DIRECTOR'S BRIEF

USE CASE STUDY FOR AUGMENTED REALITY APPLICATIONS IN THE MUSICAL INSTRUMENT MUSEUM

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INFO287: The Hyperlinked Library
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OBJECTIVE

To introduce new interactive exhibit enhancements at the Musical Instrument Museum (MIM) in Phoenix, Arizona. This report provides MIM leadership with an overview of how Augmented Reality (AR) can enhance museum exhibits and visitor experiences. Augmented Reality is an emerging technology used in museums worldwide. The technology provides a unique opportunity to create enhanced visitor experiences allowing museum guests to connect and participate with objects on display.

EXECUTIVE SUMMARY

The use of Augmented Reality as a participatory service is growing in popularity. The MIM is still using the same acoustic technology they broke ground in 2010. By adding Augmented Reality to new and existing exhibits, the museum can attract returning and new visitors alike.

MIM should include it as part of its enhanced multimedia visitor experiences. It provides museum guests with the opportunity to participate in new technologies, learn more details about musical instruments, virtually interact with objects without disturbing them, and explore the global communities from where the instruments originate.

This document aims to inform the museum director of the current and future applications for Augmented Reality in the MIM.

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INTRODUCTION

Since its founding, the MIM has relied on 1,800 Sehhheiser guidePORT™ headsets to amplify guest experiences (FAQs, n.d.). When wearing these headsets, museum guests create a personalized tour through the museum. The headsets activate video soundtracks when guests walk nearby the video displays. These soundtracks enhance visitors' understanding of the museum objects by hearing what the instrument sounds like when it is played. Sometimes, the audio component includes more information about the instrument's history, origin, or cultural significance.

This experience can be enhanced, updated, or supplemented with the addition of Augmented Reality technology. Museum guests can use their own mobile devices or ones provided by the museum. They can connect via an AR app developed specifically for the MIM or utilize one already available via a third-party vendor.

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SCOPE

What is Augmented Reality?

VR

VIRTUAL REALITY

total immersion in an alternate reality that
only exists inside the device

AR

AUGMENTED REALITY

real-world + altered world view in tandem,
side by side

Augmented Reality blends the real and virtual worlds. It brings "interactive video, social networking, education, training, and gaming into the real world in ways that were purely the realm of science fiction in decades past" (Martindale, 2019). Superimposing "images, text, or sounds onto what a person can already see" (Coates, 2021). AR uses applications on mobile devices to display computer-generated media.

This technology augments reality by adding visual or auditory enhancements that can only be experienced through a handheld or wearable device. This differs from Virtual Reality, an entirely immersive experience, placing the viewer at the center of a reality that only exists within wearable technology. AR keeps the user in the real world but expands their access to information or visual enhancements.

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KEY OBSERVATIONS

BACKGROUND

First developed for military use in the early 1990s, AR grew in popularity in 2016 with the video game Pokémon Go (Martindale, 2019). It is now used widely in museums across the globe. Augmented Reality creates the opportunity for previously passive objects to become interactive. It is becoming somewhat of a personal assistant allowing users to customize their world (Lowry, 2015).

AUGMENTED REALITY IN MUSEUMS

- Museums use AR to add more information about objects on display.
- Display digital versions of artists alongside their works.
- Add a third dimension to displays by animating them or allowing visitors to touch the object virtually.
- Objects in storage, on loan to another institution, or otherwise unavailable can be displayed within a collection.

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RECOMMENDATIONS

SUGGESTED APPLICATIONS OF AUGMENTED REALITY AT THE MIM

VISIT

- Museum guides give visitors the sense they are navigating the globe while walking through the museum
- Draw in visitors with AR easter eggs at the airport, resorts, and restaurants in the local area

GALLERIES

- **Special Exhibits:** details about rare instruments on display
- **Geographic Galleries:** visit musicians around the world
- **Artist Gallery:** take a selfie with celebrity artists
- **Experience Gallery:** interact with a musical wall
- **Mechanical Music Gallery:** animations bring the mechanical instruments to life
- **Collier STEM Gallery:** deconstruct a Stratocaster
- **Conservation Lab:** guests can get a closer look inside the lab

EVENTS

- Participate in cultural events with interactive AR features

CONCERTS

- Promote concerts at area restaurants and resorts with AR-enhanced posters.
- Video clips of artists can play when a person scans a QR code

EDUCATION

- MIM's virtual education programs and field trips can allow students to interact with exhibits, instruments, or go globetrotting with a curator right from their classroom or home

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EXAMPLES

USE OF AR IN MUSEUMS THAT COMPLEMENT THE MIM'S VISITOR EXPERIENCES

FRANCE

- <u>Muséum national d'Histoire naturelle</u> in Paris uses AR with <u>Microsoft's Hololens</u> to let visitors come face to face with digital versions of now-extinct animals.


UNITED KINGDOM

- The <u>National Gallery in London</u> invited visitors to their gallery by placing portraits from their institution on display along the streets of London, accessed via a QR code.

LOS ANGELES

- *BAKERU: Transforming Spirits* "a participatory exhibition inviting visitors to step into the supernatural world of Japanese folk traditions through a process of transformation" (Japan House, 2019). Interactive technology was used to make participants feel like they had been transformed into supernatural or spiritual beings.
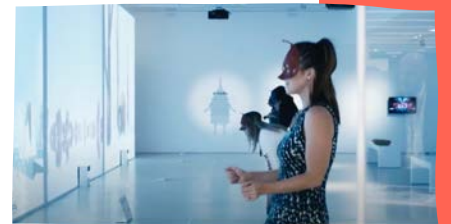
MAINE

- In an exhibit at <u>Bowdoin College Museum of Art</u>, an artist, musician, experience designer, and app developer created a musical room. Drawing lines move in response to the architecture of the room. The lines can be played like an instrument using an Augmented Reality app (Mansky, 2018).

TOKYO

- <u>Sunshine Aquarium</u> developed a GPS-based AR app to help tourists find their institution by virtually following an animated penguin to the aquarium (Klavins, 2020).

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IMPLEMENTATION

MIM WILL NEED TO START WITH CLEAR GOALS.

The museum's primary function is to tell stories. Just as the audio headsets currently in use create a unique nonlinear museum experience for each visitor, AR applications must be adaptable for guests. It can be challenging to develop quantifiable yet engaging experiences (Pedersen et al., 2017). Yet, AR can provide a more inclusive experience as it offers new opportunities to engage with visitors with "sensory impairments and learning disabilities" (Sheehy et al., 2019).

To implement a new AR project, MIM will need to start with clear goals. A good participatory service will identify and answer (Simon, n.d.):

- Motivation: What motivates participation? What information, visuals, or audio elements will encourage its use?
- Availability: Are participants available? Where will they come from?
- Ability: Are participants able to use the technology? Does the museum need to provide anything?
- Relevance: Is the service relevant to the user? How does it enhance their experience? Is it relevant to the exhibit?
- Transparency: Why does the MIM offer this service? Whom does it benefit?

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CONCLUSION

"Music is the language of the soul".

MIM MOTTO

The founding vision of the Musical Instrument Museum is to create a "truly global" museum focused on the type of instruments people play every day. From day one, the "goal has been to deliver a musical experience that is enriching, inspiring, interesting, and fun" (Our Story, n.d.).

The most fundamental reason to introduce AR technologies at the MIM is to adopt diverse participatory experiences for its visitors continually. Its immersive exhibits nurture an understanding of diverse cultures by educating its guests about the craftsmanship and tradition of musical instruments from around the world. AR will provide an enhanced opportunity for returning and new visitors to learn about how music connects us to our global community.

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Images retrieved from the Musical Instrument Museum, Canva, YouTube