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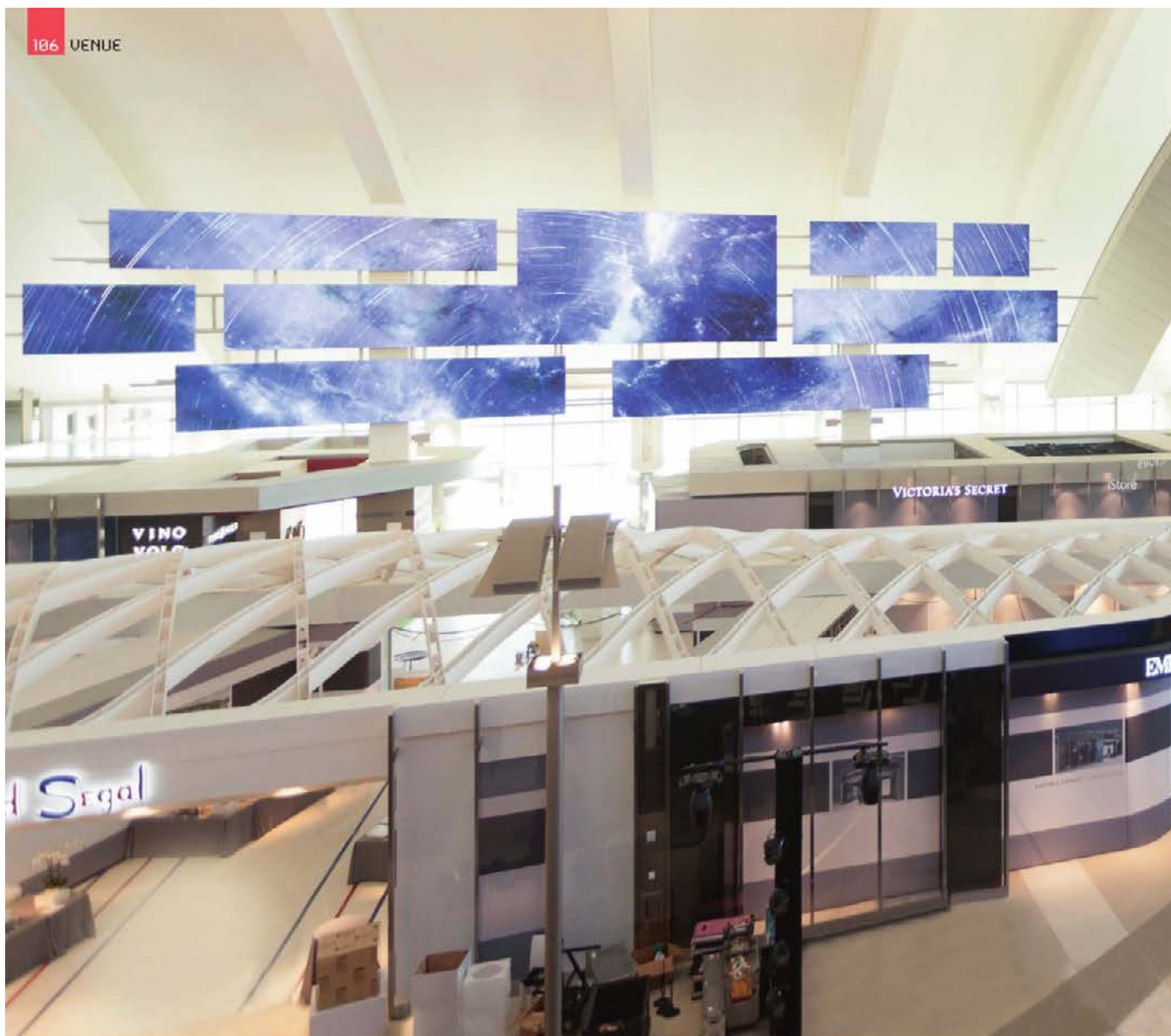
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LAX AIRPORT



LOS ANGELES, USA
THE AMERICAS

As part of modernisation plans, LAX airport in Los Angeles has recently added the new Tom Bradley International Terminal (TBIT), featuring an integrated environmental media system (IEMS) focused on creating an unprecedented passenger experience, while providing a new source of non-aeronautical revenue for the airport's operator Los Angeles World Airports (LAWA).

The IEMS at LAX is thought to be the first ever sponsorship program at a US airport and comprises over 12,000 sq ft of LED tiles, hundreds of LCD screens and 60 ultra-high resolution multimedia productions totalling more than four hours of original content. Every aspect of the IEMS has been carefully designed to enhance the passenger experience and is aimed to be much more than just screens on walls; the system is an integral part of the built environment that

is in seamless interplay with the interior architecture. The carefully curated multimedia content aims to highlight Los Angeles' uniqueness and reinforce passengers' sense of place, making the TBIT experience even more memorable.

Marcela Sardi of Sardi Design was initially brought in by Mike Rubin, President of MRA International, in 2010 to help create the vision of the IEMS. Mike had developed a business strategy for the media at the airport that was based on creating a set of features that could be sponsored. Marcela's role was to conceptualise what these features would be and the technologies that would support them.

"We were charged with identifying the locations of where we could incorporate media features into the architecture with the purpose of enhancing the passenger experience," said Marcela. "What was unique about the assignment was that each feature needed to be located in relation to key moments in the passenger departure or arrival itinerary. Each multimedia feature was developed around an



THE NEW TOM BRADLEY INTERNATIONAL TERMINAL AT LAX AIRPORT FEATURES THE MOST ADVANCED MULTIMEDIA ENVIRONMENT IN A NORTH AMERICAN AIRPORT. HELEN FLETCHER TALKED TO THOSE IN THE KNOW ABOUT THE MULTITUDE OF TECHNOLOGY USED FOR THE PROJECT.

'identity', which relates to the experience of travel and was designed to elevate an aspect of the experience: to redress the logistics of the travel experience at the airport and reintroduce the sense of journey and romance of travel."

The IEMS is comprised of seven iconic, architecturally-scaled media features designed in collaboration with the terminal's architect and each with a specific identity tied to the passenger experience. The Time Tower - the most prominent of all seven media features - is a 72ft tall, four-sided media feature built as a secondary structure around the Great Hall's elevator tower, and is completely clad with screens that come alive with everything from an animal-packed jungle to an original tribute to the silent film era. The Time Tower also includes an interactive surface that reacts to the gestures of passengers by triggering customised, real-time visual effects. The Welcome Wall is a dramatic 80ft tall LED display of refreshing, lively images that greet passengers as they arrive at LAX. It is horizontally

bisected by a departure bridge and viewed by passengers as they descend a two-storey escalator to the baggage claim area. Next is the Bon Voyage Wall, a feature designed for departing passengers as they clear security and cross the departure bridge to the Great Hall, presents an array of slow-motion filmic images of people and places in LA and is inspired by photographer Philippe Halsman's Jumpology series. The Story Board is the first feature passengers see as they enter the Great Hall and is a 120ft composition of multiple LED screens and displays visual narratives of LA destination cities and all over the world. While the Destination Board, presenting visual data on destination cities while an arc of LED fins provide both a visual shading device and an iconic crest, displays graceful patterns of content designed to evoke the incoming digital information being relayed to the display. And finally North and South Concourse Portals - each of which consist of 10 28ft tall columns of vertically-stacked LCD monitors that provide a transitional experience as passengers ►



leave the Great Hall to their departure gates. The Portals feature visual effects and sound effects that continually change to reflect the departing flights and the movement of passengers as they walk by. The Portals, with content evoking mosaic tiles, watery reflections, totem-like pillars and strung instruments, suggest transformation and the movement and wonder of travel. The content themes are inspired by LAX destinations such as Tokyo, Paris and Sydney. Marcela worked closely with Miami-based consultant Smart Monkeys on the technical design and Montreal-based Moment Factory on the creative content of the installation, as she explained to *mondo*dr*: "Smart Monkeys was selected as the designer and consultant for the show control system given its ground breaking work in complex show controls," said Marcela. "Moment Factory was selected as the primary content producer given its diverse capabilities in multiple forms of content and unique experience in developing environmental content." Digital Kitchen of Los Angeles was also brought on-board to develop brand related content given its experience in providing environmental media for corporate brand expression and Electrosonic, also based in Los Angeles, was appointed as the systems integrator given its experience in large-scale facilities.

"There were many challenges relating to this project as the airport was already under construction," said Marcela. "Architecturally integrating the media features into an existing design, but in a seamless way that complemented the intention of the terminal architect was difficult. Adapting the features into the existing structural and mechanical systems required designing frameworks that could mediate between the facility and the features."

Marcela and her team were also tasked with the challenge of changing the lighting system in the terminal from HID lighting to LED in order to allow for programmable illumination that worked in conjunction with the LEDs.

Commenting on the installation, Smart Monkeys' Stephan Villet told *mondo*dr*: "As soon as Marcela got in touch we were deeply involved in all aspects of the project. LAWA wanted the project to be like nothing else available but it had to be able to make money - they knew they wanted the installation to feature big screens but they didn't want low resolution content flashing all over the place like you get in Times Square, New York. We supervised the whole installation and everything that was close to the technical side of the project, engaging in all discussions with the IT department at the airport, the content producers and LED wall manufacturers. Everything had to be high definition and for an installation of this size, this brought a number of challenges.

"We had long discussions with the airport about the installation con-

tent - due to the size and quality of the displays you don't want very fast moving animation going on - it's hard to sustain on screens of such size, so we made sure that everyone understood that the content had to be a window to a story rather than the whole thing. From a technical standpoint, we also had to consider that screens of this size and nature can't just be driven through standard digital signage software - even though on the operation side this installation is very close to commercial digital signage systems - the need for scheduling and distribution is really what you find in this kind of product. "The brains of the system - controlling all of the equipment, the scheduling, and monitoring all the running features uses technology you wouldn't usually find in the AV industry."

Moment Factory's X-Agora software powers interactivity and generates dynamic real-time multimedia effects across the seven installations, all of which are made up of LED screens. Eight X-Agora dynamic video servers and 20 X-Agora video players run the interactive components of the IEMS, along with seven Grass Valley K2 Summit four-channel static video players; two Grass Valley K2 Summit static video media servers; 20 Spinellix HMP200 digital signage video players and five Vista Spyder X20 video units for processing. The total output of the IEMS is more than 105 million pixels - eight times an Imax theatre - equivalent to 19,075 sq ft of video, enough to cover the length of the 81-storey Eiffel Tower with a six-metre wide display.

Production techniques for the content included documentary filming, time lapse, ultra-high-speed filming in laboratory-like conditions, live action shoots with actors and elaborate sets, on-location filming, pure 3D productions, 3D composited with live action, interactive real-time 3D video effects, and more. All control is taken care of by Media-lon's Manager Pro V6 show control software; Dell PowerEdge R710 virtualisation cluster hardware servers; and Dell PowerVault MD3220i operational data and offline media storage, while networking is handled by Cisco and Moxa.

Renkus-Heinz loudspeakers are part of the paging system used in the Villaraigosa Pavillion - 12 in total, while a Renkus-Heinz IC16-R-II loudspeaker is used for the Welcome Wall media feature and eight Innovox Audio SL-2.1R loudspeakers are used for the Portals - four per portal, these are powered by eight Audio Science Hono CobraNet 2.2M amplifiers, while Merging Technology's Ovation media server and three Peavey MediaMatrix N10N N3 digital signal processors with CobraNet take care of audio control.

"It took us a long time to get through the prototyping stage and choose the equipment," said Stephan. "We had a lot of equipment shipped to the office and then we worked on them for several months



in order to make sure that what we wanted to do would be achievable. We needed a platform that was strong with high ability and that was able to sync extremely precisely."

The Time Tower is the world's largest interactive feature with an interactive base that triggers content and reacts to the gestures of passengers across 6,480 sq ft of LED surfaces. It has a base of diffused glass panels used to eliminate the pixilation of the LED displays when passengers are close to the feature. The upper surface of the Time Tower is composed of very high resolution LEDs. A functional clock face is integrated into the feature, driven by the airport's universal clock. The Time Tower is designed to both 'tell time' and 'reveal time' as part of the travel experience. Moment Factory developed the identity of the Time Tower around an imaginary time structure consisting of 24 structural ribs, which move in cadence during the day as a world clock, linking LAX time to time in its destination cities around the globe.

Moment Factory's Senior Multimedia Director, Melissa Weigel, commented: "Marcela and Mike really designed the Time Tower as a beacon to interpret a clock tower similar to those in old railway stations or terminals, but in a new way. We thought it would be really interesting to play an hourly clock strike show to suggest it was a

TECHNICAL INFORMATION

VIDEO

20 x Moment Factory X-Agora Client two-channel dynamic video player; 7 x Grass Valley K2 Summit four-channel static video player; 20 x Spinetix HMP200 signage video player; 8 x Moment Factory X-Agora dynamic video server; 2 x Grass Valley K2 Summit media server; 5 x Vista Spyder X20 video processor; 3 x Medialion Manager Pro V6 show control software; 3 x Dell PowerEdge R710 virtualisation cluster hardware server; 1 x Dell PowerVault MD3220i operational data and offline media storage; 1 x VMware vSphere ESXi 5.0 virtualisation cluster software; various LCD screens and tiles

SOUND

12 x Renkus-Heinz loudspeaker; 1 x Renkus-Heinz IC16-R-II loudspeaker; 8 x Innovox Audio SL-2.1R loudspeaker; 8 x Audio Science Hono CobraNet 2.2M amplifier; 1 x Merging Technologies Ovation audio playback server; 3 x Peavey MediaMatrix NION N3 digital signal processor with CobraNet

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beacon of time - every hour passengers at the airport would see the same clock strike, almost like a cuckoo clock.

"In this piece the Time Tower magically transforms and opens up to show the workings of a magical clock. Gears are seen rotating while different platforms turn and this beautiful Art Deco clock appears to be energised by a magical, choreography of dancers inspired by Busby Berkeley.

"We were really able to play with the idea of the choreography of an architectural media feature in that we treat the Time Tower almost as a building in itself so when you look at it you think to yourself, 'is this really happening in 3D? Am I looking inside something?' It's a piece that's slightly more engaging, it really grabs your attention but after three minutes everything closes back up and the content of the media feature returns to normal programming."

The system designed by Smart Monkeys is one of a kind and for Stephan having the client's trust, was one of the most rewarding parts of the project. He explained: "We've been extremely lucky, the client has put a lot of trust in our design and has let us do what we're good at - trusting us to do something that hasn't been done before - that's a big deal. When you're investing so much money into an airport it goes without saying that you want it to work. When a small company like ours comes along and says it is going to do something never done before then usually people are quite scared, not in this case, we were able to demonstrate the quality of the design and demonstrate that it would work and they trusted us to deploy the system."

For Marcela, the IEMS project provided the most challenges of any job she has ever undertaken. To develop an ecology of media or a media system that would work as individual systems and at the same time work as a holistic environment, involved new mediums and an entirely novel system. In addition, each feature required an identity, which was shaped both architectonically and through content.

"Being able to create the vision for a new media platform which had never been done before in collaboration with MRA was most enjoyable," concluded Marcela. "As was executing the vision in collaboration with a truly diverse team of talents from the systems designers at Smart Monkeys to the interactive experts, directors and artists at Moment Factory, the designers at DK and the systems integration team at Electrosonic." 

FRANÇAIS

Dans le cadre des plans de modernisation, l'aéroport LAX à Los Angeles a récemment inclus le Tom Bradley International Terminal (TBIT), avec un intégrée environnemental système de médias (IEMS) axé sur la création d'une expérience sans précédent pour les voyageurs, tout en offrant une nouvelle source de recettes extra-aéronautiques pour l'aéroport opérateur de Los Angeles Monde Aéroports. L'IEMS à LAX est pensée pour être le premier programme de parrainage d'un aéroport américain et renferme plus que 12.000 m² de LED dalles, centaines d'écrans LCD et 60 productions multimédias d'ultra-haute résolution totalisant plus de quatre heures de contenu original. Chaque aspect de l'IEMS a été soigneusement conçu par Sardi Design pour améliorer l'expérience des voyageurs et est destinée à être beaucoup plus que seulement des écrans sur les murs; le système est une partie intégrante de l'environnement construit qui est en interaction parfaite avec l'architecture intérieure. Le multimédia contenu soigneusement organisée par Moment Factory a pour objectif de mettre en évidence Los Angeles' unicité et de renforcer les voyageurs' le sentiment d'espace, rendant le TBIT expérience encore plus inoubliable. Les Smart Monkeys, qui est basé aux Etats-Unis, a pris la responsabilité techniquement, pour le projet, qui utilise la technologie de Grass Valley, Spinetix, Vista, Renkus-Heinz, Merging Technologies, Medialon, Peavey, Innovox Audio et Audio Science.

DEUTSCH

Als Teil von Modernisierungsplänen wurde dem LAX-Flughafen in Los Angeles kürzlich der Tom Bradley International Terminal (TBIT) hinzugefügt, mit einem integrierten Umweltmedien-System (IEMS), das auf die Erzeugung eines noch nie da gewesenen Passagierkomforts spezialisiert ist und gleichzeitig eine neue Quelle nicht-luftfahrtbezogener Erträge für den Flughafenbetreiber Los Angeles World Airports verschafft. Das IEMS im LAX gilt als das erste Förderprogramm auf einem US-Flughafen und umfasst mehr als 12.000 Quadratfuß LED-Kacheln, Hunderte von LCD-Bildschirmen und 60 Multimedia-Produktionen mit extrem hoher Auflösung für insgesamt mehr als vier Stunden Originalinhalt. Jeder Aspekt des IEMS wurde sorgfältig durch Sardi Design konzipiert, um den Passagierkomfort zu verbessern und soll weit mehr als nur Bildschirme auf Wänden sein; das System ist ein fester Bestandteil des Gebäudes, welches sich in einem reibungslosen Wechselspiel mit der Innenarchitektur befindet. Der sorgfältig kuratierte Multimedia-Inhalt von Moment Factory will die Einzigartigkeit von Los Angeles hervorheben und ein Gefühl der Vertrautheit bei den Passagieren verstärken und somit die TBIT-Erfahrung noch unvergesslicher gestalten. Das in den USA ansässige Unternehmen Smart Monkeys übernahm die Verantwortung für die Technik des Projekts, welches Technologien von Grass Valley, Spinetix, Vista, Renkus-Heinz, Merging Technologies, Medialon, Peavey, Innovox Audio und Audio Science verwendet.

ITALIANO

Nell'ambito del progetto di riassetto, l'aeroporto LAX di Los Angeles ha recentemente aggiunto il Terminal Internazionale Tom Bradley (TBIT), che presenta una sistema di comunicazione integrato (IEMS) centrato sulla possibilità di offrire ai passeggeri un'esperienza sensoriale mai provata prima, e al contempo fornire all'operatore Los Angeles aeroporti del Mondo un'ulteriore ricavo in aggiunta all'introito proveniente dal prodotto aeronautico. Si ritiene che la IEMS del LAX sia il primo programma di sponsorizzazione dedicato ad un aeroporto statunitense e comprende 1.115 mq di copertura a LED, centinaia di schermi LED e 60 emissioni di materiale multimediale ad alta risoluzione che ammontano a più di quattro ore di trasmissione di contenuto originale. Ogni aspetto della IEMS è stato attentamente progettato dalla Sardi Design per arricchire l'esperienza del passeggero ed ha lo scopo di presentare molto più che dei semplici schermi sulle pareti; il sistema è parte integrante dell'ambiente circostante senza soluzione di continuità con le caratteristiche dell'architettura d'interno. Gli elementi comunicativi multimediali accuratamente presentati dalla Moment Factory hanno lo scopo di mettere in luce le caratteristiche uniche di Los Angeles e di rafforzare nel vissuto del passeggero l'atmosfera del posto, tendendo quella del TBIT un'esperienza indimenticabile. Smart Monkeys, ditta basata negli Stati Uniti, ha curato la realizzazione tecnica del progetto, avvalendosi della tecnologia offerta dalle seguenti industrie: Grass Valley, Spinetix, Vista, Renkus-Heinz, Merging Technologies, Medialon, Peavey, Innovox Audio e Audio Science.

ESPAÑOL

Como parte de los planes de modernización, el Aeropuerto de Los Angeles (LAX) agregó recientemente la Terminal Internacional Tom Bradley (de sus siglas en inglés, TBIT), presentando un sistema ambiental de medios integrado (de sus siglas en inglés, IEMS) focalizado en crear una experiencia sin precedentes para el pasajero a la vez de proveer una nueva fuente de ingresos no-aeronáuticos para el operador del aeropuerto, Los Angeles World Airports. El IEMS en LAX se piensa que es el primer programa de patrocinio en un aeropuerto de los Estados Unidos y comprende más de 12.000 pies cuadrados de mosaicos de LED, cientos de pantallas LCD y 60 producciones de multimedia de alta resolución totalizando más de cuatro horas de contenido original. Cada aspecto del IEMS fue diseñado cuidadosamente por Sardi Design para mejorar la experiencia del pasajero y apunta a ser mucho más que solo pantallas en las paredes; el sistema es una parte integral del ambiente construido que se encuentra en continua interacción con la arquitectura interior. El contenido multimedia de Moment Factory, conservado cuidadosamente, apunta a realzar la singularidad de Los Angeles y a reforzar la sensación de pertenecer de los pasajeros haciendo que la experiencia TBIT sea incluso más impresionante. Smart Monkeys, con base en los Estados Unidos, asumió la responsabilidad técnica para el proyecto, en el que se utiliza tecnología de Grass Valley, Spinetix, Vista, Renkus-Heinz, Merging Technologies, Medialon, Peavey, Innovox Audio y Audio Science.