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COVER: The Discovery Cube LA theater was transformed from a black box into a 4D venue thanks to ETI's creative solutions involving a Mac Pro.
Full story on p 12. *Cover credit: ETI*

The guest first mentality

Martin Palicki,
IPM editor



Let me be clear about one thing: Governments are making a mistake in reducing funding for museums and cultural attractions. I consider museums to be part of a progressive city's infrastructure and a key element of the social fabric that binds communities together.

But if there is one good thing that has come out of this shifting of funding sources, it's that it has forced cultural institutions to focus on the visitor experience. Museums have begun to recognize the importance of providing positive guest experiences from the moment someone walks in the front doors until they leave. And they've worked harder to give people a reason to come back.

Institutions and attractions are constantly vying for guests' time, money and attention – and that is no easy task. But there's a much higher chance of success when museums listen to guests, respond to their needs and utilize the latest technology and creative minds to craft engaging exhibits. All this, of course, has to happen within the museum's mission and without sacrificing its identity.

In this issue of InPark, we examine a variety of ways that the museum and attractions markets are seeking out new and better methods of engaging with their guests. Because at the end of the day, if people stop coming through the front doors, there's really no reason to keep them open. . . .

PS: Interested in picking up a printed copy of InPark Magazine? Be sure to visit InPark at AAM's Museum Expo in booth #1115 from April 26-29 in Atlanta, Georgia.

Acknowledge the specialists

Judith Rubin,
IPM co-editor



Technology used to be the ugly stuff that was hard to conceal. Now it's so sleek that equipment rooms have shrunk dramatically, your staff runs the theater from a smartphone and an immersive attraction can roadtrip from city to city. Now, you can print or project onto almost any surface. Now, e-ticketing and data mining help you serve and respond to visitors better than ever.

We exist in an envelope of technology. We take it for granted. If your visitors have a seamless experience and don't notice the technology, that's good. But how did it get to that point? Unique exhibitions and attractions call for unique applications of technology. Decision makers, designers and technical specialists collaborate to make that happen, and when the project is a permanent or long-term installation that has to function day-in, day-out, the challenges are greater.

As a journalist, finding out just who did the tech work can be very hard to discover. Surprisingly often, the media relations person at a facility does not know. They are focused on building public awareness - on getting people in the door. But those very doors might not open, nor the shows run, the interactives play nor the wayfinding communicate, without the customized systems from the expertise of many design and tech specialists.

Why should a museum PR person help us get the information we need to write those stories? Why, in fact, write them at all? Because it leads to more good projects. It lets the people behind the curtain come out and take a bow, and it helps YOU find them for your next project.

Take technology for granted - but not technology experts. . . .

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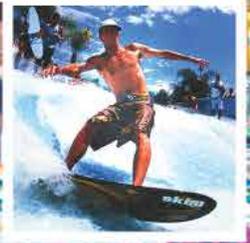
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Graphic Business

Color Reflections Las Vegas grows its museum clientele
interview by Judith Rubin



Shannon Martin
 Director of Business Development,
 Color Reflections
 Las Vegas

Color Reflections, a large format graphics company headquartered in Las Vegas with six locations in the US, will exhibit at the AAM Museum Expo for the first time this year (Atlanta, Georgia, April 26-29). Shannon Martin, director of business development for Color Reflections Las Vegas, was interviewed by InPark co-editor Judith Rubin about the company's work for museums.

Where can people find Color Reflections at AAM?
 We will be showing off some of our projects at booth #606. Come visit us!

You're the person who took Color Reflections into the museum market. How did you do that?

I felt we could handle it in terms of the quality required, so I started with a huge push for the Mob Museum, a high profile project for the city of Las Vegas. When the project was first announced several years before it opened, I started going to all the meetings and created relationships with the contractors to let them know there was a local graphics company they could work with. We won the bid with Pacific Studios, the exhibit fabricator, and provided more than 850 graphics on that project.

As soon as the Mob Museum project was complete that market simply exploded for us! We completed more projects with Pacific Studios, and now we also work with Lexington and BaAM Productions. We joined the Themed

Entertainment Association a few years ago at the advice of Dale Sprague of Canyon Creative, who knew it was a good fit for us. Color Reflections Las Vegas has become very active within TEA and AAM.

What other attractions markets do you serve?

In addition to museums we serve theme parks including Disney and Universal, cruise lines such as Carnival, and of course casino operators such as MGM Resorts International, a very important client for us.

Was the company supportive of your desire to cultivate the museum market?

Yes. They backed the initiative and were very encouraging. They stepped up, adding new equipment and hiring additional production staff knowing it was a specialized area we weren't accustomed to. Hiring the right people - to produce the quality demanded within the kind of time frame that a particular market needs - is mandatory for our company, and key to our success.

What differentiates museum work from trade show graphics, where Color Reflections was already well established?

Museum projects have unique challenges in all aspects of their production. To compare: In most cases trade show graphics need to last for 3-4 days. So off-the-shelf products like laminates and mounting-boards can be purchased with ease. Museum graphics, on the other hand, need to last years, and interactive displays are handled all day by attendees. They need to stand up to long-term wear and tear.

In addition to being permanent or semi-permanent, projects for museums and other themed entertainment projects also have different requirements because the installations are bigger and more elaborate in terms of design, fabrication and the range of materials, methods and finishes required. Many projects include several different print types and substrates; these include but are certainly not limited to 3-dimensional signage, banners, adhesive-back vinyl, wallpaper, acrylic signage, directional signage, floor graphics, and building wraps. Finishing on these projects could include painted edges, flamed or rounded acrylic corners, hem and grommets in fabric displays... the list goes on and on. In addition, each project fabricator and designer is a little different in their methods. Learning each new client is a challenge especially in the finishing area.

Our client MGM Resorts has always demanded the best quality. They're perfectionists who want their properties to always look their best. That was a great education for us. It influenced us to adopt a quality-first approach to



Opposite:

The Mob Museum, Las Vegas, NV

Right (top to bottom):

Lao Niu Children's Discovery Center, Beijing, China

Carnival Cruise Line Photo Display area

College Football Hall of Fame, Atlanta, GA

Photos courtesy Color Reflections Las Vegas

meet us at the AAM
MuseumExpo Networking Reception
hosted by Mad Systems

Tuesday April 28th in Atlanta from 3:15 til 5:15pm



20 foot high, computer controlled interactive Tornado
at the new Discovery Cube in Los Angeles



all our projects big and small, and enabled us to go confidently into the museum market.

How does a museum project begin for you?

Typically, the design and concept firm sends out a bid package to the fabricator, and then the fabricator hires us. We're given a graphic package containing a component list and graphic drawings. From those specifications, we learn about the types of materials required. We do research to see if we can deliver the job as specified – which may well lead to asking certain questions internally, such as "should we locate a new product, or purchase new equipment for this job?" Or, "is there/should we research a better way to do this?"

Can you give an example of this kind of problem solving?

Carnival Cruise Lines wanted a method that would allow them to change out the signs in their photo gallery every two hours without too much wear and tear. It called for developing a magnetic system that could take a beating day after day. After a few weeks of research and testing, we came up with a solution that is still working three years later, and the client is still very happy with it. This was part of a redesign of the photo galleries on 24 of their ships: The system facilitates Carnival's ability to organize, showcase, and sell the photos taken throughout the ship, switching them out multiple times per day with new titles.

What do fabricators look for in a graphics company?

I think fabricators look for quality, versatility and competitive pricing. They also value the input we can provide them on the best way to do a project that's also cost-effective.

How do you stay current with technology?

We find ourselves traveling every month to manufacturers for demonstrations of new equipment and processes. We also visit most industry trade shows looking at what's new and what's coming soon. It's a process of continual research because things change so quickly today.

When I began with Color Reflections 17 years ago we were a Custom Photo Lab blasting light through negatives onto photographic paper. Today we occupy a 25,000 square foot building with 20,000 square feet of production space, housing our 65 full time employees. We operate seven days per week, with two shifts per day out of our six locations.

Joe Castellano, the president of Color Reflections Las Vegas, believes in evolving and embraces up-and-coming equipment and technology. Along with this forward looking mindset, we have good buying power which gives us many opportunities to be the first to try something out before it hits the general market. We will either be the first to purchase or the first to test certain equipment: manufacturers come to us and let us beta-test it in our shop.

Our success has given us the size and reach we need to stay current and competitive – and it's part of our company culture. . . .

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In March of 2013, The London Dungeon left its home of 38 years on Tooley St. at London Bridge for larger digs on the SouthBank, directly next to the London Eye. The attraction brings 1,000 years of authentic London history to life with a unique mix of talented live actors performing in short shows that guests experience while walking (and sometimes riding) through the detailed sets.

The attraction relies on solid historical storytelling, an array of theatrical illusions and a variety of haunted house-type special effects. Along the way, guests meet notorious British legends like Guy Fawkes and Jack the Ripper.

InPark toured the attraction recently, and visited with creative consultant Nick Farmer of Farmer Attractions on what has made the Dungeon a long-term success.

How have you been involved in developing the London Dungeon?

I've worked on projects for the London Dungeon for many years in its former location, and it was a very exciting project to be part of the core team in handling the move to its new location. Specifically, I was the special effects consultant for the overall show and worked closely with the Creative and Artistic Directors. In addition I supplied the show action seating for the Sweeney Todd and Anatomy shows. Over the years I have worked on shows in all nine of Merlin's Dungeons in Europe and the USA and have a very good understanding of what makes them so successful.

What makes the Dungeons so successful over time?

The Dungeons appeal to the British sense of dark humor, finding the funny side of some of the most dreadful events in history. We have found by ensuring we use stories pertinent to the location of each Dungeon that the formula also works extremely well outside of the UK.

They offer a great blend of historical accuracy, always telling true stories with a lot of tongue in cheek and humor. Highly trained actors bring

Exploring the Darker Side of London

Nick Farmer on the London Dungeon's secret to success

interview by Martin Palicki



Nick Farmer
Farmer Attraction
Development

tremendous vibrancy to each Dungeon visit through their telling of the Dungeon's tales.

How do you help ensure they attract repeat business?

Every Dungeon every year introduces new shows, meaning there are always new things to see and reasons for a repeat visit. [Editor's note: For example, this February the attraction was overrun by 18th century grave robbers: The London Burkers. To celebrate Easter, the infamous 'Chocolate Cream Murderer' Mrs Christiana Edmunds will be the lead character in another seasonal 'takeover' of the Dungeon.] But the key market is first-time visitors, as each Dungeon is located in high profile tourist destinations.

How would you categorize the Dungeon attractions?

The Dungeons are irreverent, mischievous, a bit rude and all the things that so many sanitized attractions have been cleansed of. That's what makes them fun, and what makes them so engaging. It is often a spur of the moment decision to visit, just an hour and a half out of a tourist's busy day, and located right in the heart of the tourist trail. The Dungeon offers a great way to spend some time together, and also provide details about the history of the area.

Is the Dungeon model something that can be successful in other forms?

The mixture of great storytelling, live professional actors, high quality theming, subtle but clever technology and attention to detail is a formula for success that can be applied to many attractions. But the absolute fundamental key ingredient is great storytelling. Without great storytelling you are dead -- probably hung, drawn and quartered. . . .

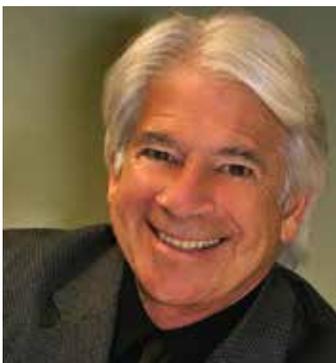




Big Experience: Small Package

ETI's elegant 4D solution powers
Discovery Cube LA theater

by Joe Kleiman



Brian Edwards
Edwards
Technologies, Inc.

When the management of the Discovery Cube, the interactive science museum in Santa Ana, California took on the challenge of converting an uncompleted children's museum into its Los Angeles campus, one of the challenges it faced was turning a small space that had originally been designed as a black box theater for live performances into a 4D cinema, combining 3D digital projection with in-theater effects.

As the audiovisual system provider, Edwards Technologies Inc. (ETI) sought a solution that would be simultaneously simple and elegant, powerful and user friendly. At its heart is the Apple Mac Pro – a cylindrical computer 10 inches tall, 6 ½ inches wide, and weighing just 11 pounds. As David Skoog, ETI's Project Engineer on the theater points out, "We pioneered a way to condense everything into a computer that small!"

With the Mac Pro as a central processor, large racks of equipment were no longer needed for the 4D theater systems. At Discovery Cube LA, this made it easy to transition what had originally been designed as a lighting and sound control booth with limited space for running

live shows, into a projection booth with room to move around.

The software

Even though it's a 3D cinema, there is no need for a projectionist in the booth. The entire theater operates with ETI's innovative Videro platform, a cloud-based system currently in use in retail, hospitality, and attractions operations worldwide. Brian Edwards, founder of ETI, said "What we've done with this theater is a radically different approach to 4D cinema."

The Mac Pro interfaces through Videro to the theater operator, distributor, and ETI's remote monitoring facilities, which operate 24 hours per day, 365 days per year. The theater features nWave iContent films, a format that enables the entire nWave library to be stored in high definition on the Mac Pro, with new titles downloadable through Videro.

One of the advantages of nWave iContent, according to Janine Baker, Senior Vice President at nWave Pictures Distribution, is the ease of uploading and downloading content. "The films are loaded with encrypted software into the Mac Pro and we can easily lock and unlock the films per the terms we negotiate with our clients."

Exhibitors have easy access to and control of their 4D system through computers and handheld Apple devices, such as the iPad. Ms. Baker points out that an advantage to exhibitors is that they can "go through the app and see what's on the screen at any time and know what's going on in the theater." Theater control is also offered through a simple iPad interface, making operation easy for any member of the museum's staff.

Other system components, such as the Medialon show control system used for in-theater effects, the Dante 7.1 audio system, and the left- and right-eye feeds for the 3D projector, are all fed through and controlled by the Mac Pro through individual ports.

Compatibility

The system is designed to be compatible with any projection system. For Discovery Cube's 70-seat 4D Theater, ETI specified the NC1100L projector from NEC. According to Richard McPherson, Senior Product Manager for NEC, this

DCI-compliant (meaning it's ready and certified to project first-run Hollywood films) laser-phosphor projector was designed for the vast majority of theaters with smaller auditoriums: "There's little to no maintenance needed, the projector provides consistent levels of color and brightness, and this is the only DCI-compliant laser phosphor projector on the market."

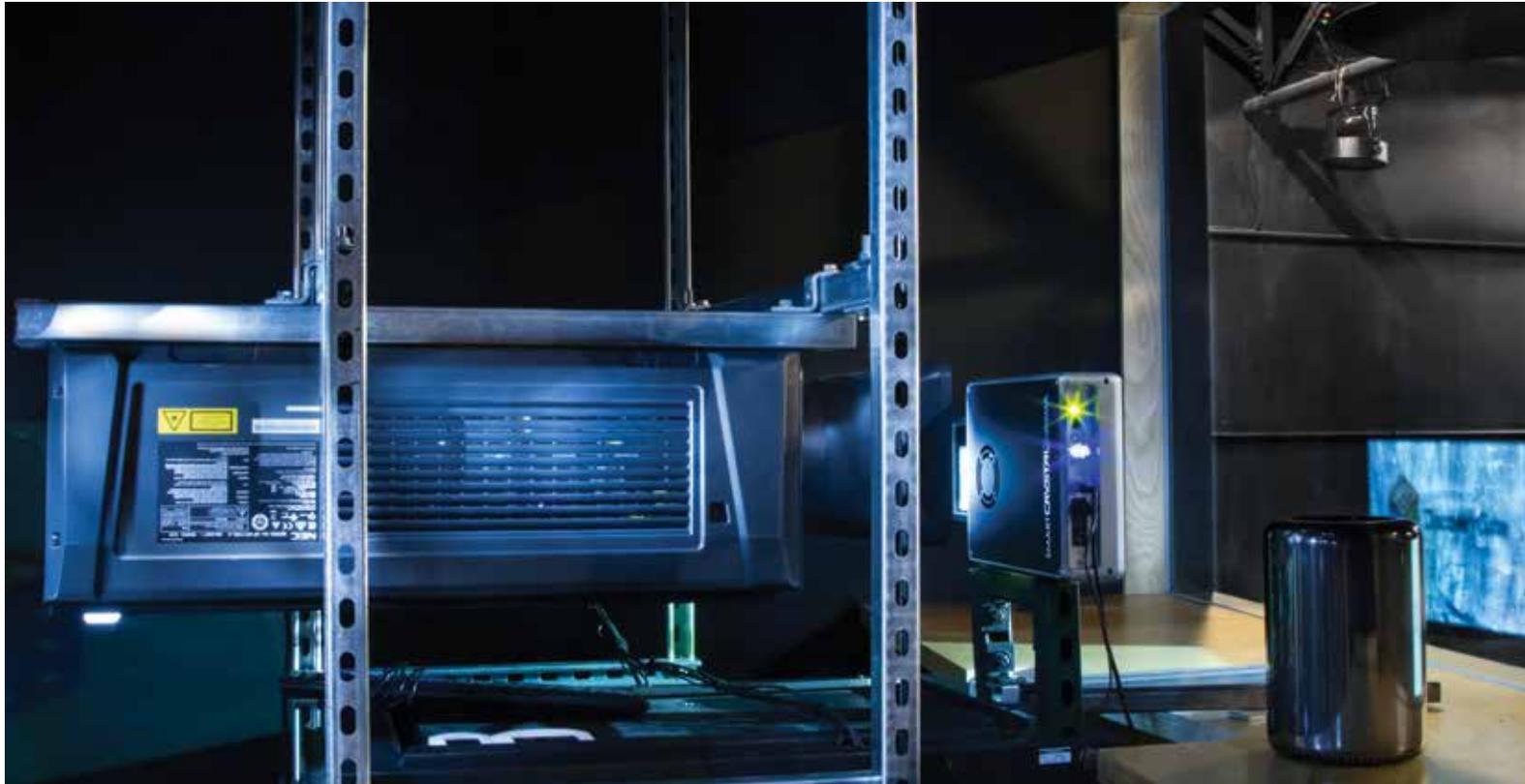
The projector maintains a steady brightness level internally and because of multiple laser diodes installed, if one goes down, the system will compensate. Because of the use of laser light projection, the unit can operate up to 20,000 hours and does not require any bulb changes as with traditional film or digital projectors. Additionally, being a laser light projector, less heat is emitted. This eliminates the need for exhaust ducts, and the projector can even be hung upside down in a theater, eliminating a projection booth.

Versatility

Auxiliary video can be played via a Crestron switcher attached directly to the projector. Potential media sources include Blu-ray, and high definition internet services streaming over Apple TV. Laptops can also be wired into the system through a connection in the theater or can transmit via Apple TV's AirPlay feature. iPads and iPhones can also transmit or mirror content

ETI's 4D theater system using Apple and Videro technology combined with nWave iContent provides a simple control interface with powerful image, sound, and 4D effects, all within a smaller footprint and at a more affordable cost than other 4D systems. With Videro's 24-hour monitoring and a multitude of customization options to meet client needs, the system also facilitates easy upgrades and refreshes as new media technologies come to market.





The Tech Specs

Mac Pro

- 10" x 6.5"
- 11 lb
- 6 core
- 64 MB memory
- 1 TB drive
- Operating ETI's Videro

Projection

- NEC NC1100L laser phosphor projector
- Content at 24 fps
- Triple flash for 3D at 144 fps
- DCI compatible
- Harkness Spectral 240 Mini Perf screen 114" x 202"
- 40' throw
- 11 ft-L 3D, 20 ft-L 2D
- Volfoni Smart Crystal active polarizer
- Creston switcher attached directly to projector for auxiliary media

Audio System

- Harman BSS networked audio with Dante
- Crown DriveCore amps (8 channel, 600w per channel)
- JBL Cinema speakers
- Capable of playing 1.0 – 7.1 channels

on the theater's screen in the same fashion. All auxiliary features can be controlled via the same simple iPad interface used for 4D programs.

A unique feature in development for future theaters that takes advantage of Apple technology and the Videro cloud is the nWave iContent preshow. nWave Pictures develops a number of interactive games to accompany its educational films. According to Ms. Baker, "In the past, we've seen iPads with games at venues, but since they're running on the iPads themselves, if something happens, you're down a unit. With this system, the games will be streamed in real time to the iPads, which can be set up in the queue area, from the Mac Pro, and they'll be monitored by ETI from their control system, so if something's going wrong with an iPad, they usually will know in advance."

Ms. Baker finds the same advantage with the ETI's 4D theater system. "I love the 24-hour service. If something happens in the theater, you don't have to wait days for the hardware people to show up. Sometimes, ETI will know before the client does if something is wrong with the system, and they are able to fix it immediately."

The package seems well-suited to Discovery Cube as a science museum that looks to engage audiences with educational and entertaining content on modern platforms. "When we were thinking about a 4D theater, we knew we wanted the latest and greatest," says Joe Adams, CEO of Discovery Cube. "When we saw what ETI had to offer, we knew we had found it."

nWave Pictures

nWave Pictures has long been a fixture in the attraction and museum film industries. Founded by Ben Stassen, a graduate of the USC School of Film and Television, nWave began by producing computer animated films for ride simulators in the early 1990s. The company later entered into giant screen distribution, building a library of original titles such as *3D Mania* and *Haunted Castle* and also distributing films from other producers.

With the company background in specialty cinema for entertainment and education markets, and the increasing number of digital 3D/4D theaters in museums and attractions, it was a natural step for nWave Pictures Distribution, headed by Janine Baker, to expand its offerings. All of the company's content - giant screen films, attraction films in 3D and 4D, and ride films - is available to operators of ETI's 4D theater through the nWave iCloud.

nWave's strategy for museums, zoos, and aquariums has proven very successful. "We try to program both a film that parents can watch with very young children, along with a more adventuresome film for teenagers." At Discovery Cube LA, the playlist is split between *Lost World 3D* - a computer animated adventure from British animation house Red Star - and *Penguins 3D* from Atlantic Productions.

The nWave library of natural history productions is also growing. Three recent titles have all opened to wide acclaim - *The Great Apes 3D*; *Penguins 3D*, narrated by David Attenborough; and *Galapagos 3D: Nature's Wonderland*, narrated by Jeff Corwin.

Joining Ms. Baker is Jennifer Lee Hackett, formerly of the Smithsonian and National Geographic Cinema Ventures, as nWave Pictures' new Director of Sales and Distribution for the Americas. Eric Dillens, Chairman of nWave Studios, says of the appointment, "In our efforts to expand our sales reach across multiple exhibition platforms, Jennifer brings a unique perspective, having served as both a buyer and seller of filmed content in the commercial and institutional markets."

Discovery Cube LA

For seven years, a \$21.8 million building sat vacant at Los Angeles' Hansen Dam, approximately 20 miles north of downtown LA. The building had been constructed as a partnership between the city and the Los Angeles Children's Museum, which had planned to move there from its downtown location. Although the city paid



for and constructed the building, the Children's Museum Foundation was unable to secure funding for the exhibits and operation of the new location and as a result, the Foundation dissipated.

The city approached Discovery Cube, which had long run a children's science museum in Santa Ana, just south of Disneyland. Under the guidance of Joe Adams, a former Disney executive, the Santa Ana campus is currently in the midst of a three-phase redevelopment and expansion that will see its size and offerings dramatically increase.

For the Los Angeles location, Adams instituted a number of layout changes to optimize operations. This included moving the ticketing booth outside, and enlarging the gift shop. "People like to take their time and browse," said Adams.

According to Adams, 20% of the exhibits at Discovery Cube LA are duplicates of ones at the Santa Ana campus, while the remaining 80% are original to the new museum. In addition to ETI, Discovery Cube brought in some of the leading museum and attraction designers and fabricators to create and build exhibits for Discovery Cube LA, including Lexington, Mad Systems, Cinnabar, and BaAM Productions.

With Discovery Cube LA being 20 miles north of downtown, and Discovery Cube Santa Ana 30 miles south, the two museums are able to attract and serve visitors from all of Los Angeles and Orange County, along with portions of surrounding counties. Since opening in October 2014, attendance has been excellent, according to Adams, and the future looks promising. •••

Entrance to the **Discovery Cube Los Angeles**





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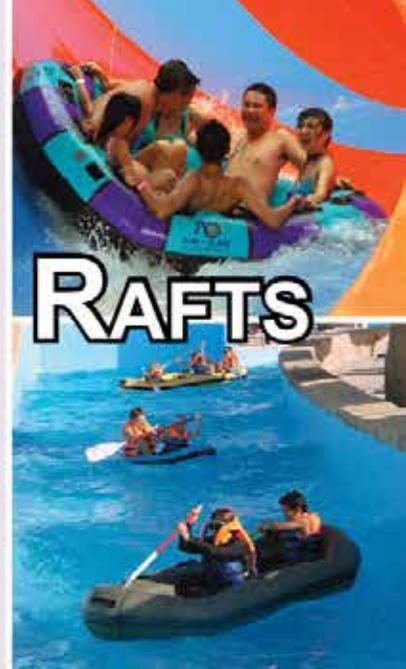
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Calling All Superheroes

Developing an immersive Marvel experience...and then taking it on the road

interview by Martin Palicki

The Marvel Experience has been billed as a “hyper reality” tour: a collection of media-based experiences designed to transport guests into the world of the Marvel Superheroes. It represents a new kind of hybrid – a touring attraction at a level of sophistication and immersion made possible by technology. It’s a high-end attraction of the kind you expect to find in a top-level theme park, but it moves from city to city with little downtime. Creating The Marvel Experience drew on expertise and experience from multiple industry sectors on the operational, technical and creative side.

Hero Ventures developed the concept and brought in George Wiktor as Director of Attractions Management. In turn, George assembled a team of experts to help bring the concepts to life. InPark spoke with George, along with Patti Drum and Michael Shearin of Lexington Design + Fabrication, the design build contractor for The Marvel Experience, on the process of developing this new-concept attraction.

Tell us about the backstory to the guest experience.

George Wiktor: Naturally, there is a problem in the Marvel Universe: a nefarious robot is lurking around the Helicarrier when Commander Fury and SHIELD discover the problem and send the Supers to apprehend it. They have difficulty apprehending the robot which self-destructs and sprays parts of itself all over North America. Since Commander Fury has no idea who is behind the robot and what intelligence the robot was able to steal, he orders an emergency SHIELD mission to traverse the USA to recover pieces of this robot for study and analysis. Thus, this SHIELD facility has come to town in order to provide guests with training and analysis skills to complete the mission and defeat the villains.

Take us through the experience.

GW: The entrance sets the mood of military inspiration. A series of kiosks allows guests to register, and input information to the system. Originally, RFID bands would provide customization and tracking, but that feature has yet to be implemented.

The preshow introduces guests to the project via video monitors that feature Tony Stark (Iron Man) setting up the story and preparing guests for what lies ahead. Guests then move through a series of air-supported structures (several of them domes) and experience a variety of multi-media and interactive exhibits that provide them the skills needed to become SHIELD agents.

The largest dome in the complex (160 feet in diameter, 55 feet high) contains digital and physical interactive exhibits including a Spider-Man wall climb (Brewers Ledge), a 3D interactive shooting gallery (Alterface Projects) and laser maze (Funovation).

Conceptually, at this point guests have completed the physical training and are now ready for virtual training. Of course, things don't go according to plan, and the attraction culminates with a motion seat theater experience surrounded by a 270-degree front facing dome projection.



What makes The Marvel Experience unique?

GW: This is really the first fully themed interactive traveling experience. It combines the mobile durability of road shows and traveling museum exhibits with themed entertainment storytelling and technology, which is why we assembled a team of experts with experience in both fields. Electrosonic (projectors), Lexington (scenic production), 7th Sense (media servers), PRG (audio, media and schematics) and others all have experience in both those worlds and were able to bring that expertise together.

The experience takes place in 2.5 acres of open space, not in a hall or arena. As such, it is entirely self-sufficient and runs off of five 2.5kWh Agreko generators. It's organized much like a touring concert show, but designed from a theme park perspective. It proves you can take a themed attraction model away from Los Angeles or Orlando and provide that type of entertainment on the road.

How did you design differently for this type of touring show?

Patti Drum: The design of the project was inspired by the Marvel comics, not the movies. We needed to provide more detail than the comics, but not as much detail as the film. For example, on the Quinjet set piece (which is slightly smaller than a space shuttle), we used an Alucobond surface material. It's lightweight but very strong and able to be formed. Additionally, as it got scratched over time, it would fit into the theming.

For the smaller exhibits in the main dome we designed them to be fully contained: able to be forklifted or rolled into place, plugged in and ready to play. To minimize setup time while maintaining the SHIELD theme, we created 4x8x8 large rolling carts with doors that reveal the showpieces inside.

Michael Shearin: For inspiration, we looked into military style guides. The story indicated this is a temporary facility, so it had to look like guests were entering something portable. We used shipping containers as décor for the entrance and ticketing. Everything had to be functionally portable, and fortunately it fit in with the story.

What was the production timeline?

PD: From start to finish, it was approximately a year from the beginning concept design through substantial completion (allowing for test setup). We built everything and did initial testing at Lexington, then shipped items to Rando for them to train their staff and complete AV integration. The first full setup with all structures and equipment happened in Phoenix for the production's soft opening.

What advances allowed this type of production to happen now?

GW: AV technology has gotten smaller, lighter and more robust to be able to handle the travel demands. We still have 56 trucks full of equipment, but we are able to transport much more in that amount of space than we could have five or ten years ago. In addition, portable dome technology has advanced and become more commercially viable.

Is this similar in many ways to traveling museum exhibits?

GW: There is a difference between traveling shows and touring shows. Museum traveling shows stay in a place for months and take weeks to set up and tear down, allowing time for upkeep and maintenance between locations. Touring concert shows break down quickly and don't stay in one place for long and there's not much down time for repair and upkeep. In Marvel's model, the show is open daily for three weeks and then in a period of one week, the entire show is torn down, moved and reinstalled in a new city.

What have you learned through this process?

GW: I now have a very keen eye for looking at an attraction and figuring out how to take that and make it a touring element. This type of production requires forethought and planning. For example, dealing with spare parts requires a different mindset. If a projector goes down, the clock starts ticking immediately until it is operational again, and each minute costs money. However, with limited storage space available, you have to prioritize spares and repair capabilities. In many ways, it is structured similar to a theme park environment, just on a smaller scale.

We also learned the challenge of describing the experience to the public. In this instance it was really hard to communicate clearly what the experience was like. With a new venture like this, there's really nothing to compare it to. Is it a theme park? A ride? Of course, it's much more than that, and it's in a league of its own. The marketing group had a difficult time with that, and with an IP like this you need to position it clearly so people know what to expect.

PD: We learned that the real superhero was George Wiktor. He assembled the right team of people with the expertise to pull off this new concept within the tight schedule demanded by the client. •••

The Marvel Experience recently completed a three-city soft-opening and is currently undergoing adjustments before launching the full tour later this year.

A Story of Best Practices

BRC Imagination Arts and the EU Pavilion at Expo Milano 2015

by James Ogul

Christian Lachel

BRC Imagination Arts



With the Expo Milano 2015 world's fair imminent (May 1 – October 31) James Ogul reached out to BRC Imagination Arts to get this exclusive report for InPark on the firm's role in creating the EU Pavilion at Milan.

Over the course of some three decades, BRC Imagination Arts has designed exhibits for an impressive range of national and corporate pavilions at world's fairs. I have had the pleasure of working with BRC on several US Pavilion projects, including Seville Expo 1992, Aichi Expo 2005 and Shanghai Expo 2010, in my former role with the US Department of State. I was pleased the company was selected to develop the exhibition for the European Union (EU) Pavilion at Milan 2015.

One of the great objectives of Expo participation is getting the best possible location for your pavilion. Overlooking the Expo Lake Arena, the EU Pavilion is in a prime spot.

Another objective is to reach as many people as possible with your message and guest experience. Good expo pavilion design includes effective visitor flow and a universal mode of communication. A well-targeted, short film is often an ideal platform, and the EU Pavilion design makes use of this approach with "The Golden Ear"

The pavilion mascot is also a winner in my opinion. The engaging character, described below, will roam the Expo, provide photo ops, show up at special events, and entice guests to visit the EU Pavilion. — J.O.

Interview with BRC Imagination Arts Executive Creative Director and Vice President, Christian Lachel, heading the company's design effort on the project:

Please share some basic stats for the EU Pavilion.

1,900m² across three floors: ground floor houses the visitor experience; 2nd floor houses room for conferences, presentations, and special exhibits by the EU (over 200 conferences and events will be held by the EU during the Expo); 3rd floor open terrace space contains areas for entertainment and events. The Pavilion overlooks



Image from the film "The Golden Ear"
Sylvia in the village bakery.

Bob Rogers

BRC Imagination Arts



Bart Dohman

BRC Imagination Arts





the Expo Lake Arena where the nighttime spectaculars will take place. It will be one of the best nightly views at the expo. Throughput: Roughly 360-420 people/hour.

Who are the members of the Pavilion team?

BRC is one partner of a special consortium, with MCI/Dorier (Brussels and Geneva) and Amadeus Holdings (Alpnach Dorf, Switzerland). Our participation is through BRC BV, our 15-year-old European division (Eindhoven, Netherlands). BRC serves as story, creative planning, and media production and interactive media lead. MCI/Dorier handles marketing and communications, day-to-day relationships with the EU, production of scenic, and A/V systems. Amadeus handles the operations of the ground floor.

Key BRC team members include Bob Rogers, producer of "The Golden Ear" film; Christian Lachel (me), creative director for the overall pavilion and story, and director for the film; Philipp Edelmann, producer and project manager of the media and interactives; and Bart Dohmen, Managing Director of BRC BV is liaison between BRC, our partners, and the EU. We all have experience on multiple expo projects. Recent examples include

the Information and Communications Pavilion for China Mobile and China Telecom, SAIC-GM Pavilion, and USA pavilions in Shanghai; the USA pavilion in Aichi; and Floriade 2012 in Venlo, the Netherlands.

Our client, MCI Brussels, has an agreement with the EU. The European Commission assembled a special team assigned to this project, including representatives from the Joint Research Centre (JRC) and several departments known as Directorates-General (DGs), each responsible for a specific field of expertise. The Commissioner General of the pavilion is David Wilkinson, who is British, and the Deputy Commissioner General is Giancarlo Caratti, who is Italian. They have been phenomenal partners.

What is your guiding philosophy in creating a world's fair pavilion?

The guiding philosophy for any project BRC does is to start with the heart of the audience. We begin by deeply understanding the client's goals for the project and objectives for the audience. Together with the client, we develop the messages and the theme. We then create a story that marries the heart of the audience to

Conceptual Queue

EU exhibition interior queue line – a timeline of EU history combined with the back story of Alex and Sylvia's families. Photo © BRC Imagination Arts

the values and goals of the client in a way that is both meaningful to the client and emotionally engaging for the audience.

People are looking for a fun day out. We can have an educational theme (the theme of Expo Milano 2015 is Feeding the Planet, Energy for Life), but the experience needs to be entertaining, fun, and have heart.

Tell us about the theme of the pavilion.

The theme is Growing Europe's Future Together For a Better World. The key concept is "together" - bringing people together around a common idea and common policies. Because the expo is related to food, we're presenting the idea of agriculture and science working together.

How would you summarize the storyline and message of the EU Pavilion experience?

It's about Sylvia, a scientist, and Alex, a farmer. They are temperamentally very different, circumstances throw them together, and they discover something in themselves. The storyline unfolds through a series of experiences. In the Queue, we meet members of both Alex's and Sylvia's families; the family stories evolve parallel to the development of the EU after World War II. After the pre-show and the main show comes the content center where guests can learn more about the characters and their stories, and explore the EU's messages about food safety, sustainability, manufacturing, competitiveness in the food market, nutrition security, research, science and innovation.

Please describe the Pavilion's guide program.

A group called Amadeus is overseeing it. There will be

900 volunteers, each doing a two-week stint, over the course of the six months the Expo is open. The EU put out a call online: <http://europa.eu/expo2015/call-for-volunteers>

Can you outline the guest experience and some of the presentation techniques used in the pavilion?

During the Queue, exhibits of family photographs and mementos allow guests to follow Sylvia's and Alex's families through the years.

There are three identical pre- and main-show bays to handle throughput. In the preshow, guests step into the environment of the characters. We use projection mapping, LCD media screens set in picture frames, dynamic audio, and other techniques. The story begins to unfold around the audience, leading up to the characters' fateful first meeting. The main show features a 4K resolution, animated film and a variety of dynamic effects, including a standing platform with vibration floor speakers, special visual effects, scents, lighting, and in-theater climate effects.

In the content center are three oversize storybooks where guests can interact and explore through a series of custom touch screens.

The pavilion mascot will attract a lot of attention and bring a lot of smiles. Designed by BRC and created by Jim Henson's Creature Shop, the mascot consists of a volunteer-operated bicycle with a handlebar basket occupied by a couple of adorable puppy puppets. The mascot will roam the Expo, provide photo ops, and entice guests to the EU pavilion. It will also appear



Coming Soon to an Expo Near You

Expo Milano site photo highlighting the EU Pavilion and Italian Pavilion under construction. Photo © BRC Imagination Arts



at special events and gatherings at the Expo and other locations in Milan.

The EU has integrated the characters into programs at other places. For example, guests and school groups can visit Sylvia's Lab at the Joint Research Centre in Ispra, 60 kilometres from the Expo.

What are the plans for handling VIP visits to the pavilion?

The EU has its own protocol team handling that; however, our planning layouts include special access for VIPs and any visitors with special needs as well.

Is there private sector sponsorship?

None. It's all the European Union. But there are several stakeholders in the project, including the JRC and other DGs. We're working with DGs covering the areas of agriculture, climate, communication networks, education and culture, energy, the environment, health and food safety, humanitarian aid and civil protection, industry and entrepreneurship, international cooperation and development, fisheries, and research and innovation. Each one has provided input, scientific and research points, and policies to make sure their messages are in there.

What special challenges and rewards have come up along the way?

For this particular expo, the physical aspects of the site have been a challenge. The plots are smaller – certainly smaller than those at Shanghai – and they are long and narrow. This presents a planning challenge of figuring out how to move a lot of people through the space. We worked to find a solution to how we could

move the most people through while still having a great story and an entertaining experience.

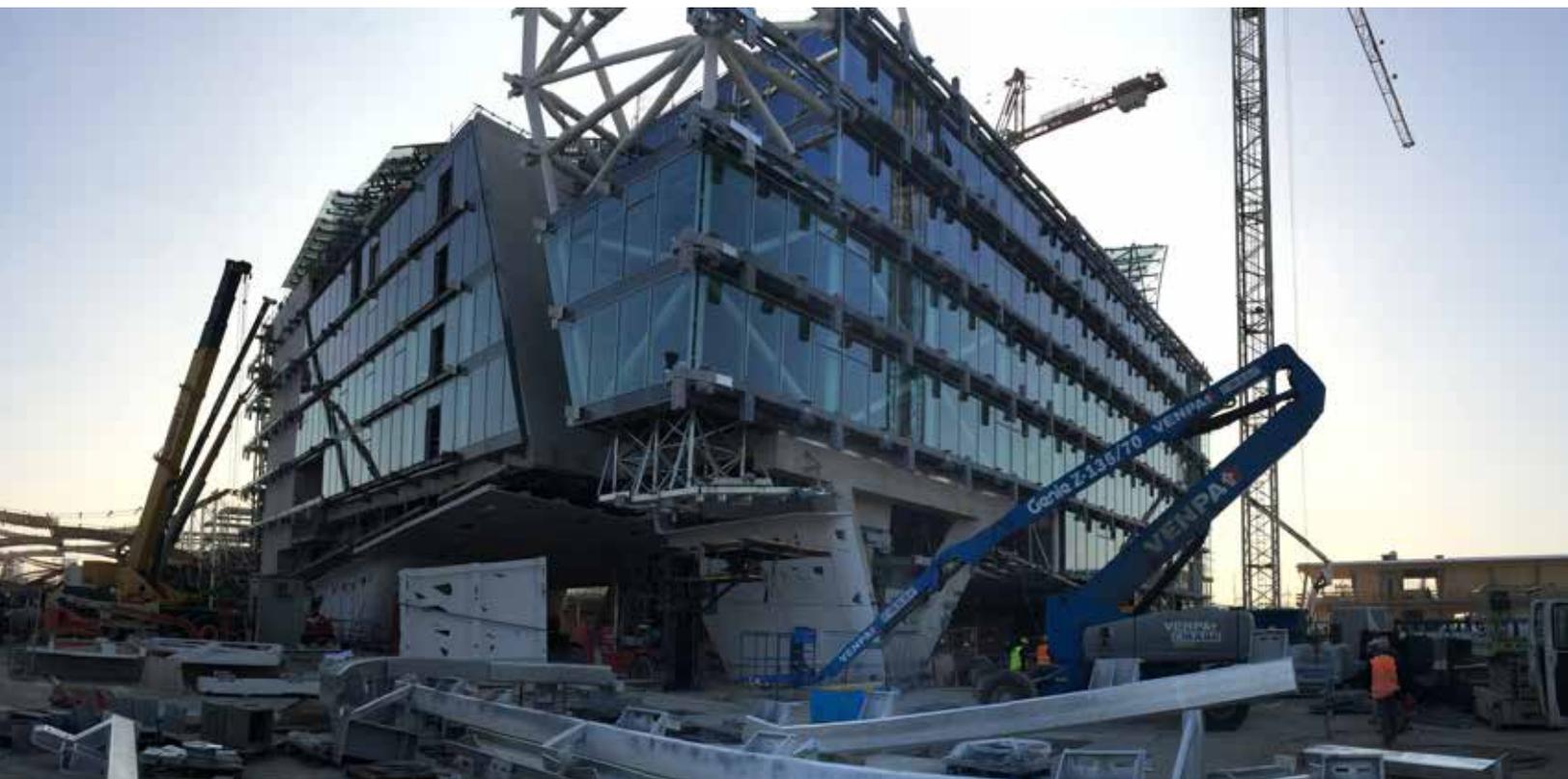
And of course, as we get closer to May 1, it's like any expo, down to the last minute - and everyone is running just to get it open.

What are the international business aspects for the pavilion?

Today's world is faced with new challenges: those of food waste and obesity in some areas juxtaposed with scarcity and malnourishment in others. We've got to solve that. We also need to heal damage to the environment, address the challenges of global climate change, and forge a sustainable future for everyone. The EU is leading the way to solutions, yet as a global community, there is far more work ahead of us.

The EU Expo story is a story of best practices, of solutions already in place and visions of future accomplishments. It clearly communicates that we all face the future together, and it's going to take all of us working together to overcome the challenges. Visitors won't come away knowing how to single-handedly solve all these issues, but they will care more and they'll know some smaller things they can do as individuals that will help move us in the right direction. . . .

Since retiring from the US State Department in 2011 after a 30+ year career in world expos, Ogul has remained on the scene in an advisory and consulting role. He writes regularly for InPark Magazine about world's fairs.



Projecting the Past

At Saint Louis Union Station,
a 19th Century space
is creatively reimaged
with 21st Century tech

by Chris Naffziger and Judith Rubin

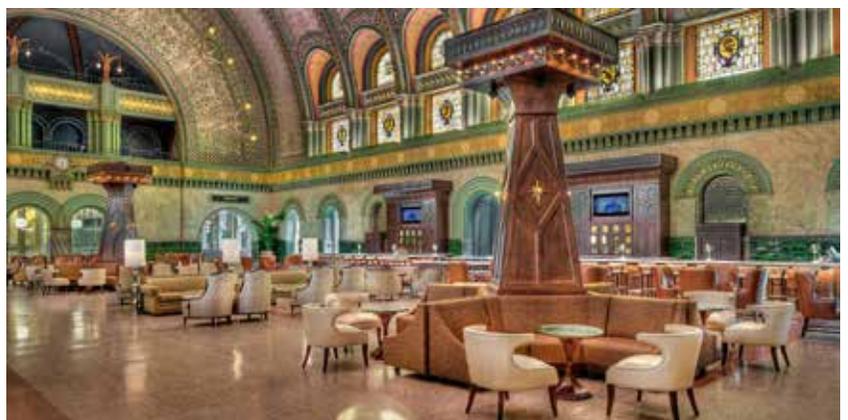
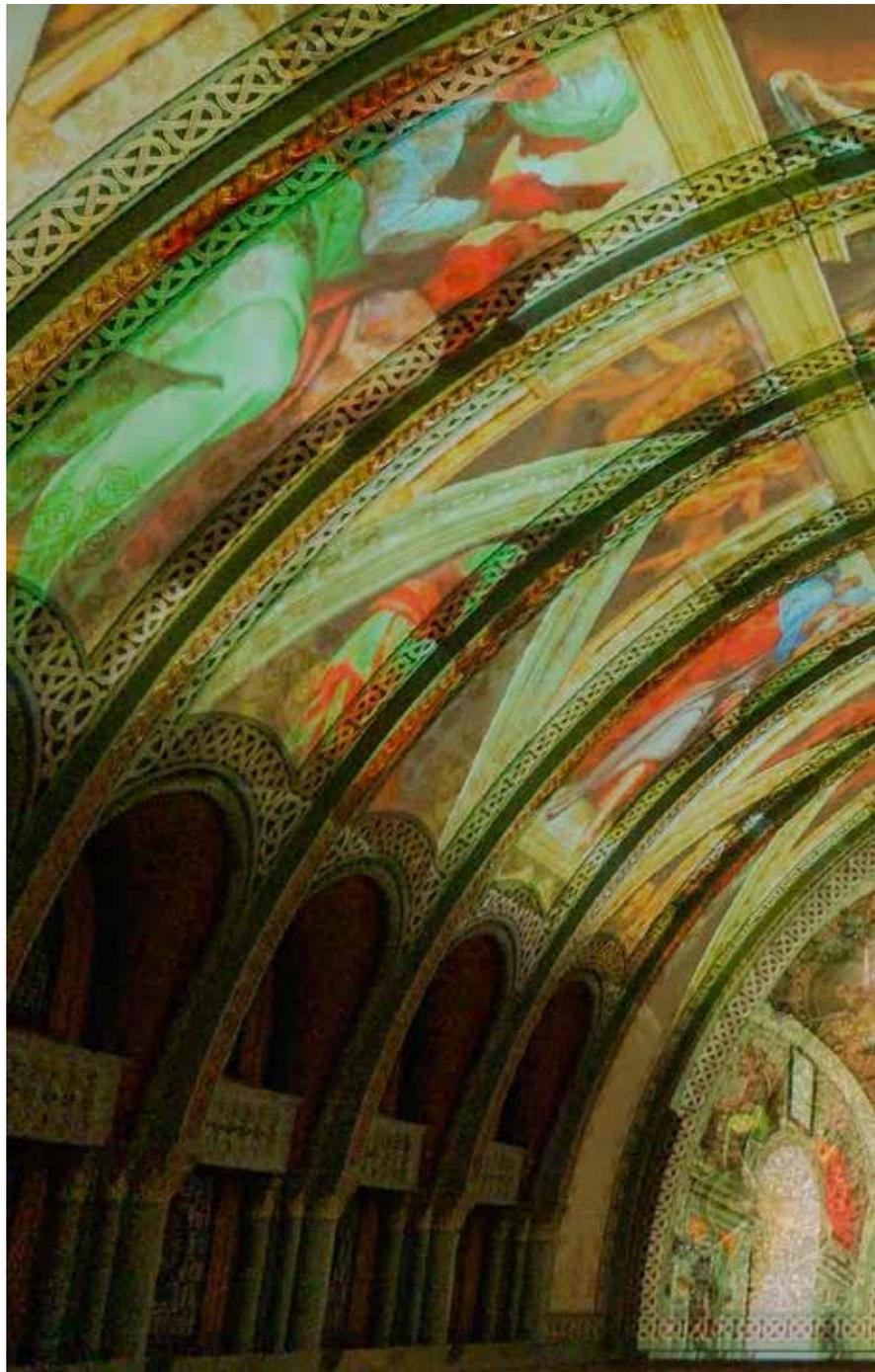
In the heart of downtown St. Louis, the Grand Hall Experience at St. Louis Union Station transforms a 120-year-old, historic space leaving the architectural details essentially untouched, creating a new destination attraction with a state-of-the-art, multimedia show emphasizing projection mapping. Working within the restrictions of architectural preservation ordinances, the show is part of a 2014 renovation by Lodging Hospitality Management (www.lhmc.com – LHM), which acquired the property in 2012. LHM consulted Cincinnati-based Jack Rouse Associates (www.jackrouse.com – JRA) and on JRA's recommendation, brought in Technomedia (www.gotechnomedia.com), a Mood Media Company (www.moodmedia.com) to develop the show.

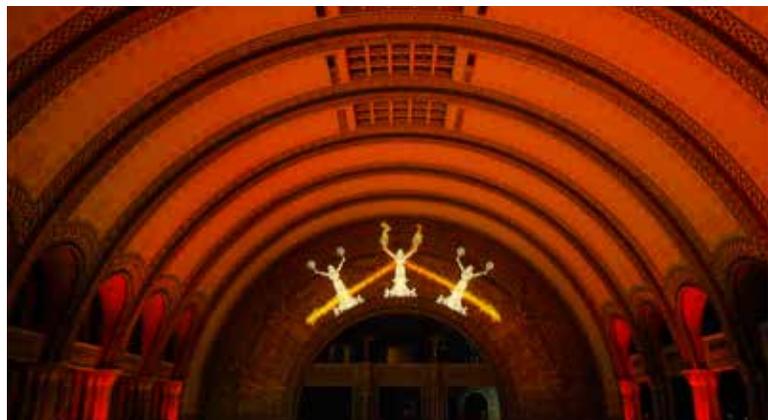
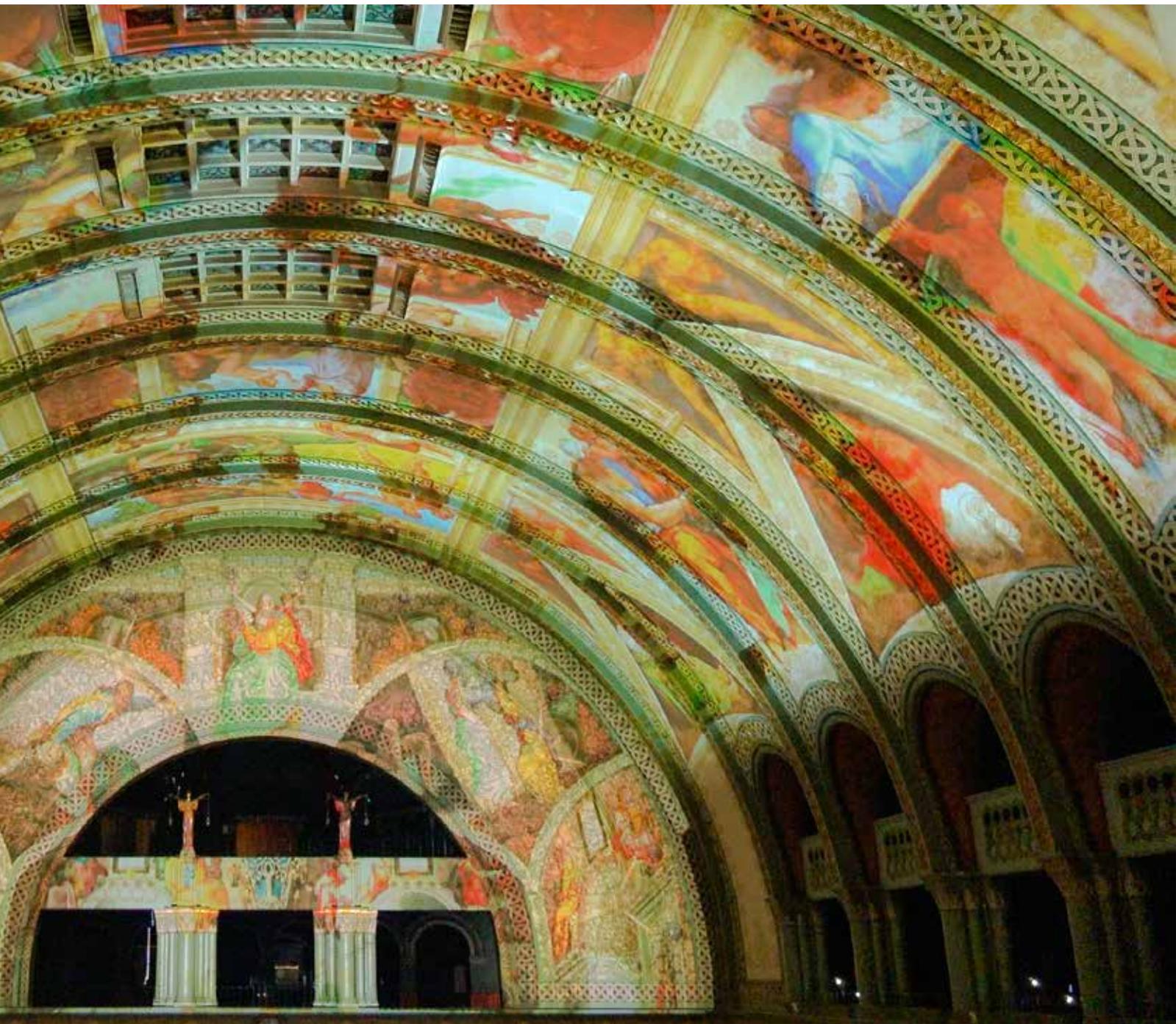
The Grand Hall Experience at Union Station demonstrates how an older structure can be adapted to present an advanced, multimedia 3D show within the confines of historic preservation – and as a permanent installation. The new Grand Hall Experience helps draw international visitation and enhance guests' stay at the adjoining DoubleTree Hotel. Technomedia reports their client stating the show has produced increases in visitation and revenue - in addition to being celebrated for aesthetic achievement.

Through the use of projectors and speakers mounted behind original decorative elements and two new piers in the center of the Grand Hall, the immersive experience projects animation and still images onto a giant barrel vault – an area some 125 feet long, 80 feet wide and 65 feet high -with accompanying music and sound effects.

"[LHM] wanted us to create something as iconic as the ducks in the Peabody Hotel in Memphis," said Shawn McCoy, JRA VP of Marketing & Business Development.

Technomedia president John Miceli was personally active in the project from start to finish – including a hand in creative direction, scripting, sound system design and soundtrack





design. Drew Atienza, Technomedia's Immersive Environment Specialist said, "LHM liked the initial concept design when we did a 3D pre-visualization in the Grand Hall." Originally, the plan called for projections on just one end of the Grand Hall, but the show concept grew to projection mapping the entire space.

LHM was offered a menu of artistic concepts that would be projected on the barrel vault and the two walls, or "end caps," at each end of the hall. The themes run the gamut from traditional to experimental. In one show, Michelangelo's Sistine Ceiling is projected onto the vault and the painting comes to life with movement, while another show takes the viewer into outer space. Nods to the station's previous role in railroad history and St. Louis sports teams also appear.

Miceli enlisted his longtime colleague, projection mapping specialist Nathaniel Ruhlman of Dorian Orange, as Media Director. Ruhlman and his team of fifteen animators at Dorian Orange found that bringing the ideas to life required some trial and error. Due to the intricate details on the ceiling, some images worked better than others. Likewise, all of the images' colors are manipulated with more reds and blues to balance the green paint of the ceiling.

Reconciling design with preservation

All players had to work carefully around strict preservation requirements. Technicians could not drill any holes in the brick masonry nor place any conduit in public spaces. LHM turned to the Lawrence Group (www.thelawrencegroup.com) as the architect of record in St. Louis, and

Chicago-based The Harrick Group's Joe Hartness furnished designs for a new cocktail bar and two central pedestals. The new elements required careful compromise between creating inconspicuous new architecture in the historic space while providing structures that could successfully hide the projectors and speakers.

The projection environment

An important preparatory step was to laser-map every nook and cranny of the Grand Hall, creating a 12 million dot point cloud from all viewable locations of the room, refined to a detailed polygonal model for computer modeling. With this highly accurate replica of the Grand Hall's thousands of filigree and sculptural details, and all the idiosyncrasies of the space, the team had defined the projection environment.

Two Christie Digital D4K2530 projectors were specified for the endcaps, installed on the two new, central pedestals crafted by local firm Fixtures Contracting Company, Inc. Twelve Panasonic PT-DX100UK projectors were specified for the barrel vault. Six of the Panasonic projectors were carefully concealed on top of the cocktail bar. The other six are located opposite the bar on the balcony. One-inch box steel pedestals with mounting plates built by Fixtures Contracting Co. to specifications from Technomedia allow easy access to lamp doors for service and secure them into place for image calibration.

Lighting and electrical

LED lights ring the base of the space, providing ambient light that rotates slowly through different color palettes in between shows, and light

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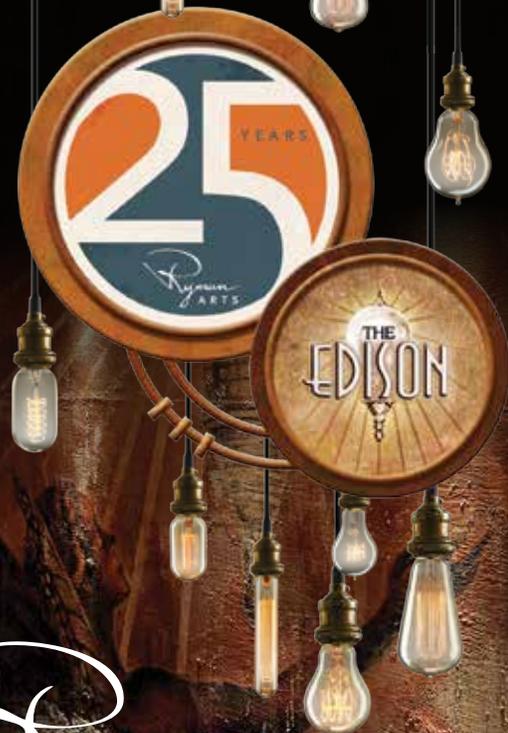
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and color effects during shows. Technomedia coordinated with American Electric & Data as to which of the 1894 originally installed lighting fixtures and new lighting systems being installed would be controlled for the show, and developed a method for the show system to override architectural lighting programming.

The show is scheduled to begin self-load around 4:00-4:30 PM, and the actual multimedia show starts at 5:00 PM. Then, a new show runs every hour on the hour until midnight. The shows last for approximately 10-12 minutes. In the periods between shows, small teaser effects such as streaks of light, or flame effects, bounce around the vault. Technomedia's Phil Berard specifically designed the lights not to interfere with the inherent beauty of the Grand Hall when shows are not playing, but rather to enhance the intricate details of the room.

Audio

Miceli described the acoustic and physical challenges of the Grand Hall: "The space is highly reflective with a barrel ceiling, and stone flooring producing long reverb and parabolic effects. When we first visited to inspect the site, the sound in the room was unintelligible and very boomy." Technomedia could not turn to traditional sound dampening to improve sound quality; after all, one of the most important restrictions on the project was preserving the historic space without even a hint of modern manipulation. Custom speakers created by Mood Technologies gave directional control, accuracy and compact size for the team to create Miceli's desired "smooth blanket of sound that did not allow sound to bounce through the room, but did deliver close proximity precision to the guest listening space in 10 channel surround."

Service and Maintenance

An old storage room was converted into the equipment room. Conveniently tucked away out of view of the public on the same floor as the projectors and speakers, the 8-foot by 15-foot room functions with minimal need for maintenance from hotel staff. The communication pathway between it and the show equipment utilizes the balcony, off limits to the public. The balcony railing completely conceals the new conduit, preserving the historic space and following preservation restrictions. Technomedia required the installation of some 3,600 feet of fiber optic cable to connect the projectors to the equipment room.

To lighten the burden on hotel staff, Technomedia designed the system to operate as independently as possible. Of particular interest are the 20,000 lines of custom Crestron "self-healing" computer code; in the event of a technical glitch, software engineers designed the program to first attempt to fix itself, before calling in a technician.

Versatility and the future

Technomedia provided a set number of shows that can play on schedule for the Grand Hall. When there's a need to depart from the regular program, hotel staff can implement customized images and effects for corporate events, holiday celebrations, sports victories and other occasions, using a handheld device interface provided by Technomedia.

The redevelopment of Union Station's 23 acres of prime real estate continues. Included in recently released plans, LHM has proposed an observation wheel that would stand just outside the historic train shed behind the hotel, and a variety of amusements and engaging activities for all ages in the space that formerly housed the shopping mall. For the Grand Hall Experience, future plans in development include new shows added each year including a holiday spectacular for 2015. Technomedia plans to facilitate opportunities for visual artists around the world to pitch ideas for collaborating on new shows. Plans for a yearly competition would bring the work of five new artists selected from all entries to Union Station for the final unveiling and celebration.

The Grand Hall Experience was honored by the Themed Entertainment Association (TEA) with a 2015 Thea Award for Outstanding Achievement.

Chris Naffziger (www.stlouispatina.com) is an historian specializing in St. Louis architecture and Renaissance art, who writes about his city's beautiful built environment. He has worked at numerous museums in Washington DC and in St. Louis, and helped organize the 2012 exhibit "Federico Barocci, Renaissance Master" at the Saint Louis Art Museum. Naffziger teaches at Lindenwood University and is architecture critic at St. Louis Magazine. This is his first contribution to InPark Magazine.

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Feelings + Financials

Museums generate capital for their communities, and they need to start saying so

More than 300 supporters converged in Washington, DC in February 2015 for Museums Advocacy Day, an endeavor backed by museum service organizations, graduate programs, museums, individuals and corporate supporters. Their mission: to extol the virtues of museums and inspire politicians to raise or maintain current federal funding levels for federal culture agencies. As part of the event, advocates from around the country visited some 300 Congressional offices in all 50 states, mailed hundreds of letters to elected representatives and sent out over 1,000 #museumsadvocacy tweets.

Underappreciated in the US

Whereas the Chinese government is hailing museums as a “pillar industry” and the “spirit and soul of the nation,” in other parts of the world museums often struggle to convey a sense of their impact beyond education and amusement – and yet the impact can be shown to be substantial and positive.

Governments that support the arts see an average return on investment of over \$7 in taxes for every \$1 they appropriate. Yet arts and culture continue to find themselves on the chopping block.

The most recent “Annual Condition of Museums and the Economy” (American Alliance of Museums, 2012) revealed that 67% of US museums faced economic stress even as they were beginning to climb out of the Great Recession. Museum directors lamented that “fundraising continues to be difficult” and that “corporate support cannot be planned or anticipated with any accuracy.” Only 14% of museums AAM surveyed saw



Clara Rice
JRA

increases in government funding in 2012, and 35% saw funding declines. While museums are inching toward sustainability, one director said, “we had a balanced budget in 2012 but only because of reductions in pay or benefits for staff and reductions in programming for the public.”

How can museums plead their case, demonstrate their cultural and financial worth, and begin to plan for their long-term future instead of worrying about their immediate present?

Three positioning points

Museums must position themselves not just as cultural anchors, but as economic engines that have the proven ability to enhance community assets, entice tourism and attract talent. There are three points museums can emphasize in terms of the important economic roles they play in their communities:

- #1: ...As building blocks for real estate capital
- #2: ...As generators of tourism capital
- #3: ...As fosterers of human capital





photos courtesy
Yes on 8 Action Center

Real Estate

Dr. Stephen Sheppard of the Center for Creative Community Development, a research center at Williams College (Massachusetts, USA) has drawn correlations between the introduction of a museum in a community and an increase in property values. A dramatic example in North Adams, Massachusetts followed the opening of MASS MoCA in 1999, where properties within a 1.7-kilometer radius of the museum saw an aggregate increase in value of nearly \$14 million. Sheppard et al have performed subsequent studies in other communities, and while the degree of the impact has varied (usually due to community size), the positive relationship between the infusion of an artistic amenity into the community and property values has remained clear.

Much of the impact of museums, particularly in older communities such as North Adams, can be attributed to the concept of adaptive re-use: the reconfiguration of a factory, railway station or other underutilized or abandoned building into a valuable cultural asset. Such will be the case with the National Comedy Center (NCC) in Jamestown, New York, which is transforming the Erie-Lackawanna train station, along with a former trolley station building, into a national attraction based on the celebration of comedy. This past December, the State of New York recognized the potential impact of the NCC by awarding it a \$1.5 million Empire State Development Grant. By making "Jamestown equal comedy" in the minds of tourists, the grant hopes to welcome 114,000 visitors and generate \$23 million in local economic activity.

Tourism

Findings from AAM indicate that Americans visit museums 850 million times per year, a greater

attendance than all major pro sports events and theme parks combined. Museums rank among the top three family vacation destinations, attracting more than 165 million foreign tourists annually. And visitors to historical sites and cultural attractions stay 63% longer than any other kinds of tourists, resulting in higher per capita spending.

If we expand the market to include all arts and cultural institutions, the correlation between visits and tourism revenue is even stronger. According to "Arts & Economic Prosperity IV," a study by Americans for the Arts, an advocacy group based in Washington, DC and New York City, the average arts attendee spends \$24.60 per event, in addition to the cost of the museum ticket, on items such as meals, lodging, retail and child care. In 2010, 39% of arts patrons were non-local attendees, who spend on average twice as much as their local counterparts.

Jobs and growth

Increases in tourism tend to lead to increases in employment, so perhaps the greatest indicator of true economic impact is job creation, retention and overall growth.

According to AAM, American museums employ 400,000 people and directly contribute \$21 billion to the economy each year. The impact multiplies when arts organizations as a whole are considered. The "Arts and Economic Prosperity" study finds that arts and cultural institutions created 4.13 million full-time equivalent jobs, 2.14 million of which were the result of direct expenditure by the surveyed nonprofit arts organizations. As a result of this income generation, nonprofit arts institutions contributed \$22.3 billion in revenue to local, state and federal governments annually.



National Comedy Center
courtesy Lucy Desi Museum &
Center for Comedy

“The future of most cities depends on their being desirable places for consumers to live,” writes Edward Glaeser, Harvard University Professor of Economics. In addition to creating jobs within the arts and culture industry, museums and other cultural institutions serve as talent attractants. “As consumers become richer and firms become mobile, location choices are based as much on their advantages for workers as on their advantages for firms,” Glaeser writes.

According to the American Planning Association, museums and other arts and culture entities can “improve a community’s competitive edge” and “integrate the visions of the community and business leaders.” Museums give companies and employees a reason to stay, spurring a self-perpetuating culture of innovation and economic growth.

Using the Data

By demonstrating that they offer communities economic benefits by raising property values, attracting tourism and bolstering employment, museums can increase their power to rally unearned income. But what are the appropriate data for museums to collect, and what are the best ways of communicating this unique value proposition to the world?

The challenge is to present an argument that is both quantitatively and emotionally compelling.

Museums would do well to take a page out of Cincinnati Museum Center’s playbook. The Center’s three museums are housed in the 82-year-old Cincinnati Union Terminal, which has been plagued with water damage, a rusting infrastructure and archaic HVAC and building systems. The value of needed repairs totaled \$208 million, and the National Trust for Historic Preservation recognized the building as one of the nation’s “11 Most Endangered Historic Places.” To help save the building, the Museum Center and the National Trust organized the “Save Our Icons/ Yes on 8” campaign, advocating for a quarter-percent sales tax levy that would generate \$172 million in revenue while only costing the average local resident \$23/year. The National Trust and Cincinnati’s own Culture Heritage Task Force set up an action center with the goal of personally interacting with thousands of people through festivals, lectures and “honk and waves.”

While making an emotional appeal to voters, the Task Force and the Museum Center also armed themselves with data, commissioning an impact study from the

Economics Center at the University of Cincinnati. And the results were compelling. In 2013, the Cincinnati Museum Center had a total economic impact of \$114 million, supporting 1,278 in local jobs generating over \$40 million in wages and benefits. While visiting the facility, guests from outside the region spent \$25 million at nearby hotels, restaurants and shops. All told, the Museum Center produced \$1.9 million in tax revenue for the county. Armed with a compelling argument both emotional and financial, the Save Our Icons/Yes on 8 Campaign secured a resounding victory, garnering 61% of the vote.

For those institutions that do not have the money to commission a study from a major university, the 2013 TEA/AECOM Museum Index, an annual attendance study of the world's top-performing museums, suggests seven key points of data that museums should collect to better gauge performance:

- attendance
- visitor origin
- square footage (to gauge visitors per square foot)
- penetration rates (the ratio of the number of visitors versus the overall size of the market)
- financial metrics
- per capita retail spending
- average revenue per visitor

While the collection of this data may be costly in both money and time, in an increasingly results-driven world, the cost of not collecting it could be far greater.

Save Our Icons succeeded because of its two-pronged approach: it communicated with politicians that without the Museum Center, the county would lose a major moneymaker. Meanwhile, it communicated with visitors that without the Museum Center, the city would lose a bit of its history and soul. By engaging pocketbooks with data and hearts with stories, museums can leverage both their financial and cultural worth, forging a path towards a more sustainable future.

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Big Bucks

PGAV designs “Inside the Economy” Museum
by Jeanette Cooperman



There are museums of the dog, teeth museums, spy museums; museums stuffed with medieval armor or farm implements or glowing oil paintings.

But there are not many museums about the economy.

Abstract, complex, and mystifying, the economy defies most people’s understanding, even as it shapes their lives. The economy is what connects us, sustains us, defines our opportunities. Yet a museum of the economy would have few artifacts of its own to display - except perhaps currency.

PGAV Destinations was commissioned to design the Inside the Economy Museum, located inside the Federal Reserve Bank of Saint Louis, a few blocks west of the Gateway Arch. The museum’s name was also its mission. Delving into the subject in the conceptual stages, the PGAV design team read everything from a college Econ 101

textbook to investment blogs to bestsellers such as *Freakonomics*, then sought tutelage from economists. “We had to become the bridge between the experts and the complete novices,” says design team member Tom Owen, VP, Senior Designer, PGAV. “And we were starting from scratch.”

The museum, which opened to the public in September 2014, is geared towards teenagers, and its primary traffic comes from school groups. Admission is free. The new museum manages to make the economy personal, understandable, and - the real miracle - fun.

The PGAV team knew they’d have to design interactive media—sounds, games, displays, video—to bring the economy’s abstractions to life. The media would have to make the economy fun as well as understandable, engaging the imaginations of school kids, jaded teens, young

The entry lobby

acquaints guests to the history of the economy and its management (above), then the space transforms in a multimedia presentation leveraging multiple surfaces to introduce guests to the concept of their roles in the economy (below).





Decide

Through numerous interactives, guests can explore different kinds of careers and life choices and how those will impact their income and economic impact.

people full of dreams, cash-strapped parents, and retirees. And the media would have to be presented in a dynamic, intimate space that made economics feel lively, personal, and approachable.

When you enter the Inside the Economy Museum, you begin in a grand, high ceilinged, historic bank lobby that predates the Great Depression. As you gaze at the ornate bronze teller windows, a multimedia show comes on overhead, transforming the carefully preserved historic space without touching its grandeur.

The exhibit was designed to be a contrast to the historic building, which is celebrated and emphasized in the Intro Theater. With LED and video mapping, transitions of pattern and color, and a powerful audio track, the show introduces the idea that you - yes, even you, whether you squirrel away a precious paycheck, submit a confused tax return, endure spells of unemployment, squander your allowance, or are a responsible saver and investor - are part of the economy.

When the show ends, you're brought into a space that's completely unexpected: dark, modern, with information streaming at you the way it does in

New York's Times Square. "From that point forward the experience is not what you would have expected," says Owen. "You leave the lobby, the lights turn off, and you are caught by surprise." The ceiling in the exhibit room drops lower to make it feel more intimate, and the media bring light and motion into the space.

Times Square was an inspiration, says Kimberly Mahne, destination designer at PGAV, "because we're constantly getting all this info streaming at us. The idea is that this is going to be the place where you are able to make sense of it all."

Toward that end, the team created more than 100 exhibits - enough to keep two school buses of children amused at once. Instead of the usual strip of tickertape, long and linear, the stock market display curves. Below it are saturated-color graphics about your role in the economy; how you interact with others via trade, investment, and barter; and where you're situated in the global economy.

One exhibit calculates a visitor's personal inflation rate. "We always hear about the inflation rate, but those are huge averages that don't even include some of the things that are most important to us,"

Owen notes. "So we have an interactive where people can explore their own inflation rate, based on what they buy."

A multi-user, interactive digital game demonstrates how the market works, swiftly and impersonally setting the price that balances what people are willing to sell something for with what they're willing to pay to buy it.

A game about barter shows how money becomes a method of communication. "Say you have an asset, a chicken, and you want to turn it into an insurance policy," suggests Doug Nickrent, also a member of PGAV's design team. "That's going to take a lot of work, a lot of trades before you get from the chicken to the policy. Money shortcuts that. It's something we all trust has value, and it allows you to turn your chicken into an insurance policy pretty quickly."

The main, open space, with a capacity of 380 people, is something PGAV calls a connection feeder, because "it's your place to connect all these ideas," explains Owen. "It cycles every 20 minutes, shifting from an information-rich, constantly moving wallpaper to a show with full audio. The show takes over the space, telling its story, the connections in the economy, to everyone in the room."

On the wall, graphics show the history of payment methods, from gold to cash to checks to credit cards to online payments in which nothing is exchanged except data. Basic principles - like the

milestone of moving away from the gold standard, which many people still haven't assimilated - are simplified with big, bold signs ("Your money is not backed by U.S. gold.") Another graphic shows a picture of a crumpled I.O.U. and a crumpled \$1 bill and asks, "Which would you prefer?"

Mahne is especially proud of the exhibits "that talk about what you want to do with your life, and how you can make money and good decisions while still pursuing your passion. I think those actually made the economy more approachable."

Nickrent nods. "We knew we were skewing toward a somewhat younger audience, so we tried to bring some self-awareness to it. No matter how old you are and what your station in life is, you are not outside the economy. It's impossible to be outside the economy. And whatever your interests are, there's a path to go forward."

The museum even has a photo op for selfies: a giant cube of paper money that shows you what \$1 million in dollar bills looks like.

The deeper message is that there's something very human behind all these numbers. And as it turns out, making economics interactive - showing them how you can play games, find metaphors, and participate - is showing them exactly how the economy already works. •••

Jeannette Cooperman is a freelance writer based in St. Louis. She contributes frequently to St. Louis Magazine.

Left

Guests learn about the comparative value of goods as they barter with friends, potentially turning a paper clip into a Ferrari!

Right

Upon first entering the museum, guests come face to face with the immense volume of one million dollars.



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Ticketed non-profits (museums, zoos, aquariums, science centers and cultural attractions) have the often-complicated honor of being non-profit with a for-profit twist. They do, after all, charge for admission. Like their for-profit counterparts, the goal of the non-profit is to make money, in order to further its mission. That mission might be to positively affect the plight of endangered species, educate the next generation about science and technology, or preserve and extend the reach of artwork to a diverse community.

Operational processes and strategies at non-profit attractions must aim to fund their mission by facilitating the entry, membership and per cap spending that bring a venue's mission to fruition. For example, easy entry, easy membership and easy (and incentivized) spend within a venue create seamless guest experiences that fuel an attraction's non-profit mission.

Removing Barriers to Entry & Membership

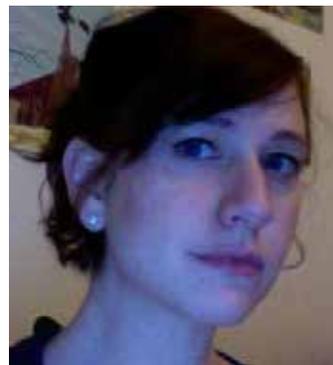
The idea of a seamless guest experience is key to the Denver Museum of Nature & Science's (DMNS) business mindset. They are successfully delivering seamless guest experiences through their philosophy of "everyone sells everything" and "all sales channels are equal." Technology has been key in growing the museum's significant membership base of 60,000 member households.

"We've been very fortunate here in that the leadership at the Museum understands the importance of technology and has enabled us to group and use tech in a way that we can leverage resources to come up with solutions to support the organization in the most efficient manner possible," explains Eric Boen, DMNS's Director of Technology.

Specifically, the Museum's tech team doesn't just keep their network running and point of sale terminals ready to sell – they have also developed native applications to support membership at the Museum. The Museum's eCard is a mobile app that acts as an electronic membership card – displaying the guests' information and benefits up-to-date and in real-time whenever the app is opened. This means no digging for a card

Non-profit Sales Strategy

How Denver Museum of Nature & Science is implementing technology in ticketing, membership, and loyalty programs



Liesel Tarquini
Gateway Ticketing

when members arrive. When the application opens, a barcode displays that can be scanned for immediate admission into the Museum.

In use since October 2013, the Museum's tech team is gearing up for version 2.0 of the application. "We wanted to know what our members want from their membership app and the hot-topic has been benefit redemption," says Boen. "If they get a certain number of planetarium or 3-D theater tickets with their membership, they want to be able to redeem those tickets for a timed showing directly from their smartphone. By Q3 this functionality will be available to our members."

To keep through-put high at the Museum's entry points, the DMNS Operations team plans to streamline the membership purchase process. At the ticket booth or the Museum's self-serve kiosks, only minimal information will be necessary. Guests provide an email address and later on they receive email communication reminding them to complete their profile.

This process will have multiple benefits: the lines at the front gate stay short and run smoothly. But perhaps more importantly, this process keeps the membership transaction in the background of their visitor experience. "That transaction is something they



don't remember, it wasn't time consuming, and it wasn't a hassle," says Boen. "We want them to remember their time with the exhibits, not in the ticket line."

Expanding Loyalty Programs

Long a staple in the retail market, loyalty programs have slowly begun to make their way into the non-profit arena. And for good reason, loyalty programs can be used to capture data from both members and non-members. By providing a discount at a retail or dining outlet, venues can gather personal and spending data that allows them to better market to their core demographic and make smart business decisions on staffing, inventory and more. Loyalty programs also allow venues to cultivate visitor relationships and begin the process of transitioning a visitor to a member and ultimately a donor, through targeted marketing.

The Denver Museum of Nature & Science hopes to broaden their loyalty program soon. "We want to use loyalty in a way that expands upon its traditional use – not only do we want to add loyalty points for purchases or spend within the museum, we want to extend it to within the museum to capture data on how visitors interact with the Museum itself," says Boen.

Significant advantages appear when the loyalty device is a passively trackable item. For example, Bluetooth hotspots can log the time people spend in a butterfly exhibit via the loyalty app on their phone. Curators can mine the data and develop a prime target group for an event on the science of flight with an entomologist.

Loyalty systems can also be used to enhance the membership sign-up process. Remember the email communication that new museum members will receive to complete their member profile? They will earn loyalty points upon profile completion.

The next iteration of the Museum's Loyalty program will also likely include not just points that can be redeemed for stored value to purchase something at the Museum shop, but also that can be redeemed for exclusive experiences including behind the scenes events. These more intimate benefits provide a truly distinct loyalty proposition and perceived value for the participant. Loyalty can also be based on where the visitor or member is in the Museum system, similar to different status tiers in airline frequent flier programs. Such strategies enable a loyalty program to be fully integrated with a venue's brand.

Removing barriers to entry and implementing loyalty programs can help improve the guest experience, while driving the Museum's mission forward. "Our mission is to ignite our community's passion for nature and science. We use technology, membership and loyalty programs to bring our vision full circle," says Boen. "In order for us to provide the nature and science, we need our members to provide the financial support that makes it possible. It is our responsibility to provide the tools to make that support as seamless as possible, so that they can spend their time becoming a community that loves, understands and protects our natural world." ...

Liesel Tarquini works in the Marketing Team at Gateway Ticketing Systems, specializing in observing and sharing thought leadership and expert knowledge for the attractions industry gathered from the Company's global customer community and the employees who serve them. The Denver Museum of Nature & Science is a Gateway customer leveraging the Galaxy® Product Suite.



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