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STAYING AHEAD

After decades of crazy inventions being the stuff of sci-fi, this year marks the point where they hit the mainstream, with affordable tech coming to market in everything from VR to drones, robots and augmented reality. We need to grab it with both hands, figure it out and make it our own

Visitors expect their attractions experiences to be more astonishing, exciting, immersive, engaging and high-end than anything they can get at home or simply buy for themselves off the shelf.

This has always been a fundamental challenge for attractions, and as consumer electronics suppliers push out evermore sophisticated products at evermore affordable prices, the competition is accelerating, intensifying and shape-shifting.

All operators need to take a view on this – where do you stand on technology? How will you harness it, how will you pay for it, how will you integrate it into your attraction in an effective, appropriate way to enhance the entire experience?

New tech is coming at us thick and fast in all areas from VR to augmented reality, robots, holograms, drones, beacons, Internet of Things sensors and micro-controllers. Many of these inventions, products and ideas are not new, but are moving from being concepts to practical, affordable and implementable options.

VR tech is advancing so rapidly, for example, that some very cool tools will be available at entry-level prices within a year, including VR functionality on smart phones. This means we'll see competition emerging in the most unexpected places.

And other tech is coming on-stream fast. Only last month, real-time holographic American football was announced for Microsoft's HoloLens, enabling fans to watch games live as holograms, replay them and even be among the action. This means we'll be competing even more directly with the sports market than at present, unless we move to collaborate.

Also making fast progress is emerging tech giant Magic Leap, which just scored another round of funding – US$800m – for further development of its augmented reality lightfield device (see page 32). This will have amazing applications for museums and science centres when it's brought to market.

Every sector – from museums to theme parks – needs to tackle the challenge its own way, but the one thing industry experts agree on is the importance of keeping up with change.

> **Every sector, from museums to theme parks, needs to tackle the tech challenge in its own way**

Speaking at the Museum Tech conference recently (see page 32), a Museum Association panel of experts told delegates "risks must be taken to develop new technologies, with those playing it safe risking getting left behind." They advocated testing tech within attractions environments and committing wholeheartedly to innovation.

There's a role for sleight of hand in some applications: by combining VR with existing rollercoasters, the world's leading theme parks are reskinning existing attractions and creating new ones within tight budgets: Universal Studios Japan has added VR to an existing coaster as part of its 'Cool Japan' pop-up attraction, while Alton Towers is gearing up for the relaunch of its Air rollercoaster as Galactica, a space-themed VR ride. Nine more VR coasters are expected to open this year as parks tap into this 'software refresher' for rides.

So it's not just about buying in the latest tech, we need to be creative with the application and make it our own to stay competitive and continue to meet the expectations of visitors.

Liz Terry, editor @elizterry

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PHOTO: GERHARD TAATGEN

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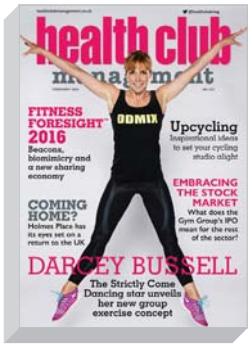

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"A glimpse of what the future holds for theme parks the world over"

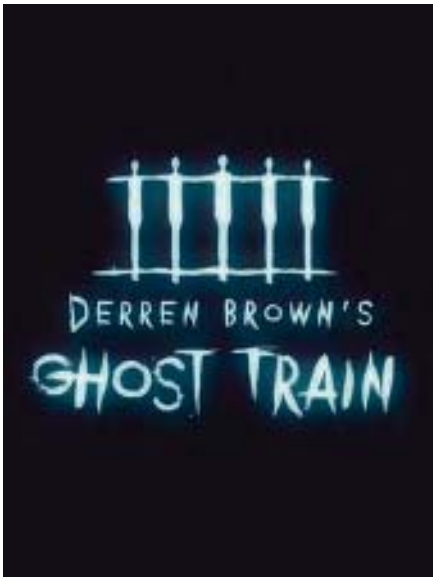
Derren Brown, illusionist and TV personality

The excitement is palpable as the public awaits a revolutionary new "ghost train attraction" opening at Thorpe Park near London this spring. The man behind the concept is TV illusionist and mentalist Derren Brown, famed for his ability to control the behaviour of others.

"With the creative and operational teams at Thorpe Park and Merlin Magic Making [MMM], we're completely reinventing the concept of a ghost train for the 21st century," says Brown. "The experience will rewrite the rules of what a theme park attraction can deliver."

The 13-minute multi-sensory experience promises to combine VR technology (using HTC Vive headsets), grand illusion and live action with a 4D dark ride, central to which is a 20-metre (66-foot) Victorian train carriage – seemingly suspended in mid-air. The themeing is modelled on a real Victorian train depot near Willesden Junction, with every architectural detail recreated by the MMM team.

Derren Brown is famous for influencing decision-making and using mind control techniques to influence behaviour. He's been working with Merlin for three years



"We're using everything from Victorian techniques – Pepper's Ghost, for example – to the latest technology," says Paul Moreton, MMM global creative director.

"It's the mix of different elements that create the experience. We'll be specifically using virtual reality, but this isn't a VR ghost train. VR will enhance the experience rather than be the experience," Moreton says.

It's understood that there are 12 possible journeys, and two different outcomes.

Brown's carefully crafted hidden-camera TV shows feature psychological control and hypnotism. He's persuaded strangers to commit robbery, land a plane or believe they're the last person on the planet.

Most details of Derren Brown's Ghost Train are being kept under wraps, but the ride is meant to leave guests questioning where perception ends and reality begins.

"I firmly believe that this kind of multi-sensory, mind-blowing attraction represents a glimpse of what the future holds for theme parks the world over," says Brown.

Brown has been working on the project in secret with Merlin for the past three years. It's involved the work of more than 1,000 specialists and represents Thorpe Park's biggest investment to date.

"This is not an experience for the faint-hearted," Brown says, adding that no further details will be revealed.

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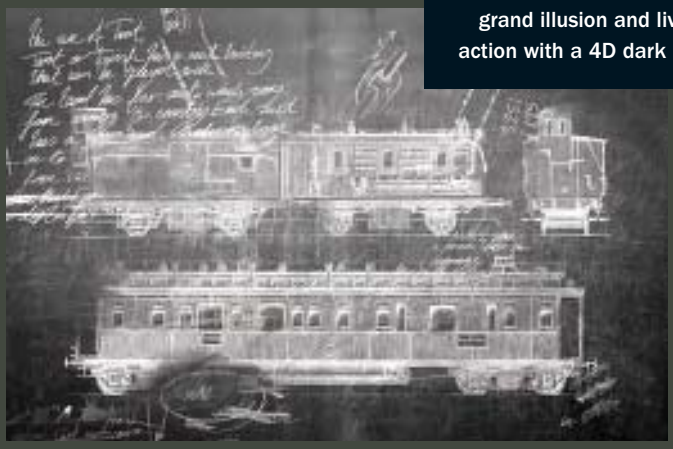
The budget for Derren Brown's Ghost Train has not been revealed, but Thorpe Park said it marks its biggest ever investment



The multi-sensory experience promises to combine VR technology, grand illusion and live action with a 4D dark ride

"We'll reinvest in the show to make sure it's mind-blowing every year"

Anne-Isabelle Daulon, CEO, Eleven Arches

Kynren is a live action theatrical spectacular, telling the story of the past 2,000 years of British history

As the UK anticipates the opening of one of its most important new attractions – the Eleven Arches historical park in County Durham – a 1,200-strong volunteer cast is rehearsing for the premiere of its live-action show, *Kynren*.

Steering the ship is Anne-Isabelle Daulon, CEO of Eleven Arches, a Puy du Fou-style attraction that promises to bring 2,000 years of Britain's history to life against the backdrop of Auckland Castle.

The project is the brainchild of millionaire philanthropist Jonathan Ruffer, who wanted to do something to sustain the castle and regenerate the town of Bishop Auckland. Puy du Fou is Eleven Arches' artistic partner on the project, working to create a British extravaganza to match the quality of the French.

Purpose of Eleven Arches

Daulon, a Frenchwoman who has lived in the UK for almost 20 years, is helping to "bridge the cultures", she says. With a background in investment banking, she's overseeing the financial direction of Eleven Arches, a charitable foundation with a budget of £31m ($44m, €41m).

"One of our charitable purposes is education," Daulon says. "We're achieving that through the training of our volunteers and raising awareness and interest in history in our audience. It's 'stealth education', meaning visitors learn about history without even realising."

Eleven Arches will also boost tourism in County Durham, bringing an estimated £4.75m ($6.7m, €6.2m) to the area, and by making *Kynren* – which premieres on 2 July – a night show, Daulon says they're encouraging visitors to the region to maximise their overnight stays.

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All the Eleven Arches actors and backstage help are volunteers from the local area

"Then they will visit other local attractions, sleep in hotels and eat in restaurants," she says. "Overnight guests spent £161 per person in County Durham in 2013. Day trippers spent only £90."

Daulon started working with Ruffer after she was introduced by a mutual acquaintance. After he told her about his vision and his plans for the site by the castle, Daulon wrote to Nicolas de Villiers, CEO of Puy du Fou, asking if he was interested in being involved with the project.

"It's a meeting of mind and soul between De Villiers and Ruffer," Daulon says. "Both projects – Puy du Fou and Eleven Arches – started from the same premise, to regenerate and reinvigorate a region with a show. Both men share the same love for a region and the same passion for history. They also both believe that if you know who you are and where you came from, you will do better in life. Sometimes it's as though they've known each other for decades."

Operating on the same not-for-profit model as Puy du Fou – which puts up to £10m ($14m, €13m) back into the show every year – Daulon says: "We'll reinvest to make sure the show is mind-blowing every year. That will build the legacy, sustainability and longevity we want to achieve. If people come each year, there'll be more visitors to the castle and surrounding destinations."

● Tickets for the experience – which will be performed on a open-air stage in front of 8,000 people a night – are now on sale.

"Three things make a successful museum tour: guides, games and gossip"

Nick Gray, founder and CEO, Museum Hack

They're museum tours for people who don't like museums, and Nick Gray, founder of private museum tour company Museum Hack, was once one of those people.

"I used to hate museums. I thought they were the most boring places in the world, and some of them still are," Gray says.

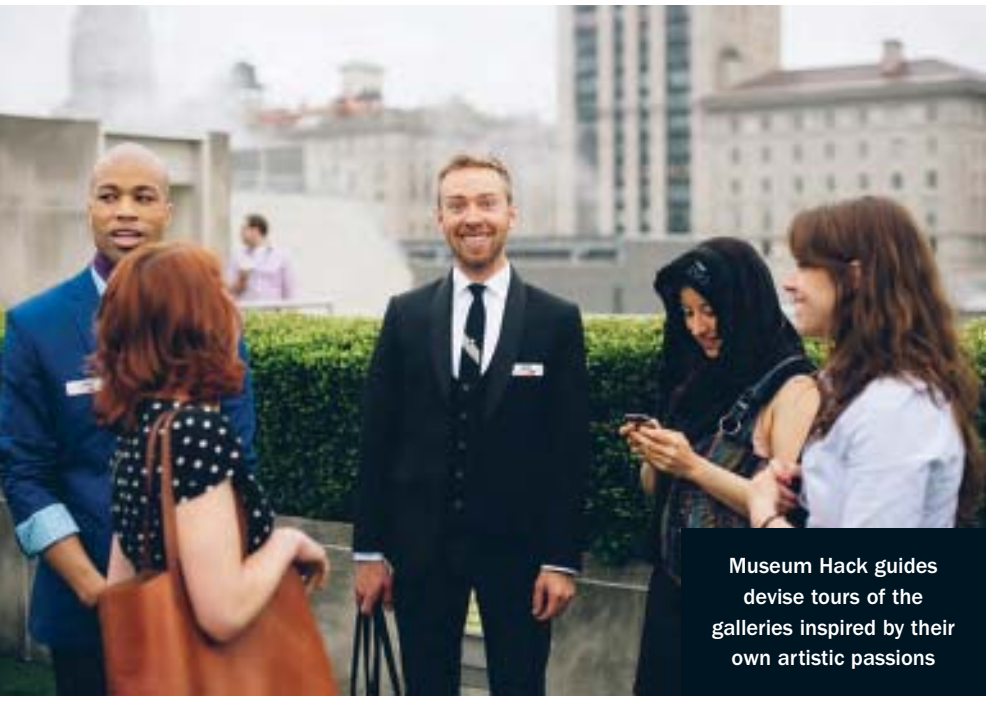
Today he's in charge of an extraordinarily well-received enterprise that offers alternative tours of the Metropolitan Museum of Art in New York, as well as in Washington, DC, and San Francisco. On TripAdvisor, a Museum Hack tour at the Met is one of the highest-ranking things to do in New York City, with a five-star rating.

"There are three things that make a successful museum tour: guides, games and gossip," says Gray, who believes today's audiences have to be entertained before they can be educated. "We don't hire guides based on whether they have a PhD in art history. The most important thing is that they're great storytellers."

Guides engage the group with games and activities, and the "gossip" comes from finding out fascinating and unusual facts – the "juicy backstories" – about the art.

"The tours are two or three times more fast-paced than an ordinary museum tour," says Gray. "A lot of our target audience is in the ADD [attention deficit disorder] generation – always on their phones, always going from one thing to another. So that's the kind of speed we maintain."

Tours are conducted by guides who have designed their own unique routes through the museum, based on their own passions and interests. There are six or seven people in a group, and the price per person is $59 (£39, €54), including museum admission.



Museum Hack guides devise tours of the galleries inspired by their own artistic passions

At the Met, Museum Hack is registered with the Group Services office, in a similar way a foreign language tour guide would be.

Musuem Hack also offers teambuilding tours, family-friendly tours and tours for big groups like bachelorette parties. It works with museums around the world to do staff workshops and training programmes.

The company, which now has 24 employees and has hosted about 6,000 people on its tours, has been branching out into other areas and recently invited by a global sports company to train its staff in Musem Hack's storytelling techniques.

The Hackers also worked recently with a newly renovated luxury heritage hotel in Times Square, the Knickerbocker.

"The Knickerbocker hired us to do their staff training. The hotel has all these crazy stories about Babe Ruth and the Titanic, for example. We trained their staff to be tour guides to tell these stories," Gray says.

The business has come along way since Gray quit his job to focus on Museum Hack in July 2013. The definitive moment came a couple of years before that, when his opinion about museums was challenged.

"I was brought to the Met on a date," he says. "The museum was empty and my date basically gave me a private tour, which unlocked a sense of curiosity about history and art that I never knew I had."

Gray began touring his friends around the Met and soon his friends were bringing their friends. "Soon I was doing so many tours that I decided to establish a business."

Now it's about attracting Millennials. Gray says they have to be engaged at the speed and pace they're used to – perhaps something the sector can learn from?

"Absolutely! I would love it if museums stole our ideas and put us out of business. I know that will never happen, but if they did steal our ideas then great. It's important to engage fresh audiences with art."

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The aquarium will take the visitor on a journey through many types of habitats

"The aquarium will take you on a journey from the inland Everglades to the Gulf Stream"

Gillian Thomas, CEO, Patricia and Phillip Frost Museum of Science

Gillian Thomas, president and CEO of Miami's Patricia and Phillip Frost Museum of Science, is confident the high-profile relocation of the museum to its "next generation" new home on Miami's waterfront will be completed despite a turbulent few weeks.

Reports of a $45m (£31m, €42m) shortfall in funding were assuaged when Patricia and Phillip Frost, the project's main donors, stepped in with a bridge loan and appointed a new board of trustees.

"The importance of the Frost Museum project and the stage we've got to means it's something everyone wants to see happen," Thomas says.

The Grimshaw-designed attraction is entering the final construction phase, but ran up higher bills than expected and is struggling to meet the total project cost of $307m (£214m, €284m). The Miami-Dale County Commission is considering a proposal to provide the extra funding.

The 250,000sq ft (32,225sqm) building is set to feature a 3D planetarium, a wildlife centre and hands-on exhibits exploring everything from aviation to human health. The planetarium is an example of the innovative and progressive nature of the attraction, as it's going to be possible to see projections on the outside and inside of the dome. The science museum is also working with the New World Symphony and videographer Jonathan Kane to develop an interactive exhibit for the new fulldome.

Thomas says they are working with Kane to create something where "people

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The 510,000 gallon tank will be a huge reveal for visitors to the aquarium at the Patricia and Philip Frost Museum of Science in Miami

can listen to the music while seeing what is happening inside their brain projected on the walls. That's the kind of weird and wonderful thing we're trying to develop."

Meanwhile, Thomas says the museum's aquarium will "take you on a journey through five habitats; from the inland Everglades to an amazing moment of reveal as you enter the Gulf Stream and see our 510,000 gallon tank."

"It will get people to realise the importance of these habitats and provide a feeling of wanting to do something to preserve it. It's going to be extremely beautiful," Thomas says.

"Not everything will be there at day one. We see the museum as a kind of canvas, and some elements will come along later."

● See: Frosts act to save museum, page 20

The 3D planetarium and the New World Symphony want to project audience brain activity

Frosts act to save Miami science museum

A turbulent bid to build a world-class science museum in Miami is back on track after two principal donors stepped in to provide crucial funding to the cash-stricken project.

The $307m (£214.1m, €283.5m) Patricia and Phillip Frost Museum of Science is entering the final construction phase, but a $45m (£31.3m, €41.5m) funding shortfall emerged last month due to higher-than-expected construction costs and a failure to attract sufficient levels of donor pledges.

However, the Frosts – who had already donated $45m – have now provided the money needed for construction firm Skanska to continue work on the project. The pair's bridge loan will cover costs until a private bank loan is secured and Miami-Dade County decides whether it will provide a grant to fund the shortfall.

Construction on the 250,000sq ft (32,225sq m) Grimshaw-designed building – which is set to feature a 510,000 gallon aquarium, 3D planetarium and wildlife centre – is now expected to be finished in time for a 2016 opening.

As part of the loan agreement, the Frosts demanded a wholesale change in the museum's board of trustees.

■ Details: http://lei.sr?a=S8Q9R_T

PHOTO: PATRICIA AND PHILLIP FROST MUSEUM OF SCIENCE

■ Construction has entered the final phase of development

Museums enter discussions for new London sites

Both London's Science Museum and Natural History Museum have confirmed they are in preliminary discussions about opening satellite sites as part of the multi-billion pound redevelopment in west London.

The 30-year Old Oak development plan – conceived as the UK's largest regeneration project with around 135 hectares (334 acres) of available space – will include a litany of new leisure projects including a possible new 40,000-capacity home for QPR football club, hotels, cinemas, restaurants, commercial space and 25,500 new homes.

"We can confirm that the Science Museum and Natural History Museum have had discussions regarding Old Oak Common but they are at a very preliminary stage and, at this point of time, the business case still needs to be made," said a joint statement from both institutions.

A spokesperson for he Old Oak and Park Royal Development Corporation also confirmed to *Attractions Management* that the firm's discussions with high-profile cultural institutions were still ongoing, adding that the development is open to other museums as London Mayor Boris Johnson strives to create a new cultural quarter in west London.

■ Details: http://lei.sr?a=f9G2v_T

PHOTO: CITY OF LONDON

■ Satellite sites are proposed for Old Oak Common

INDUSTRY OPINION

How is your science centre responding to the refugee crisis?

Julie Becker

No one can ignore the headlines. Migrants have been arriving in Europe in unusually large numbers, causing reactions from unconditional solidarity to pure xenophobia – and all the complex shades in between.

What about science engagement organisations? Does this issue have anything to do with us? This can be a difficult question to answer at the organisational level: it brings us back to our values and missions.

Ecsite invited members who had responded to the refugee crisis to share their initiatives. Some organisations are engaging with refugees as a part of their mission to serve audiences: the Deutsches Museum in Munich, for instance, is introducing young migrants to German technical culture. Other organisations want to act as platforms for dialogue and offer citizens a scientific perspective on the issue, sometimes facilitating encounters between migrants and communities.

Last spring, the Neanderthal Museum in Mettmann, Germany, started Wir Migranten, a series of monthly guided tours in which refugees tell their stories.

"German society is currently reinventing itself, as the welcoming of thousands of refugees questions who we are – or think we are," said exhibitions manager Bärbel Auffermann. "[But] migrations are a constant feature of human history. No society is ever stable."

What about you? What initiatives have you been taking? Find case studies at http://bit.ly/1MDeJqq, and join us to discuss the subject at the 2016 Ecsite Annual Conference (9-11 June, Graz, Austria), where two sessions will be dedicated to it.

Julie Becker, communications and events manager, Ecsite

 ©CYBERTREK 2016

Wanda acquisition paves way for Jurassic World theme park

Chinese property and entertainment giant Wanda has announced the $3.5bn (£2.4bn, €3.2bn) acquisition of Legendary Entertainment, opening the door for a Jurassic World theme park in Australia among a host of other future projects.

Producer of films including *Jurassic World*, *The Dark Knight* and *Godzilla*, Legendary's IPs will now be available to Wanda's theme park arm, with the company recently revealing plans for a multi-billion-dollar theme park development on Australia's Gold Coast.

Concept images show the theme park plan laid out like a traditional zoo. Notable features detailed in the artistic impression include an Aqua Dome, Volcano and Mountain Cave, and multiple natural settings. Although it has not been confirmed, life-sized animatronic dinosaurs would likely roam enclosures, with various rides added to create a *Jurassic World*-inspired experience.

Wanda, China's largest property developer, is aiming to surpass Disney as the world's largest tourism enterprise by 2020. It hopes to welcome more than 200 million people to its worldwide attractions every year, with tourism income in excess of CN¥100bn ($16.1bn, £10.3bn, €14.6bn) annually.

"Together, Wanda and Legendary will create a completely new international entertainment company," said Legendary CEO Thomas Tull. "There is an ever-growing demand for quality entertainment content worldwide and we will combine our respective strengths to bring an even better entertainment experience to the world's audiences."

■ Details: http://lei.sr?a=V4q6k_T

PHOTO: LEGENDARY ENTERTAINMENT

■ *Jurassic World* has generated more than US$1.6bn in box office revenue

PHOTO: SHUTTERSTOCK.COM/ NATURSPORTS

■ Messi has a social reach of 80 million

Lionel Messi signs with Expo 2020

Footballer Lionel Messi has signed on with Dubai's 2020 World Expo, taking on an international role to champion the event.

"Lionel Messi's performances in football bring people together, and as a result his influence reaches far beyond it. He is the ideal person to be our first global ambassador," said Reem Ibrahim Al Hashimi, director general of Expo 2020.

■ Details: http://lei.sr?a=e3T5X_T

Crystal Maze gearing up for March debut

Tom Lionetti-Maguire, co-creator of the upcoming Crystal Maze Experience, has revealed exclusive details about the crowd-funded project which has captured the imaginations of nostalgic fans of the hit 90s game show across the UK.

Just like the show, the experience will see teams of eight people taken around four zones divided into Aztec, Medieval, Industrial and Futuristic. Each of the teams will be led by an eccentric quizmaster, who will guide them around the maze as they take on a series of challenges themed around either intelligence, skill or physical ability. Failure to complete a task in a set time means contestants will be locked in, however, they can be released if their teammates complete a quiz.

"We've taken a lot of the old games you saw on the show and put in a couple of new ones as well," said Lionetti-Maguire speaking to *Attractions Management*. "The show will flow exactly as it used to, culminating in your own experience in the famous Crystal Dome. There's even a prize for winning – a weekend in Bournemouth perhaps? The prizes in the original show were as cool as that, let's say, so we won't be differing from what you would have won on the original show, we want it all to be authentic."

■ Details: http://lei.sr?a=f5z8z_T

PHOTO: CRYSTAL MAZE EXPERIENCE

■ Tom Lionetti-Maguire (centre) co-founded the experience

Atlantic City waterpark plans aborted

A bankrupt Atlantic City casino which was to be turned into a family destination centred around a waterpark is back on the market after the real-estate firm purchasing the property failed to come up with the necessary redevelopment funds.

Endeavour Property Group reached a deal with owners TJM Properties in July last year to purchase and redevelop the Atlantic Club Casino Hotel in New Jersey, US, which would feature an 81,000sq ft (7,500sqm) waterpark with other family entertainment facilities. However, the agreement fell through as TJM announced on 4 January that it's accepting offers from potential buyers for the 800-bedroom hotel and casino, adding that Endeavour "was not able to generate the additional deposit funds needed".

The Atlantic Club closed for business in 2014

"Endeavor has laid a foundation that generated interest in government funding that may enhance the value of the property and we're disappointed that they were unable to continue," TJM said.

The Atlantic Club is one of four casinos in the area to close in 2014. Atlantic City is pushing for new, non-gambling themed attractions, including a Ferris wheel, zip line, restaurants, an extension of the Steel Pier and a reconstructed Boardwalk.

Details: http://lei.sr?a=9R3Q7

Travel Channel's Chris Perry joins WhiteWater

WhiteWater West has named waterpark veteran and television host Chris Perry as the company's new executive vice president of strategic partnerships.

Perry, best known as host of the Travel Channel's *Epic Attractions* series – which takes viewers on a behind the scenes, all access pass to the best attractions in the amusement industry – has worked in the waterpark sector for a number of years, most recently at Wild Wadi Waterpark. During his 15 years at Wild Wadi, Perry spent eight years as general manager, overseeing the waterpark and aquatic safety for a number of hotels around the world.

PHOTO: WHITEWATER WEST

Perry is best known as the host of TV's *Epic Attractions*

Perry started his career in the waterpark sector as a teenager, working his way up the ladder to his current position. While at Wild Wadi he led his team to several prestigious industry awards and oversaw the waterpark becoming ISO and Green Globe certified.

"Chris joins the WhiteWater team to lead our strategic partnerships," said a WhiteWater statement. "He'll bring his tremendous park operations experience and industry profile to complement our service offering for our customers."

Details: http://lei.sr?a=f9j4Y_T

INDUSTRY OPINION

Park professionals benefit from finding a work-life balance

Aleatha Ezra

In October, the World Waterpark Association hosted its 35th symposium and trade show in Palm Springs, California. Known for its in-depth education program and community-building networking events, the WWA Show welcomed attendees from 30 countries.

During the four days, attendees heard talks from 100 experts who are driving the water leisure industry's continued innovation in attraction development and guest service.

One highlight was hearing from Colette Carlson, a human behaviour expert who specialises in techniques that encourage people to excel. Carlson discussed the negative role that stress plays in our lives.

"All-or-nothing thinking stops us from embracing healthy strategies to reduce stress. Instead, go for the grey! A 10-minute brisk walk produces feel-good chemicals and resets your mindset," she said.

She also discussed the importance of work-life integration.

"People always say, 'I don't have time to take a break.' Well, breaks now are better than breakdowns later. Besides, breaks create breakthroughs! That's when the juice comes, that's when the brain candy kicks in, when you're off the grid."

Carlson's advice on the work-life balance makes sense for waterpark operators, whose in-season schedules often mean long days without regular or consistent time off. Even off-season time can be filled with refurbishment projects, new installations and hiring and training responsibilities – which means water leisure industry professionals need to create their own opportunities for breaks and breakthroughs.

Aleatha Ezra, director of park member development, WWA

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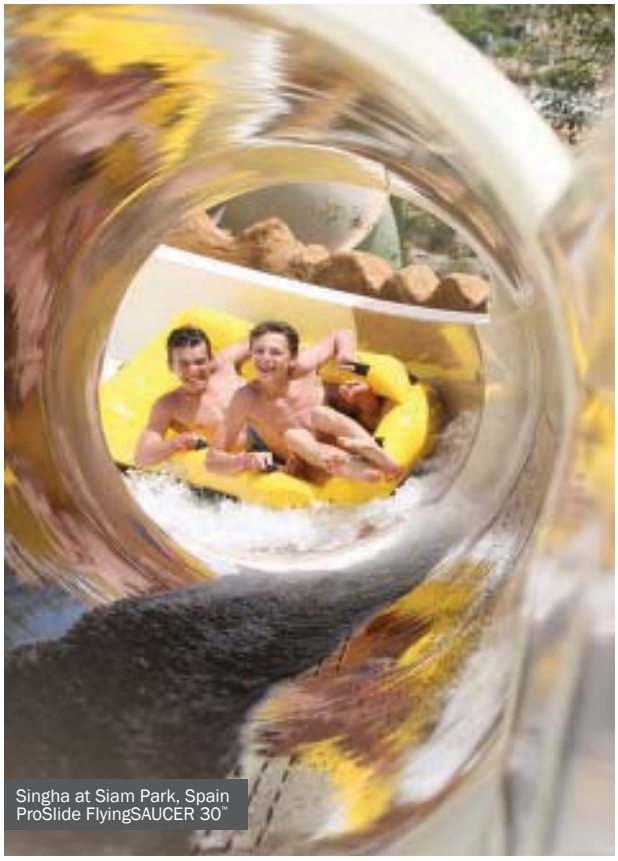
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Star Wars success helps Disney smash earnings records

After being recently named the world's most powerful brand, Disney has continued to excel, using its Star Wars muscle to drive the company to record earnings.

In the last quarter, Disney reported earnings totalling $2.9bn (£2bn, €2.6bn) for the period ended 2 January, exceeding analyst estimates and largely being driven by the Star Wars franchise.

Led by revenues of $15.24bn (£10.5bn, €13.5bn), Disney reported a surge in growth at its theme parks, with operating income up 22 per cent from $805m (£555.5m, €714.7m) in the first quarter of 2015 to $981m (£676.9m, €871m) in 2016.

Last year Disney was the first park to break the $100 ticket price barrier. The company attributed the higher revenues to the inflated gate receipts, in addition to "increased food, beverage and merchandise spending, and higher average hotel room rates."

At the box-office, Disney cited earnings of more than $2bn (£1.4bn, €1.7bn) worldwide for *Star Wars: The Force Awakens*, which sent studio income skyrocketing by 86 per cent and boosted consumer products by 23 per cent.

PHOTO: SHUTTERSTOCK.COM/HELGA ESTEB

Disney chair and CEO Bob Iger attributed the latest earnings report to the success of Star Wars

"Driven by the phenomenal success of Star Wars, we delivered the highest quarterly earnings in the history of our company, marking our 10th consecutive quarter of double-digit EPS growth," said Disney chair and CEO, Bob Iger.

"We're very pleased with our results, which continue to validate our strategic focus and investments in brands and franchises to drive long-term growth across the entire company."

Details: http://lei.sr?a=N4e2d_T

Nintendo attractions are in the pipeline

Nintendo IPs coming to Universal Japan

After partnering with Universal last year, Nintendo has announced plans for yet-to-be revealed attractions at Universal Studios Japan.

The deal, which sees IPs such as Mario, Zelda and Pokémon move exclusively to Universal theme parks, will likely soon be rolled out across its parks, with rides, shows and other attractions based on the developer's top franchises to be created.

Details: http://lei.sr?a=D4S6M_T

Universal Hollywood launches variable pricing

In anticipation of its new Harry Potter attraction, Universal Studios Hollywood is introducing variable pricing – the first major theme park in the US to do so.

The pricing strategy – which sees consumers pay less to enter during quiet times of the year but more during peak periods – is likely to end up in more theme parks across the US in the future, with the likes of Disney asking annual US theme park pass holders their opinion on such a payment system. Disney already uses variable pricing in its Paris resort – and it will be used in Shanghai.

The new pricing strategy by Universal would mean entry to the California theme park would remain at $95 (£66, €87). If visitors book online for low-demand days they can save as much as $20 (£14, €18). Booking online on a peak day will also produce a saving, but only of $5 (£3.50, €4.60). The theme park isn't currently increasing its maximum entry price.

The strategy should help manage park operations. When people buy online, park managers can get a clear idea of daily attendance.

With Harry Potter expected to spike visitor numbers at the park, Universal hopes its new fluctuating pricing strategy will help to spread out attendance spikes.

Details: http://lei.sr?a=M9f8Z_T

PHOTO: UNIVERSAL STUDIOS HOLLYWOOD

Universal Hollywood's Wizarding World opens on 7 April

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New York's MoMA unveils revised $445m expansion plans

New York's Museum of Modern Art (MoMA) has unveiled revised $445m (£310.6m, €407.3m) plans to redevelop and expand the facility, with plans by Diller Scofidio + Renfro streamlining the museum experience to work better for both visitors and curators.

The expansion of facilities, expected to be complete by 2020, will increase gallery space by 30 per cent – an increase of 40,000sq ft (3,716sqm) to 174,000sq ft (16,165sqm).

Following some criticism when the plans were originally unveiled in 2014, grander elements, including a moving floor, retractable glass wall and new entrance to its sculpture garden have been dropped.

New plans include more varied gallery spaces, a larger and less-congested lobby and a faster coat check-in line. The museum's on-site retail shop will also move from street level to below ground to make room for the lobby expansion, though a cut-away ceiling will mean the space will still be viewable from the street. A second retail space will also be built adjacent to the second-floor café.

"We have been working closely with the architects Diller Scofidio and Renfro, in collaboration with executive architects Gensler, to refine plans for MoMA's renovation and expansion," said a statement from the museum.

"With more space for experiencing the museum's collection and exhibitions, we'll be able to expand our programming, present recent acquisitions, and bring together works from all mediums in new and different ways."

Construction is taking place using a phased approach, with extensive work to start in early 2017.

Details: http://lei.sr?a=2s3t9_T

PHOTO: NEW YORK MUSEUM OF MODERN ART

The expansion will offer MoMA visitors engaging new ways to view art

PHOTO: SHUTTERSTOCK.COM/HELGA ESTEB

Lucas's project continues to be delayed

Lucas Museum case will go to trial

The Lucas Museum saga rumbles on after a judge ruled in favour of legal action taken by Friends of the Parks, meaning its lawsuit against the project will go to trial in March.

The delay is the latest in a long legal battle which stretches back to the project's announcement in June 2014. On 4 February a federal judge refused the city's request to throw the lawsuit out.

Details: http://lei.sr?a=G7P9e_T

Louvre Abu Dhabi on course for handover

With construction of Louvre Abu Dhabi entering its final stages, government officials have said a handover of the building will take place in the middle of 2016 – on schedule for an amended opening date at the end of that year.

Work on the structure's roof was completed in October last year, along with all 9,200sqm (99,000sq ft) of the museum's galleries, plus the concrete work for the basement levels and security screening facility through which vehicles will transport artwork.

Once complete, Louvre Abu Dhabi will be one of the premier cultural institutions located in the heart of the Saadiyat Cultural District.

The opening date was pushed back by officials owing to delays in the procurement and installation of artwork. The museum's curator, Jean-François Charnier, had previously said that pieces would take three months to hang and the the emirate was working hard to "fill gaps in the collection".

After completion of works on the Jean Nouvel-designed building, the final stage will be to remove the 14-metre (46-foot) temporary hydraulic cutoff walls, built to allow construction to take place on dry land. As the wall is removed, seawater will flow into the basin, giving the illusion of the museum floating in the sea.

Details: http://lei.sr?a=p4M9c_T

PHOTO: LOUVRE ABU DHABI

A temporary wall has allowed contractors to work on dry land

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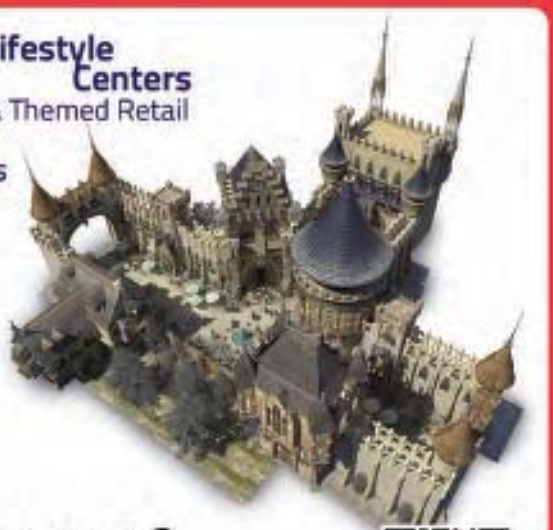

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China lays out five-year plan for preservation of Great Wall

The Chinese government has announced a five-year plan to better-protect and preserve the Great Wall of China.

Many parts of the wall have entered a state of disrepair, having been used by nearby villagers – particularly in the 20th century – as a source of stones to rebuild houses and roads, while much of the wall has been lost to tourists illegally taking pieces as souvenirs. Parts have also been demolished to make way for various construction works.

Under the new government initiative, more than 7,000km (4,350 miles) of the Great Wall in Inner Mongolia will be surveyed to identify sections which are most in danger, such as parts which have been damaged by natural disaster or are near major roads and new developments.

Inner Mongolia is home to the longest and most historically important stretch of the Great Wall, spanning 11 different periods in Chinese history dating back to the fourth century BC. The regional government of Inner Mongolia wants to restore the most-damaged sections of the wall by 2020, placing priority on those with the greatest historical significance.

PHOTO: SHUTTERSTOCK.COM/SONGQUAN

More than 7,000km of the Great Wall will be surveyed to identify sections most in danger

A 2012 report said that 22 per cent of the original Ming Great Wall was gone, while 1,961km (1,219m) of the overall wall is lost.

Under the five-year plan, the government has pledged more resources to support archaeological excavation and historical research for the popular tourist attraction, but has emphasised "minimum intervention" to the UNESCO Heritage Site, adding that it would not "change the status quo" with opposition to building a "new Great Wall".

Details: http://lei.sr?a=v3z5d_T

PHOTO: BARRIE WENTZELL

Hendrix moved to the flat in 1968

Hendrix's London flat becomes exhibit

The former London home of music icon Jimi Hendrix has been opened up to the public as a permanent exhibition looking at his life.

Hendrix moved into 23 Brook Street in 1968, using the location to eat, sleep, write music and entertain guests. In its new role as a visitor attraction, his bedroom/living room has been meticulously recreated with the help of Hendrix's then girlfriend.

Details: http://lei.sr?a=u7B3f_T

Italy pledges €300m to country's heritage sites

Italy's government has approved €300m (£220m, $325m) plans to protect its most important heritage sites in need of restoration.

Despite having more UNESCO-recognised World Heritage sites than anywhere else in the world, Italy has historically offered a very low level of financial support to its heritage sites.

The new move to inject €300m into the heritage budget is a much-needed shot in the arm for Italy's heritage sector. Among the sites earmarked for restoration, €13m (£9.5m, $14m) will go towards the restoration of Emperor Nero's Golden Palace. Additionally, the medieval walls protecting Siena will be restored over the next three years at a cost of €2.2m (£1.7m, $2.4m) and €6m (£4.4m, $6.5m) will be used to maintain the foundations of the heritage city of Venice.

PHOTO: SHUTTERSTOC.COM/S.BORISOV

€6m will be used to maintain the foundations of Venice

Italy's Ministry of Culture also said that many of the country's cultural and tourism sites will be fitted with new security measures, including alarms and video surveillance, coming at a cost of €50m (£36.6m, $53.7m).

Funds to start renovations will be made available immediately, with the money to be spread across 241 sites.

Details: http://lei.sr?a=n8e8A_T

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Aquarium pioneers urban regeneration

The National Aquarium in Baltimore has unveiled plans to reinvent the city's waterfront, creating an urban wetland and pier-side conservation area for the local community.

The reinvention of the area around the aquarium will create a free, accessible, environmental public space, developed in partnership with Baltimore city organisations. The central tenet of the project is to encourage community engagement with the environment, build a vision of a sustainable future and "inspire conservation action" – potentially building a model for other urban waterfronts in the US to follow.

"Baltimore is a waterfront city like no other, and investing in our outdoor campus is investing in our city's future," said John Racanelli, CEO of the National Aquarium. "At its core, this revitalisation is about re-connecting Baltimoreans with their waterfront as a place for exploration and discovery. We plan to show the nation how an urban waterfront can also be a healthy one."

A combination of aquarium, public and private money is funding the process, at a reported cost of $14m (£9.8m, €12.8m), with a predicted completion date of 2019.

■ Details: http://lei.sr?a=g3S5s_T

PHOTO: NATIONAL AQUARIUM, AYERS SAINT GROSS ARCHITECTS

■ Initial designs have been created by Ayers Saint Gross

Dubai Safari development nears completion

A multi-million-dollar development to replace Dubai's zoo – built in 1967 – is nearing completion.

Plans for Dubai Safari have been on the cards as far back as 2005. During that time, the project has been scrutinised, reworked and revised for a method of relocating around 1,000 animals from their existing habitats. Plans were drawn up in 2005 and then again in 2007, but collapsed in the wake of the global recession. Work finally started at the third time of asking, with development getting underway in September 2012.

The 120 hectare (297 acre) development in Dubai's Al Warqaa district will be divided into three different sectors – African, Asian and Arabian – and will also include an open safari themed around different world locations with architecture to match.

Financed by the Dubai Municipality, the AED150m ($40.8m, £28.3m, €37.6m) project will eventually include a zoo, safari, butterfly park, botanical garden, hotel and golf course, in addition to educational, conservation and veterinary facilities.

Dubai Municipality has designed the park to be energy-efficient and is incorporating solar power, water recycling and waste disposal into the build.

■ Details: http://lei.sr?a=V4V9v_T

PHOTO: SHUTTERSTOCK.COM/MCCOLLISTER_

■ The plans have been on the cards for well over a decade

INDUSTRY OPINION

AZA training course equips future leaders of zoos and aquariums

Jennifer Fields

It's imperative that the next generation of executive directors of AZA-accredited zoological facilities are trained, educated, and prepared to lead their communities in environmental stewardship while advancing their facility with strong business and operational skills.

Through the Executive Leadership Development Program (ELDP), AZA is training emerging leaders each year on a set of identified competencies, which are the behaviours, knowledge and skills needed to be most effective in this role. While studying these competencies in depth, participants also benefit from mentorships and build skills through relevant learning opportunities. These experience-based development methods include forming action teams to address real and complex issues; having dialogues with current leadership to transfer institutional knowledge and lessons learned along the way; and creating a customised development plan.

"ELDP participants are recognised within the AZA community for their extensive knowledge and experience, dedication, ambition and great promise in their leadership abilities," said AZA executive director Kris Vehrs. "Through the ELDP, they develop skills necessary to meet the challenges of sustaining a viable aquarium and zoo operation that benefits the animals in their care, their local communities and global wildlife conservation initiatives."

Now in its third year, the ELDP is planned to be an ongoing AZA effort. In January 2016, 10 new participants began the programme and 15 participants successfully completed their training. To learn more about the programme visit www.aza.org.

Jennifer Fields, communications coordinator, AZA

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Magic Leap secures near $800m to develop lightfield device

Augmented reality (AR) startup Magic Leap has said it's secured a further $793.5m (£549m, €728m) in new funding, enough to finance its first product – a digital lightfield device which shoots computer-generated images into the user's eyes.

Differing from market competitors in AR, such as Microsoft's Hololens, which uses a stereoscopic technique to create the illusion of a three-dimensional image, Magic Leap's device uses its alternate mixed-reality lightfield to create a world where digital and physical seamlessly blend together.

Based in Dania Beach, Florida, with offices in the US, UK, New Zealand and Israel, Magic Leap first hit the headlines in October 2014 when Google invested $524m (£361.7m, €479.6m) despite no-one at the time knowing what the company did. In March 2015, Magic Leap showed off its first tech demo when its technology used AR to turn the company's office into a first-person shooter.

The new funding from the Alibaba Group is the latest in a line of big-name investors including Google, Qualcomm Incorporated, Warner Bros, Fidelity Management, JP Morgan, Morgan Stanley and accounts advised by T.Rowe Price Associates and Wellington Management. Following the latest investment, Magic Leap is now valued at around $4.5bn (£3.1bn, €4.1bn). Magic Leap's next phase of development includes making its device useable for consumers. The company has now entered the pilot production phase and is developing prototypes in Florida which will incorporate its "photonic light chip".

The Magic Leap device shoots images into the user's eyes, creating astonishing effects

Details: http://lei.sr?a=K8d6x_T

Propellers provide thrust for the robot

Disney robot turns into wall-crawler

Disney's research arm has developed a robot capable of transitioning from the ground to the wall.

The robot offers new capability for moving devices, extending the ability for robots to travel through both urban and indoor environments, something Disney could incorporate into its theme parks as part of immersive technology on rides, or use in its shows to create seemingly impossible effects.

Details: http://lei.sr?a=V6R9s_T

Set trends or risk falling behind, say experts

Innovators producing cutting-edge technologies for the museums sector have said that risks must be taken to develop new technologies, with those playing it safe risking getting left behind.

Speaking at the Museums Association's Museum Tech conference in Manchester, UK, a panel of forward-thinking creators spoke about the future of technology in museums.

George Oates, who invented Flickr Commons and is in the development stage of a new project – Museum in a Box – said that innovation in technology is about having focus and taking a leap of faith to realise your idea.

Peter Law, creative producer at Flying Object who developed IK-prize winning installation Sensorium at Tate Britain, added that without testing technology in a museum environment, a concept will remain just a concept.

Omad Hiwaizi, president of augmented reality company Blippar said that innovation involves risk, but it's that risk which keeps them relevant and thriving.

"When something new comes along, large corporations demonstrate why they are where they are," said Hiwaizi. "The ones that don't do it – Blockbuster for example – they disappear. I'm interested to see what happens to taxi services. It's all about innovation."

The future of 3D printing was among the topics discussed

Details: http://lei.sr?a=C3G6K_T

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TONY BUTLER

Tony Butler has spent two decades bringing his sense of social justice and community spirit to the museums sector. Kath Hudson sat down with the executive director of Derby Museums Trust

Kath Hudson, journalist, Attractions Management

Tony Butler, executive director at Derby Museums Trust, believes that museums can be a vehicle for social justice

"Ever since I started working in museums, I've thought they should be for everyone: there shouldn't be any physical or intellectual barriers to cultural heritage," says Tony Butler, executive director at Derby Museums Trust, UK. "I've always been really interested in how you can get the broadest audience possible for history and art."

Butler's belief that everyone should have the right to both enjoy and participate in cultural heritage has been a thread running through his career, which took root in his childhood. From an early age he had a voracious appetite for history, though his parents never took him to museums.

"I grew up in a working-class family and my mum and dad felt museums weren't for them, that they were hoity-toity," he says.

As a result, Butler has consistently worked to disprove this notion. Believing everyone should have a right to participate in and enjoy cultural heritage, he has not only worked to make heritage sites feel welcoming, but extended this to running inclusive programmes for groups like the long-term unemployed.

"Museums should be welcoming places with a friendly face at the door and good seats," he says. "It's about getting the right programming and creating a sense of place so people feel comfortable. Museums can add so much value to society beyond simple pleasure and entertainment."

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Chipping in: exhibit cases at the Derby Art Gallery were designed and made at local community workshops

Having spent many childhood hours devouring social history books in the local library, Butler was determined to make a career in the museum service. After graduating from the University of Wales with a history degree, he spent a year volunteering at a museum in Aberystwyth, working evenings at Burger King to pay the rent. He did an MA in Museum Studies at the University of East Anglia before taking a post at Wakefield Museum in Yorkshire.

BREAKING DOWN BARRIERS

Straight away he went to work breaking down the barriers to entry, inviting the community to be part of the museum experience. His first project involved giving cameras to young Asian men so they could tell their stories about what it was like to grow up as an Asian in Wakefield.

This role was followed by three years on the Isle of Wight, running three small museums and a spell with the museums service in Ipswich. He became the director of East Anglian Life in Stowmarket in 2004, leading a social-enterprise approach to managing open-air museums with responsibility for over 20 historic buildings.

With many gardens, woodlands and historic buildings – which lent themselves to outdoor communal activities – under Butler's stewardship, the museum service devised a range of 10-week training programmes, linked to literacy and numeracy, for people with mental health problems and the long-term unemployed. These included courses such as land management, construction, animal husbandry – including the rare breed animals – and horticulture, where students helped look after the formal gardens.

PHOTOS: DERBY MUSEUMS TRUST

Makers-in-residence run community workshops for the Derby Silk Mill project

The Happy Museums project invites museums to develop programmes which will improve wellbeing and happiness in their communities

"These were entry-level programmes for long-term unemployed and those for whom mainstream education hadn't worked," he says. "There were some really good results as people learned to live independently and gained the confidence, skills and qualifications to go into the workplace. We helped over 40 people find jobs."

Butler claims it's possible to combine a visitor attraction with a social enterprise and says that more attractions should be thinking along these lines: "These

Woodhorn Museum, a Happy Museum Project partner, uses a comedian as a unique way to engage with visitors

programmes could be done anywhere, but what made them special was working with local cultural heritage to create a sense of place and sense of purpose."

East Anglian Life also participated in Rekindling Memories, a countrywide programme developed with the Alzheimer's Society, that used memory boxes based around themes like holidays and the war, which could be borrowed by care homes to run reminiscence sessions. Because of the rural area, the Rekindling Memories programme was also expanded so individual carers could borrow boxes to visit people in more isolated locations.

HAPPY MUSEUMS

While at Stowmarket, Butler spearheaded a side project which epitomised his beliefs and conviction. The Happy Museums Project was launched in April 2011, funded by an award from the Paul Hamlyn Foundation Breakthrough Fund, providing a leadership framework for museums to investigate a holistic approach to sustainability and wellbeing.

"This was influenced by research by the New Economics Foundation which found five key areas to be important to wellbeing: connect with others, keep learning, take notice of the world around you, be physically active and give back to the community" says Butler. "The project invites museums to develop programmes which will improve wellbeing and happiness in their communities."

So far, projects have been funded at 22 museums in England and Wales. The London Transport Museum, for example, has worked with St Mungo's homeless charity to create a Conversation Hub in the museum. Ceredigion Museum in West Wales joined forces with a social enterprise which worked with long-term unemployed people and encouraged them to make handcrafted tools, based on the historic collection, which could then be sold. And the Woodhorn colliery museum in Northumberland funded a comedian in residence to connect with visitors.

Manchester Museum's "Playful Days" – part of the Happy Museums Project

PHOTO: MANCHESTER MUSEUM

Butler also believes museums have a stewardship role for people, place and planet. A five-year research project is underway, which will follow five museums to see what level of social change can be brought about by them taking an environmentally responsible approach.

DERBY SILK MILL

One project appealed to Butler so strongly that he decided to join it 18 months ago when he took up his current role as executive director of Derby Museums Trust.

The £17m ($24m, €22m) lottery-funded Derby Silk Mill is expected to open in 2020 on the site of the world's first factory. Branded a "museum of making", it's being created in collaboration with the local community, with members of the public working alongside the museum service to literally build the museum. The project aims to equip them with new skills and experiences, as will as inspire generations of innovators and makers.

"We're co-producing the museum with the public," says Butler. "Instead of investing in the building, we've invested in kit, buying tools such as laser cutters and 3D printers, so the public can come in and make things like the display cases at the workshops."

"We've also had makers-in-residence who have developed learning programmes with local people and the team has been working with hackers, tinkerers, artists and makers to create a heritage site that will reflect the soul of the city."

The Silk Mill inspired a new approach for the Derby Museums Trust to run its portfolio. For example, the cases in the new nature space at the Derby Art Gallery were designed and made at public workshops.

Butler wants people not just to learn, but be part of what's happening: "The whole set of values around Derby Museums Trust is to involve the public and encourage them to participate as much as they can – not just to find out about heritage, but to actually do it." ●

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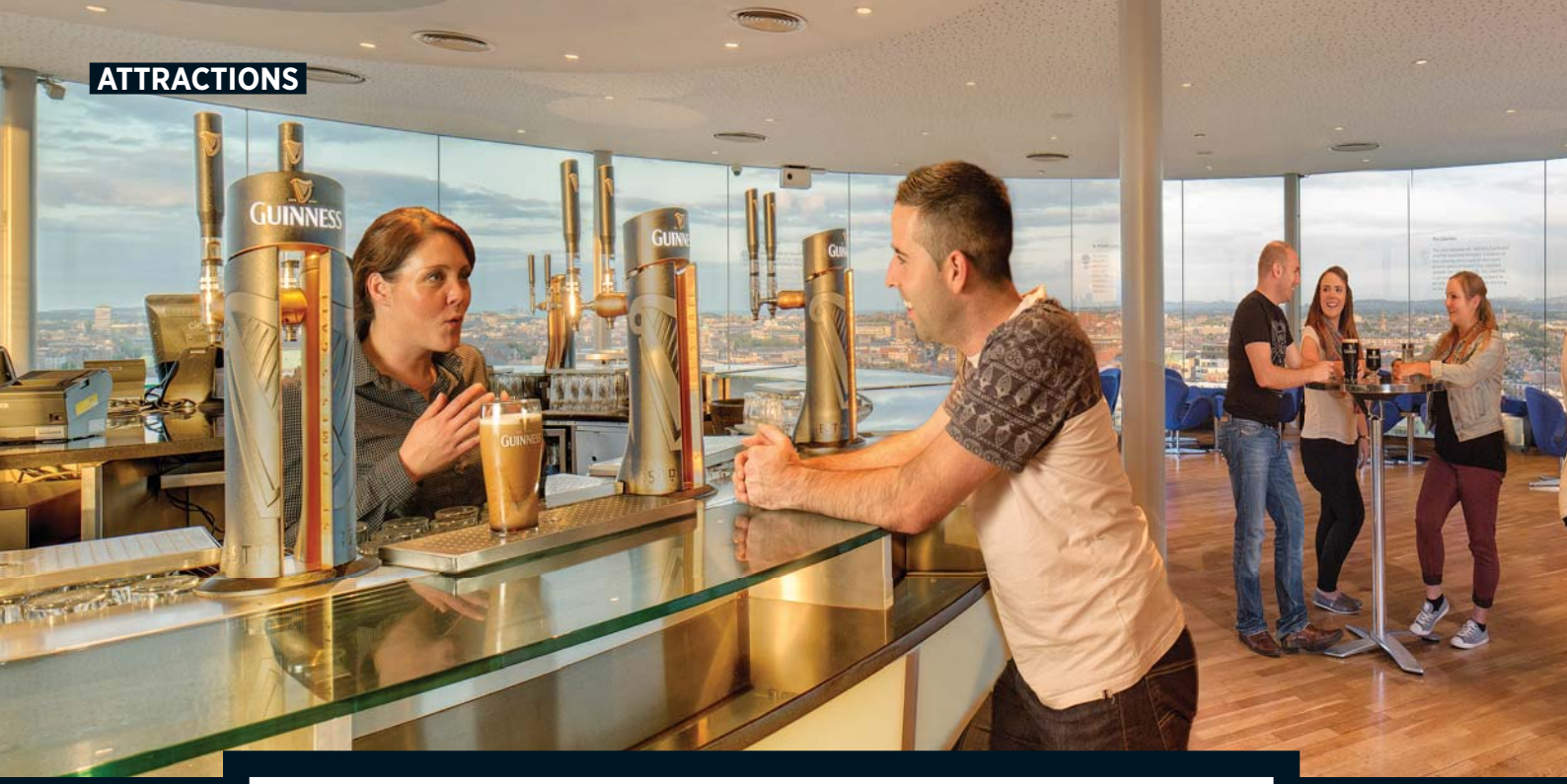

PERFECT BREW

Guinness Storehouse celebrates its 15th birthday and another record-breaking year. We found out how Europe's best-loved attraction sustains its enviable reputation

Alice Davis, managing editor, Attractions Management

Guinness is one of the most recognisable drinks on the planet, thanks to its distinctive look and years of seriously clever advertising campaigns. So when the new visitor centre, the Guinness Storehouse, opened at St James Gate brewery in Dublin in 2000, it had to embody the same values that made the brand so successful.

Designed by London-based Imagination in conjunction with Dublin architects RKD, a disused grain storage building was turned into a contemporary brandland at a cost of €42m (£32m, $45m). Today, half of all tourists to Ireland visit the attraction.

"You have to give credit to the executives from [parent company] Diageo who had the courage and bravery to spend that amount of money on a visitor centre," says Paul Carty, managing director at the Guinness Storehouse. "That was an incredible vote of confidence in the Guinness brand and in the value of an experiential attraction."

Fast forward to 2015, and 1.5 million people visited the Guinness Storehouse, an 18 per cent increase on the previous year's figure. Of those, 93 per cent were from overseas, with people from the UK and US making up half of all visitors. French and German visitors formed 6 per cent each of the total, while the biggest year-on-year growth markets were the Dutch (up 34 per cent) and the Chinese (up 38 per cent).

Guinness Storehouse's Paul Carty

In fact, from the very beginning, the attraction has been on an upward trajectory, both popular and profitable. Even during the recession, the Guinness Storehouse experienced growth. The only dip in attendance was in 2010, when air travel was severely disrupted by the erupting Eyjafjallajökull volcano in Iceland.

"Eighty-five per cent of our business comes via Dublin airport. We're totally dependent on tourists coming to the island in the first place," Carty says. "It just shows the importance of access. Airlines like Ryanair and Aer Lingus do a great job of delivering volumes of people to the island."

Constant reinvention

Carty, who started out in the global hospitality industry, has been at the Guinness Storehouse since it opened. He says the attraction is successful thanks to a business model that's highly sustainable, funding all its own investments.

"We reinvest every year. We always try to create a new area so we have a new story to tell. This helps us maintain our position as a must-see attraction for tourists and encourages repeat visitors," Carty says.

A major new investment – a result of customer feedback – is the new third floor, which opened in March 2015 and is dedicated to the world of advertising. Interactive displays bring to life the best TV ▸

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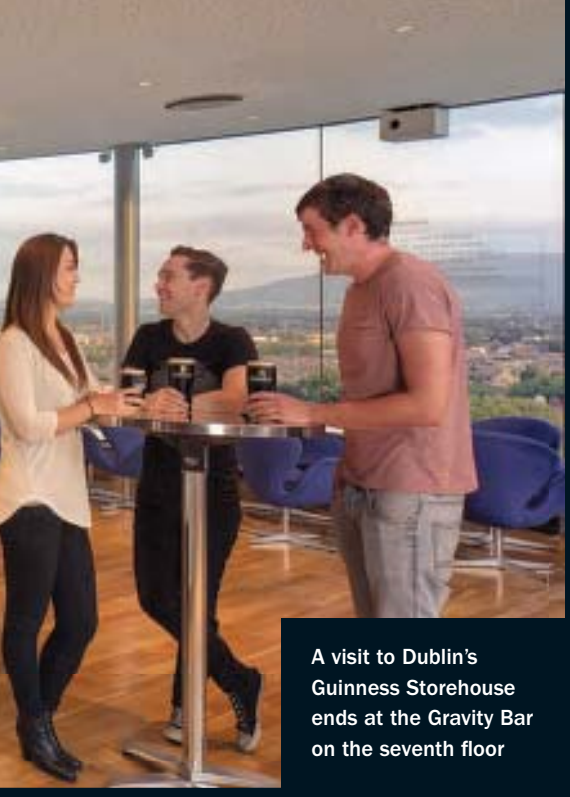
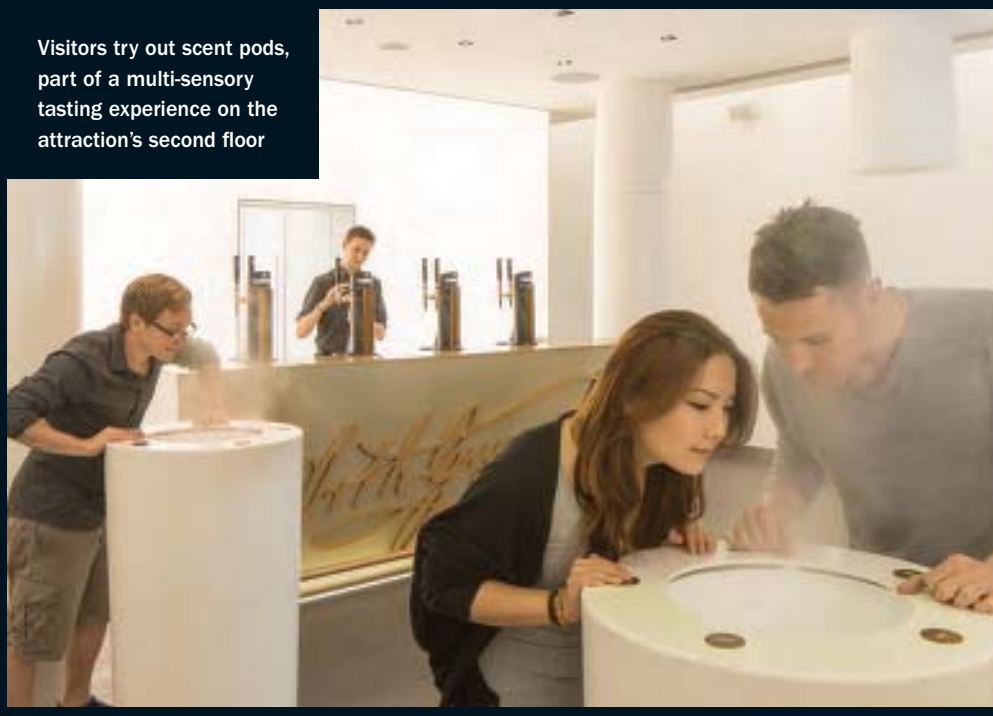


A visit to Dublin's Guinness Storehouse ends at the Gravity Bar on the seventh floor



Visitors try out scent pods, part of a multi-sensory tasting experience on the attraction's second floor

A new permanent exhibit devoted to Guinness advertising, which opened in March 2015, features interactive and digital elements

More than 1.5 million people – most of them tourists – visited the brandland in 2015

Visitors learn techniques for tasting Guinness in the Bompas & Paar-designed Velvet Chamber

FROM A BRAND PERSPECTIVE WE SURVEY WHETHER A VISITOR WOULD CONSUME MORE GUINNESS, OR WHETHER THEY FEEL WARMER TOWARDS THE BRAND

and print advertising from Guinness, from the iconic John Gilroy Toucan illustrations of the 1930s to the iconic modern campaigns.

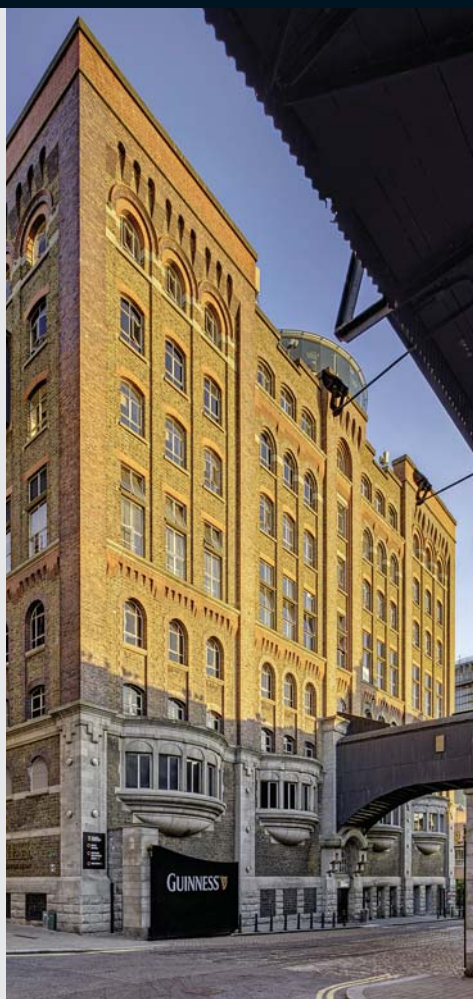
Design agency Love created the new 1,500sqm (16,146sq ft) space, introducing high-tech elements including a playable digital version of the brand's trademark golden harp and an 8-metre (26-foot) high interactive Instagram wall to integrate social media more powerfully into the space.

The Guinness Storehouse generates 350 million media impressions every year for the brand and the 1080p-resolution gesture-controlled Instagram installation has massively boosted the attraction's social media presence since it opened.

SEVEN STORIES IN SEVEN STOREYS

The Guinness Storehouse is arranged across seven storeys, with each floor presenting the visitor with a new aspect of the brand history. The building itself is shaped like a gigantic pint of Guinness. If it were filled with Guinness it would hold 14.3 million pints.

- **GROUND FLOOR:** The Guinness flagship retail store sells branded memorabilia and exclusive merchandise.
- **FIRST FLOOR:** Learn about the legendary Arthur Guinness' lease of 1759 and the beginnings of Guinness.
- **SECOND FLOOR:** Enjoy the tasting experience, a multi-sensory education on the distinctive flavours of the stout.
- **THIRD FLOOR:** Be immersed in 80 years of groundbreaking print, digital and TV advertising campaigns on the attraction's Advertising Floor.
- **FOURTH FLOOR:** Learn to pour the perfect pint at the Guinness Academy. It's a six-step process – mastered by bartenders across the country – that takes exactly 119.5 seconds.
- **FIFTH FLOOR:** Eat and drink at the Brewers' Dining Hall, with an open kitchen and a menu of Guinness dishes.
- **SEVENTH FLOOR:** The journey ends at the Gravity Bar, with panoramic views and a pint of the "black stuff".



An intimate 75-minute tasting experience at the Connoisseur Bar was another new offering at the attraction last year.

"In the past five years we've invested €10 million [£7.6m, $10.8m]. We're constantly reinventing and upgrading," Carty says. "We see the return on investment and from a brand perspective we track and survey things, such as whether guests consume more Guinness after their visit, or whether they feel warmer towards the brand."

One of the most crucial investment decisions was the appointment of BRC Imagination Arts to rethink the way the brand's story was being told, Carty says. In 2011, BRC completed an upgrade, which included the themeing of each floor to create a coherent and more interactive visitor journey. The results were a 35 per cent jump in attendance and 240 per cent increase in net profit.

Warm Irish welcome

Carty's background in high-end hotels shines through at the attraction, where a "warm Irish welcome" and top-class customer service are paramount. A great deal is invested in finding the right staff and training them to ensure visitors enjoy a high-quality experience and form a good impression of Guinness.

"It's similar to running hotels because of shared skill sets: F&B, entertainment, staff training and standards," he says.

It's the same welcome extended to Britain's Queen Elizabeth II when she and husband Prince Philip toured the attraction in 2013, as part of the first royal visit to Ireland since 1911, For Carty, it was a career highlight: "The hairs on my neck stood up. I felt so proud to be involved such a historic event," he says. "We showed the Queen the art of pouring the perfect Guinness. It was a beautiful occasion."

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Collette Coughlan
Brand Manager
Guinness Storehouse

The Guinness Storehouse was named best attraction in Europe in the World Travel Awards. What makes it so successful?
The experience is authentic and unique to Guinness and we celebrate the Guinness story throughout the building – the brewing, the history and heritage. It's an engaging experience.

What values make the Guinness brand and how do you convey them in an attraction?
The Guinness brand values are power, goodness and communion. Everything we do reflects those values and by staying true to those values we create an authentic experience. We want the Guinness Storehouse to be the most distinctive immersive brand experience in the world.

How are the values communicated in the design or the visitor journey?
Power relates to the ingredients and brewing process. Goodness relates to what we do in terms of advertising and communion relates to bringing people together and celebrating.

For example, we have entertainment on the fifth floor with Irish music and we host a four-day St Patrick's Day festival every year. We're here to entertain people who come to Dublin to have a fun, memorable and engaging experience.

What types of campaigns do you do?
Our main marketing tools are PR, word of mouth and "talkability". Canada is an emerging market for us thanks to increased air access, so we're investing in a PR campaign to ensure they know that the Guinness Storehouse is a must-see destination in Dublin.

We're reaching out to Canadian media, travel media and brand media and where possible inviting them to the Guinness Storehouse so they can experience it. Last year we ran a campaign where our ambassador Aaron Ridgeway went to Canada for St Patrick's Day, where he was demonstrating the six steps to the perfect pint on TV stations.

How important is social media?
Online is a huge part of our strategy. We have Facebook and Twitter and we've just launched an Instagram wall in the Guinness Storehouse where you can post your photographs instantly. The experience is very emotive. People love posting pictures with their perfect pint of Guinness in the Gravity Bar or in the Academy. Investing in digital enables us to reach younger audiences who want share content with friends and family in the instant.

The Cooperage & Transport exhibition teaches visitors about how Guinness barrels were made and transported

A buzz topic at the moment is the emotionalisation of brands. How do you emotionalise the brand?
Our staff members are our greatest asset so it's about the connection that our staff has with the visitors. You enter the Guinness Storehouse and receive a warm Irish welcome, and we take you in hand and interact with you throughout the tour. It's something we place a lot of value on. It's a massive building so it could feel quite cold, but the staff make it a very warm place. We try to emotionalise the brand through our people.

How does the attraction manage its responsibilities when it comes to promoting alcohol?
We're a brand immersion experience, but we do take our role as a drink-related attraction very seriously. We adhere to the strict responsible service of alcohol code throughout the experience and apply Diageo's marketing code to all the exhibits. The Diageo code is about responsible drinking and being aware of the alcohol content. We have a drink IQ website that tells you about the effects that alcohol can have on your body. We're fully transparent and try to educate people as much as possible. We welcome younger people and there's no age limit on entry, but the legal age limit of 18 applies for pouring and buying a pint. We don't charge for water and we have restaurants serving food. ●

Visitors enjoy a private tasting session at the attraction's Connoisseur Bar

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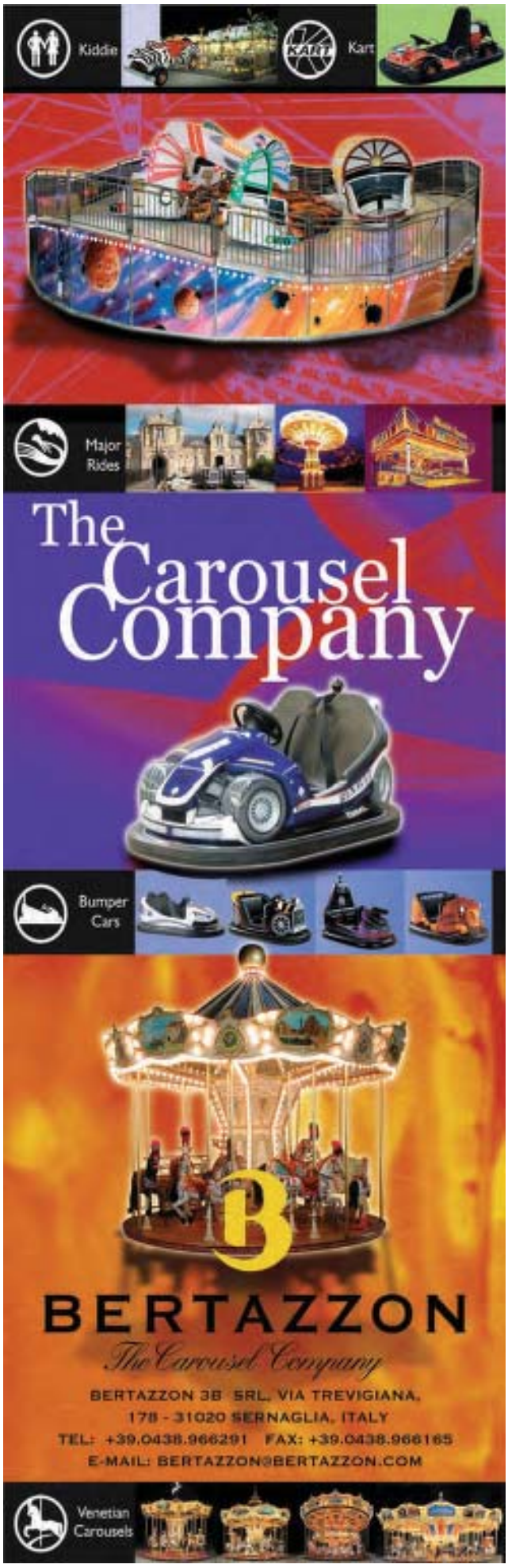

Attractions Foresight™ 2016

What's coming down the track for attractions? Attractions Management examines the trends, technologies and strategies which will help shape the future

TOP 20 PREDICTIONS 2016

1 Underground attractions
2 Biofeedback
3 Vintage
4 Dressing up
5 Dementia-friendly design
6 Design for obesity
7 Ride gamification
8 Invisibles
9 Interactive planetariums
10 Extreme water
11 Africa
12 Halal tourism
13 Beacons
14 Attractions & spa
15 Cuba
16 China innovates
17 Tech backlash
18 Panama
19 Retail customisation
20 Attractions real estate

The Into the Glacier attraction takes visitors deep into the ice of Langjökull, Iceland

Attractions Foresight™ is published annually in the *Attractions Management Handbook* ***attractionshandbook.com***

SUBTERRANEAN

1. UNDERGROUND ATTRACTIONS

High-up attractions have dominated the news over the past three years – giving customers an adrenaline rush without much, if any, physical exertion or risk.

Now adventure attractions are going underground, using existing cave systems and quarries or creating new ones.

Into the Glacier is Iceland's latest opening, with backing from one of the country's leading pension funds. Guests are transported on an ex-NATO missile launcher to the manmade ice caves deep in the Langjökull glacier, where they can admire the naturally occurring blue ice.

Bounce Below in Snowdonia, Wales, is another new type of attraction, where an underground cavern in a slate quarry is home to three giant net trampolines, where visitors are set free to bounce across the vast subterranean playground (see page 82). At the same site, Zip World Caverns enables daredevil tourists to enjoy an underground assault course of zip lines, rope bridges and tunnels.

 ©CYBERTREK 2016

Biofeedback can be incorporated into rides and installations, responding to individual visitors to create a personalised experience

CUSTOMISATION

2. BIOFEEDBACK

Ride designers are creating evermore immersive and thrilling experiences thanks to emerging technology. Computer-controlled robotic systems can even steer individual seats using biofeedback.

By measuring involuntary responses like breathing, rides can automatically adapt to riders. For example, elastic chest sensors integrated in ride seat safety harnesses can physically and psychologically push back at riders while they struggle to control the ride and their own bodies, resulting in an engaging experience that's thrilling and responsive.

Alternatively, breath-control masks with built in respirator flow sensors and microphones that capture breath rates and vocal responses can be used to enhance the intensity of everything from culture to horror rides and experiences.

The technology has masses of creative potential and studios will soon begin to realise its value. Bio-activated sensor technology could have applications in horror mazes, haunted houses, dark rides and large format films.

Bio-sensors could be fitted to participants in a game, and used to trigger locks, lights and motors, for example. A player might control their heart rate, breath and posture to trigger them – breathing on a lock opens it or raising the heartbeat changes the music, for example.

NEW SPIN

3. VINTAGE

It's happening with fashion and dining, and now it looks as though vintage is coming to the attractions industry.

Plans are in the works to revamp the New York State fair with a heritage feel and the reopening of Dreamland in Margate, Kent, UK – with design by Wayne Hemingway – is further evidence of the growing popularity of the vintage design ethos.

The trend ties in with our dressing up trend (see 4. Dressing Up) where attractions visitors choose their attire to tie in with the theme of the attraction that they're visiting.

Vintage also works well for F&B and retail. We expect it to grow in all areas.

Disney's Ariel gets a steampunk twist

SPECIAL OCCASION

4. DRESSING UP

Disney fans started the trend by dressing up as their favourite characters to visit the theme parks, creating a phenomenon known as Disneybounding. Add to this the popularity of cosplay and we expect the dressing up trend to spread more widely in the market and begin to appear at different types of attractions. As guests get evermore creative with their dressing up interpretations, operators can take advantage of the increased visitor engagement and social media activity to build a tribe of engaged fans and advocates around their brands.

AGEING POPULATION

5. DEMENTIA-FRIENDLY DESIGN

The ageing global population will prompt rapid growth in dementia-friendly design.

Well thought-out colour and décor schemes are needed for those who have problems with depth perception and visual processing, for example. Patterns on the floor may appear to be a trip hazard and this momentary confusion can cause them to stumble and fall.

People with dementia have difficulty remembering things and building up familiarity with where things are, so appropriate signage is important. Their more recent memories are lost first, so if toilet signs are a variation on the stick man that was common in the 60s, it might be meaningless to someone whose memory stops before then, for example.

Attractions which cater for extended families will find it especially important to adopt this approach to ensure the whole family can enjoy their visit.

More and more attractions aim to cater for three generations of family visitors

FAT PLANET

6. DESIGN FOR OBESITY

The World Health Organisation (WHO) has classified obesity as an epidemic and attractions need to gear up to accommodate this.

We're already seeing a strengthening in domestic markets as obese people who are unable to fly holiday at home. We expect attractions to find they are increasingly catering for two distinct groups of customers among their clientele: obese domestic and non-obese tourist groups. Each has very different needs in terms of both design and operations.

In museums and other non-theme and waterpark attractions, the obese need wider corridors, bigger turnstiles and toilet cubicles as well as places to sit. The biggest pressure comes in theme parks and waterparks where obese riders need plus-sized seats and redesigned rollercoasters, ride systems and flumes.

We expect the US to lead the world in obesity design, with the provision of extended seat belts, larger seats, more buoyant boats on water rides, and deeper, wider flumes. Where rides can't be modified, sample seats enable overweight visitors to try them for size before queuing in vain.

Staff can be trained in how to deal with this sensitive issue and websites can prepare visitors before their arrival by posting ride weight restrictions in addition to the usual height restrictions listed.

PHOTO: FOTOLIA.COM/KLETR

The US is likely to become the world leader in designing for obesity

PHOTO: EUROPA PARK

VR can reinvent a park experience

LAYERED EXPERIENCES

7. RIDE GAMIFICATION

Developers have been testing the use of VR headset systems on rollercoasters to enable interactive on-ride games with a leaderboard for all to see and try to beat.

The application of gameplay in the industry can turn a rollercoaster into a space battle or make learning fun for youngsters. This will be used as a tool to draw in a larger audience – young and old – and increase satisfaction. The idea of using games to bring visitors back – as gamification not only improves ride repeatability, but the game software itself can be changed from time to time – will work hand-in-hand with the development of virtual and augmented reality technology.

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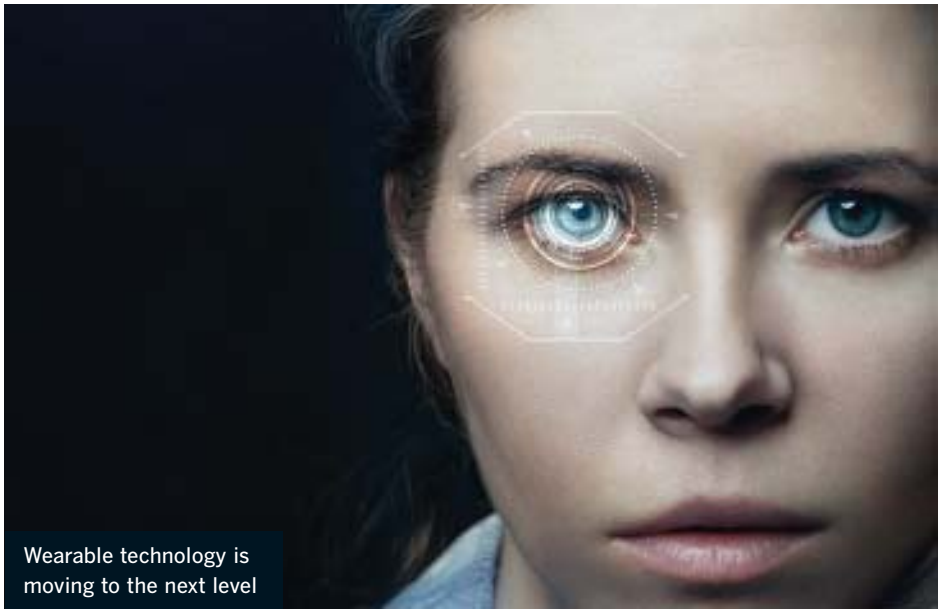
THE NEW WEARABLES

8. INVISIBLES

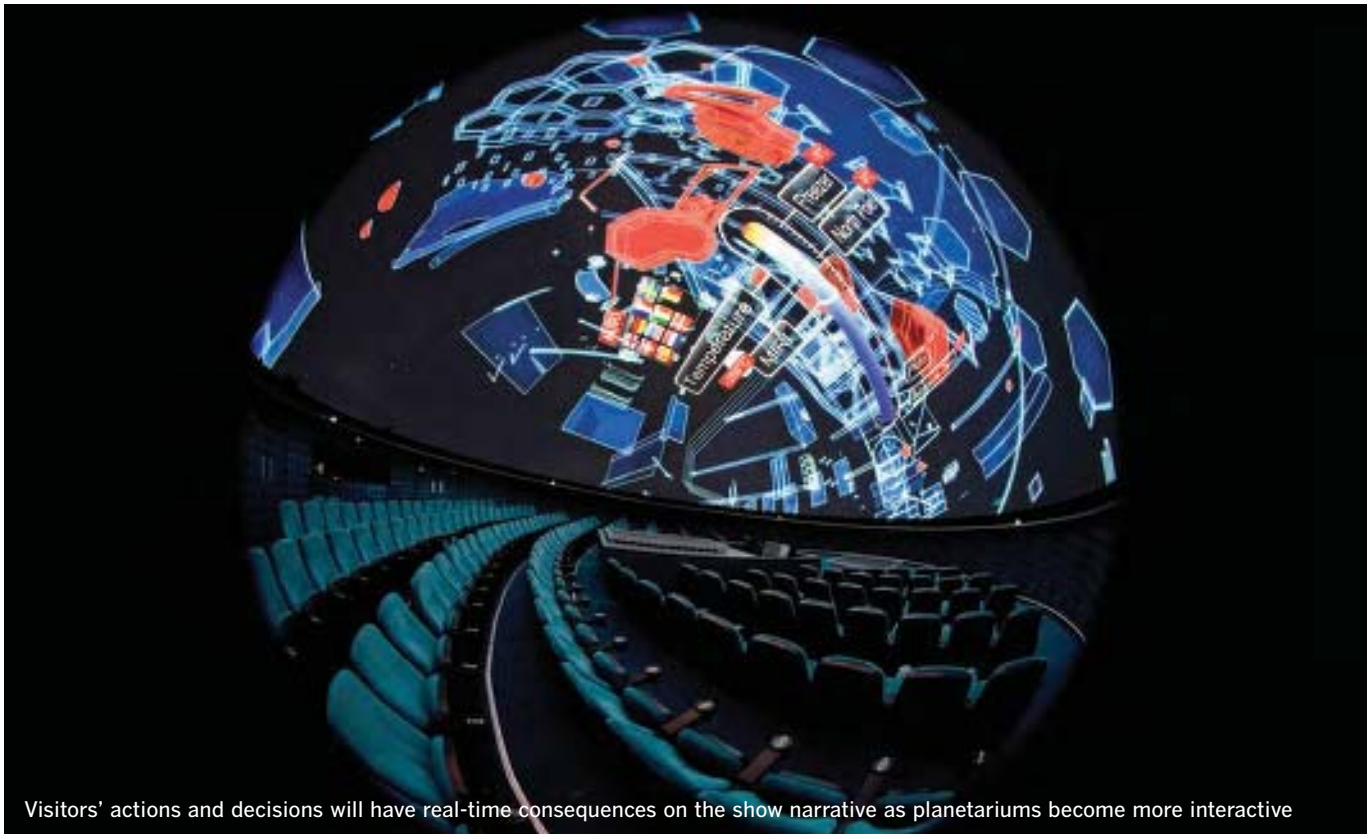
As wearables innovators and activity app developers such as Jawbone, FitBit and Strava battle for market share, the next phase of activity and wellness monitoring is already being imagined and prototyped quietly behind closed doors.

We'll move from a time of wearables to a new evolution in body computing – the age of invisibles – when sensors are integrated into the body to give a continuous data stream and establish a complete picture of what's going on with our responses. This will remove the need to carry devices and enable integration with other technology.



Wearable technology is moving to the next level

PHOTO: SHUTTERSTOCK.COM/LUXORPHOTO



Visitors' actions and decisions will have real-time consequences on the show narrative as planetariums become more interactive

PHOTO: 7th SENSE

FOCUS FOR INNOVATION

9. INTERACTIVE PLANETARIUMS

We expect planetariums to become more interactive by embracing a range of complementary technology.

Dome theatres will offer film-quality visuals that can be customised to create immersive, realistic experiences. They will also be gamified, so individuals can meet and interact in alternative universes of their own making. VR will be incorporated to add further dimensions to the experience.

Live presentations and visualisations created in one planetarium are increasingly being re-packaged and distributed online and to other planetariums, meaning visitors can enjoy more interaction and a greater sense of community is being built.

The potential for planetariums to be used as immersive educational platforms outside astronomy – for example, Sciss's Neurotours, a neuroimaging visualisation based on real brain data – will be realised.

Designers are pushing the boundaries of engineering to create bigger and better thrills for waterpark visitors

THRILLS

10. EXTREME WATER

Waterpark suppliers are pushing the boundaries, as teenage and adult visitors seek the same type of high-adrenaline experience they get at a theme park.

To meet the demand, ride designers are getting more creative, filing more patents and pioneering new techniques in fabrication and structural engineering.

Robotics and advanced computer modelling software are also aiding ride designers in the hunt for bigger thrills.

Waterpark suppliers are offering hybrid rides which offer creative ride paths that can be customised around the park's site and requirements. It's about taller, faster slides, zero gravity drops, and incorporating elements from other types of rides like rollercoasters.

Sky Turtle Technologies has even developed a prototype for a looping waterslide. Riders will travel inside an aluminum capsule, bolted in by lap restraints, to enable a fully vertical loop for the first time. Corkscrews, multi-lane and multi-loop waterslides not dissimilar to rollercoasters are likely to follow.

Waterpark attractions will also be enhanced by gaming technology, where riders can play shooting or racing contests in a digital environment. We expect waterparks to be developed with gaming and competing being central to a fully immersive experience.

IN SIGHT OF CHANGE

11. AFRICA

Back in 2003, Goldman Sachs coined the term BRIC – the acronym for Brazil, Russia, India and China – to group together what it predicted would be the world's dominant economies by 2025.

Next the CIVETS were identified as being the ones to watch: Columbia, Indonesia, Vietnam, Egypt, Turkey and South Africa – the acronym was coined by Robert Ward at the Economist Intelligence Unit to predict the next emerging economies.

We think much of the rest of Africa will show exciting growth over the next two decades, with the attractions industry identified as a driver for both domestic and inbound tourism.

PHOTO: GROOSMAN ARCHITECTS

Kigali Art Centre is being built in Rwanda

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A GLOBAL MARKET

12. HALAL

Muslims spent $140bn (£97bn, €125bn) on international travel in 2013, almost 13 per cent of global travel expenditures, according to a report by Crescent Rating. The agency is one of a growing number of firms that rate facilities on their adherence to Islamic principles, such as no alcohol or gambling and offering halal-certified food and gender-segregated facilities. Attractions in Muslim countries already offer separate male and female areas and halal restaurants and we predict these offers will be more widely available as halal tourism picks up pace.

INSTANT CONNECTIONS

13. BEACONS

Beacon technology is opening up opportunities for enhanced experience design and increased monetisation.

The proximity-based technology transmits a signal – primarily through Bluetooth or wifi – to a smartphone or tablet, delivering information directly to the palm of the hand. The ability to send targeted information to customers as they walk past certain hotspots, essentially turns handheld devices into responsive tour guides or advertising boards (see page 68).

A February 2015 analysis on the impact of beacons by *Business Insider* hailed it as "one of the biggest developments since WiFi", saying that if used as an advertising tool in the retail industry, it could have an immediate impact of $4bn (£2.8bn, €3.6bn) in the next year.

We expect attractions to install beacons during their next investment cycle.

Beacon technology is changing the way we experience visitor attractions

BRC Imagination Arts worked alongside the global spa brand AmorePacific to create a themed visitor attraction in Osan, South Korea

A NEW PARTNERSHIP

14. ATTRACTIONS & SPA

We believe the technology used within the attractions industry has huge potential for use in the development of spa and wellness facilities and expect significant collaborations to emerge in this sector.

Innovations such as immersive environments, virtual reality, haptic technology, facial recognition software and augmented reality could all be deployed to create amazing experiences for customers within the spa and wellness industry.

In addition, the attractions industry's expertise in creating vivid customer journeys and high levels of engagement can also be used by spas to heighten and elevate the experience being delivered.

Other overlaps could include the use of 360° screens and multimedia to create an immersive ambience or to add another layer to the spa experience.

In another application, Asian skincare brand AmorePacific worked with BRC Imagination Arts to create an award-winning brandland that mixes a spa theme and attraction in Osan, South Korea.

Story Garden opened in late 2013 and is located at AmorePacific's Beauty Campus, along with a botanic garden and art museum. It won a TEA Outstanding Achievement accolade at the Thea Awards in 2014 in recognition of its innovative approach. We expect more spa and attractions tie-ups to follow.

OPENING UP

15. CUBA

Tourism is set to take off in Cuba as diplomatic relations with the US thaw for the first time in 30 years. In early 2015, US President Barack Obama announced a detente with the Cuban government and recommended the country be taken off the US terrorism list. The number of Americans visiting Cuba jumped immediately – up 36 per cent between January and May 2015 compared with the previous year. While business and tourist embargoes with the US remain intact, investors who strike up partnerships in Cuba now will be ahead of the game.

PHOTO: SHUTTERSTOCK.COM/KAMIRA

More tourists are visiting Havana, Cuba

PHOTO: MOMA NEW YORK

Attractions must learn to offset, balance or even counteract the growing digital realm

PHYSICAL WORLD

17. TECH BACKLASH

As attractions embrace new technologies and increasingly envelop visitors in digital and virtual worlds, they need to consider how to also provide meaningful experiences that connect the visitor with the physical world around them.

How attractions offset, balance or even counteract the digital realm will become an important design consideration.

Visitors will increasingly want to express themselves as sentient, physical, social beings. Physical movement will become a more important part of learning experiences within a digital environment. Attention must be brought to the physical architecture and environment of attractions. Social interaction (non-digital) can be encouraged through activities.

Attractions will capitalise on their ability to provide an interactive social space for future generations who will be evermore immersed in and reliant on technology.

NEW COMPETITION

16. CHINA INNOVATES

With its high capacity for low-cost manufacturing, China pumps out vast quantities of goods for world markets.

China has had a reputation as being light on its ability to innovate – especially in the attractions sector, with US and European companies behind most of the design. However, with Disney and Universal now building in Shanghai and Beijing and sourcing materials and equipment from local fabricators – educating them in the process – we expect new Chinese suppliers to emerge on the world stage, offering top-class products and creating new competition.

PHOTO: SHANGHAI DISNEY RESORT

Chinese contractors and fabricators are taking the opportunity to learn from Disney

PHOTO: FERNANDO ALDA

The Frank Gehry-designed Biomuseo is a $60m investment in Panama's future

NEW MARKET

18. PANAMA

This year, a new lane will open in the Panama Canal, doubling the capacity of the route that links the Pacific and Atlantic Oceans and effectively creating a cruise ship superhighway.

The canal, a visitor attraction in its own right, will soon be able to host the world's largest cruise ships, which disembark 5,000 passengers at a time. Notably, cruise liners are also gaining nearly 7 per cent more customers annually.

As the canal forms the foundation of Panama's economy, it's predicted that GDP will double in the next eight years. These signs are good news for existing and upcoming attractions operators who are planning to invest in the country.

Panama has recently pulled out all the stops to create the world's first museum of biodiversity, the Biomuseo.

This piece of statement architecture rises from the Panama Canal in a concertina of primary colours. Designed by internationally renowned architect Frank Gehry, whose wife is Panamanian, the museum focuses on the importance of the isthmus and its biodiversity.

The scientific content of the museum was researched and curated by teams from the Smithsonian and the University of Panama, with galleries by New York-based Bruce Mau Design.

We expect to see further growth in Panama's attractions and tourism sectors.

GETTING PERSONAL

19. RETAIL CUSTOMISATION

We expect attractions' merchandising to increasingly draw on mass customisation technologies which are being used in the wider retail industry.

Instead of exiting through the gift shop, visitors will be invited to design their own products on an interactive digital platform with 3D graphics software.

A user-friendly program will enable them to choose the type of merchandise, the colours, style and size – and even customise items with their own text and photography which was taken that day.

Products will either be made and sent on to the visitor – opening up avenues for post-visit engagement – or 3D printed on the spot, as already happens during Disney's Star Wars – D-Tech Me experience. Visitor data collected during their visit will prompt and guide the customisation process.

Visitors use interactive digital platforms to design their own retail products

LIVING ON SITE

20. ATTRACTIONS REAL ESTATE

The value of residential real estate far exceeds that paid for non-residential in almost all cases and in other areas of the leisure industry, residential is being added to the mix to carry capital costs and create additional revenue streams.

Consumers can now opt to live in their favourite hotel, spa, resort or health club and the addition of the leisure element to residential increases the value of the real estate by an average of 30 per cent.

We believe that there would be a demand for real estate linked to visitor attractions and expect a wide range of attractions to add residential elements to their property portfolio in the future.

Many attractions have extensive land and property holdings which could be straightforwardly developed to add residential elements, without it being detrimental to the attractions element of the business or operation.

Disney's Four Seasons private homes at Walt Disney World Resort, Orlando

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John McReynolds oversees regulatory and legislative matters for Universal Parks and Resorts around the world

JOHN McREYNOLDS

Ensuring the highest safety standards across the global industry and continuing the harmonisation of those standards is the top priority for IAAPA's new chairman

New IAAPA chair John McReynolds took the reins at the association's biggest event of the year in November. *Attractions Management* sat down with McReynolds, who's senior vice president of external affairs for Universal Parks and Resorts, to find out what his plans are for 2016.

What does your role as chair involve?
The chairman's role is to be a goodwill ambassador for the industry and to be the volunteer leader who helps set the policy and direction of IAAPA, alongside the phenomenal staff we have here.

What aspects of your current job will help you with the role at IAAPA?
At Universal Parks and Resorts, I handle governmental, regulatory, legislative and land-development issues globally. Many of those issues dovetail into the regulatory nature of this industry, and that affects attractions operators everywhere. I can be the voice that represents our members.

What are your aims for the year?
I'm extremely proud to follow Gerardo Arteaga, who served before me as chair. We've become fast friends. He's down to earth and he took the role very seriously.

We have a strategic plan at IAAPA that ensures multiple-year continuity and this next plan is one that both Gerardo and I had a hand in crafting. But this is not time for a monumental shift. The state of IAAPA is very good. We've had one of the best trade shows ever and we've had a tremendous year as an association, accomplishing a lot of our goals.

That being said, there's huge growth around the globe and we need to keep developing the brand in those places. We like to say: One World, One IAAPA.

Secondly, my background in advocacy and government relations ties in wonderfully with our message that we want to be the global voice for safety and make sure that the industry stands for safety at all times.

How does IAAPA keep pace with rapidly expanding markets?
The expanding markets are looking for the expertise that IAAPA brings to the table. And let's focus on safety for a second: we've taken the lead to make sure that different standards around the world are harmonised. That's been a critical objective of IAAPA over the past handful of years. We've had some tremendous leaders in that area, whether it's Steve Blum from Universal or Greg Hale from Disney, or other individuals. I'm proud of the volunteer leadership in this organisation and what it has achieved in harmonising standards.

What strategies are you taking to the Middle East?
We recently changed the name of the European advisory committee for IAAPA to include the Middle East and Africa [EMEA]

PHOTO: 2015 UNIVERSAL ORLANDO RESORT

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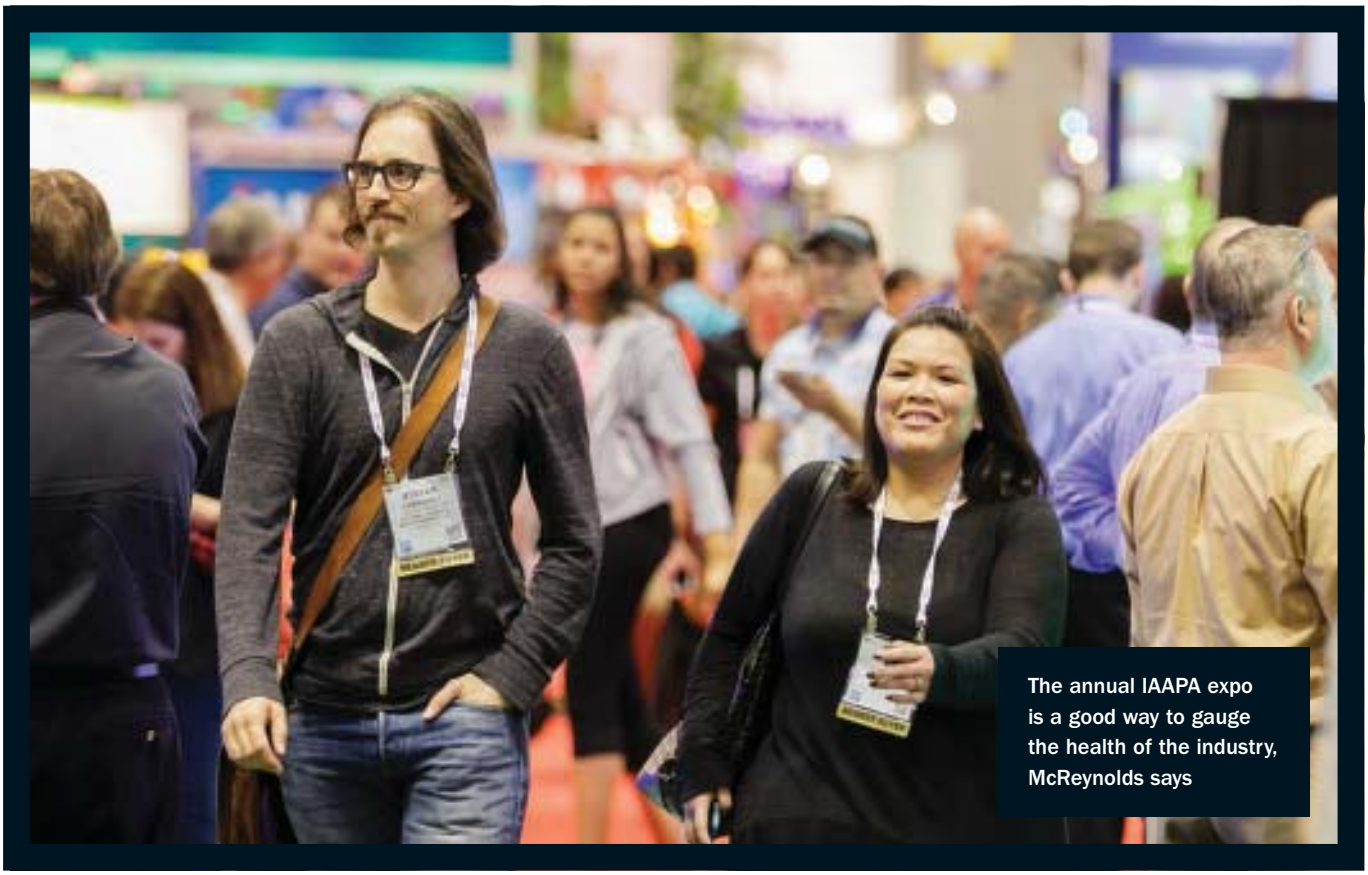

PHOTO: STEVEN MILLER PHOTOGRAPHY

The annual IAAPA expo is a good way to gauge the health of the industry, McReynolds says

and that was done intentionally so that the European section of the organisation would lead the reach-out.

Secondly, using technology and webinars has really helped us to serve those areas.

We had a very successful IAAPA Leadership Conference in Dubai in 2014. It was exciting to see a great turnout of people from the Middle East as well as people who came to Dubai from elsewhere.

We're planning a Safety Institute in the Middle East in 2016 and we hope to bring the week-long Institute for Attractions Managers to the region in the near future.

What challenges is the industry facing?
The increasing regulatory nature of the industry and the governing bodies that oversee different parts of the industry are challenges for operators everywhere. This is my background and one of my strengths. It's not to say that all regulations are bad, but the majority of new ideas have in fact been tried somewhere in the world.

What are the recent successes of IAAPA?
From standard harmonisation around the globe to leadership conferences that have opened up new business interests in the Middle East, IAAPA's successes are almost too numerous to count.

We've also introduced a certification programme to formally recognise members for achieving three different levels of professional development. It's been warmly embraced by many of our members.

> "IAAPA took the lead to make sure that different standards around the world are harmonised"

When things are going so well, do you ever worry that will change?
You're not a good leader of a company, business or association if you're not always thinking about the contingencies. However, you can't let thinking about that paralyse you into inaction. You have to keep reaching for opportunities and trust that the industry is strong and continues to grow in the right direction.

Fred Hollingsworth, creator of the dark ride and IAAPA Hall of Fame inductee

There are some issues that will be always be out of our hands, but we have to do the best we can, which is drive the association forward in a way that's successful. Thanks to leaders like Gerardo and others before him, we're on a proven path.

Did your predecessor give you any advice?
Gerardo is a phenomenal listener and he doesn't rush into decisions. When I was watching him lead the association, the board meetings and so forth, I noticed his ability to sit back calmly and let the debate happen around him. There's a fine balance between leadership and making sure everybody is heard – and he struck the right balance, which I hope to follow.

Do you have to find more time now?
I've got my father thank for a trait that we share – only requiring four or five hours of sleep a night. And I'm going to need every bit of that now! But really, when you get an honour like this, you make the sacrifices needed to get both jobs done.

How did you find the IAAPA expo?
I saw innovation, growth and excitement on the floor – the overall picture of a dynamic industry. Existing technologies are being used in new ways, state-of-the-art technologies are being introduced. The inventor of the dark-ride attraction, Fred Hollingsworth, was inducted into the Hall of Fame. That's someone who dared to dream and that's what the industry is all about. ●

The National Palace Museum in Taiwan attracts so many visitors it's opened a sister site

THE ATTRACTIONS BUSINESS
an overview

part one

In the first of a new eight-part series by David Camp of D&J International Consulting, we give an overview of the global visitor attractions industry and the measures used to assess performance

David Camp

SERIES ROADMAP

This eight-part series outlines the patterns and dynamics that define every attraction – from visitor behaviour and guest spending to operating costs and profitability

CONTENTS

1. An overview
2. How are you perceived?
3. Benchmarking
4. Planning a new attraction
5. Driving revenues
6. Controlling costs
7. Is it worth it?
8. Benefits and impacts

Visitor attractions are an important factor in many people's travel plans. Some choose a destination in order to visit a specific attraction while others decide what to see once they arrive, but it's rare for people not to visit an attraction while they're on holiday.

This means that attractions around the world are well placed to benefit from the rapid growth of the tourism sector.

The World Travel & Tourism Council estimates that direct expenditure on global travel and tourism was worth a huge $2.5 trillion (£1.7tn, €2.2tn) in 2015 and the total economic impact of this sector was $7.9 trillion (£5.5tn, €7tn).

Over the coming months, this series will provide an overview of the attractions sector and how it works from a business perspective. The series will review market size, diversity, dynamics and performance, as well as the all-important financial performance of a range of attractions.

The shape of the market

D&J estimates that there are about 250,000 visitor attractions globally, attracting in the region of 10 billion visits a year. However, it's a very fragmented business. The world's biggest attraction operator is Disney, whose 13 theme parks and waterparks attract 134 million guests annually, generating over $14bn (£9.7bn, €12.4bn) revenue for the company.

The Louvre in Paris attracts more visitors than any other museum in the world

Although these are huge numbers, Disney actually draws less than 1.5 per cent of the world's attractions visitors.

Furthermore, combined attendance at the top 10 global operating groups only accounts for 4 per cent of visits.

Most attractions are operated by national, regional or local governments, by small regional groups or by individuals or families. This fragmentation means there's relatively little data available on the industry when compared with the hotel or transportation sectors where there are greater proportions of large operators.

Differences in scale

The museum sector varies widely in size from country to country. For example, there

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PHOTO: SHUTTERSTOCK_T. SCARBROUGH

are around 1,500 museums in Spain, 1,800 in the UK, 3,600 in China, 6,400 in Germany and a massive 16,000 in the US. Between them, they attract almost 1.3 billion visits each year – that's an average of almost 45,000 visits per museum.

Data from the TEA/AECOM Theme Index and Museum Index (see Table 1 on page 56) reveals that admission to the world's top museums and theme parks has grown strongly in recent years.

At the top of the list, the Louvre in Paris is the world's most visited museum, with 9.3 million visits annually. Among zoos, the honour goes to Chapultepec Zoo in Mexico, with 5 million visitors a year – and Disney's Magic Kingdom in Orlando, with 19.3 million guests in 2014, is the most visited park.

> " We'll look at visitor behaviour, guest spending, operating cost ratios, market penetration rates and profitability "

Free attractions

Moving outdoors, there are many free-to-enter natural attractions, historic sites and national parks. Visitor numbers to these locations are estimated based on surveys and the volumes are impressive: 9 million to the Great Wall of China; 15 million to the Golden Gate Park in California; 15 million to the Forbidden City in Beijing; 22 million to Niagara Falls and 37 million to New York's Central Park.

These attractions are internationally famous destinations run by large operating teams who have substantial resources at their fingertips. However, the majority of visitor attractions are modest in size and

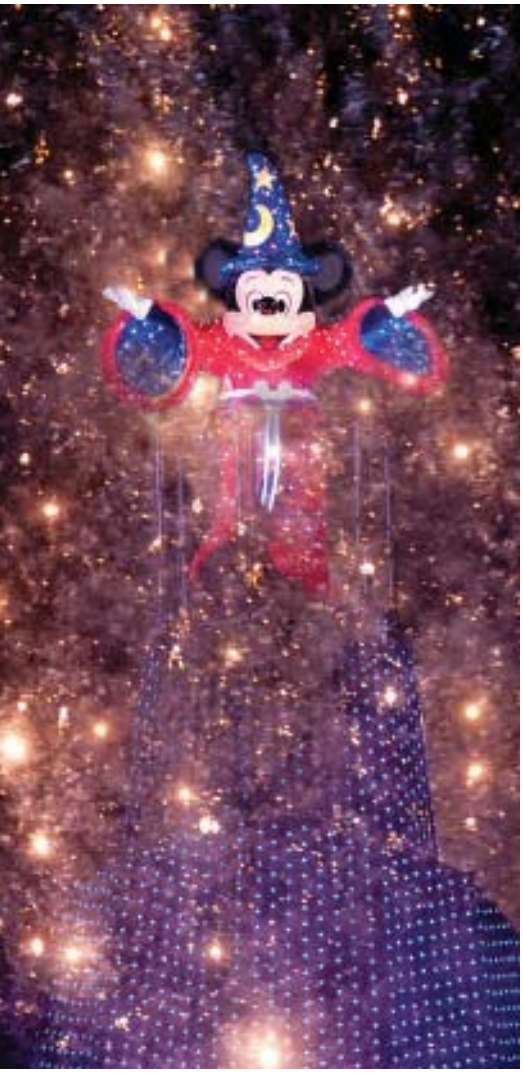

Table 1 : Attendance at the World's Most Visited Museums and Theme Parks

MUSEUM	LOCATION	2012	2013	2014
Louvre	Paris	9,270,000	9,334,435	9,260,000
National Museum of China	Beijing	5,370,000	7,450,000	7,630,000
National Museum of Natural History	Washington DC	7,600,000	8,000,000	7,300,000
National Air & Space Museum	Washington DC	6,800,000	6,970,000	6,700,000
British Museum	London	5,575,946	6,701,036	6,693,213
National Gallery	London	5,163,902	6,031,574	6,416,724
Vatican Museums	Rome	5,065,000	5,459,000	6,177,000
Metropolitan Museum of Art	New York	6,116,000	6,226,727	6,162,000
Tate Modern	London	5,318,688	4,884,939	5,785,427
National Palace Museum	Taiwan	4,361,000	4,412,000	5,402,000
TOTAL		**60,640,536**	**65,469,711**	**67,526,364**

THEME PARKS	LOCATION	2012	2013	2014
Disney's Magic Kingdom	Orlando	17,536,000	18,588,000	19,332,000
Tokyo Disneyland	Tokyo	14,847,000	17,213,900	17,300,000
Disneyland California	Anaheim	15,963,000	16,202,000	16,769,000
Tokyo Disney Sea	Tokyo	12,656,000	14,084,100	14,100,000
Universal Studios Japan	Osaka	9,700,000	10,100,000	11,800,000
EPCOT	Orlando	11,063,000	11,229,000	11,454,000
Disney's Animal Kingdom	Orlando	9,998,000	10,198,000	10,402,000
Disney's Hollywood Studios	Orlando	9,912,000	10,110,000	10,312,000
Disneyland Park	Paris	11,098,000	10,430,000	9,553,000
Disney's California Adventure	Anaheim	6,341,000	7,775,000	8,769,000
TOTAL		**119,114,000**	**125,930,000**	**'129,791,000**

SOURCE: TEA / AECOM

Disney parks such as Tokyo Disney Sea make up nine of the 10 most visited theme parks in the world, with more than 100 million guests a year

PHOTOS: TOKYO DISNEY SEA

run by small groups, families, volunteers, charities or regional or local governments – without the luxury of deep pockets.

The 80:20 rule

While every attraction is unique, there are similarities and patterns in visitor behaviour, guest spending, operating cost ratios, market penetration rates and profitability across different attraction types. It's these patterns and ratios this series will be examining.

There are also similarities and patterns across attractions in different countries and regions. The 80:20 rule applies in leisure; 80 per cent of what people do is comparable around the world, but it's understanding the 20 per cent local context that makes or breaks an operation. For example, the basics of running a restaurant are always the same. You need good food and service, an enjoyable ambience and value for money. These are the 80 per cent factors. The 20 per cent is understanding local tastes, patterns and demands. In the Midwestern US, restaurants typically close by 10pm, while in Spain time people are just sitting down to eat at that time. Local context is critical.

The Attractions Business series will discuss the challenges that are facing visitor attractions, highlighting the world's strongest performers and helping to build a deeper understanding of the dynamics of this vital industry. ●

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HOW TO FUTURE-PROOF A SCIENCE CENTRE

Invisible technology, serious play and co-creation will inform the science centre of tomorrow, says Peter Slavenburg

When the first science centres appeared more than 40 years ago, they were well ahead of their time. Being able to interact with exhibits was a completely new experience for people. It was "please touch" instead of "don't touch". However, times have changed, people have evolved and technology has advanced at an incredible speed. Although some science centres have been able to anticipate these changes successfully, many of them need to do more to adopt innovations and stay relevant for the general public.

In this article we suggest six action points which could make science centres ready for the future.

Peter Slavenburg is director of Dutch design agency NorthernLight

1 Apply technology in an intuitive and elegant way

With all the digital and technological innovations that have emerged, the challenge is to make technology elegant or even invisible. We have moved from a 20th-century world where technology was visible all around us, to a world where technology has become intuitive, omnipresent and invisible. If you walk through the new Rijksmuseum in Amsterdam, the Netherlands, you'll see no technology whatsoever. No screens or panels – the place looks completely clean. That's what people want technology to be like. Tesla is another example of elegant technology. One touchscreen display controls most of the car's functions.

So technology is advancing, but the presence of technology is diminishing. This is the way science centres should move as well. The iSandBOX (an interactive sandbox) is a great example of invisible technology. With this exhibit one can learn about geology without having to touch buttons or screens. By playing with the sand you can create valleys, mountains, lakes, oceans and can even have lava coming out of volcanoes. People don't feel as though they're interacting with technology because the technology that's used (sensors and a projector) is elegantly integrated.

iSandBOX is an interactive, augmented-reality sandbox

2 Co-create and share

Communication between organisations and their customers used to be one-way, but today it's all about sharing and exchanging ideas, goods and information. Examples of this sharing philosophy are abundant; from social media, to crowdsourcing and second-screen applications that enable people to interact with television shows.

Many science centres seem to have missed this development and still primarily focus on one-way communication. A typical example is an exhibit that shows a science principle. Every time you press a button you get the proof that a certain scientific phenomenon is true. Why not show different scientific philosophies that contradict each other and offer opportunities to share or discuss them?

Projects like Ocean Cleanup can be partners

Science centres play a vital role in their communities and are ideally placed to get citizens involved in world-changing projects. The Ocean Cleanup project is a good example of a project where science centres could be a forum for a crowdsourcing initiative to get people involved. Instead of offering a game that teaches visitors about the pollution of the oceans, you could cooperate with a real project, crowdsource ideas and co-create solutions with visitors.

To really create impact and make projects like this happen, science centres can build partnerships with the organisations and institutes around them. Most science centres have ties with science departments of universities, but they could extend their partnerships to companies that focus on innovation or start-ups with high-tech ideas.

It's about having shared goals to create a win-win situation. Companies can contribute knowledge and resources to science centres, while science centres can offer companies a great testing ground for new ideas. Why not showcase a company's latest innovation in a science centre and have visitors test and respond to the idea?

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At the Rijksmuseum, visitors can create a personalised digital collection on their mobile phones

3 Integrate online and offline experiences

Over 50 per cent of museum visitors use their smart phone to prepare for a visit. This number will continue to rise. Whether you like it or not, a visit to a science centre will start with a pre-visit in the digital domain. Once visitors arrive, their phone will continue to guide them during their visit and science centres have to be prepared for this.

Science centres can learn a lot from seemingly more traditional places like the Rijksmuseum, where visitors can create a personal museum collection online and the visit is guided by a context-aware app. Digital experiences are necessary for every attraction: it's simply what your visitors expect.

As a science centre is already an interactive experience, an app's main function is to guide the visit. With beacons, an app can record what visitors do, store results and stimulate repeat visits. The phone can stay in your pocket, but the app will be used before and after the visit.

At NorthernLight we've been experimenting with these context-aware apps in museums, stadiums and retail. In January, the highest density beacons project was launched at Volkenkunde Museum in the Netherlands, with 100 iBeacons used throughout the museum.

4 Make it playful

Serious games are an important educational tool in the 21st century. Science centres were one of the first places in the world to introduce applied and serious gaming. In a way, they invented the idea of using gameplay and interaction for education. But it now seems that online and business-to-business serious games – to teach engineers or educate surgeons or train pilots – are getting ahead.

Science centres need to catch up and learn lessons from these types of serious games. Science-based attractions could integrate serious games and real training software into their exhibitions. Take for example the brain surgeon's game that is used to teach medical students. It would be fantastic to make this game available to science centres. The same goes for flight simulators and car mechanic's augmented-reality devices.

Often large investments were made to develop these games and although they are used to teach serious, real-life skills, they are more challenging and at the same time more fun than the average science centre game that was developed with a limited budget 10 years ago.

The Inventions for Life area at Kayseri Science Centre in Turkey will feature serious games ▸

5 Make it physical

Nothing beats being close to the "real thing". Science centres have always been experts in creating experiences that are hands-on and tactile. In this sense they have been examples for traditional museums. However, in recent years, some science centres have fallen into the trap of creating mostly touchscreen-type experiences, thinking everyone likes digital. But it remains important to stimulate interactivity with real objects, tactile materials and physical interactives.

In order to add a level of physicality and authenticity a few science centres have started to acquire an object collection. NEMO in Amsterdam, for example, has a special heritage collection consisting of 17,000 artefacts that tell the story of humankind and energy in its broadest sense, from the parlograph to the MP3 player and from the Humphry Davy lamp to LED lighting.

The National Maritime Museum China has authentic collection objects

Amsterdam's A'DAM Tower: surprising visitors with the unique Over The Edge vertigo swing

6 Create the unexpected

People are exposed to a lot of media nowadays. Brands try to get people's attention in all sorts of unexpected ways in order to promote and sell their products. The main aim of most brand activation campaigns is to surprise people and create a buzz. Samsung Turkey is a great example. They launched a website with a video call centre for the hearing impaired. As part of the launch they created a video in which they followed a hearing-impaired man named Muharrem through his morning routine. A month of preparation (including sign language training) and many cameras later, Muharrem goes through the city and is greeted by people who can communicate just like he does. The video went viral and has been viewed almost 8 million times.

Science centres can learn from this example, in which a company uses the unexpected to attract attention. They should make a bigger effort to surprise their visitors and make impact, building better, more challenging interactive exhibits. Once you create the unexpected, you will create a buzz, both offline (word-of-mouth) and online on social media.

Another way to create the unexpected is to expose people to interactive exhibits in unexpected places like airports or shopping areas. Here they have a much bigger impact. In Bergen in Norway a science centre was built in a shopping mall, and the Dutch science centre NEMO built a free mini science centre at Amsterdam's Schiphol airport, resulting in a lot of positive feedback from travellers.

IN CONCLUSION

These six characteristics of a futureproof science centre are based on the important role science centres have in society. A science centre is about experiences that connect people through sharing ideas and insights. It's about changing perceptions and attitudes and experiences that cut across boundaries between art and culture, history and science. It's about lifelong learning. Science centres can only continue to keep playing this role if they continuously adapt and keep up with current trends and innovations.

Peter Slavenburg is co-founder and director of NorthernLight. NorthernLight develops and designs physical and digital experience platforms for brands, museums and public spaces. By using the latest digital technologies and media innovations NorthernLight changes physical locations into places where learning, discovery and entertainment go hand in hand.
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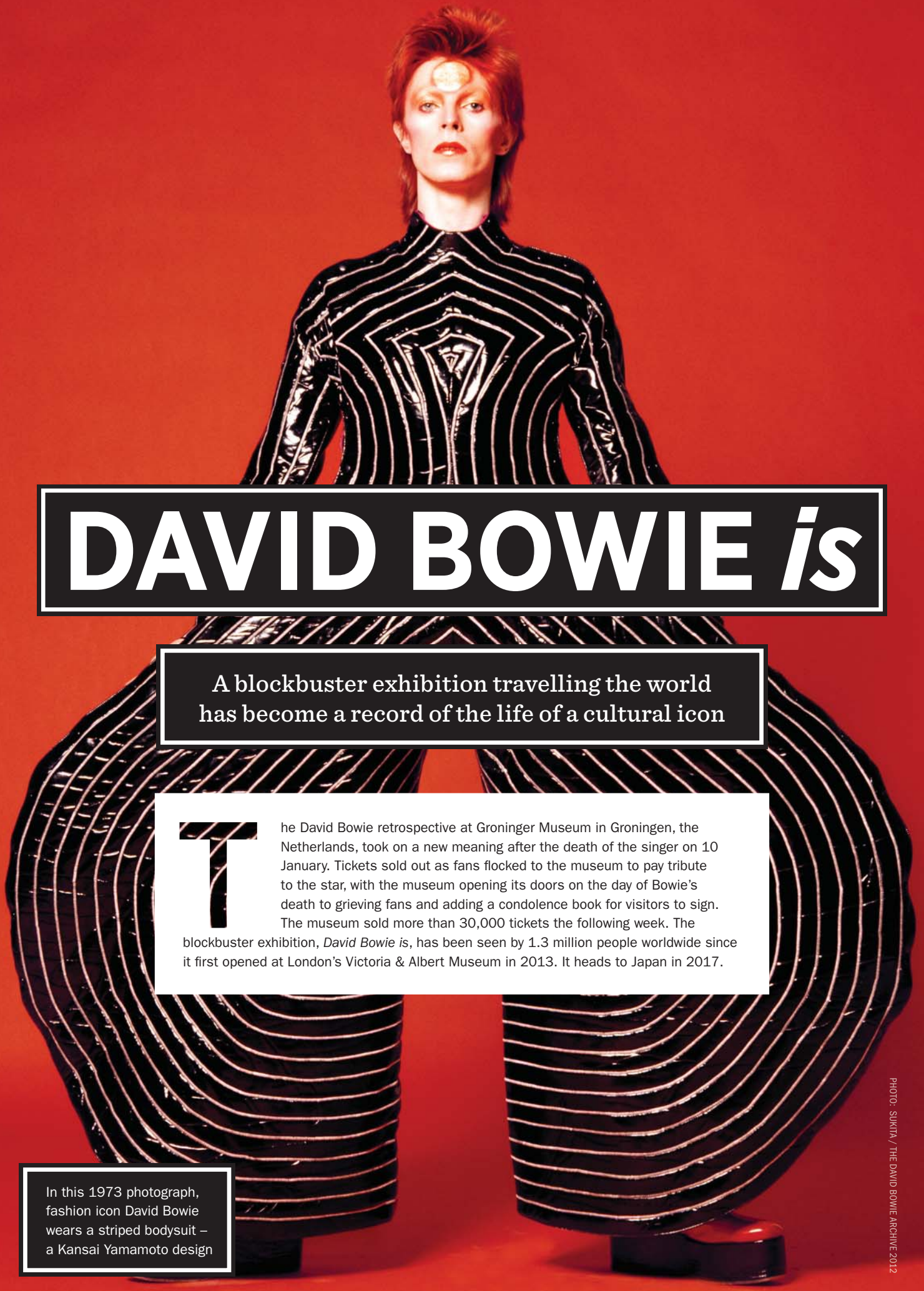


DAVID BOWIE *is*

A blockbuster exhibition travelling the world has become a record of the life of a cultural icon

The David Bowie retrospective at Groninger Museum in Groningen, the Netherlands, took on a new meaning after the death of the singer on 10 January. Tickets sold out as fans flocked to the museum to pay tribute to the star, with the museum opening its doors on the day of Bowie's death to grieving fans and adding a condolence book for visitors to sign. The museum sold more than 30,000 tickets the following week. The blockbuster exhibition, *David Bowie is*, has been seen by 1.3 million people worldwide since it first opened at London's Victoria & Albert Museum in 2013. It heads to Japan in 2017.

In this 1973 photograph, fashion icon David Bowie wears a striped bodysuit – a Kansai Yamamoto design

PHOTO: SUKITA / THE DAVID BOWIE ARCHIVE 2012

A view of the Groningen Museum. After Bowie died, fans visited the exhibit to pay tribute to the singer

PHOTO: MARTEN DE LEEUW

WRITTEN IN THE STARS

Bowie has been honoured with his own asterism of stars.

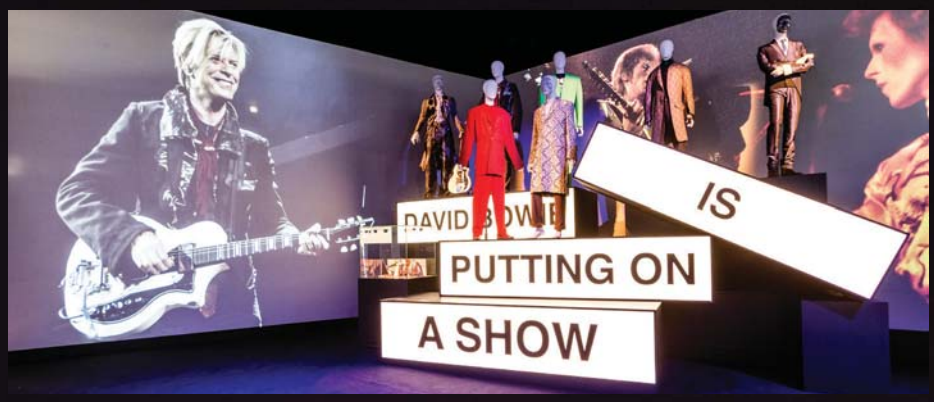
Belgian radio station Studio Brussels and astronomers from the MIRA public observatory decided to develop a unique tribute to space-loving Bowie. A lightning-bolt shape was picked out of the skies to create an asterism – an arrangement of stars that when joined up sketches Bowie's trademark sign.

"We decided that this iconic shape, from the cover of his *Aladdin Sane* album, should symbolically perpetuate in the stars close to Mars," said observatory employee Phillip Mollet. "None of this is official, it's just a very symbolic tribute to a great artist."

Astronomers should locate the stars Sigma Librae, Spica, Alpha Virginis, Zeta Centauri, SAA 204 132, and the Beta Sigma Octantis Trianguli Australis.

Visit http://stardustforbowie.be/

PHOTOS: GERHARD TAATGEN



David Bowie is will leave the Groninger Museum in April 2016, after an extended run of four weeks

Groninger Museum has a reputation for avant-garde exhibits

Bowie during the *Aladdin Sane* album cover shoot in 1973, photographed by Brian Duffy

PHOTO: © THE DAVID BOWIE ARCHIVE / DUFFY ARCHIVE LIMITED

PHOTO: THE DAVID BOWIE ARCHIVE / V&A MUSEUM LONDON

Mannequins dressed in Bowie's costumes at the V&A London. The groundbreaking exhibition is currently on the road

Bowie at the V&A

When *David Bowie is* debuted at the V&A in London in 2013, it was a groundbreaking exhibition, featuring cutting-edge multimedia technology as well as 300 objects from the artist's archive.

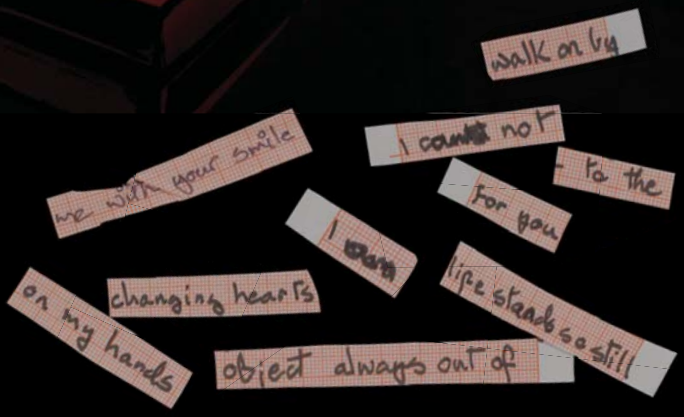
Created by V&A theatre and performance curators Victoria Broackes and Geoffrey Marsh, the retrospective reflected five decades of the artist's reinvention and evolution.

The technology included 7-metre-high (23-foot) video walls and multiple screens displaying carefully orchestrated stills, animations, graphics, video, sound and live feeds. Visitors were able to immerse themselves in soundscapes thanks to a 3D audio system provided by Sennheiser.

The digital part of the collection was offset by posed mannequins dressed in costumes from the Bowie archive, and video projection of live performances.

The physical archive also included handwritten lyrics, photography, set designs, album artwork, instruments and rare performance material, demonstrating Bowie's influence beyond music – on art and design, film, theatre and popular culture.

Following the runaway success of the V&A exhibition, *David Bowie is* went on tour to Toronto, Canada; Sao Paulo, Brazil; Berlin; Chicago, Illinois; Paris; Melbourne, Australia and Groningen in the Netherlands – and will head to Japan in 2017.



With William Burroughs in a 1974 photo by Terry O'Neill

PHOTOS: THE DAVID BOWIE ARCHIVE 2012 / V&A IMAGES

NOTHING VENTURED NOTHING GAINED

Simworx Ventures is bringing its expertise in cutting-edge media-based attractions to a new audience of museums, heritage sites, zoos and aquariums

Simworx, the global dynamic simulation supplier, has launched a new division to take its expertise in cutting-edge media-based attractions beyond the theme park audience and into other sectors.

The division – Simworx Ventures – focuses on working with attractions partners who want to offer world-class 3D/4D theatres and motion simulators to visitors.

Importantly, the arrangement with Simworx Ventures doesn't involve any up-front investment by the operator, as it's based on a revenue-share agreement.

Attractions such as museums, science centres, zoos, aquariums, FECs and heritage sites can use it to boost attendance and create a steady revenue stream.

Simworx Ventures' head of business development, Andy Gray, talks us through the concept and explains how small- to medium-sized attractions can benefit.

What is Simworx Ventures?

Simworx Ventures is a new division of UK-based Simworx Ltd.

ANDY GRAY
SIMWORX VENTURES

Andy Gray is the business development manager heading up Simworx Ventures. His background includes over 10 years in the museum sector. Gray's knowledge of the operational and commercial running of museums will be invaluable to understanding how to create educational and entertaining visitor experiences and form profitable partnerships.

Simworx Ventures focuses on revenue-share opportunities, offering all types of attractions a diverse range of exciting media-based experiences, including dynamic motion simulation attractions and creative AV solutions, with no up-front payment required by the operator.

Simworx manufactures all of its accredited products at a high-tech facility in the UK

Our aim is to create great partnerships. We want to grow our portfolio to become as popular and successful as Simworx.

What products and services does Simworx Ventures offer?

We offer a genuine turnkey experience. Our range includes our hugely popular 4D Cinemas, Immersive Tunnels, Stargazer Motion Theatres and new 360 Flying Theatres for the entertainment, education and corporate markets. We're also able to create bespoke attractions for clients.

Our capabilities include product development, manufacturing and service support, the supply of a full range of film content, motion programming and the creation of complete themed attractions.

Does Simworx Ventures offer custom solutions or outright sale?

Bespoke experiences, including film, can be created around customers' venues and 3D systems and 4D effects can be installed to integrate seamlessly with existing venues. Our clients also have access to a vast film library with hugely varied subject content.

As part of the wider Simworx family, we can also offer the outright sale of any of our products to any organisation worldwide.

Are you currently creating any new and exciting products or technology?

Simworx has invested heavily in new technology recently in these areas: virtual reality, passenger carrying and show action robotics, interactivity, advanced projection mapping, augmented reality and AGV (automated guidance vehicle) dark rides.

Which attractions have you worked with?

Simworx Ventures' partners include the Science Museum Group (Museum of Science and Industry in Manchester), the RAF Museums in London and Cosford and The Needles on the Isle of Wight.

 ©CYBERTREK 2016

New division, Simworx Ventures, can install 3D/4D theatres and media-based experiences with no up-front cost to the client

"WE'RE LOOKING FOR REVENUE-SHARE PARTNERS THAT WANT TO STIMULATE, AMAZE AND EDUCATE VISITORS. WE WANT TO CREATE WORLD-CLASS EXPERIENCES THAT BECOMES A 'MUST DO' FOR VISITORS"

What do you look for in a partner attraction?

We're looking for predominantly UK-based revenue-share partners that want to do something exciting that stimulates, amazes and educates visitors. We want to work together to create world-class experiences that becomes a 'must do' for visitors.

Of course, we must firstly ensure we can generate enough revenue to make a profit for both parties and to recoup our investment. To do this, we look at visitor numbers, the venues' commitment to technological and innovative experiences and how we can tailor our product to fit.

Simworx is investing heavily in new technology

What are the benefits for partners?

Simworx Ventures invests in the creation and installation of a ready-to-go visitor experience, allowing the venue to then operate the paid-for experience. The two parties then split the revenue.

Museum and attractions' funding is decreasing all over the UK and venues are looking for new and innovative ways to create revenue. Not all attractions have the capital to invest in new visitor experiences, but they still want to offer something current and tech-based for all the family. Simworx Ventures allows them to do that, while generating incremental revenue and pushing up visitor numbers at the same time. Our model helps attractions and venues to increase their income at low risk and with low or no investment.

In addition to these benefits, we offer partners after-sales support through our team of dedicated service engineers, who provide worldwide support 365 days a year.

How are you developing the new business?

The key to developing a business that relies on technology is to always stay ahead of the game, using innovative solutions to develop new, exciting experiences. We're talking to a number of UK museums and carrying out market research to identify potential partners across the UK.

We also intend to build our brand and raise the profile of Simworx Ventures by exhibiting at trade shows, including the Museum Association's annual conference, Museum Next, the Museums & Heritage Show and the Association of Independent Museums (AIM) conference. ●

For more information please contact Andy Gray, andygray@simworx.co.uk www.simworx.co.uk

BEACONS ON THE HORIZON

Beacons are changing the face of retail and providing less intrusive ways of interacting with our devices, our surroundings and the Internet of Things. We look into the potential applications for attractions

Alice Davis, managing editor, Attractions Management

What are beacons? Simply put, they are small pieces of Bluetooth-enabled hardware that can be planted in different locations around a site. These beacons (iBeacons in Apple's case) communicate pre-programmed information to receivers – your phone or tablet – when you come close enough to trigger the device.

You may have already encountered beacon technology in stores, where retailers can, for example, push coupons to shoppers' mobile devices depending on the department they are browsing, or send information or a discount code about a product they have stopped to admire.

Beacon technology can have practical uses, too. Airports and airlines are using it to communicate with passengers, sending them travel details like gate numbers, flight times and even special offers on duty free. Airlines can see if a passenger is stuck in security and know that they are on the way.

Beacons are in use already at certain sports stadiums, attractions venues and restaurants. They can be used to track deliveries or help people find their way around and, as we get used to the technology, software designers will come up with many more creative applications.

But could beacons benefit your attraction? We asked Jane Alexander of the Cleveland Museum of Art in Cleveland, Ohio, to tell us about her experience of using indoor location awareness systems in the galleries. We also asked Floris Boekel from the Dutch agency LabWerk what beacons can do for attractions.

The evolution of location tracking at the Cleveland Museum of Art

Gallery One opened on 21 January 2013 at the Cleveland Museum of Art (CMA). The gallery boasts interactive, multi-touch screens that interpret selected art installations through facial recognition, and motion-sensing input devices allowing visitors to actively engage with the art.

Gallery One's 40-foot (12-metre) Collection Wall, one of the largest multi-touch MicroTile screens in the US, allows visitors to discover the full breadth of the collections on view and to shape their own tours of the museum.

Gallery One was further transformed beyond its four walls by the ArtLens app, which enabled visitors to connect to the Collection Wall and to create their own tours through the entire museum via their mobile device. The app provides many other opportunities for customising the visitor's experience at the CMA. For example, using the app's innovative image recognition software, visitors can request additional content about specific pieces of art.

Jane Alexander is the chief information officer for the Cleveland Museum of Art (CMA) in Cleveland, Ohio. Jane is responsible for the creation, ongoing iteration and advocacy of a vision for innovation, technology implementation and digital strategies best applied to the art museum's mission. In 2013, CMA completed Gallery One and the revolutionary ArtLens mobile app, which transformed the museum into one of the most technologically advanced art destinations in the world.

One of the most cutting-edge features of ArtLens is the app's ability to track the visitor's location in the museum. As a visitor enters any space in the museum, a tray appears on the screen of the device identifying the surrounding artwork and offering a variety of expanded interpretive content about it. By clicking on the artwork the visitor wants to learn about, more information will be provided.

An accurate and robust indoor location awareness system is a critical component of the ArtLens app. Because indoor location awareness is relatively new as a technological concept, methods of implementation are constantly evolving.

 ©CYBERTREK 2016

The ArtLens app, developed by the Cleveland Museum of Art, uses image recognition and location tracking software

PHOTOS: COURTESY OF CLEVELAND MUSEUM OF ART

Up to 16 visitors at a time can explore the museum's 4,200 artworks on Gallery One's huge multi-touch screen

ArtLens recognises selected objects, providing information about specific details of the artwork

PHOTOS: COURTESY OF CLEVELAND MUSEUM OF ART

After 250 Bluetooth beacons were placed throughout the galleries, ArtLens was able to triangulate a user's position within a few metres ... with almost no impact on the museum's technological infrastructure

The CMA's original system relied solely on WiFi triangulation, which was the standard at the time. However, initial implementations were highly inefficient from a bandwidth standpoint causing network congestion both upstream and down. Furthermore, signal saturation through existing WiFi hotspots proved elusive. While the system, for the most part, functioned well, reliability and deployment issues drove the CMA to search for a better solution.

The CMA then partnered with location-based services provider Navizon (now Accuware) and its SDK to improve location awareness. After approximately 250 Bluetooth beacons were placed throughout the museum, ArtLens was able to triangulate a user's position within a few metres. Every few seconds, a collection of sensors from the user's device (compass, accelerometer, gyroscope, etc.) smooths the path between beacon updates.

This iteration is significantly more accurate, uses less battery life and has almost no impact on the museum's technological infrastructure.

ArtLens benefits from the evolution of location awareness technology

There are still some challenges. The CMA's magnetic profile causes significant interference with compass orientation. The sheer size and openness of the atrium as well as the unusual shape of certain galleries have also posed challenges. The "blue dot" – which shows the user where he or she is in the gallery – occasionally jumps around displaying an incorrect location.

However, despite these small hiccups, the beacon system has been a great success. As location technology evolves, we are exploring a host of new solutions to further improve the digital experience.

With improved WiFi technologies, WiFi triangulation is re-emerging as a potential solution. Using the CMA's own magnetic footprint to aid triangulation is another possibility for improvement. As technology evolves, the CMA will continue to reiterate its location awareness infrastructure in order to provide a seamless digital experience for its visitors. So stay tuned!

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Beacon technology brings sense of place to visitor experience

LabWerk has designed beacon-led apps for a range of attractions

What does LabWerk do?

We create innovative mobile applications which utilise beacon technology. Through beacon technology, we can enhance user experiences through localised content delivery, accurate indoor navigation and a contactless payment option, while providing insight and analytics on foot traffic track density and on-site customer behaviour analytics to the business.

How are attractions able to use beacon technology?

Attractions can use beacon technology to:

- unlock and deliver specific content based on a user's location
- trigger push notifications on mobile devices when a mobile device detects a beacon's signal
- deliver an accurate indoor navigation solution to visitors
- gain insights into traffic flow and density
- increase visitor engagement with exhibitions through gamification; for example, visiting each section of the exhibition to unlock all available content to earn a prize or coupon
- offer a wider range of content types

Unlike audioguides, where numbers need to be entered or transmitters scanned, beacon technology makes all information available on a user's device without needing to take any additional action other than walk into a beacon's transmitting range.

Because all the content is delivered through a user's mobile device, there are few restrictions to the types, formats and length of content available. This content is still available in the app on a visitor's mobile device after their visit, meaning that they can access any and all information again at a later time.

What attractions have you worked with?

Our attractions clients include Zoom Torino zoo in Italy, the Harvard Collection of Historical Scientific Instruments in the US, the Motor Transport Museum in the UK, the Slottsfjellsmuseet museum in Norway and Tulpenland in the Netherlands.

What are the benefits of beacon technology?

LabWerk's museum platform, mApp, is an all-in-one app for anyone who wants to offer their visitors a unique, personalised experience. Using beacon technology, it offers visitors a range of features, including location-aware content delivery, indoor navigation, gamification and engagement, Passbook integration for coupons and rewards, multilingual content, Facebook and Twitter integration and custom branding to suit your museum.

This technology allows clients to manage, update and add content and languages, access analytics on content, usage and traffic configure beacons signal range and the action they trigger within the app and style the app to suit their brand. Clients can add text, video, photos and audio to their visitor's edutainment experience.

How is the visitor experience enhanced by beacon technology?

Beacon technology allows the proactive delivery of content. Content and notifications are triggered without the visitor needing to take action, coupons are automatically awarded based on set usage requirements and interactive maps show visitors their current location.

Floris Boekel is the co-founder and CEO of LabWerk, an Amsterdam, Netherlands-based agency creating innovative applications using beacon technology. LabWerk works with clients on hyperlocal content, indoor navigation, location tracking and mobile payments. Boekel defines the strategy and vision for LabWerk's growth and culture.

Are there any pitfalls or challenges with this type of technology?

You need an internet connection for users to download the required app before beginning their visit if they have not already done so. Users must also have Bluetooth enabled on their mobile device.

How much does an attraction usually need to invest to develop and install beacon technology?

At LabWerk, the starter version of mApp costs about €4,000 ($4,580, £2,960) per year with a contract period of three years, and €12,000 ($13,730, £8,870) per year for the professional version. Custom development projects are available and price is based on individual requirements.

Can you describe an attractions project you have done?

The Tulpenland app launched in 2014 and we believe it was the first European theme park to use beacon technology. A number of beacons were placed around each zone of their tulip-themed park. As a visitor progresses through each zone discovering the history of the tulip, they are presented with a notification on their mobile device informing them when more interactive content is available for viewing.

The beacons provide an enhanced and personalised experience to visitors at the park by offering location-triggered content. The beacons placed throughout the Amsterdam attraction allow users of the app to see their exact on-site location and which pieces of content they are yet to discover and unlock on a map.

The app also engages visitors with a number of quiz questions. By answering those correctly, the visitor earns a discount coupon to use at the park's gift shop. ●

Tom Anstey and Kim Megson, journalists, Attractions Management

ART ATTACK

Galleries planned around the globe are abandoning conventional ideas, suggesting exciting new approaches to museum design

The new gallery provides an indoor space for large sculptures and installations

KISTEFOS SCULPTURE PARK MUSEUM

JEVNAKER, NORWAY

BJARKE INGELS GROUP

Bjarke Ingels Group (BIG) has designed an art gallery that will twist above a river at a Norwegian sculpture park. The firm's founder, Bjarke Ingels, described the design as his "first experiment with social infrastructure – a building that serves as a bridge, or a cultural institution that serves as a piece of infrastructure."

The 1,400sqm (15,000sq ft) museum will be the new centrepoint of the existing Kistefos Sculpture Park in the municipality of Jevnaker, north of Oslo, Norway, which exhibits work by acclaimed artists including Anish Kapoor and Olafur Eliasson.

The new gallery will better connect the park, which is divided by the river.

"Working on the borderline between infrastructure, art and architecture combines three of our biggest interests into one exciting field of social infrastructure," says BIG partner David Zahle.

Construction is scheduled to begin this year and the building will be completed in early 2019.

An exterior view of the art gallery

PHOTOS: BJARKE INGELS GROUP

 ©CYBERTREK 2016

PHOTOS: KENGO KUMA

MUSEUM OF INDIGENOUS KNOWLEDGE

MANILA, PHILIPPINES

KENGO KUMA

Kengo Kuma has turned the traditional idea of museum architecture on its head with its latest design: a jungle-inspired complex set inside an enormous cave. The Museum of Indigenous Knowledge will sit in the heart of an industrial district of Manila, Philippines.

Visitors will step off the street through a cavernous rocky arch covered in tropical plants and rock. Once inside this large void, they will be able to walk towards a central atrium through a wild environment of jungle, streams, ravines, ponds and waterfalls. These replicate the mountainous valleys where the indigenous people of the Philippines once sought refuge following the arrival of Spanish colonisers.

Explaining the concept, Javier Villar Ruiz, a partner at Kengo Kuma, says: "Indigenous peoples cannot be understood without the context and environment where they have developed throughout the centuries. This is why we abandoned the conventional idea of the museum as a container where alien content is simply displayed and observed."

Inside the entrance, there will be shops and restaurants, and escalators leading to five gallery floors.

After the dramatic entrance, the atrium will be more conventionally designed, with shops and restaurants and escalators leading to the galleries

The Kigali art centre's facade and the public square will be decorated with African patterns

KIGALI ART & CULTURE CENTRE

KIGALI, RWANDA

GROOSMAN

Dutch architectural firm Groosman has unveiled a new Rwandan art and cultural centre, which will feature two huge cantilevered wings.

The arts centre will be located on the outskirts of Rwanda's hilly capital. The cross-shaped block will be decorated with traditional African geometric patterns and will feature two cantilevered sections overhanging an elevated plaza –offering relief from the sun and rain – together with views of the surrounding landscape for the visitors inside.

The country is frequently described as a "land of 1,000 hills" and the centre will sit at the intersection of the city and its surrounding wetlands and mountains. Two further buildings – a hotel and office complex, plus a housing block – will sit on the plaza, while an underground shopping centre will be situated below.

Like the facade of the cultural centre, the raised public square will be covered in symbolic patterns and divided into a grid with sections measuring 2,500sqm (26,910sq ft), each with its own design.

"Our design concept for Kigali Art and Culture Centre is inspired by African art, crafts and culture," Groosman says. "African patterns form the basis of our design."

PHOTO: GROOSMAN

GES2 POWER STATION

MOSCOW, RUSSIA

RENZO PIANO BUILDING WORKSHOP

The Renzo Piano Building Workshop (RPBW) has been commissioned to convert a historic Moscow power station into a brand new venue exhibiting contemporary Russian arts and culture.

The firm – which has recently completed work on the Whitney Museum of American Art in New York – will create the new art space for the V-A-C Foundation on a plot in the Russian capital's trendy Red October district. The project will be completed by early 2019.

To reflect the site's industrial heritage, the main gallery space will be built into the existing metal structure of the GES2 power station, which was constructed in 1907. The building's tall chimney will be converted into a natural ventilation shaft.

The foundation will be split into three key areas: the Welcoming Pole, containing a sculptural garden, a piazza, a restaurant and cafes; the Exhibitions Pole, hosting indoor art galleries; and the Education Pole, containing classrooms, workshops and an artist residency block.

RPBW will also design the site's surrounding green space. New topography will be created on three sides of the main building, creating a raised natural amphitheatre. This will be used as a seating area for film screenings and events, while in summer the area will become an open-air cinema.

"GES2 will become an exciting cultural destination, offering new opportunities for artists and audiences on a local, national and international level," says the V-A-C Foundation.

The main gallery will be built into the existing structure of the GES2 power station

PHOTO: RENZO PIANO BUILDING WORKSHOP

VANCOUVER ART MUSEUM

VANCOUVER, CANADA

HERZOG & DE MEURON

Vancouver Art Gallery is in line for a radical redevelopment, but only if the Canadian attraction can fund the multi-million dollar cost of the ambitious plans, which will double the institution's exhibition footprint.

The CA$350m ($267m, €237.8m, £175.7m) plans, by Swiss architects Herzog & de Meuron, feature a wooden exterior, with rectangular stacks sitting on top of each other.

So far the gallery has committed CA$23m ($17.5m, €15.6m, £11.5m) towards the redevelopment.

The new gallery would have seven publicly accessible floors with 85,000sq ft (7,900sq m) of exhibition space, as well as two below ground floors for parking and storage.

"Herzog and de Meuron's buildings not only effectively and elegantly meet the needs of their users, they also become places that are part of the cultural DNA of a city," says Kathleen Bartels, Vancouver Art Gallery director.

Underlining the need for the project, she adds: "Over the past 15 years, our collection has grown by 250 per cent, attendance has increased by 350 per cent and membership has increased by 300 per cent."

PHOTOS: HERZOG & DE MEURON

Assuming Vancouver Art Gallery secures the necessary funding, the building will open in 2021

The $140m art gallery was funded by Eli and Edythe Broad, founders of the Broad Art Foundation

Two floors of exhibition space are centred around the Broads' archive

THE BROAD

LOS ANGELES, CALIFORNIA

DILLER SCOFIDIO + RENFRO

The Broad, a new contemporary art museum, has become the latest addition to the Los Angeles cultural sector. The free-to-visit attraction opened in September 2015.

Designed by Diller Scofidio + Renfro (DS+R) in collaboration with Gensler, the striking museum building, which resembles a cheese grater, cost $140m (€123m, £91.6m) to develop, with funding coming from billionaire philanthropists Eli and Edythe Broad, founders of the Broad Art Foundation and art patrons.

The 120,000sq ft (11,150sq m) three-storey gallery and museum offers two floors of exhibition space centred around an archive known as "the vault", which takes up the second floor. With most museum design developed to keep the archives out of site, the Broad counters this, with the vault playing a key part in the visitor experience. While not allowed to enter, guests can look through a glass elevator in the centre of the building and through strategically positioned openings at what is stored in the vault, which archives the Broad's collection of more than 2,000 paintings, photos and sculptures.

PHOTOS: IWAN BAAN COURTESY OF DILLER, SCOFIDIO + RENFRO AND THE BROAD

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READY FOR THE MOST (INTER)ACTION-PACKED RIDES?

WORLD PREMIERE!

PLANTS VS ZOMBIES GARDEN WARFARE: 3Z ARENA
Dueling Interactive Theater

Alterface Projects is proud to work with Cedar Fair to create the world's first Dueling Interactive Theater in 3D. This multisensory experience inspired by EA Games/PopCap's worldwide video game hit Plants VS Zombies will allow two audiences to join the wackiest battle as team Plants against team Zombies.

Coming to Carowinds in Spring 2016.

INTERACTIVE ATTRACTIONS • UNLIMITED POSSIBILITIES

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alterface projects

THE NEXT BIG THING

WHAT WILL IT BE, AND HOW WILL WE SPOT IT?

2016 is shaping up to be an interesting year for the attractions industry. IDEA looks at what it takes to win audiences and command attention

Anyone who has worked in the entertainment and attractions industry for more than a decade will tell you how much things have changed over the years. But they will also tell you one thing hasn't changed, that audiences always want to be thrilled and excited.

From the first movie audience at Berlin's Wintergarten in 1895 to whoever will be first to experience Disney's much anticipated Millennium Falcon ride at Star Wars Land, the objective remains the same: to make the audience say wow!

What has changed massively, however, is the lengths attraction managers need to go to to get this reaction. Pushed by technology and consumer expectation, entertainment providers are continually on the look out for the next big thing.

"Consumers around the world are clearly telling us that multi-platform experiences are key," says Ben O'Hara, creative director and co-founder at leading entertainment agency, The Business Creative. "The convergence of the digital and non-digital worlds is now a standard expectation as audiences want to replicate and extend entertainment across a variety of platforms. At the same time, we are seeing this coupled with a resurgence in interest in live experiences, such as visits to theme parks and music or film events."

"Our clients want to achieve all this and, at the same time, blow people's minds."

The UK creative industry is at the forefront of the kinds of innovations that help attractions and entertainment providers around the world achieve just

Animatronic Polar Bear at Winterfest Event

Chinese New Year Celebrations at Ferrari World Abu Dhabi

 ©CYBERTREK 2016

CASE STUDY 1

Fusing Man and Machine

Dancing JCBs are everywhere, from industry expos to local farming shows, and they are able to perform some logic-defying moves

However amazing a dancing JCB show might be, JCB still needed to push the boundaries to move things up a gear.

That's when the company turned to The Business Creative with a brief to bring the show up to date and incorporate modern dance disciplines whilst simultaneously showcasing the technology.

"The brief explicitly stated that the company wanted to create a world first," says Ben O'Hara, creative director at The Business Creative.

"JCB had already wowed audiences with the original concept of getting seemingly cumbersome and heavy machinery to perform deft and graceful movements in the context of a dance performance. But once audiences were used to seeing this, we had to move things on."

The World Famous JCB Dancing Diggers with an Urban Twist

The creative team working with O'Hara and Jane Maguire, the founders of The Business Creative, has no set system for devising new concepts. According to O'Hara, it's more often a combination of years of entertainment industry know-how, solid research and investigation and a "wow" provided by some "crazy, out-of-the-box thinking."

"The quality of JCB machinery is the result of expert and innovative engineering. We brought the same ingredients into our concept for updating the dancing diggers show.

"We knew from the off that we wanted to include parkour in the show. In the same way the machines are strong yet capable of fine manoeuvres, parkour runners are strong athletes capable of making precision movements.

"Nature is a highly skilled, talented engineer so we wanted to demonstrate these similarities with JCB equipment," says O'Hara.

The show was built around construction and industrial themes, so core street dance sequences allowed us to showcase further acrobatics.

"Of course, it's the details that accompany a show that make a big difference," O'Hara says. "For JCB we built in graffiti and a sound track, for example, that enabled us to weave a story arc through the dance sequence. And it worked in conjunction with the machinery movement to accentuate and emphasise what the vehicles were capable of doing."

The show has run for three years at Intermat, Paris and the Bauma, Munich show and also in Las Vegas. Specifically it has helped increase sales and generated record audience attendance figures as well as going viral online.

Jaw Dropping skills demonstrated by the Mission Ferrari Performers

CASE STUDY 2

Mission Ferrari

The Business Creative developed the Mission Ferrari Show in Abu Dhabi, which recently won IAAPA's Brass Ring Award in the category of sports show performance

"Ferrari is one of the world's most powerful brands and its DNA is centred on elegance, speed, power, precision, agility and balance. All of these elements are expressed in Mission Ferrari through the mediums of aerial performance, dance, 4D projection mapping, mechanical engineering and a bespoke composition to accompany the show" says Ferrari World general manager, Jesse Vargas.

"Ferrari World Abu Dhabi wanted us to create a temporary concept that promoted a forthcoming attraction, whilst at the same time using the show itself to take attention away from the construction zone," says Jane Maguire, co-founder of The Business Creative.

This led the team to devise a visually dramatic show that actually utilised the huge vertical space provided by the hoarding, which was screening the construction, as a stage.

The team then took the unprecedented decision to use the stage to showcase a rotating replica Ferrari F430 and then threw in a team of world-class acrobats performing gravity-defying stunts for good measure.

Cutting Edge projection mapping fused with live performance

"We decided to embrace rather than hide the construction," says Maguire. "Ferrari World Abu Dhabi insists on the very highest production standards in everything it does, and the show had to meet those standards.

"We decided to use cutting-edge projection technology to create mapping with aerial artists, a dramatic sound track and jaw-dropping special effects.

"We knew we needed to collaborate with specialists in concept development, projection mapping, aerial choreography, set design and Ferrari World's own operational teams, if we were going to pull it off," Maguire says.

"It all came together and worked brilliantly and the show won an industry award. What more could we ask for?"

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this. The UK government's trade and investment department regularly runs pitch trips to key locations around the world, enabling creative agencies such as The Business Creative to show off their capabilities and win contracts.

"We went on several trips last year, including to Hong Kong," says O'Hara. "An estimated £19 billion [$27m, €25m] is being invested the West Kowloon Cultural District and in nearby Macau to develop destinations such as arts spaces, casinos and retail areas."

A graceful aerialist floats above the crowds at Ferrari World Abu Dhabi

How to be different

"This is just one of the hotspots for the experience economy around the world," O'Hara says. "But it doesn't matter whether you're talking about a casino in China or a waterpark in Abu Dhabi, clients all want the same thing – to be different.

"For The Business Creative the answer to this lies in acknowledging one fundamental point: there can be no such thing as a template approach. Every brief needs a completely different response.

> **The process is about freeing your mind to think completely outside what has been done before and then refining this in the context of logistical and financial considerations.**

"When we pitch to clients we do two things. We come up with a unique concept. And we make sure it is grounded in our knowledge and experience of what we know works and what doesn't," O'Hara says. "The process is about freeing your mind to think completely outside what has been done before and then refining this in the context of logistical and financial considerations.

"By doing it this way we've won diverse contracts around the world, which have seen us do everything from dancing with JCBs to celebrating Chinese New Year at Ferrari World in Abu Dhabi."

In essence, there's no way we can predict what the next big thing in the experience economy will be. The only thing we can be sure of is that it will be extraordinary, surprising and different from anything that has come before. ●

For more information please contact Jane Maguire at jane@thebusinesscreative.com

ABOUT iDEA

The Business Creative's newest addition to their portfolio of innovative, technology-based concepts is iDEA (Interactive Digital Entertainment Activities). The seed of the idea for a low cost, on-trend daytime activity solution was borne from a wealth of experience gained within the holiday and leisure attraction industry. Firmly aimed at the family market, iDEA activities are all about getting people active physically, mentally and socially, whilst having fun. Having only launched in September 2015, iDEA is already providing to be an extremely popular addition to holiday parks, hotels and leisure attractions worldwide.

For more information go to www.ideagetactive.com

Bounce Below, in the mountains of north Wales, is a subterranean world of trampolines and slides

SPRING IN YOUR STEP

Kate Cracknell pays a mystery shopper visit to Bounce Below, a new underground trampolining attraction in Snowdonia, north Wales

Bounce Below is a feat of imagination, let alone engineering. There's something rather Alice in Wonderland about disappearing through a tunnel into the depths of a disused slate mine, to arrive in a surreal subterranean world of giant trampolines and slides.

Located in Snowdonia, north Wales, Bounce Below opened in the summer of 2014. Created within a cavern twice the size of St Paul's Cathedral, it's essentially a huge playground, with three vast net-style trampolines slung one above the other and linked via walkways, tunnels and 60-foot (18-metre) slides. To add an extra touch of magic, the whole space is illuminated by a multi-coloured LED light show.

Bounce Below has been designed to bring out the child in you whatever your age, and most of the hour-long sessions allow everyone to pile in together. However, there's also Bounce Below Junior for kids aged three to six, while Bounce Below Family sessions run at weekends and during school holidays, allowing families with kids aged between seven and 18 to enjoy their bounce away from any adult-only groups.

But while it might be fun for all the family, it isn't one for the faint-hearted:

The cavern is lit with multi-coloured lights

the whole thing is suspended over an 85-foot (26-metre) sheer drop onto the rocks below. Luckily the lights mostly disguise that fact and once you get into it and realise the nets are pretty much impenetrable, the fun factor takes over.

The attraction – the first of its kind in the world – is currently ranked as the number two thing to do in Blaenau Ffestiniog. That places it second only to Zip World Titan, said to be the only four-person zip line in Europe, which is run by the same company.

Bounce Below, Zip World Titan and Zip World Velocity – a solo zip line where speeds in excess of 100mph (161kph) can be reached – together represented an investment of £1.2m ($1.7m, €1.6m).

New for 2015 is Zip World Caverns – underground zip lines, rope bridges, balance beams and tunnels which you can watch people playing on from your vantage point above them on the trampolines.

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Location

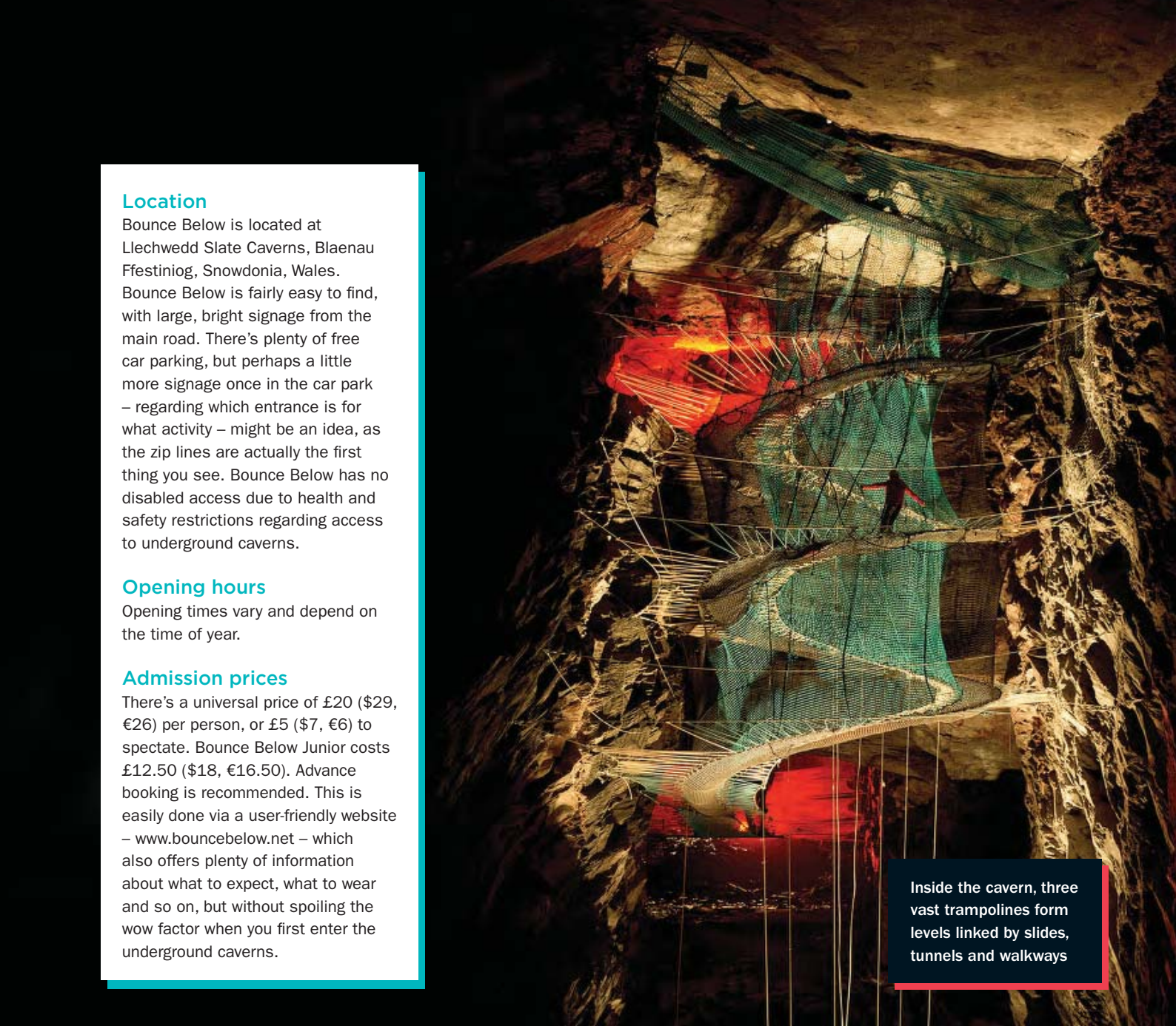
Bounce Below is located at Llechwedd Slate Caverns, Blaenau Ffestiniog, Snowdonia, Wales. Bounce Below is fairly easy to find, with large, bright signage from the main road. There's plenty of free car parking, but perhaps a little more signage once in the car park – regarding which entrance is for what activity – might be an idea, as the zip lines are actually the first thing you see. Bounce Below has no disabled access due to health and safety restrictions regarding access to underground caverns.

Opening hours

Opening times vary and depend on the time of year.

Admission prices

There's a universal price of £20 ($29, €26) per person, or £5 ($7, €6) to spectate. Bounce Below Junior costs £12.50 ($18, €16.50). Advance booking is recommended. This is easily done via a user-friendly website – www.bouncebelow.net – which also offers plenty of information about what to expect, what to wear and so on, but without spoiling the wow factor when you first enter the underground caverns.



Inside the cavern, three vast trampolines form levels linked by slides, tunnels and walkways

> THERE WAS A MOMENT OF HESITATION BEFORE WE THREW OURSELVES DOWN THE FIRST SLIDE – A VERTICAL DROP DOWN A NETTING TUBE. BUT AT THAT POINT YOU'RE HOOKED

Welcome to the playground

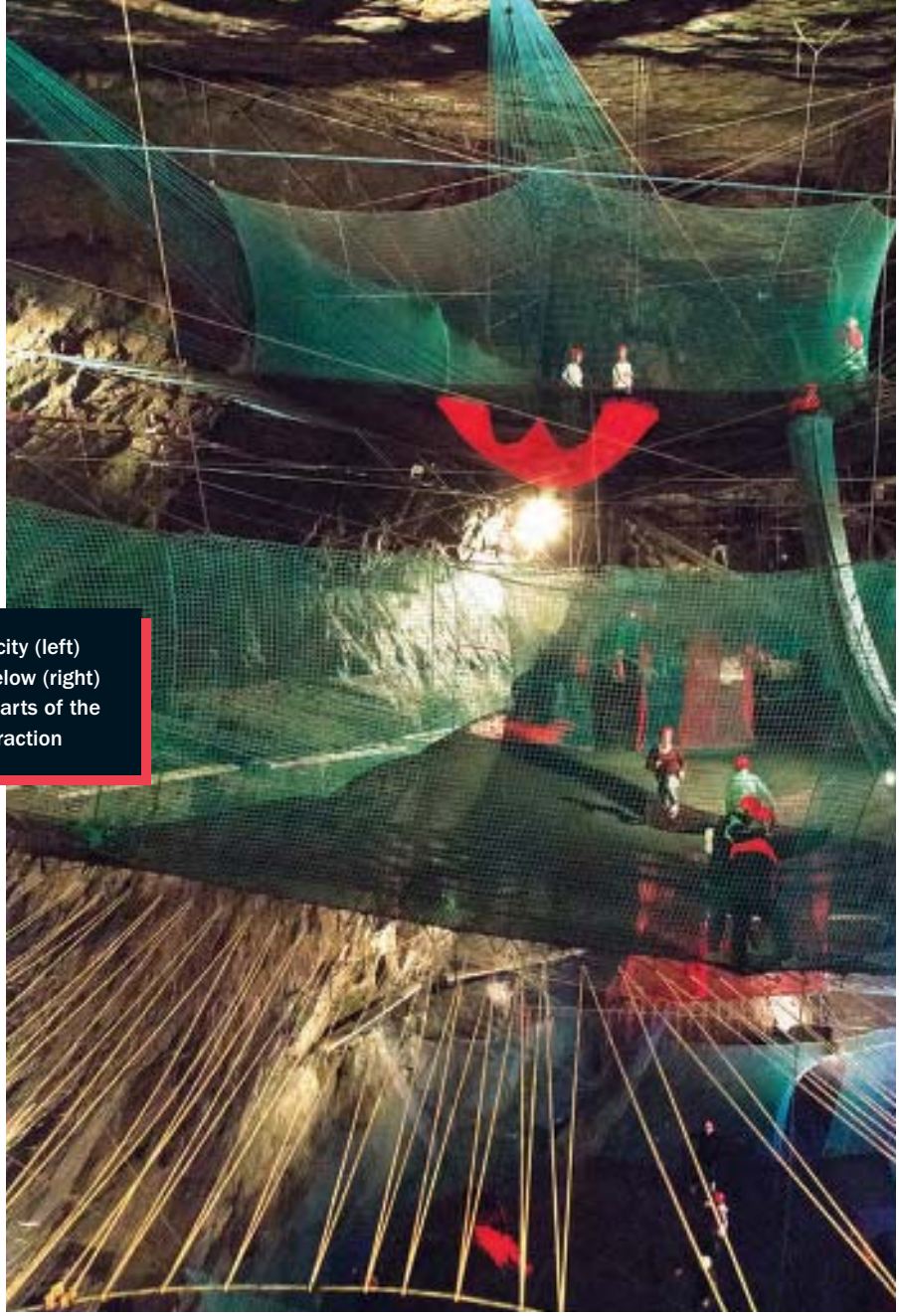
We visited Bounce Below on an August summer bank holiday weekend. On the nets: my boyfriend's four children – aged between eight and 16 – and me.

First up, before even entering the cavern, was the safety briefing and the provision of helmets – a legal requirement when going underground rather than anything to do with the trampolining itself. We'd also had to sign everyone in individually on arrival, each being provided with a paper wristband with our personal number on it so we could be checked in and out again at the end of the session. The briefing was relaxed but thorough and the checks very much adhered to – but this was done in such a way that it didn't impinge on the fun. Once you were let loose on the trampolines, you really did feel you could let your hair down.

Big reveal

The excitement started to build as we walked in through the tunnels, but nothing – not even the photos on the website – had prepared us for the Bounce Below cavern itself. Coloured lights made the huge enclosed net trampolines glow in the dark, with the three levels broken up by slides and ramps. If you're trying to visualise this, you need to put trampolining centres out of your mind, because Bounce Below is something totally different: not really trampolining as you know it, but rather an adventure playground that happens to bounce underfoot as you run (and occasionally stumble) across it.

Once we were given the nod to go – wow, what an experience. The hour absolutely flew by. We all bounded straight across to the net walkway taking us to the next level, from where there was a brief moment of hesitation before we threw ourselves down the first slide of the day – essentially just a netting tube that drops almost vertically down. At that point you're hooked. Next, another slide, and finally a huge spiral



Zip World Velocity (left) and Bounce Below (right) form the two parts of the Snowdonia attraction

ramp, lit in changing neon colours like a psychedelic spider's web, to climb back up to the entry level and start all over again.

The nets weren't overcrowded – no doubt for safety reasons, but it really added to the fun not to have to queue to go down slides or up walkways.

The whole thing really was utterly fabulous, and loved by everyone from the youngest kid (aged eight) to me, the big kid (age not supplied!). The kids have all been working out how far Bounce Below is from home, and whether they can go back to have their birthday parties there.

There's a maximum weight for bouncing, and also no disabled access, but you don't need to be good at trampolining.

Food and beverage

Food and beverage on-site is surprisingly good. The café has a decent menu of hot and cold food, including daily specials, as well as takeaway options including cakes and sandwiches. Most dishes are crowd pleasers – burgers, jacket potatoes, chicken goujons and so on – but there were also soups and quiches and other less expected options. Soft drinks and hot drinks are available – as well as alcohol, should you need to calm your nerves after a 100mph zip ride.

It's also very good value: we fed two adults and four children, including non-alcoholic drinks, for £40 ($57, €53), and the food got thumbs-up all round. It was busy even though there are plenty of tables, but we were warned in advance of a 25-minute wait – good management of our expectations. My only slight criticism of the café was that the staff seemed young and inexperienced – fairly helpful if you could get their attention, but mostly keen to avoid eye contact.

Vending machines selling soft drinks are also available in the cavern, should you work up a thirst while bouncing.

Finally, there's a shop on-site selling all sorts of souvenirs, which is on the right as soon as you enter and very much draws you in – especially as the rest of the welcome area is a little on the grey side. There were a few people milling around in there.

All in all, the whole Bounce Below experience is simply great fun, and also good value at £20 ($29, €26) a head and comes highly recommended. ●

WHAT'S THE SCORE?

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

Kate Cracknell is editor of *Health Club Management* magazine, a sister publication of *Attractions Management* magazine.

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WE SOLD A RECORD NUMBER OF SEASON PASSES AS A DIRECT RESULT OF OUR NEW LOG FLUME

Bob Williams
General Manager, Calaway Park
Calgary, Canada

WhiteWater® Attractions

whitewaterattractions.com

THE RIDE MAKERS

Flumes, chutes and water coasters are a firm favourite with park guests. We meet the companies who champion the joy of the water-based ride

Alice Davis, managing editor, Attractions Management

HOPKINS RIDES

DOUG SMITH

VP BUSINESS DEVELOPMENT, WHITEWATER ATTRACTIONS

Timber Falls at Calaway Park in Calgary, Alberta, is a new installation by Hopkins Rides

What's the relationship between WhiteWater and Hopkins Rides?
WhiteWater acquired Hopkins Rides (formerly OD Hopkins) in 2012. The water ride company has operated under the same name, Hopkins Rides, acting as a product line of WhiteWater Attractions.

WhiteWater Attractions is a division of WhiteWater West Industries that manufactures dry attractions for a number of markets, including theme parks.

Tell us about a few of your most recent water ride installations.
WhiteWater commissioned a Super Flume in the popular South Korean theme park Everland Resort last fall. The new Super Flume, Thunder Falls, is a flume ride with an eight-person vehicle that takes riders through 485 metres (1,591 feet) of adventure. The ride features a 20-metre drop (66-foot), a 180° turntable and backwards cascade drops.

Prior to the Everland installation, WhiteWater Attractions worked with Calaway Park in Calgary, Canada, to deliver a Log Flume called Timber Falls. The new Log Flume, which replaced an old flume ride, improves the park's water consumption by retaining 95 per cent of the water used to operate the ride. The ride features three drops – one where riders are sent down backwards – and a zig-zag river section.

WhiteWater Attractions also recently installed a Shoot the Chute at Parque Diversiones in Costa Rica.

Where do you see water ride trends going?
The experiences that are popular right now are offering a combination of experiences within one ride. We've seen it in the waterslide side of our business with the success of our Fusion Waterslides and we are seeing similar demands in the dry attractions business.

A good example of this is the Super Flume at Everland theme park, where we took the traditional water ride and added additional features, such as a rotating table and backwards cascade drops, to enhance the ride experience for guests.

Doug Smith oversees Hopkins Rides

We've seen some of the big amusement park players dipping their toes into hybrid parks more and more. We also know that the big developments in China are combining theme parks and waterparks within the same gate to offer a complete tourism offering. For example, Zhengzhou Yinji Kaifeng Waterpark, one of the biggest waterparks in the world, has a Shoot the Chute as a centrepiece of the waterpark.

What are you doing that other ride makers aren't?
We're taking experiences that have been successful in other products in our portfolio and integrating them into amusement rides. Having years of experience in waterpark and waterpark attraction design, we know the kinds of experiences that work really well to achieve different results and we're applying that expertise to our water rides. Our goal is to help our clients succeed and if we can

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The Timber Falls ride at Calaway Park features three high-velocity drops

help them by recommending the perfect ride for what they 're trying to achieve – whether it be to thrill their guests or offer something for a younger crowd – we have a product range that allows us to do that.

What benefits can a water ride bring to a park?

A water ride brings diversity: having a range of experiences for the guest is essential, plus the huge spectator value of the big beautiful splashes which are created by water rides is awesome.

Water rides can provide the opportunity for sideline interactivity that most large amusement park rides can't accomplish. Water guns on the sidelines shooting in and even water cannon in the boats shooting out make the queue and spectator areas interactive.

Splash Caribbean is a new Shoot the Chute at Parque Diversiones in Costa Rica

What services do you offer a client who wants a water ride?

WhiteWater is a solutions provider. We don't simply supply rides, we offer concept-to-completion solutions to all our clients. WhiteWater provides site design and consultation, attraction design, as well as custom themeing integrated into the ride and custom themed ride vehicles. We offer services for our clients who already have a water ride, as well through our aftersales and service team supporting our clients with maintenance, repairs, retrofits, and/or refurbishments. WhiteWaters' clients are working with a partner who helps and supports their business goals.

The Viking water ride at Vialand in Istanbul is a Spillwater (Shoot the Chute) by Intamin

INTAMIN

SASCHA N CZIBULKA
EXECUTIVE VICE PRESIDENT

Tell us about your most recent installations.
The most recent project was a Water Coaster which opened this year at Wanda Xishuan Banna theme park in China. It features a 40-metre-high (131-foot) tandem vertical lift and a total length of over 500 metres (1,640 feet), a coaster section and a big 'splash' at the end of the ride.

Another is Chiapas, a one-of-a-kind Flume Ride with backwards drop, which opened in 2014 in Phantasialand, Germany. We've also opened a Tow Boat Ride at Chester Zoo in the UK.

Where do you see water ride trends going?
Guests are looking for the same thrills on water rides as they do on rollercoasters. With water coasters, it's possible to get the thrill and feeling of a rollercoaster and the fun and wet experience of a water ride.

Intamin's Sascha N Czibulka

Water rides have always been popular. The trends are to develop water rides with the latest technologies to improve the quality of the experience, but at the same time the rides need to stay family oriented. Another important factor is the interaction either among the passengers – such as on a Rapids Ride – or between the passengers and the guests watching. A big splash is as entertaining for the people sitting on the boat as it is for the people on the sidelines.

In terms of engineering, design or manufacturing, what have the most exciting breakthroughs been recently?
Chiapas has been one of the most exciting projects in our recent water ride history. It's a sophisticated Flume Ride, where – due to the park's demands in respect to attractiveness and capacity – we've incorporated the latest technologies, which were previously only used in rollercoasters.

Those include high-speed double-chain lifts and two fast moving platforms – one parallel switch and one which rotates through 30° – which change the boat's direction of travel. There are also three drops, including one backwards drop and the last one which is at 53°.

It's also worth mentioning our new and innovative six-passenger boats, which feature a separation between each seat, individual lap bars and magnetic breaks.

What benefits can a water ride bring a park?
A water ride is a must-have in every theme park, just like rollercoasters are.

An important benefit of a water ride is that its offers fun for the entire family. In warmer regions, or during summer

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Intamin's Rapid Ride is another park favourite. The layout, capacity and themeing can be customised

An important factor is the interaction among passengers and guests watching. A big splash is as entertaining for the people sitting on the boat as it is for the people on the sidelines or in the queues

Intamin's Water Coaster at Wanda Xishuan Banna theme park boasts rollercoaster thrills

elsewhere, water rides also offer an opportunity to get a little wet – and sometimes more than just a little.

Since most of the layouts and designs are customised, the individual demands and needs of each park can be met perfectly. And in combination with special themeing – take Chiapas as an example – water rides can be highly marketable.

What challenges are there? Is it expensive to run and maintain a water ride?

The challenges of water rides are similar to those of a rollercoaster – with two exceptions. Since many parts are submerged, the usage of suitable, high-quality components is vital to avoid corrosion. And another thing some operators tend to neglect is the cost of the power. On a rollercoaster, where for example the lift is only running when the train is on it, the pumps of a water ride are running constantly, meaning the energy consumption can be higher.

What service do you offer clients who want a water ride?

As for all of our rides, we provide an all-round service, from the design and engineering of custom-made water rides, to the manufacturing, shipment and in some regions even the installation. Obviously we also do the testing and commissioning, once the ride's installed.

We can also execute special themeing based on the client's requests and once the ride is in operation, we also provide any necessary aftersales service.

One of our USPs at Intamin is our vast experience in all kinds of water rides and that means we can offer our clients the most suitable solution and service.

How would you describe the market climate?

The market is expanding rapidly in the Middle East and Asia, particularly in China. At the moment business is on a fast track. ▸

INTERLINK

JOHN DAVIES
COMMERCIAL DIRECTOR

Tell us about your most recent water ride installation.
Our most recent installations – set to open this summer – are a dark water ride in Ankara, Turkey and a Water Coaster in Sunway Lagoon, Malaysia.

The former is a themed, water-based ride featuring 10 eight-seater boats travelling in a 180-metre (590-foot) circuit through an animated themed area. The latter is a 300 metre (984-foot) Wild Mouse-style ride running through trees and culminating in a thrilling water splash. It has eight four-seater boats with a hovercraft theme.

In terms of engineering, design or manufacturing of water rides, what have been the most exciting advancements lately?
Water rides are already fairly mature in terms of breakthroughs and advancements. However one of the main areas has been in safety sophistication, which continues to improve as the control system technology becomes more and more advanced in terms of safety and failsafe features.

Where do you see water ride trends heading?
The Super Flume, which utilises a more classical boat style, is beginning to become more popular than the traditional log-style boats. These new boats provide better seating and added safety.

New trends also include a hybrid ride design which, for example, combines a Rapid River experience with a Water Raft Battle experience. This initially posed interesting challenges with the requirement for a varied control of water flow, however these challenges have been overcome to produce some highly successful designs.

Another trend is for manufacturers who offer different crossover technologies to produce new ride offerings. For example, we are now combining immersive virtual environments with water ride elements to produce a completely new ride experience.

John Davies, Interlink's commercial director

Interlink installed a Log Flume water ride at Mtatsminda Park in Tbilisi, Georgia

What are you doing that other ride makers aren't?
We're becoming more competitive, more creative and more efficient. The efficiency is partly due to improved hydraulic techniques. This means that our rides can be more power-efficient for our clients.

What benefits can a water ride bring to a park?
Most water rides address all age groups across a park's demographics – they provide enough thrills for teenagers, whilst appealing to the older age group and families with small children. This is evident from the large number of long-standing water rides still in operation after many years. In fact, many parks claim that their water rides are their most popular rides.

What service do you offer a client who wants a water ride?
Interlink offers a complete service from concept design layout, through to full storyboarding, ride design, manufacture, installation and aftersales service.

Interlink's Log Flume at Daftöland, Sweden

Can you describe the market climate?
For us the market continues to be buoyant, particularly in the Middle East and Asia.

What have been the biggest changes for ride makers in recent times? Do you have any concerns about the industry?
We would say that the biggest changes have been adapting to new safety requirements, but we do not have any general concerns about the industry.

What's on the horizon for you as a company, and for the wider ride-making industry?
After some 35 years in the industry we are continuing to expand well within the market with new projects all over the world. Interestingly, the zoo market is one which seems to be coming more into the limelight, with many beginning to introduce themed areas with a water environment – and that lends itself to boat-tour type attractions. ●

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TECH CHECK

IAAPA 2015 was brimming with ideas and innovations. We've rounded up a variety of new technologies from on and around the show floor

The Gepetto control system could soon be an option for smaller operators

SUPER 78

Geppetto technology breathes life into digital puppetry

Creative entertainment production studio Super 78 is taking state-of-the-art digital puppetry to a wider market, thanks to its Geppetto Animation Control System (ACS) technology. Developments have not only improved the quality of the animated puppetry, but made the technology more accessible to regional-level operators.

Visitors to the Spongebob Subpants Adventure at Moody Gardens in Galveston, Texas, not only determine the course of the underwater journey, but get to interact with Patrick Star, the 3D attraction's spontaneous animated host, in real time – so no experience is ever the same.

Patrick is a state-of-the-art 3D digital puppet, controlled by an actor using the Geppetto system. Patrick's actions and words are improvised by the actor, who can interact with audience members and perform an array of special effects tricks. The control system has won the 2016 Thea Award for Outstanding Achievement: Technology Breakthrough.

Super 78 has been developing Geppetto for several years and first created the Donkey Live show at Universal Studios Singapore in 2009. Since then, Super 78 has been working to make the system affordable to smaller operators, refine the technology and improve its capabilities.

"We wanted to bring an affordable feature-quality animation attraction with the most advanced live character system in the world to regional parks," says Brent Young, CEO at Super 78.

Since Donkey Live, the technology has improved to create higher graphics quality and run a 3D rather than a 2D show. The show runs on 4K resolution, achieving a higher quality image at a higher rate of 6fps (frames per second), resulting in more realistic and detailed character motion.

"However," Young says, "the biggest improvement is that we've brought the whole system down to where it can be run by just two people. The host manages the audience and the show itself is managed by a single operator/performer."

"We've also made the user experience fun for the performer, which then translates into a really fun show. We've given them all kinds of crazy tools and moves to use. The performer really has the ability to design the show as they go, but there's also a show timeline built into the software and an autopilot function if anything goes wrong."

It doesn't stop there, of course. Super 78 is already developing the next generation of Geppetto, which has gamified performer training and rehearsal features and show feedback capabilities.

Super 78 is also working on a Geppetto-powered digital puppet system called Pine-occhio. With cutting-edge animation based on the famous stringed marionette, it will boast a variety of brand new features.

Despite starting out as an internal R&D project, Young says Pine-occhio has already garnered interest from potential buyers.

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Companies like Rilix are bringing VR offerings to FECs, malls and small operators

RILIX

Rilix facilitates rollercoaster thrills in any environment

Rilix debuted its Rilix Coaster at IAAPA, a VR rollercoaster ride that provides a fully immersive experience in a tiny footprint.

Participants don their HMD and a set of headphones, and once seated in the brightly coloured fibreglass pod, they experience a coaster experience that simulates speeds of up to 140kph (87mph), complete with pod vibrations.

There's a range of scenarios to choose from, including a kid's ride, adventure ride, horror ride and sci-fi ride. The product is aimed at FECs, shopping centres and similar entertainment venues.

TRIOTECH

Gesture-tech raises expectations for Ninjago rides

Ride maker Triotech unveiled its new gesture-led technology at IAAPA, as Merlin announced a third location for a dark ride using the Maestro technology.

Ninjago: The Ride has been confirmed for upcoming Ninjago-themed areas at Legoland California, Legoland Billund (in spring) and Legoland Malaysia in November.

Maestro allows guests to control their actions in the game by waving or sweeping their hands. In Ninjago: The Ride, these gestures will translate as throwing lightning bolts, shockwaves and fire balls.

Maestro works with sensors that detect the guest's hand motion, and uses software that determines where the guest is aiming. That's then translated into an image showing the projectile's progress on screen.

Hand gestures control Ninjago: The Ride

VIDERO

Revolutionary Videro technology streamlines AV for museums, 3D/4D attractions

A new platform is set to change the way operators and visitors interact with AV content, allowing them to manage multimedia content from their smart device.

Videro is an operating system that removes the need for multiple hardware modules, streamlining the solution to a single, compact hardware, making it up to 60 per cent more energy efficient and many times more cost effective.

The operating system allows theme parks and museums to change their storytelling capabilities from their smart phone or smart device. With a single swipe of a finger, an operator can change the media displayed on any or all of the attraction's screens in an instant. The operating system was co-created by American-based Edwards Technologies and German-based Videro.

Videro is used by Times Square New York, Intercontinental Hotel Miami, Sega, Oprah and Hilton Grand Vacations, as well as managing and operating a further 5,000 screens worldwide. Videro can be connected to an attraction's own database, so unique content can be managed by the operator and changed or updated at any time. Different content can be played on different screens, or the same content on all screens.

According to Brian Edwards, CEO of Edwards Technologies, the technology is such a leap forward, there's a gap between where immersive, digital storytelling is now and where it will be in the near future.

"We don't experience things on one screen any more. We use multiple devices and multiple delivery systems. Now we have the ability to tell a story by selecting the media we want to play with the slide of a finger," Edwards told *Attractions Management*. "The magic is in how simple this is."

The Mercedes-Benz Museum is one example of an attraction using the Videro operating system, with 230 players running on that platform. Film-based attractions can also use the system, which not only hosts and plays the 3D film, but can also be programmed to control special effects such as seat vibrations, fog and water.

Miami's Intercontinental hotel uses Videro technology

FINGER COASTER

Smaaash's Finger Coaster lets you draw and ride your own VR rollercoaster

Mumbai-based VR games developer Smaaash debuted its Finger Coaster innovation at the IAAPA attractions expo, with the new technology allowing users to draw a rollercoaster and then ride their creation in a virtual space.

"The Finger Coaster is a 'make-your-own-ride experience'," says Smaaash's chief technology officer, Kaizad Bajina. "You draw it out with your finger, making it as long as you want with however many loops you want, and then you choose the setting – a lake, a theme park, a beach."

Once users have drawn their coaster, up to four people can ride it. Each wearing an HMD, they are seated in a rollercoaster car mounted on an electronic motion platform. To complete the experience, sounds of the rollercoaster are played to the riders, while a fan activates at certain points to simulate downhill sections of the virtual ride.

Finger Coaster is installed at FECs in India, and has orders for Europe, Asia and the US

Avio Manager 2.0 automatically recognises and configures projectors

AV STUMPFL

AV Stumpfl system takes pain out of projection alignment

A leading manufacturer of show control, multimedia and screen technology, AV Stumpfl, has launched a groundbreaking set of solutions for the attractions industries.

"Wings VIOSO uses a small camera pointed at the ceiling to automatically realign the images and the blends. Nobody is going to miss the tedium of projector alignment," says Kevin Zevchik, US manager at AV Stumpfl.

The new product range hinges on the company's Avio Manager 2.0 software, which simplifies systems infrastructure management by automatically recognising and configuring projectors, scaler/switchers, displays and other devices, no matter what make or model. Inputs and outputs can be wired on-screen using the intuitive software.

Avio Manager 2.0 is compatible with motion-tracking devices, such as Microsoft Kinect and facial recognition systems, as well as social media.

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GANTOM LIGHTING & CONTROLS

Gantom's interactive torch and tags enhance storytelling and games

The THEA award-winning Gantom Torch looks like a normal battery-powered flashlight. But unlike a normal torch, it's controlled via infrared (IR) emitters placed around the attraction.

The lighting designer can programme the Gantom Torch to flicker, switch off and on, change the colour of the light and vibrate as the visitor moves around the attraction. Its potential in haunted house and dark attractions and adventure and escape room experiences is evident, and it can provide a new layer to a storytelling experience.

The LED torch has full RGB colour mixing and vibrate capabilities. The BlinkFX MiniEmitters are IR emitters that are installed throughout the show and control the torches as the guests walk through. When a torch picks up the signal from an emitter, it switches to the program broadcast by that unit.

A zombie actor wears a yellow ZTag at ScareLA; and the Gantom torch (inset)

Gantom has also used its Torch technology to create a zombie tag game. The ZTag is a badge that allows users to interact with one another using infrared. The badge contains an IR receiver, an IR emitter, RGB LED, a button to change the modes and a microprocessor. The badges react when they come into close proximity with other badges or IR emitters.

In one example of how the technology can be used, ZTag was used at the ScareLA convention in Pasadena, California. Players became "infected" when they come close to "zombie" players and the ZTag signalled when the player was healthy, in danger and infected.

The badge and torch can be programmed via a free-to-download Gantom app.

THE GIANT COMPANY

Irish entrepreneur launches mammoth moving attraction

Architecture firm Dan Pearlman has unveiled plans for a 10-storey articulated sculpture and museum known as The Giant, which will be rolled out from 2017.

Touted as "the visitor attraction for the 21st Century", the sculpture will take the form of a mythical giant, with moving limbs and eyes.

Each will be custom-designed for its location, with the first slated to open in Berlin in 2017 and a further 20 planned for major cities around the world.

According to Dan Pearlman, visitors will be able to stand on the shoulders of the giant by ascending to the top of the sculpture where a platform will offer views of the local surroundings.

The Giant will be embedded with more than 10,000 LEDs, making it a blank canvas for the projection of art or famous people from history. Visitors will also be scanned to have their likeness appear on the giant sculpture.

A 10,000sq ft (930sqm) museum beneath The Giant will give visitors the opportunity to explore the Giant Experience, where interactive exhibits will document giants from ancient mythology, while also celebrating whichever city and country the attraction stands in.

The Giant Experience will also include the Fee Fi Foo Fum Snack Shack and Goliath's: The World's Smallest Department Store, which will sell products designed by local inventors and artists.

"We're working with major city governments and expect to establish 20 Giants over the next decade," said Paddy Dunning, CEO of the Giant Company.

"While each Giant will offer an original experience, there will be an interconnection between our family of Giants and with the aid of new technologies they will be able to communicate with each other to create real-time global events," he said.

As part of the worldwide rollout, an organisation called the Giant's Foundation will be established to fund the philanthropic, educational and humanitarian goals of the project, which include the creation of programmes and engagements for children, and scholarships for a variety of educational institutions.

A viewing platform on The Giant's shoulders provides views of the city below

PEOPLEVISIONFX

PeopleVisionFX unveils new hologram technology

The PhotonAnimated Object is a device that animates any 3D object with holographic effects. The moving hologram is superimposed over the physical object, and can be produced in any size. The device can also bring an object to life "from the pages of a book". PeopleVisionFX, who specialise in 3D video projection technology, also offers PhotonOpticon, where a hologram effect is created by projecting video images onto a transparent screen.

The PhotonAnimated Object can bring an object to life from the pages of a book

ALTERFACE

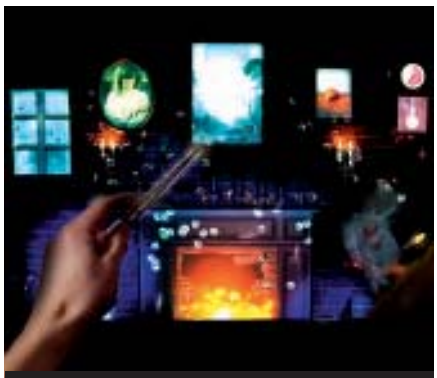
Alterface opens up world of ride possibilities with new interactive technologies

Alterface Projects is continuing to advance the potential of interactive technology in the dark ride sector, working on both gesture-led technologies and its "magic" wand, which work with the company's Come To Life sceneries.

The gesture sensor technology allows ride designers to create device-free scenarios, where guests don't have to interact with the game using a gun-style device, but control their role in the ride experience with arm and hand movements.

"For the past 15 years, most interactive attractions have been using gun-shaped devices," says Alterface marketing manager Guillaume Gallant. "Now, to interact with the surrounding scenery and media content, all the user has to do is to move their hand above the sensor in front of their seat. This system calls for never-seen-before gestures and gameplay action, and provides a surprising magical feel."

The second new concept under development with Alterface offers masses of possibilities for designers. Alterface's Magic Wand is an intuitive wireless, button-free device that can be used with Come To Life scenery, a mixture of video projection mapping with physical set props.



Come To Life scenery consists of video projection mapping and physical props

"This interactive device offers the most intuitive gameplay: point at the objects in the Come To Life scenery – whether physical or media objects – and the wand activates the on-set response. Aim at a window and it breaks; aim at a frame and the painting comes alive," Gallant says.

Guests can interact with videos projected onto real objects, which animate the scenery and respond as targets. Media is programmed with Salto software to produce an audiovisual reaction. Alterface's gesture tech will also be compatible with Come To Life installations.

MEDIAMATION

MediaMation injects teamwork and competition into VR experience

Attractions technology company MediaMation has launched a virtual motion gaming platform, the ReactiVR, a machine that combines multiplayer interaction, player freedom and competition in one package.

The ReactiVR, demoed at IAAPA, was an ATV that's been turned into a 3DOF motion-base. Player one drives the ATV and player two shoots other vehicles. The pod dynamically reacts to the gameplay, so the physical experience is matched with the visual experience inside the HMD.

According to MediaMation vice president Daniel Jamele, integrating VR with motion technology is more likely to tempt people away from playing VR games at home.

"We previously showcased a VR shooting game experience with pre-programmed motion," Jamele says. "But the problem is that it doesn't involve teamwork and it lacks repeatability. This is why we developed the two-player ReactiVR pods, which we aim to offer as a four-player option soon. Without competition and teamwork it's just a video game."

"This is also far more interactive than the passive VR experiences where you have to go where the ride takes you. You decide where you want to go and the VR experience responds to your choices."

MediaMation, which turned 25 last year, says it continues to offer products that are non-proprietary.

"We try to be universal so we can work with big players and they can develop the games they want. We've always been focused on enabling our customers to integrate any media with our products."

MediaMation's ReactiVR combines VR and a two-player motion-base vehicle

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FUN & GAMES

A medley of new products was launched at the recent Visitor Attractions Expo and EAG in London. *Attractions Management* rounds up some of the best

The Minions IP is a big seller for Whitehouse Leisure

▲ WHITEHOUSE LEISURE

Plush company Whitehouse Leisure celebrated a new two-year agreement with entertainment giant Disney by giving classic characters like Mickey Mouse and Winnie the Pooh a makeover, with a spaceman Mickey new for 2016. A brand new range of Disney plush included characters from *Finding Dory* and *Zootropolis* characters Nick Wilde the fox and the rabbit Judy Hopps. Plush from other famous IPs included the newly acquired Secret Life of Pets and the ever-popular Minions and Angry Birds toys.

attractions-kit.net keyword: Whitehouse

An update to *Star Wars: Battle Pod*

◀ BANDAI NAMCO

Bandai Namco launched a new flat-screen edition of its best-selling *Star Wars: Battle Pod* arcade game. The new version boasts a 42-inch (107cm) LCD monitor rendered with Unreal Engine's cutting-edge graphics technology, and tilted screens to create a greater sense of immersion. Operators can marry two pods for twin-player capabilities.

attractions-kit.net keyword: Bandai

▶ SEGA

Sega launched *Mario & Sonic at the Rio 2016 Olympic Games™ ARCADE EDITION.* Players compete in nine Olympic Games events and the multi-player game is controlled by dual joysticks and foot controls.

Pink Panther Jewel Heist is also new, and one of Sega's most popular games.

Jewel Heist – built by Innovative Concepts in Entertainment (ICE) in the US – is an intuitive, high-speed one-player game with high return potential.

attractions-kit.net keyword: Sega

Sega launched new games at EAG

Klime Wallz from Innovative Leisure

▲ INNOVATIVE LEISURE

Innovative Leisure launched its new Klime Wallz, a customisable climbing-based fun wall designed to brighten up an adventure zone in any attraction. Available in a range of heights and styles, Klime Wallz is suitable for people of all ages, and particularly appealing thanks to its striking colours. Klime Wallz is available in both static and mobile models.

attractions-kit.net keyword: Innovative

 ©CYBERTREK 2016

The adventure play area that Timberplay installed at Hasty's Adventure Park in the UK, has a roof and open sides

▲ TIMBERPLAY

Play specialist Timberplay presented one of its latest projects, Hasty's Adventure Park, Clacton-on-Sea, UK.

The play area is designed for older children, featuring a tailor-made climbing forest with net walkways, bridges, slides, balance beams and firefighter's poles.

The new installation was built beneath the cover of an open-sided cattle shed, providing protection from the rain while retaining an outdoor feel.

attractions-kit.net keyword: Timberplay

Russell Play's installations are customised to suit each site's requirements

▲ RUSSELL PLAY

Russell Play presented a range of outdoor play equipment and design services. The company has been providing play solutions to the attractions industry for over 30 years, bringing play structures and design services to clients that include theme parks, holiday parks, zoos, farm parks and heritage sites.

Installations are custom-designed for each location from a choice of timber, steel and rope equipment.

attractions-kit.net keyword: Russell

▼ LINE CHEETAH

Line Cheetah is a new app from GFR Tech that allows customers to "cheat the queues" with mobile ordering.

Customers can place food and drink orders, pay for the order and pick it up at a collection point when ready.

Line Cheetah was originally designed for sports stadiums, but is now being marketed to a range of sectors, including attractions, arenas, FECs and bowling alleys.

The app works with existing EPOS systems and can be customised to fit the branding of the venue.

attractions-kit.net keyword: GFR

Visitors simply download an app to jump the queues for food

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