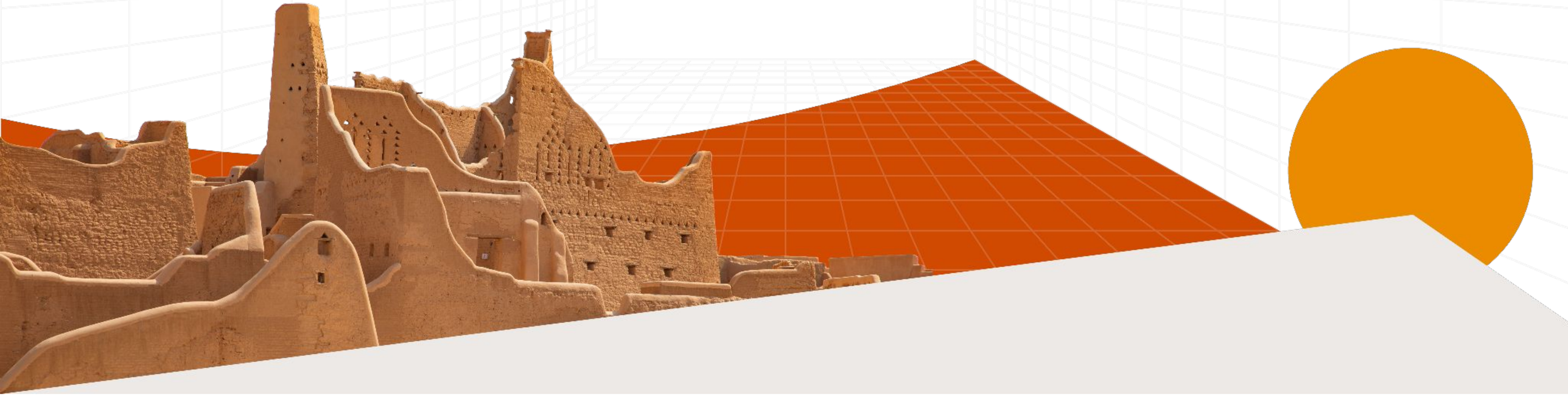
A journey through time and tradition:

Immersive architectural tourism in Saudi Arabia

Immersive technologies, such as the metaverse, are elevating the visitor engagement experience in Saudi Arabia

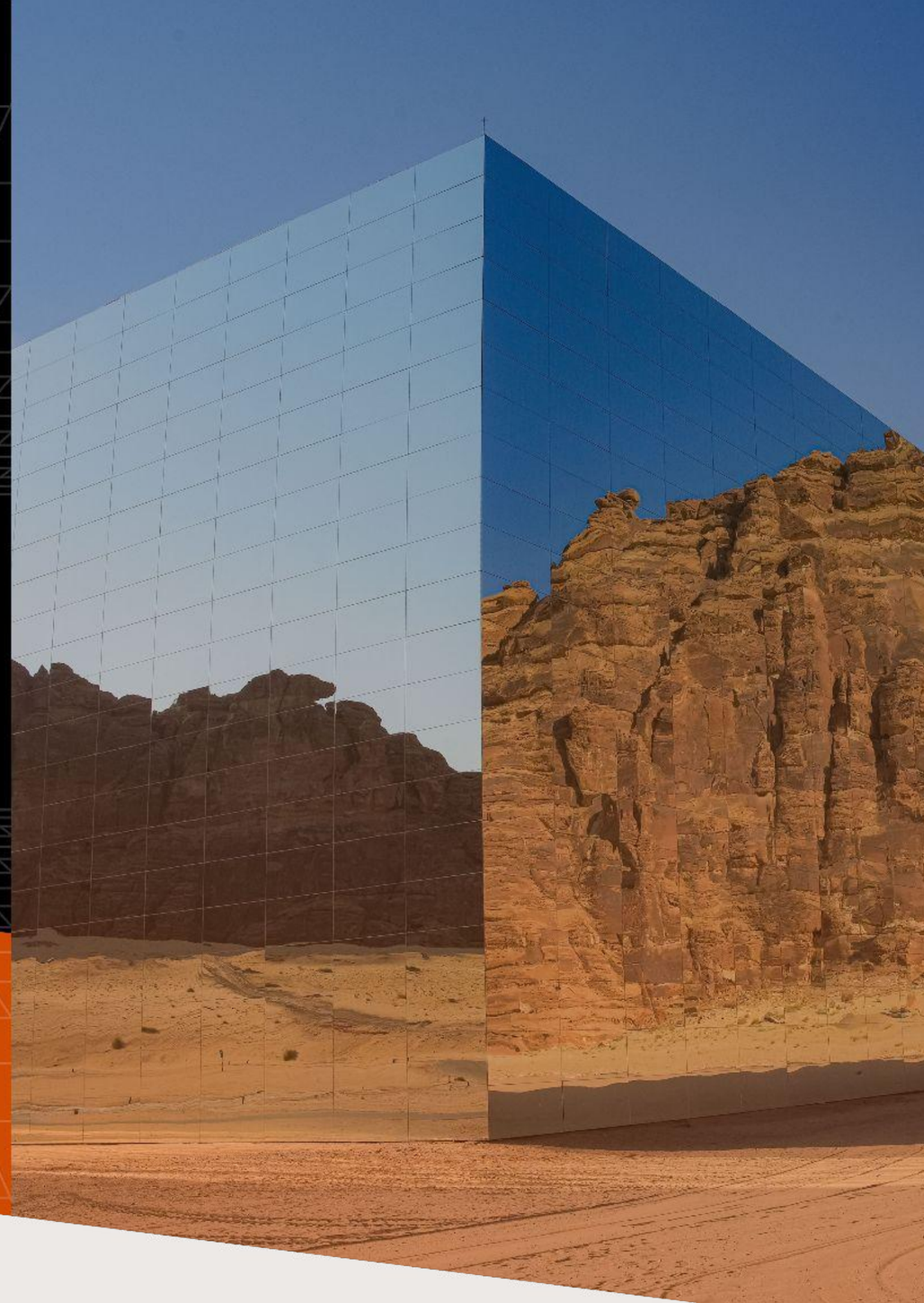
At the heart of Saudi Arabia's ambitious Vision 2030 lies a strategic commitment to showcase its rich cultural heritage and architectural innovations to the world. This ambitious agenda seeks not only to enhance tourism but also to protect the nation's cultural legacy, inviting visitors to explore its unique offerings. Architectural tourism serves as a powerful means for cultural exchange, allowing tourists to engage with architectural narratives that span centuries. From exploring historical sites to modern marvels, visitors gain a multifaceted understanding of Saudi Arabia's architectural evolution. Vision 2030 touches on the integration of immersive technologies, such as the metaverse, Virtual Reality (VR), and Augmented Reality (AR), to elevate the visitor engagement experience within architectural tourism to exceptional levels.

Digital tourism reflects a sophisticated strategy to merge cultural heritage with cutting-edge technology, facilitating virtual access to sacred sites, historical landmarks, and natural wonders. These efforts showcase Saudi Arabia’s commitment to innovation, as well as its dedication to foster a deeper global appreciation of its cultural and architectural treasures.



The metaverse as a gateway to immersive tourism

The metaverse offers an exciting virtual space where users can engage in real-time exploration, creation, and interaction. By transcending physical and geographical barriers, advanced technologies, such as VR and AR, allow global audiences to discover Saudi Arabia’s architectural marvels with unprecedented engagement levels. Drawing inspiration from Orange's successful implementation of an immersive metaverse experience featuring the renowned Notre-Dame cathedral in Paris, which has attracted more than 60,000 visitors since its launch in January 2022, Saudi Arabia can strategically position itself at the forefront of metaverse-enabled tourism. As the metaverse continues to evolve, Saudi Arabia finds itself uniquely positioned to digitally immortalise its architectural heritage, encompassing both ancient marvels such as Thee Ain Ancient Village, and contemporary wonders like Ithraa. This digital integration allows global audiences to delve into Saudi architecture through comprehensive 3D models, structural Insights and immersive sound effects. Curated virtual tours, led by experts, offer the audience invaluable insights and perspectives on architectural techniques, cultural influences, and historical significance. These tours enrich their exploration experience, fostering a deeper appreciation for Saudi Arabia's architectural heritage. Through immersive storytelling and interactive features within the metaverse, these initiatives open new avenues for cultural exchange and education. This seamless blend of technology and tradition positions Saudi Arabia at the forefront of digital cultural preservation, ensuring that its rich architectural heritage is celebrated and understood by generations to come.



Navigating challenges in immersive architectural tourism: Balancing innovation with tradition

The integration of immersive technology into architectural tourism offers exciting opportunities but also introduces significant challenges. Technological hurdles, such as refining involved technologies like VR and AR, establishing shared navigation standards, and ensuring data reliability and accuracy in the metaverse, represent substantial obstacles. Equally important are cultural considerations. Immersive experiences must be designed with respect for and understanding of local cultural sensitivities, religious beliefs, and heritage preservation guidelines. It is crucial to strike a balance to avoid inadvertently offending local communities or diluting the authenticity of cultural sites. This balance is not only about respecting the past but also about integrating these sites into the digital future in a way that adds value and understanding without compromising their integrity.

Accessibility issues highlight another layer of complexity. The digital divide means that certain populations may be unable to access the necessary technologies and infrastructure required to engage with these immersive experiences. This can be due to a range of factors, including disparities in information and communication technologies (ICT) skills, economic barriers, and lack of infrastructure. Overcoming this challenge is vital for ensuring that the benefits of immersive architectural tourism are accessible to all, thereby fostering a more inclusive appreciation of global cultural heritage. To overcome these multifaceted problems, a collaborative approach is essential. This involves partnerships between technology experts, cultural heritage professionals, community stakeholders and policymakers. Together, they can develop solutions that harness technological innovation while remaining sensitive to cultural values.

Moreover, collaboration is essential for the development of shared navigation standards across multiple metaverse platforms. Stakeholders, including platform developers, Saudi standards organisations – Communications, Space & Technology Commission; Architecture and Design Commission; Saudi Tourism Authority; and Digital Government Authority – as well as industry experts can work together to define common protocols, interfaces, and guidelines for navigating virtual environments seamlessly. By aligning on standards, stakeholders can ensure interoperability between different platforms, enhance user experiences, and reduce fragmentation within the metaverse ecosystem. By prioritising innovation, cultural sensitivities, and accessibility, Saudi Arabia can create a more inclusive architectural tourism experience, advancing cultural exchange and global engagement while unlocking new economic opportunities in the tourism sector.

Drawing inspiration from global initiatives

As Saudi Arabia navigates these challenges, it can draw inspiration from successful global initiatives that have effectively integrated immersive technologies into cultural and tourism projects. The Metaverse Seoul initiative by the Seoul Metropolitan Government and The Great Tapestry of Scotland project stand out as exemplary benchmarks.

Metaverse Seoul has embarked on an ambitious journey to replicate the city in a virtual environment, demonstrating the possibilities of virtual tourism. Its focus on creating an inclusive space where users can interact and explore without prejudice offers valuable lessons in building virtual communities and services that are accessible and engaging for a diverse global audience.

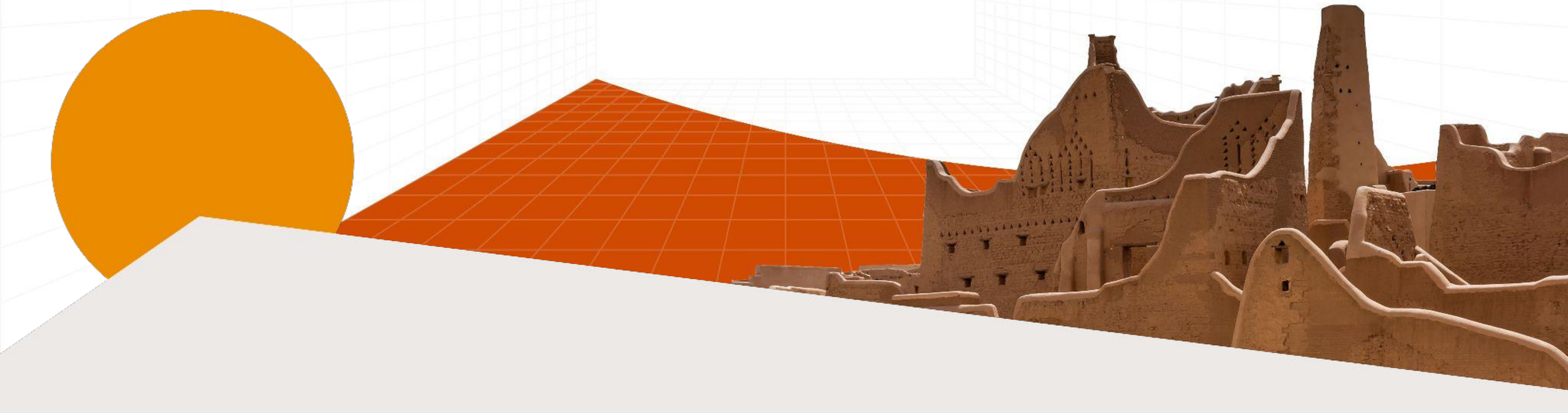
The Great Tapestry of Scotland, through its partnership with New Frontier, illustrates the power of digitising cultural heritage to share stories in a captivating way. The project's innovative use of non-fungible tokens (NFTs) to represent historical events and themes in an interactive format showcases how immersive technologies can be used to engage audiences with cultural narratives.

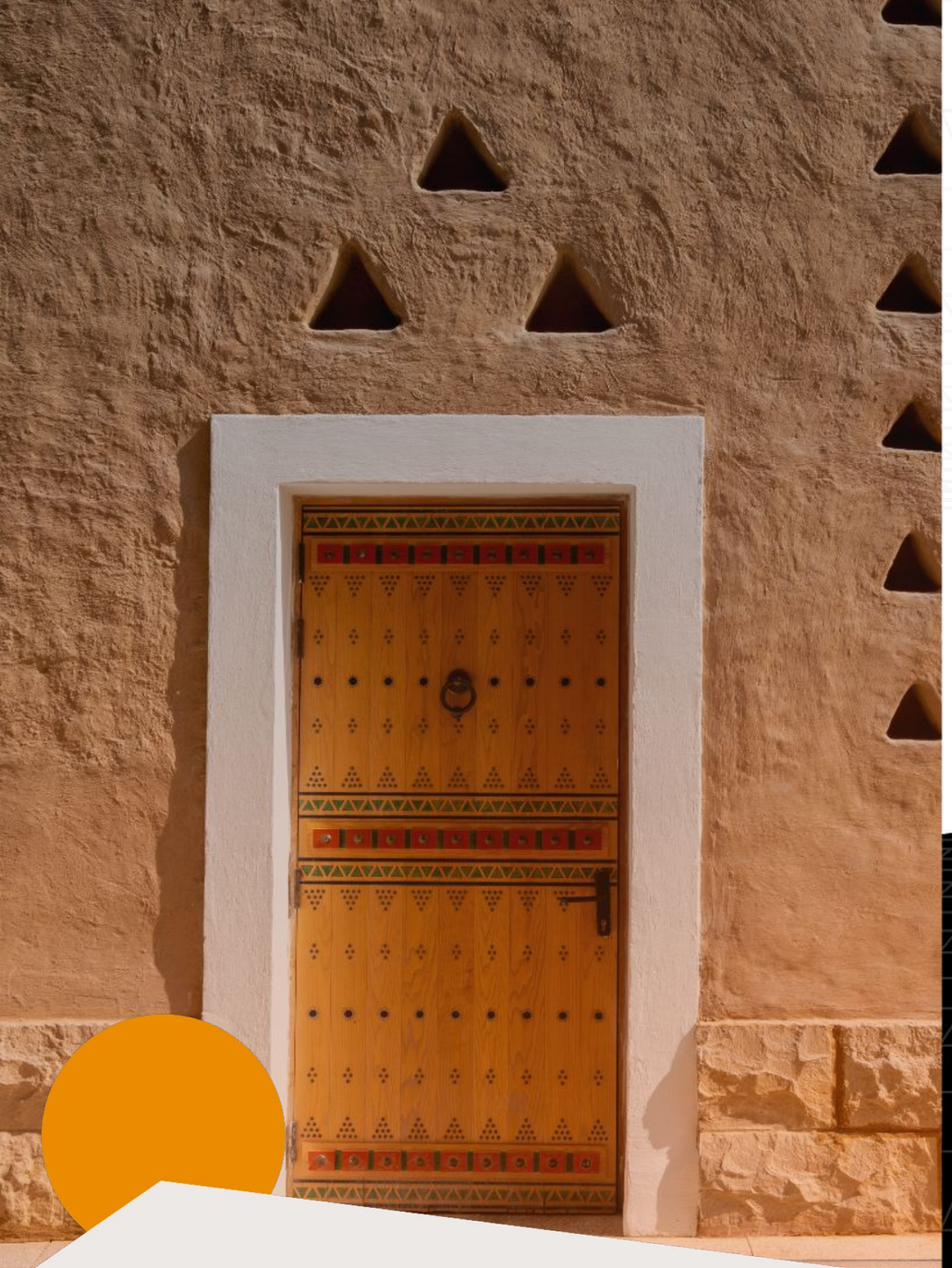
These examples underscore the importance of leveraging immersive technologies to create inclusive and engaging experiences that respect cultural sensitivities while offering educational and exploratory value. They provide a roadmap for Saudi Arabia as it seeks to revolutionise its architectural tourism, highlighting the potential for immersive experiences to enrich the understanding and appreciation of its cultural and architectural heritage.

Embracing the future: Revolutionising Saudi Arabia's architectural tourism with immersive technologies

The blend of immersive technologies within Saudi Arabia's architectural tourism represents a revolutionary leap forward – promising to redefine visitor experiences while simultaneously safeguarding the nation's rich cultural legacy. Through Vision 2030, Saudi Arabia is poised to harness the transformative potential of metaverse, VR, and AR to provide unprecedented levels of interaction and immersion.

To ensure the success and sustainability of these initiatives, adherence to international standards is paramount. There are several ISO standards relevant to the metaverse platforms, especially in the realms of VR, AR, and mixed reality (MR). Notably, the standards for Virtual Reality Modeling Language, Extensible 3D - X3D and Synthetic Environment Data Representation and Interchange Specification, outline the frameworks for creating and simulating complex 3D virtual environments. These standards, along with those for information processing, humanoid animation and knowledge & semantic information processing in 3D virtual worlds, provide a solid foundation for building interoperable, scalable, and user-friendly virtual spaces.





Embracing the future: Revolutionising Saudi Arabia's architectural tourism with immersive technologies

To embark on the journey of creating immersive architectural touristic experiences, the following elements should be considered:

01

Create unique value propositions:

A **Develop a digital platforms** strategy for architectural tourism that engages audiences, showcases landmarks, and enhances tourism experiences through setting goals, understanding the audience, creating content, selecting platforms, implementing marketing tactics, and continuous refinement.

B **Define** a unique **value proposition** that sets the immersive tourism apart from traditional tourism experiences, emphasising accessibility to iconic landmarks, immersive educational content, and interactive exploration.

C **Determine** the **revenue streams** and **monetisation strategies** for the immersive tourism, such as subscription-based access, ticket sales for premium experiences, sponsored content partnerships, and virtual merchandise sales.

D **Forge** strategic **partnerships** with **government entities**, **architectural firms**, **tourism boards**, **cultural institutions**, and **technology companies** for content, expertise, and resources, ensuring respectful representation and engagement with cultural heritage sites.

Embracing the future: Revolutionising Saudi Arabia's architectural tourism with immersive technologies

02

Craft immersive user experience design:

A

Design an intuitive and immersive **user interface** that facilitates easy navigation, exploration, and interaction within the virtual environment. Prioritise accessibility and inclusivity by implementing features, such as screen reader support, alternative navigation options, and adjustable settings.

B

Tailor the **user experience** to individual preferences and interests with personalised recommendations, allowing users to customise their experience by selecting specific architectural styles, periods, or themes.

C

Develop material that provides **historical context**, **architectural insights**, and **cultural significance** for each landmark, incorporating multimedia elements, such as videos, infographics, and quizzes to engage and inform.

Embracing the future: Revolutionising Saudi Arabia's architectural tourism with immersive technologies

03

Build immersive technology and infrastructure:

A **Identify, select,** and **implement** the optimal **platform** or **engine** tailored to **immersive** tourism, aligning with business prerequisites, financial constraints, technical proficiencies, and the target audience's characteristics.

B **Build** a robust and scalable **technological infrastructure** capable of rendering high-fidelity 3D environments in real-time, ensuring cross-platform compatibility and implementing security protocols for a safe online environment.

C **Collaborate** with **architectural experts**, **historians**, and **digital artists** to **create** and **optimise digital assets** representing architectural landmarks, employing techniques, such as photogrammetry, 3D scanning, and manual modelling for utmost accuracy and authenticity. Simultaneously, **craft visually** captivating **3D environments** imbued with realistic textures, lighting, and environmental effects, designed to evoke the ambiance and atmosphere of each architectural landmark. Maintaining consistency in design aesthetics and branding across the platform to deliver immersive experiences that resonate with audiences while upholding the integrity of the historical and cultural significance of the landmarks.

D **Incorporate interactive elements** such as guided tours, audio commentary, historical anecdotes, and virtual exhibits to enrich the visitor experience. Enable users to customise their exploration journey and engage with content at their own pace, making the exploration of architectural marvels both educational and engaging.

Embracing the future: Revolutionising Saudi Arabia's architectural tourism with immersive technologies

04

Engage the community and embark on marketing:

A

Launch targeted **digital marketing campaigns** across various channels to raise awareness and drive user acquisition, leveraging influencers, content partnerships, and paid advertising.

B

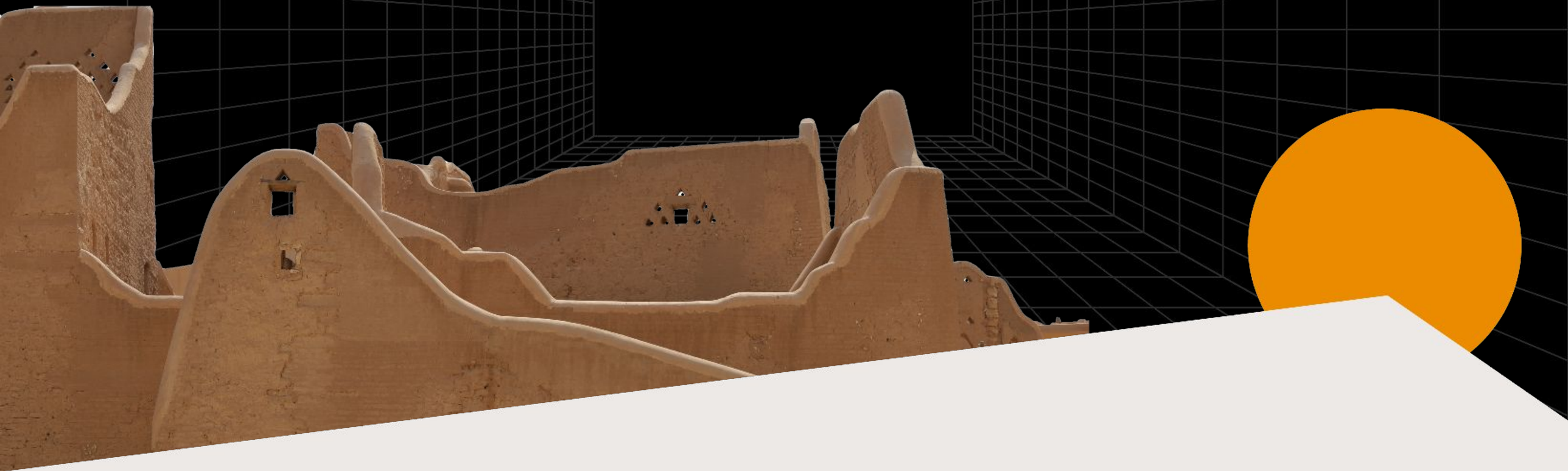
Generate buzz and **excitement** around the **immersive tourism platform** through press releases, media interviews, and editorial features, positioning your platform as a thought leader in architectural tourism.

C

Foster a strong **online community** of brand advocates, ambassadors, and loyal users through engaging content and interactive experiences, encouraging user reviews, testimonials, and referrals to build credibility and trust.

What’s next?

By transcending physical barriers and geographical constraints, these technologies offer visitors an unprecedented opportunity to explore ancient sites like Hegra and modern marvels like Ithra in ways previously unimaginable. This journey promises to unlock new dimensions of cultural exploration, seamlessly connecting the world to Saudi Arabia’s rich heritage and architectural feats. It not only paves new paths for cultural exchange and education but marks the beginning of an exciting chapter in cultural tourism that exemplifies Saudi Arabia's leadership in adapting to the digital age for global engagement.



Resources

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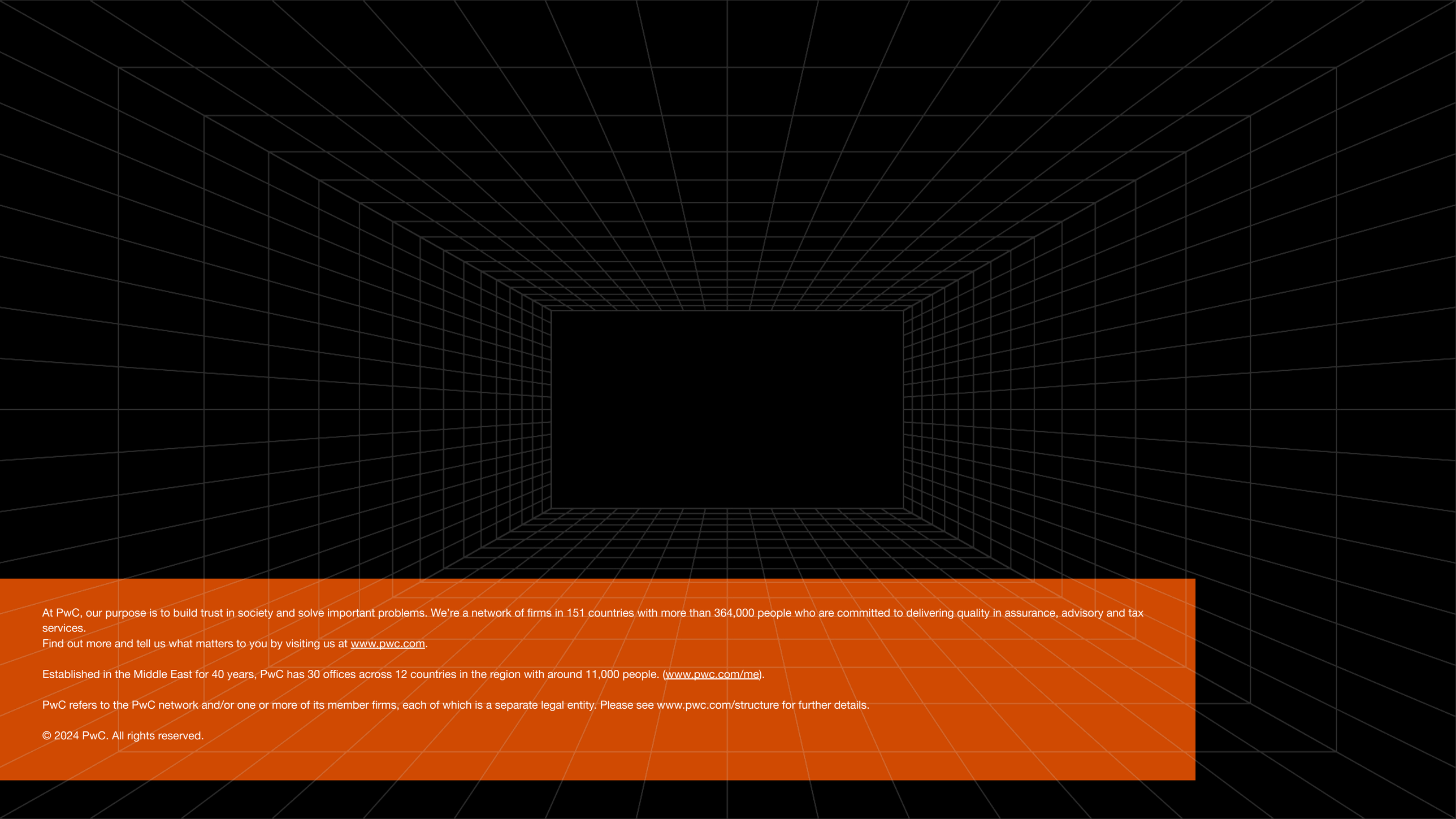

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