where cultural property and heritage is in danger. And secondly to increase the level of professionalism of museums and staff.

We have grown to have more than 30,000 members globally, which I believe makes ICOM the largest international cultural organisation in the world.

How does ICOM work?

ICOM has 117 national committees all over the world and 31 international committees. Members of the international committees get together at least once a year to exchange their experiences and discuss how to improve the work they're doing. They think about new conceptions and how to present culture and history nowadays in a time of globalisation and rapid changes. These ideas are then filtered down to ICOM's members. My task is to help museum professionals exchange, talk, learn and deliver something for their visitors.

I was re-elected for a second term in July 2013 and aim to continue to increase the awareness of museum-related issues and highlight the significance of museums as sites of social encounter.



Hinz retired from museums management but he still teaches museum studies

The director general is the head of the secretariat in Paris. They, and heads of departments and staff members, run the everyday work of ICOM. The rest of us do it voluntarily. We talk almost every day and I regularly go to Paris for meetings.

What are the ICOM Red Lists?

The ICOM Red Lists help customs, police officials and professionals concerned by the smuggling and illicit trading in cultural objects, fight against the illicit traffic of

cultural goods. The list illustrates the categories or types of cultural items that are most likely to be illegally bought and sold.

There are so many tragic situations in countries – uprising, war and natural disasters, such as earthquakes, as well as illegal activities including trafficking – which puts heritage in danger. Preventing this is a real challenge, but the Red Lists have a strong impact and we've been able to get many objects back and return them to their originating countries.



▲ Hinz says the German Historical Museum (above and right) is a facility with a strong international focus

How does ICOM educate?

We have an ICOM code of ethics. This is the minimum standard for museums to attain – to take responsibility for the visitor, the collection, the building and to be skilled in cases of conflicts with collections, ownership questions, the conservation and protection of artefact.

This code of ethics isn't a legal requirement – it's a moral code and is increasingly accepted around the world. National governments and parliaments accept the code of ethics as a document for the museums in their countries. Many don't have museum laws so, if it's accepted and adopted, it's much easier for the museums to work with politicians and the outside world in general.

How do you encourage museums to work together?

Our general conference is held every three years and has up to 4,000 participants. We hold it in different parts of the world each time to attract new members and make it accessible to people who can't travel. Last year's was in Rio de Janeiro, the one before that in Shanghai.

Our members also meet in their national and international committees and partner organisations. Later this year,



ICOM's code of ethics requires museums to take responsibility for the visitors, collection and the building

“IT'S VERY IMPORTANT FOR MUSEUMS TO PRESENT HISTORY AND CULTURE IN A GLOBAL WAY, SO THAT PEOPLE CAN LEARN FROM OTHER COMMUNITIES”

ICOM Russia, ICOM Germany and ICOM US will meet in St Petersburg to discuss museums and politics. It's interesting to have a meeting in Russia as it's a different society; it's an important conference.

What are the current issues?

It's very important for museums to present history and culture in a global way, so people can learn from other communities. Life has become so international ▶

TOP PHOTO: DHM / ULRICH SCHWARTZ

PHOTO: DHM / ULRICH SCHWARTZ

ICOM's international conferences have 'a deep impact' on everyday museums work, says Hinz. Last year's conference was in Brazil



“NEVER EXPLAIN THE PAST AS A GOLDEN AGE, AS THE MUSEUMS OF THE 19TH CENTURY DID, BUT BRING PEOPLE TOGETHER TO DISCUSS PAST AND PRESENT”

and many people don't know about other opinions, cultures and backgrounds.

Ethnological museums increasingly want to explain the development of cultures on a global perspective. Traditional regional or local museums explain history from an international point of view, rather than national, and let people learn about the development in other countries and the impact of one country on the development of the others and vice versa. This is a new development we've seen in the last two decades.

What's your career history?

For the last few decades, I did a lot to stimulate international cooperation. Before retiring, I was a member of the management team at the German Historical Museum, which has a very international concept. Never explaining the past as a golden age, as the museums of the 19th Century did, but instead bringing people together to discuss the past and the present, was what motivated me to join ICOM and discover how other museums around the world explain their culture and history.



ABOUT ICOM

The International Council Of Museums is the global organisation of museums and museum professionals committed to the conservation of the world's natural and cultural heritage. ICOM was created in 1946 and is a non-governmental organisation maintaining formal relations with UNESCO.

I've learned a lot through the conferences – they have a deep impact on the everyday work at museums. A new cooperation and new concepts are developed as a result of these meetings. This was my incentive to run for different positions within ICOM. Prior to becoming president, I was chair of ICOM Europe. During this time, I coordinated communication between museums in the Arabian world and European countries, which had never happened before.

What other plans do you have going into the future?

I've now retired from the German Historical Museum, which allows me more time for ICOM, although I still teach museum studies.

When my second term as president of ICOM ends in 2016 [two terms is the maximum allowable], I'll retire and enjoy my life. This position keeps me so busy, but it's an important job and I enjoy it very much. ●

The logo for FORREC, with 'FORREC' in white and 'ec' in orange, set against a dark blue rounded rectangle.

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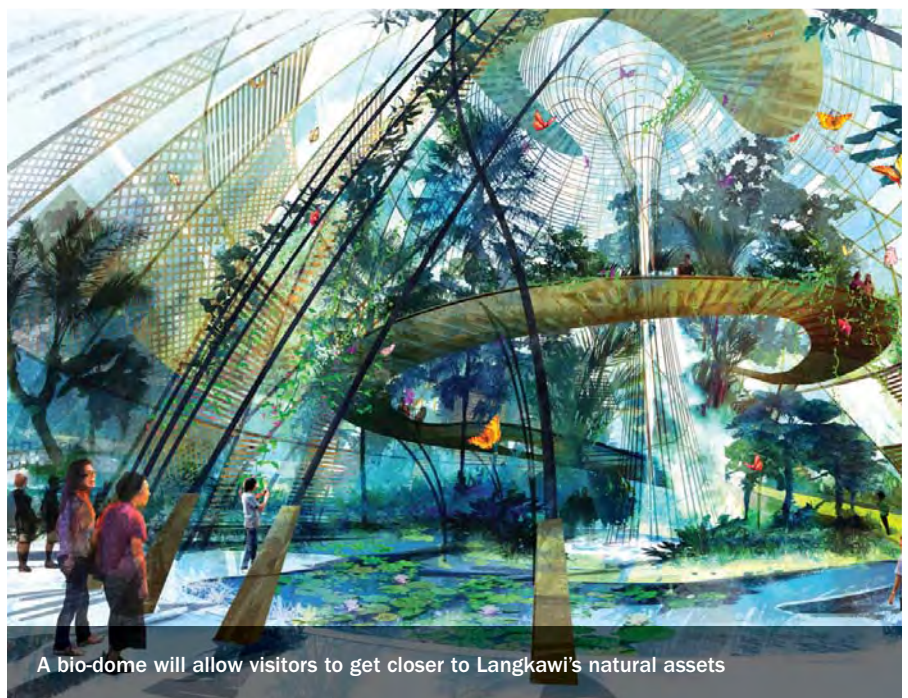
A new eco-theme park and island resort are being built on the idyllic island of Langkawi in Malaysia, as part of the country's bid to increase international tourism. We take a look at the early plans

GREEN PARADISE

Jennifer Harbottle, journalist, Attractions Management

Langkawi has long been revered for its beautiful beaches and natural wildlife, but in terms of attractions, it's kept relatively low key. Despite being only an hour's flight from Kuala Lumpur, in terms of international visitors, it tends to lose out to the neighbouring islands of Bali in Indonesia and Phuket in Thailand – but that could be about to change with the Malaysian Government's vision to position Langkawi as one of the top 10 tourist islands in the world by 2015.

The government-owned Langkawi Development Authority (LADA) is in charge of overseeing a number of new tourism initiatives on the island and has set itself a target of securing RM5bn (£948m, £1.5bn, €1.1bn) for private sector investments in various tourism projects over the next two years. LADA has identified two unique locations



A bio-dome will allow visitors to get closer to Langkawi's natural assets



for development, and in June 2013, a Memorandum of Agreement was signed between LADA and tourism and attractions developer, Pekan Artisan, granting Pekan Artisan an 80-year renewable lease on both sites to develop two separate tourism projects on the island.

Pekan Artisan, headed up by CEO Rob Wyatt, has previously worked in Malaysia on the recently opened cultural attraction, Melaka Alive! The company is now acting as the developer and masterplanner for the new US\$220m (£130m, €160m) eco-tourism attraction in Langkawi.

Cultural wonder

Site one is situated on the main island and it's here that Pekan Artisan will be developing Paradise Island Hotel &



Guests will experience Malaysia's natural wonders
such as mangrove swamps and jungle from the
eyes of species like the Langkawi eagle

Gardens on 13 hectares (130,000 sq m) of land. The mixed-use development will include a 250-room eco-hotel, retail, restaurants, and five main attractions celebrating local culture and wildlife.

The key attraction will be 'Langkawi Flight', a half-dome theatre with a moving platform, which will show an immersive fly-over film of Langkawi. The attraction is being developed in conjunction with D J Willrich who are in charge of the AV integration. Guests will experience Malaysia's natural wonders like the mangrove swamps and jungle from the eyes of different species, such as the Langkawi eagle.

Malaysia's traditional art of Batik painting will feature in parts of the attraction, including in the cultural village where visitors will be able to watch

and join in with local artisans as they craft, paint and play traditional music. Guests will also be able to watch interpretations of traditional Langkawi myths in mini theatres called 'Myth Pods' which will feature projection onto water curtains, using mixed media inspired by local arts like shadow puppetry (wayang), dance and marshal arts (silat).

Closer to nature

The last part of the eco-attraction will be a bio dome; an immersive walk-through attraction from sea bed to tree tops, that will allow guests to get up close and personal with Langkawi's impressive flora and fauna.

The total experience will last three to four hours and is aimed at a regional tourist demographic. "It's really an intro-

duction to Langkawi, as it gives you a glimpse of everything the island has on offer, for you to choose which parts you want to discover more of," Wyatt says.

The first phase of site one is set to open in 2015. After that's complete, phase two will begin, including a large projection show attraction up on the mountain, based on the history of Langkawi. Additional hotels and adventure trails are also planned.

The second development on site two is on one of the islands that forms Langkawi. Currently it's untouched, but Pekan Artisan is developing an 80-room high-end luxury boutique hotel here, named Sultan's Summer Place. This upscale retreat is due to open in 2017 – the same time as phase two of Paradise Island Hotel & Gardens. ●

RIVER TALES



Jennifer Harbottle explores Asia's first river-themed wildlife park with her family to find out if a day-trip to the attraction is all plain sailing

Jennifer Harbottle, journalist, Attractions Management

River Safari is the newest addition to Wildlife Reserves Singapore's portfolio of parks, which includes Singapore Zoo, Night Safari and Jurong Bird Park.

Built on 12 hectares on a site next door to the zoo and Night Safari, the premise of River Safari is to showcase freshwater habitats from eight iconic waterways such as the Amazon River, Mekong River and the River Nile. Claire Chiang, chair of Wildlife Reserves Singapore, says River Safari aims to "highlight the importance of freshwater ecosystems and inspire people to think about ways to conserve the world's waterways." The park will be involved in a global captive breeding programme for endangered freshwater species, like the giant river otter and the manatee.

The attraction is made up of two main experiences; Rivers Of The World, which is a series of walk-through freshwater exhibits about the animals and cultures

from each of the eight river habitats, and The Amazon River Quest boat ride, which takes guests along a 483m (1584 ft) man-made river to discover the animal species that live along the edges of the Amazon. The park claims to house one of the world's largest collections of freshwater animals, including 5,000 animal specimens and 150 plant species. It is also home to Kai Kai and Jia Jia, a pair of giant pandas that live in an exhibit along the Yangtze River zone.

According to Chiang, the original idea behind River Safari was to create a simple aquarium exhibit. Wildlife Reserves Singapore thought a freshwater aquarium would complement the offerings of its Singapore Zoo and Night Safari

The final concept for River Safari was agreed in 2006. Construction of the S\$150m (£73m, €87m, US\$119m) project began in 2010. Rivers Of The World opened in April 2013 and the Amazon River Quest ride in December 2013.



Kai Kai and Jia Jia are star residents

THE OFFER

The first part of the attraction takes guests on a journey of the major rivers of the world. It starts at the Mississippi River, where you can see beavers, alligators and paddlefish. Walking on, you get to the Congo River, home to colourful fishes and the dwarf crocodile. At the River Nile gallery, exhibits include the fearsome-looking African tigerfish with dagger-like teeth, while in The Ganges exhibit, there's the goonch catfish, with its reputation for attacking humans!

Along the Murray River, guests can learn how Australia is managing its river systems to stem the loss of its freshwater fish, before heading to the Mekong River which features an aquarium with a large underwater view of mega-fishes like the Mekong giant catfish.

Stunning scenic backdrops of China's highlands frame the Yangtze River exhibit where visitors can view the critically endangered Yangtze alligator and the world's largest amphibian – the Chinese giant salamander.

From here, the highlight of the walk-through galleries is the Giant Panda Forest biodome, where you get to see giant pandas, red pandas and golden pheasants. Built at a cost of S\$8.6m (£4.1m, €5m, US\$6.7m), it's the largest panda exhibit in Southeast Asia.



The park is involved in a captive breeding scheme for species like the giant river otter



On the Amazon River Quest, visitors hop on a slow, open-topped boat ride

LOCATION

River Safari is located in the north of Singapore, approximately 20 minutes' drive from the city centre. On the park's website, it even includes a tracker so you can estimate time and cost if you travel by car, taxi, bus or MRT.

OPENING HOURS

9am – 6pm, 365 days a year. The River Safari Tea House closes at 8pm.

ADMISSION PRICES

Adult tickets cost S\$25 (£12, €14, US\$20), child S\$16 (£8, €9, US\$13). The Park Hopper 4-in-1 is S\$89 (£42, €51, US\$70) for adults and S\$58 (£27, €33, US\$45) for children.



The Wild Amazonia section includes a view of the South American jaguar

In the second part of the attraction, Wild Amazonia has three main exhibits; Amazon River Quest boat ride, Squirrel Monkey Forest and the Amazon Flooded Forest. At the Amazon River Quest, visitors hop on a slow open-top boat ride down the Amazon River, where they see monkeys and exotic birds before entering a dark cave to see the South American jaguar, and disembarking for a walk around Squirrel Monkey Forest. Finally, the Amazon Flooded Forest is a

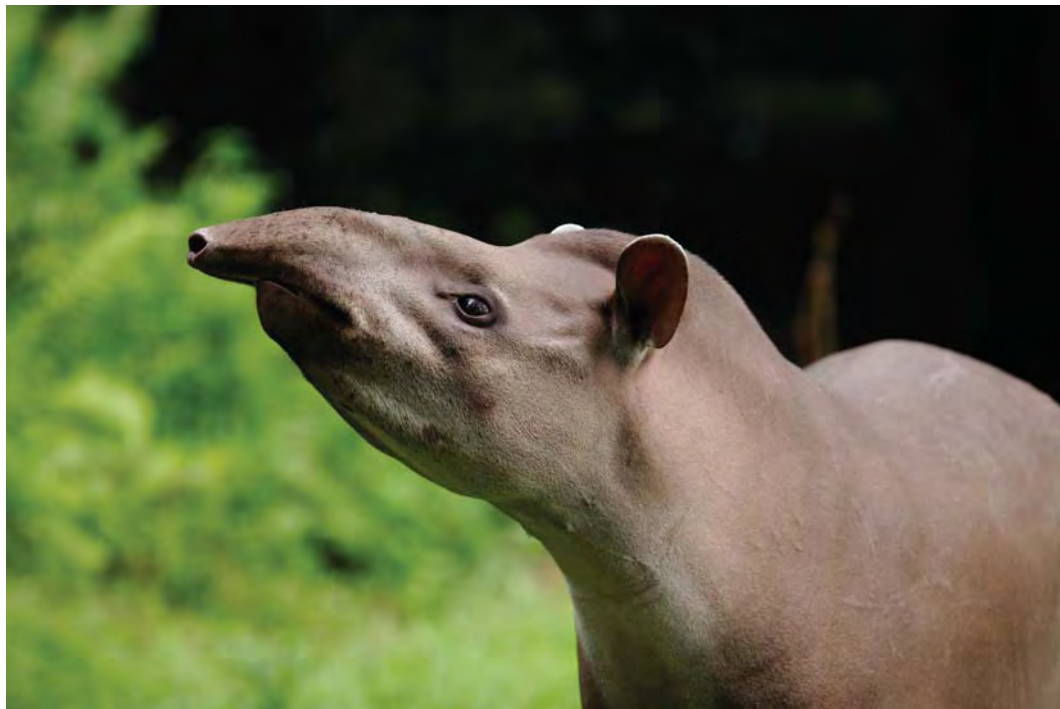
multi-level exhibit, which includes the world's largest freshwater aquarium, where visitors can see manatees and other creatures through a 22 x 4m (72 x 13ft) viewing window, with a view from the bottom of the forest floor up to the water's surface.

TICKETING

The ticketing booth services the zoo and Night Safari so it can get busy in peak times. A proper queuing system

has been set up to avoid queue jumping and there are plenty of staff members to help with queries while you wait, so buying tickets doesn't take too long. You can buy a single visit ticket for River Safari or purchase a Park Hopper ticket for one, two or three of the group's other attractions. Park Hoppers entitle guests to one visit per park within 30 days of purchase. Unlimited membership is available and tickets can be pre-purchased online to avoid queues. ►

MYSTERY SHOPPER



The park is teeming with animal life, including the Scarlet Ibis (top left), Caribbean flamingoes (bottom left) and Brazilian tapir (above)

► FOOD AND BEVERAGE

At the main entrance to the three parks, there are a number of F&B franchises, but if you want to wait until you're inside the park to eat, quality is top notch, but choice is more limited.

The main dining area is the River Safari Tea House, a quaint teahouse setting located at the Entrance Plaza. The menu offers over 60 different regional Chinese dishes. Next to the Giant Panda Forest is the park's other main eatery, called Mama Panda Kitchen. It features Szechuan-inspired cuisine such as bamboo rice, prawn dumplings and panda-shaped buns or 'paos'. Guests can hire a private dining area with a view of the pandas at an additional cost.

RETAIL

The House of Kai Kai and Jia Jia is a bamboo-themed shop house located next to the Giant Pandas featuring panda merchandise. The park's main retail outlet is the River Safari Shop at the Entrance Plaza. It sells furry toys, fish and all sorts of water-themed goodies and gifts and photos taken at various photo points along the way.

THE STAFF

Plenty of park staff are on hand should you need advice on where to go or what to do on your visit. The park follows a one-way direction for most of the attraction, so it's a case of following the path to see everything on offer. English

is rarely a barrier in Singapore and staff members are knowledgeable and enthusiastic about the product.

CLEANLINESS

Singapore is known for its cleanliness and this is a good thing in a visitor attraction. Because the park has just opened, maintenance isn't an issue yet, but hot humid conditions and water-based attractions tend to weather quickly in Asia so it will be interesting to see how signboards and fencing stand up over time.



Guests can buy panda-themed food



GREEN CREDENTIALS

River Safari is the first attraction in Singapore to be given the Building and Construction Authority's (BCA) Green Mark Platinum Award in the Park category. Located next to Singapore's Seletar Reservoir, the attraction has been built to minimise disruption to existing habitats around the area, including the construction of green corridors for wild animals. Engineering features include bioswales designed to collect rainwater runoff from roofs and footpaths to provide clean homes for native animals such as frogs, dragonflies and other aquatic animals.



OUR EXPERIENCE

I must confess that Singapore Zoo and the Night Safari are two of my favourite wildlife visitor attractions. When I lived in Singapore, I was a regular visitor to both parks as well as Jurong Bird Park.

On a recent Singapore weekend getaway from Malaysia with my family, I was excited to experience River Safari but also interested to see whether it could live up to the reputation set by its sister parks which set the benchmark for animal attractions in South-East Asia.

Rivers aren't really my thing, as I'm more fascinated by ocean animals and my three children weren't overly excited by the prospect of otters and cod. That said, the pandas were raising the squeal quota in the car as we set off first thing.

The experience really begins at the River Safari Entrance Plaza. Here, you can make use of a range of services, including stroller hire, restaurant bookings and park information. The River Safari Quest boat ride wasn't yet open to the public when we visited, so we were told the attraction would take a couple of hours to visit. Actually, we were there for three hours and could have even spent longer.

In the Rivers Of The World walk through, we learned about river conservation, and the fact a cultural element is brought into each zone makes it much more fun. Learning about the spiritual side of the Ganges and it's sacred waters, for instance, is a bonus you don't expect at a nature attraction.



The panda bears are definitely the main attraction at the park, which is food for thought given it's a river attraction. At feeding time when we visited their enclosure, we got so close to Kai Kai and Jia Jia it was like having a front row seat at a *Kung Fu Panda* movie.

The keepers deliberately spread out activities for the bears to encourage them to romp all over their pen and this gave almost all the spectators who were gathered a great view.

We chose to eat at Mama Panda Kitchen for lunch where they dish up red bean buns decorated as panda bears in little bamboo steamers. Our girls loved them, and for S\$6 (£3, €3, US\$5) they were really good value for money. Sadly, most other visitors thought so too and the queues in the restaurant were horrendous and the staff totally overwhelmed.

WHAT'S THE SCORE?

Toilets	10
Staff	9
Cleanliness	10
Experience	8
Value for money	7
Overall experience	9

SUMMARY

The attraction still needs to develop its storyline further so it clearly differentiates itself as a river-themed offer: currently it risks being perceived as a poor relation to Sentosa's new aquarium. However, overall it's a great day out, and in terms of operations and quality, it meets the high standards of existing attractions in the portfolio. ●

IAAPA ATTRACTIONS EXPO

IAAPA

Attractions
Expo

Almost 30,000 attractions professionals attended the IAAPA exhibition and conference in Florida, marking a 10-year high for the event. We profile a selection of new products launched at the show, and ask some of the attendees for their views on the latest trends in the attractions world

IAAPA AWARDS



Triotech's new dark ride attraction creates a different adventure for each player

Brass ring for Triotech dark ride

Montréal based TRIOTECH won a prestigious Brass Ring Award in the Best New Product Award 2013/ Family Entertainment Center Ride/ Attraction category for its XD Dark

Ride attraction. The ride is highly interactive, offering stereoscopic 3D graphics in real time and multi-sensory special effects to create a different adventure for each player.

IAAPA AWARDS

Lifetime award for Premier Rides' Jim Seay

Jim Seay, president of Premier Rides, world supplier of theme park attractions, was honoured with the Lifetime Service Award, given in recognition of an individual's contributions to the industry and IAAPA.

Seay began his career in the industry in 1988 with Six Flags Corporate Engineering Team. In 1996 he became president of Premier Rides where he helped develop the Linear Induction Motor and Linear Synchronous Motor-powered roller coaster. Seay has dedicated himself to the design, manufacture and operation of safe rides and attractions. He currently serves on the IAAPA Safety and Government Relations Committees and the IAAPA Foundation Board.



Jim Seay accepts his award

IAAPA AWARDS



Europa's Thomas and Michael Mack (l and c)

Europa-Park's ice and ABBA shows honoured

Two Europa-Park shows scooped prestigious Brass Ring Awards. The 'Ice Show Supr'Ice – Going on Vacation' and the ABBA Show 'Waterloo' were both honoured for best entertainment production.

The new Explorer ride from Huss

RIDES & EXPERIENCES

HUSS Park Attractions showcases two new offers

HUSS® showcased its new film-based ride concept, the Explorer, which can accommodate up to 70 guests, including wheelchair users. The experience begins with

a themed pre-show in the queuing area as guests watch the gondola descend into the 'earth'. Riders sit in the closed cabin facing outwards, looking through full height

glass sides for unrestricted screen views, while a 360° multi-projector film delivers high definition content.

The company also unveiled its new version of

The Condor, a popular ride back in the 1980s and 90s. The Condor 2-G offers an improved ride design, and guests can choose between two ride styles.

IAAPA AWARDS



Jora's John Ruisch (pictured right)

Aqua Bella show scoops IAAPA Brass Ring award

Jora Entertainment's 'Aqua Bella' attraction show received an IAAPA 'Brass Ring Award'. The company developed the show concept for the Dolfinarium marine mammal park in Harderwijk, in collaboration with Dutch companies Nuforma and White Villa. Mixing entertainment with messages about global waste, Aqua Bella features high quality audio-visual, including 3D video mapping on seven giant screens.

IAAPA AWARDS



John Wood (left) joins attractions greats

Sally Corp's John Wood joins IAAPA Hall of Fame

Chair and CEO of dark ride and animatronics company, Sally Corporation, John Wood has been inducted into IAAPA's Hall of Fame, which honours pioneers for their contributions to the worldwide attractions industry. Among the legendary honorees are Walt Disney (Walt Disney Company); George Ferris (inventor of the Ferris Wheel) and Jay Stein (Universal Studios Florida).

Wood was cited for his ideas and leadership in reviving family dark ride attractions around the world.

RIDES & EXPERIENCES



The new simulator offers interaction for three riders at once

Cruden makes waves at IAAPA 2013

Amsterdam-based Simulator company Cruden showed a new powerboat simulator at the show. Guests could climb aboard a Hexatech 3CTR simulator and launch themselves into the water in a dual engine P1 powerboat or fast interceptor military vessel, modelled by Cruden's vehicle dynamics engineers. It's the first Cruden simulator to offer an interactive experience for three guests at once.

RIDES & EXPERIENCES



WhiteWater's No Boundaries is a new adventure park housing a wide variety of activities

WhiteWater unveils dry amusement offers

WhiteWater Attractions showcased its portfolio of new dry amusement offers at IAAPA, from its new product family of Prime Interactives, Hopkins Rides, and Apptivations.

IAAPA visitors were the first to see Prime Interactive's newest attraction, No Boundaries™, an adventure park which combines elements and activities

for both harnessed and unharnessed participants.

The all-new Fusion Factory™ from Prime Interactives has taken all the best features from the old Foam Factory including blasting, dumping, vacuuming and shooting foam balls, and added new interactive laser blasters, laster tag technology, giant scoreboards, immer-

sive story and game play, music, lights, and mobile device integration.

Also unveiled was Raft Battle from Hopkins Rides, which engages both riders and participants on shore in a full 360-degree water battle. Finally, Apptivations showcased its latest entertainment technology, including Slideboarding and Apptivations.

RIDES & EXPERIENCES



nWave's The Lost World premieres at IAAPA

nWave Pictures Distribution premiered its newest 4D attraction film *The Lost World* at IAAPA. Produced by UK animation studio Red Star, and exclusively distributed by nWave to theme parks and attractions worldwide, the 11-minute 4D film tells the story of Bob, who goes on vacation

to a desert island only to discover a world of prehistoric dinosaurs. The company also confirmed the Spring 2014 release of its new 4D production, *The House of Magic: The 4D Experience*, which tells the story of Thunder, an abandoned young cat who stumbles into a magical old mansion.

The Lost World is a 4D dinosaur adventure

TECHNOLOGY



Gateway and Nigeria reps sign deal

Gateway signs ticketing deal for Nigeria parks

Gateway Ticketing Systems signed an agreement at IAAPA to use Gateway Ticketing Systems' flagship Galaxy™ product suite for ticketing and access control at the Delta Leisure Resorts and Asaba Wildlife Parks in Nigeria.

The parks, due to open in April 2015, will use the company's Galaxy product suite for point of sale for main gate, kiosk, online ticketing, retail and F&B.

The Delta Leisure Resorts anticipates upwards of 5 million visitors a year to the venues, which will include wildlife and water parks, hotels, nightlife and attractions.

Attractions access technology from OmniTicket Network

OmniTicket Network's Interactive Turnstile Transformer (ITT) was on show at IAAPA. The ITT turns turnstiles, counters or desktops into an interactive access control solution. It can be customised for each park's requirements, and offers a guest or operator-facing LCD screen, 2D barcode scanner, magnetic swipe reader, RFID sensor and a biometric reader.

Wristband technology from CenterEdge

Facility solutions provider CenterEdge unveiled a new wristband feature to its technology portfolio to help manage time-based capacity ticketing. Facilities can now have one computer printing to multiple wristband printers, which can print different coloured wristbands to differentiate ticket purchasers' time.

Look Out, Amusement Industry



WhiteWater has integrated its family of **ORIGINAL** amusement attractions under one name:

WHITEWATER®
Attractions

including Hopkins Rides and Prime Interactives (Formerly Prime Play)

Get Inspired at www.WhiteWaterAttractions.com

RIDES & EXPERIENCES



The gondola rises through four different levels, with a new story played out on each

ABC Rides unveils new SFX vertical dark ride

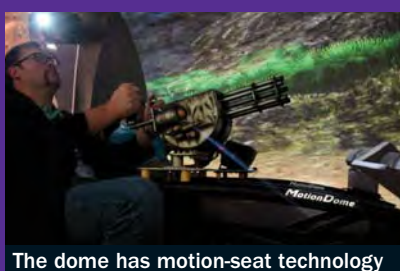
The Knights Ride Tower is a free fall ride for families, incorporating special effects on different levels and the thrill of a sudden freefall experience. The tower is mounted

on a specially-designed H-steel frame, with an attached gondola for 10 people. The gondola rises through four different levels, with a new story being told on

each level, via animated movies and AV effects. On level four, passengers are startled by a slap on the back before the gondola drops quickly to ground level.

Holovis' MotionDome launches in the US

Holovis launched MotionDome, the next generation of dark ride and gaming experience to the US market at the show. MotionDome is an immersive, interactive platform for 2D or 3D experiences. Audiences enjoy a 360° projection which uses auto-alignment technology to ensure a seamless finish. The solution is scalable from as few as 2-100 players with dome sizes up to 30m. The ride is completed with Holovis motion-seat technology and driven



The dome has motion-seat technology

by In-Mo™, a Holovis gaming and control technology that integrates real-time interactives into the dome.

Interlink seals rides deal for Nigeria parks

Theme park ride specialist Interlink has been contracted to play a key role in the Delta Leisure Resorts development in Nigeria, procuring 27 amusement rides for the project. Interlink is involved in the devel-

opment of three of the theme park zones and, in addition to bringing in rides from other suppliers, the company will be providing a Super Flume ride and Panoramic Tower from its own product portfolio.

GAMING



The Pac-Man range is expanding

New games from Bandai Namco

New titles from Bandai Namco included Mach Storm, a dome-screen, flying simulation and shooting game, placing the player in a cockpit, engaged in dog fighting over the skies of Miami, Tokyo, Washington DC, Dubai and Paris.

Alpine Racer, the popular ski simulator returns with a 55-inch screen. The game offers Nam-Cam, enabling a picture of players to be incorporated in the game. Other highlights include Pacman Swirl which joins Pac-Man Basket, Pac-Man Bowling, part of the emerging Pac-Man branded range.

Benchmark unveils games quartet

Benchmark Games, manufacturer of Coin-Operated Redemption Amusement Equipment, debuted four new titles at IAAPA . Headlining the quartet of new games was Benchmark Games' first original content, video arcade driver – Super Shifter Drag Race Challenge (SSDRC).

Blaster is a single player skills game, while Coin Flip is the first of the next generation Wheel Deal products, where players walk a coin down a rotating playfield. It's a four-player game in a brightly-lit LED cabinet. Finally, Spindrome is an intergalactic-themed spinner offering big ticket values.

Holovis[®]

Transforming Sensory Experiences



Immersive Rides



Domes



Interactivity



Media

See MotionDome, our fully interactive and immersive motion gaming solution at IAAPA booth 3805

London

Los Angeles

Shanghai

www.holovis.com

Photo courtesy of: Sofia Andersson, M&F Foto

IAAPA

Attractions
Expo

INDUSTRY VIEWPOINTS

What were the hot topics and trends being discussed at the show? We ask some of the exhibitors from across the attractions sectors for their views

Shawn McCoy

Vp of marketing & business development

Jack Rouse Associates



Attractions design

What's the talk in the industry?

The value of intellectual property, how to create a successful attraction model for a variety of new mall projects, expanding leisure markets in Russia and China, and the growing importance of guest-influenced visitor experiences. It's exciting to see how media, technology and simple human interaction are converging to create personalised visitor experiences where the audience becomes an integral part of the attraction.

What are the challenges ahead?

The industry needs to continue to focus on attracting and cultivating new creative talent – writers, planners, designers and producers. Programmes such as Carnegie Mellon's Entertainment Technology Center, University of Cincinnati's DAAP programme and SCAD's new Themed Entertainment Design Masters are creating great talent, and initiatives such as TEA's NextGen and IAAPA's Student Memberships are doing a great job of educating students about the possibilities in the attractions industry.

Sohret Pakis

Communications director

Polin Waterparks
& Pool Systems



Waterpark design & supply

What are the main issues or trends in your industry currently?

One of the biggest trends is theming. Customers love stories, so they want the parks that they visit to tell them great stories, including the park's rides. That means we need waterslides to be able to work with the themes and tell those stories too. That's one of the reasons we created the King Cobra waterslide – the very first waterslide to build theming into its design—into the fibreglass itself.

What new technology are you working on?

On the manufacturing process, we're focused on our RTM technology (resin transfer molding). This technology doesn't simply improve the looks of slides, it also creates stronger slides that use less waste in the manufacturing process, which is critical in today's environmentally conscious world.

The movement toward closed-molded technology will eventually displace conventional, traditional molding methods.

Stuart

Hetherington

CEO

Holovis



Immersive entertainment

What do you see as the main issues and trends in the current market?

Taking storytelling to the next level is a big industry focus – putting the user in the centre of the story, immersing them completely rather than watching on a flat screen.

Globalisation is another issue, with emerging markets starting to drive the quality agenda for the first time, and looking to create world leading solutions. This is putting pressure on the more established markets to be at the forefront of the visitor experience.

What effect are these issues having on your business?

The industry is in a very exciting place with emerging markets such as China going through a new period of growth. Offering parks one point of contact and a complete turnkey solution is a new business model which the Chinese market in particular is embracing. This has led to a lot of new opportunities and contracts which we will be delivering on in 2014.





Ernest Yale
CEO
Triotech



Interactive attractions

What are the current trends?

Interactive dark rides are hot, plus interactivity and digital technology are impacting on the amusement and attractions industry.

An interactive attraction grabs the guest's attention by involving them in the story, making the experience more rewarding and memorable. This increases positive word-of-mouth and re-playability (guests want to try the experience again). This multiplication of 'experience ambassadors' can have a strong impact on the operator's results.

Digital is further impacting the industry by facilitating greater realism. Operators can expand offers by modifying content more rapidly than on a traditional attraction.

John Wood
CEO
Sally Corporation



Animatronics & dark rides

What do you see as the industry's challenges?

Coming up with new ideas and products that can perform in the mass entertainment industry is an ongoing challenge. Suppliers from all over the world are always trying to create the next new and exciting attractions. We have great creative thinkers on both manufacturing and the operator sides of the equation.

What are the most exciting things happening right now?

When the buyers are buying, it's always an exciting time! Plus Disney's hard at work in China, Universal in Singapore, the Middle East is coming back to life, and Russia's more serious about leisure.

Geoff Chutter
CEO
WhiteWater West Industries



Waterpark supplier

What are the present challenges in the industry?

The challenges are intellectual property protection but in this area IAAPA is doing a great job in being very visible in protecting the turf of the 'creators' of new attractions. Public liability and tariffs remain an issue in many markets.

What are the most exciting things happening in the industry?

The dial-up of interactive play and the introduction of gaming into both the amusement park and the waterpark sectors are the most exciting trends we're seeing.

John Davies
COO,
UK Business Unit
Omniticket Network



Ticketing & access

What are the main trends in technology for attractions?

The trends are more towards mobile ticketing technologies – both in terms of being able to purchase tickets via mobile devices and also using the device directly at the access control point of the attraction. Increasing ticket distribution capabilities is another requirement, including the ability to activate remote media to be used as a valid ticket.

More mobile phone manufacturers are now incorporating NFC (Near Field Communications) technology into their handsets. This type of technology allows the phone itself to be activated as an admissions ticket, without the need to download and scan barcodes.

"It's exciting to see how media, technology and simple human interaction are converging to create personalised visitor experiences"

SHOW TIME

Lesley Morisetti reports on key messages from the IAAPA conference

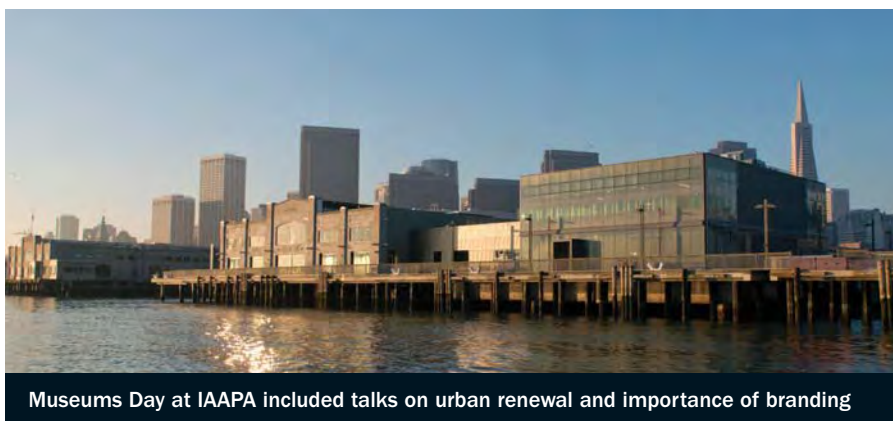
The show was the normal balancing act of trying to squeeze in visits to Orlando attractions to see what's new, attend parts of the conference, meet with current and prospective clients and get the most from all the wonderful networking opportunities.

Museums Day on the Monday included some interesting talks with speakers drawn from all sectors of the industry, proving how much we can all learn from each other.

The first session explored how museums manage their brands. Melissa Felder of the California Academy of Science discussed the importance of delivering on its brand promise. The museum has defined its brand personality as hip, intellectual, modern and accessible. Research indicates they're delivering on the first three but still have to work on accessibility.

The importance of the latter is shown by visitor research which indicates that satisfaction increases by five per cent when a visit includes some interaction with scientists/museum specialists. Rob Gallas of Chicago's Museum of Science and Industry (MOSI) reported on the need to get buy-in from staff to ensure the experience aligns with the brand. MOSI has brought together a cross-discipline team of brand champions on a Brand Council, which meets bi-monthly and is charged with ensuring that the museum keeps to its brand promise.

The second session explored what museums and science centres can learn from urban renewal. Museums expert Mac West reviewed cases where museums had been re-located to act



Museums Day at IAAPA included talks on urban renewal and importance of branding

"THE MUSEUM DEFINES ITS BRAND AS HIP, INTELLECTUAL, MODERN AND ACCESSIBLE"

as anchors for urban re-development projects. The benefit for the museum in each case was a new and improved building, often in a central location and often enabling the museum to re-locate alongside other museums and institutions, to create a cultural destination.


Examples given included The Exploratorium in San Francisco which moved to the waterfront as part of the re-development of Piers 15 and 17, the Museum of Nature and Science which moved to the Dallas Art District, and Peoria, Illinois where a number of museums were relocated to create a new Museums Square in an area which had started to decay.


These and other sessions touched on some of the key issues for visitor attractions today, including:


- Aligning your brand experience to your brand promise – stressing how important it is to deliver brand promises throughout the visitor experience and understanding that brand delivery needs to go far beyond just marketing and communication.
- Recognising the power of experiences – in the 80s attractions started to recruit from FMCG to bring marketing skills into the industry, now the retail and FMCG sectors are starting to recruit from the attractions industry
- It's all about me – the technical ability to make sense of customer profile and usage data is helping attractions to deliver on the desire of visitors to tailor their experiences at attractions, and influence the experience itself. ●





Lesley Morisetti, director, launched Morisetti Associates in 2010 to work with visitor attractions and experience providers, building on nearly 30 years of international operational and consultancy experience.
Web: www.morisettiassociates.com

 Kiddie


 Kart





 Major Rides

 Bumper Cars

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Gamma LeisurePOS



gamma dataware

Complete business solutions

Modular integrated management information systems for visitor attractions, museums, heritage sites and theme parks

Gamma Dataware Limited

Gamma LeisurePOS provides visitor attractions of all types and sizes with a complete end-to-end operational management system from admissions to back office reporting, analysis and accounting. The system's modular approach allows operators to implement any combination of modules to meet their specific requirements. While the integration between modules ensures that operators can easily produce cross departmental reports such as visitor spend analysis.

LeisurePOS modules include:

- ✓ Admissions and Ticketing
- ✓ Bookings and Event Management
- ✓ Membership
- ✓ Retail and Catering Point of Sale
- ✓ Stock Control
- ✓ Purchase Order Processing
- ✓ Mail Order
- ✓ Gift Aid
- ✓ Integrated Chip and PIN
- ✓ Web Interfaces
- ✓ Accounting and Payroll
- ✓ Reporting and Back Office Management

LeisurePOS options include:

- Wireless and remote hand-held POS units
- Ticket sales and collection kiosks
- Demographic data capture
- GPRS Chip and PIN for off site sales
- No web transaction fees
- Theatre Box Office sales

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PANDA POWER

Giant panda leasing is now big business around the world, but zoos looking to do deals with China must be prepared for a huge investment of both time and money. Jak Phillips examines the bare necessities of the practice

Jak Phillips, News Editor, Attractions Management

After five years of intense political negotiations between Beijing and Britain, the specially chartered plane finally touched down at Edinburgh airport. Anticipation was high amid the tangible sense of history in the making.

Having tracked the historic flight with 24-hour rolling news coverage, the world's media scrambled to snatch a glimpse of the two VIPs from China. They emerged, flanked by a dedicated team of aides, while high-ranking politicians waited in the wings to greet them. But it wasn't the Chinese Premier disembarking from the aircraft. It was a pair of giant pandas.

The hubris offers a telling insight into the peculiar practice of panda leasing. The pandas - Tian Tian and Yang Guang - were en route to Edinburgh Zoo to become the UK's first resident pandas in 17 years. Aside from five years of cajoling between the Royal Zoological Society of Scotland (RZSS - the charity that owns Edinburgh Zoo)

and the Chinese Wildlife Conservation Association, the deal to lease the pandas involved political and diplomatic negotiations at the very highest level.

Costs and conservation

In addition to the extra staff they require, the pandas - which remain the property of China - cost \$1m (€726,607, £609,998) per annum over the 10-year period. And that's before you factor in the estimated £70,000 (\$114,754, €83,381) the zoo must fork out each year for the pandas' 18,000kg of specially-grown bamboo. What's more, any cubs produced by the pair would be returned to China after two years. So why did the zoo go to all that trouble?

Apart from it being something of a coup (Britain's last resident pandas, Ming Ming and Bao Bao, left London Zoo in 1994) the gains - according to the RZSS - were seen as both conservation and financial.

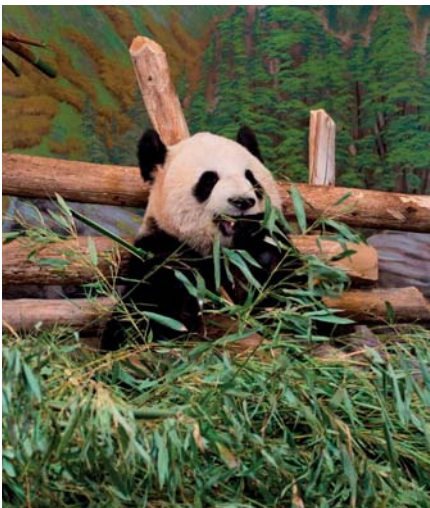
The zoo's director of giant pandas, Iain Valentine, says: "RZSS sought

to include giant pandas as part of their collection for a variety of reasons. Primarily as pandas are seriously endangered and we believe Scotland's expertise in animal nutrition, genetics, embryology, immunology and veterinary medicine could add to the overarching conservation programme, but also as they are a flagship species to highlight other conservation work.

"The commercial benefits were obviously part of the picture too." He says visitor numbers spiked by 50 per cent in the first year of the pandas' residency, covering the costs of the lease fee.

Media attention, public affection

Traditionally, zoos that lease pandas expect to see a drop-off in visitors by the end of the second year when the initial excitement has ebbed away, but Valentine says that Edinburgh Zoo has evaded this, with its pair of pandas receiving their one millionth visit in December 2013 - two years after they first arrived. "Our business model



Although bamboo for Er Shun (left) and Da Mao costs \$200k per year, Toronto Zoo's visitor figures have increased 30 per cent year on year



Visitors to Edinburgh Zoo spiked by 50 per cent in the first year that the pandas became residents, and interest remains high

“Environmental protection awareness is at the heart of our mission and giant pandas are global ambassadors for species survival and protection”

regarding giant pandas has always been extremely conservative. To date we've not seen any tail off in interest and we've bucked the trend for a panda zoo in year two," he says.

"Realistically there'll be a reduction in visitor levels at some point, however no zoo that has ever had giant pandas in recent years have ever returned them – all have extended their agreements."

Of course, the biggest boon for generating visits and publicity is the birth of a panda cub. At 1/900th of their mother's size – one of the smallest ratios for a newborn mammal – panda cubs are appealing to visitors and newspaper editors alike, driving up gate receipts and earning huge amounts of publicity.

The media went into minor frenzy last summer after speculation that Edinburgh's Tian Tian might be pregnant. However, in the end it's suspected she may have miscarried.

In the absence of nature's miracles, zoos have been forced to explore innovative showcasing methods to maintain the panda buzz. Toronto Zoo became the world's latest recipient of cubs when it welcomed Er Shun and Da Mao in March 2013 and the centre has sought to heighten public interaction with the cuddly creatures by creating its Giant Panda Experience exhibit.

Panda interpretation

The centre offers conservation and educational features designed for adults and children, using a variety of graphics and model displays, as well as interactive features, multi-media games and audio-visual presentations.

One element particularly popular with visitors is the food display, which shows the amount of bamboo each panda eats in a day and also "panda poop" to illustrate the output of the

bamboo. "At 8,000 sq ft (745 sq m), the Panda Interpretive Centre, is one of the largest panda educational facilities in the world," says Toronto Zoo's chief operating officer Robin Hale.

"The centre employs many state-of-the-art interactive features to convey the importance of habitat preservation for the protection and survival of many threatened and endangered wild species, not just the giant panda."

Toronto Zoo's approach appears to have paid off. Recent attendance figures show a year-on-year increase of 31 per cent for the five months since the exhibit opened, and the zoo says it's ahead of budget on revenue projections.

So far it seems, the pandas are earning their keep, which is just as well when you consider their bamboo, specially flown in from a plantation in Memphis, comes to \$200,000 (€145,000, £122,000) a year. ▶



Toronto Zoo's Panda interpretive Centre is one of the largest panda educational sites in the world and offers many interactive exhibits

But as Hale states, it's not just about the money. "We've always placed environmental protection awareness at the heart of our mission and giant pandas are global ambassadors for species survival and protection," he says. "A key objective of the 21st century is to show people the connection between wildlife survival and protection and sustainable human development."

Beijing benefits

The practice of obtaining pandas from China - the only country in the world to have them - is not new. Known as panda diplomacy, its growth in popularity has both aided and mirrored Beijing's march towards superpower status.

Originating in the 1950s as a brain-wave of Chairman Mao's for opening up

diplomatic channels, the gifting of pandas to foreign nations proved so popular that China gave 23 pandas to nine different countries from 1958 to 1982.

But since the mid-1980s, China has stopped giving away pandas for free, instead leasing them for around \$1m (€727,000, £610,000) per year over what is typically a decade-long contract. But despite the price hike, the western public's love of pandas remains undiminished, helped perhaps by their indelible position in the culture.

Ever since the WWF chose the panda as its logo in 1961, the bear has come to represent one of the most treasured and mysterious creatures of nature, while modern movies like box office hit *Kung Fu Panda* have attracted a whole new generation of fans.

Weighing up costs

But despite optimistic figures coming from Edinburgh and Toronto, Dave Towne, president of the Giant Panda Conservation Foundation for North America, insists leasing a panda is more a labour of love than a calculated business decision. "I spend most of my time discouraging various institutions from trying to go after pandas, unless they have a really strong commitment and a large cheque book," he says, pointing out that zoos face additional costs for extra staff, feeding and entertaining Chinese visitors, as well as having to fund further research and projects.

"It's being used effectively by China. As I've told a lot of elected officials in US cities - you've got to be brave as it's a long commitment that will require \$15-30m (€10.9-21.8m £9.1-18.2m)."

China's use of panda diplomacy has drawn scrutiny in recent years. In a research paper published in *Environmental Practice* journal in September 2013, a team from Oxford suggest that since 2008, panda loans have come about at the same time China has been signing trade deals for valuable resources and technology.

The researchers claimed that panda loans made to Canada, France and Australia coincided with trade deals for uranium, while reporting that the Edinburgh panda exchange was closely followed by an estimated £2.6bn (\$4bn, €3.1bn) worth of contracts between China and Scotland for the supply of salmon, renewable energy technology and Land Rover vehicles.

FLYING PANDAS - BY FEDEX

The high-profile nature of modern panda leasing has turned the practice into big business - best exemplified by the fact that transporter Fedex now offers a panda express service to fly bears around the world.

Having flown polar bears, white tigers, elephants, a rhinoceros, lions, gorillas and a 13ft (4m) tiger shark, Fedex set up its panda express in 2000 and has so far carried 12 pandas across the globe.

The nine-hour flight to Edinburgh in 2011 required 21 months of co-ordination between three teams of specialists in three countries. With custom-made

Plexiglas enclosures, a dedicated team of four experts on board plus copious amounts of bamboo and mineral water, the pandas received VIP care during the 5,000 mile flight from Chengdu.

While FedEx inevitably benefits from the exposure of these major media events, its managing director of UK & Ireland ground operations Trevor Hoyle is keen to point out: "FedEx Express does not charge for transporting the pandas. We feel honoured to be called upon to ensure safe passage, thus indirectly helping with the efforts to save the endangered species."



PANDA PARTICULARS

- Giant Pandas have a black and white coat, with black eye patches and ears which make them very distinctive. Adults can grow to over 1.5m long and weigh up to 150kg
- Pandas often give birth to twins. In the wild, the mother will choose one cub to raise and leave the other to die. The discarded cub is raised by zoo staff in captivity
- Panda cubs grow up to 10 times their birth weight in the first five to six weeks
- Following ancient Chinese tradition, giant panda cubs are not to be named until they have been alive for 100 days
- A giant panda can eat up to 38kg of bamboo a day and will only select the best bamboo, rejecting as much as 85 per cent of it. This can take up to 16 hours to eat each day
- The giant panda's teeth are approximately seven times bigger than a human's, which helps the animal chew and eat its mountains of bamboo

Source: Edinburgh Zoo, Toronto Zoo, BBC



Edinburgh Zoo's Yang Guang and Tian Tian have raised the profile of the attraction

PHOTO: ROB MCDONALD

"No doubt it's [panda diplomacy] about trade," says Towne. "The Canadian loan came about after Prime Minister Stephen Harper's trade visit to China. Beijing wants a relationship with Canada because of its coal and oil supplies"

Panda protection

With China's panda populations on an upward spike – the last WWF survey in 2004 estimated there were 1,600 pandas in the wild, and this number is since thought to have grown – leasing solely for the sake of conservation objectives now seems less plausible.

Despite attracting criticism from wildlife groups who say panda diplomacy is cruel and unnecessary, the benefits for China's wild and captive panda populations appear to be evident.

Under wildlife treaties and the lease agreements, all of the money paid to China for the pandas is reinvested in conservation projects across the coun-

try's north where the bears primarily reside. China gained huge media attention in September 2013 when it showcased 14 panda cubs artificially bred at Chengdu Giant Panda Breeding and Research Base, hailed as a major breakthrough.

"It's amazing to see the amount of work that goes into preserving the pandas," says Xiaoping Lu, division director at the CITES management authority in China. "The exchange of people between China and the US has helped towards knowledge sharing, leading to key developments in technical assistance, breeding technology and nutrition management."

As for the pandas travelling overseas, Lu insists that no pandas are ever taken from the wild and that bears are carefully selected from the country's estimated 300-strong population in captivity.

The notoriously secretive mating habits of the panda has led to perceptions of it

being a fragile creature which is highly vulnerable to change, but this is actually a misconception.

Pandas living in captivity abroad often live to be around 30-years-old – far longer than their life expectancy in the wild, which is estimated by experts to be around 20 years.

"Pandas are very adjustable animals and the most resilient of any I've dealt with," says Towne. "The care afforded to these loaned pandas is very extensive, both medically and nutritionally. They're well looked after and only two per cent die prematurely in captivity now, which is pretty incredible."

Regardless of whether panda leasing is seen as a costly loss-leader, an investment or a huge revenue generator for the attractions, the success of conservation efforts and huge appetite for these creatures among visitors, means that successful panda diplomacy is likely to continue well into the future. ●



Waterparks need to ensure their attractions offer something for all the family, including dry offers too

THE NEXT WAVE



How can waterparks keep their offer fresh and exciting, and what should they be investing in for the future? Franceen Gonzales outlines some of the key trends that are helping waterpark businesses entertain customers all year round

The toughest decision in my career was to move from being an operator to working for a supplier. As one person put it, “there was a disturbance in the Force...” when I made that decision public, as some joke that becoming a supplier is going to the “dark side”.

But becoming a supplier is more like the other side of the same coin. We have the same objectives for creating great guest experiences. I’ve known the waterpark industry as an operator for more than 25 years and I’m very familiar with the product so it’s exciting to be working in concepting, designing, engineering, constructing, and delivering attractions to operators who are, like me, focused on the guest experience.

There are some big picture trends I’m seeing in the business that makes this

new journey very exciting. The following are some of the trends I see now and going into the future.

The Hero Shot

Operators always want an iconic ride that will give them a competitive advantage, so they’ve focused on the ride experience for marketability. But that also means educating the would-be customer on what the product actually does and feels like.

Lately, I see many rides being developed that may not have significant thrills but look great. A nice paint scheme, some exaggerated curvature, graphics, or lighting effects are making the ride look great even if it isn’t the most thrilling ride. The trend in the short term will be for ‘sexy’ rides, but the most successful rides will have an appealing look and offer incredible thrills to the guest.

Great vistas and ‘hero shots’ are important elements to a ride not just for the ride experience, but for the marketing campaign. So it’s no surprise that a great looking ride is of value, but a ride where guests are raving about the experience will endure.

Hybridisation within parks

There was a time when parks were classified as a theme park, waterpark, or family entertainment centre. The only hybrids were big theme parks that had standalone waterparks or FECs with a couple of waterslides. Today, parks are becoming more and more hybridised, making it hard to classify a park as strictly a waterpark. Many have incorporated dry rides, from huge rollercoasters to dry play areas or ropes courses.

Great success has come from combining large waterparks with state-of-art



The desire for more and more thrills is fuelling the boom in more daring water rides, as well as more adventure and challenge courses at waterparks



FEC attractions with arcade, bowling, mini-golf, and upscale restaurants. This hybridisation is meant to create some weather-resistance but to also appeal to those who don't really want to wear a swimming costume.

Hybridisation within rides

There's an interesting phenomenon that occurs in our business. In years with little park development, there is a bit more innovation. Ride manufacturers need to come up with rides that set them apart from their competition as the few rides that will be purchased are likely to be iconic to drive the gate.

But in park development booming years, little innovation happens as manufacturers are spending their time on the standard capacity rides going into all those new parks. So it's no surprise to see with booming development in Asia and other parts of the world that, with a few exceptions, we're seeing tweaks to existing rides rather than completely new ride concepts.

An easy approach is to take aspects of the best existing rides and combine the experiences. This works to create iconic rides, but how those ride

elements are combined and operate successfully remains to be seen. These combinations can look good, but how the ride forces work together needs significant engineering and testing. I see this trend sticking around, as there are some really good-looking ride elements that give not only the hero shot as stated earlier, but also offer thrill elements for a heightened ride experience.

Adventure and extreme sport

Just as reality TV has become the norm, so has an appetite for adventure and extreme sport. There are any number of survivor shows that highlight the thrill of sport and the adrenaline that comes from perceived risk while pushing one's body to achieve a goal.

It's this thrill that's fuelling the boom in adventure and challenge courses. Take this concept and make it into a

family-friendly, yet challenging attraction, and you could have an instant hit. We've seen playgrounds in public settings become bland as there are perceived risks municipalities don't want to take on, but in our FEC environments, with trained supervision to enhance the experience, challenge courses can be great fun and a completely different, safe experience for kids and adults alike.

Zip lines, ropes courses, climbing walls, and other adventure sport elements are becoming ever popular and we'll likely see advances in the equipment and large-scale applications in places like waterparks and theme parks instead of just eco-tourism attractions. This trend will likely endure despite the tendency of novel equipment to lose its appeal after a few years.

The difference is the application in high-quality environments with spec-

“TODAY, PARKS ARE BECOMING MORE AND MORE HYBRIDISED, MAKING IT HARDER TO CLASSIFY A PARK AS STRICTLY A WATERPARK”



Something for everyone: Mount Olympus in Wisconsin Dells, US, describes itself as one of the world's largest combined water and theme park resorts

tacular vistas or well-designed spectator viewing areas that drives revenue.

Waterproof phones

I was looking through a catalogue and found a device that you wear to sound an alarm when your child, pet, or phone is too far away. It struck me that we now have electronic leashes for our devices as they're just as important as our children and pets! So it's no surprise that a trend we're seeing is interactivity between rides and family experiences using our smartphones. Push notifications and text coupons are old hat – now it's about an app that posts your pictures online with location tags or a video game app that mimics your ride experience while at the park.

Interactivity is what makes the difference. The communication is no longer just one-way, and as phones become water-resistant, this interactivity will go to the next level. RFID technology and interactive games have been innovative experiences more traditionally used in dry environments, but we're now seeing this same technology being introduced into wet environments as these devices are easily submerged. If you don't have a phone, you can still have that interactive fun through a wand, glove, tablet, or any number of devices.

“THE COMMUNICATION IS NO LONGER ONE-WAY, AND AS PHONES BECOME WATER-RESISTANT, THIS INTERACTIVITY WILL GO TO THE NEXT LEVEL”

Reinventing ageing assets

All the trends could play a role in reinventing ageing assets. The waterpark industry is now well over 30 years-old and there are many slides and pools that need a new look. They're probably still great attractions with plenty of appeal, but guests are always looking for something new.

It may be time to reinvent ageing assets by updating a colour scheme, layering in interactive technology, or perhaps adding an iconic element to an existing standard ride. These additions or changes could make rides more marketable, and all for a fairly limited capital expense.

The same goes for retheming play structures with new facades and new interactives. Video and lighting effects can be spectacular additions to a standard ride as well as adding video game elements. There are so many possibilities for existing rides that I

anticipate we will see more of this at waterparks that may have limited capital or space for expansion.

As a former operator, I'm constantly thinking about the park guest. I love seeing innovation in our industry and it's not just about the biggest capital projects, but also those smaller scale projects that have great impact on guest experience.

It's heartening to see entrepreneurialism in hybridising attractions in parks, parks embracing technology in an environment not previously conducive to electronics, as well as parks reinventing. This is what keeps our industry innovative and progressive. ●



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GOING MOBILE

In this apps and audioguides round up we look at the latest technology making visitor experiences an interactive multimedia affair

Kate Corney, product editor, Attractions Management

Podcatcher for Walker Art

The National Museum Liverpool, UK and Guide ID teamed up for a new project at the Walker Art Gallery. It uses Guide ID's new Podcatcher P300 audioguide to offer an audio tour of the highlights of the art gallery. The audioguide has improved battery life, design and better sound quality. The Podcatcher P300 is also set up to offer new features, including email marketing and advanced visitor research. The new-style Podcatcher also has a hearing aid feature, which can connect with hearing aid loops, which is being used at the gallery to offer an equal experience to as many visitors as possible.

The Walker Art Gallery is also using other tools on the Guide ID platform, for instance, the system automatically collects data on how it is being used by its visitors. Visitors also take a 12-question survey at the end of the tour. The results are then available via the online Content Management System, which is updated every day and the content



Visitors enjoy all the highlights of the Walker Art Gallery via Podcatcher

can be customised. The gallery is using this flexibility to introduce promotional messages through the guide about its other sites and services including the shop, the café and special events. It also promoted a future exhibition, David Hockney: Early Reflections with a message: "If you like Hockney's work, come back for our exhibition 'David Hockney: Early reflections'. It's about his work in the 1960s and 70s. It's at the Walker from 11th October 2013".

The David Hockney exhibition is also using the new Podcatcher to offer an audio tour and to carry out visitor research and evaluation.

Guide ID is also planning to launch apps for IOS and Android as part of

▲ The Hockney exhibition is using the new Podcatcher for visitor research

the tours. The free Podcatcher App will let visitors choose content from a list, numbers on a keypad and via QR-code scanning. Visitors using the app will also be able to see other museums and sites where they can use it. The app will not require WiFi or an internet connection during the tour and there will be a text overlay feature for hearing impaired visitors.

attractions-kit.net **KEYWORD**
guideid

Catching butterflies

Visitors to the Academy of Natural Sciences of Drexel University, US, can experience the museum in a fun, new way through their smartphones. Located in Philadelphia's Parkway Museums District, the Academy features four floors of interactive exhibits, including dinosaur skeletons, a tropical garden filled with live butterflies, live animals to touch and historic dioramas of global habitats.

The free interactive app called ANS Explore! engages visitors on a quest to uncover hidden secrets and earn virtual badges while making discoveries. The app guides visitors on a quest to find 'escaped' butterflies throughout the museum. Players scan the butterfly-shaped QR codes to earn badges and unlock interesting information about the animals, habitats and other features of the exhibits. The app also offers butterfly illustrations to colour in, as well as a butterfly-catching game that visitors can play anywhere. ANS Explore! was created by students at Drexel University's Antoinette Westphal College of Media Arts & Design. Developer Daniel Barboni, an undergraduate in the



The free app guides visitors on a quest to find 'escaped' butterflies around the museum

Digital Media program, says the team designed the app to be updated and adjusted as exhibits change.

The current theme of the hunt of capturing escaped butterflies correlates with the Academy's Butterflies! exhibit. "The goal is to get kids and parents to explore more of the academy

and learn things they might not have known," Barboni says.

ANS Explore! is for Android and iOS operating systems and can be downloaded at the AppStore or GooglePlay.

attractions-kit.net **KEYWORD**
drexel

The Silverwood App

Bar-Z, the mobile app development company, has created a mobile app for guests visiting the Silverwood Theme Park and Boulder Beach Water Park, US.

Designed to inform and guide visitors, the app also acts as digital promotion of the park, which features more than 65 rides, slides, shows and attractions. The Silverwood App provides access to everything in Silverwood, Boulder Beach, and Scarywood. It acts as a tool for pre-trip planning and as a personal in-park tour guide.

The app includes an interactive custom map of the park that indicates the user's current location and shows closest points of interest. Video, images and descriptions of each attraction are designed to entice and educate visitors. Social media integration and a digital postcard feature offer guests the opportunity to share their park experience on



The Silverwood App acts as a personal in-park tour guide for visitors, pointing them to the nearest points of interest

Facebook and Twitter. Deals and events listings help guests stay up-to-date with the park event calendar and new promotional offerings.

Bar-Z's software-as-a-service offer includes a Content Management System to enter, edit and host app content that's streamed to both iPhone/iPad and Android apps. Bar-Z handled all the app development, publishing to the app stores and ongoing app maintenance to implement operating system updates and new features. The app is on free download for iPhone and iPads, and Android Smartphone and tablet devices.

attractions-kit.net **KEYWORD**
barz

App tracks Pompeii's devastation



The app helps transport visitors back to the time of Pompeii and Herculaneum

Apadmi's app for the British Museum, UK allows guests to access information on the Life and Death in Pompeii and Herculaneum exhibition.

Available on iOS and Android on some devices, it is designed to let visitors explore Pompeii and Herculaneum using street maps of the areas, with key objects featured in the exhibition plotted on the maps. The app also includes insights into what life was like along the themes of urban context, commerce, religion and beliefs, wealth and status, grooming and adornment, relaxation, entertainment, and food and drink.

Each theme has an exclusive video introduction by the exhibition curator, Paul Roberts. Experts in Roman history, including Mary Beard and Andrew Wallace-Hadrill from Cambridge and Amanda Claridge, professor of Roman Archaeology at Royal Holloway, share their insights and shed light on what life was like in Roman cities. Specially recorded excerpts from the first-hand account of Pliny the Younger, who witnessed the eruption of Mount Vesuvius in AD79, provide the narrative in an immersive soundscape that brings the animation to life and illustrates how the two cities and their inhabitants met their end.

There is also a timeline showing the devastating progress of Vesuvius in the 24 hours of the eruption where users can tap information points to find out more.

attractions-kit.net **KEYWORD**

apadmi

Imagineear sends in the cavalry

Imagineear has developed an interactive audioguide for the Household Cavalry museum, UK, set to re-open in April 2014 following redevelopment.

Imagineear created a touch-screen guide using its personal multimedia MPtouch tablet, which visitors collect from reception to guide them on a journey through the operational and ceremonial activities of the regiment.

Listening to the guide with headphones provided by Imagineear, visitors interact with the screen to explore the long history of the regiment since its formation under Charles II, understand the importance of the ceremonial activity alongside operational campaigns, and listen to first-hand accounts of modern warfare.

At 23 points throughout the museum, visitors are invited to immerse themselves in the stories of the objects they are looking at. They can view a camel saddle while watching original footage of the Household Cavalry riding cam-



At 23 points in the museum, visitors can immerse themselves in the stories of the objects on display

els during the early 20th century. They can listen to a first-hand account of the 1982 Hyde Park bombing in front of the helmet of Trooper Simon Tipper, who was killed in the attack. While studying the tiny piece of paper it was written on, guests can hear the Riot Act read to them, as it was by the Household Cavalry. The guide prioritises the stories that make up the cavalry's heritage, and is available in multiple languages.

attractions-kit.net **KEYWORD**

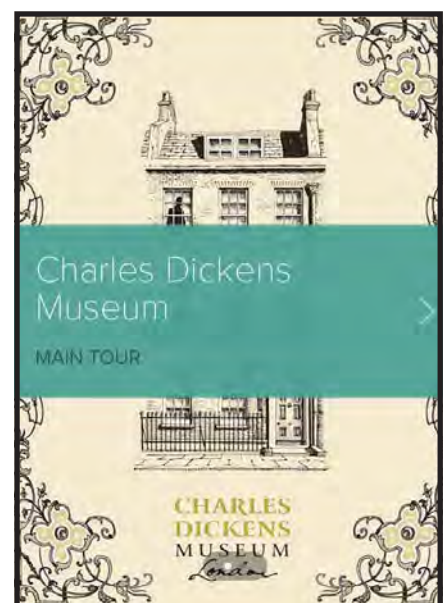
imagineear

Storytime with Charles Dickens

Acoustiguide has launched its new Acoustiguide Mobile application at the Charles Dickens Museum, London, UK. A popular visitor attraction at Christmas, opening even on Christmas Day, Acoustiguide launched eight tours at the museum.

The Charles Dickens Museum is the first UK client to have the new Acoustiguide Mobile application available on-site. The tours include an English adult tour, children's tour, a storytelling tour, and multiple language versions as well as a tour for the visually-impaired, which is delivered on Acoustiguide's Opus equipment. The tour is narrated by Ollie Dickens, Dickens' great, great, great grandson, and includes unscripted interviews with Michael Slater, who wrote Dickens' biography. Further additional content was added to the tour in January and released on the App Store.

Acoustiguide has also provided iPod Touch players in specially-designed robust cases for visitors to hire on-site.



Users can listen to narration by Dickens' great, great, great grandson

attractions-kit.net **KEYWORD**

acoustiguide



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FINE PRINT

Recreating and archiving ancient artefacts is just one of the benefits that 3D printers can offer attractions operators, says John Nuttall

A

s an exhibitor at the Museum & Heritage show at Olympia, London, UK in May 2013, what struck me most was the diversity of projects that people in this sector were undertaking and the level of interest shown in how they could realise these projects through 3D scanning and printing technologies.

For several years now, the global media has been awash with stories of 3D scanning and printing (including the infamous 'plastic' gun) and everyone wants to be a part of the new technology, wondering how it may contribute to their sales and services in the coming years.

With the advent of sub-US\$1,000 (£650, €770) 3D scanners and printers, there's an urge to get involved because of the low level of investment needed. However, there's a downside with production quality in this entry-level equipment, which is aimed at the home and hobby market.

You get what you pay for, and greater levels of complexity are required – both in the 3D scanning process and in 3D printing – to create professional exhibits, props, models, archive material and other items. The equipment involved at this level runs into tens of thousands of dollars and requires an intricate knowledge of the associated 3D software and hardware, so some people may find it wiser to invest in a professional 3D scanning service for their project rather than purchasing high-end equipment.



The applications of 3D scanning and printing are starting to become limitless. Virtually anything is possible

The technology has moved from the industrial sphere to the creative industries like film and TV

3D SCANNING

Scanning in 3D has been around for a couple of decades and has developed mainly in engineering circles to scan, manipulate data and manufacture or reverse-engineer industrial parts for the automotive and aerospace industries.

The development of 3D scanning equipment in this time has resulted in extremely accurate point-clouds of information creating a mesh, which can then be manipulated, rendered, used for casting or milling purposes, or printed out in 3D. Static 3D scanners are available for accurately scanning very small objects, such as jewellery or machine parts. Hand-held and laser-arm scanners are used for larger scale objects which need more comprehensive capture of the surface area, and large tracking scanners are capable of scanning whole buildings.

3D PRINTING

3D printing allows 3D data to be "printed" in thin layers of ceramic, plastic and wax (for casting purposes) to build up the model and is ideal for industrial prototyping. Like 3D scanning, it has been around for a while in the engineering industries, but in the last few years the technology has improved with the demand.

For large-scale items, which can't be printed on the footprint of even the largest 3D printers on the market, the 3D data can be used for milling purposes



Full 3D bodyscanning means that a person can now be scanned in 3D and the data used to print a figurine

to create large-scale objects from metal, stone and other suitable materials.

Increasingly, the emphasis is shifting to the commercial and creative markets where the 3D data captured from the work of traditional model makers, for example, can be used to create sets and props for the TV and film industries.

This data-capture is also used in the film industry to rig the mesh and animate a scanned person or model-made creature and bespoke installations and the archiving of precious items in a non-damaging scanning process are proving popular with the attractions, museum and heritage industries.

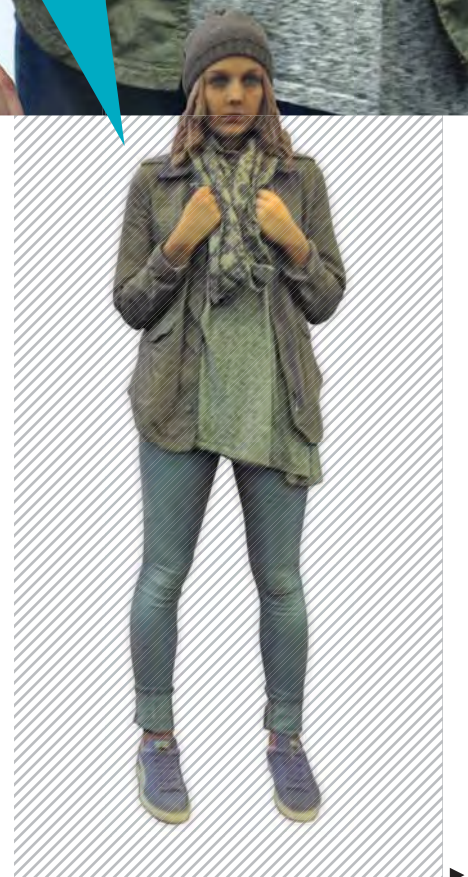
Full 3D bodyscanning is now also available, meaning a person can be scanned in 3D and the data printed as figurines. This is becoming popularised in the form of pop-up shops in supermarkets or at exhibitions and festivals where the general public can be scanned and a colour

3D scanning is also being used to prototype designs and to develop exciting Augmented Reality projects

3D-printed figurine mailed to them at a later date (current 3D machine printing technology is still too slow to do on-the-spot printouts). Corporate clients are using the technology to 3D print their staff, fine artists are starting to experiment with the capabilities of 3D scanning and printing, and advertising agencies are using the technology to develop or revamp product packaging.

Fashion houses are using 3D scanning to prototype designs and generate 3D rotatable web imagery for products, while the data from 3D scanning is being use in pioneering Augmented Reality projects.

And so the applications of 3D scanning and printing start to become limitless.





The historic Eisteddfod Black Chair – a symbol of a lost generation of young men in WW1 – was replicated

[CASE STUDY]

THE POIGNANT STORY OF THE EISTEDDFOD CHAIR

3D printing company Quod was commissioned by the Snowdonia National Park Authority and CyMAL to scan and reproduce the 'Black Chair', which is associated with the National Eisteddfod of Wales.

Welsh poet Ellis Humphrey Evan – who adopted the Welsh name Hedd Wyn – entered the Eisteddfod poetry competition under the assumed name of 'fleur-de-lis' in 1917. Tragically he was killed soon afterwards at the Battle of Passchendaele, just weeks before his entry was declared the winner.

The winner is traditionally presented with the Bardic Chair – on this occasion a wonderfully ornate work of art created by a Flemish refugee craftsman, Eugene Vanfleteren, who decorated the chair lavishly with Celtic and Welsh symbols and motifs, making it one of the most impressive Eisteddfod chairs ever made.

When the poet 'fleur-de-lis' was announced as the Eisteddfod winner on September 6th, 1917, by the Archdruid and it was found that he had died in battle and was unable to claim his chair, a black sheet was draped over it and it was returned to his family farm in North Wales where it remains to this day.

The chair is symbolically seen to represent a lost generation of young men who died in the First World War.

In the small surroundings of the farmhouse, using hand-held 3D scanners, the chair was scanned to pick up the incredible detail in the woodcarving. With this information, the original chair has, in effect, been archived and the data can be used to re-engineer it in its entirety. In addition, people all over the world can now read the story of Hedd Wyn and see a rotatable version of the chair online.

Virtually anything is possible, and for the attractions, museum and heritage industries, this means the ability to archive (or recreate) precious items, create 3D interactive installations, or print out miniature novelty items and facsimiles of objects

PRINT PREDICTIONS

So what does the future hold for 3D scanning and 3D printing? As technology hurtles along, it won't be surprising to see great advances in the quality of both scanners and printers, along with more competitive pricing and ease-of-use of the software and hardware to make the process more accessible to the public.

Printed foods, such as chocolate, are becoming available and various manufacturers are looking at the possibilities of people downloading 3D templates for household items and furnishings, which they can print out on home 3D printers.

It's now possible to print in around 200 different materials, including 99.8 per cent titanium, using metal laser sintering, which will bring huge leaps forward in healthcare, while bespoke dental materi-



The 10-minute experience captured an image of the visitor, which was later sent to a 3D printer to create a figurine, before being shipped to its owner

[CASE STUDY]

The Star Wars D-Tech Me figurine promotion ran earlier this year and was priced at just under \$100

als and body parts such as patellae are being tailored to individual needs.

And what of printing organic matter? Even further into the future, almost to the realms of science fiction, scientists and engineers are looking at replicating more than just metals, plastics and ceramics.

Bruce Hood – a psychologist at the University of Bristol – in his 2011 book *The Self Illusion*, says: “Imagine a machine that can copy any physical object, right down to its basic atomic structure. It can perfectly duplicate any material thing, irrespective of what it’s made of or how complicated it is.

“Remarkably, engineers are working on precisely this type of machine known as a 3D printer...It’s the sort of technology that would make constructing colonies on distant planets more feasible without having to transport every object.

“At the moment the technology is fairly crude and solving how to build internal structures of complicated objects made of different substances presents considerable challenges. However, just as the printing press of Johannes Gutenberg

3D FIGURES ARE A STORMING SUCCESS

Disney took full advantage of 3D print technology during its Star Wars Weekends events by giving fans the opportunity to put their face on a 3D-printed Stormtrooper figurine. The D-Tech Me experience at Disney’s Hollywood Studios used a high-resolution single-shot 3D face scanner created by Disney Research labs.

The 10-minute experience captured an image of the visitor, which was later sent

to a high-resolution 3D printer to create a figurine, before being shipped to its owner. Disney also resurrected a popular Cast yourself in Carbonite option inspired by a scene from *The Empire Strikes Back*. Fans received either a Carbon-Freeze Me light-up band or a collector button depending on which option they chose.

The Star Wars D-Tech Me experience was priced at \$99.95 (£60, £72) plus shipping and the applicable sales tax.

was considered a technological marvel in the 15th century, yet seems primitive by today’s standards, it may simply be a matter of time before we can manipulate matter to create accurate duplicates.”

Back on earth, for those operating in the attractions, museum and heritage industries, 3D scanning and printing is rapidly becoming a focal point in the areas of archiving, bespoke exhibition materials and educational projects.

The ability to create fully rotatable and high-resolution objects from 3D-scanned originals means children and students can interact with the 3D image in a screen environment where the item may be too precious to be handled. Or they

can handle the recreated 3D printed version to experience size and detail.

From an archiving perspective, 3D scanning can capture high-resolution detail of an object, person or even a building. Whatever the size or scale of your project, 3D scanning and printing is here to stay and can add an array of solutions to help your operation. ●



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Watchout for mammoth HD video wall spectacle

Standing at more than 15m tall and 60m wide, The Big Picture High Definition video wall at the Suntec Exhibition and Convention Centre, Singapore, relies on Dataton Watchout multi-image display and presentation software. Watchout manages the large-format, dynamic and ever changing content, presented on 664 integrated LG LED flat panel displays. Dataton created a single robust system to handle video and data for the huge real-time display.

attractions-kit.net **KEYWORD**

dataton



New Martin Professional hazer for large venues

Martin Professional has created a new, efficient CO2 hazer designed to produce fine-particulate atmospheric mist effects for large venues. The Martin Jem Ready 365 Hazer uses an advanced water-based fluid to produce a transparent haze. It has an automatic shutdown with battery backup to prevent clogging and running out of gas, even if gas pressure is lost.

attractions-kit.net **KEYWORD**

martin

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Beer on the menu at AV Stumpfl cinema show

A new walk-in cinema at Stiegl Brau-welt in Salzburg, Austria, features a panorama film about beer and its origins. With a floor projection on a 200 sq m surface, the installation is controlled centrally using AV Stumpfl products Wings Touch and Avio and features automatic evaluation and status information display, such as lamp hours and error messages. Four AV Stumpfl Wings Engine Play Dual and three AV Stumpfl Wings loboxes are being used for the cinema projection and the show control.



attractions-kit.net **KEYWORD**

av stumpfl



attractions-kit.net **KEYWORD**

robe

Robe shines on Starlight Express in Johannesburg

Robe moving lights were used as part of an intricate special effects lighting design for the rollerskating musical Starlight Express by Andrew Lloyd Webber. Staged at the Mandela at the Joburg Theatre Complex, South Africa, the lighting was created to be big, bold and spectacular for the large scale production with over 600 lights. In the overhead lighting rig were 18 Robe Robin MMX Spots and 18 Robe ColourWash 700E ATs. Individual side lights used 12 Robe ColourSpot 700E ATs and 18 Robe LEDWash 600s.

log on to www.attractions-kit.net and type the company name under 'keyword search'



TDC's Sydney Opera House projection show

Technical Direction Company (TDC) achieved a projection show spectacular to celebrate the 100th anniversary of the national Australian fleet entry into Sydney Harbour. It was displayed onto both sides of Australia's Sydney Opera House and Sydney Harbour Bridge. The evening spectacular also featured fireworks launched from seven warships. TDC used 56 Barco projectors positioned at various angles and at great distances - some up to 700m away from across Sydney Harbour so that the projection was visible from all around the harbour.

attractions-kit.net **KEYWORD** **tdc**



attractions-kit.net **KEYWORD**
werobots

Robots add a special touch for visitor sites

Austrian company Attraktion! and German firm MetraLabs have teamed up to create robot products for visitors. WeRobots are designed to be sociable, adaptive and able to orientate themselves by measuring rooms three-dimensionally and identifying humans. They communicate - speaking all world languages - and have a 15 inch multi touchscreen, integrated camera and a microphone. WeRobots offer a content management system so indoor venues can use their own content and information. A VIP function enables WeRobots to save customer-specific data and preferences on loyalty cards.



Cosmo AV shines at the Moscow Light Festival

Cosmo AV, specialist in video mapping images, lit up the The Bolshoi Theatre as part of the Moscow International Festival, The Circle of Light in October 2013. Cosmo AV created content projected on the facade of the magnificent building with mixed video and computer generated images, supported with music by classical music composers Rachmaninov and Tchaikovsky.

attractions-kit.net **KEYWORD**

cosmo av



A giant projection spectacle for Delhi

TricolorIndia and The Projection Studio have created a new permanent immersive multi-media spectacle at the Guru Tegh Bahaur Memorial at Singhu Border, Delhi, India. TricolorIndia delivered the technical infrastructure, including projection, lighting and audio. The looped 20-minute visual show runs every night and is based on five elements of nature, earth, wind, fire, water and void, and uses fantastical natural and Indian mythology imagery.

attractions-kit.net **KEYWORDS**
the projection studio



DEAL 2014

DEAL welcomed almost 6,000 trade visitors to last year's event, and this year the show will be even bigger

Organisers of the Dubai Entertainment, Amusement and Leisure Show (DEAL) are planning to create their largest ever showcase of world class entertainment products at this year's event

DEAL has grown to become one of the most effective 'launchpads' in the Middle East for stakeholders within the amusement and related industries. Now in its 19th edition, this year's show takes place from 8-10 April at the Dubai World Trade Centre, UAE, and will be almost 20 per cent larger than last year's event (which welcomed 270 companies from 33 countries, and almost 6,000 trade visitors).

The event's creator, International Expo Consults (IEC), regards the growth of the global attractions industry as serious business. IEC says that

according to a report by Global Industry Analysts, the world market for theme parks is expected to reach US\$31.8bn (Dh116.8bn, €23.2bn, £19.2bn) by 2017.

The Middle East, Asia-Pacific and Latin America are poised to see the biggest growth rates during this period, according to the report.

Demand is on an upswing and there are opportunities to be tapped in North Africa and the Far East Asia regions as well. Here, countries are gearing towards 'retail entertainment' where a large retail entity supports an entertainment zone that includes not just rides but cinema, and F&B, it states.

Consumer preferences are moving towards adrenalin-pumping rides, interactive games, 7D simulation games, redemption games and high-tech video games among others.

Another key factor that will boost the entertainment and amusement sector in the Middle East is Dubai's EXPO 2020 win. An estimated total funding of €6.6bn (US\$8.2bn, £5.1bn) has been earmarked for the event, with €5.5bn (US\$6.8bn, £4.1bn) anticipated as investment for the Expo's infrastructure.

Dubai's economy is set to receive an added value boost of around €17.7bn (US\$24.2bn, £14.6bn). An estimated 25 million visitors are set to arrive in the



Show dates: 8-10 April, 2014

Timings: 11.00 hrs to 19.00 hrs

Venue: The Arena, Dubai World Trade Centre, Dubai, UAE

www.dealmiddleeastshow.com

WHO SHOULD VISIT?

- Owners, managers, operators of all types of FEC leisure attractions and theme parks
- Architects, developers and designers
- Contractors and consultants
- Food and beverage managers
- Investors and entrepreneurs
- Tourism operators
- Mall and retail managers
- Real estate developers
- Decision-makers from the whole spectrum of leisure sites

country as a result of a successful bid, thus influencing tourism, trade, infrastructure and investment.

DEAL 2014 will see a large gathering of key players and visitors, and many familiar leading names as exhibitors from the international attractions and leisure industries. This year's show will welcome leading names such as AFP technology – Wavesurfer, Empex Water Toys, Fabbri Group, Huss Park Attractions, International Play Company, Lagotronics Projects, Mack Rides, Neptune-Benson, Polin Waterparks & Pool Systems, Proslide Technology, Rainbow Productions, Sanderson Group International, Saturn Imagineering, Water Technology, Whitehouse Leisure and Whitewater West. ●

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