

THE Advisor

Bringing Buildings To Life Since 1966™

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a  publication



U.S. FREEDOM PAVILION
THE BOEING CENTER

THE NATIONAL World War II Museum

History making technology in New Orleans

Taming the French Quarter

Safety From a New Perspective

Improving Best Practices

JBA's Seven Wonders Learning Teaches You How

WELCOME



Dear JBA Clients, Fellow Colleagues and Industry Associates,

Growing up through the 70's and 80's, I found myself surrounded by a new age of technology: an age driven by the introduction of the home computer, and the transition from analog to digital. The products that lined the shelves of my favorite electronic stores began to dwindle. What was once a long term investment was now instantly devalued to garage sale status. It was this dynamic shift in consumer electronics that drove my love of technology and eventually a career that has taken me to places beyond my imagination.

My fascination with modern digital technology – the development of the hardware and the software – helped transition a hobby into a career. I continually found myself looking for ways to automate the things around me. I was amazed how technology was transforming how we shopped, dined and entertained ourselves. I referred to this injection of technology into business as the “Goose Bump” factor. Similar to the “Wow Factor”, where I would say “wow that’s neat”, I now found myself with actual goose bumps when seeing an attraction at Disneyland, a movie with THX surround sound or a volcano eruption on the Las Vegas Strip.

The technology that drove the “Goose Bump” factor then (and still does today) isn’t found in a box. It’s found in the minds of creative individuals who imagine the unimaginable, individuals who believe that their next vision will always be bigger and better than their last. These masters have a firm grasp on technology, the ability to harness its power, and they can communicate how that “Goose Bump” factor is created.

After joining JBA, I had the opportunity to meet some incredible engineers, who thrive on challenges and create solutions that help our clients realize their greatest dreams. These Trusted Advisors™ help Bring Buildings to Life™ every day, and – like technology – they adapt and grow in search of better solutions.

In this issue, you’ll have the opportunity to learn about JBA’s team of Technology Design Solutions Advisors from around the globe. You’ll learn about JBA’s newest Artistic Engineering™ team, as well as how some Advisors implement Technology Visioning to help clients embrace the future. In closing, I get goose bumps simply thinking about all of the great Advisors on our team and what innovations lie ahead; I trust you will too.

Always Innovating,



Jim Gist
CSMO

JBA Consulting Engineers

Jim Gist, an innovative, inspired and forward-thinking executive, joined JBA in 2011 as Chief Sales and Marketing Officer. Jim is responsible for integrating JBA’s innovations, sustainability message and exemplary client service philosophy throughout the company worldwide. Jim can be reached at jgist@jbace.com

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THE Advisor

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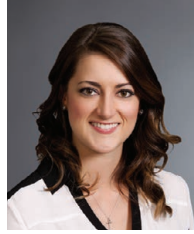
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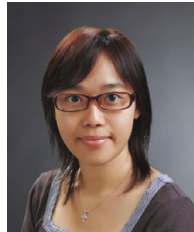
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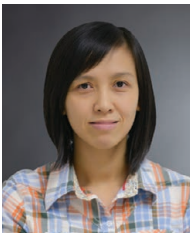
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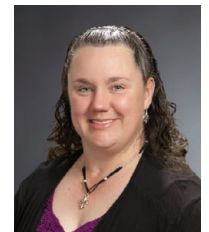
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[continued on page 23]



MAKING WORLD WAR II RELEVANT TO FUTURE GENERATIONS

PHOTOS COURTESY OF THE NATIONAL WORLD WAR II MUSEUM

ADVANCED TECHNOLOGY CRUCIAL TO AMAZING MUSEUM

Pearl Harbor. Guadalcanal. Rome. The North Africa Campaign. While overwhelmingly meaningful to our parents' and grandparents' generations, these are only words to so many of our children.

When they first began to think about a museum of World War II, historians Stephen Ambrose and Gordon 'Nick' Mueller wondered how they could make this war real to new generations. Could they keep the sacrifice and valor of 'the Greatest Generation' alive even as the last veterans passed on? "They were educators and, more than anything else, story tellers," says Paul Parrie, the museum's Associate Vice President of Operations. The two saw their vision become a reality with the opening of The D-Day Museum on June 6, 2000 in New Orleans, and then, though Ambrose passed away in 2002, with the designation by Congress as The National World War II Museum in 2003. The museum has moved even farther forward with a \$300 million, multi-phase expansion that will be completed in 2016.

JBA Trusted Advisors™ Rob Pourciau and Steven Fisher have worked with the museum for almost 14 years, starting with the integration of the technology infrastructure, including, telecommunications, intrusion detection, access control, video surveillance and audiovisual systems in the original D-Day Museum Building in 1999. They integrated the sound and video systems for the museum's conference center, which opened in 2006, and helped to design the audio, video and security systems for the spectacular Solomon Victory Theater, the American Sector restaurant and bar and the Stage Door Canteen, a venue for live entertainment, all of which opened in 2009. They designed the security and surveillance and the special events audio and lighting systems for the new Boeing Land, Sea and Air Pavilion, which opened in January, 2013, the Campaigns of Courage Pavilion, which will open in 2014, and they have started work on the new Liberation Pavilion, which will open in 2016. "It really is an honor that the museum has had enough confidence and trust in us to turn over these projects," Pourciau says.

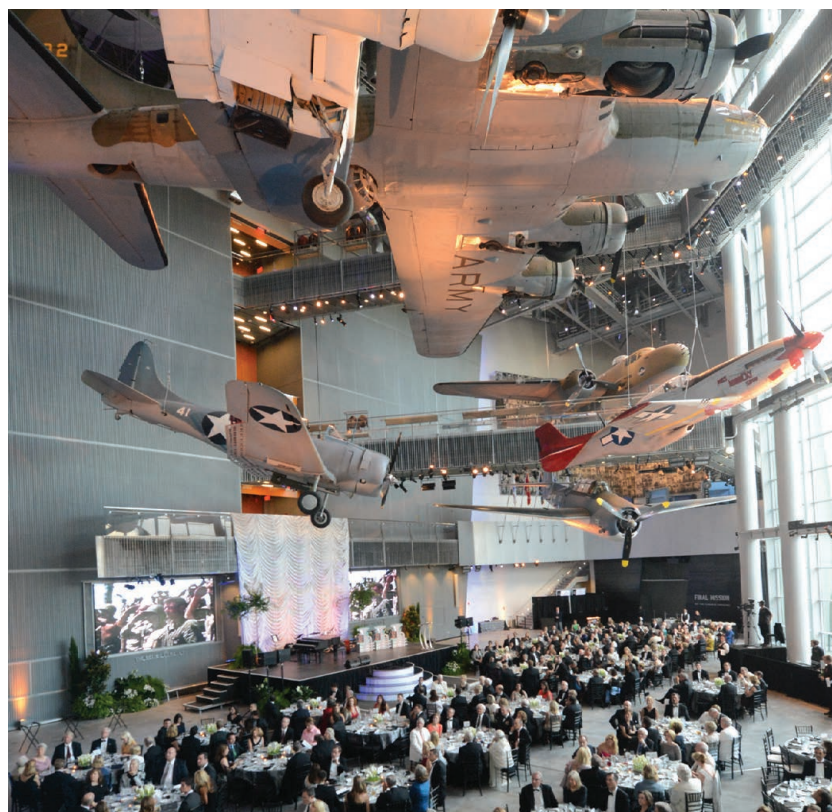
"They have an all-star creative team, the very best of the best in our industry."

A Focus on Oral Histories

The original D-Day Museum Building, now called the Louisiana Memorial Pavilion, takes a traditional approach, telling the story of the war in chronological order through a series of rooms filled with photos, uniforms, weapons, maps and other artifacts. Yet the veterans themselves add a powerful touch, telling their stories through a series of audio and video clips, some of which were gathered by Ambrose as he researched *Band of Brothers*, *Citizen Soldiers*, and his other books about the war. "It's so important to tell these stories first hand, so that our young people can hear from soldiers who, at the time, were 18 or 19 years old, but went over there and did all these incredible things," explains Robert Farnsworth, Senior Vice President of Capital Programs.

As the museum evolved, this unique focus evolved with it. Just a year after opening, the museum nearly doubled its exhibit space by adding a Pacific Theater gallery, then began planning an education and conference center, the E.J. Ourso Discovery Hall. Work on Ourso Hall was interrupted by Hurricane Katrina in August 2005, but the following year the museum finished the conference center and by 2007 began construction of a second building across the street.

"One of the decisions we made early on was what components to include in the first major phase of expansion," Farnsworth explains. "Some of our board members wanted to start on the Campaigns Building, but we knew it would have exhibits similar to what we already had. We decided it would be more beneficial to add something very different."



"It's so important to tell these stories first hand, so that our young people can hear from soldiers who [...] went over there and did all these incredible things."

Robert Farnsworth

Senior Vice President of Capital Programs



Work on the new Solomon Victory Theater began in 2006 on the corner of Andrew Higgins Drive and Magazine Street (see sidebar). This new Theater Pavilion would also include the American Sector, a signature restaurant managed by award-winning chef John Besh, and the Stage Door Canteen, a 1940s-style nightclub featuring live music and stage shows three nights and one afternoon each week.

By the time the new building opened in 2009, plans were under way for a third, the Boeing Center (Land, Air and Sea), which opened in January, 2013. It features a five-story atrium and balcony viewing of vintage aircraft, "Final Mission," an immersive experience based on the submarine USS Tang, and a number of interactive exhibits.

Coming in June, 2014 a train station will open in the Louisiana Pavilion from which visitors will depart to a highly personalized tour of the museum and the war. "During the 1940s, when men or women went to war, they got on a train," Parrie explains. When visitors arrive at 'Union Station,' they will each be handed a 'dog tag,' an RFID card that includes the name and photo of an actual soldier, sailor or aviator who served overseas. As they walk through new and old sections of the museum, they will be able to use these tags to find out what their individual characters were doing during that phase of the war, and, since these were real people, whether they were killed, wounded or got home safely.

"Steve and I first got involved with the museum via Frischhertz Technologies, which is the security and telecommunications division of a large electrical contractor, and an AV integration firm I had founded, SoundWorks Systems Integrators LLC," Pourciau remembers. The pair continued to contribute as the museum expanded, even as they helped to found a new company, Solomon Design Associates, in 2009. They split off

on their own as SDA Design Consulting in 2010, then joined JBA Consulting Engineers in 2011. "As we evolved in our careers, the museum stayed with us, which I see as a testament to value of the work we've done there."

Education and Special Events

Fisher and Pourciau started their work in the museum as technology integrators, but by 2009 had shifted from installation into system design. Fisher, the division manager of Frischhertz Technologies, oversaw the installation of the technology infrastructure, including telecommunications, video surveillance and security/intrusion detection systems for the original D-Day Museum, which opened on June 6, 2000, the 56th Anniversary of the D-Day Invasion. Pourciau began with the design and installation of the video and sound systems in E. J. Ourso Hall, which consists of five classrooms and conference rooms, plus sound, projection and performance lighting systems that are used for lectures, banquets, and other special events in a four-story atrium also added on to the original building.

Rentals make an important contribution to the museum's operating budget, and Parrie explains that the property hosts one or more rental events each day, ranging from client management meetings, to corporate parties to military reunions and movie wrap parties.

For this reason, while Pourciau played a major role in the design of the sound system used for Beyond All Boundaries, he was also asked to design an ancillary projection system for the Victory Theater, available when the space is rented to outside groups.

In addition, Pourciau designed the distributed audio and video systems in the American Sector restaurant and the sound, video projection in the Stage Door Canteen. Stage Door is open to museum patrons during the



Photos: Top Left, Solomon Theater; Top Right, Victory Ball; Bottom Left, Normandy Exhibit; Middle Right, Soloman Theater Rendering; Bottom Right, Normandy





“Our goals for the museum’s technology include operating consistency, stability, ease of operation, and flexibility.”

Paul Parrie

Associate Vice President of
Operations, National WWII Museum

day, and a Medialon server plays videos and slide shows, controlling the audio, video, lighting and even the curtains. “I can start and stop it from my smart phone,” Parrie explains. For performances, there’s a back-of-house mix position on the second floor, with sound and lighting boards. “We do a lot of presentations here as well as music and dance shows. When the Saints were in the Super Bowl we showed the game in here. It was a lot of fun.”

While Pourciau focused on sound and projection, Fisher designed and provided Project Management for the installation of the security, video surveillance, access control systems as well as the network infrastructure for the Theater Pavilion. For the new Boeing Center, Fisher, by then a Trusted Advisor for JBA, designed the surveillance, security/intrusion and access control systems. Pourciau was again involved with the rental side of the facility, designing special events audio and lighting systems for the new atrium, as well as specifying the show power requirements.

“Our goals for the museum’s technology include operating consistency, stability, ease of operation, and flexibility,” Parrie explains. Flexibility is especially important. “For example, I need to be able to feed any image on any monitor on any of the three video walls in the Boeing Center and be able to play audio from any source on the sound system. That’s because I know, during

special events, someone will ask to have their company logo on the second screen from the left while maybe the president’s video is playing on another screen.” The changes need to be fast and easy as well. “After hosting more than a thousand visitors each day, we may have a cast party, a corporate event or a wedding in the evening” Parrie adds. The pace is demanding on the staff as well as the equipment. Parrie relates that, in the weeks before the opening of the Boeing Center, he often slept in his office so he could be on hand 24/7. One of the remarkable stories played out in this remarkable facility is the evolution of museum technology. “When the D-Day Museum opened in 2000,” Pourciau notes, “each video exhibit was driven by a DVD player: you just pushed a button and it played a clip.” Today, attractions in the Boeing Center are run from computers and Medialon servers in three equipment rooms, with audio, video and database-driven interactive material transmitted over an Ethernet network. The original security cameras were wired with co-ax cable and produced black-and-white images. Today, they, too are linked over Ethernet, providing full-color high definition images, yet at a per-camera cost significantly lower than the original systems.

The Role of a Consulting Company

All of these changes highlight the value of a world-class consulting company in the design of an important building. “We have a lot of

technical knowledge in-house at the World War II Museum,” Parrie explains, “but we are forced by our busy schedules to focus mainly on the day-to-day. We need consultants who are looking at the horizon...and we rely on Rob and Steve to keep us abreast of changes in technology and the possibilities open to us. They have a good sense of how we operate and what we’re looking for.”

“I’ll give you an example of why we’ve come to depend on them. When the Stage Door Canteen opened in 2009, our first big event was the New Orleans Saints Christmas party. The band came in to set up and we found we had a CobraNet issue. I left a message for Rob asking if he’d have any ideas that might help with our troubleshooting, and the next thing we knew Rob and Steve were there in person. This was 10 p.m. on a Saturday night. We didn’t ask them to come in, and we never saw an invoice, yet they were a big help in solving the problem...Needless to say, we don’t get service like that from everyone.”

With the help of Pourciau, Fisher and a large number of extremely creative people at several companies, The National World War II Museum has grown into a truly amazing facility. “I think it’s the prototype for what museums are going to look like in the future and how they’re going to be successful,” says Farnsworth. “Technology and immersive environments are becoming absolutely necessary in any museum to tell a meaningful, memorable story.” ♦

In 2005, The National World War II Museum asked Tom Hanks to produce and Phil Hettema to design *Beyond All Boundaries*, a 35-minute "4D" multi-screen program that tells the story of the war through a series of poignant eyewitness accounts, archival visuals and dramatic special effects.

Prior to forming his own company, Phil Hettema served as master planner and creative head for all five Universal Studios theme parks, and he had created a number of attractions for Disneyland and Walt Disney World. The 246-seat Solomon Victory Theater, built specifically for *Beyond All Boundaries*, includes nine large-venue projectors edge-blended and wrapped onto two massive curved screens. The largest has a 28' x 120' perforated surface, which allows images from another curved screen behind it to be shown simultaneously, producing an extremely rich, three-dimensional effect. From the ceiling and from an 20' deep trench in front of these screens a variety of props are lowered or raised, including a 1940s radio, the nose cone of a bomber, a concentration camp guard tower, and three additional 7x8' screens. A variety of special effects, from snow falling to the sounds, vibrations, smoke and flashes of explosions – even the blinding light and shock wave of an atom bomb blast – bring some of the experience of living through the war home to the audience.

The show is more than a spectacle. The creative team grounded *Beyond All Boundaries* carefully in history, with rare footage from the world's great film archives, as well as veterans' stories told in first person by 22 Hollywood stars, among them Kevin Bacon, Brad Pitt, Elijah Wood and Tobey Maguire. Hanks pulls the piece together as he narrates the major events of the war.

"We wanted a signature attraction, something that would bring young

people into the museum and make the war real to them," explains Paul Parrie. By far the most popular attraction at the museum, *Beyond All Boundaries* is a big reason why 80% of the 400,000 people who visit each year come from outside of the region, and why one third of those say the World War II Museum is their number one reason for visiting New Orleans.

In working on the Victory Theater, Pourciau was technically a subcontractor to the architect, Voorsanger Mathes, and teamed with Fisher to serve as Project Manager for the installation of the theatrical systems integrator, Electrosonic, and to the Hettema Group. "Phil was looking for certain areas to have a lot of impact, and to provide it we created a subwoofer array which was flown over the audience and beam-steered to add a visceral quality to the sound." In addition, Pourciau did all of the programming of the DSPs (the computers that control all of the audio equalizing, filtering, delays and other processing) and he commissioned and tuned the sound system.

"They also took advantage of my rock and roll experience and asked me to design the rigging for the five projection systems that serve the rear-most screen," he explains. "We created a curved truss to mimic the shape of the screen, then put motors and hoists on the projectors so we could drop them down to the floor when they needed service."

Finally, Pourciau designed a separate projection system to be used when the theater is rented to corporate groups, and his programming of the sound system includes the ability to accept inputs from computers, Blu-ray players and wireless mics. "It's a beautiful theater," Parrie explains. "Rob made it possible to offer it to rental groups for after-hours events." ♦

The Solomon Victory Theater

AT THE NATIONAL WORLD WAR II MUSEUM





ROB POURCIAU
Senior Design Consultant
“L’Artiste”
New Orleans, LA

Q

What is Artistic Engineering?

A

The terms seem contradictory. Is it even possible to be both an artist and an engineer?

Think for a moment about Leonardo da Vinci and his wonderful designs for bridges and aircraft, or about a Roman named Apollodorus of Damascus, who created the Pantheon, a beautiful temple that has stood for almost 2000 years as the world’s largest unsupported concrete dome. It’s an amazing feat of engineering as well as a timeless piece of art.

Now think about the transformation of Las Vegas that began in the ‘80s. We’re not sure we can compare the creation of the Mirage, its world-famous volcano and surrounding themed design with the Pantheon, yet it began the trend that redefined casinos and other traditional developments as mega destination resorts. JBA’s Trusted Advisors™ were instrumental in creating the Mirage and the majority of the world-class projects that have become the Las Vegas of today.



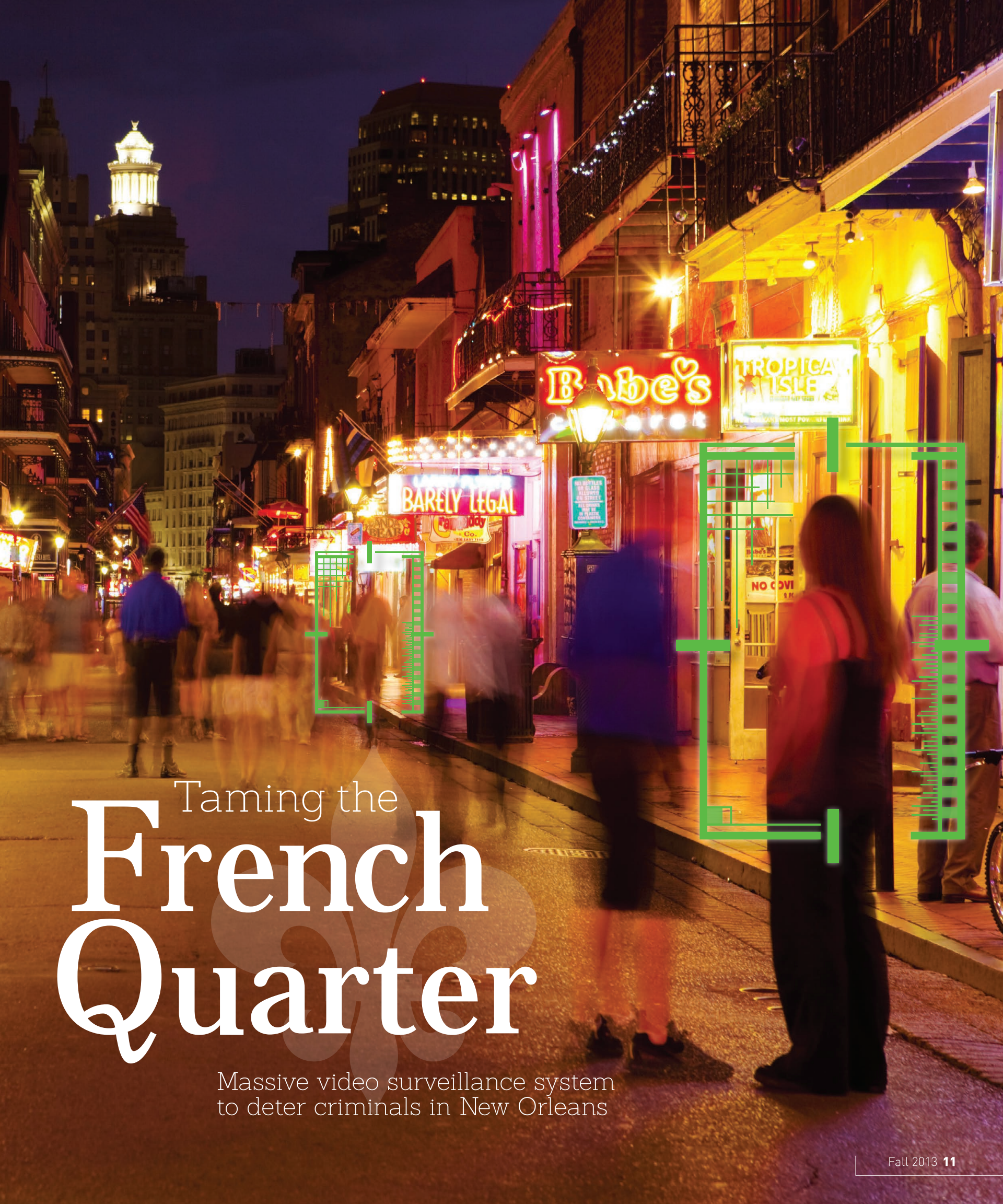
For all of those years JBA quietly advised our clients on how to bring projects like the Mirage volcano, all of the Cirque du Soleil theaters in Las Vegas and other reality-defying themed attractions to life.

Today we are announcing the formation of JBA’s Artistic Engineering Group, a team comprised of exceptionally accomplished engineers, designers and visionaries that will work with our clients around the globe in the creation of the next era of entertainment, education and consumer experience.

Our Artistic Engineers are already visioning the new Grand Bazaar at Bally’s Las Vegas, where we have become the technical directors as well as the engineers, orchestrating music and video elements in concert with advanced LED lighting effects, while coordinating JBA’s traditional engineering disciplines.

Our team leverages decades of experience and a holistic creative process to develop an entire space and guest experience, including interactive audio and video content as well as advanced theater design, sound reinforcement, show control and special effects. ♦

Leading this new effort will be Robert Pourciau, a Trusted Advisor with years of experience as a musician, producer and audio/video/lighting designer and engineer. “I’m excited to be given the opportunity to lead this new effort,” Pourciau says. JBA’s Artistic Engineering Group will leverage Rob’s talents and JBA’s global resources to envision, design and engineer projects spanning from theme parks to theaters and resorts to retail in a way not seen before in our industry.



Taming the French Quarter

Massive video surveillance system
to deter criminals in New Orleans

There's a dark side to the French Quarter. While residents and visitors love its music, architecture and cuisine, they have long been concerned about its reputation for crime.

That, hopefully, is changing at last. Steven Fisher, Director of Operations for JBA Consulting Engineers, New Orleans, explains, "Just over a year ago the French Quarter Management District, a non-profit organization representing residents, business owners and developers, asked us to study the feasibility of a video surveillance system that would cover all of the public areas in the district." Their hope was to deter crime by providing positive identification of perpetrators.

Fisher and his team of Trusted Advisors™ helped the Management District formulate realistic goals, designed a workable system, provided proof-of-concept testing and created a budget for installation and maintenance. The District is now putting together funding for a pilot program that should prove the effectiveness of the concept.

100% Situational Awareness

One of the challenges that Fisher faced was an unusual level of public scrutiny, given a 2005 scandal in New Orleans involving a similar surveillance project. "The District brought us in because of our reputation for integrity and quality work, but we still faced a great deal of skepticism over whether this technology could work. The first part of the project was just understanding each other's expectations and creating a realistic mission statement."

In formulating this mission, Fisher and his team sought out and secured the input and cooperation of the New Orleans Police Department

and the Vieux Carré Commission, the leading preservationist group in the city, as well as the board and members of the French Quarter Management District.

Together the stakeholders created a concept they call 100% Situational Awareness. "If a person or vehicle is on any public right of way or public space in the French Quarter, video images of that person or vehicle will be captured in real time, of a quality that can be used as evidence should a criminal incident occur," explains Steve.

This was a challenging mission in part because of the size of the French Quarter. The JBA team was to create a system that would cover every inch of every street, sidewalk, alley and outdoor public space in an area of about 85 square blocks. They also had challenges in dealing with historic buildings and in creating a system that would be virtually fool-proof. "If the infrastructure is not robust enough, we risk losing video in an incident, so our diligence on the backside became pretty extreme," Fisher explains. "We ended up pulling together the best of the best in cameras and wireless mesh network infrastructure, and we did a careful proof of concept to make sure it would work."

Developing a Solution

The JBA engineering team spent months of investigation and trial before settling on a technology solution they believed would work.

"First, we found a small but highly sensitive high definition camera coupled with an IR sensor and software overlay capable of capturing color even in very low light," Fisher explains. This camera, built by Pelco, also has the ability to work in bright sunlight and to compensate for backlighting. It can be mounted in a weatherproof housing that's resistant to vandalism, and it outputs a compressed, H.264 signal



ready for an IP network. "A standard night-vision camera would not do the job. Color is always a vital part of the identification process. The police would need to know that a perpetrator was wearing a red sweater and blue pants."

Next, the engineering team needed a way to blend the camera and mount into the French Quarter's distinctive architecture. They recommended a pole similar to the Quarter's antique street lights, able to hold up to four cameras 10 - 12 feet above grade. The pole will also hold a transmitter/receiver that makes each camera cluster a node on a wireless mesh network.

Wireless transmission was crucial because French Quarter sidewalks are paved with slate, brick or cobblestones. "For budgetary as well as aesthetic reasons, there was no way we could tear up that slate to run cables from our cameras to a network head end."

The Fluidmesh platform the team chose uses radio frequency signals, but they specified a line-of sight layout that avoids the necessity of penetrating brick or stucco buildings. The team also had to worry that a temporary obstruction, for example a delivery truck, might interfere with reception, so the redundancy of a mesh network had important advantages.

All of the signals will come together in a head end comprised of a series of RAID6 Video Storage Arrays, providing quadruple redundancy for 253 terabytes of data. That's enough for a 30-day archive of all video shot in the entire district.

Video captured by the system will be available to any device with the proper credentials and an Internet connection. "If there is an incident," Fisher explains, "it will be possible to log on from police headquarters or from a laptop or smart phone in the field, pull up live or recorded video and react quickly to arrest a perpetrator."

Proof of Concept

Once the JBA team had a design, they invited the manufacturers of the recommended products to help put together a demonstration. They used the actual cameras and transceivers, but mounted them on oversized tripods. "We went out and found those areas that were brightest during the day and darkest at night, set up our equipment and shot video," Fisher explains. "When we showed it to our clients, they were blown away with the results. At that point we provided a budget for implementation."

To meet the goal of 100% coverage, the team designed a system that uses 395 cameras and 123 transceivers. They estimated the price tag at \$3.5 million for equipment, management software, installation, the build out of the head end and maintenance for the first year, but recommended starting with a pilot phase consisting of 40 cameras and associated equipment.

Working with the New Orleans police chief and a criminologist from Loyola University of New Orleans, Fisher and his team selected an area of 10% of the French Quarter where the system is most needed. The Management District is now working to secure funding. "We've proven the concept in terms of technology, and believe that this system will have a positive impact in reducing crime within the boundaries of the French Quarter. Once funding is secured, our clients will move forward with full implementation."

Fisher says the project has been rewarding but taxing. "We've had it in development for over a year, and we devoted the majority of our time and effort for about six months."


Still, Fisher says he's excited about what the project will do for the city where he was born. "I have two boys growing up in New Orleans, and so I'm very much vested in making the French Quarter a safer place." ❖



Video surveillance systems keep a watchful eye on public areas.





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How do you create an outstanding service environment?

"You have to know your customers and you have to have a vision," explains Sean Sauter, Director of Support Services at International Game Technology (IGT). "If the strategic objectives of your company require an IT infrastructure and an IT department to support it, there's a path you can take to providing superior service offerings and leveraging best practices to help you stay on that path."

Sauter says finding the path was difficult until he met Bill Cook and the company he founded, Seven Wonders Learning, which was recently acquired by JBA Consulting Engineers. "One of the things we lacked was standardization, predictability and repeatability of

our services," he relates. "I had some familiarity with the ITIL® best practices framework, but we needed help with socializing, training and implementation throughout the organization."

Cook says support and service problems are common in technology-driven companies. "That's why we hit the radar screen at JBA last year," he explains. "JBA has always provided outstanding infrastructure design, but once the building and its data center opened, their role ended. They have been asking themselves, 'What if our Trusted Advisors™ could offer 360 degrees of service, helping our clients with every part of their technology implementation throughout the life of their facilities?'" Seven Wonders Learning provides a big piece of that 360-degree puzzle.




Bringing Best Practices to IT Services

Since its founding in 2002, the core of Seven Wonders' training has been ITIL, the Information Technology Infrastructure Library, a set of best practices for IT service management that focuses on aligning IT services with the strategic needs of the business.

"In a nutshell, ITIL provides guidance to align IT services to the needs of the organization in a way that delivers maximum value," Cook explains.

Sauter puts it this way. "Think about the service you rely on from your cable company. If your TV doesn't work, you expect a quick, polite, predictable, and repeatable experience when you call for support. Before we adopted the ITIL framework, our customers had told us they just didn't know what to expect. They might get great or terrible support, with minor issues solved immediately or taking weeks. What ITIL provides is a method of establishing repeatable processes that align with customer expectations. Everyone now has a better understanding of how to perform their job function and we have established a culture of learning and continual improvement."



Over the years, Seven Wonders Learning has trained about 100 IGT employees in ITIL, including more than half of Sauter's 90-person support staff plus a cadre of others throughout the organization. "My group, being the process owners, have in turn trained others in the practices most important to us, including incident management, problem management, change management, and configuration management."

In addition, Sauter says IGT has taken advantage of Seven Wonders training in project management, team development and leadership. Cook has also provided consulting services in these areas and in evangelization of the ITIL framework.

"... ITIL® provides guidance to align IT services to the needs of the organization in a way that delivers maximum value."

Bill Cook
Founder, Seven Wonders Learning

"Sometimes when you want to make large organizational changes," Sauter explains, "it helps to bring a third party in to shed light on the opportunities available and the path forward. One of the things we struggled with was that we had a lot of bright people, but they lacked perspective. 'What's wrong with what we're doing?' they asked. It's not about that. It's about doing things better and building a culture that believes in continually improving. Bill helped us to talk about these things in a way our people could understand and accept."

Sauter says he is now completing a year-long introduction of ITIL practices to IGT subsidiaries around the world. "We took Bill to the kick-off weeks in our regional offices in Asia, Latin America and Europe, to help us understand their needs, find common ground and talk about how best practices can help them achieve their goals."

"And in the United States, Bill and Seven Wonders helped us set a great foundation for ITIL and IT Service Management, and, as a result, we've seen accelerated response and resolution times, and the best overall, increased customer satisfaction. I'm very proud of my team and what we've been able to accomplish together." ♦



Seven Wonders Learning was founded in 2001 as an IT project management training and services company. In 2002, Seven Wonders Learning moved its corporate headquarters to Las Vegas, Nevada and expanded its training and services offerings to include IT Infrastructure Library® (ITIL®) as well as leadership development and team development.

Through a network of partner service providers, Seven Wonders Learning has well-developed expertise on tap serving both public and private sector organizations. Our client list includes banking and finance, state and local government, manufacturing, software development, universities and K-12 education.

OUR TEAM

Seven Wonders Learning's in-house resources have more than 60 years of combined consulting, training, and courseware development experience. In addition, Seven Wonders Learning maintains well established relationships with other specialized services firms. These combined resources make Seven Wonders Learning a true full-range consulting and training services provider.

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– ROB POURCIAU, TRUSTED ADVISOR™

“Life is a succession of lessons which must be lived to be understood.” — Ralph Waldo Emerson

No one knows this better than JBA's Technology Team. Real world experience is key to our success. Rob Pourciau, a Trusted Advisor™ who, like many others in the field, learned his special skills mainly through field experience, in his case first as a touring musician then as a systems technician, installer, integrator and finally a design specialist.

“Real world experience is especially important with changing technologies like telecommunications, data center design, security and AV,” adds David Wells, Technology Design Services Manager for Telecommunications and Security & Surveillance. “You have to know what can work in real life, not just on paper.”

The prevalence of field experience within JBA Consulting Engineers is one of three crucial differences between JBA and other engineering firms. JBA consistently delivers:

- 1 A wide range of disciplines from Mechanical, Electrical and Plumbing (MEP) and Fire Protection to Artistic Engineering services.
- 2 Staffing by specialists with a depth of practical experience as well as classroom training.
- 3 A high degree of cooperation between those specialists, allowing them to address all of the issues in the design of an office building, resort, museum or residential tower.

"Ten years ago there were separate equipment rooms for data, telecom and audio visual, because each used its own cable infrastructure," Wells recalls. "Today we create one Ethernet backbone with a rack for AV, a rack for security and a rack for voice/data, then make sure the data center will fit the needs of all of the technology service departments."

Of course, there's a lot more to technology consulting than planning the network and data center. The design of a commercial sound system, for example, includes the selection, placement and commissioning of amplifiers, audio processors and loudspeakers and requires knowledge of audio equipment, experience with electro/acoustical design software and the practiced ear of a musician.

MEP plays a part as well. "We are working on a 200 cabinet data center for a casino and resort in Macau," Wells explains. "The room layout has changed several times as we calculate the kilowatt load and heat load per cabinet. If we didn't have a mechanical engineer and an electrical engineer in house, we might lay out the room to what we, as technology people, feel is needed, then find out down the road that the space won't work."

Jeremy Barndt, one of the first technology specialists hired at JBA, says the firm's management has worked hard to build good working relationships between engineers with different specialties, who may be located in different offices or countries. "We move from office to office very regularly, not on a permanent basis but temporarily on specific projects," he explains. For example, engineers from the Macau office will spend four weeks this summer at JBA's Orange County office, and Pourciau divides his time between New Orleans and Las Vegas with occasional trips to Asia.

"The rapport we've built helps take us to a higher level as an engineering firm," says Aaron Miller, Manager, Technology Design Services for Audio Visual and Integrated Systems. "The proof of that is the type of project we work on. The larger resorts and casinos all have extremely knowledgeable technical people who hold you to a very high standard. To be able to thrive in that environment, to satisfy these customers and to earn their loyalty speaks volumes about our company."

MEET OUR SENIOR TRUSTED ADVISORS FOR TECHNOLOGY SYSTEMS

DAVID WELLS » LAS VEGAS

Manager, Technology Design Solutions ::
Telecommunications | Security & Surveillance



With more than 14 years designing, installing and testing technology systems, David today manages JBA's design team for telecommunications, data centers and security/surveillance systems.

He actually has spent far more than 14 years, since he has been connected to the telecommunications industry through his father for most of his life. He began visiting job sites and helping to pull and terminate cable at the age of 13.

David officially began his career with four years as a technician installing, testing and troubleshooting voice and data cabling network infrastructures for Cache Valley Electric, a large electrical contractor in Utah. He then spent three more years helping to lead an effort to design a campus-wide backbone and horizontal cabling infrastructure network at Utah State University. His credentials include an RCDD (Registered Communications Distribution Designer) from Bicsi, the trade association for the telecommunications industry.

Thus David joined JBA in 2006 with an unusually deep knowledge of the design of data centers, multiple telecommunications/low voltage IDF/TR spaces, and conduit and cable connectivity including fiber optic infrastructures. He says he appreciates the character and integrity of his co-workers at JBA and the chance to take a leading role in some extremely interesting projects.

Among the most exciting and challenging of those has been the engineering of the Encore Resort and Casino in Las Vegas. "Wynn puts as much attention to detail as anyone else in the industry," David explains. "The technology has to work perfectly yet the implementation must be aesthetically pleasing, with, for example, every wireless access point hidden, while maintaining functionality." He also finds his work for the Clark County School District fulfilling as well. "There's a reward at the end of the day, knowing that we're doing something to provide a better education for our children." ♦



AARON MILLER » LAS VEGAS

Manager, Technology Design Solutions ::
Audiovisual | Integrated Systems

Although relatively new to JBA, Aaron has over 20 years experience managing engineering and installation teams for audio visual integrators. Among his positions was VP of Services for Magnolia Audio/Video at Best Buy and President of La Scala, one of Canada's premier AV integrators. "I started out as a bench technician repairing professional audio products, then grew into an installer, integrator, designer and manager," he explains.

Aaron says the project he most enjoyed working on over the years was an outdoor video wall for BC Ferry Corporation in Vancouver. "We had no way to run cable from the head end to the video wall, so I ended up designing a two-way microwave delivery system. It was challenging, but it worked well. I always get a lot of satisfaction from a project that's difficult to pull off." Aaron also headed the team that installed the audio, video, network and control systems for the Sky Villas at the Aria Resort and Casino in Las Vegas. "We did all of the engineering then were hired for the installation. That was a feat in that we had to integrate thirty-two 3,000 to 6,000 sq. ft. suites in just three months. My work on that project was one of the things that led to my hiring at JBA."

Today Aaron oversees the global AV, guest room automation and control system design business for JBA. ♦



ROB POURCIAU » NEW ORLEANS

Senior Project Consultant, Technology Design Solutions :: Audiovisual | Integrated Systems | Artistic Engineering

With a background as a professional touring musician as well as a Front of House Engineer and System Designer, Rob brings JBA insights into the needs of professional performers and entertainers as well as the technical systems and environments to support them.

"I spent 15 years as a drummer with a band that was a support act for national recording artists including REO Speedwagon, the Pointer Sisters, KC and the Sunshine Band, Dr. John, 38 Special and many others. People smile when I mention that, but it helped me to understand how production and large venues operate." Rob left touring for AV integration, founded SoundWorks System Integrators of New Orleans, went on to become a managing partner at Solomon Design Associates, started design firm SDA Design Consulting with Steve Fisher then joined JBA.

Among his most challenging projects was the Mahalia Jackson Theater in New Orleans, which reopened in January, 2009 after being severely damaged by Hurricane Katrina. It's the home of the Louisiana Philharmonic

MICHAEL SCHWOB » LAS VEGAS

Principal and Manager of Acoustical Engineering

With 12 years designing acoustical systems and 6 years designing mechanical systems, Mike is an engineer's engineer. "Acoustics as an engineering discipline," he explains. "I approach the building as an acoustical system and my solutions are a synergistic part of that system."

An industry leader, Mike is active in ASHRAE (the American Society of Heating, Refrigerating and Air-Conditioning Engineers), the National Council of Acoustical Consultants, the Acoustical Society of America and the Institute of Noise Control Engineers. He has served for many years on the standard-setting ASHRAE Sound & Vibration Control technical committee and as the committee webmaster.

He's an educator as well, teaching an ongoing series of AIA-certified classes on architectural acoustics, publishing a blog explaining acoustical issues to building owners, developers and architects, and is working with the UNLV School of Architecture to teach classes on architectural acoustics.



Over the years Mike has been involved in any number of high-profile projects. "One recent project that I'm proud of is Hakkasan Las Vegas," a five-story, five-star restaurant, ultra-lounge and night club that just opened at the MGM Grand.

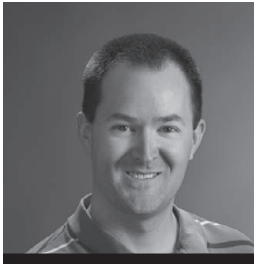
"One significant challenge at Hakkasan was the mitigation of sound transmission from floor to floor," he explains. "We designed an acoustic barrier ceiling located below the floor structure with a Unistrut grid below that. The grid allowed the contractors to hang ductwork, conduit, piping and lighting while not penetrating the sound barrier. It was extremely effective. We also designed the perimeter wall between the club and the main building and room treatment to optimize acoustics in the spaces."

Mike oversees JBA's acoustical engineering team, which works on projects around the world. ♦

Orchestra, the New Orleans Ballet, and the New Orleans Opera, as well as hosting Broadway Across America touring productions.

Rob led the team that designed new audio and lighting systems, a cinematic projection system and broadcast infrastructure for the theater. "Most touring productions travel with their own equipment, so we had to accommodate regular modifications to the house system. There was a lot of rigging and technical infrastructure required to accommodate these systems. A touring company might remove our loudspeaker arrays and fly their own, yet use the house speakers installed in the balconies. They might swap out the mixing consoles yet tie into the audio DSPs for distribution. The system had to be completely flexible, easy to change, yet hold to the highest standards."

Today Rob is leading an effort to move JBA into higher-end performing arts / entertainment venues through the firm's Artistic Engineering services offerings. ♦



JEREMY BARNDT » LAS VEGAS

Senior Project Consultant,
Technology Design Solutions ::
Audiovisual | Telecommunications
Integrated Systems

The first Trusted Advisor hired as an AV specialist, Jeremy joined JBA in 2003 with degrees in electrical and mechanical engineering and five years in the field with integrators Ford Audio Visual and Pro Sound, Inc.

"Our CEO, Dwayne Miller, finished a certification program in telecommunications but realized he needed people who knew technology inside and out. His decision to build a technical team allowed us to offer the same high level of service we had been providing since the 60s in MEP."

Jeremy has the distinction of being the most traveled of the engineers at JBA with projects completed in 14 countries. "In the United States we're used to speaking frankly with almost anyone," he says, "but in many cultures you have to earn the right to speak directly." That's a crucial skill at JBA, where relationships with clients and co-workers drive almost every job.

There are any number of projects that Jeremy is proud of, but one that stands out is the audio design he created for the Risque de Paris, a nightclub in Las Vegas. "The owner wanted pure audio quality and volume," he says. "It was a lot of fun to let go and kind of go crazy, focusing my efforts only on the best possible sound." ♦



STEVEN FISHER » NEW ORLEANS

Senior Design Consultant and
Director of Operations JBA New Orleans

In becoming a Trusted Advisor in 2011, Steve brought JBA more than 20 years of experience as a technician, project manager, division manager and business owner, working mainly in the design/build of telecommunications, security, surveillance and network systems.

"Security is different from other engineering disciplines in that there's a different level of intensity," Steve says. "You're protecting people as well as your client's property. There's a moral obligation to keep them safe."

Among the most challenging projects Steve has worked on are two still in the design phase: master planning for metropolitan video surveillance systems for the historic French Quarter and Garden Districts of New Orleans. "I'm genuinely excited about these projects," he says. "With two young children growing up in New Orleans, I feel a vested interest in creating a safer environment here. This gives me a chance to give something back to the city where I was born." ♦

DAN IVES » MACAU

Chief Technology Officer, Asia-Pacific Operations

A Trusted Advisor since 2010, Dan brings JBA more than 20 years experience in engineering and management as well as a CIO's perspective on the financial and operational aspects of technology design.

Beginning his career as a design engineer for IBM, Dan was a founder of integration and software services company ABSI, was Vice President and CIO of Golden Nugget Casinos, and is CEO and Chairman of Prelytics, which provides technology to help companies in the casino industry with loss prevention and cash management. "I've spent my career helping clients answer the question, 'How are we going to keep costs contained while we generate revenue?'"

Today Dan is helping JBA develop Asia Pacific markets for

technology services. "My mission is to create standards, assure delivery and develop and guide the business."

Dan says he spends most of his time on several very large projects, including the technology designs for the Belle Grande Manila Bay, a resort with six hotel towers, a theater, retail space and over 200,000 square feet of gaming space; Studio City in Macau, China, a resort that will integrate television and film production facilities with retail, gaming and a luxury hotel; the MGM Cotai, a new five-star resort and casino in Macau; and the Wynn Cotai, which Steve Wynn has called "the single-most important project in the history of Wynn Resorts."

"I'm excited by the quality of the people I work with at JBA, the integrity and values of the company, and by the work we do. It's rewarding and fun. We have the chance to take phenomenal technology concepts to our clients and have an important impact on their business." ♦



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SAND LEUNG » MACAU
 Senior Project Engineer, Audiovisual Systems

With just nine years of experience in technology integration and design, Sand is a little younger than most Trusted Advisors, but she’s a fast learner.

Her first professional position on the construction site of Disneyland Hong Kong came about due to a misunderstanding, but she made it work. “Human resources saw that I had a degree in audio design and music recording, so they hired me. When I got to the job site, it turned out they needed someone to program all of the audio processors for the project, which is something I had never tried.” Nothing if not resourceful, Sand learned on the job and set up all of the background music and paging systems for the entire park.

From Disneyland, Sand took on a position as a project manager in audio visual for PCCW, the region’s largest telephone, Internet, cable TV and mobile provider. Moving to Macau in 2007, she helped PCCW design the guest suite audio and video systems for the Venetian Macau Resort Hotel and, later for JBA, audio and video systems for the new Wynn Macau.

Recently Sand has started work on a security and surveillance project for a new resort in the Philippines. “For now Trusted Advisors in the United States are leading the design team,” she explains. “I’m the local client contact and I take care of amendments and modifications after they review our recommendations.” Yet JBA sees Sand as an extremely valuable resource and expects her to take a greater and greater role.

“I love working at JBA,” she says. “I’m open for a challenge, I love to work with clients, and I’m always ready to learn.” ♦



JIM SCORSONE » LAS VEGAS
 Senior Project Consultant, Security and Surveillance

Now in his third year at JBA, Jim brings the firm more than 30 years of experience in casinos and hotels, including 17 as a senior network engineer and project lead at MGM Resorts International. He has a wealth of practical knowledge of security and surveillance system design, data systems, telephone, MATV, and fiber optics.

Jim began his career in 1978 as an installer for Alarmco, then spent seven years as a 501 operating engineer designing and installing security and surveillance systems at Circus Circus. From there he went to Trans Sierra Systems and Southwest Systems, where he designed, engineered and installed security and surveillance systems. “We worked in schools, federal and county courthouses and a number of casinos, including Harrah’s, Holiday Inn, Hacienda, Lady Luck, Bally’s, Colorado Bell, Edgewater, Fitzgerald, Golden Nugget, and the Mirage,” he recalls. He joined MGM in 1994 to lead a team of up to 17 technicians.

Jim says one of the most difficult challenges he took on at MGM was bringing all of the telecommunications, security and surveillance integration in house in the late 1990s. “I went to the Siemon School for infrastructure cabling and then trained our guys. In the beginning that work was nerve wracking. Of course, once we had the first projects under our belts, even a five-closet, 1600-drop installation got to be routine.”

Over the years Jim designed most of the surveillance technology at the MGM Grand Las Vegas, as well as supervising the installation crews and handling the project

management. He was responsible for all of the fiber optic runs throughout the property, the security and surveillance in the casino, and even the low-voltage work for Cirque du Soleil’s KA Theater.

In 2006 Jim moved to MGM Resorts corporate and worked on the City Center project. His responsibilities included the design of the control panel that is located in every guest room, the campus low voltage conduit infrastructure, the Aria Hotel & Casino IT infrastructure, and the low voltage infrastructure for the central plant, Frank Sinatra garage and the convention center. He also designed the conduit pathways for the Clark County fire station located on the property.

Beyond his work as an engineer, Jim volunteers in search and rescue for the Nye County Sheriff’s Department and serves as liaison to the Henderson Hawks Civil Air Patrol. “People go out into the desert without any water, or they have car trouble and leave their vehicles...We spend a lot of time combing the ground, and I handle radio communications when we call in a pilot.”

Jim says the main reason he left MGM for JBA was the chance to work with other Trusted Advisors. “There’s an unbelievably high level of creativity, talent and expertise here, a team of people who have spent years working in the field. We also have a chance to work on some terrific projects.” ♦

TIMOTHY JOHNSON » PHOENIX

Senior Project Consultant, Telecommunications | Data Center Design

It was 32 years ago that Tim began as an installer for Western Electric, then the manufacturing arm for the Bell System. They liked his work so much that they selected him for intensive training. "For three years, they sent me through every training program they had," he recalls. "I learned about electronic switching, microwave transmissions, multiplexing, everything they did." Returning to the field as an engineer for the AT&T Long Lines division, Tim and his team would take on client phone and data infrastructures. "We would do the drawings, get them approved, order the materials and bring in the crews. It was a wonderful position."



When the Bell System broke up in 1984, Tim moved on to become an installer and engineer for an IT systems integrator, Subtronics, eventually rising to vice president of operations. He later became a partner at Interlink Telecommunications, headed project management for Federal Communications, then became a consultant for The Sextant Group.

"At Federal, I headed the design and installation teams for several very large data centers that we built for First Data Corporation, which was and is the card processor for most of the banking and credit card industry. Working

on those projects was an amazing opportunity, yet it's striking how much the technology has changed since then. I like to contrast the data center technologies implemented for First Data in 1996 with a project I completed last year for the College of the Desert outside of Palm Springs. Today data center design is all about heat and electrical loads as well as processing, with server cabinets requiring 15 times the AC power they did in the 1990s."

At JBA, Tim sees his role as much more than engineering and design. "Our job is to help our clients understand their options, create a vision of what IT should be, and use that knowledge to make sound decisions as their campus or business grows." ♦

MICHAEL SHAFER

» PHOENIX

Technology Design Solutions Manager and
Director of Operations JBA Phoenix

With 28 years of experience in AV system design, including 18 at consulting firms Shen, Milsom & Wilke, Sparling, and the Sextant Group, Michael takes a little different approach than most Trusted Advisors. "I see myself much more as a consultant than an engineer. My job is to help the client determine their vision for a given project, their needs and their goals, then to work with a design engineer to find the best ways to meet them.

Michael says he started his career while still in college, working as an AV technician for the Beverly Hills Hilton. "I did equipment setups at night. There was a certain amount of trial and error, but it gave me a great chance to learn." After several years as a technician, he went to work for an AV contractor in Saudi Arabia, then was hired by Fred Shen in New York.

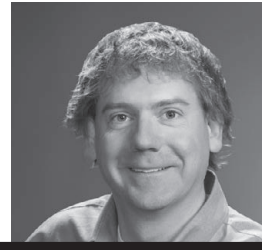
"Most of my early experience was in the rental industry, and Fred Shen realized that was a great place to learn AV system design. Every time we

did a setup we were designing a new integrated system with audio, video, projection, control and all the challenges of sight lines, screen sizing, and audio processing. We had to work closely with one client after another to create systems that met their individual needs."

In 2001, Michael completed work on a huge executive boardroom for Merrill Lynch, which was named by Presentations Magazine as the best boardroom AV system built that year. "There was tremendous pressure to use the latest technology yet to get everything exactly right. Based on that project, Merrill Lynch selected Shen as their design consultant of record for all the rooms they built around the world."

As a Trusted Advisor, Michael hopes to teach the JBA technology team new processes and new ways to help its clients. He also hopes to expand the firm's presence in higher education.

"This is a market that really speaks to me. We have a chance to make a difference – to design the buildings where the next president and the next Nobel laureate will be educated." ♦



JOE GOMBOS

» LAS VEGAS

Senior Project Consultant,
Technology Design Solutions ::
Audiovisual | Integrated Systems

Now in his seventh year at JBA, Joe has designed audio, video and control systems for lounges, retail spaces, hotel guest rooms, ballrooms and convention centers, casino environments, corporate conference rooms, classrooms and even courtrooms. "We create environments that bring people in. Our systems provide an experience they desire, sometimes one they don't expect. At times clients come to us knowing only that the feel of the space is not right. In cases like that, we'll collaborate with them to form a clear understanding of how they want their space to perform and, based on those conversations, we'll create the experience they're looking for. That may require a simple upgrade to an existing system or we may start from a clean slate."

"One of the more challenging jobs I've worked on at JBA was the Zayed University in Abu Dhabi," Joe explains. This was a brand-new, international university that opened in 2010. "What made it challenging was not the design but the requirements for the presentation of the design and the understanding of that region's codes and best practices. All of us at JBA were on a learning curve, with submittal and drawing formats, for example, different than those we had been used to. We also knew that for a project of this scope the labor force would not be as educated on the technologies involved as they have been elsewhere."

Joe says his favorite project over the years was the Fontainebleau Resort in Las Vegas, a standout property that fell victim to the economic downturn. "We designed a 77-story tower, including the casino, restaurants, guestrooms and high-end suites, utilizing technology that was extremely advanced for the time." Joe says he appreciated the level of trust shown by the owner of the property. "We were always able to talk freely with each other. He had very high expectations but was open to suggestions as well."

Prior to becoming a Trusted Advisor, Joe was a designer for an AV integrator and, prior to that, a system testing engineer for MCI WorldCom (today Verizon Business). ♦

INNOVATIONS & MILESTONES '80s

From Walkman to Windows, Apple to Atari, much of the technology from the '80s was life-changing. We asked our Tech Team to share with us some of their favorite gadgets of the '80s. **Can you guess who rocked out to MTV and who moused around on Apple's Macintosh 512k? Try to connect them all!**

AARON MILLER



STEVEN FISHER



JIM SCORSONE



TIM JOHNSON



MICHAEL SCHWOB



ROB POURCIAU



DAVID WELLS



JEREMY BARNDT



(A) MTV



(B) COMMODORE 64



(C) SONY WALKMAN

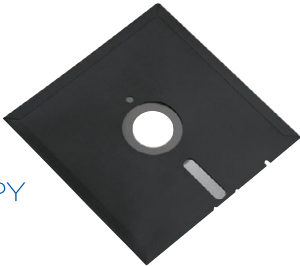


(D) LAMBORGHINI COUNTACH



(E) APPLE'S MACINTOSH 512K

(F) 5.25" FLOPPY



(G) RUBIK'S CUBE

(H) MR. MICROPHONE



OUR NEWEST TRUSTED ADVISORS™ (cont.)

WELCOME ABOARD



Barry Lasseigne
Sr. Drafter/
CADD Operator,
Electrical
Las Vegas



Diandra Linares
Department
Coordinator,
Fire Protection
Las Vegas



Cecilia Liu
Regional Controller,
Corporate
Macau



Ella Liu
Sales & Marketing
Assistant - AP
Corporate
Hong Kong



Inês Liu
Executive Assistant
Macau



Thomas McGahey
Sr. Engineer,
Mechanical
Las Vegas



Mark Mecham
Sr. Engineer,
Fire Protection
Las Vegas



Daniel Mendez
Designer,
Electrical
Orange County



Aaron Miller
Manager,
Technology Design
Solutions
Las Vegas



Roberto Morales
Accountant
Corporate
Las Vegas



Stephen Ng
Assistant Engineer,
Mechanical
Macau



**Nguyen Thi Mai
Quynh**
CADD Operator
Vietnam



Ben O'Regan
Principal Engineer,
Fire Protection
Macau



Soren Peterson
Drafter/
CADD Operator,
Mechanical
Las Vegas



Vincent Pizarro
Drafter/CADD
Operator, Technology
Design Solutions
Las Vegas



Matthew Sandvold
President JBA 360
Las Vegas



Michael Shafer
Director of
Operations
Phoenix



Michelle Silverio
CADD Operator
Hong Kong



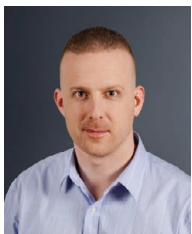
Jon Snowden
Drafter/CADD
Operator,
Mechanical
Las Vegas



Stephanie Tai
Senior Accountant
Macau



Le Kim Truong
Sr. Engineer
Mechanical
Vietnam



Ian Vandenberg
Designer,
Technology Design
Solutions
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Michael Whitney
Drafter/
CADD Operator,
Mechanical
Las Vegas



Justin Williamson
Project Engineer,
Electrical
Las Vegas

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