

MONDO

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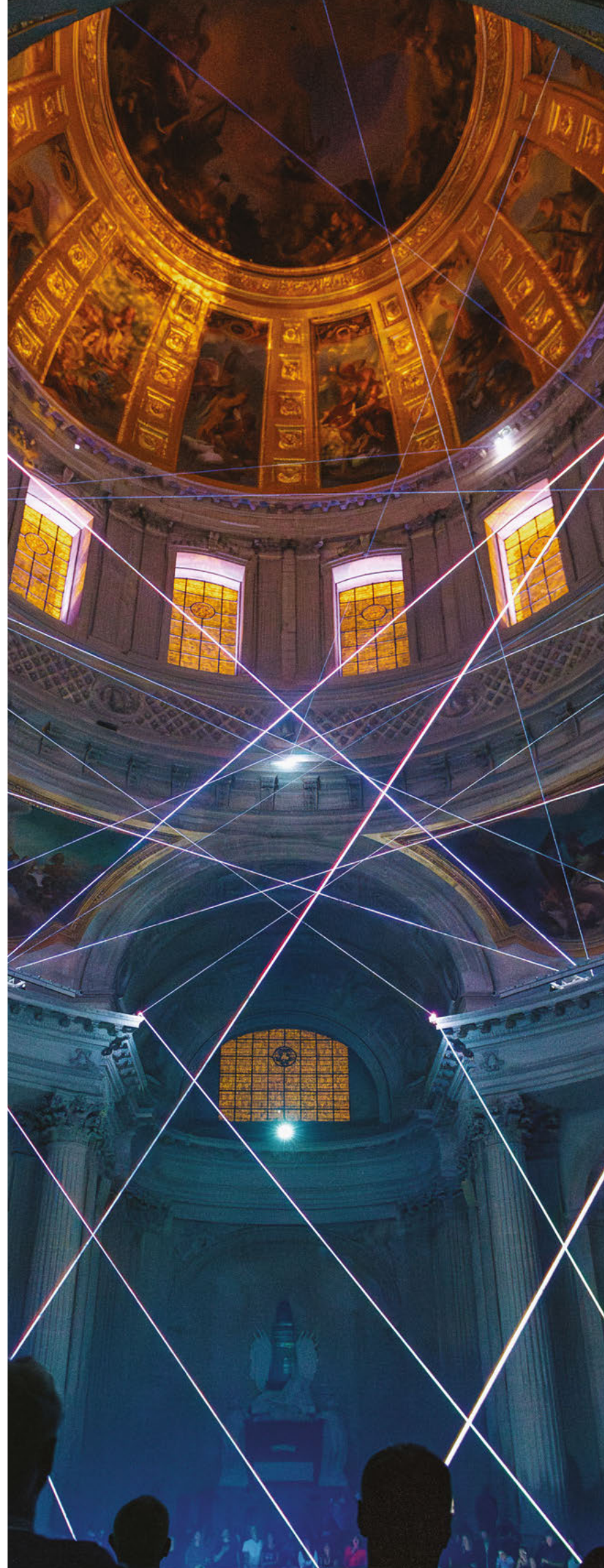
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AURA INVALIDES

EMEA

PARIS / FRANCE

Moment Factory brings the historic gilded dome of Les Invalides to life with the AURA Invalides experience, a 50-minute combination of projection mapping, lighting, special effects, and orchestral music.

Photos: Moment Factory

One of the most iconic monuments in Paris, Dôme des Invalides, has been celebrated and enhanced with a new innovative cultural attraction – AURA Invalides.

Having been captivated by the AURA experience at Basilique Notre-Dame de Montréal, cultural operator Cultival tasked its creators – multimedia studio Moment Factory – to create the first AURA experience in France. Designed by Moment Factory and produced by Cultival, in partnership with Musée de l'Armée, the AURA Invalides experience is the result of a long process of research and collaboration, undertaken by passionate teams specialising in heritage enhancement and the digital arts.

"Moment Factory's multi-disciplinary and global talent worked for more than two years to create a multimedia and immersive experience that offers a perfect complement to the majestic scale of Dôme des Invalides," said Olivier Schmitt, Technical Director, Moment Factory. The show takes place at night, as Dôme des Invalides comes alive with the combined magic of light, orchestral music, and video-mapping, revealing its stately beauty and rich heritage.

Visitors are invited to partake in the sensory exploration, and, guided by light, they wander through Dôme des Invalides and its six chapels, where the previously unseen gradually comes into view.

The experience consists of three acts, each portraying a distinct facet of this particular landmark: its construction, the memories it harbours, and its power to inspire.

"The technical challenges of this project were enormous," said Schmitt. "The Dôme des Invalides represents the most ambitious projection surfaces that Moment Factory has had the privilege to work with."

At the top of the 90m building is a 30m diameter dome, and more than 45 million pixels are mapped onto a 3,500 sq m surface inside the dome's walls and ceilings.

Another challenge was the building's natural reverberation of nearly 10 seconds due to its architectural configuration, and in addition to designing an audio system that involved localising sound, the technology utilised across both projection and audio needed to blend into the space and not be noticed by visitors.

"The height of the monument presented both opportunities and challenges," said Guillaume Cavaliere-Beranek, Assistant Technical Director. "To optimise visibility and concealment, the equipment was strategically positioned, with most of the projectors, loudspeakers and lighting equipment places approximately 15m higher than the floor level."

A selection of Barco projectors and a NEXO sound system were specified by the Moment Factory team, with systems integrators Novelty selected via tender process to procure and install the AV equipment and cabling chosen.

The show's elements are controlled by Moment Factory's proprietary software, which functions as a show control, task flow manager, and scheduler, while providing a web-based user interface that operates on a tablet. The system comprises Moment Factory's X-Agora media server, which runs the video and audio timelines.

"We opted for 28 Barco projectors due to their large range of models that offered the resolution, lumens and lenses needed for the project," said Auriane Falières, Director of Procurement, Moment Factory.

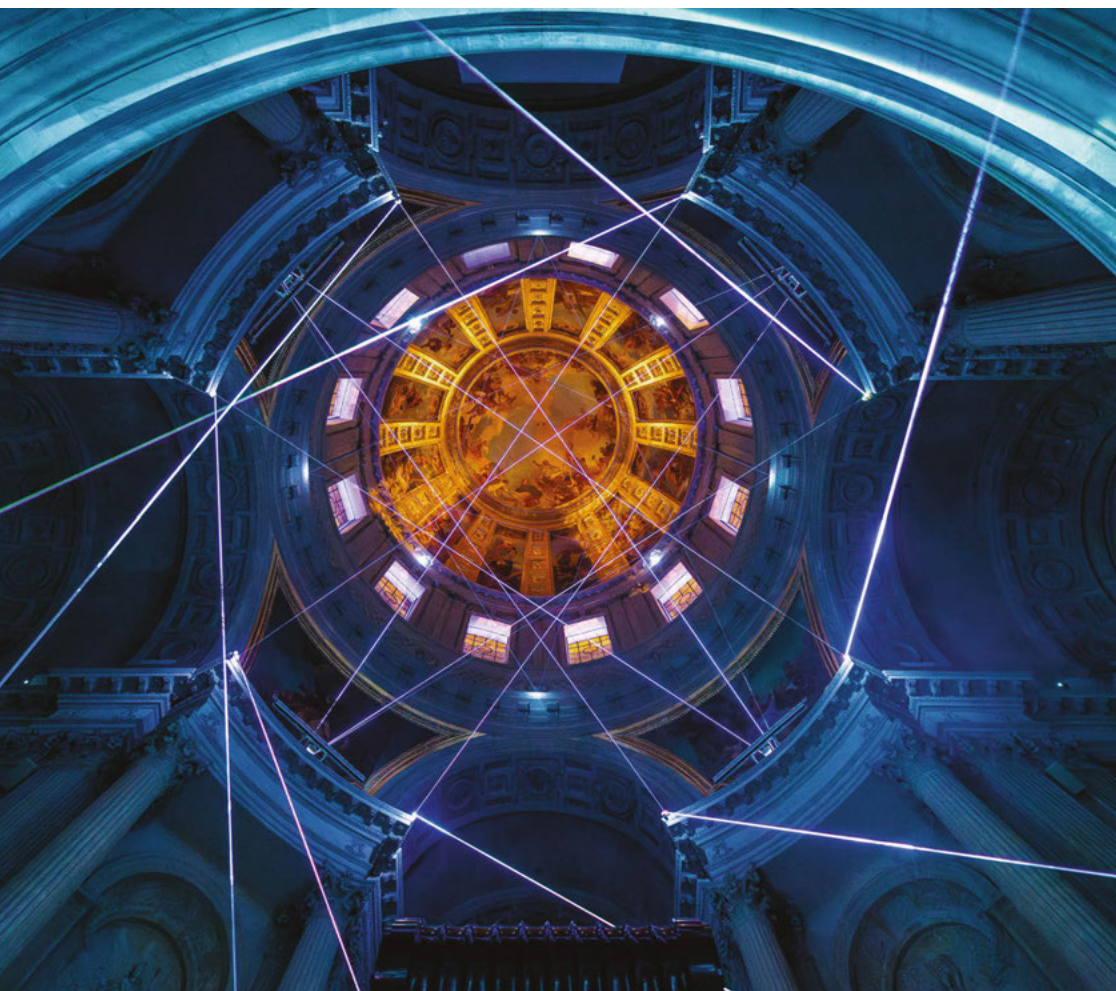
"Novelty took Moment Factory's design and fabricated customised brackets for the equipment, and their ability to find sustainable and respectful solutions for rigging and anchoring in this historic building led to the success of the installation, with Bertrand Sautai, Marc Pioger and Ghislain Leclerc capably leading and managing the detailed design, installation, and integration phases."

In order to achieve a seamless integration, the technical team produced a drone-enabled architectural scan, which it then transcribed into virtual reality, in the form of a 3D model, to produce a technical design that encompassed all of the site's specific features.

Throughout the design phase to implementation, Moment Factory collaborated with Direction Régionale des Affaires Culturelles (DRAC) – whose role it is to protect the building's integrity.

"Line array speakers are discreetly positioned alongside the building's architectural features," said Schmitt. "The higher levels were equipped mostly in lighting equipment, which





was easier to hide from viewing angles. To blend with the surroundings, visible equipment was procured in RAL colours to match the stone and cement, and a textured patina was applied to help."

The scan proved to be useful in numerous ways, as in addition to helping configure the projection and sound set up, a high-definition scan was used for content production purposes.

"The higher resolution version of the same scan captured the minute architectural details which allowed for precise video mapping of the space, and to create the illusions," said Schmitt.

When the team at Moment Factory embarked on the project they were keen to pay tribute to the work of Jules Hardouin-Mansart, and the talented architects, artists, and craftsmen who created Dôme des Invalides, so that today's visitors may discover – or rediscover – the exceptional French heritage site in a whole new way.

"The team's artistic preference was to reveal the spirit of the place, comprising its architectural beauty, the memory with which it resonates, and the symbolism it conveys," said Schmitt. "Accordingly, each scene in the experience is based on existing documents. After extensive historical research, the creative team worked closely with chief curators at Musée de l'Armée to ensure that the design was historically accurate. "AURA Invalides seeks to reveal and share, rather than to tell. While the creative team drew its narrative inspiration from the site's diverse history, it created an immersive world designed to spark visitors' imagination."

In addition to the spectacular visual effects, a lot of focus was on creating an audio soundtrack that enhanced the experience, with an orchestral score composed specifically for that purpose by Montreal studio Troublemakers, in collaboration with Moment Factory's creative teams.

"The sound designer, Jean Michel Caron, handled the entire show's mixing and spatialisation using his own rig directly with the NEXO

system in Dante, and then exported multitrack pre-rendered files for playback in X-Agora," said Schmitt. "The approach involved using each arch in the space as a distinct focal point, avoiding the overlap of coherent sounds from different sources at any time.

"This was necessary due to the significant distances between listeners at various points, preventing them from hearing two sources simultaneously, which could have blurred the music's timing. Implementing dedicated groups of speakers, playing independently, helped minimise timing delays."

Dealing with up to ten seconds of reverberation was primarily addressed in the music composition by Marc Bell and his partners at Troublemakers.

"They recorded the space's impulse response and used it to create a convolution reverb, referencing it in their Montreal studio," continued Schmitt. "As different frequencies excited the space for varying durations, they strategically spaced the timings of the instruments in their music to align with the timing of echoes and reverb."

The result of the spatialisation of the space means that visitors can clearly perceive where the sound emanates from, and the combination of image and sound creates a 360° immersive effect.

"Over the years, through increasingly ambitious projects, Moment Factory have become an international standard-setter in the creation of immersive experiences that enable heritage sites to shine – thereby diversifying that venue's initial attraction and enticing new audiences," said Schmitt. "The monumental experience that is AURA Invalides reflects our aspiration to enable this iconic site of Parisian and French heritage to engage with new audiences and continue to extend its legacy from generation to generation." ■

www.momentfactory.com
www.novelty-group.com